

Capital Metro Agency

Capital Metro Project

Temporary Car Parks Works
Approval Submission

CLR-GLWP-RPT-0010

Rev A | 19 January 2016

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 235067-00

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ARUP
HASSELL

Capital**Metro**
ACT Government

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1 Project Overview and Background

1.1 The Project

The Capital Metro Project comprises a 12 kilometre light rail service linking the newly developed area of Gungahlin with the Civic area in Canberra. A 3 kilometre extension of the Stage 1 project from Civic to Russell is also being considered. The project is currently at tender.

As part of the Capital Metro Project, approximately half of the existing Magistrates Court Car Park (west of Northbourne Avenue) is proposed for a temporary construction compound providing offices and site facilities for the successful PPP Proponent. The current Magistrates Court Car Park contains 271 car spaces. It is anticipated that 112 car spaces will be removed to accommodate the construction compound. The Theatre Car Park (east of Northbourne Avenue) currently contains 205 spaces. Thus the total number of existing spaces between the two car parks is 476. CMA has engaged Arup and HASSELL to develop a concept level design of an arrangement that results in a minimum of 500 parking spaces in the area after excluding the construction compound area.

The proposed parking arrangement would involve reconfiguration of the Magistrates Court Car Park and Theatre Car Park to allow for more efficient designs and safer vehicle circulation. At the Magistrates Court Car Park, the general runs of parking modules would remain consistent with the London Circuit boundary. Perimeter parking bays would be introduced on the east and west boundaries of the site and additional 90 degree parking bays would be provided on the northern side of the Knowles Place cul-de-sac. The Theatre Car Park would be reconfigured to remove 45 degree angled parking bays and provide perimeter parking along the western boundary. An extension to the Theatre Car Park would also be provided to the south of the existing site. Two access ramps would be provided from the existing car park, and the extension site would require earth works / levelling and new pavement. Both sites would require re-paving, line marking and minor kerb adjustments to allow for the reconfiguration.

The works would be constructed in connection with the Capital Metro Project. The proposed arrangement would be temporary and would require the removal of some trees at the Magistrates Court and Theatre car park sites to allow for the most efficient configuration.

It is anticipated that the Contractor for the temporary car parks would be a member of the consortium announced as preferred bidder for the Capital Metro Project.

1.2 Works Approval Checklist

Arup has prepared the following Works Approval submission documents in accordance with the National Capital Authority's Development Application Checklist. The location of each document is noted in Table 1.

Table 1 – Works Approval Checklist

Document / Drawing(s)	Location
Locality Plan	Appendix F – Works Approval Drawings
Site Analysis Plan	Section 2 of this report
Design Concept Drawings / Statement	Section 3 of this report and Appendix E – Works Approval Drawings
Detailed Site Plan	Appendix F – Works Approval Drawings
Schedule of Proposed Works	Section 4 of this report
Architectural Drawings	Not applicable to this submission. Relevant requirements have been incorporated within the Landscape Plans. Details on the proposed light fitting is included as Appendix E – Excerpt from Kim Lighting Specification.
Landscape Plans	Appendix F – Works Approval Drawings
Arborist Report	Appendix A – Tree Assessment Report
Civil and Excavation Plans	Appendix F – Works Approval Drawings
Planning Report	Appendix B – Planning Report
Design Model	Agreed not required
Public Consultation Report	This document will be separately prepared and submitted by CMA
Traffic Assessment Report	Appendix C – Traffic Assessment Report
Site Establishment and Construction Management Plan	Appendix D – Site Establishment and Construction Management Plan
External Agency Clearances	This document will be separately prepared and submitted by CMA

1.3 Summary of Parking Spaces

The total number of existing and proposed spaces for each of the car parks is detailed in Tables 2 and 3.

Table 2 – Parking Spaces Summary for Magistrates Court Car Park

Description	Existing	Proposed
Typical Car Spaces	256	188
Accessible Car Spaces	6	6
Medical Practitioner Car Spaces	9	9
Subtotal Car Spaces	271	203
Motorcycle Spaces	10	10
Total Parking Spaces	281	213

Table 3 – Parking Spaces Summary for Theatre Car Park

Description	Existing	Proposed
Typical Car Spaces	196	289
Accessible Car Spaces	9	9
Subtotal Car Spaces	205	298
Motorcycle Spaces	25	25
Total Parking Spaces	230	323

2 Site Analysis

2.1 Location

The location of the Magistrates Court and Theatre car parks is shown in Figure 1.

The Magistrates Court Car Park is located on City Block 13, Section 63. The Theatre Car Park is located within City Block 23, Section 19.

The car park sites are located within the Civic precinct of Canberra, immediately South of the historically significant Sydney and Melbourne buildings, and to the North of City Hill.

The car parks lie South of London Circuit, and to the East and West of Northbourne Avenue.



Figure 1 – Proposed amendments to the Magistrates Court and Theatre car parks

2.2 Environmental Conditions

2.2.1 Views / Vistas

Both car parks have views to the North of the Melbourne and Sydney Buildings, the first major buildings planned for the Civic commercial centre. The views to these historically and architecturally significant buildings will not be affected by the proposed works.

The proposed new upper tier of the Theatre Car Park will maintain the existing views to City Hill.

2.2.2 Prevailing Winds

The prevailing winds across the sites is from the North West.

2.2.3 Noise Impact

Northbourne Avenue will be the primary source of traffic noise for each site with London Circuit being a secondary source of traffic noise. Considering the proposed use of the sites as car parks, the existing traffic noise should not be a cause for concern.

2.2.4 Sunrise / Sunset

Table 4 describes the sun position relative to the sites at the Summer and Winter solstice.

Table 4 – Sun position relative to the sites

	Summer (December 21)	Winter (June 21)
Sunrise	South-East	North-East
Sunset	South-West	North-West

2.2.5 Access and Traffic

Please refer to Appendix C for details.

2.3 Site Photographs

2.3.1 Magistrates Court Car Park



Figure 2 – Knowles Place East from London Circuit



Figure 3 – Magistrates Court Car Park Entry / Exit on Knowles Place



Figure 4 – View of Magistrates Court Car Park from North Eastern corner



Figure 5 – Example of pavement damage in the Magistrates Court Car Park



Figure 6 – Cisco Wi-Fi unit attached to existing lighting pole in the Magistrates Court Car Park

2.3.2 Theatre Car Park



Figure 6 – Entry / exit to the Theatre Car Park from Theatre Lane



Figure 7 – Retaining wall at proposed location of up ramp to the proposed upper tier of the Theatre Car Park



Figure 8 – Location of the proposed upper tier of the Theatre Car Park

3 Landscape Design Statement

3.1 Landscape and urban design appreciation

The sites are situated on the North Eastern axis of the Parliamentary Triangle at the terminus of Constitution and Commonwealth Avenues. The sites have a balance of urban and landscape character and are at the city terminus of Northbourne Avenue, the wide green corridor that is the northern approach into the city from Sydney and Melbourne. The Northbourne Avenue corridor is planned for rejuvenation through the Capital Metro and City and Northbourne Urban Design Framework projects.

3.2 Existing landscape condition

The car parks are largely located within the envelope of the existing Theatre and Magistrates Court car parks, as well as extending into a slightly elevated grassed area to the south of the Theatre Car Park. The existing car parks are made up of bitumen surface and concrete kerbs, and include mature trees. Pedestrian pathways extend around the boundary of the sites and consist of in-situ concrete material. Decomposed granite is the primary ground surface material located around the trees and soft landscaping areas.

Landscape elements within the sites are limited to a stone clad wall to the southern boundary of the Theatre Car Park, along which there is a mature hedge, and two large planting beds along the western boundary of the Theatre Car Park and the eastern boundary of the Magistrates Court Car Park.

The existing trees within the car park sites are primarily English Elms, with the majority of trees being in poor condition with a short safe useful life expectancy (SULE), as indicated in the arborist survey undertaken by Norcue P/L in December 2015 (refer Appendix A to this report). The trees are generally at 10m spacing but are inconsistent across the car parks due to several having been removed over time. The existing trees along the London Circuit boundary are primarily London Plane trees, which have been found to be in better condition than the English Elm trees, and generally have a medium SULE value. The Plane Trees add to the landscape character of the area and provide some visual screening of the car parks from London Circuit.

3.3 Landscape Strategy

The landscape strategy for the temporary car parks is to retain as much of the existing landscape character and elements as possible and to match in with existing materials, while minimising land impacts and achieving Minister Corbell's commitment regarding the number of car parking spaces to be provided. This includes ensuring that the trees along the London Circuit and Northbourne Avenue boundaries are retained and not impacted upon, and the existing trees within the car park are retained where practical.

The existing stone clad wall along the southern boundary of the Theatre Car Park will be impacted in two locations to provide two vehicle ramps accessing the new upper on-grade car park area. The hedge to the south of the wall is retained where outside of the new vehicular ramps.

3.4 Landscape Elements and Materials

The proposed landscape elements and materials are intended to match in with existing elements and materials within the car park and surrounding urban context, as well as remaining consistent with the Canberra Central Design Manual. These include:

- Reinstatement of the stone clad wall in the Theatre Car Park (materials and finish to match existing);
- Installation of new retaining wall alongside new vehicular ramps in Theatre Car Park (material: In-situ concrete, finish: class 2, colour: natural colour with anti-graffiti coating) with new balustrades to top of wall adjacent to the ramps (type: webforge, material: galvanised steel, finish: natural finish);
- Installation of new decomposed granite material to match in with existing permeable surfaces around trees (materials and finish to match existing);
- Installation of new concrete kerbs to match in with existing kerbs (materials and finish to match existing);
- Installation of new concrete footpaths to match in with existing footpaths (materials and finish to match existing); and
- Installation of new car park lighting (type: Kim Lighting "The Archetype", material: aluminium, finish: natural satin anodized) atop powder coated finish, charcoal colour poles (final colour specification to be confirmed by TAMS and NCA).

Further details on the proposed light fitting are included as Appendix E of this report.

3.5 Existing Tree Impacts

There are a total of 23 trees within the Magistrates Court Car Park and 10 trees within the Theatre Car Park that are likely to be impacted by the works associated with the construction of the Temporary Car Park. A number of these trees are required to be removed due to direct conflict with the revised car park layout, these trees will require removal to ensure the functionality of the car park is achieved.

There are also a number of trees that will be adversely impacted due to required changes to the ground conditions around the trees. This includes the required removal of circular kerbs / raised planters in which a number of trees are located within. The impacts to these trees caused by the removal of the kerbs will be significant and will result in the exposure of tree roots and root damage caused by the removal of the concrete kerbs. The extent of these physical impacts will most likely require the removal of the effected tree, however it is a requirement that an arborist be engaged to be on site at the time of deconstruction to assess tree damage and if needed to direct works associated with the protection of the tree. The protection measures for this work is documented in the Tree Assessment report prepared by Norcue P/L (December 2015) included as Appendix A to this report.

The tree impacts are summarised in Tables 5 and 6.

Table 5 – Summary of tree impacts in the Magistrates Court Car Park (refer drawing CLR-LLU-DRG-4050)

Description	Number of Trees
Trees to be retained	29
Trees to be removed	23

Table 6 – Summary of tree impacts in the Theatre Car Park (refer drawing CLR-LLU-DRG-4051)

Description	Number of Trees
Trees to be retained	45
Trees to be removed	10

4 Schedule of Proposed Works

The scope of the proposed works includes:

- 203 car parking spaces to be provided in the Magistrates Court Car Park (271 existing spaces) and 298 car parking spaces to be provided in the Theatre Car Park (205 existing spaces). Thus the total number of proposed car parking spaces is 501, replacing the existing 476 spaces.
- 10 motorcycle bays will be provided in the Magistrates Court Car Park and 25 motorcycle bays will be provided in the Theatre Car Park. This matches the existing motorcycle bay provisions in each car park.
- A temporary driveway access into the proposed construction compound site will be required to maintain access to those car park spaces during the construction on the remainder of the site.
- A 10 year design life has been assumed for each car park, with future development proposed for each site.
- Resurfacing and new pavement works as detailed in Appendix F.
- Existing trees and kerbs are to be maintained where possible.
- Existing drainage is to be maintained where possible, however pipes to be cleared and CCTV inspection will be required to confirm no blockages.
- Drainage on the eastern end of the reduced Magistrates Court Car Park site must be modified to avoid overland flows through the construction compound.
- Lighting to be installed at the locations nominated on the Landscaping plans in Appendix F.
- Parking ticket vending machines are to be supplied and installed by the Territory (requirements to be confirmed during detailed design).
- A Cisco Wi-Fi unit is currently installed on one light pole within the Magistrates Court Car Park for the ACT Government Wi-Fi system. The Wi-Fi unit is to be reinstated in a location to be advised by the Territory.
- CCTV and boom gates are not proposed.
- Materials are as described in Section 3.4 and in Appendix E and F of this report.

Appendix A

Tree Assessment Report

**Tree Assessment
Capital Metro**

**Magistrates Court Car Park &
Theatre Car Park
Canberra ACT.**

**Prepared by:
Norcue P/L
December 2015**

Introduction

This Tree Assessment was prepared at the request of Hassell - Landscape Architecture and Urban Design

The report is prepared to assist in the design and redevelopment of car parking areas adjacent to the Magistrates Court and Theatre (Lower) Car Parks located on London Circuit, Canberra ACT.

The report addresses existing trees growing throughout sections of the car parks as identified on the documentation provided

The following plans were provided to assist in the location and appraisal of all trees assessed.

- Option 1 At Grade Car Park- Magistrates Court Car Park Site Plan Sheet 1 of 3 **Drawing No. CLR-CSP-SKT-0001.**
- Option 1 At Grade Car Park – Theatre Car Park (Lower) Site Plan Sheet 2 of 3 **Drawing No. CLR-CSP-SKT-0002.**
- Overview aerial image of both Car Parks – untitled photograph.

Information contained in this tree report covers only those trees that were examined and reflects the condition of the trees at the time of inspection.

The report is prepared in accordance with **Section 2 Planning and the Tree Management Process Cl. 2.3.2 Preliminary Tree Assessment of AS 4970-2009 Protection of tree on development sites.**

Stuart Pittendrigh and a field assistant conducted the assessment of the trees and collection of site data on Tuesday 1 December 2015 and Wednesday 2 December 2015.

Aims

The aims of this report are to:

- Identify the subject trees.
- Appraise and assess the trees' condition, health & structure at the time of inspection
- Determine the Safe Useful Life Expectancy (SULE) of the tree (s)
- Assess landscape amenity / significance of individual trees

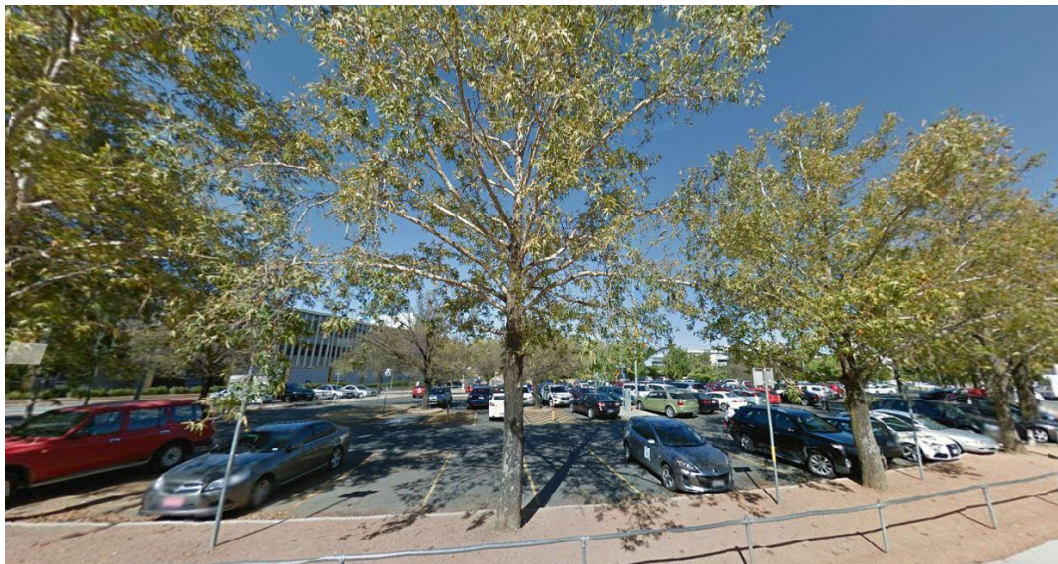
The Site Vegetation

The dominant introduced species of vegetation throughout the study area comprises *Platanus acerifolia* - *London plane*, *Ulmus procera* - *English Elm*, *Zelcova serrata* - *Zelcova* and *Cupressus Sempervirens* 'Stricta' - *Narrow Italian Cypress*.

A total of 112 trees were assessed. Each tree assessed was allocated an identification number which is recorded on the plans provided and photographed.



