

Southern Joint Regional Planning Panel
Planning Panels Secretariat
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Pam Allan, Chair

Dear Ms Allan

RA15/1000
Multistorey Carpark Worrigeer/Berry Streets Nowra

Shoalhaven City Council as applicant for RA15/1000 addresses the JRPP's reasons for deferral dated 22.11.2016 with the submission of revised documentation including a Landscape plan, Architectural plans and a supporting Arborists report. The recommendations provided by the JRPP are listed below and briefly addressed:

1. *Setback of the proposed building from Worrigeer Street and Lawrence Avenue to protect and retain existing trees on the two street boundaries. Setbacks are to be generally consistent with those proposed in the draft DCP currently on exhibition. No reduction in the setback to Berry Court is to occur.*

The revised documentation shows compliance with the DCP setback controls for all bounding streets (Berry and Worrigeer Streets, and Lawrence Avenue). No reduction in setback to Berry Court has been shown, and the building footprint has been reduced in the south east corner.

2. *Reduction in the building height to twelve metres in the south eastern corner of the building consistent with the Planning Proposal currently on exhibition.*

The revised documentation removes built form in the south east corner of the site. The removal of built form ensures compliance with DCP and LEP height restrictions in this corner of the site, improves amenity for Berry Court residents, improves deep soil coverage, and improves Safer by Design outcomes for pedestrians.

3. *An elevation treatment to the southern elevation that incorporates a more appropriate architectural solution.*

A large format mural by a professional artist is proposed to the southern face of the carpark as shown on submitted drawing 1311_23. It is further proposed that consultation on design of the mural is to be undertaken with the residents and owners of Berry Court prior to engaging a mural artist. To ensure privacy for

residents of Berry Court and to ensure adequate protection from noise, nuisance lighting and fumes, the southern façade is of solid construction.

4. *Amended Landscape plan that provides details of the proposed vegetation along the southern setback between the site and Berry Court and is to make provision for suitable native vegetation.*

It is proposed that the six existing trees (*Eleaocarpus eumundii*) located on the southern boundary of the site are retained and protected. The species is an Australian native rainforest tree. The submitted Landscape plan 1311_15 provides details of landscape treatment to the whole of site.

The proposed building sits below the LEP height restriction of 15m. Investigations have been undertaken into minimising the overrun height for the elevator, resulting in a reduction in height of 1.315m compared to that shown in previously submitted drawing D15/166739.

The proposed amended design seeks to address the requirements of chapter N8 'Nowra CBD Urban Design Development Controls' of Shoalhaven City Council's DCP. Briefly:

- Street setback requirements as defined in part 5.2 are adhered to and landscaped with consideration to sight lines.
- Street wall heights are compliant with the DCP part 5.4 restriction of 12m, with the exception of one stairwell/lift shaft and a small portion of parapet wall at the North East corner of the building. The position of this non-compliance will not cause overshadowing to Worrigee Street or any neighbours.
- The proposal improves deep soil coverage for the site by reducing the building envelope. The proposal conforms to the requirements of part 5.5 of the DCP by reducing site coverage to under 80%.
- Articulation of the facades is provided to reduce perceived scale of the building to address Part 5.6 and 5.7 of the DCP. By breaking the building façade into sections using the stairwells as visual punctuation, the monotonous horizontality of the proposed form is minimised. Further articulation of the main façade elements (perforated metal panels) uses repeatable patterns to playfully emphasise vertical lines and conceptually mirror the native trees retained on Lawrence Avenue and Worrigee Street. The perceived bulk of the building is minimised on the southern façade facing Berry Court by stepping the upper level back and inclusion of an artwork to improve visual amenity to Berry Court residents.
- Solar access to residents of Berry Court is ensured during mid-winter as per the shadow diagrams submitted with this proposal. Public spaces (in this instance, the bounding streets to the North East and West) will receive more than the minimum 2 hours sunlight at midwinter.
- Figure 3 of Chapter N8 of the DCP identifies Berry Street, part of Lawrence Avenue and all of Worrigee Street facades as desired active street frontages,

but not as required active street frontages. The requirements of active street frontages occasionally contradict the purposes of the building as a carpark (for example vehicle entrances are not to be included along active street frontages) however the proposed design faithfully attempts to meet the objectives where possible. Service doors and plant items are not placed on Worrigee Street, awnings to exits are provided but not along the full façade of the building due to the requirement of tree retention. Level 1 of the proposed carpark is open visually and physically to Worrigee Street, and pedestrian access with maximum 1 in 20 gradients is proposed along the entirety of the Worrigee Street frontage. Lighting to the facades is to be provided for security and wayfinding.

- Pedestrian outcomes in the area will be improved by this proposal, with proposed upgrades to the Berry and Worrigee Street footpaths. Pedestrian access compliant with AS1428.1 is to be provided along the southern perimeter of the building with clear sight lines ensured by the reduced building envelope as compared with previously submitted plans. The objectives of part 5.12 are met.
- Landscaping has been incorporated into the design in accordance with part 5.13 of N8 and Shoalhaven City Council's Streetscape Technical Manual. Street setbacks to Worrigee Street and Lawrence Avenue ensure existing healthy vegetation is protected. The arborist report submitted with this application, and an appraisal by Shoalhaven City Council's Tree Management Officer has identified a number of high risk trees on Worrigee and Lawrence Avenue that require removal as a separate issue to the proposed development. These trees are identified for information on the submitted High Risk Tree Removal Plan.
- Sustainability has been taken into consideration with the proposal of natural ventilation to 3 of the 4 facades. With a minimum 50% open façade treatment and a northerly aspect, natural lighting will offset some daytime lighting requirements. On-site stormwater detention has been proposed.

In summary Shoalhaven City Council resubmits the proposal for a multistorey carpark development which addresses the JRPP's reasons for deferral, is below height restrictions defined in the LEP and faithfully addresses the DCP chapter N8 clauses.

If you need further information about this matter, please contact Julia Simpson, Assets & Works Group on (02) 4429 3239. Please quote Council's reference 45351E (D18/309001).

Yours faithfully



Paul Keech
Director - Assets & Works
06/09/2018



STEPHEN RICHARDSON, M.Appl.Sc., BTP. Grad.Dip.Env. Mgt, RPIA
STUART DIXON, B. Urb. & Reg. Plan., RPIA

Associates:

PETER COWMAN, B.Sc.Agr., MAIAST
ANGELA JONES, B.A. Hons, MSc.
TONI WEARNE, B.A., Grad. Dip. Urb. & Reg. Plan.

Email: info@cowmanstoddart.com.au
Website: www.cowmanstoddart.com.au

Phone: (02) 4423 6198	The Holt Centre	Postal Address:
(02) 4423 6199	31 Kinghorne St	PO Box 738
Fax: (02) 4423 1569	Nowra NSW 2541	Nowra NSW 2541

27 September, 2018

Our ref: 13/80

The General Manager
Shoalhaven City Council
PO BOX 42
NOWRA NSW 2541

Attention: Nicholas Cavallo

Dear Sir

**RE: RA15/1000 – PROPOSED MULTI-STOREY CAR PARK
VARIOUS ALLOTMENTS, CORNER BERRY AND WORRIGEE STREETS, NOWRA**

1.0 Introduction

Our firm has been engaged by Shoalhaven City Council to prepare this submission that is to be submitted in conjunction with Development Application RA15/1000.

This submission requests, subject to the agreement of the consent authorities, to amend Development Application RA15/1000, originally submitted on the 12th May 2015. The request is made pursuant to Clause 55 of the Environmental Planning & Assessment Regulations. This submission, and the documentation it supports, provides particulars sufficient to indicate the nature of the changed development.

The consent authority for this development application is the Southern Joint Regional Planning Panel (SJRPP). At its meeting on the 22nd November 2016 the SJRPP deferred consideration of this development application subject to the submission of amended plans.

This submission, and the documentation it supports, seeks to amend the development application to address the issues raised by the SJRPP. In accordance with instructions received by Shoalhaven City Council, the submission:

- Includes a summary of the reasons given by the SJRPP for deferral of the original development application;
- Details the proposed amendments to the proposal.

- Summarises changes in relevant planning controls that have occurred since the SJRPP originally considered this development application.
- Provides an assessment of the amended proposal having regard to the changes in planning controls (and in particular Chapter N8 to the Shoalhaven DCP 2014) that have occurred since the SJRPP originally considered this development application.

2.0 SJRPP Deferral

Following consideration of an assessment report prepared by Council staff, and hearing public submissions in relation to the original Development Application, at its meeting on the 22nd November 2016 the SJRPP deferred determination of this Development Application pending the submission of amended plans that achieved the following:

- A. *The panel recommends to defer the determination of the matter until the submission of Amended Plans provided by the applicant that achieves the following:*
 - a. *Setback of the proposed building from Worrigeer Street and Lawrence Avenue to protect and retain existing trees on the two street boundaries. Setbacks are to be generally consistent with those proposed in the Draft DCP currently on exhibition. No reduction in the setback to Berry Court is to occur.*
 - b. *Reduction in building height to twelve (12) metres in the south-eastern corner of the building consistent with the Planning Proposal currently on exhibition.*
 - c. *An elevation treatment to the southern elevation that incorporates a more appropriate architectural solution.*
 - d. *Amended Landscape Plan that provides details of proposed vegetation along the southern setback between the site and Berry Court and is to make provision of suitable native vegetation.*
- B. *An Arborist Report be submitted confirming that the amendments will ensure the long term retention and protection of trees, including recommended construction methodologies.*
- C. *A further report be prepared and submitted to the Joint Regional Planning Panel that assesses the merits of the amended proposal, including consistency with the draft controls under consideration and include recommended conditions.*
- D. *That the JRPP consider the matter electronically.*

3.0 The Amended Proposal

To address the issues raised by the SJRPP it is proposed to amend Development Application RA15/1000 as follows:

- The footprint of the proposed development on the site has been amended by increasing setbacks to street frontages as follows:
 - 6 metres to the Worrigeer Street frontage
 - 4 metres to the Lawrence Avenue Street frontage; and
 - 3 metres to the Berry Street frontage.

These setbacks comply with the recently adopted *Chapter N8: Nowra CBD Urban Design Development Controls* of the Shoalhaven Development Control Plan 2014 (refer Section 4.2 of this submission).

The setting back of the building from these street frontages will also enable protection and retention of the majority of existing trees along these street frontages. This is further discussed in Section 5.0 of this submission.

No reduction in set back to the Berry Court site to the south of the site is however proposed. As will be discussed in the next bullet point, the building footprint, however, has been removed from the south-east corner of the site.

- The amended proposal has removed building form from the south-eastern corner of the site entirely. The removal of built form from the south-eastern corner of the site ensures:
 - Compliance with the building height provisions of both the Shoalhaven LEP and DCP height restrictions in this part of the site.
 - Increases building setbacks to adjoining properties to the south, and most notably improving amenity impacts to the Berry Court property.
 - Improves overall deep soil coverage for the site.
 - Improves Safer by Design outcomes for pedestrians.
- The amended proposal will include a large format mural to be produced by a professional artist along the southern elevation of the development. Consultation on the design of the mural is to be undertaken with residents of the adjoining Berry Court who overlook this elevation prior to the engagement of a mural artist.

The entire southern façade of the amended proposal will consist of solid construction to protect the amenity of residents of the Berry Court site by preserving privacy, and ensuring protection from noise, nuisance lighting and fumes.

- The amended development application includes a detailed Landscape Plan which proposes:
 - The retention of six (6) existing trees (*Eleaocarpus eumundii*) along the southern boundary of the site.
 - The retention of seven (7) trees, and the removal of two (2) trees along the Lawrence Avenue frontage;
 - The retention of four (4) trees and removal of three (3) trees along the Worrigee Street frontage; and
 - The removal of a tree from the Berry Street frontage.
 - The trees along the Worrigee Street and Lawrence Avenue frontage that are proposed to be removed have been identified as “high risk” by an Arborist Report and require removal regardless of whether the proposed car park is constructed. This is further discussed in Section 5.0 of this submission.
- The amended development application now proposes to provide a multi-storey car park that will contain:

- A total of five (5) levels;
- 467 car parking spaces, including 8 accessible spaces.
- 18 motorcycle spaces

(The original car park design made provision for a total of 625 car and 21 motorcycle parking spaces. The amended proposal therefore involves a reduction of 158 car parking spaces and three motor cycle parking spaces from the original proposal).

- The amended design will provide facades that are to be articulated by breaking the building façade into sections using stairwells as visual punctuation reducing the horizontality of the building. Further articulation of the main facade elements (perforated metal panels) will utilise repeatable patterns to playfully emphasise vertical lines and conceptually mirror native trees to be retained in Lawrence Avenue and Worrigee Streets. The perceived bulk and scale of the southern façade will be minimised by stepping the upper level back. The inclusion of a mural artwork to improve the appearance of the development to Berry Court residents.

4.0 The Current Planning Provisions

4.1 Shoalhaven Local Environmental Plan 2014

The subject land is zoned B3 Commercial Core under the Shoalhaven Local Environmental Plan 2014 (SLEP 2014) as was the case when the SJRPP originally considered this development application. (see **Figure 1**).

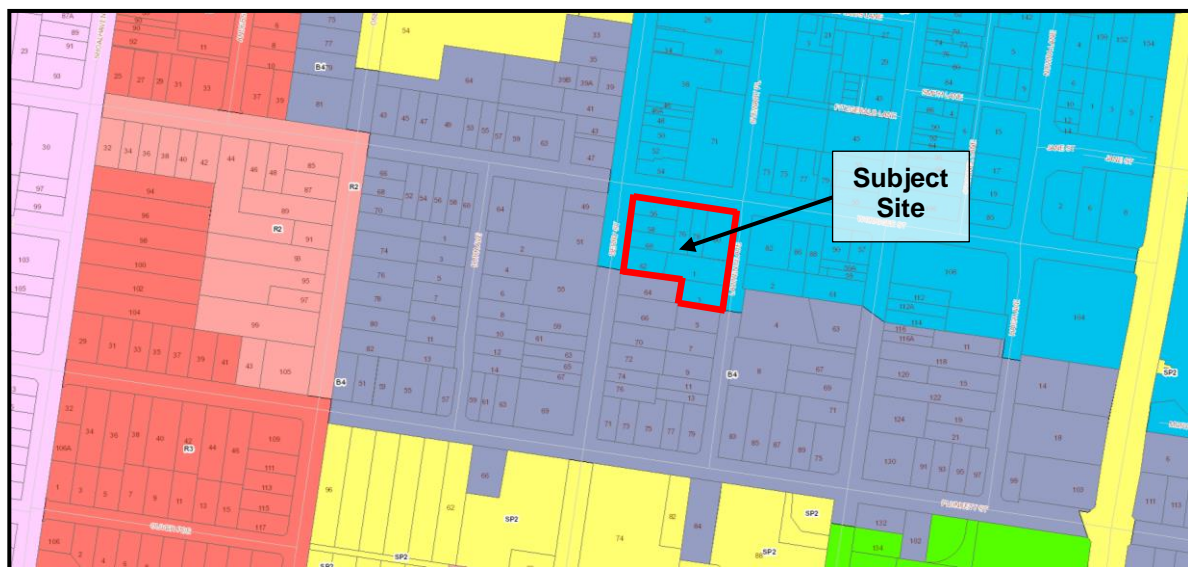


Figure 1: Zoning under Shoalhaven LEP 2014

The main change in the LEP since the SJRPP originally considered this development is the increase in permissible building height that now applies to the subject site.

At the time that the SJRPP considered this development application there was no specified building height limit that applied to the subject site. Under these circumstances the “default” height limit set by clause 4.3 (2A) applied which limited buildings to a height of 11 metres.

The Building Height map that now applies to the site under the SLEP has since been revised as follows (**Figure 2**):

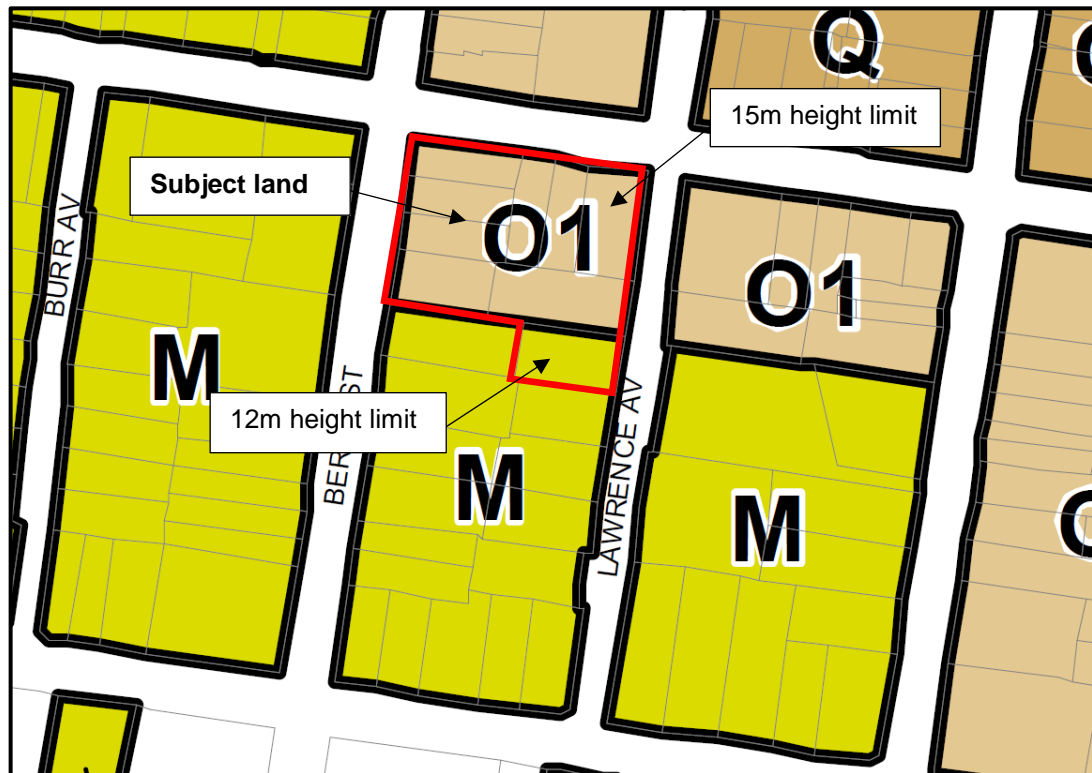


Figure 2: Extract Building Height Map SLEP 2014

Under the building height map that now applies to the subject site a 15 metre height limit applies to the majority of the site, with the exception of the south-eastern part of the site (Lot 3 DP 530250) which has a 12 metre building height limit.

The building height limits that now apply under the SLEP 2014 were changed following Planning Proposal LP 410. This Planning Proposal evolved following the Nowra CBD Urban Design Masterplan process that was completed in 2010. The detailed development controls that support the new building heights were prepared with the assistance of specialist urban design firm, Studio GL Pty Ltd.

The amended proposal has been designed to comply with the current building height limit that now applies to the subject land. The amended proposal will now sit below this building height limit.

The amended proposal has removed building form within the south east corner of the site within Lot 3 DP 530250. Therefore the 12 metre building height limit that applies to this part of the subject site is not now an issue for the amended proposal.

4.2 Shoalhaven Development Control Plan 2014

Since the SJRPP considered the original development application Council has subsequently adopted *Chapter N8: Nowra CBD Urban Design Development Controls* of the Shoalhaven DCP 2014. The adoption of this chapter of the DCP was another outcome of Nowra CBD Urban Design Masterplan process referred to in Section 4.1 above.

The amended proposal has been designed to better align and comply with the requirements of this chapter of the DCP. **Annexure 1** to this submission is a Compliance Checklist providing an assessment of how the amended proposal complies with the provisions of the chapter of the DCP.

The amended proposal generally satisfies the requirements of Chapter N8 of the DCP. The amended proposal however does not strictly comply with Acceptable Solutions A10.1 and A10.2 as the north-east corner of the amended proposal exceeds a building façade wall height of 12 metres as depicted in Figure 16 of Section 6 of this Chapter of the DCP.

As detailed in Section 11 of Chapter 1 of the DCP however, the DCP aims to allow flexibility in the application of development controls to promote innovation and design excellence. The consent authority may consider variations to the requirements of the Shoalhaven DCP 2014 in certain circumstances.

The consent authority can consider alternative solutions in certain circumstances provided the objectives and performance criteria are met. Justification in the form of a "Variation Statement" demonstrating how the objectives and relevant performance criteria will be achieved must be provided with the application. This section of this submission includes a "Variation Statement" with respect to the departure with Acceptable Solution Acceptable Solutions A10.1 and A10.2 as they relate to this amended proposal.