The site: Magistrates and Theatre Car Parks Canberra ACT



Theatre Car Parks



Magistrates Car Park

Methodology

The comments and recommendations in this report are based on observations and findings from the site inspection.

The trees were assessed from ground observation using standard methods of visual assessment criteria. No probing or coring, testing of woody tissue. No non invasive root investigations were carried out

Tree health was determined by:

- Canopy density, extension growth, foliage size applicable to the species, and colour.
- Presence of pest and disease
- Termite activity
- The amount of deadwood and dieback throughout the crown
- Small branch and twig dieback and
- Presence of epicormics

Tree structure was assessed by:

- Visual evidence of structural faults and potential points of failure
- Evidence of past poor pruning practices
- Physical and or storm damage

The heights of the trees were measured using a digital hypsometer. Crown spread and trunk diameters were measured at breast height (DBH). The stem diameters above the root buttress (DRB) were determined using a measuring tape in accordance with **AS 4970 –2009**

Protection of trees on development sites.

The nominated Tree Protection Zones and Structural Root Zones were determined by applying the methodology detailed in **Section 3 of AS 4070-2009 Protection of trees on development sites**. Refer to **Appendix A - Terms used in tree report**.

Individual Tree Assessment.

Refer to **Appendix B - Tree Survey Assessment Sheets**

Summary and Conclusions.

- No individual tree species on the site is considered rare or endangered.
- The majority of car park trees assessed were found to be growing under adverse conditions within narrow linear raised planters or isolated raised circular planters.
- The *Ulmus* species (*English elm*) in particular have been heavily pruned to control their wayward growth and ‘Summer branch drop’ that can be a problem as the trees mature. Many of the elm trees are approaching over-maturity as evidenced by the extent of epicormic growth, dead wood and small branch and twig die back.
- Suitable replacement species may include *Pyrus calleryana* ‘Chanticleer’ or *Pyrus calleryana* ‘Capital’.

Kerb - replacement or removal.

In locations throughout the car parking areas where kerb removal or replacement may be necessary an arborist shall be engaged to direct works associated with crown and trunk protection, root removal, root pruning and any exposure or disturbance of tree roots.

Tree protection measures shall include the following:

- Crown protection may include pruning, tying-back of branches or other measures.
- Avoid the use of fuel and chemicals, including preparation of cement products within the root zone.
- Install protection to the trunk and branches of trees where necessary as instructed by the arborist. The materials and positioning of protection are to be specified by the project arborist. A minimum height of 2 m is recommended.
- Ground protection. The purpose of ground protection is to prevent root damage and soil compaction within the SRZ. Measures may include a permeable membrane such as geo-textile fabric beneath a layer of 75 mm of mulch.
- Avoid the use of machinery for excavation. Manual excavation should be carried out under the supervision of the project arborist to identify roots critical to tree stability.
- Where the project arborist identifies roots to be pruned within or at the outer edge of the SRZ the roots shall be pruned with a final cut to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. Pruning wounds should not be treated with dressings or paints.
- Where roots within the TPZ are exposed by excavation, temporary root protection should be installed to prevent them drying out. This may include jute mesh or hessian sheeting as multiple layers over exposed roots and excavated soil profile, extending to the full width of the root zone. Root protection sheeting should be pegged in place and kept moist during the period that the root zone is exposed.
- On completion of the kerb replacement or repair remove all protective items.

References

Fakes, J. (2004)

Introduction to Arboriculture RYDE TAFE

Hewett, P. in National Arborists Association of Australia (1997)

***Assessing Hazardous Trees and their Safe Useful Life Expectancy*, NAAA Workshop, June 1997**

Jeremy Barrel SULE- Data collection & SULE 11 Presentation of Data in association with the National Arborists Association of Australia (2001)

Management of Mature Trees Seminar & Workshops 2001

Richard W. Harris

Arboriculture – Integrated Management of Landscape Trees

Standards Australia **AS 4970 Protection of trees on development sites.**

Appendix A

Terms used in Tree Report

Age Class

(Y)-Young refers to a well established but juvenile tree.

(SM)-Semi-mature refers to a tree at growth stages between immaturity and full size. A tree that has reached First Adult Form i.e. displays adult characteristics.

(M)-Mature refers to a full size tree with some capacity for further growth.

(OM)-Over-mature refers to a tree approaching decline or already declining.

Health refers to the trees vigour, growth rate, disease and/or insects.

Condition summarises observations about the health and structure of the tree on a scale of 1-5

(G) Good, (F) Fair, (A) Average, (P) Poor and (VP) Very Poor

Height expressed in metres refers to estimated overall height of tree

Spread expressed in metres refers to estimated spread of crown at the drip line.

Diameter at Breast Height (DBH) expressed in millimetres refers to the trunk diameter at 1.4 meters above ground level.

Diameter above Root Buttress (DRB) expressed in millimetres refers to the trunk diameter measured immediately above root buttress.

Tree Protection Zone (TPZ) refers to a specific radial offset expressed in metres to provide a specified area above and below the ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

The TPZ shall be calculated as a radial measurement based on twelve times the DBH.

A TPZ shall not be less than 2metres radius nor greater than a 15metres radius as measured from the centre of the stem at ground level.

If an encroachment is less than 10% of the area of the TPZ and is outside the Structural Root Zone (SRZ) detailed root investigation should not be required. However if the proposed encroachment is greater than 10% or inside the SRZ root investigation by non-destructive methods may be required.

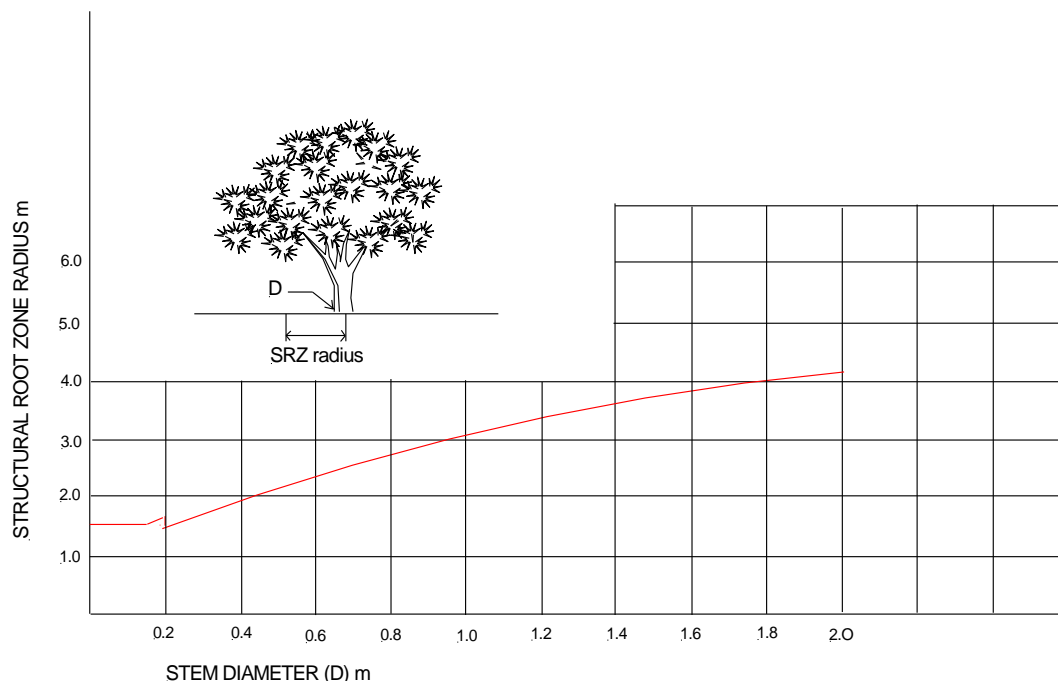
Non-destructive investigation methods may include pneumatic, hydraulic or penetrating radar.

Any encroachment should be compensated for elsewhere and be contiguous with the TPZ.

Structural Root Zone (SRZ) The area around the base of a tree required for the tree's stability in the ground that is necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in metres.

This zone considers a tree's structural stability only, **not** the root zone required for a tree's vigour and long term viability, which will usually be a much larger area.

The SRZ only needs to be calculated when major encroachment into a TPZ is likely to occur.



The curve can be expressed by the following formula

$$R_{SRZ} = (D \times 50)^{0.42 \times 0.64}$$

NOTES

- 1 R_{SRZ} is the structural root zone radius
- 2 D is the stem diameter measured immediately above to root buttress
- 3 The SRZ for trees less than 0.15 m diameter is 1.5m
- 4 The SRZ formula and graph do not apply to palms, other monocots, cycads & tree ferns
- 5 This does not apply to trees with an asymmetrical root plate

STRUCTURAL ROOT ZONE

Landscape Amenity Rating Scale

The landscape amenity value provided by trees indicates:

- How highly the tree is regarded as part of the local landscape
- How the tree provides and enhances the visual quality of the site
- The importance of the tree's historical and cultural significance
- The provision of habitat and vegetation linkages within development sites, streetscapes, recreation areas or open space.

The protection, preservation and enhancement of the landscape amenity, particularly community and residential amenity are a core objective of site design, land use and planning.

The following rating scale is designed to assist in the site planning process for the proposed site works/development. Each tree in Schedule B is rated accordingly.

No 1 Rating

- *Recognised landmark*
- *Contributes to high visual amenity*
- *Major contribution to the sites landscape amenity*
- *Excellent condition, health, structure and form*
- *Forms part of a listed Critically Endangered Ecological Community*
- *Significant introduced native species that has successfully adapted to the site conditions and environment.*
- *Significant introduced evergreen or deciduous species that has successfully adapted to the site conditions and environment*
- *Indigenous to the locality*
- *Significant remnant species indigenous to site and locality*
- *Historic importance*
- *Cultural importance*
- *Recorded on significant tree register*
- *Listed as a threatened species*
- *Identified habitat tree*
- *Contributes to the bio-diversity of native vegetation within the locality*

No 2 Rating

- *Contributes to good visual amenity*
- *Makes substantial contribution to the sites landscape amenity*
- *Good/Fair condition, health, structure and form*
- *Forms part of a listed Critically Endangered Ecological Community*
- *Indigenous to the locality*
- *Remnant species indigenous to site and locality*
- *Introduced native species that has adapted to the site conditions and environment.*
- *Introduced evergreen or deciduous species that has adapted to the site conditions and environment*
- *Listed as a threatened species*
- *Possible habitat tree*
- *Contributes to the bio-diversity of native vegetation within the locality*

No 3 Rating

- *Minor contribution to the sites landscape amenity*
- *Fair/Average condition, health, structure and form*
- *Average/poor visual amenity*
- *Indigenous to the locality*
- *Introduced species*
- *Forms part of a listed Critically Endangered Ecological Community*
- *Growth and development suppressed*
- *Wounds, structural fault extensive storm damage*
- *Observance of Pests and disease impacting on health and condition.*
- *Hazardous trees*

No 4 Rating

- *Little or no contribution to the sites landscape amenity*
- *Poor/very poor visual amenity*
- *Growth and development over-mature / suppressed*
- *Major structural faults that cannot be mitigated*
- *Recognised invasive or weed species*
- *Dangerous tree*
- *Species unsuitable for site conditions and environment*
- *Species exempt Local Government Area's Tree Protection Order/Management Plan*

S.U.L.E. *Safe useful Life Expectancy* *Refer to Appendix C*

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
548	Platanus acerifolia <i>London plane</i>	M	13.6	10	342	700	4.1	2.8	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back	2a
549	Zelcova serrata <i>Zelcova</i>	SM	6	4	160	310	1.9	2	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning	2a
550	Platanus acerifolia <i>London plane</i>	SM	6.5	4	201	337	2.4	2.1	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, thinning crown, epicormic growth	2a
551	Platanus acerifolia <i>London plane</i>	SM	6.5	6	232	382	2.8	2.2	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back, epicormic growth	2a
552	Platanus acerifolia <i>London plane</i>	SM	6.2	5	225	360	2.7	2.2	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back	2a
553	Platanus acerifolia <i>London plane</i>	SM	7	4	227	373	2.7	2.2	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back, thinning crown	2e
554	Platanus acerifolia <i>London plane</i>	SM	7	4.5	233	497	2.8	2.5	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back, epicormic growth	2a
555	Platanus acerifolia <i>London plane</i>	SM	8	7.5	280	424	3.4	2.3	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back, thinning crown, epicormic growth	2e

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
556	Platanus acerifolia <i>London plane</i>	SM	9.4	6	292	490	3.5	2.5	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back, epicormic growth	2a
557	Platanus acerifolia <i>London plane</i>	SM	8	6	300	414	3.6	2.3	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, structure and form modified by pruning, small branch and twig die back, epicormic growth	2a
558	Platanus acerifolia <i>London plane</i>	SM	7.5	6	307	527	3.7	2.5	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, structure and form modified by pruning, dead wood and die back, small branch and twig die back, thinning crown, epicormic growth	2e
559	Platanus acerifolia <i>London plane</i>	M	9	6	280	440	3.4	2.3	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back, epicormic growth	2a
560	Platanus acerifolia <i>London plane</i>	M	12	9	385	625	4.6	2.7	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back, exposed surface roots	2a
561	Platanus acerifolia <i>London plane</i>	M	10.5	7	313	456	3.8	2.4	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back	2a
562	Platanus acerifolia <i>London plane</i>	M	10	9	351	495	4.2	2.5	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back	2a
563	Ulmus procera <i>English elm</i>	OM	7	5	226 262	415	4.2	2.3	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, co-dominant stems, strong union, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form, decline in vigour	3e

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
564	Ulmus procera	OM	8	5	279	354	3.3	2.1	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning, decline in vigour	3e
	English elm										
565	Ulmus procera	OM	7.5	6	330	350	4	2.1	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning, decline in vigour	3e
	English elm										
566	Ulmus procera	OM	4	3	212	291	2.5	2	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, epicormic growth, structure modified by past pruning, tree displays poor form, no main stem.	3e
	English elm										
567	Ulmus procera	OM	6.5	4	188	222	2.3	1.8	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form, no main stem.	3e
	English elm										
568	Ulmus procera	OM	7	2	167	340	2	2.1	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
569	Ulmus procera	OM	4.5	4	172	296	2.1	2	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form, no main stem.	3e
	English elm										
570	Ulmus parvifolia	SM	4	3	85	130	2	1.5	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, no visible evidence of pests or disease, structure modified by past pruning.	2a
	Chinese elm										
571	Ulmus procera	OM	5.5	3	2x150	265	2.5	1.9	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, dead wood and die back, epicormic growth, structure modified by past pruning.	3e
	English elm										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
572	Ulmus procera	OM	5	2.5	190	285	2.3	2	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, small branch and twig die back, thinning crown, epicormic growth, structure modified by past pruning, tree displays poor form.	3e
	English elm										
573	Ulmus procera	OM	6	2.5	170	211	2	1.7	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, small branch and twig die back, thinning crown, epicormic growth, structure modified by past pruning, tree stressed.	3e
	English elm										
574	Ulmus procera	OM	6	4	204	294	2.4	2	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form, no main stem	3e
	English elm										
575	Ulmus procera	OM	7	4	220	357	2.6	2.1	3	Deciduous tree introduced to the site, very Poor condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form, 50% dead.	4b
	English elm										
576	Ulmus procera	OM	8	6	256	319	3.1	2	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
577	Ulmus procera	OM	9	5.5	235	344	2.8	2.1	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
578	Ulmus procera	OM	7	4	210	305	2.5	2	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, thinning crown, epicormic growth, tree stressed, decline in vigour	3e
	English elm										
579	Ulmus procera	OM	6	4.5	205	273	2.5	1.9	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
580	Ulmus procera	OM	7.5	5	213	290	2.6	2	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
581	Ulmus procera	OM	7.5	4.5	237	247	2.8	1.8	3	Deciduous tree introduced to the site, average condition, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
582	Ulmus procera	OM	6.6	4	208	343	2.5	2.1	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
583	Ulmus procera	OM	7.5	4	210	326	2.5	2.1	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
584	Ulmus procera	OM	7.6	6	276	386	3.3	2.2	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
585	Ulmus procera	OM	8.5	6.5	263	490	3.2	2.5	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, inclusion, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
586	Ulmus procera	OM	7.5	8	397	462	4.8	2.4	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form, no main stem.	3e
	English elm										
587	Ulmus procera	OM	8.5	5.5	317	458	3.8	2.4	3	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
588	Ulmus procera	SM	5	4	185	210	2.2	1.7	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, epicormic growth, structure modified by past pruning.	3e
	English elm										
589	Ulmus procera	OM	8.5	5	280	3420	3.4	5.5	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
590	Ulmus procera	OM	5	4	205	262	2.5	1.9	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, thinning crown, epicormic growth, structure modified by past pruning.	3e
	English elm										
591	Ulmus procera	OM	6.5	4.5	237	322	2.8	2.1	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
592	Ulmus procera	OM	7.8	4	270	335	3.2	2.1	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
593	Ulmus procera	SM	6	3	210	278	2.5	1.9	2	Deciduous tree introduced to the site, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning, tree displays poor form	2e
	English elm										
594	Ulmus procera	SM	7	3	183	240	2.2	1.8	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
595	Quercus palustris	Y	3	3	64	94	2	1.5	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, tree displays poor form	2e
	Pin oak										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
596	Ulmus procera	OM	7.5	5.5	226	300	2.7	2	3	Deciduous tree introduced to the site, average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
597	Ulmus procera	M	7	9	414	418	5	2.3	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, tree stressed.	2a
	English elm										
598	Ulmus procera	M	9	8	437	498	5.2	2.5	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, storm damage, structure modified by past pruning.	2e
	English elm										
599	Ulmus procera	M	8	7	397	632	4.8	2.7	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, major dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
600	Pinus patula	M	8.5	7	370	582	4.4	2.6	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, structure modified by past pruning.	2a
	Mexican pine										
601	Cupressus sempervirens 'Stricta'	M	7	2	Multi stem	360	3	2.2	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, tree displays poor form	2e
	Narrow Italian cypress										
602	Cupressus sempervirens 'Stricta'	M	8	3	Multi stem	357	3	2.1	3	Conifer species introduced to the site, average condition, the species is not rare or endangered, co-dominant stems, strong union, thinning crown, trunk wound.	3e
	Narrow Italian cypress										
603	Cupressus sempervirens 'Stricta'	M	11	5	402	585	4.8	2.6	2	Conifer species introduced to the site, good condition, the species is not rare or endangered, structure modified by past pruning.	2a
	Narrow Italian cypress										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
604	Pinus patula	M	9.5	6	415	605	5	2.7	2	Conifer species introduced to the site, good condition, the species is not rare or endangered, small branch and twig die back, structure modified by past pruning.	2a
	Mexican pine										
605	Pinus patula	M	10	10	470	810	5.6	3	2	Conifer species introduced to the site, good condition, the species is not rare or endangered, small branch and twig die back, structure modified by past pruning.	2a
	Mexican pine										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
606	Platanus acerifolia <i>London plane</i>	M	13	10	530	870	6.4	3.1	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure modified by past pruning. Impact on street light.	2a
607	Platanus acerifolia <i>London plane</i>	M	8.5	4	250	362	3	2.2	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, no visible evidence of pests or disease	2a
608	Platanus acerifolia <i>London plane</i>	M	12	8	348	525	4.2	2.5	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, no visible evidence of pests or disease, tree stressed.	2a
609	Platanus acerifolia <i>London plane</i>	M	13.5	10	480	720	5.8	2.9	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back, no visible evidence of pests or disease	2a
610	Conifer spp. <i>Conifer tree</i>	M	12	3	524	650	6.3	2.8	2	Conifer species introduced to the site, average condition, the species is not rare or endangered, small branch and twig die back, structure modified by past pruning.	2a
611	Platanus acerifolia <i>London plane</i>	M	10	6	370	650	4.4	2.8	3	The species is not rare or endangered, deciduous tree introduced to the site, average condition, small branch and twig die back, thinning crown, epicormic growth, tree stressed.	3e
612	Platanus acerifolia <i>London plane</i>	M	12	7	485	1250	5.8	3.6	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, minor small branch and twig die back, structure modified by past pruning.	2a
613	Platanus acerifolia <i>London plane</i>	M	14	10	600	1010	7.2	3.3	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, small branch and twig die back, tree stressed.	2a

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
614	Platanus acerifolia <i>London plane</i>	M	11	5	337	564	4	2.6	2	Deciduous tree introduced to the site ,fair condition, the species is not rare or endangered, small branch and twig die back, thinning crown, structure modified by past pruning.	2e
615	Platanus acerifolia <i>London plane</i>	M	10	8	435	567	5.2	2.6	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, minor small branch and twig die back, structure modified by past pruning, tree displays poor form	2a
616	Platanus acerifolia <i>London plane</i>	M	12	8	410	557	4.9	2.6	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, minor epicormic growth, structure modified by past pruning, tree displays poor form	2a
617	Platanus acerifolia <i>London plane</i>	M	15	6	394	592	4.7	2.7	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, tree stressed, decline in vigour	2a
618	Platanus acerifolia <i>London plane</i>	M	17	13	640	905	7.7	3.2	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, minor small branch and twig die back, structure modified by past pruning.	2a
619	Platanus acerifolia <i>London plane</i>	M	16	8	414	663	5	2.8	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, minor small branch and twig die back, structure modified by past pruning.	2a
620	Platanus orientalis <i>Oriental plane</i>	SM	8	4.5	134	160	1.6	1.5	3	Deciduous tree introduced to the site, fair condition, small branch and twig die back, epicormic growth, structure modified by past pruning.	2e
621	Ulmus procera <i>English elm</i>	SM	8	7	330	400	4	2.3	2	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	2e

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
622	Ulmus procera	OM	7	9	357	428	4.3	2.3	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, thinning crown, epicormic growth, tree stressed, structure modified by past pruning.	3e
	English elm										
623	Ulmus procera	SM	6	6	345	357	4.1	2.1	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	2e
	English elm										
624	Zelcova serrata	SM	3	3	2x90	242	1.5	1.8	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back	2a
	Zelcova										
625	Zelcova serrata	SM	3	2	90	130	1.1	1.5	3	Deciduous tree introduced to the site, poor condition, the species is not rare or endangered, small branch and twig die back, thinning crown, trunk wound	3e
	Zelcova										
626	Ulmus procera	SM	5	4	210	402	2.5	2.3	2	Deciduous tree introduced to the site, fair average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, structure modified by past pruning.	2e
	English elm										
627	Zelcova serrata	M	7	6	258	428	3.1	2.3	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	2e
	Zelcova										
628	Zelcova serrata	SM	4	5	122	250	2.2	1.8	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, co-dominant stems, strong union	2a
	Zelcova				137						
629	Ulmus procera	SM	5	4	254	310	3	2	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	2a
	English elm										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
630	Ulmus procera	OM	6	8	410	450	4.9	2.4	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, storm damage, structure modified by past pruning.	3e
	English elm										
631	Ulmus parvifolia	SM	4	3	92	148	1.1	1.5	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species	2a
	Chinese elm										
632	Zelcova serrata	SM	4	4	120	280	2.3	1.9	3	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, dead wood and die back	2a
	Zelcova				150						
633	Ulmus procera	SM	5	4	250	287	3	2	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, storm damage, structure modified by past pruning.	2e
	English elm										
634	Ulmus procera	SM	4.5	4	224	289	2.7	2	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, structure modified by past pruning.	2e
	English elm										
635	Zelcova serrata	SM	3.6	4	96	250	1.8	1.8	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, co-dominant stems, strong union	2a
	Zelcova				120						
636	Ulmus procera	SM	6	8	298	347	3.6	2.1	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, minor epicormic growth, structure modified by past pruning.	2a
	English elm										
637	Ulmus procera	SM	4.8	5	252	324	3	2.1	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, epicormic growth, structure modified by past pruning, tree displays poor form.	2e
	English elm										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
638	Ulmus procera	M	6.5	8	368	390	4.4	2.2	2	Evergreen tree introduced to the site, good condition, the species is not rare or endangered, epicormic growth, trunk wound mid crown compartmentalised, structure modified by past pruning.	2e
	English elm										
639	Ulmus procera	OM	9	8	392	530	4.7	2.5	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, thinning crown, epicormic growth, structure modified by past pruning	3e
	English elm										
640	Ulmus procera	OM	19	8	428	481	5.1	2.4	2	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
641	Ulmus procera	OM	7.6	8	373	395	4.5	2.2	2	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
642	Ulmus procera	OM	9	7	415	483	5	2.4	2	Deciduous tree introduced to the site, fair to average condition, structure and form typical of the species, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
643	Ulmus procera	OM	9.5	7	370	437	4.4	2.3	2	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										
644	Ulmus procera	OM	9.5	8	243	475	4.7	2.4	2	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm				308						
645	Ulmus procera	OM	10	8	493	675	5.9	2.8	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, small branch and twig die back, epicormic growth, structure modified by past pruning.	3e
	English elm										

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
646	Zelcova serrata <i>Zelcova</i>	SM	5	4	172	243	2.1	1.8	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species	2a
647	Ulmus procera <i>English elm</i>	OM	9.5	9	457	562	5.5	2.6	3	Deciduous tree introduced to the site, average to poor condition, the species is not rare or endangered, major dead wood and die back, small branch and twig die back, epicormic growth, structure modified by past pruning..	3e
648	Ulmus procera <i>English elm</i>	M	10.5	7	392	678	4.7	2.8	2	Deciduous tree introduced to the site, fair condition, the species is not rare or endangered, small branch and twig die back, structure modified by past pruning.	2a
649	Ulmus procera <i>English elm</i>	OM	4.6	6	365	403	4.4	2.3	2	Deciduous tree introduced to the site, fair to average condition, the species is not rare or endangered, small branch and twig die back, structure modified by past pruning, tree heavily pruned.	3e
650	Platanus acerifolia <i>London plane</i>	M	14	16	680	900	8.2	3.2	2	Deciduous tree introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, epicormic growth, co-dominant stems, strong union at 1.5m. Above ground level.	2a
651	Pinus patula <i>Mexican pine</i>	M	11	10	578	820	6.9	3	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back	2a
652	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	10	4	Multi stem	500	3	2.5	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back	2a
653	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	9	3	Multi stem	333	3	2.1	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back	2a

Tree No.	Botannical Name <i>Common Name</i>	Age Class	Height M	Spread M	DCH mm	DRB mm	TPZ m. rad.	SRZ m. rad.	L/Sc Amen.	Description, Condition and Comments	SULE
654	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	8	2	Multi stem	253	3	1.9	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back	2a
655	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	10	3	233	300	2.8	2	2	Conifer species introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back, suppressed north elevation.	2e
656	Cupressus sempervirens 'Swanes G' <i>Swane's golden cypress</i>	M	10	3	220	316	2.6	2	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back, thinning crown, suppressed east elevation	2e
657	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	9.5	2.5	190	253	2.3	1.9	2	Conifer species introduced to the site, good condition, the species is not rare or endangered, structure and form typical of the species, suppressed west elevation.	2e
658	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	10	2.5	186	280	2.2	1.9	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, structure and form typical of the species, small branch and twig die back, suppressed west elevation	2e
659	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	9	3	Multi stem	450	3	2.4	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back	2a
660	Cupressus sempervirens 'Stricta' <i>Narrow Italian cypress</i>	M	9	3	Multi stem	480	3	2.4	2	Conifer species introduced to the site, fair condition, the species is not rare or endangered, co-dominant stems, strong union, small branch and twig die back	2a

APPENDIX C - NOTES ON SAFE USEFUL LIFE EXPECTANCY (SULE RATING) AS
USED IN TREE DESCRIPTION

TABLE

In a planning context the time a tree can expect to be usefully retained is the most important long-term consideration. Safe Useful Life Expectancy (SULE) is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give safe life expectancy), then by economics, effects on better trees and sustained amenity (Barrell 1993 and 1995). Trees with short SULE may at present be making a contribution to the landscape but their value to the local amenity will decrease rapidly towards the end of this period, prior to their being removed for safety or aesthetic reasons.

SULE categories

	1 LONG SULE	2 MEDIUM SULE	3 SHORTSULE	4 REMOVALS	5 MOVED OR REPLACED
A	Long: appeared to be retainable alt the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Medium: appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance.	Short- appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance.	Removal: trees which should be removed within the next 5 years.	Moved or Replaced: Trees which can be readily moved or replaced
B	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live between 15 and 40 more years	Trees that may only live between 5 and 1 5 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions	Small trees less than 5 metres (m) in height
C	Trees that could be made suitable for long-term retention by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through damage, structural defect, instability or recent toss of adjacent trees.	Young trees less than 1 5 years old but over 5m in height
D	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been regularly pruned to artificially control growth'
E		Trees that could be made suitable for retention in the medium term by remedial tree care	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are' clearly not safe to retain	
F				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting	
G				Trees that are damaging or may cause damage to existing structures within 5 years	
H				Trees that will become dangerous after removal of other trees for the reasons given in A) to F).	

Appendix B

Planning Report

Capital Metro Agency
Capital Metro Project
Planning Report

CLR-EWP-RPT-0005

Rev A | 19 January 2016

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 235067-28

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ACT Government

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1 Introduction

1.1 Project overview

The Capital Metro Project comprises a 12 kilometre light rail service linking the newly developed area of Gungahlin with the Civic area in Canberra. A 3 kilometre extension of the Stage 1 project from Civic to Russell is also being considered. The project is currently at tender.

As part of the Capital Metro Project, approximately half of the existing Magistrates Court Car Park (west of Northbourne Avenue) is proposed for a temporary construction compound providing offices and site facilities for the successful PPP Proponent. The current Magistrates Court Car Park contains 271 car spaces. It is anticipated that 112 car spaces will be removed to accommodate the construction compound. The Theatre Car Park (east of Northbourne Avenue) currently contains 205 spaces. Thus the total number of existing spaces between the two car parks is 476. CMA has engaged Arup and HASSELL to develop a concept level design of an arrangement that results in a minimum of 500 parking spaces in the area after excluding the construction compound area.

The proposed parking arrangement would involve reconfiguration of the Magistrates Court Car Park and Theatre Car Park to allow for more efficient designs and safer vehicle circulation. At the Magistrates Court Car Park, the general runs of parking modules would remain consistent with the London Circuit boundary. Perimeter parking bays would be introduced on the east and west boundaries of the site and additional 90 degree parking bays would be provided on the northern side of the Knowles Place cul-de-sac. The Theatre Car Park would be reconfigured to remove 45 degree angled parking bays and provide perimeter parking along the western boundary. An extension to the Theatre Car Park would also be provided to the south of the existing site. Two access ramps would be provided from the existing car park, and the extension site would require earth works / levelling and new pavement. Both sites would require re-paving, line marking and minor kerb adjustments to allow for the reconfiguration.

The works would be constructed in connection with the Capital Metro Project. The proposed arrangement would be temporary and would require the removal of some trees at the Magistrates Court and Theatre car park sites to allow for the most efficient configuration.

It is anticipated that the Contractor for the temporary car parks would be a member of the consortium announced as preferred bidder for the Capital Metro Project.

1.2 Site location

The Magistrates Court Car Park is located on Block 13 Section 63 and the Theatre Car Park is located on Block 23 Section 19, both in Civic. These blocks are classified as 'Designated Areas' under the National Capital Plan and therefore the National Capital Authority (NCA) is the planning authority.

The Magistrates Court Car Park and Theatre Car Park are also located in the Central National Area, City Hill Precinct (Figure 10 of the National Capital Plan).

It should be noted that the current northern boundary of the Theatre Car Park is outside the Designated Area and some minor works will be undertaken within the London Circuit Road reserve which is managed by the ACT Government's Territory and Municipal Services Directorate (TAMS). TAMS consent has been provided for the works.

1.3 Purpose of this document

This document has been prepared by Arup on behalf of CMA to provide information about how the relevant planning principles and policies under the National Capital Plan have been addressed and support the Works Approval for construction and temporary operation of the proposed arrangement.

This document has been prepared in consideration of Arup and HASSELL's concept level design dated 15 January 2016 and Parsons Brinckerhoff's Final Environmental Impact Assessment (EIS) dated 26 August 2015.

2 Planning context

2.1 Land use and planning overview

2.1.1 Requirements under the National Capital Plan

Under the *Australian Capital Territory (Planning and Land Management) Act 1988*, the NCA prepares and administers the National Capital Plan to ensure that Canberra and the Territory are planned and developed in accordance with their national significance.

The National Capital Plan sets out the broad planning framework for the ACT. Designated areas, including the Magistrates Court Car Park and Theatre Car Park, are subject to detailed planning policies and guidelines. As such the proposed At Grade car park arrangement requires approval from the NCA prior to commencement.

This document addresses the relevant planning principles and policies of the National Capital Plan, including:

- the objectives, land uses, and detailed conditions of planning design and development permitted within the City Hill Precinct (Section 3)
- the detailed conditions of planning design and development within the Central National Area (Section 4)
- the principles and policies for development in Civic (Section 5)
- the principles and policies of urban design in the National Capital (Section 6)
- the principles and policies for heritage in the National Capital (Section 7)
- the principles and policies for environment in the National Capital (Section 8)
- the Civic Centre townscape conditions (Section 9).

2.1.2 Requirements under the EPBC Act

Under the Works Approval process, the NCA is required to give consideration to the implications of the development under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The primary aspect of the EPBC Act is in relation to Matters of National Environmental Significance (MNES). Actions which will or are likely to result in significant impacts on these matters are considered a controlled action, and require approval from the Commonwealth Minister for the Environment.

MNES relevant to the proposed development are associated with listed heritage items and places surrounding the site. However, as determined by Parsons Brinckerhoff's EIS, there is unlikely to be any significant impacts to any of the identified heritage places or items listed under the EPBC Act, or any listed threatened species or communities that are known from the wider region.