4.2.1 Variation Statement - Street Wall Heights - Acceptable Solutions A10.1 and A10.2

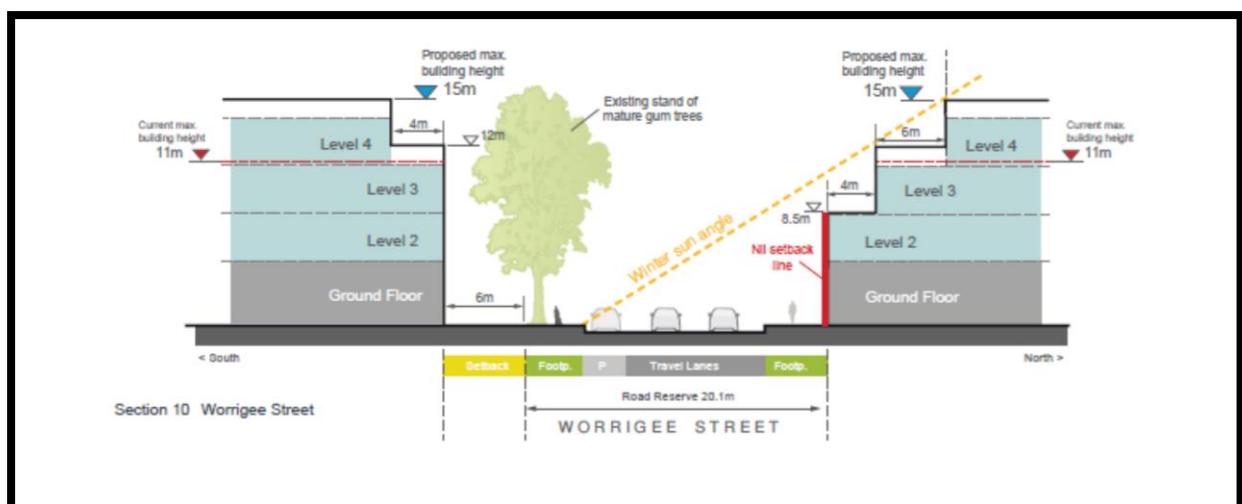
Control Being Varied

Acceptable Solutions A10.1 and A10.2 of Section 5.4.2 of *Chapter N8: Nowra CBD Urban Design Development Controls* stipulate:

A10.1 New buildings have a maximum street wall height as outlined in Section 6 - Area Specific Controls.

A10.2 Any development above the street wall height applies the upper level setbacks (as a minimum) as outlined in Section 6 - Area Specific controls.

Figure 16 of Section 6 of Chapter N8 detail the required street wall heights for Worrigeer Street (**Figure 3**).



**Figure 3: Extract from Figure 16: Desired Streetscape Character – Central Core (C3)
Chapter N8 Shoalhaven DCP 2014**

Having regard to Figure 16 of Section 6 of Chapter N8 (Figure 3), a street wall height of 12 metres applies to the subject site.

Extent of Variation and circumstances as to why variation is being sought;

The amended proposal generally complies with the above Acceptable Solutions. The exception however is the north eastern corner of the amended proposal where one stairwell / lift shaft and a small proportion of parapet wall will exceed the 12-metre height limit that applies to the building façade height limit.

The extent to which the amended proposal exceeds this height limit is shown diagrammatically in **Figures 4 - 6** below.

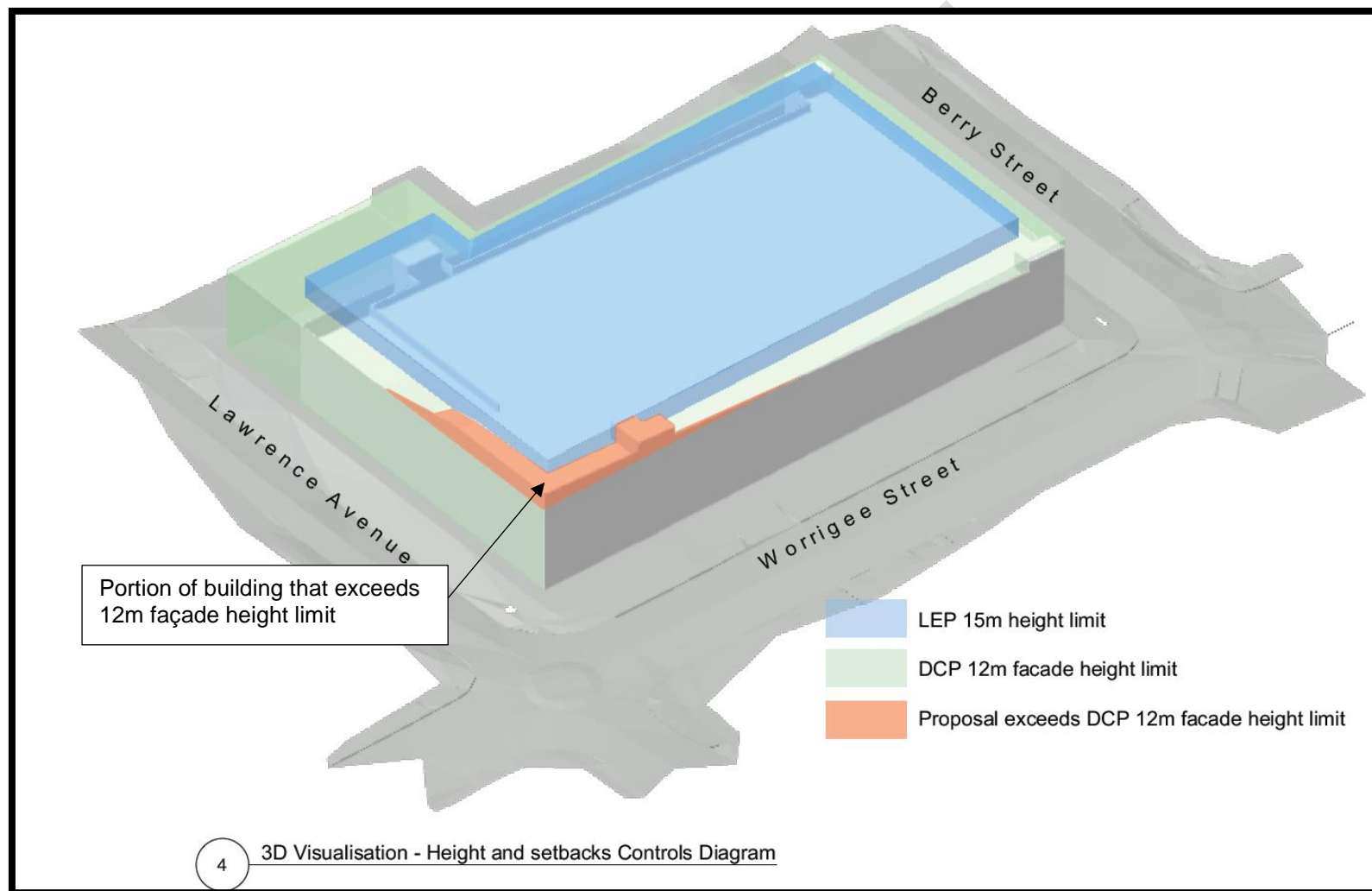


Figure 4: 3D Visualisation of Height and Setback Controls including Exceedance

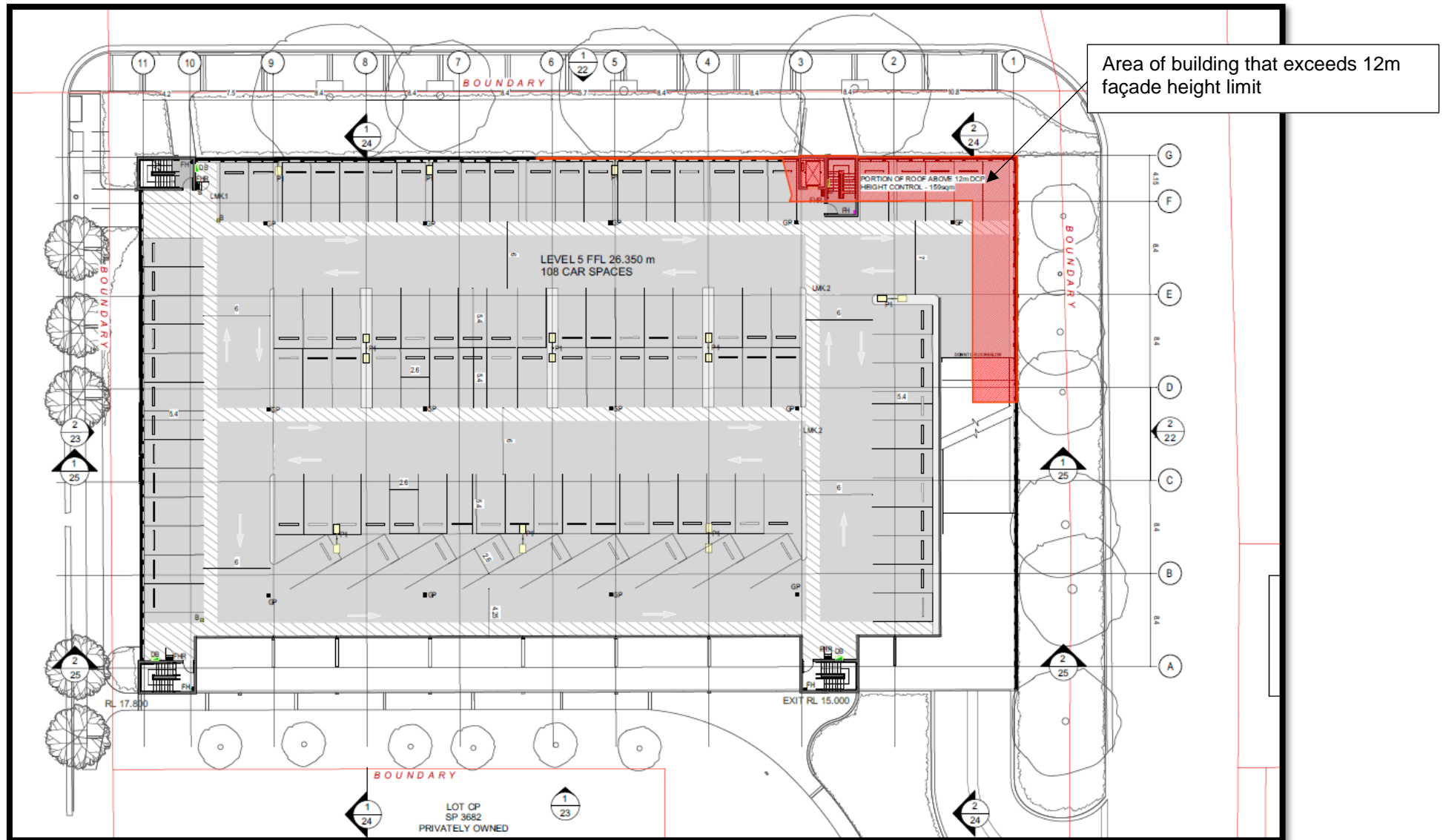


Figure 5 : Plan detailing extent of encroachment of 12 m building façade 12 m height limit

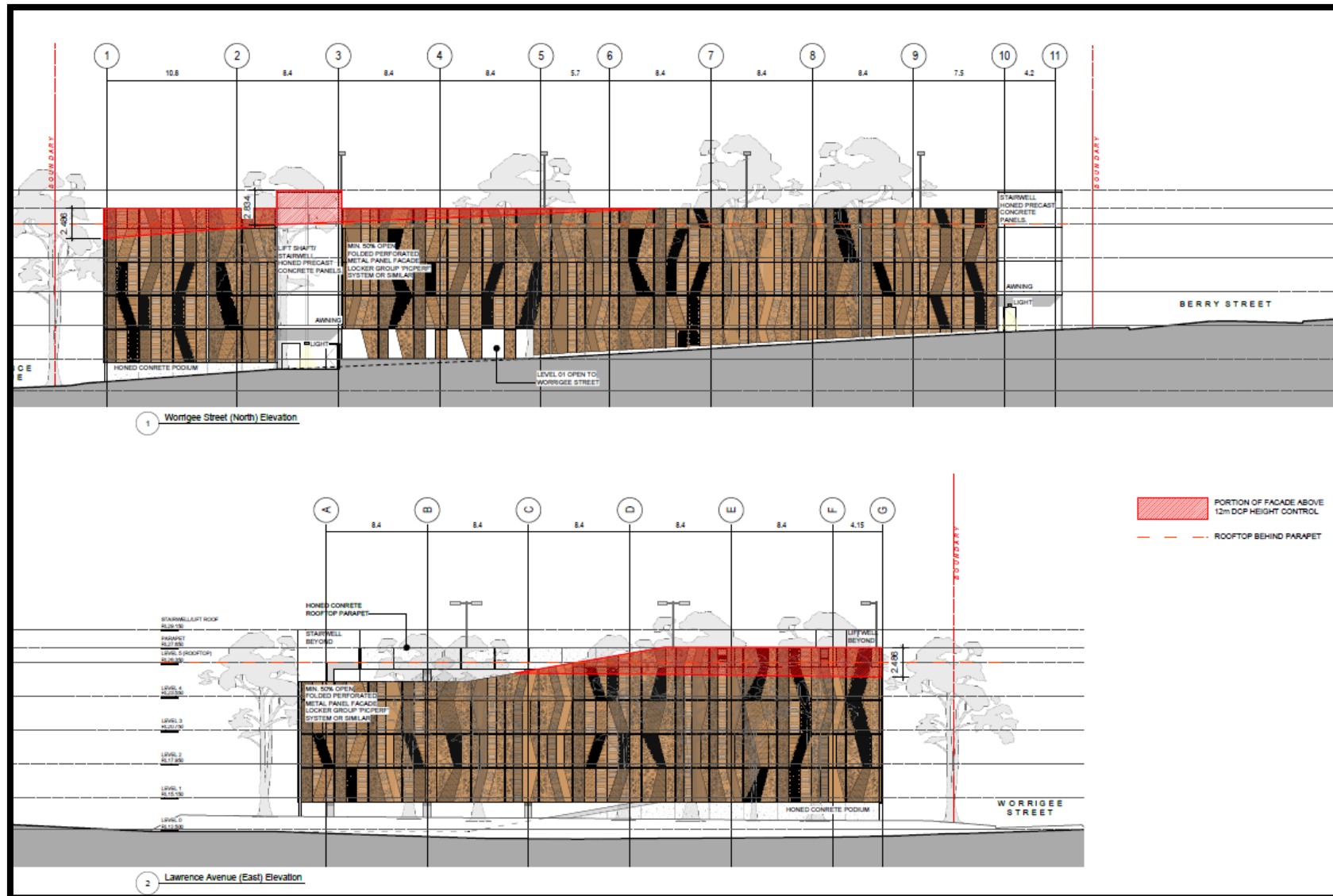


Figure 6 : Elevations detailing extent of encroachment of 12 m building façade height limit

As evident from **Figures 4 to 6**, and most notably in **Figure 6**, due to the topography of the site, and the fall in levels to the north-east corner of the site, the extent to which the amended proposal encroaches the 12 m recedes the further from the north-east corner.

The maximum extent to which the amended proposal will encroach the 12 m building façade height limit will be:

- The north eastern corner of the parapet of the upper level of the amended proposal will have a height above ground level of 14.486 m, an encroachments of the 12 m limit by 2.486 m.
- The stairwell / lift shaft situated along the Worrigee Street elevation with proximity of the north-eastern corner of the site will have a maximum height above ground level of 14.834 m, and encroachment of 2.834.

It should be noted the above are the maximum encroachment of the façade height limit. The extent of encroachment diminishes further west along the Worrigee Street, and south along the Lawrence Avenue elevations until the proposal is compliant with the requirement.

The relevant objectives and performance criteria:

The objectives that underpin the street wall height requirements as detailed in Section 5.4 of Chapter N8 of the DCP state:

- To facilitate a gradual manifestation of consistent building scales and coherence along streetscapes.*
- To articulate building massing and help mitigate the pedestrian's perception of building height and bulk.*
- To manage shadow impacts on streets, public places and nearby sites.*

The relevant Performance Criteria (P10) stipulates:

P10 New development defines and spatially encloses the street, is appropriately scaled and responds to adjacent development.

It is our view that the amended proposal will still achieve the above stated objectives and performance criteria, despite this variation to these acceptable solutions for the following reasons:

- As is evident from Figure 4 above, the majority of the Worrigee Street and Lawrence Avenue building façade will be compliant with this requirement with the upper deck setback from these road frontages. The exception is one stairwell / lift shaft and a small section of parapet wall at the north eastern corner of the building. The extent of non-compliance represents a relatively small portion of the overall façade to these two street frontages (as is evident from **Figure 4**).
- The stairwell lift shaft will have a maximum height above the 12 m limit of 2.834 m. This exceedance however is limited to the stairwell / lift shaft only which represents a very small portion of the overall elevation. Apart from the stairwell / lift shaft encroachment the parapet wall has a maximum height above the 12 m limit of 2.486 m. The extent of encroachment diminishes however further west along Worrigee Street and south along the Lawrence Avenue frontages of the site. The vertical extent of exceedance is therefore considered minimal in context of the overall development.

- The reason for this part of the development slightly exceeding the 12 metre façade height limit relates to the topography of the site which falls to the north-eastern corner of the site. Given the nature of the proposal, a multi-level car park, with flat platform levels, it is very difficult to step a building down towards this corner to ensure compliance with this façade height limit.
- Given the relatively minor exceedances involved it is considered the amended proposal will provide an overall building form that will be consistent with the intended scale of development along this street frontage and will provide a coherent streetscape.
- The pedestrian perception of the building will be coherent in the sense that the upper level is still setback from the lower building façade.
- Given the relatively minor extent of exceedance in context of the overall scale of the development, it is unlikely that those parts of the development that exceed this height limit will be overly visually significant to the pedestrian. In this regard the amended proposal retains the majority of the trees along the Worrigeer Street and Lawrence Avenue frontages. These mature trees which will be retained within proximity of the north-eastern corner of the site will obscure the view of the building as seen from these street frontages, further reducing the potential visual impact of these slight encroachments from vantage points along these respective street frontages.
- As the site is situated on the south side of Worrigeer Street, the slight encroachment of this façade building height will not result in any significant adverse overshadowing of these streets. The development will also not result in significant overshadowing of public places or adjoining properties.
- The amended proposal will still define and enclose this section of Worrigeer Street and Lawrence Avenue, while retaining the significant street trees (where appropriate) along these street frontages. The slight encroachments of the façade building height will have no significant effect in undermining the sense of enclosure or definition of the streetscape along these sections of these streets. The amended proposal incorporates measures to improve the building's aesthetic including articulation of facades with the use of stairwells to provide a visual punctuation reducing the horizontality of the development. Further articulation of the main facade elements (perforated metal panels) will utilise repeatable patterns to emphasise vertical lines and conceptually mirror the native trees that are to be retained along the street frontages. These elements will assist in providing a visually interesting building while also ensuring the apparent bulk and scale of the development is reduced and responds to existing and potential future development within the vicinity of the site.

Impacts associated with Variation.

It is our view that the proposed variation to the above Acceptable Solution associated with this amended proposal will not result in any significant impacts for the following reasons:

- As is evident from the shadow diagrams that support the amended proposal the amended proposal, notwithstanding the slight encroachment of the façade building height limit, will not result in adverse overshadowing of neighbouring properties.
- For the reasons detailed above, the amended proposal will also not result in an adverse visual impact in this locality. The amended proposal will assist in defining the edge of this section of Worrigeer Street and provide a sense of enclosure. In doing so the development will also retain existing trees situated along the Worrigeer Street and Lawrence Avenue frontages (where appropriate to do so). Furthermore the amended

proposal incorporates design elements that will assist in providing a visually interesting building while also ensuring the apparent bulk and scale of the development responds to existing and potential future development within the vicinity of the site.

5.0 Arborists Reports

The amended proposal is also supported by an updated Arborists Report prepared by David Potts (the “Potts Report”).

This Potts Report identifies a line of seven mature Yellow Bloodwoods, *Corymbia eximia* along the Worrigee Street frontage of the site; and nine Mugga Ironbarks, *Eucalyptus sideroxylon* lining the Lawrence Avenue frontage of the site.

The Potts Report identifies that three of the Yellow Bloodwoods along Worrigee Street; and two of the Mugga Ironbarks located along Lawrence Avenue however are required to be removed given current concerns about the health of these trees irrespective whether the amended proposal proceeds.

Two of the Yellow Bloodwoods along the Worrigee Street suffer from Bracket fungus; while the third Yellow Bloodwood along Worrigee Street and two Mugga Ironbarks along Lawrence Avenue experienced serious structural defects (codominant trunks). As a result the Potts Report identifies these trees as having a Safe Useful Life Expectancy (“SULE”) that would warrant their removal.

Bracket Fungus attacks the living tissue of trees and is a disease of the trees’ heartwood. The fungus attacks the heartwood of the tree and therefore the structural integrity of the tree and causes white or brown rot. If rot occurs in a branch, it will weaken and eventually drop. If the disease attacks the trunk, the tree can fall. Unfortunately, there is no treatment for the removal of Bracket Fungus. The decay caused leaves the tree structurally weakened and at risk of limb or whole trunk failure. Affected trees eventually have to be removed for safety in high use areas.