Heritage and biodiversity considerations have been further discussed in Sections 7 and 8 of this report, respectively.

2.2 Related approvals

A separate Works Approval will be prepared and submitted for temporary use of the Magistrates Court Car Park as a site compound during construction of the Capital Metro Project by the successful PPP proponent.

3 City Hill Precinct

The Magistrates Court and Theatre car parks are located within the 'City Centre' designation in the City Hill Precinct of the Central National Area. In accordance with Section 1.3.2 of the National Capital Plan, 'car park' is a permitted land use within City Centre.

The objectives of the City Hill Precinct are:

1. Vitalise City so that it becomes first amongst equals in the hierarchy of town centres within Canberra – with the City Hill Precinct as the pre-eminent heart of City.
2. Recognition that vitalisation will make City a genuine City Centre; attracting people to live, work, play and stay – with City Hill Precinct self-evidently the focus of public and private life and activity.
3. The planning and development of the City Hill Precinct must stimulate high levels of human activity, including accessibility, density and variety of use.
4. Development must command the highest standards of urban design, sustainability, exemplary architecture and social inclusion reflecting the character of the National Capital and providing a model for city development in Australia in the 21st century.
5. The development of the City Hill Precinct must complement and actively relate to and integrate with the existing and committed structure of the rest of City.
6. The planning of the City Hill Precinct must be primarily directed to those demographics of the population most likely to be attracted to city living – the purpose being to maximise population and diversity of activity in City.
7. The planning approach to the City Hill Precinct should be guided by and extend the legacy of the Griffin Plan for a vital and urban city heart by embracing contemporary realities.
8. The development of the City Hill Precinct and City must produce an asset for the community, not a burden for taxpayers – this requires economic viability and the creation of a positive climate for private sector investment and appropriate public sector investment.
9. Flexibility to allow for future social and technological change must be a basic tenet of planning for the future development of the City Hill Precinct and City.

The proposed car park arrangement would involve reconfiguration of the Magistrates Court and Theatre car parks to allow for a more efficient design and an extension to the Theatre Car Park to meet the number of parking spaces committed by the ACT Government (Minister Corbell). The proposed arrangement would be temporary and is a minor change from the existing car park arrangements. It would not impact on the above objectives from being achieved.

Development and redevelopment within the City Hill Precinct must comply with the Detailed Conditions of Planning Design and Development as set out in Appendix T7 City Hill Precinct of the National Capital Plan. The table below addresses the conditions detailed in Appendix T7.

Appendix T7 – City Hill Precinct	Response
City Hill Precinct – Detailed Conditions of Planning, Design and Development and associated Urban Design Guidelines. These are the principles agreed to by Canberra Central Taskforce.	
City Hill Park as a central open space	
City Hill Park should be retained and enhanced as an enclosed central park serving a functional role within an urban built form.	The proposed arrangement would not impact City Hill Park.
The topography of City Hill Park may need to be modified to create an urban park, accommodate pedestrian desire lines and integrate with Vernon Circle.	The proposed arrangement would not impact City Hill Park.
City Hill Park is the primary public space for the Precinct. Any buildings located on City Hill Park must be ancillary to this purpose and be designed, sited and of a scale that complements the landscape character.	The proposed arrangement would not impact City Hill Park.
New public spaces created within the Precinct must complement and not diminish the pre-eminence of City Hill Park.	The proposed arrangement comprises reconfiguration to the existing Magistrates Court and Theatre car parks. The extension of the Theatre Car Park would not detract from City Hill Park.
Land use	
Mixed land uses should be encouraged throughout the City Hill Precinct while allowing flexibility to respond to market demand.	The proposed arrangement does not comprise a change of land use at the Magistrates Court and Theatre car park sites. Extension of the Theatre Car Park would alter the use of the grassed area at this location, however would be a temporary arrangement and would not permanently limit the development and future use of this site.
Prime sites within the City Hill Precinct should be identified for the Legislative Assembly and Supreme Court buildings and other municipal and cultural uses. If the Supreme Court and Legislative Assembly buildings are to be located adjacent to City Hill Park, they should have their main address in and active frontages to Vernon Circle.	The proposed arrangement does not comprise a change of land use at the Magistrates Court and Theatre car park sites. Extension of the Theatre Car Park would alter the use of the grassed area at this location, however would be a temporary arrangement and would not permanently limit the development and future use of this site.
Avenue connections and vistas	
Southbound traffic should be discouraged from using Northbourne Avenue along its length to reduce reliance on Northbourne and Commonwealth Avenues as the main north-south arterial route.	The proposed arrangement would not interfere with, or limit changes to, existing traffic patterns.
The intersection of Commonwealth Avenue and London Circuit should be redesigned to encourage the diversion of northbound traffic onto London Circuit and improve pedestrian access and safety.	The proposed arrangement would not interfere with, or limit changes to, existing traffic patterns.

New road connections to Vernon Circle should be created from Constitution and Edinburgh Avenues, providing access for local traffic and pedestrians, with arterial traffic discouraged at the existing London Circuit intersections.	The proposed arrangement would not interfere with, or limit changes to, existing traffic patterns.
View corridors must be retained from radiating avenues to City Hill Park. No buildings should bridge these avenues.	View corridors at the Magistrates Court and Theatre car parks would be consistent with the current arrangements. Extension of the Theatre Car Park would be visible from Northbourne Avenue, however would not impact on the view corridor from radiating avenues from City Hill Park.
Buildings on the avenues must have predominantly active frontages at ground floor.	No new buildings are proposed.
Use a limited palette of high-quality pedestrian pavement materials, street furniture and lighting. Pavement and landscape design should have an elegant, simple and bold design emphasising the geometry and formality of the main avenues.	The proposed landscape design at the sites uses simple and robust materials, such as concrete for footpaths and pavements and decomposed granite for the ground surface around trees. These materials would match the existing materials of the current car parks and surrounding footpaths. Furniture is not included in the proposal, however new lighting that replaces the existing lighting would be installed and would consist of a high quality light fitting (Kim Lighting "The Archetype"), commonly used in urban car parks.
Vernon Circle	
Vernon Circle should be a low-speed urban street with a careful blend of through and local traffic, giving priority to pedestrians and providing access to City Hill Park.	The proposed arrangement would not impact on Vernon Circle, nor would it limit development and ongoing use of this road.
Vernon Circle should be redesigned as an urban 'circle' rather than a through route.	The proposed arrangement would not impact on Vernon Circle, nor would it limit development and ongoing use of this road.
Vernon Circle must continue to serve as a ceremonial road to Parliament House and for public events for the city of Canberra.	The proposed arrangement would not impact on Vernon Circle, nor would it limit development and ongoing use of this road.
New buildings should address Vernon Circle, have zero setbacks and must have active frontages.	No new buildings are proposed at Vernon Circle.
Over time, the existing major cultural and municipal buildings adjacent to City Hill Park (and extensions to them) could be reconfigured to address Vernon Circle.	The proposed arrangement would not limit development and ongoing use of land uses adjacent to Vernon Circle.
Landscape and streetscape treatments are to be of a high quality and scale commensurate with a low-speed urban street.	Works are not proposed adjacent to Vernon Circle.

London Circuit	
London Circuit should be an urban boulevard operating as the main public transport circuit for Canberra Central.	The proposed arrangement would not have an impact on the operation of London Circuit.
Buildings must be set back from London Circuit a sufficient distance to establish a tree-lined boulevard character (two rows of trees and wide pavements).	No new buildings are proposed. Works would be undertaken within the currently established Magistrates Court and Theatre car park boundaries. The extension of the Theatre Car Park would be set back from London Circuit.
New buildings fronting London Circuit must have active frontages.	No new buildings are proposed.
London Circuit should serve as the main connector between Northbourne and Commonwealth Avenues, but should be discouraged as a through route.	The proposed arrangement would not have an adverse impact on the operation of London Circuit.
London Circuit should serve as a gateway, providing a transition between the grand scale boulevard character of the avenues and the intimate local urban scale of the inner City Hill Precinct. The transition should be achieved through the use of urban design and traffic engineering treatments that serve to physically and psychologically divert traffic from the avenues onto London Circuit, thereby limiting access to the inner City Hill Precinct to predominantly local traffic.	The proposed arrangement comprises minor changes to the existing Magistrates Court and Theatre car parks and would not interfere with transition from Northbourne Avenue to the urban environment of the inner City Hill Precinct.
Building form, height and landmark buildings	
Tall landmark buildings up to RL 617 (generally 14–18 storeys) are restricted to the corners of the main avenues intersecting with London Circuit.	No new buildings are proposed.
Buildings above 25 metres in height are to be the subject of wind testing, including down draught conditions and turbulence, to ensure development does not have adverse impacts on building entrances and the public domain.	No new buildings are proposed.
Building heights up to 25 metres (generally six to eight storeys) above adjacent kerb levels of London Circuit, Vernon Circle and Northbourne, Edinburgh, Constitution and Commonwealth Avenues are permissible in all areas of City Hill Precinct with a minimum of 16 metres (equivalent to four storeys) desirable fronting Vernon Circle to create a sense of enclosure around City Hill Park.	No new buildings are proposed.
Minor building elements that extend building height above 25 metres will be considered where this enhances the architectural quality of the building and fosters energy efficiency, indoor amenity and appropriate urban scale.	No new buildings are proposed.

<p>Height controls will be determined on a site-by-site basis to achieve performance objects such as:</p> <ul style="list-style-type: none"> • Maintaining sunlight access to City Hill Park and major pedestrian areas; • Achieving landmark public buildings, whether through height, siting, form or setting; and • Addressing the heritage values of the Sydney and Melbourne Buildings. 	No new buildings are proposed.
Streetscape design guidelines must encourage modulation, tactility, silhouette and human scale in relation to the built form.	The proposed arrangement would not alter the existing streetscape.
Subdivision patterns should be designed to minimise amalgamation of land, achieving a mix of development scales including fine urban grain.	The proposed arrangement does not require the subdivision of land.
New buildings are encouraged to be delivered through design competitions in order to encourage innovation and design excellence.	No new buildings are proposed.
Indicative development plans are to be prepared for land between each main avenue, Vernon Circle and London Circuit as part of a development application.	Design drawings for the proposed arrangement have been submitted with the Works Approval application.
New development should exemplify sustainability principles and demonstrate excellence in urban design, landscape and architecture.	The proposed arrangement comprises minor changes and reconfiguration to the existing Magistrates Court and Theatre car parks and does not represent a new development.
Building design, layout and construction should take account of the impacts of noise on surrounding uses.	The proposed arrangement would not introduce a new land use and is expected to be consistent with existing noise emissions at the Magistrates Court and Theatre car park sites. It is expected that construction work at the site would result in some additional noise emissions, however these would be managed appropriately by the construction contractor.
Unique paving and public place treatments should be introduced into Vernon Circle to provide City Hill Precinct with an appropriate identity for ceremonial and municipal connections with the Parliamentary Zone.	The proposed arrangement would not impact on Vernon Circle, nor would it limit development and ongoing use of this road.
Public art and art spaces in new development should be encouraged.	The proposed arrangement would involve temporary changes to the existing Magistrates Court and Theatre car park sites and does not represent a new development. Opportunities for public art have not been considered as part of the proposal.

Traffic	
Major modifications to the existing traffic management are dependent upon the continuing implementation of peripheral parkways and city bypass routes including Gungahlin Drive, Majura Parkway, Clunies Ross Street, Fairbairn Avenue, Marcus Clarke Street and Cooyong/Ballumbir Streets and the removal of the Parkes Way cloverleaves.	The proposed arrangement would not impact operation of the road network.
Traffic engineering devices (e.g. slip lanes) should be designed to promote pedestrian amenity, safety and access and bicycle movements.	Traffic engineering at the car park sites has been provided to adhere to nationally recognised guidelines and standards and would promote pedestrian and vehicle safety.
Parking	
Public car parking that is available at all hours must be provided on street as well as in appropriately designed structures that do not dominate the public domain.	Operation of the proposed arrangement would be consistent with current operations at the Magistrates Court and Theatre car parks.
Replacement of existing surface car parks and public car parking shall be provided for as identified in the ACT Government Parking Strategy.	<p>The proposed arrangement meets the parking provisions committed to by the ACT Government (Minister Corbell).</p> <p>The ACT Planning and Land Authority Parking and Vehicular Access General Code (the Code) specifies vehicular access and parking requirements for new developments, redevelopments and lease variations. It is noted that the existing car parks do not meet the requirements of the Code.</p> <p>Through consultation with CMA, it has been agreed that temporary reconfiguration of the existing car parks (for the purposes of providing additional car parking for the period while a portion of the Magistrates Court Car Park is used as a construction compound for the Capital Metro Project) does not need to meet all of the criteria of the Code. The temporary car parks would however provide adjusted car parking to meet Australian Standards (AS2890.1-2004 and AS2890.6-2009) and provide the same number of motorcycle parking spaces and car parking spaces for people with disabilities as currently provided in the existing car park sites.</p>
Development of existing surface car parks will need to demonstrate that an adequate public car parking provision (on street or in appropriately designed structures) will meet the needs of City Hill Precinct.	The proposed arrangement is a reconfiguration of existing car parking areas and addresses the need to reinstate car parking spaces lost during construction of the Capital Metro Project, as committed by the ACT Government.

Car parking for new development is to be accommodated in basements or in above ground structures that do not dominate the public domain.	The proposed arrangement does not represent car parking for a new development and is a reconfiguration of existing car parking areas.
Public transport	
Redevelopment of the City Hill Precinct should take place in the context of an integrated public transport plan.	The proposed arrangement would not limit redevelopment within the City Hill Precinct.
Mechanisms should be introduced to give priority to public transport.	The proposed arrangement would not impact public transport operations.
Laneways	
Existing laneways should be retained and new laneways created to provide permeability and create service access.	The adjacent laneways, including Knowles Place and Theatre Lane would be retained and would provide access to the Magistrates Court Car Park and Theatre Car Park respectively, as per current operations.
Opportunities should be identified to create laneways with active frontages, particularly in relation to heritage and public buildings and at intersections.	No new laneways would be provided as part of the proposal.
Pedestrians and bicycle links	
New development, including public spaces, should facilitate pedestrian connectivity within the City Hill Precinct and between the City Hill Precinct and Canberra Central.	Pedestrian connectivity in the City Hill Precinct would not be impacted by the proposed arrangement.
New development should facilitate bicycle movements between the City Hill Precinct and Canberra Central.	Bicycle movements in the City Hill precinct would not be impacted by the proposed arrangement.

4 Central National Area

The Magistrates Court and Theatre car parks are located within the Central National Area. The Detailed Conditions of Planning Design and Development for the Central National Area in accordance with Section 1.7 of the National Capital Plan are outlined in the table below.