Codominant trunks are where a junction forms in a tree and bark is incorporated into the join, otherwise known as an “included bark junction” or bark inclusion. Included bark junctions can be substantially weaker in strength than normal tree forks and can become a significant hazard.

The remaining trees along the street frontages were identified as being able to be retrained. In this regard the Potts Report concludes:

“...considering the existing ground compaction / hard surfacing restraints on the roots zones, I consider the SRZ (structural root zone) off sets in the current 2018 plan of Worrigee St trees 5.18 m and Lawrence Avenue 4.2 m to be satisfactory, with limited above-ground branch pruning needed.

It is essential the TPZ (Tree Protection Zone) measures are in place prior to works and throughout the project and the accepted contractors have this clearly stated on plans.”

6.0 Conclusion

This submission has been prepared to formally request to amend Development Application RA15/1000, pursuant to clause 55 of the Environmental Planning & Assessment Regulations.

The SJRPP is the consent authority for this development application. At its meeting on the 22nd November 2016 the SJRPP deferred consideration of the original development application subject to the submission of amended plans.

The amended proposal has been designed to better address the issues of concern raised by the SJRPP:

- a. *Setback of the proposed building from Worrigee Street and Lawrence Avenue to protect and retain existing trees on the two street boundaries. Setbacks are to be generally consistent with those proposed in the Draft DCP currently on exhibition. No reduction in the setback to Berry Court is to occur.*

Comment

The amended proposal has been modified to provide setbacks that are now compliant with the building line setbacks as detailed in *Chapter N8 – Nowra CBD Urban Design Development Controls* of the Shoalhaven DCP 2014 to the Worrigee Street and Lawrence Avenue frontages of the site.

The re-design of the amended proposal has been undertaken furthermore in a manner so that the majority of the existing trees located along the Worrigee Street and Lawrence Avenue frontages will be able to be retained. A number of trees will need to be removed however due either to disease or structural defects regardless whether this proposal proceeds.

There has been no reduction in building setback to the south of the site towards Berry Court.

- b. *Reduction in building height to twelve (12) metres in the south-eastern corner of the building consistent with the Planning Proposal currently on exhibition.*

Comment

The amended proposal has removed built form entirely from the south-eastern corner of the site. The south-eastern corner of the site instead will provide a single vehicle entry / exit driveway, pedestrian access and landscaping. Apart from ensuring compliance with Council's height limits for this part of the site, this amendment will improve amenity for residents of the Berry Court to the south, improve deep soil coverage; and improve Safer by Design outcomes for pedestrians.

- c. *An elevation treatment to the southern elevation that incorporates a more appropriate architectural solution.*

Comment

A large format mural by a professional artist is proposed to the southern face of the car park. Consultation on the design of the mural with residents of the Berry Court will be undertaken prior to engagement of the artist.

To ensure privacy, adequate protection from noise, nuisance lighting and fumes to residents of Berry Court it is proposed that the southern façade will be solid construction.

- d. *Amended Landscape Plan that provides details of proposed vegetation along the southern setback between the site and Berry Court and is to make provision of suitable native vegetation.*

Comment

The amended proposal includes an amended Landscape Plan that identifies the retention of six existing Australian native rainforest trees (*Eleaocarpus eumundii*) located along the southern boundary of the site and Berry Court.

- E. An Arborist Report be submitted confirming that the amendments will ensure the long term retention and protection of trees, including recommended construction methodologies.*

Comment

The amended proposal is supported by an updated Arborist Report prepared by David Potts that confirms the amended proposal will enable the retention and protection of trees along the Worrigee Street and Lawrence Avenue street frontages. The Arborist Report also details measures to protect these trees during the construction phase.

This report however does identify several trees along the Worrigee Street and Lawrence Avenue frontages that suffer from disease or structural defects that warrant their removal regardless as to whether this proposal proceeds.

- F. A further report be prepared and submitted to the Joint Regional Planning Panel that assesses the merits of the amended proposal, including consistency with the draft controls under consideration and include recommended conditions.*

Comment

This submission has been prepared to describe the amended proposal, and to provide an assessment of the proposal having regard to the updated planning provisions that now apply to this site.

It is understood that Council staff will prepare a formal assessment report for the SJRPP's consideration of this amended development application.

The amended proposal is considered to be a significant improvement on the original proposal that was presented to the JRPP:

- The amended proposal now complies with the building height limits that apply to the site under the SLEP 2014.
- The amended proposal also complies with the building line setbacks under Chapter N8 of Council's DCP that now apply to the Worrigee Street and Lawrence Avenue frontages of the site.
- In doing so the amended proposal is able to retain the majority of existing trees situated along the Worrigee Street and Lawrence Avenue streets frontages of the site. Trees that do have to be removed, will need to be removed regardless whether this proposal proceed due to disease or structural defects.
- The appearance of the development has been improved with the articulation of the facades and the use of patterned perforated panel cladding that will be patterned to emphasis verticality and conceptually mirror native trees along the street frontages.
- The amended proposal will not result in significant overshadowing of the Berry Court development to the south of the site and has been designed to minimise impacts arising from noise, lighting and fumes on this adjoining residential development.

The amended proposal is submitted to the SJRPP for consideration.

Yours faithfully

A handwritten signature in black ink that reads "Stephen Richardson." The signature is written in a cursive, flowing style.

Stephen Richardson
COWMAN STODDART PTY LTD

ANNEXURE 1

Compliance Checklist

Chapter N8 – Nowra CBD Urban Design Development Controls

Shoalhaven Development Control Plan 2014

**Cnr Berry & Worrigee Sts
Nowra**

Annexure 1

Compliance Checklist

Chapter N8 – Nowra CBD Urban Design Development Control SDCP 2014

5 General Development Controls																				
5.1 Building and floor heights																				
P1 Development is to be designed to minimise potential negative impacts such as overshadowing of streets and public open spaces	A1.1 Development is to conform to the maximum building heights as shown on the Shoalhaven Local Environmental Plan 2014 (Shoalhaven LEP 2014) Height of Buildings Map	The amended proposal complies with the maximum 15 m building height limit that applies to the site under the Shoalhaven LEP 2014.																		
P2 Development responds sensitively to the context and supports the desired future character of the area.	A2.1 Development near heritage items may require lower street wall heights, lower heights and increased setbacks in order to respect and respond appropriately to the visual curtilage of nearby heritage buildings (refer to Section 5.10 Heritage and conservation).	The subject site is; not an identified heritage item; not located within a heritage conservation area; and it is not located within the vicinity of an identified heritage item.																		
P3 Buildings are adaptable to a variety of uses over time.	<p>A3.1 The following minimum heights apply:</p> <table border="1"> <thead> <tr> <th>Use</th><th>Minimum floor to floor height (recommended)</th><th>Minimum floor to ceiling height (recommended)</th></tr> </thead> <tbody> <tr> <td>Retail</td><td>4.4m</td><td>4m</td></tr> <tr> <td>Commercial</td><td>3.7m</td><td>3.3m</td></tr> <tr> <td>Adaptable</td><td>3.7m</td><td>3.3m</td></tr> <tr> <td>Residential</td><td>3.1m</td><td>2.7m</td></tr> <tr> <td>Community</td><td>3.7m</td><td>3.3m</td></tr> </tbody> </table> <p>A3.2 Where active frontages are specified (refer to Section 5.9 Addressing the street and Section 5.10 Active Frontages), the minimum floor to floor height at the ground floor is to comply with the category of “Retail” in the above table.</p> <p>A3.3 For all other parts of the CBD, the minimum floor to floor height at the ground floor is to comply with the category of “Adaptable” in the above table.</p>	Use	Minimum floor to floor height (recommended)	Minimum floor to ceiling height (recommended)	Retail	4.4m	4m	Commercial	3.7m	3.3m	Adaptable	3.7m	3.3m	Residential	3.1m	2.7m	Community	3.7m	3.3m	<p>Figure 3 of Chapter N8 does not identify the Worrigeer, Berry or Lawrence Avenue frontages of the site as “Required active frontage” but rather as “Desired active frontage”.</p> <p>The requirements of active street frontages can contradict the purpose of the building as a car park (for example vehicle entrances are not to be located along active street frontages). However the proposed design faithfully attempts to meet the objectives where possible. Service doors and plant items are not placed on Worrigeer Street, awnings to exits are provided but not along the full façade of the building due to the need to retain trees. Level 1 of the car park is open visually and physically to Worrigeer Street, and pedestrian access with maximum 1:20 gradients are proposed along the entirety of Worrigeer Street frontage. Lighting the facades is to be provided for security and wayfinding.</p>
Use	Minimum floor to floor height (recommended)	Minimum floor to ceiling height (recommended)																		
Retail	4.4m	4m																		
Commercial	3.7m	3.3m																		
Adaptable	3.7m	3.3m																		
Residential	3.1m	2.7m																		
Community	3.7m	3.3m																		

5.2 Street setbacks		
P4 New development supports the establishment of the desired spatial proportions of the street and defines the street edge.	A4.1 The front street wall of buildings is built to the applicable setback line consistent with those shown on Figure 2.	The proposal provides street setbacks consistent with Figure 2 as follows: <ul style="list-style-type: none"> • 6 m to Worrigee Street • 4 m to Lawrence Avenue • 3 m (minimum 2 m required) to Berry Street
	A4.2 Below-grade parking structures may not protrude into the public domain, but can extend as far as the front property line	Not applicable
	A4.3 Balconies, ground floor terraces or entrance structures can protrude up to 600mm beyond the front setback. No protrusion is allowed for development along required nil setback lines.	Not applicable
P5 Development along built-to alignments creates a continuous building edge.	A5.1 Buildings have a minimum of 75% of their frontage built to the nil setback line. The remaining 25% may setback up to 3 metres to provide a deeper area for entrances, bike parking, outdoor seating or the like.	No applicable.
P6 Where front setbacks are required, they are landscaped, facilitate casual surveillance of the street and add to the desired streetscape character.	A6.1 All fences to the street frontage are a maximum height of 1.2m and at least 50% transparent.	Not applicable – no fencing proposed.
	A6.2 Front setbacks are landscaped with a preference for native planting species and incorporation of WSUD measures (refer to Section 5.12 Landscape quality).	Setbacks landscaped with native species.
5.3 Side and rear setbacks		
P7 Development in the core of the CBD and along key streets supports a continuous street wall character.	A7.1 All development in Character Area C1 - Central Core is built to the side boundary.	Not applicable – site in Character Area C3
	A7.2 Corner development along designated streets which require nil setback lines (refer to Section 5.2 Street Setbacks) is built to the lot side boundary.	Not applicable

	A7.3 Walls built to the side boundary have no windows or other openings overlooking adjoining properties.	Not applicable
P8 Separation between buildings allows for adequate daylight access, ventilation, view sharing and privacy	<p>A8.1 Separation for residential components of development satisfies the requirements of SEPP 65 and the Apartment Design Guide.</p> <p>A8.2 New development is designed to ensure privacy, sunlight access and natural ventilation of adjacent buildings.</p>	<p>No residential components proposed as part of this proposal.</p> <p>Proposal provides a minimum setback of 7.15 m to southern boundary (Berry Court); with the upper level setback a further 5 metres from this boundary. These setbacks exceed the setback requirements detailed in Objective 3F-1 of the NSW Apartment Design Guide.</p> <p>Shadow diagrams confirm the amended proposal will not result in significant overshadowing of the Berry Court site.</p> <p>The amended proposal also provides ample separation to the development to the adjoining site ensuring natural ventilation.</p>
P9 Development allows for adequate amenity to neighbouring properties and future buildings and creates consolidated landscaped corridors.	<p>A9.1 In areas with a designated maximum building height of 12m rear setbacks are defined by a 45 degree angular plane from the rear boundary. The minimum setback is 7m.</p> <p>A9.2 Deep soil zones are located next to deep soil zones of adjoining properties to create consolidated landscaped corridors.</p>	<p>Minimum rear setback of 7.15 m complies.</p> <p>The proposal provides deep soil zones along the entire southern boundary of the site, providing the potential for consolidation with adjoining properties if these adjoining properties were to be redeveloped in the future.</p>
5.4 Street wall heights		
P10 New development defines and spatially encloses the street, is appropriately scaled and responds to adjacent development.	<p>A10.1 New buildings have a maximum street wall height as outlined in Section 6 - Area Specific Controls.</p> <p>A10.2 Any development above the street wall height applies the upper level setbacks (as a minimum) as outlined in Section 6 - Area Specific controls.</p>	<p>Does not comply – see Variation Statement in submission.</p> <p>Does not comply – see Variation Statement in submission.</p>

	A10.3 Where development is adjacent to a heritage item, contributory building or within a conservation area, street wall heights of new development may be required to align with this (refer to Section 5.10 Heritage and Conservation).	Not applicable.																
5.5 Site coverage																		
P11 New development maximises the opportunity for rainwater to soak into the ground on site and minimises run-off to adjoining areas.	A.11.1 The maximum site coverage for development does not exceed the following: <table><tr><th>Character area</th><th>Max. site coverage</th></tr><tr><td>Central Core (C1)</td><td>100%</td></tr><tr><td>CBD West (C2)</td><td>80%</td></tr><tr><td>CBD South (C3)</td><td>80%</td></tr><tr><td>Parkside (N1)</td><td>70%</td></tr><tr><td>Hospital Edge (N2)</td><td>60%</td></tr><tr><td>Eastern Retail (E1)</td><td>70%</td></tr><tr><td>Residential Interfaces (E2, E3)</td><td>70%</td></tr></table>	Character area	Max. site coverage	Central Core (C1)	100%	CBD West (C2)	80%	CBD South (C3)	80%	Parkside (N1)	70%	Hospital Edge (N2)	60%	Eastern Retail (E1)	70%	Residential Interfaces (E2, E3)	70%	Development provides site coverage of 71% which complies (maximum 80% in CBD South (C3)).
Character area	Max. site coverage																	
Central Core (C1)	100%																	
CBD West (C2)	80%																	
CBD South (C3)	80%																	
Parkside (N1)	70%																	
Hospital Edge (N2)	60%																	
Eastern Retail (E1)	70%																	
Residential Interfaces (E2, E3)	70%																	
P12 Development incorporates landscaped areas and maximises deep soil zones that can support mature trees and vegetation.	A12.1 The minimum landscaped area is the site area minus the calculated maximum site coverage applicable (see table above). A12.2 At least 50% of the landscaped area is deep soil, or 15m², whichever is greater	The minimum required landscaped area for the subject site is 1189.15 m². The proposal provides 1697.75 m² which exceeds the minimum requirement. All landscaping would contribute as deep soil zone - complies.																
5.6 Building bulk and scale																		
P13 Building bulk and scale relates to the desired future character of the area.	A13.1 Buildings do not exceed the following maximum building depth and floor plate sizes: <table><tr><th>Building typology and use</th><th>Max. building depth</th><th>Max. floor plate (GFA)</th></tr><tr><td>Commercial buildings</td><td>25m</td><td>2,500m²</td></tr><tr><td>Large format retail buildings</td><td>100m</td><td>15,000 m²</td></tr><tr><td>Large format retail buildings*</td><td>180m*</td><td>30,000 m²*</td></tr><tr><td>Residential apartments</td><td>18m</td><td>1,200m²</td></tr></table>	Building typology and use	Max. building depth	Max. floor plate (GFA)	Commercial buildings	25m	2,500m²	Large format retail buildings	100m	15,000 m²	Large format retail buildings*	180m*	30,000 m²*	Residential apartments	18m	1,200m²	Development not one of the listed building typology and use. Therefore, this requirement does not apply to this proposal.	
Building typology and use	Max. building depth	Max. floor plate (GFA)																
Commercial buildings	25m	2,500m²																
Large format retail buildings	100m	15,000 m²																
Large format retail buildings*	180m*	30,000 m²*																
Residential apartments	18m	1,200m²																

<p>P14 Development is designed to reduce the perceived visual impact of its bulk and scale.</p>	<p>A14.1 Buildings are to be designed so that they clearly articulate a base, middle and top.</p> <p>A14.2 Facades are articulated using techniques such as projections, recesses, eave overhangs and deep window reveals (refer to Section 5.7 Facades and exteriors).</p> <p>A14.3 Where frontages are more than 20 metres wide, building massing is vertically articulated.</p> <p>A14.4 The upper-most level is set back and is visually unobtrusive.</p>	<p>The development does provide openings at its base (Worrigee Street) which define the base; while the upper level is setback back differentiating this level from the remainder of the development.</p> <p>The amended proposal incorporates measures to improve the building's aesthetic including articulation of facades with the use of stairwells to provide a visual punctuation reducing the horizontality of the development. Further articulation of the main facade elements (perforated metal panels) will utilise repeatable patterns to playfully emphasise vertical lines and conceptually mirror the native trees that are to be retained along the street frontages. The upper level of the development is also setback further than levels below to ensure it is visually unobtrusive.</p> <p>These elements will assist in providing a visually interesting building while also ensuring the apparent bulk and scale of the development is reduced and responds to existing and potential future development within the vicinity of the site.</p>
<p>5.7 Facades and exteriors</p>		
<p>P15 Building exteriors positively contribute to the desired future character of the area and streetscape.</p>	<p>A15.1 The composition of facades balances solid and void elements and does not display large areas of a single material, including reflective glass.</p> <p>A15.2 External walls are constructed of high quality and durable materials and finishes with low maintenance attributes such as face brickwork, rendered brickwork, stone, concrete and/or glass.</p> <p>A15.3 Sidewalls are designed as an architecturally finished surface that complements the main building facade.</p> <p>A15.4 Visually prominent elements such as balconies, overhangs, awnings, and roof tops are to be of high design quality.</p>	<p>The amended proposal incorporates measures to improve the building's aesthetic including articulation of facades with the use of stairwells to provide a visual punctuation reducing the horizontality of the development. Further articulation of the main facade elements (perforated metal panels) will utilise repeatable patterns to playfully emphasise vertical lines and conceptually mirror the native trees that are to be retained along the street frontages. The upper level of the development is also setback further than levels below and is visually unobtrusive.</p> <p>These elements will assist in providing a visually interesting building while also ensuring the apparent bulk and scale of the development is reduced and responds to existing and potential future development within the vicinity of the site.</p>

	<p>A15.5 Roof plant, lift overruns, utilities, vents and other service related elements are to be integrated into the built form design and complementary to the architecture of the building</p> <p>A15.6 Along designated active frontages (refer to Section 5.9 Addressing the street), permanent opaque coverings on windows and doors at ground level that prevent views into buildings are not permissible.</p>	
P16 Development responds to adjoining built form.	<p>A16.1 Facades reinforce the vertical proportions and support a vertical rhythm along the street. This is important in particular where development is located along traditional shopping streets within the CBD core (refer to Section 6.2 Central Core).</p> <p>A16.2 Adjoining buildings are considered in terms of setbacks, awnings, parapets, cornice lines, selection of materials and finishes, and façade proportions.</p>	<p>Refer comments above.</p> <p>The amended proposal has been setback in accordance with the DCP setback requirement for this site.</p>
5.8 Solar access		
P17 Development maximises sunlight access to new and existing public spaces.	A17.1 Sunlight access is provided to 50% of the area of all significant public spaces for at least 2 hours during mid-winter between 9am and 3pm, demonstrated by shadow diagrams.	No significant public spaces adjoin the subject land. The proposal will not result in significant loss of sunlight access of adjoining public spaces / roads – refer shadow diagrams (plan reference 1311_26).
P18 New development adjacent to residential uses minimises overshadowing.	<p>A18.1 At least 50% of the principle area of private open space of adjoining residential properties receives sunlight for a minimum of 2 hours between 9am and 3pm at mid-winter (21 June).</p> <p>OR</p> <p>Where the adjoining private open space does not currently receive 2 hours of sunlight, the development does not reduce sunlight to that space by more than 30%.</p>	The proposal will not result in overshadowing of Berry Court to the south of the site in a manner that would exceed this requirement (refer shadow diagram elevation - plan reference 1311_26).

5.9 Addressing the street		
P19 Buildings are designed to contribute to the streetscape by offering a pleasant address and opportunities for passive surveillance.	<p>A19.1 Building clearly defines the primary street frontage, street corners and public open spaces.</p> <p>A19.2 Development contributes to casual surveillance of streets, lanes and parks. Where development is setback, fences are a maximum of 1.2m high and 50% transparent. Windows and entries are clearly visible from the footpath.</p> <p>A19.3 Residential uses on ground floor are raised between a minimum of 0.5 metres to a maximum of 1.2 metres above the sidewalk level.</p>	<p>The development clearly defines road frontages.</p> <p>Clear views are provided from pedestrian exits from the development. Clear sight lines are also provided along pedestrian linkages (Refer Safer by Design Analysis – Plan 1311_12).</p> <p>Not applicable.</p>
P20 Along key streets of the centre, active frontages are provided that promote activity and interest at a pedestrian level.	<p>A20.1 Active frontages are provided as shown in Figure 3.</p> <p>A20.2 Active frontages are a minimum 70% of the length of the primary street frontage. Transparent glazing allows unobstructed views from the adjacent footpath to at least a depth of 4m within the building.</p> <p>A20.3 Ground floor uses are at least 10m deep and level with the footpath.</p> <p>A20.4 A continuous flat awning is provided at a minimum height of 3.2m. On corner buildings awnings are to wrap around onto the side street.</p> <p>A20.5 Vehicle access points are strictly not permitted along active street frontages (see Section 5.15 Parking and access).</p> <p>A20.6 Security grilles may be fitted internally behind the shopfront only when they are fully retractable and at least 50% transparent when closed.</p>	<p>Figure 3 of Chapter N8 does not identify the Worrigeer, Berry or Lawrence Avenue frontages of the site as “Required active frontage” but rather as “Desired active frontage”.</p> <p>The requirements of active street frontages can contradict the purpose of the building as a car park (for example vehicle entrances are not to be located along active street frontages). However the proposed design faithfully attempts to meet the objectives where possible. Service doors and plant items are not placed on Worrigeer Street, awnings to exits are provided but not along the full façade of the building due to the need to retain trees. Level 1 of the car park is open visually and physically to Worrigeer Street, and pedestrian access with maximum 1:20 gradients are proposed along the entirety of Worrigeer Street frontage. Lighting the facades is to be provided for security and wayfinding</p>

	A20.7 Plant access hatches, grilles, vents or service doors are avoided along active frontages where possible.	
5.10 Active Frontages		
P21 Active frontages promote activity and interest along the footpath at a pedestrian level.	<p>A21.1 Active frontages are provided as shown in Figure 3 and are a minimum of 70% of the length of the primary street frontage.</p> <p>A21.2 Ground floor uses are at least 10m deep and entries are level with the footpath.</p> <p>A21.3 Shopfronts display a high standard of finish and add to the variation and interest by balancing solid elements and glazing. The maximum amount of glazing is 70%.</p> <p>A21.4 The ground floor displays vertical articulation with identifiably separate doors and windows. Tenancies and premises should be no more than 5-8m wide to create a vertical rhythm along the street.</p> <p>A21.5 A continuous flat awning is provided at a minimum height of 3.2m. On corner buildings awnings are to wrap around onto the side street.</p> <p>A21.6 Vehicle access points are not permitted along active frontages.</p> <p>A21.7 Plant access hatches, grilles, vents or service doors are avoided where possible.</p> <p>A21.8 Residential uses, with the exception of entry lobbies, are not permitted along designated active frontages.</p>	<p>Figure 3 of Chapter N8 does not identify the Worrigee, Berry or Lawrence Avenue frontages of the site as “Required active frontage” but rather as “Desired active frontage”.</p> <p>The requirements of active street frontages can contradict the purpose of the building as a car park (for example vehicle entrances are not to be located along active street frontages). However the proposed design faithfully attempts to meet the objectives where possible. Service doors and plant items are not placed on Worrigee Street, awnings to exits are provided but not along the full façade of the building due to the need to retain trees. Level 1 of the car park is open visually and physically to Worrigee Street, and pedestrian access with maximum 1:20 gradients are proposed along the entirety of Worrigee Street frontage. Lighting the facades is to be provided for security and wayfaring</p>

	A21.9 Vacant shopfronts are required to have temporary window displays or uses (e.g. artworks, 'pop-up' shops) if vacant for more than 4 weeks.	
P22 The design of active frontages supports the (perception of) safety and security after hours	<p>A22.1 After hours lighting is provided inside shopfronts to help illuminate the street and footpath. Where awnings are new or replaced, under awning lighting is to be provided.</p> <p>A22.2 If deemed necessary, security grilles may be fitted internally behind the shopfront these are to be fully retractable and at least 50% transparent when closed. Roller doors and shutters are not permitted.</p>	<p>No shop fronts proposed – not applicable.</p> <p>Not applicable.</p>
5.11 Heritage and conservation		
P23 Development of heritage items (adaptive reuse) protects the heritage fabric and enhances the item's cultural significance.	<p>A23.1 Alterations and additions respond appropriately to the heritage fabric but do not mimic or overwhelm the original building.</p> <p>A23.2 Designs are contemporary and identifiable from the existing building.</p>	<p>Subject site not heritage listed or in vicinity of heritage items. Not applicable.</p> <p>Not applicable.</p>
P24 Development in the vicinity of a heritage item, within a heritage conservation zone, or a contributory zone, protects and enhances the cultural significance of nearby heritage items and streetscape character.	<p>A24.1 Building and facade design responds to the scale, materials and massing of heritage items through:</p> <ul style="list-style-type: none"> <input type="checkbox"/> aligning elements such as eaves lines, cornices and parapets. <input type="checkbox"/> responding to scale, facade articulation, proportion and/or rhythm of existing elements. <input type="checkbox"/> using complementary colours, materials and finishes. <p>A24.2 A heritage impact statement is required for all development involving a heritage item or where located in a heritage conservation area</p>	<p>No heritage items in vicinity of site – not applicable.</p> <p>Not applicable.</p>
5.12 Streets, lanes and links		
P25 Development retains existing pedestrian links and laneways and provides new connections along key pedestrian routes.	A25.1 New streets, laneways, through-site links and pedestrian connections are provided as shown in Figure 6 and designed to encourage active transport.	No linkages shown affecting site in Figure 6 – Not applicable.

	<p>A25.2 New laneways are to be a minimum of 8m wide and all pedestrian links a minimum of 3m wide as shown in diagram below.</p> <p>A25.3 New laneways and links are to be:</p> <ul style="list-style-type: none"> <input type="checkbox"/> consistent with Crime Prevention through Environmental Design (CPTED) principles (e.g. clear sight lines). <input type="checkbox"/> activated by retail, civic and/or commercial use at ground level for at least 20% of their length. <input type="checkbox"/> naturally lit and ventilated. <input type="checkbox"/> well-lit after hours. <input type="checkbox"/> publicly accessible between at least 6am and 8pm daily, however 24-hour public access is preferred. <p>A25.4 Mid-block arcades are a minimum width of 4m, maximise active uses each side, offer skylights for natural daylight access, allow public access during business hours and have clear visual connections to streets and lanes with a direct line of sight between entrances.</p>	<p>Not applicable.</p> <p>Not applicable.</p> <p>Not applicable.</p>
P26 Access along pedestrian priority routes is designed to minimise vehicular traffic, loading and access to carparking with street level crossings to enable a direct line of travel for pedestrians	<p>A26.1 Pedestrian bridges are avoided, particularly along designated pedestrian priority routes.</p> <p>A26.2 Car parking, loading and servicing does not occur along pedestrian priority routes. Where this is unavoidable, it is designed to minimise alienation of the street level activity and pedestrian access is given physical and visual priority.</p>	<p>Not applicable.</p> <p>Not applicable.</p>
5.13 Landscape quality		
P27 Development protects mature trees and other significant vegetation.	A27.1 Where existing mature trees or other significant vegetation exists, development is to be designed to retain and protect these features and integrate them into the overall site and building design.	Amended proposal provides setbacks to Worrigee Street and Lawrence Avenue in manner that is able to retain existing mature trees. Due to disease and structural defects some trees will need to be removed – regardless of this proposal.

<p>P28 Development incorporates landscaped areas that soften the appearance of new development and interface appropriately with adjoining areas.</p>	<p>A28.1 Development that is required to setback from the street frontage (refer to Section 5.2 Street setbacks) provides landscaped areas that relate to the scale of proposed buildings and complement the existing streetscape character.</p> <p>A28.2 Development provides planting alongside and rear boundaries where possible that effectively screens built form from neighbouring properties.</p> <p>A28.3 Development along designated 'landscape priority streets' provides the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> at least 50% of the front setback area is deep soil. <input type="checkbox"/> planting includes mature trees and native species. <input type="checkbox"/> fences are a maximum of 0.9m high and at least 50% transparent. <p>A28.4 A landscaped buffer zone is provided on both sides of Princes Highway (within the front setback area) with mature trees and native species. See Figure 7.</p>	<p>Development complies with building line setbacks. Setback areas area landscaped – refer Landscape Plan(1311_15).</p> <p>Proposed provides plantings along rear boundaries – refer Landscape Plan(1311_15).</p> <p>Site is not along a designated 'landscape priority street.</p> <p>Not applicable.</p>
<p>P29 Planting improves the local micro-climate and considers prevailing weather conditions.</p>	<p>A29.1 Landscaped areas in front of north-east, north and north-west facing facades use deciduous vegetation to provide shade in summer and allow sun penetration during winter.</p>	<p>Existing trees are to be retained therefore no opportunity for planting of deciduous trees.</p>
<p>5.14 Views and vistas</p>		
<p>P30 New development protects views from streets, lanes and open spaces towards the mountain range to the north and pastoral landscape to the east.</p>	<p>A30.1 New development protects the view corridors nominated in Figure 8.</p> <p>A30.2 For large scale development (over \$20M) a visual impact assessment is required.</p>	<p>Not applicable.</p>
<p>P31 Highly visible buildings respond to their prominent location and help define the character of the centre.</p>	<p>A31.1 Particular focus is placed on the detailed design of facades of buildings that are located at the end of local terminating views as shown in Figure 8.</p> <p>A31.2 Particular focus is placed on the detailed design of buildings on important corners identified in Figure 8</p>	<p>Not applicable.</p> <p>Subject site is identified as a prominent corner (Figure 8). The main facade elements (perforated metal panels)</p>

		utilise repeatable patterns to emphasise vertical lines and conceptually mirror the native trees that are to be retained along the street frontages. The upper level of the development is also setback further than levels below and is visually unobtrusive. These elements will assist in providing a visually interesting building at this prominent corner location.
P32 Development provides equitable view sharing from adjacent buildings.	<p>A32.1 New development is aligned to maximise and frame view corridors between buildings, taking into account topography, vegetation and surrounding development.</p> <p>A32.2 Where there is potential impacts on views from another property, an assessment of the following principles is submitted with the development application:</p> <ul style="list-style-type: none"> <input type="checkbox"/> the views to be affected. <input type="checkbox"/> what part of the affected property the views are from. <input type="checkbox"/> the extent of the impact. <input type="checkbox"/> the reasonableness of the proposal that is causing the impact 	<p>Figure 8 does not identify view corridors from subject site.</p> <p>The existing residential units associated with the adjoining Berry Court site to the south of the subject site would likely experience views across the existing car park, trees along Worrigee Street, and of the distant Cambewarra escarpment.</p> <p>The views in question would be partial views of the escarpment. These residential units however would not experience any water views \r the interface of the water and the land. It is generally held (i.e. <i>Tenacity Consulting v Warringah [2004] NSWLEC 140</i>) that water views are valued more highly than land views. Iconic views (e.g. of the Opera House, the Harbour Bridge or North Head) are valued more highly than views without icons. Whole views are valued more highly than partial views.</p> <p>The views in question involve “land” views which are considered of less value than water views. Furthermore, such views would not be “whole” views of the escarpment given the presence of the car park, trees and Nowra CBD situated between these units and the escarpment.</p> <p>The escarpment views are likely to be enjoyed from living rooms within the apartments as well as private balconies. The views in question however would be enjoyed across the side boundary between the subject</p>

		<p>land and the Berry Court property. As detailed in the Tenacity Consulting case, views across side boundaries are considered more difficult to protect than those across front or rear boundaries.</p> <p>The construction of the proposed car park will likely remove the views of the escarpment from these units. It is considered however that the proposed development is reasonable given the specific circumstances of this case:</p> <ul style="list-style-type: none">• As detailed in the original development application there is a strategic planning justification for the construction of a multi-level car park on the site.• The proposal has been amended to comply with the relevant building height limit (15 m) and building line setbacks that applies to this site. The footprint and building envelope of the amended proposal complies with the relevant development controls that apply to the site. Any development complying with these building height and setback restrictions on this site is likely to impede views of the escarpment from this adjoining property. As detailed in the Tenacity Consulting case a development application that complied with development controls is considered more reasonable than one that does not. <p>Given the views in question are of “land” views and not water and therefore considered of less value; are partial and not whole views; are enjoyed across a side boundary; and as the proposed development is considered with the strategic and statutory planning provisions that apply to the site; it is considered the impact that the proposal development will have on views currently enjoyed from units within the adjoining Berry Court site is reasonable.</p>
--	--	--

5.15 Sustainable design

<p>P33 Development incorporates environmentally sustainable development (ESD) principles wherever possible.</p>	<p>A33.1 Retention of rainwater on site:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Landscape and building design maximises soft landscaping and limits the extent of impervious paved areas. <input type="checkbox"/> Drought tolerant, low water use plants are used within landscaped areas. <p>A33.2 Reuse of rainwater on site:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Runoff is collected from roofs and balconies in water tanks and used for onsite irrigation. <p>A33.3 Passive solar design:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Buildings are located so that they benefit from passive solar heat gain during winter months. <input type="checkbox"/> Insulation is to be used in external walls and roofs to reduce heat escaping from a building in winter and to maintain a lower internal temperature in summer. <input type="checkbox"/> All windows and door openings are sealed. <input type="checkbox"/> Overhangs and shading devices such as awnings, blinds and screens protect from sunlight during summer months. <p>A33.4 Energy conservation/efficiency:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Materials are selected considering their thermal performance. <input type="checkbox"/> Solar hot water systems are encouraged. <input type="checkbox"/> For developments over \$50M, consolidated heating and cooling infrastructure is provided in a centralised location (e.g. the basement). <p>A33.5 Natural ventilation:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Natural cross ventilation is optimised. <input type="checkbox"/> At least 30% of all windows in a building are operable from the inside (by building users) 	<p>Proposal provides landscaping areas that exceed requirements for site.</p> <p>Suitable native plant species used in landscaping.</p> <p>The development makes provision for stormwater retention on site (130 m³).</p> <p>With minimum 50% open façade treatment and northerly aspect, natural lighting will offset daytime lighting requirements.</p> <p>Natural ventilation will be provided to three of the four sides of the development.</p>
--	---	---

5.16 Parking and access

P34 Development minimises the visual impact of car parking areas.	A34.1 All parking is provided within the building footprint either within a basement or well integrated into the design of the building. Where parking cannot be provided within the building footprint it is located to the side or rear of the building(s) and is not visible from the street.	Proposal is purpose designed multi-level car park – with all parking spaces within the building footprint.
P35 Access points are designed to minimise visual intrusion and disruption of streetscape continuity.	<p>A35.1 Access to car parking is provided from side streets or the rear of the property wherever possible.</p> <p>A35.2 New vehicle access points are not permitted along streets with designated active frontages (refer to Section 5.9 Addressing the street). Acceptable alternatives in this situation include off-site parking provision and/or a reduction of car parking requirements.</p> <p>A35.3 Vehicle access points are a single crossing and perpendicular to the kerb alignment.</p> <p>A35.4 Double height access points are not permissible along the primary street frontage.</p>	<p>Access to car park from Berry Street and Lawrence Avenue.</p> <p>Site frontages not identified as “Required active frontage”.</p> <p>Crossing designs satisfy AS 2890.</p> <p>No street access provided to Worrigee Street.</p>
P36 Development accommodates alternative transport modes and encourages walking, cycling and use of public transport.	<p>A36.1 Safe, convenient and secure bicycle parking is provided and easily accessible from ground level.</p> <p>A36.2 Commercial development over \$20M provides:</p> <ul style="list-style-type: none"> <input type="checkbox"/> end of trip cycling infrastructure including secure bike parking, shower and change room facilities. <input type="checkbox"/> a site wide ‘Green Travel Plan’ that outlines initiatives for walking, cycling and the use of public transport. 	<p>Not applicable.</p> <p>Not applicable.</p>
6.4 CBD South (C3)		
6.4.1 Future desired character		
	Figure 15 of the DCP contains area specific controls for development within the CBD South (C3) district of the Nowra CBD. The following are the controls specific to the site:	

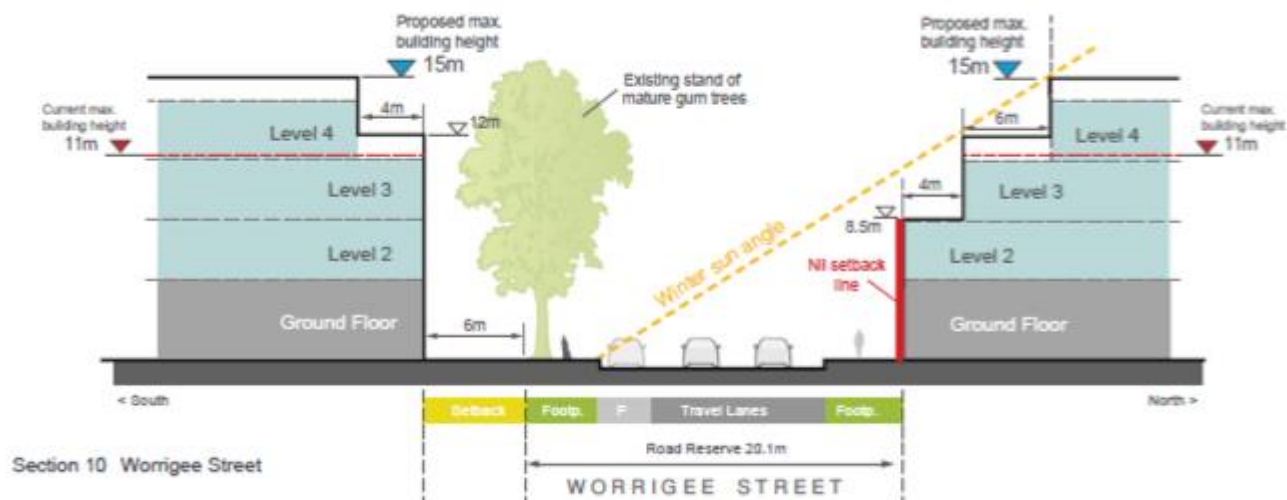
- 15m maximum building height (12m maximum wall height excepting the frontage addressing Lawrence Ave).
- Primary setback to Worrigee St: 6m
- Primary setback to Berry St: 2m
- Primary setback to Lawrence Ave: 4m
- upper level of development is to be recessed a further 4m.

A portion of the site, to the south east, has slightly different controls with a:

- 12m maximum building height (8.5m maximum wall height).
- Primary front setback to Lawrence Ave: 2m
- upper level of development is to be recessed a further 2m.
- A portion of that site is mapped as being a part of a larger consolidated deep soil zone.



Below is an excerpt of Figure 16 from the chapter providing greater detail of how the setbacks will function along with the retention of existing mature vegetation.



6.4.2 Performance criteria and acceptable solutions

P47 Development is to support the desired streetscape character along key streets in this area.

A47.1 Worrigee Street (see Figure 16):

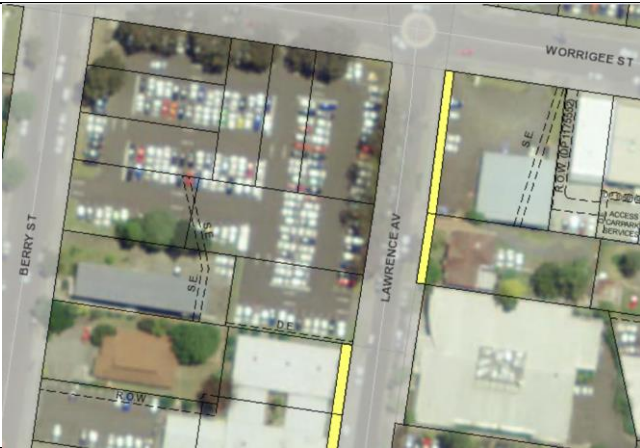
- ☐ Development between Osborne Street and Berry Street is sympathetic to nearby heritage buildings.
- ☐ Development between Lawrence Avenue and Berry Street is to retain and protect the existing stand of mature trees. A minimum front setback of 6m applies.
- ☐ Development between Lawrence Avenue and Princes Highway is to be

Not applicable, development site is not located between Osborne St and Berry St. The development will not adversely affect the heritage significance of those buildings. It is noted that the development will retain those trees within Worrigee St, which may be viewed from those heritage items.

The development achieves a minimum setback from Worrigee St of 6m. The mature trees are to be retained.