Central National Area	Response
<p>In the Parliamentary Zone (the area bounded by the southern edge of Lake Burley Griffin, Kings Avenue, State Circle and Commonwealth Avenue)</p> <p>a. land uses will comprise:</p> <ul style="list-style-type: none"> Parliamentary Uses and National Capital Uses, including national legislative, judicial and executive functions, and Commonwealth cultural institutions such other uses, including a limited range of commercial uses and tourism facilities, as may be approved by Parliament, which will complement and enhance the function and character of the Area. <p>b. development shall be guided by the principles, policies and Indicative Development Plan for the Parliamentary Zone set out in the Master Plan for the Parliamentary Zone at Appendix T6.</p>	<p>The proposed arrangement is not located within the Parliamentary Zone.</p>
<p>Other parts of the Designated Area will be used in accordance with detailed conditions of planning, design and development shown at Figures 5–17 and, where applicable, to the provisions of a Master Plan set out in Appendix T.</p>	<p>The proposed arrangement is located within the City Hill Precinct which must comply with the Detailed Conditions of Planning Design and Development as set out in Appendix T7 of the National Capital Plan. The table of Section 3 of this report addresses how the proposed arrangement interacts with these conditions.</p>
<p>Land uses will relate primarily to national functions. This should not, however, preclude the establishment of appropriate ACT Government functions, suitably located.</p>	<p>The proposed arrangement does not comprise a change of land use at the Magistrates Court and Theatre car park sites. Extension of the Theatre Car Park would alter the use of the grassed area at this location, however would not impact on national functions and would not permanently limit the development and future use of this site for other uses.</p>
<p>Consideration of commercial uses in those parts of the Designated Area that lie in the City Division will have regard to the planning effects on Civic Centre as well as on the Central National Area.</p>	<p>The proposed arrangement does not comprise a change of land use at the Magistrates Court and Theatre car park sites. Extension of the Theatre Car Park would alter the use of the grassed area at this location, however would not impact on national functions and would not permanently limit the development and future use of this site for other uses.</p>

Special consideration will be given to community, cultural, residential, tourism, entertainment and leisure uses which complement and enhance the function and character of the Designated Area.	The proposed arrangement does not comprise a change of land use at the Magistrates Court and Theatre car park sites. Extension of the Theatre Car Park would alter the use of the grassed area at this location, however would not impact on national functions and would not permanently limit the development and future use of this site for other uses.
Traffic capacity and traffic arrangements on major routes in the Designated Area will be planned to ensure safe and dignified access for all ceremonial occasions, and for residents, staff, tourists and visitors.	Existing traffic operations would not be impacted by the proposed arrangement.
The transport system within the Designated Area will be planned and managed for volumes of traffic and parking consistent with the significance and use of the Area. Transport infrastructure should foster the use of transport systems which minimise adverse effects from vehicular traffic.	The existing transport system would not be impacted by the proposed arrangement.
The urban design of the Area is to achieve an integrated design of the highest quality by managing building height and bulk, and by encouraging building forms and layouts on consistent building alignments which enhance the structure of Griffin's plan.	The proposed arrangement would not change the urban design of the Area.
New development should seek to respect the design and character of adjacent buildings in terms of scale, colour, materials, massing and frontage alignment.	The proposed arrangement does not represent a new development.
Individual development proposals will be assessed on their merits in respect to sunlight penetration, amenity, pedestrian and vehicle access. No buildings taller than RL 617m will be permitted in the Designated Area, but the general building height will be 3–4 storeys except where the Authority determines otherwise.	The proposed arrangement would not impact on sunlight penetration or the amenity of the Area. Pedestrian and vehicle access in the Area would be consistent with the current arrangements.
Buildings in the Area must show an appropriate quality of architectural design consistent with their location in this area of special national concern.	No new buildings are proposed.
Direct access to and from major roads will be permitted where practicable and not inconsistent with traffic safety requirements. The design and maintenance of all roadways and parking areas, including their associated landscaping, signs and lighting, will be of a consistently high quality.	Access to the Magistrates Court and Theatre car parks would be via Knowles Place and Theatre Lane, respectively, as per the current arrangements.
Commonwealth, Kings and Constitution avenues, the avenues connecting the nodal points of the National Triangle, are of critical significance in delineating the geometric form of Griffin's plan. They are not only the primary movement routes, but they are powerful generators of structure and urban form. Their formal expression is paramount and is to be achieved by strong avenue planting, consistent road design, special lighting and detailing. Building heights and setbacks will be planned to ensure consistency and continuity.	Commonwealth, Kings and Constitution Avenues would not be impacted by the proposed arrangement.

<p>Landscape is to enhance the visual setting of the Designated Area and integrate the buildings with their landscape setting. This will be carried out in accordance with a landscape master plan to be prepared by the Authority which particularly emphasises the following landscape themes:</p> <ul style="list-style-type: none"> • the formal and consistent landscaping of main avenues and mall spaces • the combination of formal and informal landscaping which occurs around the lake edge and is the setting for Parliament House and its adjacent areas. 	<p>The proposed arrangement would not detract from the existing visual setting of the Area. The landscape design strategy is to maintain as much of the existing landscape elements as possible.</p>
<p>Residential blocks shall not be subdivided for separate occupation.</p>	<p>The proposed arrangement does not require the subdivision of land on residential blocks.</p>
<p>As soon as practicable after this Plan comes into operation, building, road and landscape maintenance is to conform with Management Plans prepared by the Authority in consultation with the Department of Arts, Sport, Environment, Tourism and Territories and the ACT Government, which will consider traffic and parking operations, temporary uses and ceremonial events. The Management Plans will also establish levels of maintenance for land, water and infrastructure appropriate to the principles and policies for the Area and shall take into account the Technical and Management Guidelines for Lake Burley Griffin at Appendix J.</p>	<p>Maintenance of the site would be undertaken in accordance with the current arrangements for the Magistrates Court and Theatre car parks.</p>
<p>Any proposal to subdivide land within the Central National Area will require the approval of the Authority.</p>	<p>The proposed arrangement does not require the subdivision of land.</p>

5 Civic

Section 4 of the National Capital Plan outlines the General Planning Principles for urban areas in the Territory. The Magistrates Court and Theatre car parks are located within the Civic urban area. The General Planning Principles for Civic Design in accordance with Section 4.5.4 of the National Capital Plan are outlined in the table below.

National Interest in Civic	Response
Civic Centre has a multi-faceted role as the most important metropolitan centre, as the apex of the National Triangle, a location astride an important entrance route to Canberra and the Parliamentary Zone, and a significant element in the physical structure of central Canberra. It is in the interests of the National Capital that the development of Civic Centre balances these roles.	
Principles for Civic	
Civic's continued development should recognise its metropolitan significance and role, achieve a satisfactory relationship between Civic and other development and features of the Central area, and meet the following Principles:	
a. Future development and redevelopment in Civic should aim both to reinforce Civic's role as the prime metropolitan centre, and contribute to a diverse, lively and attractive character.	The proposed arrangement comprises minor changes and reconfiguration to the existing Magistrates Court and Theatre car parks and would provide a consistent use of the site. The car parks support the importance of the Civic Centre.
b. The design of buildings and the amenity and environmental quality of the main public spaces should result in an accessible, attractive, high quality and distinctive centre consistent with Civic's role as the major metropolitan centre and its location at one point of the National Triangle, Griffin's major organizing element of the Central National Area.	The amenity and environmental quality of the site would be consistent with the current arrangements.
Policies for Civic	
Policies apply within areas of Civic identified in Figure 21.	The Magistrates Court and Theatre car parks are not located within these areas.

6 Urban design

Section 7 of the National Capital Plan outlines the principles and policies for urban design in Canberra Central. The Magistrates Court and Theatre car parks are located within the Canberra Central area. As the proposed arrangement forms a minor change and reconfiguration of the existing car parks, there is limited scope related to urban design. However, the Central Canberra principles and policies for urban design have been addressed in the table below.

Background	Response
<p>The role of Canberra as the National Capital and its development, since its inception, to an overall design concept, has resulted in an urban environment of a high quality compared with other Australian and overseas cities. The quality of appearance that has emerged emphasises and complements Canberra's natural landscape setting. This character, often referred to as "garden city", should continue. It is part of the national perception of Canberra, and Canberra's national image would be impaired if the emphasis on landscape, both within urban and non-urban areas, became diminished. This is particularly important to Canberra Central having regard to its proximity to the main National Capital functions.</p>	
Principles for Urban Design	
The National Capital role requires that planning and development in Canberra Central in particular and generally throughout the Territory, should have a high aesthetic and environmental quality. Planning controls should seek to ensure that development in all forms, including landscaping in urban and non-urban areas, complements and enriches its surroundings.	The amenity and environmental quality of the site would be consistent with the current arrangements. Prescribed planning controls at the site have been addressed in this report.
Substantial works of architecture, engineering and landscape within Canberra Central should be designed to contribute positively to the overall composition and symbolism and dignity of the National Capital.	This proposal does not comprise substantial works of architecture, engineering and landscape.
Policies and standards for Urban Design	
Management of both public and private development in the National Capital should, wherever practicable, seek to achieve harmony between buildings and landscaping to give continuing effect to the garden character of the city.	Management of the site would be undertaken in accordance with the current arrangements for the Magistrates Court and Theatre car parks.
Within Canberra Central, roads, bridges, waterways and public landscaping projects should reinforce and complement the geometric lines of the Main Avenues	Existing infrastructure in Central Canberra would not be impacted by the proposed arrangement.
Buildings in Canberra Central should be of a height generally not greater than the height of the mature tree canopy (typically 3–4 storeys), with the exception of the buildings in the Parliamentary Zone, Civic Centre, Russell and Campbell Park, and on sites adjoining Northbourne Avenue and Constitution Avenue. In Canberra Central no building or structure which protrudes substantially above the tree canopy shall exceed a height of RL 617m.	No new buildings are proposed.

<p>The siting, bulk, landscaping and external treatment (including materials, colours and the quality of finish) of development in Canberra Central should seek to ensure that buildings, ancillary structures and other works are appropriate to and not discordant with the general development and amenity of the locality.</p>	<p>The proposed arrangement comprises reconfiguration to the existing Magistrates Court and Theatre car parks and would not change the amenity of the area. Extension of the Theatre Car Park represents a minor, temporary change at the site that is not discordant with general development in the area.</p>
<p>The conditions for the Siting of Satellite Dishes and Other Telecommunications Equipment, set out in Section 12.4, shall have application where relevant within areas to which Special Requirements of the Plan apply.</p>	<p>Existing Government-owned Wi-Fi equipment at the Magistrates Court Car Park that is impacted during reconfiguration works would be reinstated at the site in approximately the same location. The proposal does not include the provision of any new telecommunications infrastructure or equipment.</p>

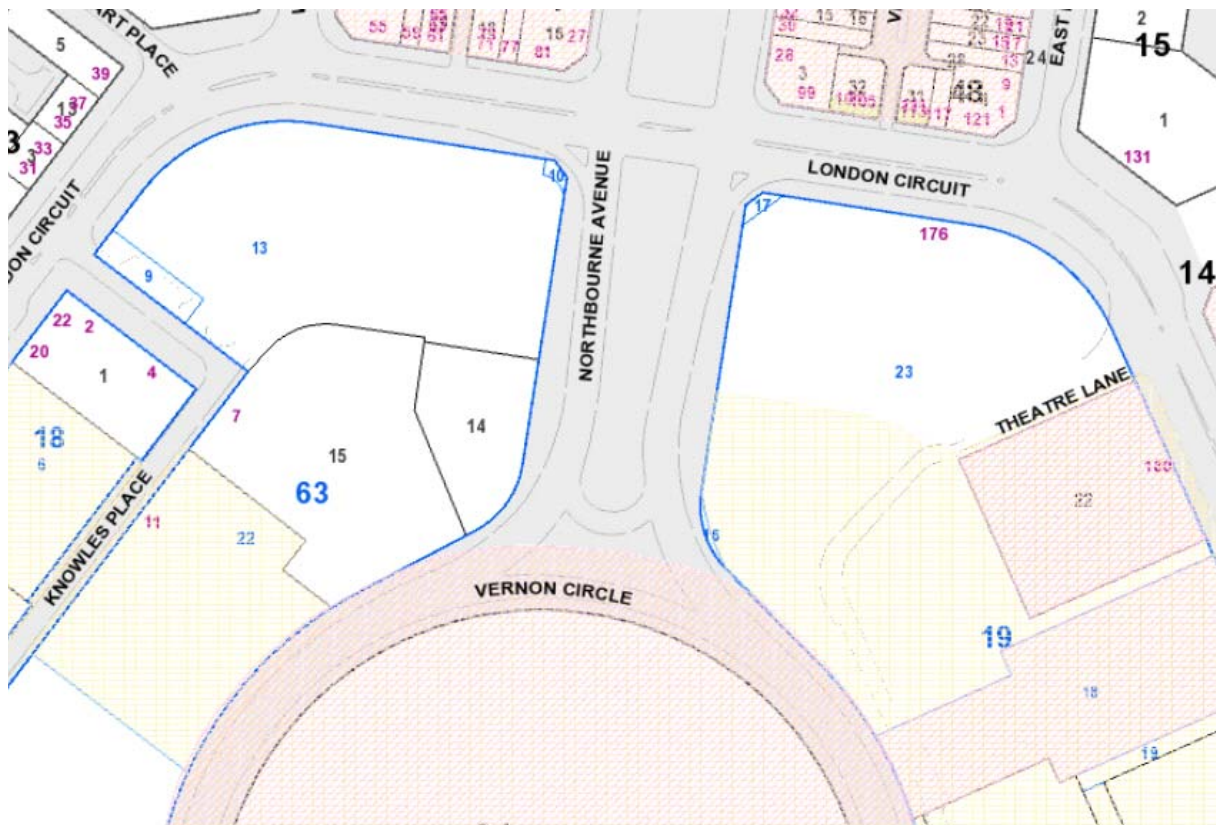
7 Heritage

Section 10 of the National Capital Plan outlines both the Commonwealth and the ACT Governments' commitment to protecting heritage sites in the ACT.

In order to determine the heritage context of the site, desktop searches were undertaken of the following Commonwealth and ACT heritage registers:

- ACT Heritage Register (using the ACT Government's interactive mapping service, ACTMAPi)
- World Heritage List
- Commonwealth Heritage List
- National Heritage List
- Australian Heritage Database (archived Register of the National Estate)
- National Trust.

This search identified a number of Commonwealth and ACT listed heritage sites proximate to the development. Civic Square (Heritage ID: 84, Location ID: 176), listed on the ACT Heritage Register, includes part of Block 23 Section 19, as shown on the figure below. This listing is a provisional registration under the ACT *Heritage Act 2004*. The extension of the Theatre Car Park would encroach on this listing.



Source: ACTMAPi, 10 December 2015

It should be noted that Civic Square Complex (Place ID: 19428) is listed on the Australian Heritage Database as comprising the square, North and South Buildings, Canberra Theatre and the Link Gallery. The proposed arrangement would not encroach on this listing.

The principles and policies of heritage in the ACT are outlined in the table below.

Background	Response
The Commonwealth and the ACT Governments both have a continuing interest in protecting heritage sites in the ACT. It is considered necessary that the Commonwealth and ACT Governments should, as a matter of course, respect each other's register. In any case, where either wishes to depart from the other's register, any differences should be subject to consultation between the two and with the public.	
Principle for Heritage	
The Territory's natural and cultural heritage should be identified, preserved, protected and conserved in accordance with internationally accepted principles, and in order to enhance the character of Canberra and the Territory as the National Capital.	A search of Commonwealth and ACT heritage registers was undertaken.
Policies for Heritage	
Planning and development should give due protection to any natural or cultural heritage place in the ACT included on the Register of the National Estate and/or heritage register of the ACT Government.	Extension of the Theatre Car Park would encroach on Civic Square, a provisional listing under the ACT <i>Heritage Act 2004</i> . This would be a temporary arrangement and would not permanently limit the development and future use of this site.
Within Designated Areas the Authority will require Conservation Plans for listed heritage places. The Conservation Plans for cultural heritage sites will follow the principles of the Australia ICOMOS Guidelines for the Conservation of Places of Cultural Significance (Burra Charter).	The proposed arrangement would not encroach on areas subject to a Heritage Management Plan.
Planning policies and the applicable development conditions should conform with the requirements of any such Conservation Plan.	The proposed arrangement would not encroach on areas subject to a Heritage Management Plan.

8 Environment

Section 11 of the National Capital Plan outlines the commitment in the ACT to maintaining and enhancing environmental qualities while responding to population growth and associated urban development.

The Magistrates Court Car Park formed part of the EIS prepared for the Capital Metro Project. The environmental values identified at this site comprised its proximity to heritage (addressed in Section 7 of this report). A search of ACTMAPi undertaken for both the Magistrates Court and Theatre car parks confirmed there are no biodiversity values or registered trees at the site.

Background	Response
Long term metropolitan planning must incorporate recognised guidelines and goals for water quality (particularly in the built environment) and reflect national and international concerns for efficient use of energy and effective responses on the Greenhouse effect. Use of national resources and the impact of development on environmental systems in both the ACT and the surrounding region must reflect national goals for sustainable development and regional needs.	
Principle for Environment	
The environmental quality of the National Capital and the Territory should be maintained and improved.	Some trees would need to be removed to accommodate the reconfigured arrangements at the Magistrates Court and Theatre car parks, however none of the trees at the site are listed on the ACT tree register or within an NCA Heritage Management Plan. The environmental quality of the site is expected to be consistent with the current arrangements.
Policies and Standards for Environment	
Action will be taken by the Authority in accordance with the <i>Environment Protection (Impact of Proposals) Act 1974</i> where the scale or nature of a development proposal under its jurisdiction is likely to have a significant impact on the environment of the ACT and the adjoining region.	The scale and nature of the proposed arrangement is consistent with the current arrangement and the parking provision commitments of the ACT government and would not have a significant impact on the environment of the ACT or adjoining area.
Nationally recognised guidelines and standards will be the minimum basis for assessing environmental quality in relation to the Authority's policies and in the approval of projects by the Authority.	It is expected that the proposed arrangement would comply with nationally recognised environmental guidelines and standards.
The ecological resources of the ACT shall be planned and managed in an integrated manner to maintain or enhance the overall quality and stability of the environment of the National Capital, having regard to such issues as soil conservation, nutrient recycling, water balance regulation, salinity control and protection of water quality.	Ecological resources in the ACT would not be impacted by the proposed arrangement.
As wide a range as possible of the naturally occurring plant and animal communities and species of the ACT should be protected in situations where their long-term survival can be expected and the propagation of rare or vulnerable species in suitable protected habitats will be encouraged.	Significant plant and animal communities would not be impacted by the proposed arrangement.

9 Townscape conditions

Appendix L of the National Capital Plan outlines the Townscape Conditions for the Civic Centre. These have been outlined and addressed in the table below.

General conditions	Response
<p>Townscape is concerned with the design and arrangement of buildings and spaces to achieve harmony, interest, attractiveness, vitality and convenience. Townscape conditions for Civic are therefore designed to ensure that the quality of the design of buildings and spaces will result in a centre of charm, distinctive and vibrant activity, consistent with its important role as a major centre of the National Capital, and one that people will enjoy visiting and using. While Civic is part of the Central National Area, it is also the commercial centre of Canberra and should express its commercial character.</p>	
Building and development	
The quality sought for any building shall be achieved mainly by negotiation, carried out within the framework of the conditions contained herein and the particular conditions prepared for the site.	No new buildings are proposed.
Plot ratio will not be used as a means of controlling development intensity, except in Turner and Braddon as specified in Development Control Plans and Detailed Conditions of Planning and Development.	The proposed arrangement would not impact on development density.
New buildings shall, where appropriate, respect the design and character of adjacent buildings except that in the main commercial areas, standards suitable to a commercial area will also be considered.	No new buildings are proposed.
Buildings in Civic shall show an appropriate quality of architectural design consistent with their location. Major changes to individual buildings within comprehensively developed complexes should be considered in terms of their effects on the comprehensive design for a whole section.	No new buildings are proposed.
Streetscape design	
<p>Attractive and lively streetscapes shall be sought by:</p> <ol style="list-style-type: none"> requiring all developments in the main retail and commercial areas to abut the front property boundaries of their sites requiring all new buildings and redevelopments abutting Garema Place, City Walk, Petrie Plaza, Ainslie Avenue (between London Circuit and City Walk) the Bus Interchange and other areas as defined in the Precinct Policies, to contain retail uses and shop fronts or other acceptable activity and display windows at street level. 	The proposed arrangement would not change the existing design or character of the surrounding streetscapes.

<ul style="list-style-type: none"> c. requiring all development and building in the main retail and commercial areas to provide sheltered pedestrian areas along the face of the buildings preferably in the form of colonnades. Permanent awnings would be acceptable in redevelopment projects where they are an established feature of the area d. ensuring that the minimum height of any facade abutting a street or pedestrian system is not less than 2 storeys e. allowing buildings on sites outside the main retail and commercial areas to be set back from the property boundary if an appropriate landscaping and paving foreground is provided. Car parking in front of the building will not generally be accepted in Civic. 	
<p>Forecourts or plazas in front of buildings shall generally not be supported, unless the proponent can demonstrate that the plaza will not create adverse wind conditions, and the plaza creates a bonus for the public realm (rather than a better setting for the individual building).</p>	<p>Forecourts or plazas do not form part of this proposal.</p>
<p>Building height</p>	
<p>Building height policies shall apply in the City District as follows:</p> <ul style="list-style-type: none"> a. buildings higher than 7 storeys shall not abut major pedestrian thoroughfares and shall be considered only when part of an approved comprehensive design for a whole section b. on sites adjacent to the main pedestrian areas and other public spaces buildings shall be limited in height to ensure firstly that main pedestrian areas remain substantially sunlit, particularly in the hours between 12 noon and 2 pm in mid-winter, and secondly that an attractive environment is maintained in these areas c. outside of the main pedestrian areas where blocks have frontages of 30 metres or less, a maximum height of 7 storeys shall apply d. no buildings taller than RL 617 m shall be permitted in Civic e. as a general rule, high buildings should be set back from the property line and sit on a podium (eg. The CAGA Centre) in order to lessen turbulence at footpath level. f. where tall buildings are proposed they shall be sited and designed to ensure that down draught conditions and turbulence do not make pedestrian spaces uncomfortable. 	<p>No new buildings are proposed.</p>

<p>g. the developer shall be required to carry out wind testing to the satisfaction of the relevant planning authority prior to development approval being considered for all buildings over 7 storeys and may be required to carry out such testing for lower buildings.</p> <p>h. service elements of buildings and other rooftop structures should be set back from the building edges and screened from street level view.</p>	
Colour of materials	
<p>Buildings in Civic shall be of permanent construction and generally white to light buff/grey in colour. The use of colour or materials in external facades shall be considered in accordance with the provisions of the Urban Design Conditions. In addition, the use of colour or materials in external facades other than in the white to grey colour range shall be considered where, in the National Capital Planning Authority's view:</p> <p>a. the coloured elements relate to clearly defined structural or functional units of the building</p> <p>b. the coloured elements are subsidiary to the main white to light buff/grey materials</p> <p>c. the colours selected are predominantly 'earth' tones such as grey, grey-greens, light browns</p> <p>d. metal cladding, which has the capacity for any colour to be baked or painted on to it, is preferred. While colours which would be at odds with the overall intentions of unity and harmony are not favoured, consideration will be given to the use of bright or contrasting colour for accent or relief in a metal facade</p> <p>e. modelling of facades using metal cladding is employed to prevent unrelieved smooth and reflective facades of metal and glass.</p>	<p>No new buildings are proposed.</p>

Appendix C

Traffic Assessment Report

Capital Metro Agency
Capital Metro Project
Traffic Assessment Report

CLR-TTM-RPT-0004

Rev A | 19 January 2016

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 235067-28

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Appendices

Appendix A

SIDRA Results

1 Project Overview and Background

The Capital Metro Project comprises a 12 kilometre light rail service linking the newly developed area of Gungahlin with the Civic area in Canberra. A 3 kilometre extension of the Stage 1 project from Civic to Russell is also being considered. The project is currently at tender.

As part of the Capital Metro Project, approximately half of the existing Magistrates Court Car Park (west of Northbourne Avenue) is proposed for a temporary construction compound providing offices and site facilities for the successful PPP Proponent. The current Magistrates Court Car Park contains 271 car spaces. It is anticipated that 112 car spaces will be removed to accommodate the construction compound. The Theatre Car Park (east of Northbourne Avenue) currently contains 205 spaces. Thus the total number of existing spaces between the two car parks is 476. CMA has engaged Arup and HASSELL to develop a concept level design of an arrangement that results in a minimum of 500 parking spaces in the area after excluding the construction compound area.

The proposed parking arrangement would involve reconfiguration of the Magistrates Court Car Park and Theatre Car Park to allow for more efficient designs and safer vehicle circulation. At the Magistrates Court Car Park, the general runs of parking modules would remain consistent with the London Circuit boundary. Perimeter parking bays would be introduced on the east and west boundaries of the site and additional 90 degree parking bays would be provided on the northern side of the Knowles Place cul-de-sac. The Theatre Car Park would be reconfigured to remove 45 degree angled parking bays and provide perimeter parking along the western boundary. An extension to the Theatre Car Park would also be provided to the south of the existing site. Two access ramps would be provided from the existing car park, and the extension site would require earth works / levelling and new pavement. Both sites would require re-paving, line marking and minor kerb adjustments to allow for the reconfiguration.

The works would be constructed in connection with the Capital Metro Project. The proposed arrangement would be temporary and would require the removal of some trees at the Magistrates Court and Theatre car park sites to allow for the most efficient configuration.

It is anticipated that the Contractor for the temporary car parks would be a member of the consortium announced as preferred bidder for the Capital Metro Project.

2 Existing Conditions

2.1 Site Location

The site is split over two locations within Canberra City (i.e. Civic), ACT. One site is located between Knowles Place, London Circuit and Northbourne Avenue and known as the Magistrates Court Car Park. The other site is located between Theatre Lane, London Circuit, Vernon Circle and Northbourne Avenue and is known as the Theatre Car Park. These are shown below in Figure 1.

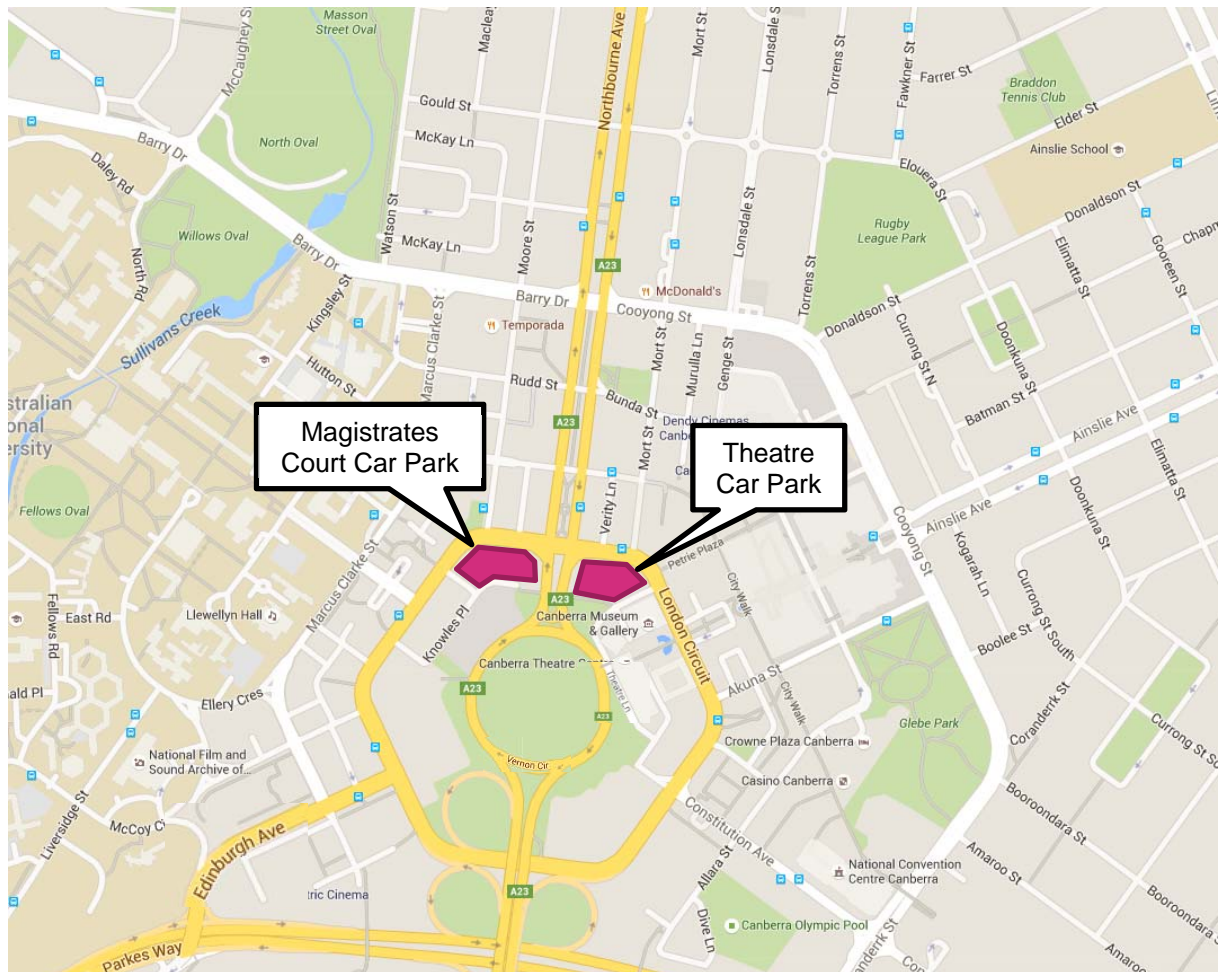


Figure 1: Site Locations

2.2 Road Network And Access

As defined by Austroads, the surrounding road network consists of the following roads:

- **Northbourne Avenue** is an urban arterial road and main avenue under control of the National Capital Authority. This road forms the predominant north-south route from Vernon Circle to the Federal Highway and Barton Highway and has peak hour traffic flows in the order of 2000 vehicles.
- **London Circuit** is a major collector road, connecting Northbourne Avenue to Edinburgh Avenue, Constitution Avenue and other key urban collector/distributor roads in Canberra City and has peak hour traffic flows in the order of 1200 vehicles.

- **Knowles Place** is currently a one-way urban local road, providing access to the Police and Justice precinct. It is understood that the northern section of Knowles Place will be converted to two-way prior to the commencement of the proposed development by others.
- **Theatre Lane** is an urban local road, providing one-way access to the library, theatre and museum.

2.3 Parking

Both of the off-street parking areas in the scope of works are considered to be paid short-stay parking of maximum of 4 hours. The maximum parking fee associated with parking in these areas is currently \$13.30. There are a number of at-grade parking areas south of these parking areas which have both all-day parking and short-stay four hour parking as well.

From 1 September 2015, extended pay parking arrangements operate in some Canberra City car parks until 10.30pm on weekdays and weekends (including the Theatre Car Park). Fees are currently payable in the car parks from 8:30am to 5.30pm Monday to Friday and between 8:30am and 12 noon on Saturday. The car parks allow for parking at pro rata rates with a maximum fee of \$5 payable after 5.30pm Monday to Thursday, after 9pm Friday, after 12 noon on Saturday and all day on Sunday.

2.4 Public Transport Network

Canberra is currently serviced by the ACTION bus network. This network services the greater metropolitan area and has a large number of bus routes using London Circuit in close vicinity to the site. A map of the bus services is shown in Figure 2. Given the proximity of the Canberra City interchange, there are a significant number of bus services using London Circuit.

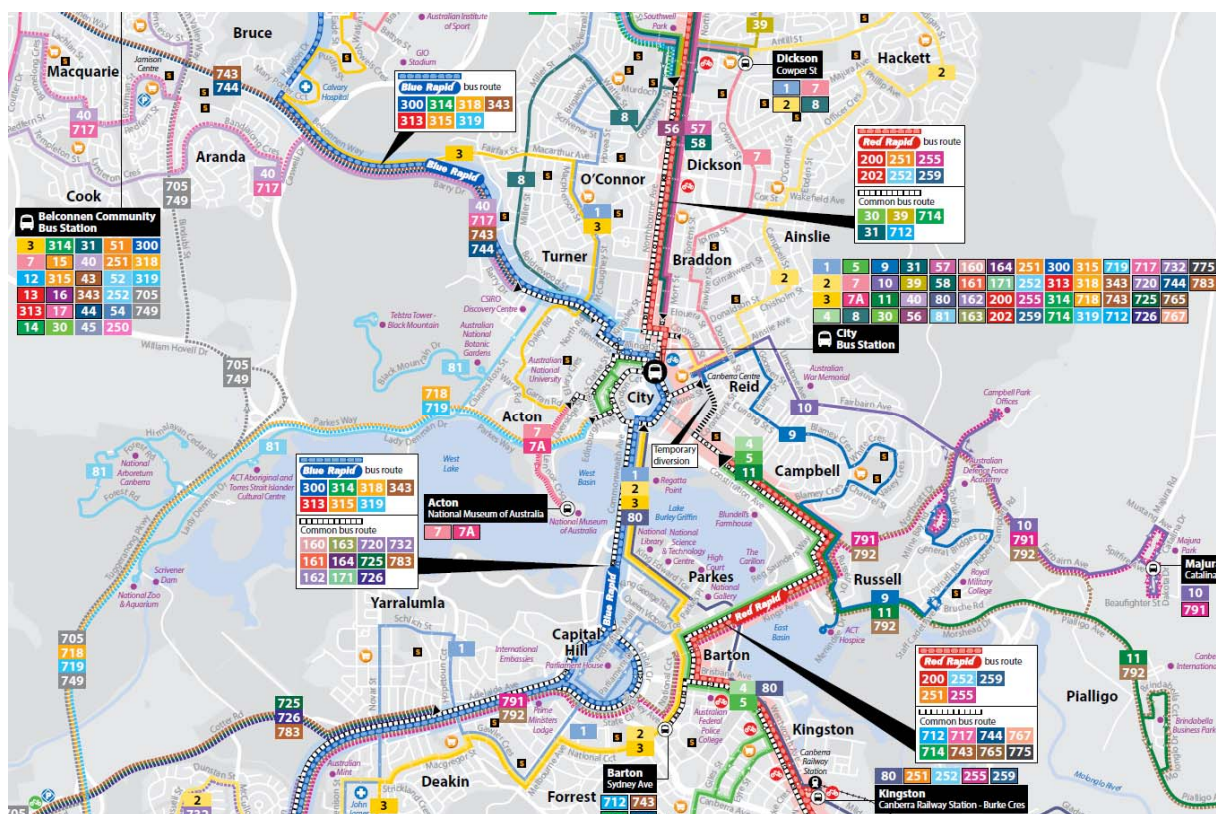


Figure 2: Surrounding bus network (source: ACTION)

2.5 Walking and Cycling Network

Canberra has a good network of footpaths and cycle paths. The nearest cycling paths are located on Northbourne Avenue and Vernon Circle as on-road cycle paths. Marcus Clarke Street and University Avenue have shared paths to take bicycles away from London Circuit. A map of cycle paths is shown in Figure 3.



Figure 3: Canberra Cycling Network (source: ACT Government)

There are a number of footpaths surrounding the sites. Both Northbourne Avenue and London Circuit have footpaths on both sides of the road. Crossings near the site are noted as the following:

- There is a refuge crossing between the car park sites across Northbourne Avenue
- There are signalised pedestrian crossings at the intersection of London Circuit and Northbourne Avenue.
- There is a signalised midblock pedestrian crossing north of Petrie Plaza on London Circuit.
- An informal pedestrian refuge is located east of West Row on London Circuit.
- There are zebra crossings south of Knowles Place on London Circuit.