Not applicable.

	urban in character, built to the street edge and relates to the CBD core to the north.	
P48 Development on land within or adjoining the Plunkett Street Heritage Conservation area respects and enhances the area.	<p>A48.1 The bulk, scale and height of new development sensitively transitions to adjacent heritage items.</p> <p>A48.2 New development is articulated so that large building forms are broken down into smaller elements that relate to the fine grain of the area.</p> <p>A48.3 Development is to incorporate the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> At least 50% of the front setback area is to be well landscaped in deep soil. Planting of trees and native species is preferred. <input type="checkbox"/> The maximum width of any new building fronting the street is 20m. <input type="checkbox"/> Front fences do not exceed 1.2m in height and are at least 50% transparent. <p>A48.4 Materials and colours of new development are to compliment the materials, finishes and colours of existing buildings in the heritage conservation area.</p> <p>A48.5 The development application is to be accompanied by a heritage impact statement by a suitably qualified professional.</p>	The development site is removed from the Plunkett Street Heritage Conservation area. There will be no impact on the significance of that area.
P49 Development must not be built on land affected by proposed road widening.	A49.1 Refer to Shoalhaven LEP 2014 Land Reservation Acquisition Map Sheet LRA_013E. Land identified for future road reserve widening includes:	The proposed development is not proposed within land identified for future road widening within Lawrence Ave. Land to be acquired is to the east and south of the development site.

	<div><div><input type="checkbox"/> The northern side of Plunkett Street between Haigh Avenue and Princes Highway.</div><div><input type="checkbox"/> Land along the eastern side of Haigh Avenue.</div><div><input type="checkbox"/> Land on both sides of Lawrence Avenue.</div></div>	
--	---	---

MULTI-STOREY CARPARK

BERRY STREET AND WORRIGEE STREET, NOWRA

DRAWING LIST

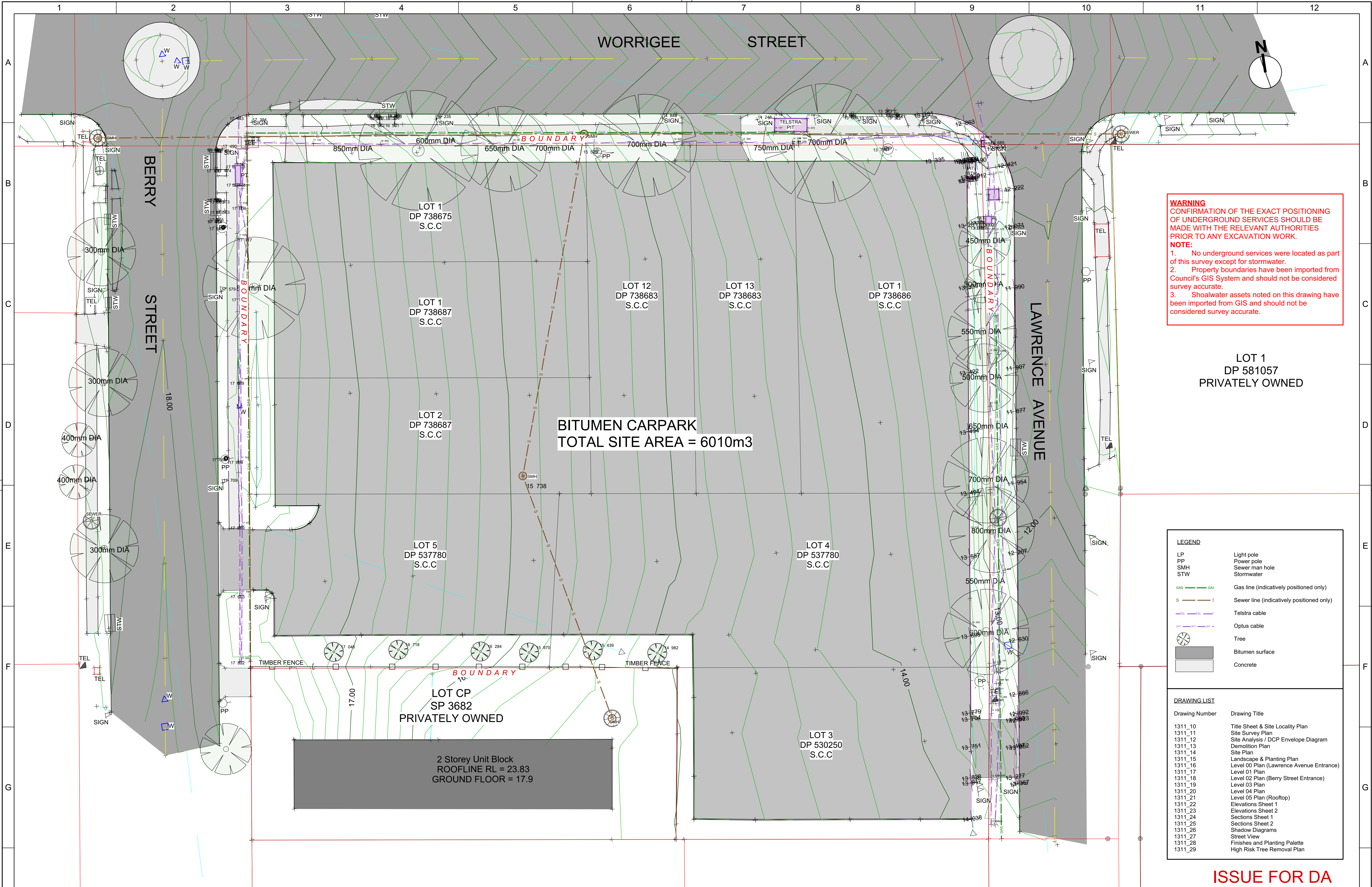
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Not Used
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan - 42 car spaces - 8 motorcycle spaces
1311_18	Level 02 Plan (Berry Street Entrance) - 91 car spaces (8 accessible) & 10 motorcycle spaces
1311_19	Level 03 Plan - 113 car spaces
1311_20	Level 04 Plan -113 car spaces
1311_21	Level 05 Plan (Rooftop) - 108 car spaces
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street Views Sheet 1
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Plan







1 Site Locality Plan
Scale: 1:1500

ISSUE FOR DA

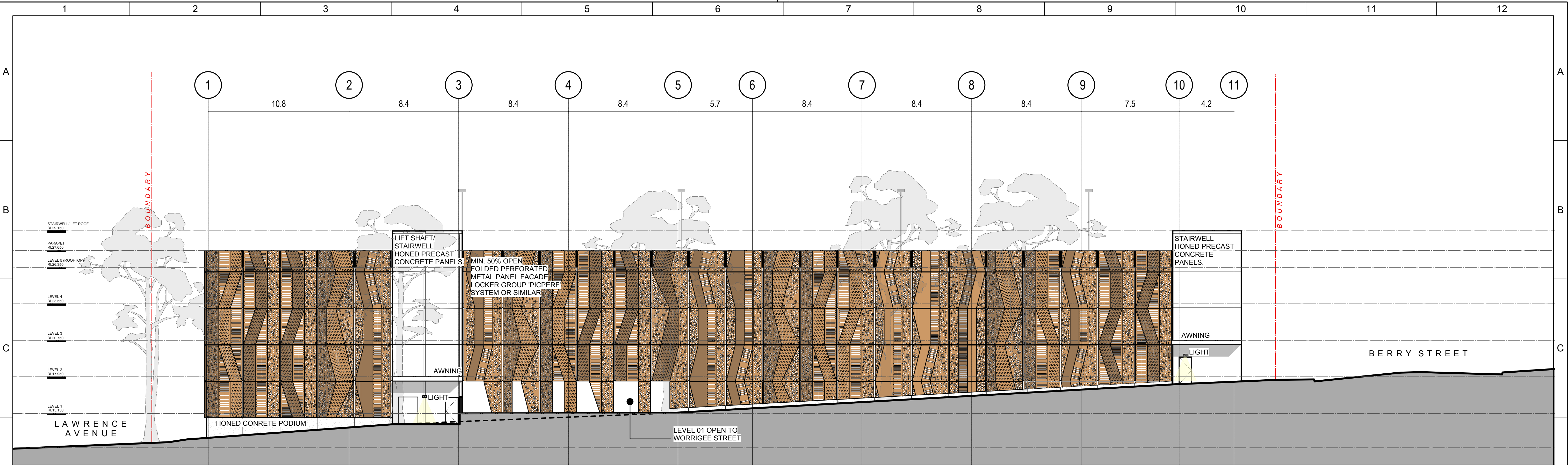
DESIGNED: J. Simpson, R. Holmes	SURVEYED:	AMENDMENTS		CITY OF SHOALHAVEN Berry & Worrigee Streets & Lawrence Avenue, Nowra Multistorey Car Park Title Sheet & Site Locality Plan	SCALE: Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.	DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18
DRAWN: J. Simpson 07/08/18	FIELD BOOK:	1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR APPROVAL 31/08/2018 3 ISSUE FOR DA 07/09/2018				
CHECKED:  31/08/18	ORIGIN OF LEVELS:					
APPROVED:  31/08/18	DATUM:					
CLIENT:	CIVILCAD FILE:					- PLAN REFERENCE - 1311_10



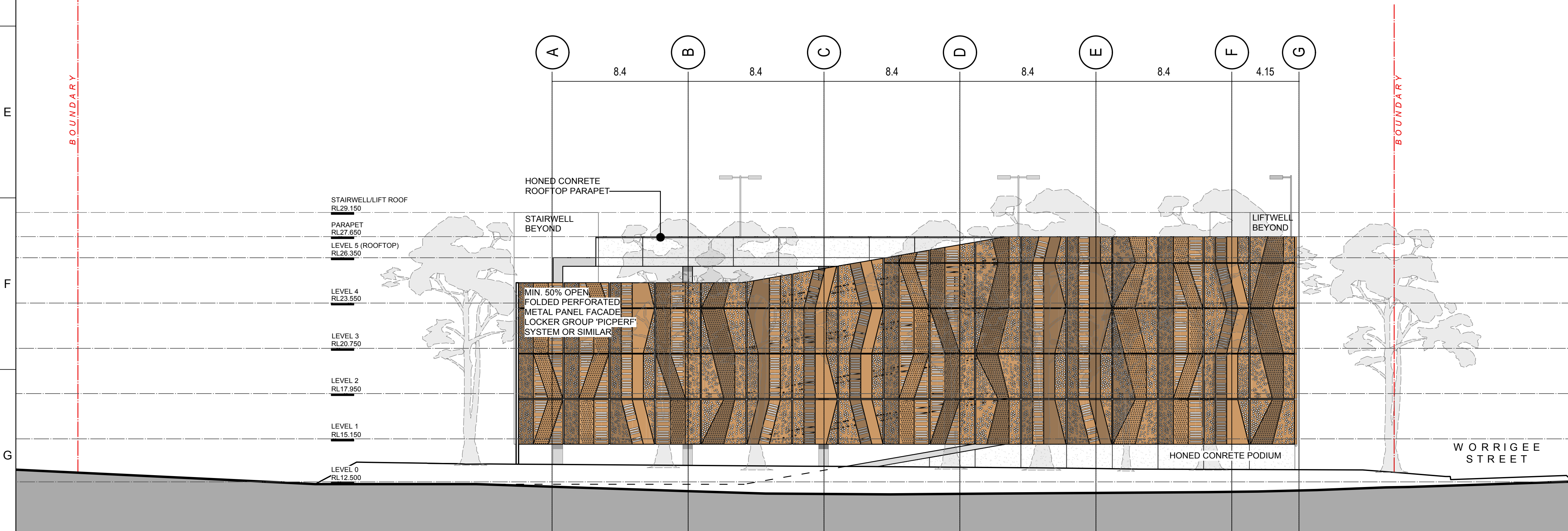
DESIGNED:		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS			<div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigee Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Site Survey Plan</div>				SCALE: 1:200 for A1, 1:400 for A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.		DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18										
DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR APPROVAL 31/08/2018 3 ISSUE FOR DA 07/09/2018																			
CHECKED:  31/08/18		ORIGIN OF LEVELS:					<div>- PLAN REFERENCE - 1311_11</div>																
APPROVED:  31/08/18		DATUM:																					
CLIENT:		CIVILCAD FILE:																					
1		2		3		4		5		6		7		8		9		10		11		12	

ISSUE FOR DA

- PLAN REFERENCE -
1311_11



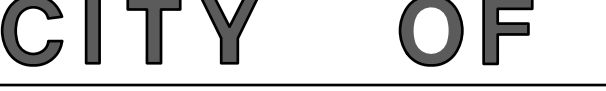

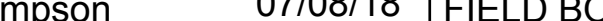
1 Worrigee Street (North) Elevation



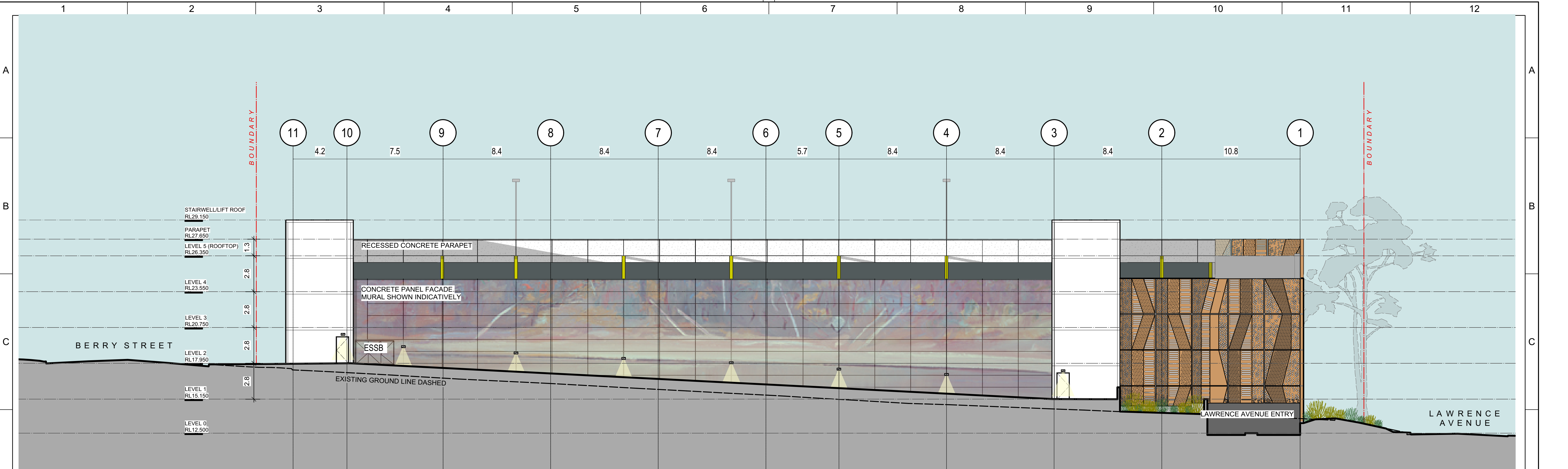
2 Lawrence Avenue (East) Elevation

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

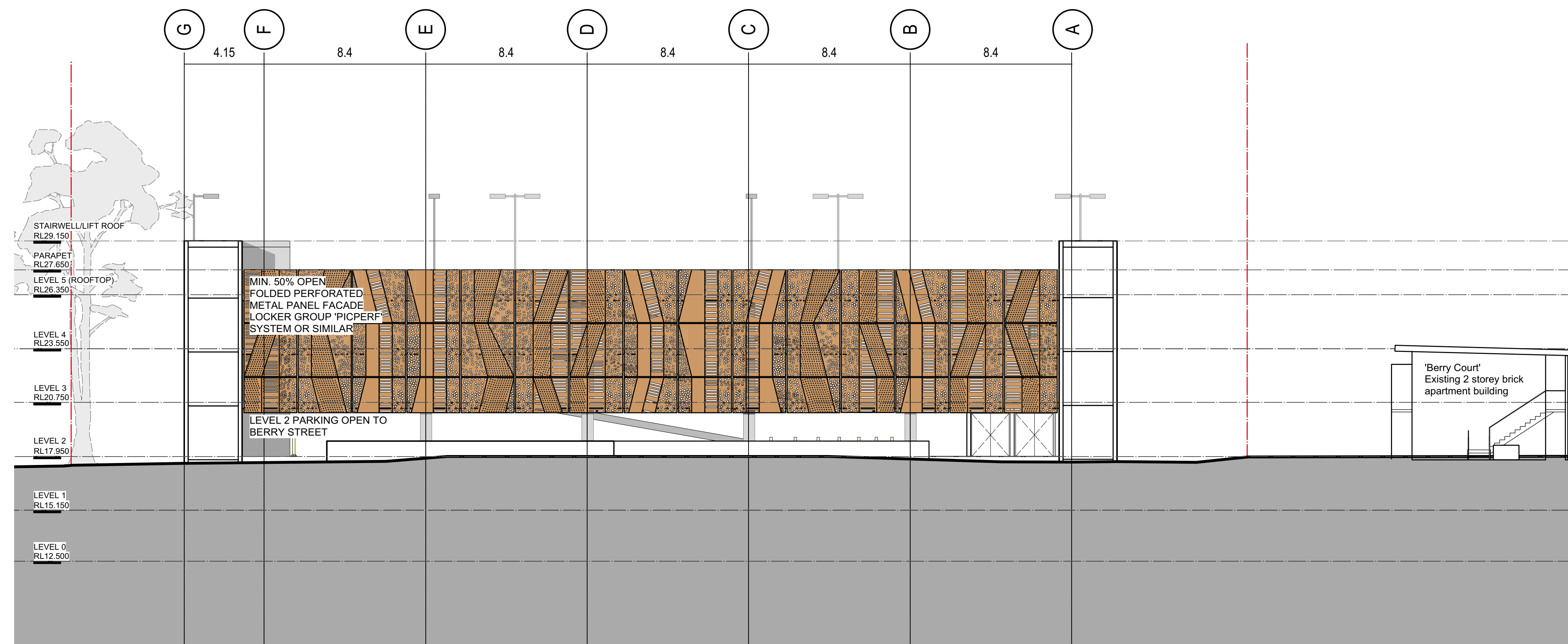
ISSUE FOR DA

DESIGNED:		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS			<div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigee Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Elevations Sheet 1</div>				SCALE: 1:150@A1, 1:300@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.		DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18										
DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR CONSULTANT 21/08/2018 3 ISSUE FOR APPROVAL 31/08/2018 4 ISSUE FOR DA 07/09/2018							<div>- PLAN REFERENCE -</div> <div>1311_22</div>												
CHECKED:  31/08/18		ORIGIN OF LEVELS:																					
APPROVED:  31/08/18		DATUM:																					
CLIENT:		CIVILCAD FILE:																					
1		2		3		4		5		6		7		8		9		10		11		12	

- PLAN REFERENCE -
1311_22







1 South Elevation



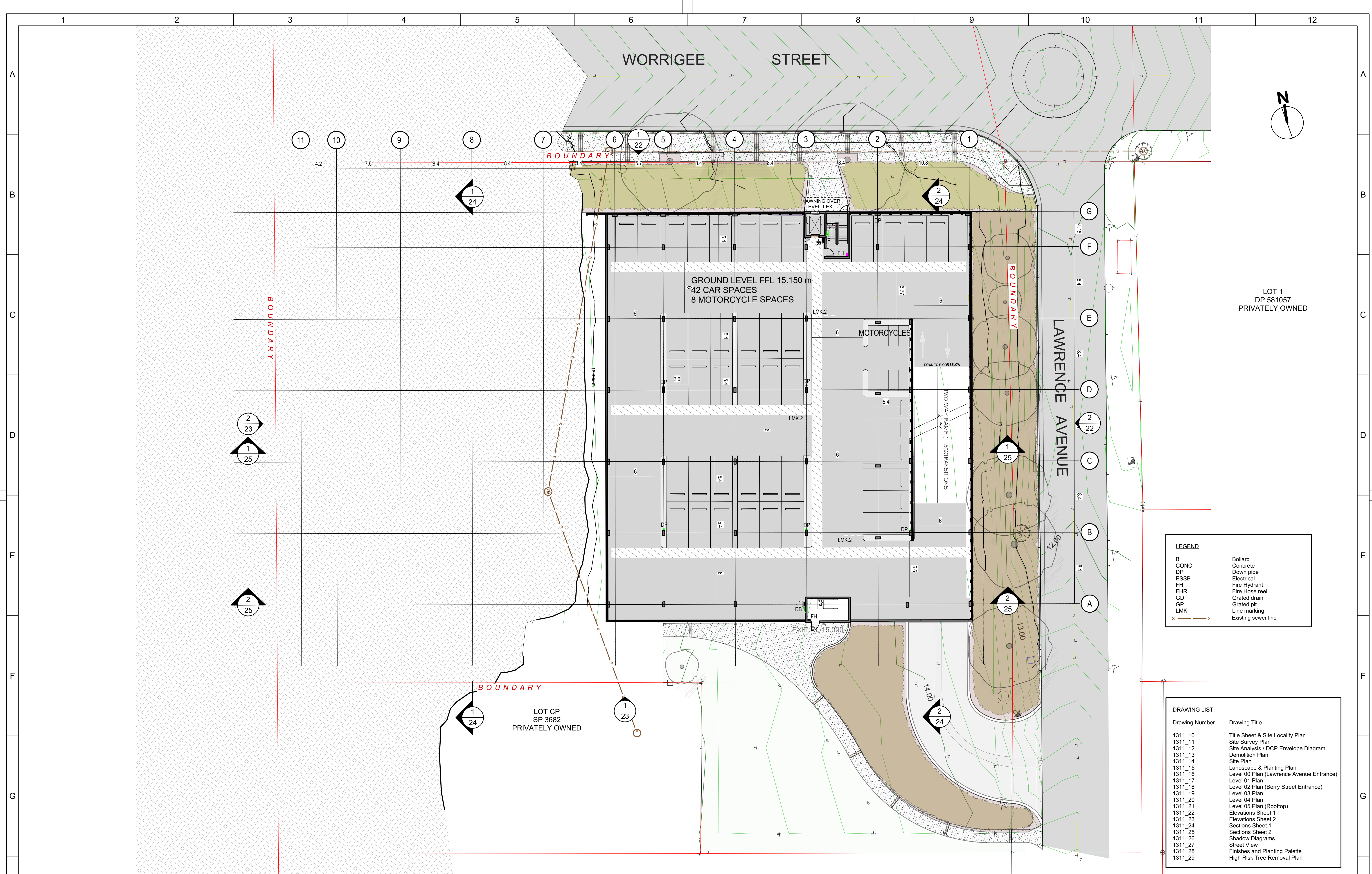
2 Berry Street (West) Elevation

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan


ISSUE FOR DA

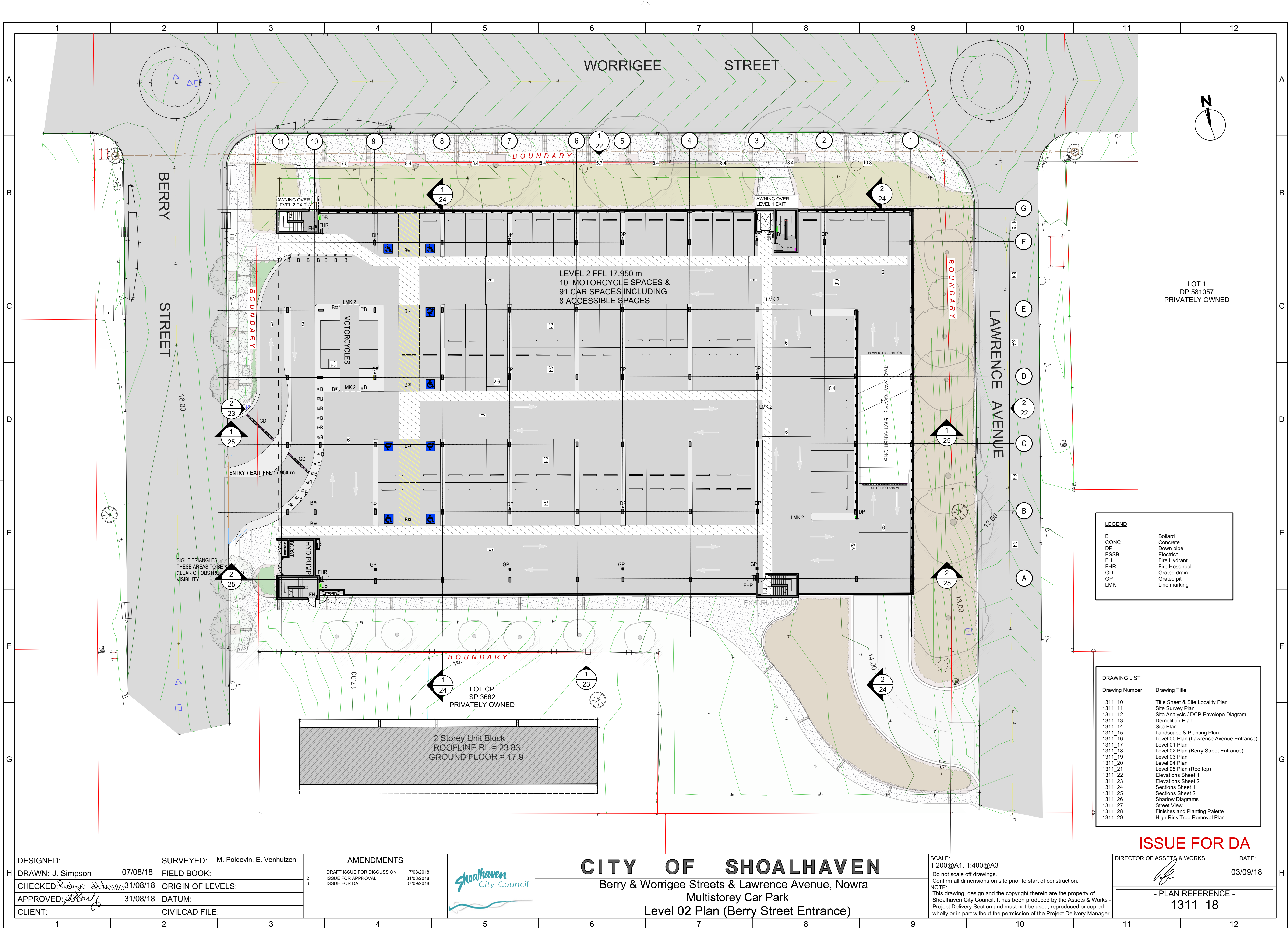
DESIGNED: J. Simpson, R. Holmes		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS			<div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigea Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Elevations Sheet 2</div>				SCALE: 1:150@A1, 1:300@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.		DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18										
DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR CONSULTANT 21/08/2018 3 ISSUE FOR APPROVAL 31/08/2018 4 ISSUE FOR DA 07/09/2018																			
CHECKED:  31/08/18		ORIGIN OF LEVELS:					<div>- PLAN REFERENCE -</div> <div>1311_23</div>																
APPROVED:  31/08/18		DATUM:																					
CLIENT:		CIVILCAD FILE:																					
1		2		3		4		5		6		7		8		9		10		11		12	

- PLAN REFERENCE -
1311_23



ISSUE FOR DA

H	DESIGNED:		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS			<div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigea Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Level 01 Plan</div>										SCALE: 1:200@A1, 1:400@A3		DIRECTOR OF ASSETS & WORKS: DATE:		H	
	DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR APPROVAL 31/08/2018 3 ISSUE FOR DA 07/09/2018													Do not scale off drawings. Confirm all dimensions on site prior to start of construction.		 03/09/18			
	CHECKED:  31/08/18		ORIGIN OF LEVELS:					NOTE:		<div>- PLAN REFERENCE - 1311_17</div>													
	APPROVED:  31/08/18		DATUM:					This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.															
	CLIENT:		CIVILCAD FILE:																				
1		2		3		4		5		6		7		8		9		10		11		12	

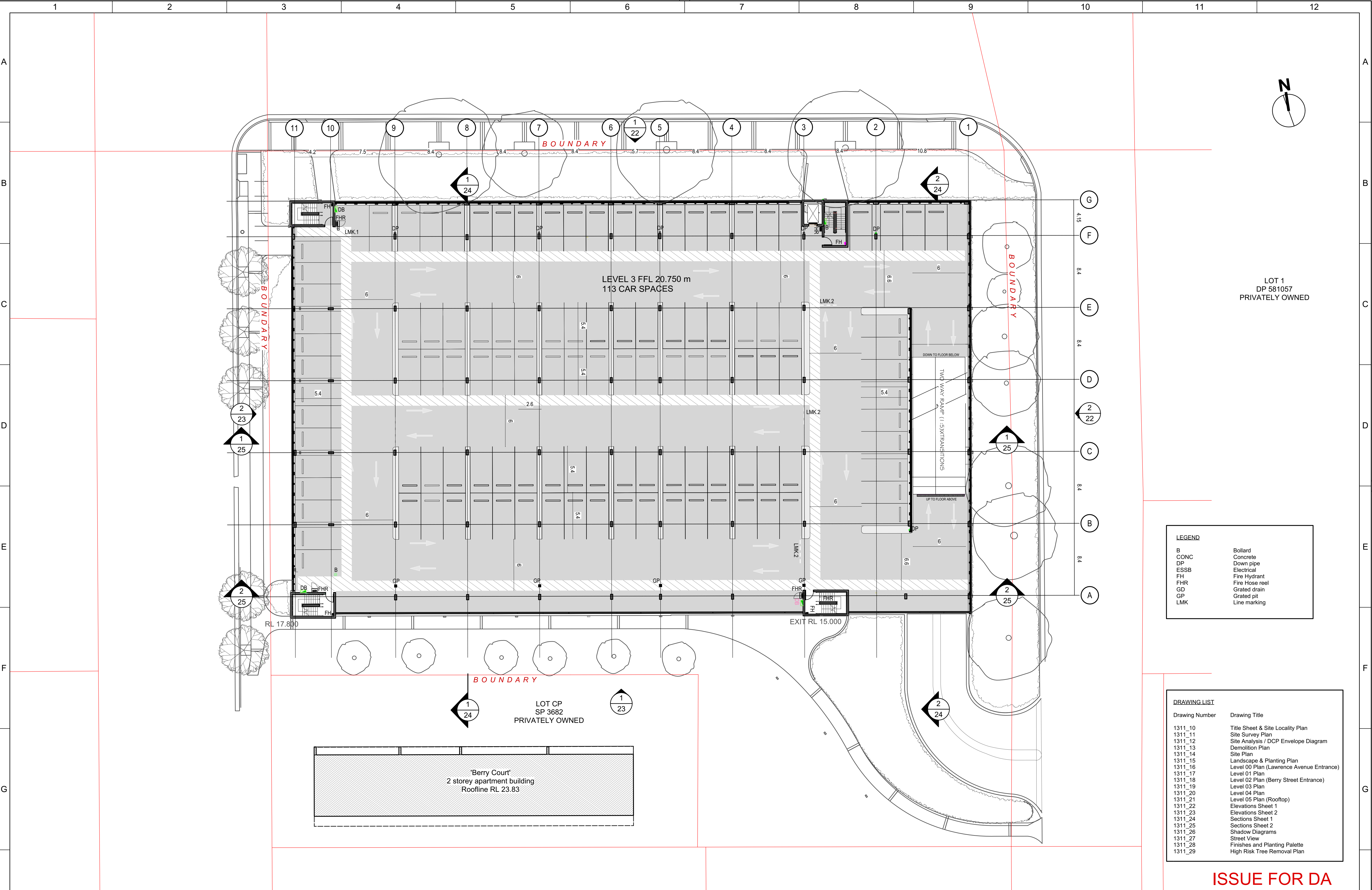


LEGEND	
B	Bollard
CONC	Concrete
DP	Down pipe
ESSB	Electrical
FH	Fire Hydrant
FHR	Fire Hose reel
GD	Grated drain
GP	Grated pit
LMK	Line marking

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

ISSUE FOR DA





DESIGNED:	SURVEYED: M. Poidevin, E. Venhuizen	AMENDMENTS	<div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigee Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Level 02 Plan (Berry Street Entrance)</div>	SCALE: 1:200@A1, 1:400@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.	DIRECTOR OF ASSETS & WORKS:	DATE: 03/09/18
H DRAWN: J. Simpson 07/08/18	FIELD BOOK:	1 DRAFT ISSUE FOR DISCUSSION 17/08/2018		<div>1311_18</div>		
CHECKED: 31/08/18	ORIGIN OF LEVELS:	2 ISSUE FOR APPROVAL 31/08/2018				
APPROVED: 31/08/18	DATUM:	3 ISSUE FOR DA 07/09/2018				
CLIENT:	CIVILCAD FILE:					

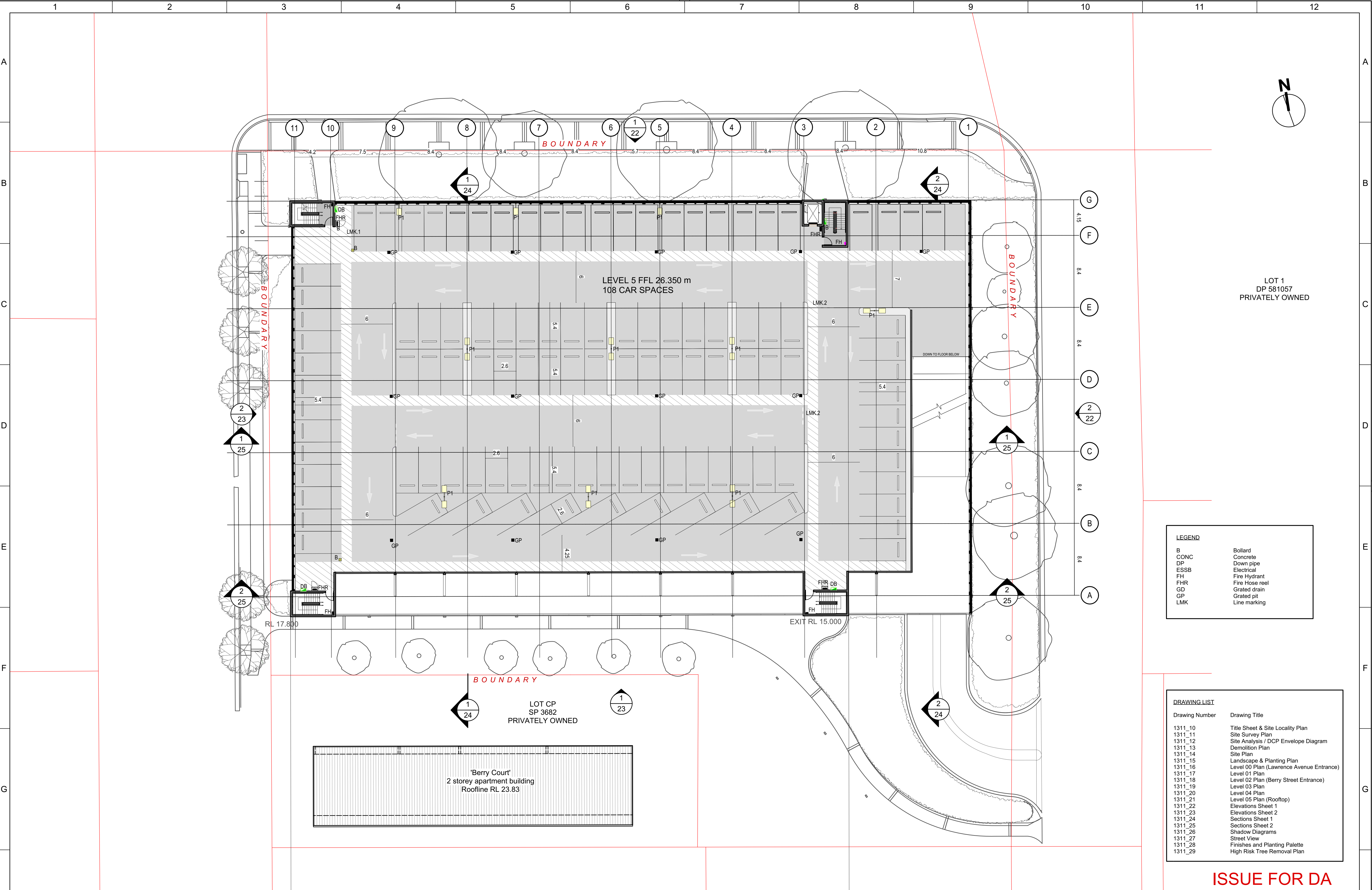


LEGEND	
B	Bollard
CONC	Concrete
DP	Down pipe
ESSB	Electrical
FH	Fire Hydrant
FHR	Fire Hose reel
GD	Grated drain
GP	Grated pit
LMK	Line marking

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

ISSUE FOR DA

DESIGNED:		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS		<div></div>	<div><h1>CITY OF SHOALHAVEN</h1><h2>Berry & Worrigea Streets & Lawrence Avenue, Nowra</h2><h3>Multistorey Car Park</h3><h3>Level 03 Plan</h3></div>				SCALE: 1:200@A1, 1:400@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.		DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18										
DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR APPROVAL 31/08/2018 3 ISSUE FOR DA 07/09/2018							<div>- PLAN REFERENCE - 1311_19</div>												
CHECKED:  31/08/18		ORIGIN OF LEVELS:																					
APPROVED:  31/08/18		DATUM:																					
CLIENT:		CIVILCAD FILE:																					
1		2		3		4		5		6		7		8		9		10		11		12	



LEGEND	
B	Bollard
CONC	Concrete
DP	Down pipe
ESSB	Electrical
FH	Fire Hydrant
FHR	Fire Hose reel
GD	Grated drain
GP	Grated pit
LMK	Line marking

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

ISSUE FOR DA

DESIGNED:	SURVEYED: M. Poidevin, E. Venhuizen	AMENDMENTS	<div><div>Shoalhaven City Council</div><div>CITY OF SHOALHAVEN</div><div>Berry & Worrigea Streets & Lawrence Avenue, Nowra</div><div>Multistorey Car Park</div><div>Level 05 Plan (Rooftop)</div></div>	SCALE: 1:200@A1, 1:400@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.	DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18
DRAWN: J. Simpson 07/08/18	FIELD BOOK:	1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 3 ISSUE FOR APPROVAL 31/08/2018 ISSUE FOR DA 07/09/2018			
CHECKED:  31/08/18	ORIGIN OF LEVELS:				
APPROVED:  31/08/18	DATUM:				
CLIENT:	CIVILCAD FILE:				

A



C



E



G



H



১৮



Lo

11



11



11



11



11

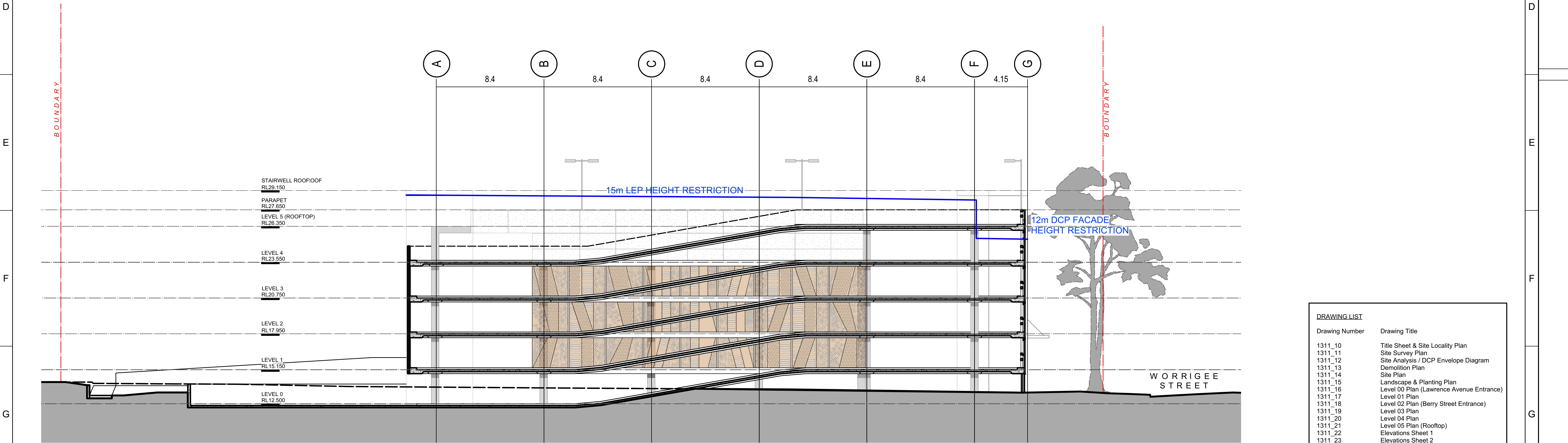
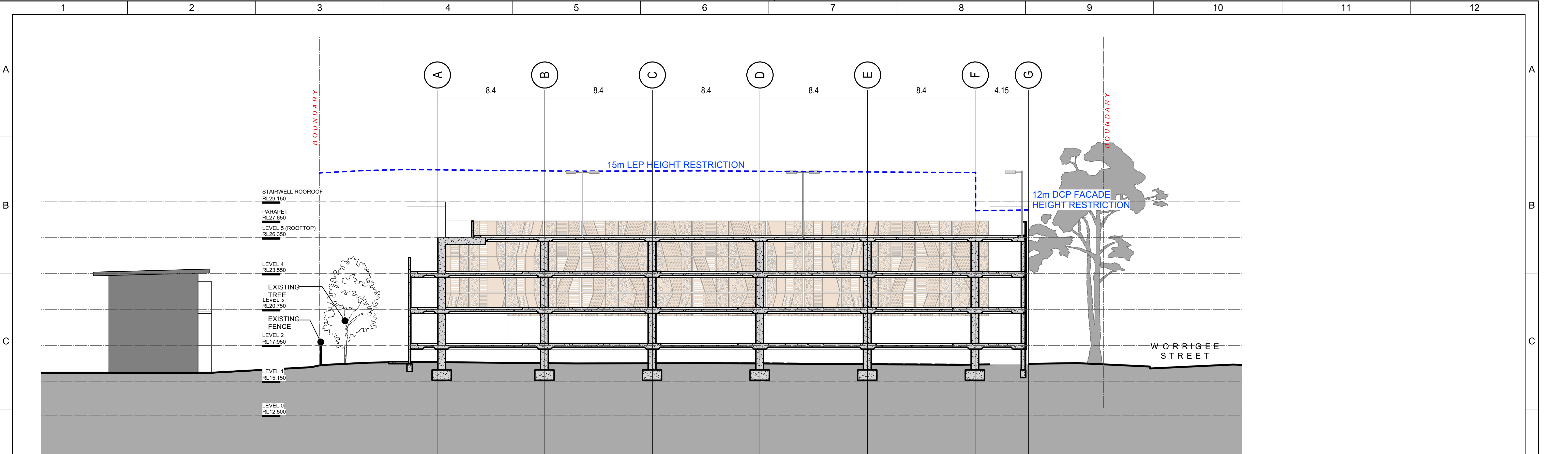