3 Proposed Car Park Design

3.1 Description of Proposed Works

3.1.1 Construction compound

A construction compound is proposed within the Magistrates Court Car Park, for the eastern portion of the site area. This will require construction access via the cul-de-sac section of Knowles Place, which is currently a narrow two-way local road for service access to the court house and limited on-street car parking. A hoarding will be placed between the car park and the construction compound which will allow no access from the existing car park. The construction compound results in a loss of 112 car parking spaces, including 4 parking spaces for people with disabilities. This construction compound will be addressed by the PPP proponent as part of the Works Approval submission for the Capital Metro Project.

3.1.2 Magistrates Court Car Park

As a result of the construction compound, there is opportunity to reconfigure the Magistrates Court Car Park layout to allow for efficient parking design. The general parking modules have been left consistent with the London Circuit boundary curve, with an introduction of perimeter parking bays provided on the east and west boundaries. There has also been additional 90 degree parking bays provided on the northern side of the cul-de-sac section of Knowles Place. As a result of this rearrangement, the car park has 203 total car parking spaces.

3.1.3 Theatre Car Park

The Theatre Car Park is currently an inefficient design, which has a number of 45 degree angle parking bays located in the southern portion of the car park. There is opportunity to convert these bays to 90 degree parking and have perimeter parking along the western boundary for better efficiency. In addition, the undeveloped site south of the car park has potential for extra car parking. A separate car parking module of 21 parking spaces has been developed with two separate one-way ramps for a one-way circulation. As a result of this rearrangement, the car park has approximately 298 total car parking spaces.

3.2 Proposed Site Access

3.2.1 Car Park Accesses

Both of the car park sites have been maintained as per the existing access arrangements. The Theatre Car Park uses Theatre Lane to access London Circuit, and the Magistrates Court Car Park uses Knowles Place to access London Circuit. There have been some minor adjustments to kerbs at the access points to allow for parking reconfiguration.

3.2.2 Knowles Place

In connection with the Courts construction project, the proposed works by others will result in the northern section of Knowles Place becoming two-way (between London Circuit and the T-junction adjacent to the Magistrates Court Car Park). This conversion will allow two-way movements from both the car park and associated eastern construction compound. As a result, vehicles will be forced to turn left into London Circuit, with a full-time no right turn ban implemented. Vehicles will still be able to turn right from London Circuit as per the existing arrangements. It should be noted that the angled bays provided on this section of Knowles Place are left unaffected by this proposal.

4 Transport and Parking Assessment

4.1 Parking Assessment

The temporary car parks will provide adjusted car parking to meet Australian Standards (AS2890.1-2004 and AS2890.6-2009) and provide the same number of motorcycle parking spaces, car parking spaces for people with disabilities (accessible parking) and dedicated medical practitioner car parking spaces as currently provided in the existing car park sites.

4.1.1 Car Parking

The car parking bays have been designed to AS2890.1-2004 Class 2 facilities for both car parks, given the medium-term use for 4 hour parking. Car parking modules entail minimum 2.5m wide by 5.4m long parking bays, and 5.8m aisle widths.

The car park circulation has been configured with one-way loops to ensure maximum safety and efficiency. This will allow for safer pedestrian movements through the car park as it minimises the required trafficable width.

Ticket vending machines will remain as per the existing setup in the Theatre Car Park. Ticket vending machines will be moved to the peripherals in the Magistrates Court Car Park to limit loss of parking within the car parking area.

4.1.2 Accessible Car Parking

Accessible parking has been provided on the assumption of matching the current number of bays provided and making these compliant with AS2890.6-2009. Therefore, for the Theatre Car Park, the nine bays noted as accessible parking will remain and the six bays in the Magistrates Court Car Park will be replaced as necessary with the adjacent shared areas.

4.1.3 Bicycle and Motorcycle Parking

Similar to accessible parking, the provision of motorcycle parking has been provided on the assumption of matching the current number of bays provided and making these bays compliant with AS2890.1-2004. Bays are minimum 1.2m wide by 2.5m long. 10 motorcycle bays will be provided in the Magistrates Court Car Park and 25 motorcycle bays will be provided in the Theatre Car Park.

There is currently no provision for bicycle parking within both of the car parking areas. It is proposed that no bicycle parking is introduced.

4.1.4 Medical Practitioner Provisions

The existing nine medical practitioner spaces in the western corner of the Magistrates Court Car Park will be reinstated in approximately the same location.

4.1.5 Service Vehicle Provisions

Service vehicles will be permitted to access both car parks. The car park aisles will restrict vehicles to Medium Rigid Vehicles (8.8m long MRVs) due to the 90 degree turns required. Heavy Rigid Vehicles (12.5m long HRVs) will be permitted on the external road system including two-way within Knowles Place for construction compound access. All heavy vehicles will be required to be under strict traffic control when accessing the construction compound or car park.

4.2 Road Network Impacts

4.2.1 Traffic Generation and Distribution

Given that the car park has a four hour time limit, to be conservative it has been assumed that each parking bay is expected to turn over every two hours on average. For each space that turns over, this equates to two traffic movements per parking bay per hour. Therefore, the extra 25 parking bays generate an additional 25 traffic movements in an hour. This would be in addition to the existing 476 expected peak hour trips generated across the two sites.

The key additional factor will be the redistribution of traffic based on the car parking provided across the two sites. The Magistrates Court Car Park is expected to lessen by 68 spaces, and hence 68 vehicle movements. The Theatre Car Park is expected to increase by 93 spaces, and hence 93 vehicle movements.

It is assumed that the additional traffic generated will be distributed onto London Circuit and into the wider network in the same manner as per existing traffic counts. It is expected that the vehicles will be distributed evenly across the various accesses. To assess the impacts of the increase in traffic at the intersection of the Theatre Car Park access to London Circuit, this intersection has been modelled for the additional traffic flow.

4.2.2 Traffic Modelling

The intersection has been assessed using SIDRA software. The existing intersection performance is assessed in this report in terms of the following three factors for each intersection.

- Degree of Saturation
- Average Delay (Seconds per vehicle)
- Level of Service

In urban areas, the traffic capacity of the major road network is generally a function of the performance of key intersections. This performance is quantified in terms of Level of Service (LoS), is based on the average delay per vehicle. LoS ranges from A = very good to F = unsatisfactory (see Table 1).

Table 1: Level of Service Criteria for Intersections

Level of Service	Average delay (seconds)	Description
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At Capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode
F	Greater than 71	Unsatisfactory with excessive queuing

Another common measure of intersection performance is the degree of saturation (DoS), which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DoS of 1.0 indicates that an intersection is operating at capacity.

SCATS data (Sets 1, 1006 and 1028) during a typical weekday in March 2014 was used to determine turning movements at the Theatre Car Park access at London Circuit as this is where the largest traffic increase occurred. The results of the intersection analysis is summarised in Table 2. This includes an existing and future scenario with the increase of car parking numbers from the Theatre Car Park.

Table 2: SIDRA Modelling Results

Intersection	Peak	Scenario	LoS	Delay (s)	DoS
Theatre Car Park Access / London Circuit	AM	Existing	A	7.9	0.473
		Future	A	8.4	0.541
	PM	Existing	A	7.9	0.473
		Future	A	8.3	0.535

4.2.3 Summary of Impacts

The proposal is considered to have a minimal impact on the operation of the local road network. Reasons for this include the following:

- Traffic movements at the key access points into the site operate efficiently with minimal vehicle delays;
- The reconfigured Knowles Place / London Circuit intersection is proposed as a left only turn out and will have less traffic as a result of the reduced car parking numbers from the Magistrates Court Car Park; and
- The forecast peak hour traffic generation of 25 vehicles is a relatively minor increase when distributed over the key access roads to the wider Canberra City area, and considered in the context of existing network traffic volumes in the area.

4.3 Walking and Cycling Impacts

The provision of the car parking bays has limited impact on pedestrian movements as key pedestrian paths are being maintained. There is currently poor pedestrian movement within the car park and this is being improved with shared areas for the accessible bays where necessary.

5 Conclusions

This review has described the potential traffic and transport impacts of the proposed temporary car parks as a result of the Capital Metro Project. Key findings of the review are as follows:

- The sites are located in an existing commercial area with large numbers of off-street parking available, with additional restricted on-street parking;
- The maximum peak hour traffic generation rate of 1 vehicle trip per car parking space has been assumed from an average 2 hour turnover for the 4 hour limits;
- The car park and loading bays have been designed in accordance with Australian Standards (AS 2890);
- The site has good access to public transport - within a 5 minute walk of a major transport interchange;
- The site has good access to walking and cycling networks – which will be maintained as per the existing arrangements; and
- The increase in peak hour traffic of between 25 vehicles associated with the proposal is considered minor when distributed onto London Circuit and viewed in the context of high background traffic volumes in Canberra City, ACT.

In summary, the proposed development is considered to have a minimal impact on the local transport network.

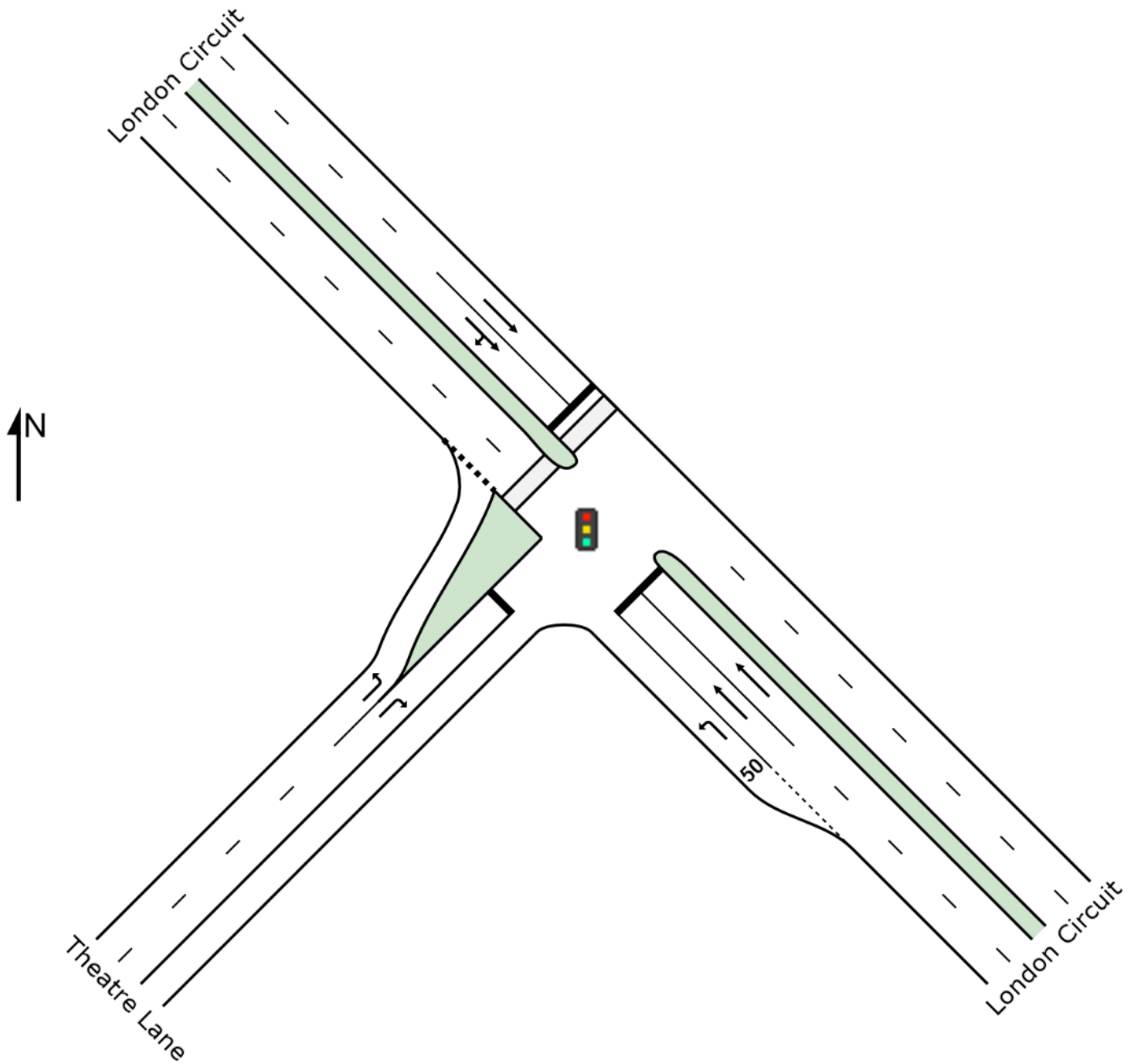
Appendix A

SIDRA Results

SITE LAYOUT

 **Site: AM Existing**

Theatre Car Park Access
Signals - Fixed Time Isolated



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MOVEMENT SUMMARY

 **Site: AM Existing**

Theatre Car Park Access

Signals - Fixed Time Isolated Cycle Time = 30 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: London Circuit											
1	L2	37	0.0	0.020	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
2	T1	221	0.0	0.142	6.4	LOS A	1.1	7.5	0.67	0.52	54.3
Approach		258	0.0	0.142	6.3	LOS A	1.1	7.5	0.57	0.53	54.2
NorthWest: London Circuit											
8	T1	499	0.0	0.473	7.6	LOS A	4.2	29.4	0.78	0.68	52.8
9	R2	105	0.0	0.473	13.3	LOS A	2.8	19.3	0.78	0.71	50.1
Approach		604	0.0	0.473	8.6	LOS A	4.2	29.4	0.78	0.68	52.3
SouthWest: Theatre Lane											
10	L2	16	0.0	0.017	7.2	LOS A	0.1	0.4	0.45	0.62	52.7
12	R2	16	0.0	0.024	8.2	LOS A	0.1	0.6	0.56	0.65	51.5
Approach		32	0.0	0.024	7.7	LOS A	0.1	0.6	0.50	0.63	52.1
All Vehicles		894	0.0	0.473	7.9	LOS A	4.2	29.4	0.71	0.64	52.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	NorthWest Full Crossing	53	9.6	LOS A	0.0	0.0	0.80	0.80	
All Pedestrians		53	9.6	LOS A			0.80	0.80	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: AM Future**

Theatre Car Park Access

Signals - Fixed Time Isolated Cycle Time = 30 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: London Circuit											
1	L2	58	0.0	0.031	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
2	T1	221	0.0	0.142	6.4	LOS A	1.1	7.5	0.67	0.52	54.3
Approach		279	0.0	0.142	6.2	LOS A	1.1	7.5	0.53	0.53	54.1
NorthWest: London Circuit											
8	T1	499	0.0	0.541	7.9	LOS A	5.0	34.9	0.81	0.70	52.7
9	R2	163	0.0	0.541	13.8	LOS A	3.0	20.8	0.81	0.77	49.0
Approach		662	0.0	0.541	9.3	LOS A	5.0	34.9	0.81	0.72	51.7
SouthWest: Theatre Lane											
10	L2	26	0.0	0.028	7.2	LOS A	0.1	0.7	0.46	0.63	52.7
12	R2	26	0.0	0.040	8.3	LOS A	0.1	1.0	0.56	0.66	51.5
Approach		53	0.0	0.040	7.8	LOS A	0.1	1.0	0.51	0.64	52.1
All Vehicles		994	0.0	0.541	8.4	LOS A	5.0	34.9	0.72	0.66	52.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	NorthWest Full Crossing	53	9.6	LOS A	0.0	0.0	0.80	0.80	
All Pedestrians		53	9.6	LOS A			0.80	0.80	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: PM Existing**

Theatre Car Park Access

Signals - Fixed Time Isolated Cycle Time = 30 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: London Circuit											
1	L2	37	0.0	0.020	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
2	T1	221	0.0	0.142	6.4	LOS A	1.1	7.5	0.67	0.52	54.3
Approach		258	0.0	0.142	6.3	LOS A	1.1	7.5	0.57	0.53	54.2
NorthWest: London Circuit											
8	T1	499	0.0	0.473	7.6	LOS A	4.2	29.4	0.78	0.68	52.8
9	R2	105	0.0	0.473	13.3	LOS A	2.8	19.3	0.78	0.71	50.1
Approach		604	0.0	0.473	8.6	LOS A	4.2	29.4	0.78	0.68	52.3
SouthWest: Theatre Lane											
10	L2	32	0.0	0.034	7.2	LOS A	0.1	0.8	0.46	0.63	52.7
12	R2	32	0.0	0.048	8.3	LOS A	0.2	1.2	0.57	0.66	51.5
Approach		63	0.0	0.048	7.8	LOS A	0.2	1.2	0.51	0.65	52.1
All Vehicles		925	0.0	0.473	7.9	LOS A	4.2	29.4	0.71	0.64	52.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	NorthWest Full Crossing	53	9.6	LOS A	0.0	0.0	0.80	0.80	
All Pedestrians		53	9.6	LOS A			0.80	0.80	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 **Site: PM Future**

Theatre Car Park Access

Signals - Fixed Time Isolated Cycle Time = 30 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: London Circuit											
1	L2	53	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
2	T1	221	0.0	0.142	6.4	LOS A	1.1	7.5	0.67	0.52	54.3
Approach		274	0.0	0.142	6.2	LOS A	1.1	7.5	0.54	0.53	54.2
NorthWest: London Circuit											
8	T1	499	0.0	0.535	7.9	LOS A	4.9	34.4	0.81	0.70	52.7
9	R2	158	0.0	0.535	13.7	LOS A	2.9	20.6	0.81	0.76	49.1
Approach		657	0.0	0.535	9.3	LOS A	4.9	34.4	0.81	0.72	51.8
SouthWest: Theatre Lane											
10	L2	47	0.0	0.051	7.3	LOS A	0.2	1.2	0.46	0.64	52.6
12	R2	47	0.0	0.073	8.3	LOS A	0.3	1.9	0.58	0.68	51.5
Approach		95	0.0	0.073	7.8	LOS A	0.3	1.9	0.52	0.66	52.0
All Vehicles		1025	0.0	0.535	8.3	LOS A	4.9	34.4	0.71	0.66	52.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	NorthWest Full Crossing	53	9.6	LOS A	0.0	0.0	0.80	0.80	
All Pedestrians		53	9.6	LOS A			0.80	0.80	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Appendix D

Site Establishment and Construction Management Plan

Capital Metro Agency

Capital Metro Project

Temporary Car Parks Site
Establishment and Construction
Management Plan

CLR-CCD-RPT-0003

Rev A | 19 January 2016

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 235067-00

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Capital**Metro**
ACT Government

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1 Project Overview and Background

1.1 The Project

The Capital Metro Project comprises a 12 kilometre light rail service linking the newly developed area of Gungahlin with the Civic area in Canberra. A 3 kilometre extension of the Stage 1 project from Civic to Russell is also being considered. The project is currently at tender.