11

11


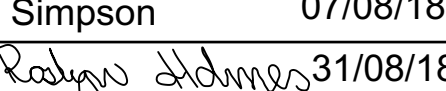
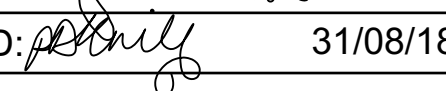
H

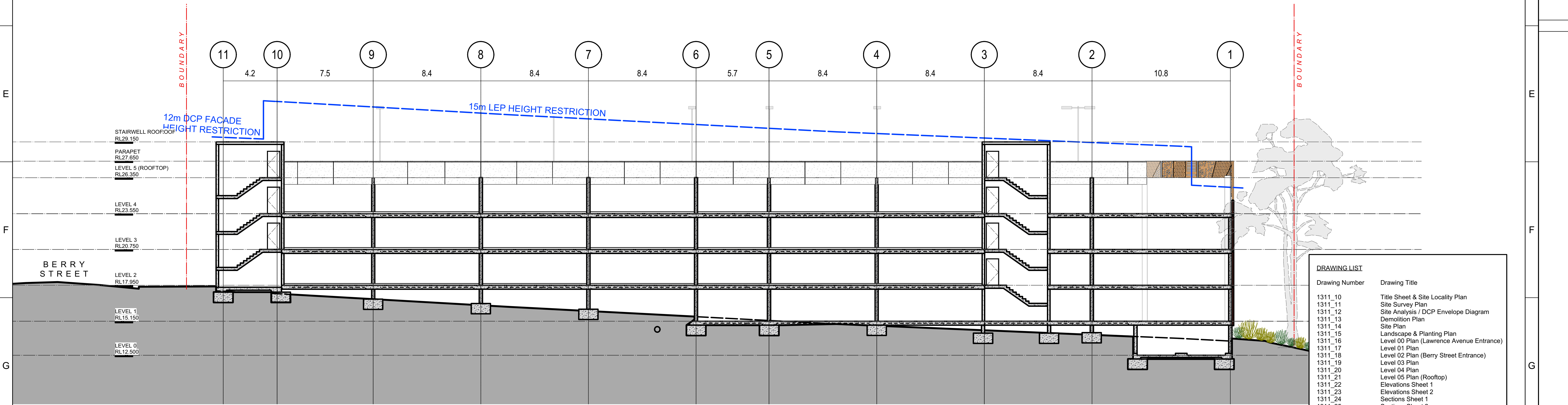
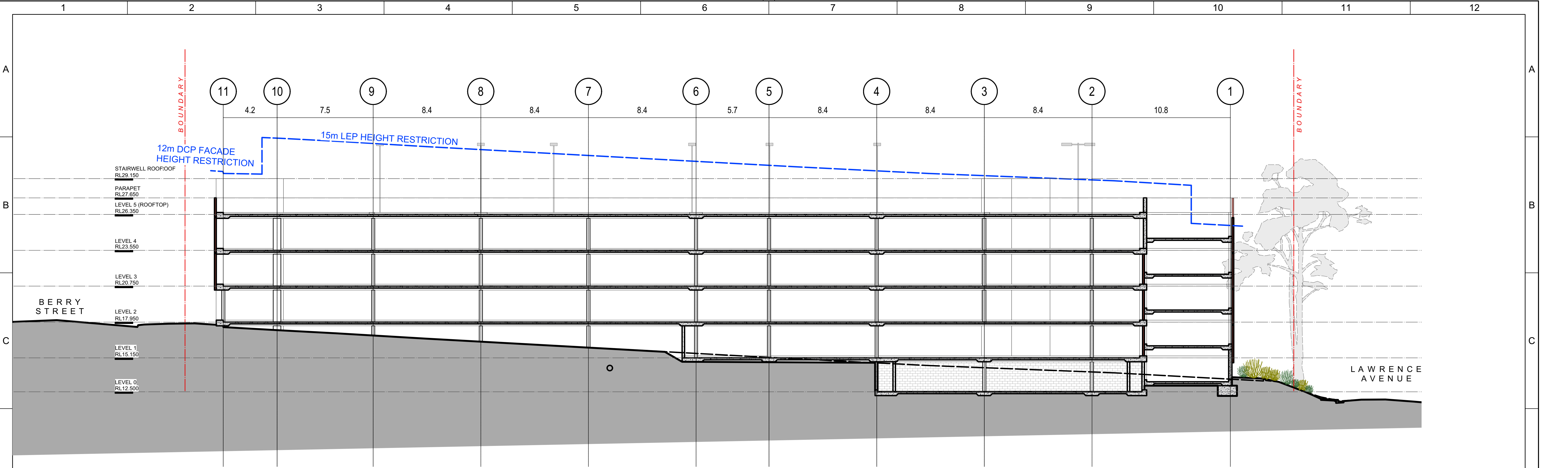
11





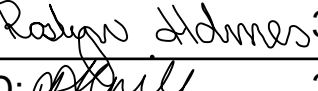
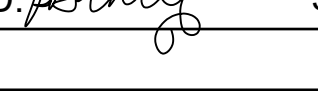
DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

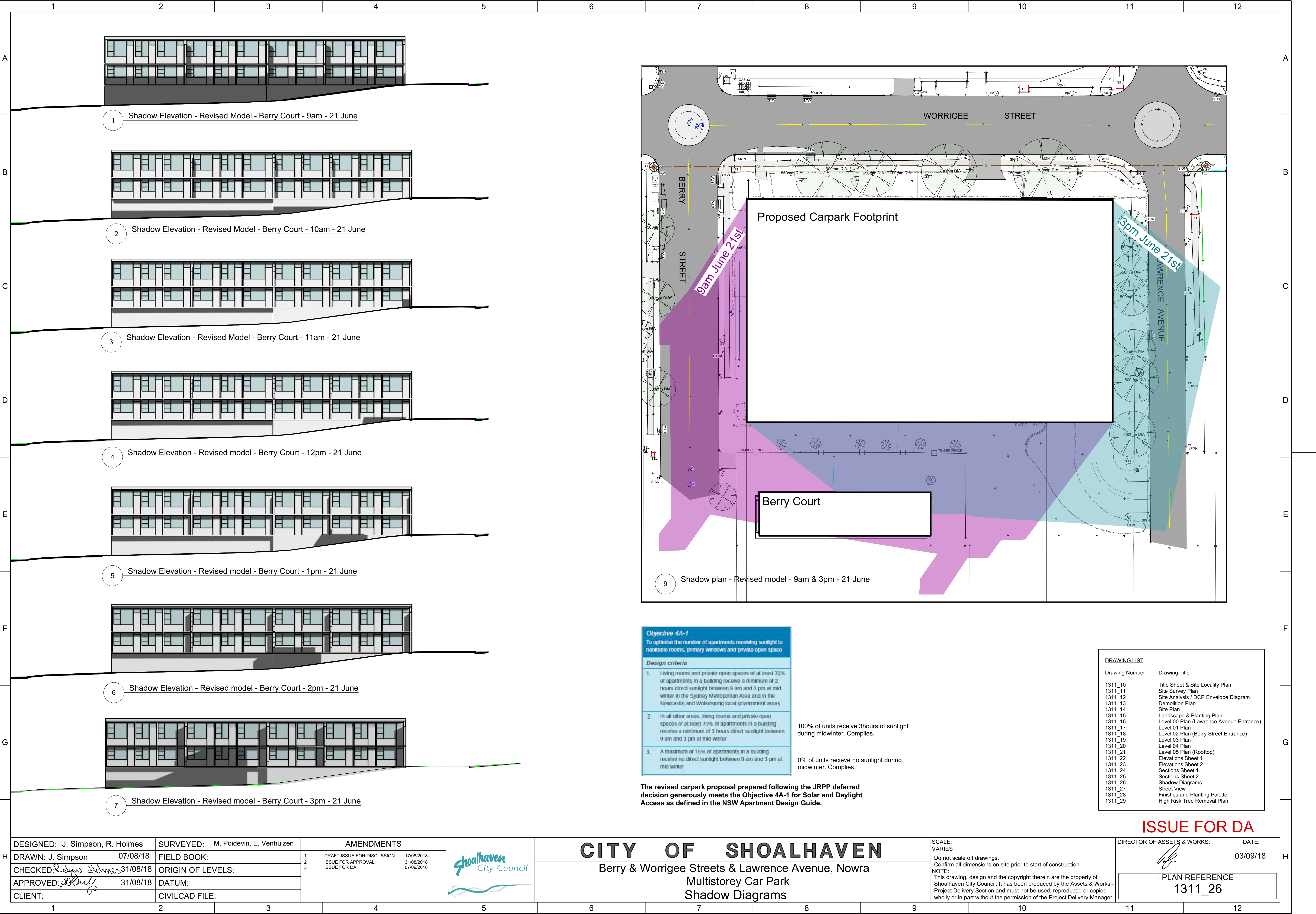
ISSUE FOR DA

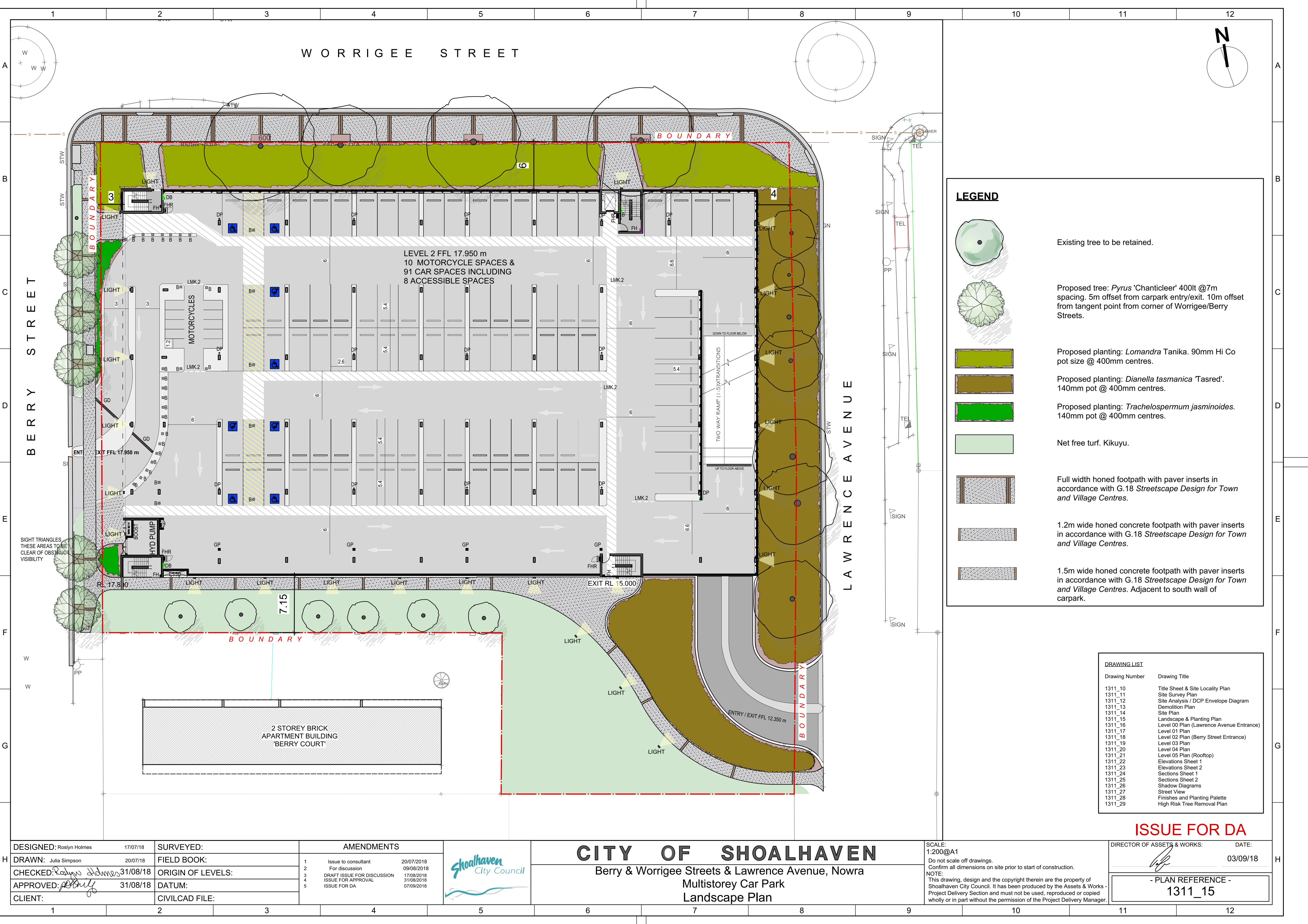
DESIGNED: J. Simpson, R. Holmes	SURVEYED: M. Poidevin, E. Venhuizen	AMENDMENTS	<div>Shoalhaven City Council</div> <div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigee Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Sections Sheet 1</div>	SCALE: 1:150@A1, 1:300@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.	DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18
DRAWN: J. Simpson 07/08/18	FIELD BOOK:	1 DRAFT ISSUE FOR DISCUSSION 17/08/2018		<div>- PLAN REFERENCE -</div> <div>1311_24</div>	
CHECKED:  31/08/18	ORIGIN OF LEVELS:	2 ISSUE FOR CONSULTANT 21/08/2018			
APPROVED:  31/08/18	DATUM:	3 ISSUE FOR APPROVAL 31/08/2018			
CLIENT:	CIVILCAD FILE:	4 ISSUE FOR DA 07/09/2018			



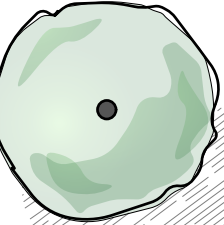
DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

DESIGNED: J. Simpson, R. Holmes		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS			<h1>CITY OF SHOALHAVEN</h1> <p>Berry & Worrigee Streets & Lawrence Avenue, Nowra</p> <h2>Multistorey Car Park</h2> <h3>Sections Sheet 2</h3>	SCALE: 1:150@A1, 1:300@A3 Do not scale off drawings. Confirm all dimensions on site prior to start of construction. NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.	DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18	
DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 DRAFT ISSUE FOR DISCUSSION 17/08/2018 2 ISSUE FOR APPROVAL 31/08/2018 3 ISSUE FOR DA 07/09/2018						
CHECKED:  31/08/18		ORIGIN OF LEVELS:								
APPROVED:  31/08/18		DATUM:								
CLIENT:		CIVILCAD FILE:								

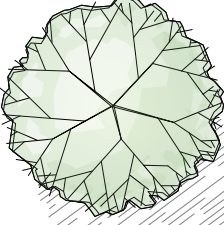





LEGEND




Existing tree to be retained.




Proposed tree: *Pyrus 'Chanticleer'* 400lt @7m spacing. 5m offset from carpark entry/exit. 10m offset from tangent point from corner of Worrigee/Berry Streets.




Proposed planting: *Lomandra Tanika*. 90mm Hi Co pot size @ 400mm centres.



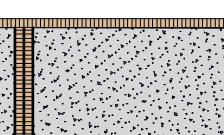
Proposed planting: *Dianella tasmanica* 'Tasred'. 140mm pot @ 400mm centres.




Proposed planting: *Trachelospermum jasminoides*. 140mm pot @ 400mm centres.




Net free turf. Kikuyu.



Full width honed footpath with paver inserts in accordance with G.18 *Streetscape Design for Town and Village Centres*.



1.2m wide honed concrete footpath with paver inserts in accordance with G.18 *Streetscape Design for Town and Village Centres*.



1.5m wide honed concrete footpath with paver inserts in accordance with G.18 *Streetscape Design for Town and Village Centres*. Adjacent to south wall of carpark.

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

ISSUE FOR DA

DESIGNED: Roslyn Holmes	17/07/18	SURVEYED:	
DRAWN: Julia Simpson	20/07/18	FIELD BOOK:	
CHECKED: Roslyn Holmes	31/08/18	ORIGIN OF LEVELS:	
APPROVED: Roslyn Holmes	31/08/18	DATUM:	
CLIENT:		CIVILCAD FILE:	

AMENDMENTS		
1	Issue to consultant	20/07/2018
2	For discussion	09/08/2018
3	DRAFT ISSUE FOR DISCUSSION	17/08/2018
4	ISSUE FOR APPROVAL	31/08/2018
5	ISSUE FOR DA	07/09/2018




CITY OF SHOALHAVEN

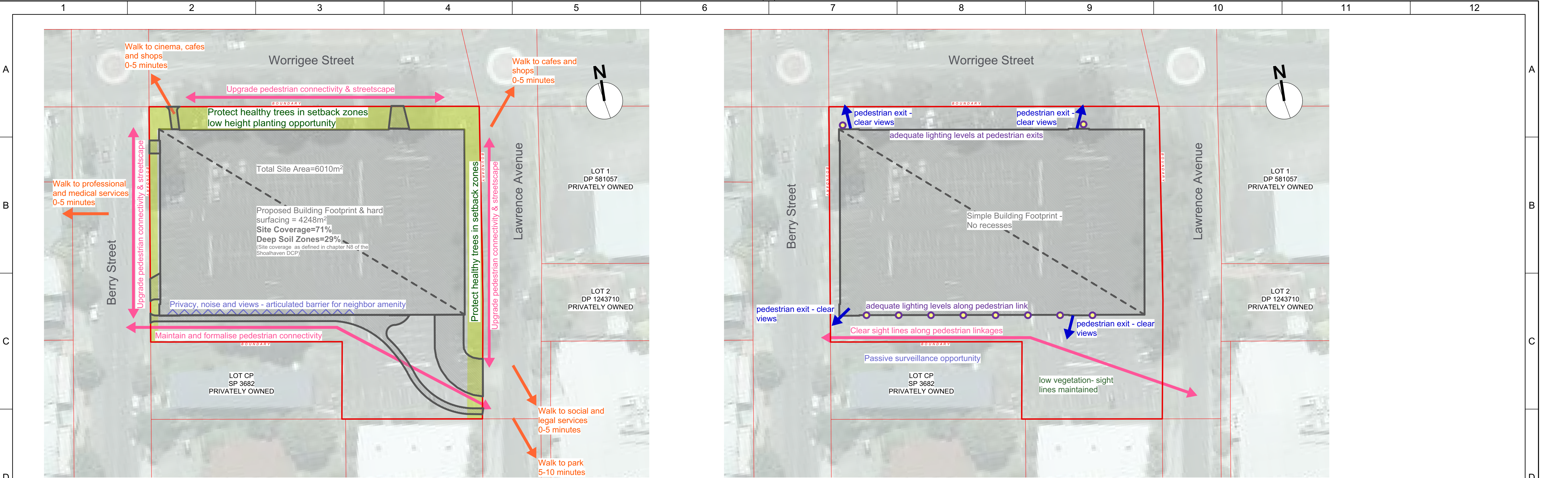
Berry & Worrigee Streets & Lawrence Avenue, Nowra

Multistorey Car Park

Landscape Plan

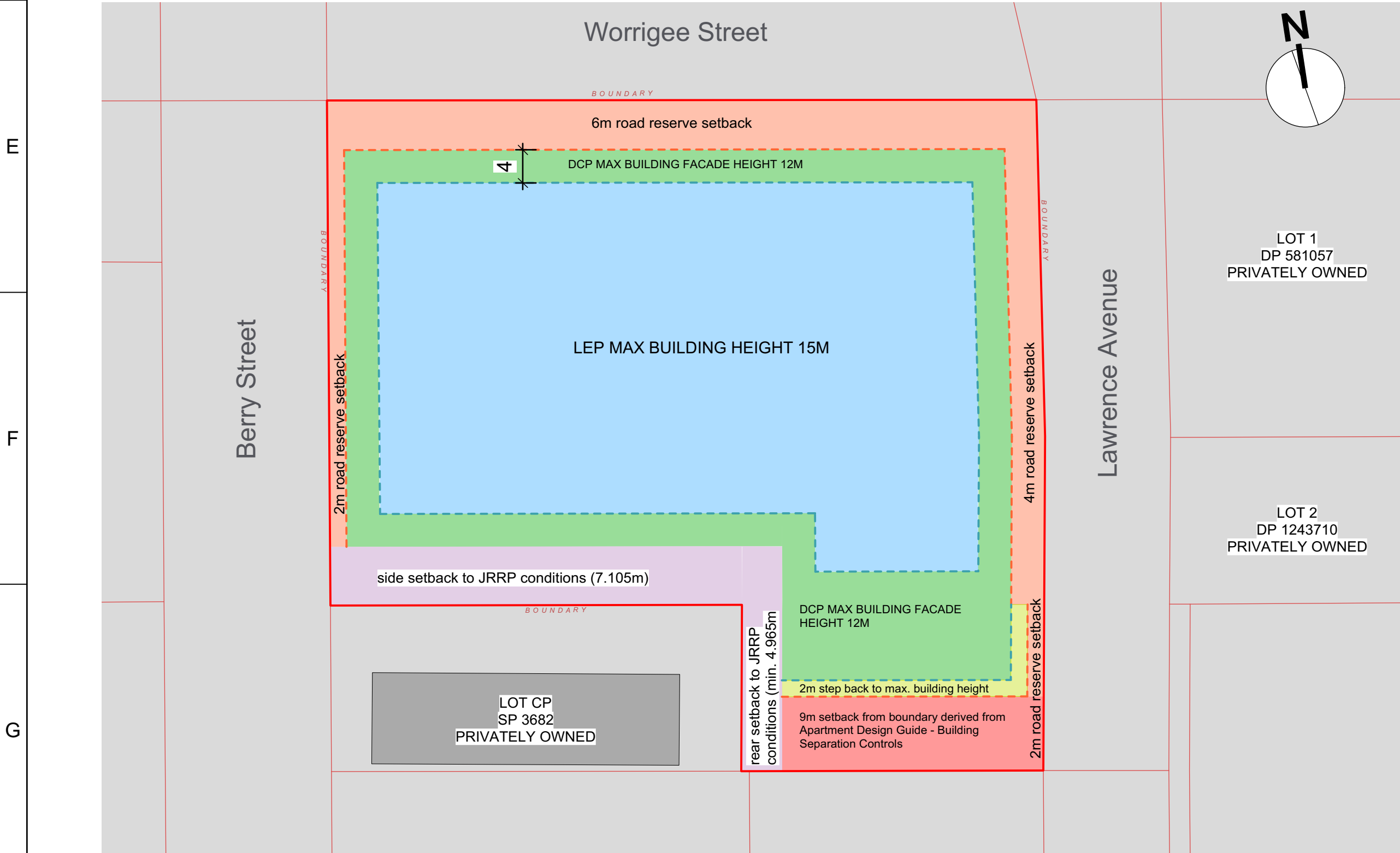
SCALE: 1:200@A1
Do not scale off drawings.
Confirm all dimensions on site prior to start of construction.
NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.