As part of the Capital Metro Project, approximately half of the existing Magistrates Court Car Park (west of Northbourne Avenue) is proposed for a temporary construction compound providing offices and site facilities for the successful PPP Proponent. The current Magistrates Court Car Park contains 271 car spaces. It is anticipated that 112 car spaces will be removed to accommodate the construction compound. The Theatre Car Park (east of Northbourne Avenue) currently contains 205 spaces. Thus the total number of existing spaces between the two car parks is 476. CMA has engaged Arup and HASSELL to develop a concept level design of an arrangement that results in a minimum of 500 parking spaces in the area after excluding the construction compound area.

The proposed parking arrangement would involve reconfiguration of the Magistrates Court Car Park and Theatre Car Park to allow for more efficient designs and safer vehicle circulation. At the Magistrates Court Car Park, the general runs of parking modules would remain consistent with the London Circuit boundary. Perimeter parking bays would be introduced on the east and west boundaries of the site and additional 90 degree parking bays would be provided on the northern side of the Knowles Place cul-de-sac. The Theatre Car Park would be reconfigured to remove 45 degree angled parking bays and provide perimeter parking along the western boundary. An extension to the Theatre Car Park would also be provided to the south of the existing site. Two access ramps would be provided from the existing car park, and the extension site would require earth works / levelling and new pavement. Both sites would require re-paving, line marking and minor kerb adjustments to allow for the reconfiguration.

The works would be constructed in connection with the Capital Metro Project. The proposed arrangement would be temporary and would require the removal of some trees at the Magistrates Court and Theatre car park sites to allow for the most efficient configuration.

It is anticipated that the Contractor for the temporary car parks would be a member of the consortium announced as preferred bidder for the Capital Metro Project.

1.2 This Document

This document outlines the indicative construction management proposals for consideration with the Works Approval submission for the Temporary Car Parks.

This indicative plan would be followed by the development of a Construction Management Plan for the project which would include further details of construction staging, construction methodology, site access and site facilities layouts. This would be developed and issued by the Contractor during detailed design and would be subject to a further Works Approval application.

The objective of a Construction Management Plan is to minimise the impacts of construction activities on the public.

2 Site Plans

Detailed site plans showing the existing site and the proposed works are included in this Works Approval submission (Appendix F to the main document).

3 Construction Methodology and Staging

Construction would be staged such that work is not occurring concurrently within the Magistrates Court Car Park and Theatre Car Parks. Further, the temporary car park works would be completed in advance of the Capital Metro Project construction compound being established on part of the existing Magistrates Court Car Park (Works Approval for this construction compound will be sort separately by the successful PPP Proponent).

The staging of the works will be determined by the Contractor during detailed design, however it is anticipated that the works would be staged as described in Table 1.

Table 1 – Proposed Staging of Works

Work Stage	Description of Works
Stage 1	<p>Construction of new parking on the landscaped area to the south of the existing Theatre Car Park and the proposed ramps to this area are to be undertaken.</p> <p>The existing Magistrates Court and Theatre car parks would remain operational as per the current arrangement with site facilities temporarily located within the existing Theatre Car Park with a small number of existing car spaces impacted.</p>
Stage 2	<p>Following completion of Stage 1, the site facilities would be relocated to the new parking area south of the Theatre Car Park. These facilities would remain until completion of construction of the temporary car parks.</p>
Stage 3	<p>Reconfiguration of the existing Theatre Car Park site. The existing Magistrates Court Car Park would remain operational as per the current arrangement.</p>
Stage 4	<p>Reconfigured Theatre Car Park (excluding the new area to the south) would be opened to the public.</p> <p>Construction of a temporary access to the existing eastern end of the Magistrates Court Car Park from the Knowles Place cul-de-sac. The requirements of this access would be determined by the Contractor as this access would also become the construction vehicle access to the future Capital Metro Construction Compound following completion of the temporary car parks.</p> <p>Temporary fencing would be installed to separate the car park works area from the eastern portion (future Capital Metro Construction Compound) that would remain open to the public while the Magistrates Court Car Park works are being constructed.</p>
Stage 5	<p>Reconfiguration of the western portion of the Magistrates Court Car Park site.</p> <p>Reconfigured Theatre Car Park (excluding the new area to the south) would remain open to the public.</p>

Work Stage	Description of Works
Stage 6	<p>Fencing between the eastern and western portions of the Magistrates Court Car Park would be removed.</p> <p>Eastern and western portions of the Magistrates Court Car Park would be opened to the public as two separate car parks separated by a kerb and with separate entries.</p> <p>Site facilities would be removed from the new parking area south of the Theatre Car Park with these facilities then becoming accessible to the public.</p>

4 Construction Considerations

4.1 Site Facilities

While the Contractor will determine the final requirements, it is anticipated that limited site facilities would be required for the works. These facilities will likely consist of two shipping containers; one for site office facilities and a second for storage and toilet facilities. A small storage area is also anticipated for the storage of kerbing materials, drainage pipes etc.

Once Stage 1 (refer Table 1) of construction has been completed, these facilities would be confined to the new parking on the existing landscaped area to the south of the existing Theatre Car Park. Prior to this, these facilities would be temporarily located in the existing Theatre Car Park in close proximity to the proposed ramps.

The location, size and colour of the site facilities will be agreed with NCA in advance of the works commencing.

4.2 Site Fencing

Temporary site fencing with shade cloth would be required to secure each site for the duration of the construction on that site. This fencing would be installed in accordance with WorkSafe ACT requirements and the Contractor's safety management requirements.

Secure fencing would also be required around the site facilities for the full duration of the temporary car parks works.

The height and fence type would be agreed with NCA prior to work commencing.

4.3 Signage

The Contractor must provide statutory signage for the duration of the works that identifies the following:

- Construction access versus the public access points;
- Restricted areas / Construction areas;
- Contractor information and contact details; and
- Temporary diversion arrangements between car parks.

4.4 Access and temporary traffic management

4.4.1 Theatre Car Park

Access to the Theatre Car Park during construction would be primarily via the existing car park entry points off Theatre Lane, via London Circuit. The new southern extension to the Theatre Car Park would also require construction vehicles to access the site directly from Northbourne Avenue on the western site boundary.

No road modifications are anticipated to be required to facilitate construction beyond the identified scope of works.

Once the phasing of works is confirmed, traffic control management plans will be formalised and separately submitted for approval by TAMS and NCA.

4.4.2 Magistrates Court Car Park

Access to the Magistrates Court Car Park during construction would be via the existing car park entry points off Knowles Place, via London Circuit.

Through discussions with the Justice and Community Safety Directorate (JACS) it is known that road changes are proposed to the existing Knowles Place configuration to facilitate construction of the courts building project by that directorate. As construction of the courts building and the Magistrates Court Car Park will be concurrent, the Magistrates Court Car Park construction will also utilise these changes which include:

- Conversion of the existing one way access on the northern portion of Knowles Place (north of the Reserve Bank of Australia) to two way access to / from London Circuit and related changes to signage, line marking etc.
- Conversion of the existing one way access on the southern portion of Knowles Place (south of Canberra City Police Station) to two way access to / from London Circuit and related changes to signage, line marking etc.

It is likely that traffic control may be required. Once the phasing of works is confirmed, traffic control management plans will be formalised and separately submitted for approval by TAMS and NCA.

4.5 Tree Protection

In locations throughout the car parking areas where kerb removal or replacement may be necessary adjacent to an existing tree that is not proposed for removal, an arborist shall be engaged to direct works associated with crown and trunk protection, root removal, root pruning and any exposure or disturbance of tree roots.

Tree protection measures shall include the following:

- Crown protection may include pruning, tying-back of branches or other measures.
- Avoid the use of fuel and chemicals, including preparation of cement products within the root zone.
- Install protection to the trunk and branches of trees where necessary as instructed by the arborist. The materials and positioning of protection are to be specified by the project arborist. A minimum height of 2m is recommended.

- Ground protection. The purpose of ground protection is to prevent root damage and soil compaction within the structural root zone (SRZ). Measures may include a permeable membrane such as geo-textile fabric beneath a layer of 75mm of mulch.
- Avoid the use of machinery for excavation. Manual excavation should be carried out under the supervision of the project arborist to identify roots critical to tree stability.
- Where the project arborist identifies roots to be pruned within or at the outer edge of the SRZ the roots shall be pruned with a final cut to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. Pruning wounds should not be treated with dressings or paints.
- Where roots within the tree protection zone (TPZ) are exposed by excavation, temporary root protection should be installed to prevent them drying out. This may include jute mesh or hessian sheeting as multiple layers over exposed roots and excavated soil profile, extending to the full width of the root zone. Root protection sheeting should be pegged in place and kept moist during the period that the root zone is exposed.
- On completion of the kerb replacement or repair remove all protective items.

4.6 Erosion and Sediment Control

Erosion and Sediment Control drawings have been prepared for this Works Approval submission. Please refer to drawings CLR-CCW-DRG-4045 to CLR-CCW-DRG-4047 for details.

4.7 Site Restoration

As described in Stages 4 and 6 in Table 1, the car parks would be reopened to the public following the completion of construction of each site.

Any damage caused to landscaping, kerbs and access roads adjacent to the sites as a consequence of the works would be repaired with the areas restored to their original condition prior to construction commencing.

Appendix E

Excerpt from Kim Lighting Specification

Type:
Job:
Catalog number:

/	/	/	/	/
Mtg.	Fixture	Electrical Module	Finish	Options
See page 2				See pages 3-5

Optional
Vertical
Slipfitter Mount
See page 5

Approvals:
Date:
Page: 1 of 5

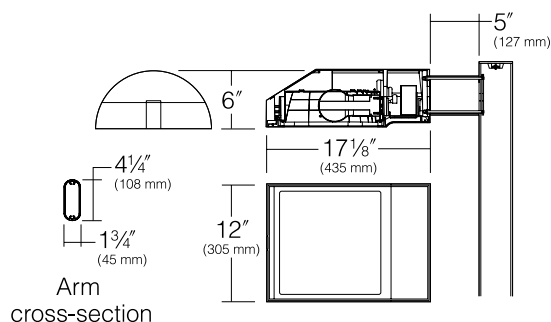
Select pole from Kim Pole Catalog. If pole is provided by others indicate O.D. for arm fitting.

Specifications

55 watt

Induction Fluorescent

Maximum Fixture weight = 25 lb



Housing: One-piece die-cast, low copper (<0.6% Cu) aluminum alloy with integral cooling ribs over the optical chamber and electrical compartment. Solid barrier wall separates optical and electrical compartments. Double-thick wall with gussets on the support-arm mounting end. The fixture's housing forms a half cylinder with 58° front face plane providing a recess to allow a flush single-latch detail. All hardware is stainless steel or electro-zinc plated steel.

Lens Frame: One-piece die-cast, low copper (<0.6% Cu) aluminum alloy lens frame with 1" minimum depth around the gasket flange. Integral hinges with stainless steel pins provide no-tool mounting and removal from housing. Single die-cast aluminum arm-latch provides positive locking and sealing of the optical chamber by a one piece extruded and vulcanized silicone gasket to provide an IP66 rating for the optical module. Clear 3/16" thick tempered glass lens retained by eight steel clips with full silicone gasketing around the perimeter.

Reflector Module: Specular Alzak® optical segments are rigidly mounted within a die-cast aluminum enclosure that attaches to the housing as a one-piece module. All reflector modules are factory prewired with quick-disconnect plug and include silicone seal at the penetration of the internal barrier wall in the luminaire housing. The induction lamp is mounted to housing wall.

Electrical Module: All electrical components are UL and CSA recognized, mounted on a single bracket and factory pre-wired with quick-disconnect plugs. A complete HF generator system is furnished mounted to the aluminum plate inside housing. Induction Lamp system is high power factor rated for -40°F, starting.

Support Arm: One-piece extruded aluminum with internal bolt guides and fully radiussed top and bottom. Luminaire-to-pole attachment is by internal draw bolts, and includes a pole reinforcing plate with wire strain relief. Arm is circular cut for specified round pole.

Optional Wall Mounting: Fixture mounts to 3" or 4" junction boxes by a cast aluminum adapter plate with fixture mounting bolts.

Finish: Each luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) polyester powdercoat finish. Standard colors include (BL) Black, (DB) Dark Bronze, (WH) White, (PS) Platinum Silver, (SG) Stealth Gray, (LG) Light Gray, and (CC) Custom Color (Include RAL#).

Warranty: Kim Lighting warrants Induction Lighting System luminaires to be free from defects in workmanship for a period of one (1) year on the housing and metal parts, and carry Philips' Lighting Company QL Induction Lighting System five (5) year warranty, from the date of sale of such goods to the buyer as specified in Kim Lighting shipment documents for each product. For an extended warranty coverage, contact factory.

CAUTION: Fixtures must be grounded in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

Listings and Ratings

ETL to UL 1598, Standards	CE	25°C Ambient
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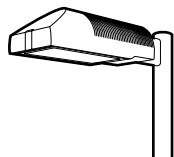
¹SUITABLE FOR WET LOCATIONS.

KIM LIGHTING RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

Type:

Job:

Page: 2 of 5










Standard Features⁰

Mounting

3SY configuration is available for round poles only.

Plan View:

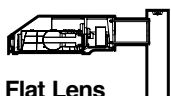
						
EPA: 0.7	1.4	1.2	1.9	1.9	2.5	
Cat. No.: <input type="checkbox"/> 1SA	<input type="checkbox"/> 2SB	<input type="checkbox"/> 2SL	<input type="checkbox"/> 3ST	<input type="checkbox"/> 3SY	<input type="checkbox"/> 4SC	<input type="checkbox"/> 1W

Wall Mount

Fixture

Cat. No. designates fixture and light distribution.

See the Kim Site/Roadway Optical Systems Catalog for detailed information on reflector design and application.



Flat Lens

Light Distribution:



Type III
Full Cutoff

Cat. No.: ☐ **SAR3**

Electrical Module

IF = Induction
Fluorescent

Lamp Watts	Lamp Type	Line Volts
55	IF	277

Cat. Nos. for Electrical Modules available:

- ☐ **55IF120**
- ☐ **55IF208**
- ☐ **55IF240**
- ☐ **55IF277**

Lamp	Induction Lamp
ANSI Ballast	Electronic
Total System Watts	57

Finish

TGIC powder coat

Color: Black Dark Bronze Light Gray Stealth Gray Platinum Silver White Custom Color¹
Cat. No.: ☐ **BL** ☐ **DB** ☐ **LG** ☐ **SG** ☐ **PS** ☐ **WH** ☐ **CC**

¹Custom colors subject to additional charges, minimum quantities and extended lead times. Consult representative. Custom color description: _____

Photometrics

Cat #: SAR3/55IF
Report #: KL01929
Small, 55 Watt
16' Mounting Height