DIRECTOR OF ASSETS & WORKS:	DATE:
	03/09/18
- PLAN REFERENCE -	
1311_15	

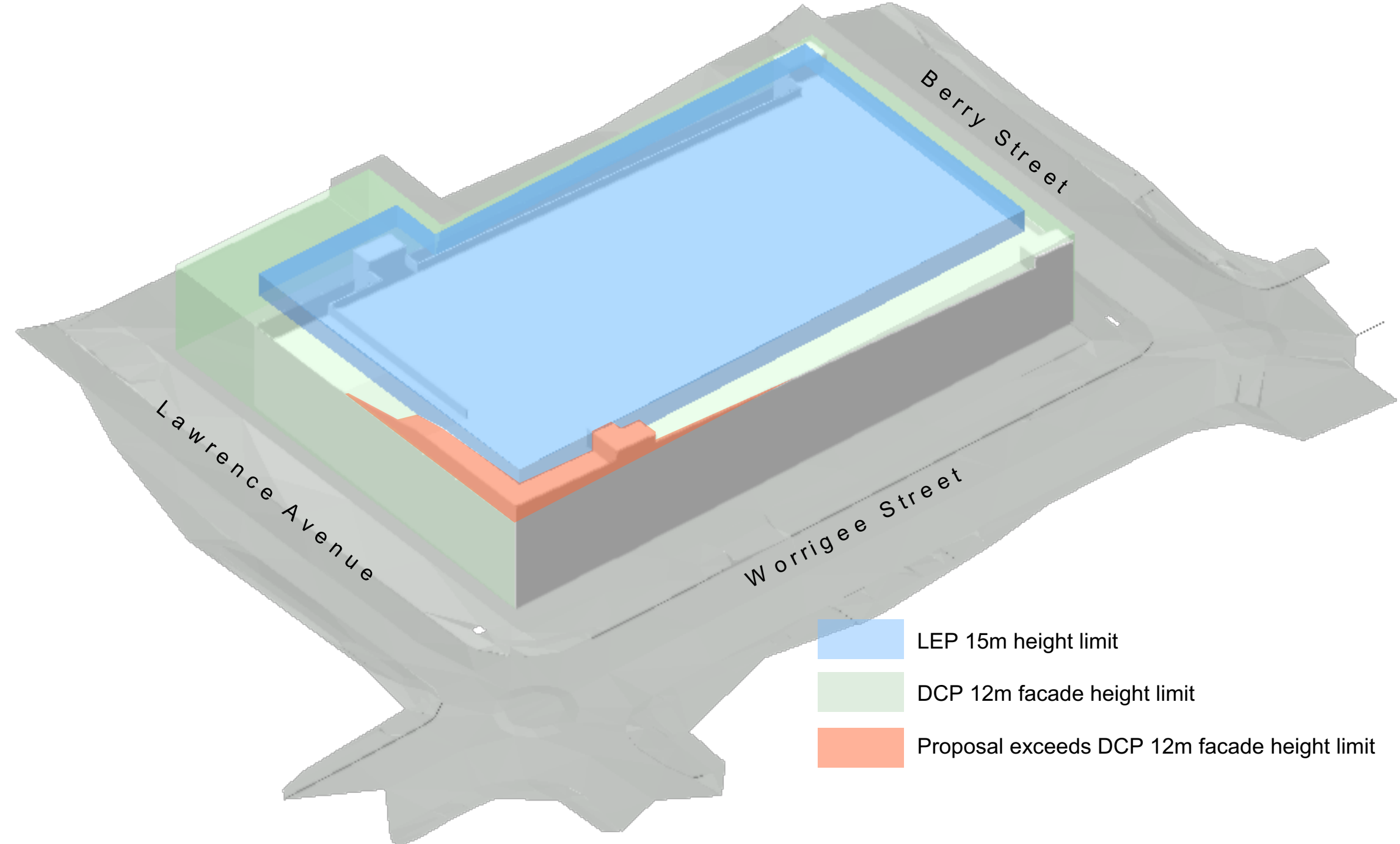


5 Site opportunities diagram

3 Safer By Design Analysis



2 Height and setbacks Controls Diagram



4 3D Visualisation - Height and setbacks Controls Diagram




DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

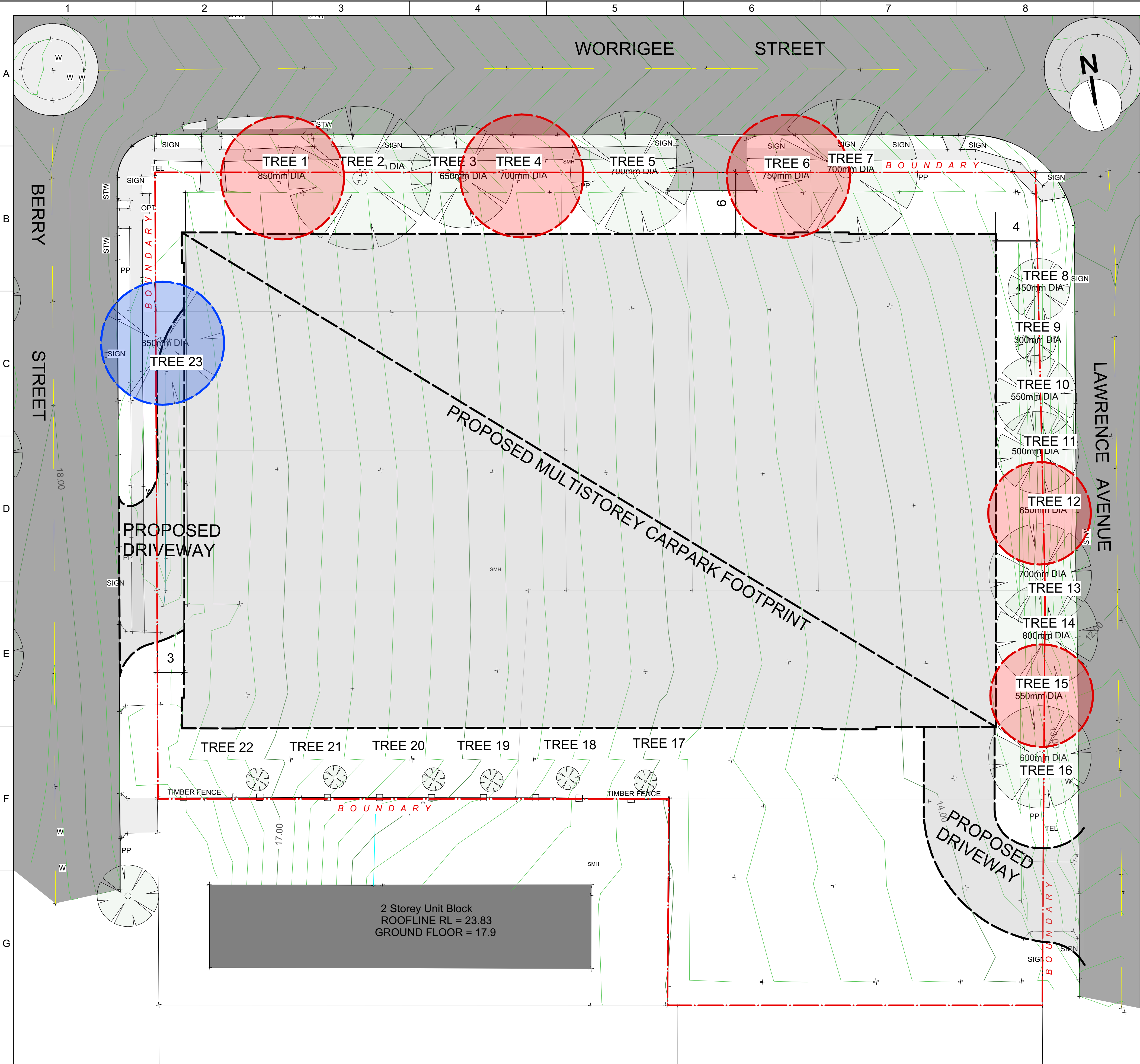
- LEP 15m height limit
- DCP 12m facade height limit
- Proposal exceeds DCP 12m facade height limit



DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

ISSUE FOR DA

DESIGNED: J. Simpson, R. Holmes		SURVEYED: M. Poidevin, E. Venhuizen		AMENDMENTS			<div>CITY OF SHOALHAVEN</div> <div>Berry & Worrigee Streets & Lawrence Avenue, Nowra</div> <div>Multistorey Car Park</div> <div>Street Views Sheet 1</div>				SCALE: NOT TO SCALE		DIRECTOR OF ASSETS & WORKS:  DATE: 03/09/18										
DRAWN: J. Simpson 07/08/18		FIELD BOOK:		1 ISSUE FOR APPROVAL 31/08/2018 2 ISSUE FOR DA 07/09/2018							Do not scale off drawings. Confirm all dimensions on site prior to start of construction.		<div>- PLAN REFERENCE -</div> <div>1311_27</div>										
CHECKED:  31/08/18		ORIGIN OF LEVELS:					NOTE: This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.																
APPROVED:		DATUM:																					
CLIENT:		CIVILCAD FILE:																					
1		2		3		4		5		6		7		8		9		10		11		12	



TREE KEY

-  EXISTING TREE TO BE RETAINED
-  EXISTING HIGH RISK TREE IDENTIFIED FOR REMOVAL
-  EXISTING TREE IDENTIFIED FOR REMOVAL

Number	Species	HxR
TREE 1	<i>Corymbia eximia</i>	19.5x7
TREE 2	<i>Corymbia eximia</i>	18x7
TREE 3	<i>Corymbia eximia</i>	18x7
TREE 4	<i>Corymbia eximia</i>	19x7
TREE 5	<i>Corymbia eximia</i>	15.5x7
TREE 6	<i>Corymbia eximia</i>	16x7
TREE 7	<i>Corymbia eximia</i>	16x7
TREE 8	<i>Eucalyptus sideroxylon</i>	12.7x8
TREE 9	<i>Eucalyptus sideroxylon</i>	8x5.5
TREE 10	<i>Eucalyptus sideroxylon</i>	21x8
TREE 11	<i>Eucalyptus sideroxylon</i>	19.5x8
TREE 12	<i>Eucalyptus sideroxylon</i>	22x8
TREE 13	<i>Eucalyptus sideroxylon</i>	19.5x8
TREE 14	<i>Eucalyptus sideroxylon</i>	18x8
TREE 15	<i>Eucalyptus sideroxylon</i>	20x8
TREE 16	<i>Eucalyptus sideroxylon</i>	22x8
TREES 17-22	<i>Elaeocarpus eumundi</i>	
TREE 23	<i>Eucalyptus</i> sp.	

Note: Refer to 2018 arborists report update by D. Potts which deemed these trees as a risk & to be removed.

DRAWING LIST	
Drawing Number	Drawing Title
1311_10	Title Sheet & Site Locality Plan
1311_11	Site Survey Plan
1311_12	Site Analysis / DCP Envelope Diagram
1311_13	Demolition Plan
1311_14	Site Plan
1311_15	Landscape & Planting Plan
1311_16	Level 00 Plan (Lawrence Avenue Entrance)
1311_17	Level 01 Plan
1311_18	Level 02 Plan (Berry Street Entrance)
1311_19	Level 03 Plan
1311_20	Level 04 Plan
1311_21	Level 05 Plan (Rooftop)
1311_22	Elevations Sheet 1
1311_23	Elevations Sheet 2
1311_24	Sections Sheet 1
1311_25	Sections Sheet 2
1311_26	Shadow Diagrams
1311_27	Street View
1311_28	Finishes and Planting Palette
1311_29	High Risk Tree Removal Plan

ISSUE FOR DA

DESIGNED:	SURVEYED:	AMENDMENTS
DRAWN:	FIELD BOOK:	
CHECKED: <i>Rolyn Adams</i> 31/08/18	ORIGIN OF LEVELS:	1 Issue to consultant 20/07/2018
APPROVED:	DATUM:	2 DRAFT ISSUE FOR DISCUSSION 17/08/2018
CLIENT:	CIVILCAD FILE:	3 ISSUE FOR APPROVAL 31/08/2018
		ISSUE FOR DA 07/09/2018



CITY OF SHOALHAVEN
Berry & Worrigee Streets & Lawrence Avenue, Nowra
Multistorey Car Park
High Risk Tree Plan

SCALE:
1:200@A1, 1:400@A3
Do not scale off drawings.
Confirm all dimensions on site prior to start of construction.
NOTE:
This drawing, design and the copyright therein are the property of Shoalhaven City Council. It has been produced by the Assets & Works - Project Delivery Section and must not be used, reproduced or copied wholly or in part without the permission of the Project Delivery Manager.

DIRECTOR OF ASSETS & WORKS:	DATE:
- PLAN REFERENCE - 1311_29	

ARBORISTS REPORT PROPOSED SIX-LEVEL WORRIGEE STREET CAR PARK PERIMETER TREES

JULY 2018 UPDATE

Attention Roslyn Holmes
Landscape Architect Shoalhaven City Council

In light of the nearly three years time span between the first October 2015 David Potts arborist's report and the current revised plan, the author revisited the site on 25.7.2018 with the following inspection references:

- * A recent review of the trees by Shoalhaven Council's Tree Officer Cameron Low. **Comment:** The D.Potts October 2015 inspection table was updated on 25.7.2018 and is added to Part 1.4 in the 2015 report inspection table.
- * Existing tree plan with an uninspected tree on the Berry Street perimeter added. **Comment:** This tree is a 25m tall Tallow Wood (*Eucalyptus microcorys*), it was added to the Part 1.4 2015 report table following inspection on 25.7.2018
- * Landscape plan with new carpark footprint. **Comment:** The offsets in the current plan are satisfactory for the retained Worrigee St. and Lawrence Ave. trees. See report Part 2.2.2 and Part 3 for elaboration.

Appropriate July 2018 comments and new photo captions have been added in **red** to the 2015 arborist's report which follows this title page.

Prepared by

DAVID POTTS
CONSULTANT ARBORIST
ARBORISTS REPORTS
TREE SURVEYS & DIAGNOSIS
0417 060847 (mob)
davidpotts1@bigpond.com

ARBORISTS REPORT PROPOSED SIX-LEVEL WORRIGEE STREET CAR PARK PERIMETER TREES

Prepared for Shoalhaven City Council
October 2015

July 2018 update notes added in red

p.	TABLE OF CONTENTS
3	PART 1 INVENTORY OF THE EXISTING TREES
3	1.1 INTRODUCTION
4	1.2 INSPECTION CRITERIA & LIMITATIONS
4	1.2.1 Inspection glossary
5	1.3 PROPOSED WORRIGEE ST. CAR PARK FOOTPRINT & EXISTING TREE PLAN
6-14	1.4. INSPECTION TABLE & PHOTOS
15	PART 2 THE TREES AND THE PROPOSED CAR PARK
15-17	2.1 THEORETICAL SRZ'S & TPZ'S FOR THE SUBJECT TREES
18	2.2 CONSIDERATIONS & CONSTRUCTION OFFSETS
18	2.2.1 Considerations
18-19	2.2.2 Construction offsets
20	PART 3 OPTIONS
20	3.1 OPTION 1 Retain the trees with prescribed offsets & protection
20	3.1.1 Protection of retained trees
20	3.2 OPTION 2 Remove and replace the trees
21	APPENDIX 1 SULE CATEGORIES

Prepared by

DAVID POTTS
CONSULTANT ARBORIST
ARBORISTS REPORTS
TREE SURVEYS & DIAGNOSIS
0417 060847 (mob)
davidpotts1@bigpond.com

PART 1 INVENTORY OF THE EXISTING TREES

1.1 INTRODUCTION

The subject trees comprise a line of seven mature Yellow Bloodwoods *Corymbia eximia* along the north (Worrige Street) border of the carpark, a line of nine Mugga Ironbarks *Eucalyptus sideroxylon* lining the east (Lawrence Avenue) border. On the southern boundary are three trees: Common Ash *Fraxinus excelsior*, Himalayan Cedar *Cedrus deodara* and Illawarra Flame Tree *Brachychiton acerifolius*.

The Worrige Street and Lawrence Avenue Bloodwoods and Ironbarks with one exception are all mature and fully grown in their compacted, gravelly reserves between the roads and car park. .

The proposed car park will comprise six levels and resume the footprint of the existing bitumen car park along with the requisite footings, and scaffolding during construction.

This investigation will appraise the car park plans for possibilities of impacts on and mitigation of trees with “worthy of retention” Safe Useful Life Expectancy (SULE) prognoses.

Part 1.4 provides a specification and SULE inventory of the trees.



Yellow Bloodwoods on the Worrige Street frontage of the car park, looking west

1.2 INSPECTION CRITERIA, LIMITATIONS & GLOSSARY

Inspection criteria and limitations:

Provenance, specifications, observable health & structural condition, and from this the Safe Useful Life Expectancy ("SULE") rating determined using the Barrell 1.4.01 format.

- Note that SULE ratings cannot anticipate the impact of violent weather events on the subject trees, or necessarily detect internal defects in trunk or root plate. Expect production of branch debris and dead wood as a natural ongoing occurrence. Councils generally do not count these as valid reasons for removing a tree.
- Approximate tree height(s) were calculated with a Hagl f electronic clinometer.

1.2.1 Inspection glossary

Chlorosis: unnatural yellowing of foliage, possibly caused by pathogenic disease, nutrient deficiency, lack of light (e.g. in competitive environments for space and light)

Co-dominant trunks: may occur where a trunk divides with a narrow fork, which tends to wedge apart over time, set up hairline partition and a decay court inside the fork, which may split in time (various indicators if this is occurring).

Deadwood: expected on mature trees – to a degree. Beyond a point, the percentage of deadwood in the overall canopy will downgrade the SULE prognosis. In some cases, may indicate a progressive dieback pattern, or limb death caused by termites.

DBH: Trunk diameter at “breast height” taken at 1.4m above ground level.

Epicormic branches: brittle-attached leafy shoots or branches, usually sprout from the trunk or limbs, as response to unsuitable environment (“stress”), fire, “lopping” or natural senility. Beyond a point, the percentage of epicormics in the overall canopy will downgrade the SULE prognosis.

Etiolated: tall spindly growth, foliage sometimes chlorotic (yellowed) usually caused by lack of space and light when in close competition.

Fissure: external split or crack, may be associated with a structural weakness (i.e. in a codominant trunks’ fork) or disease.

H x R tree height x canopy radius (average trunk to dripline) in metres.

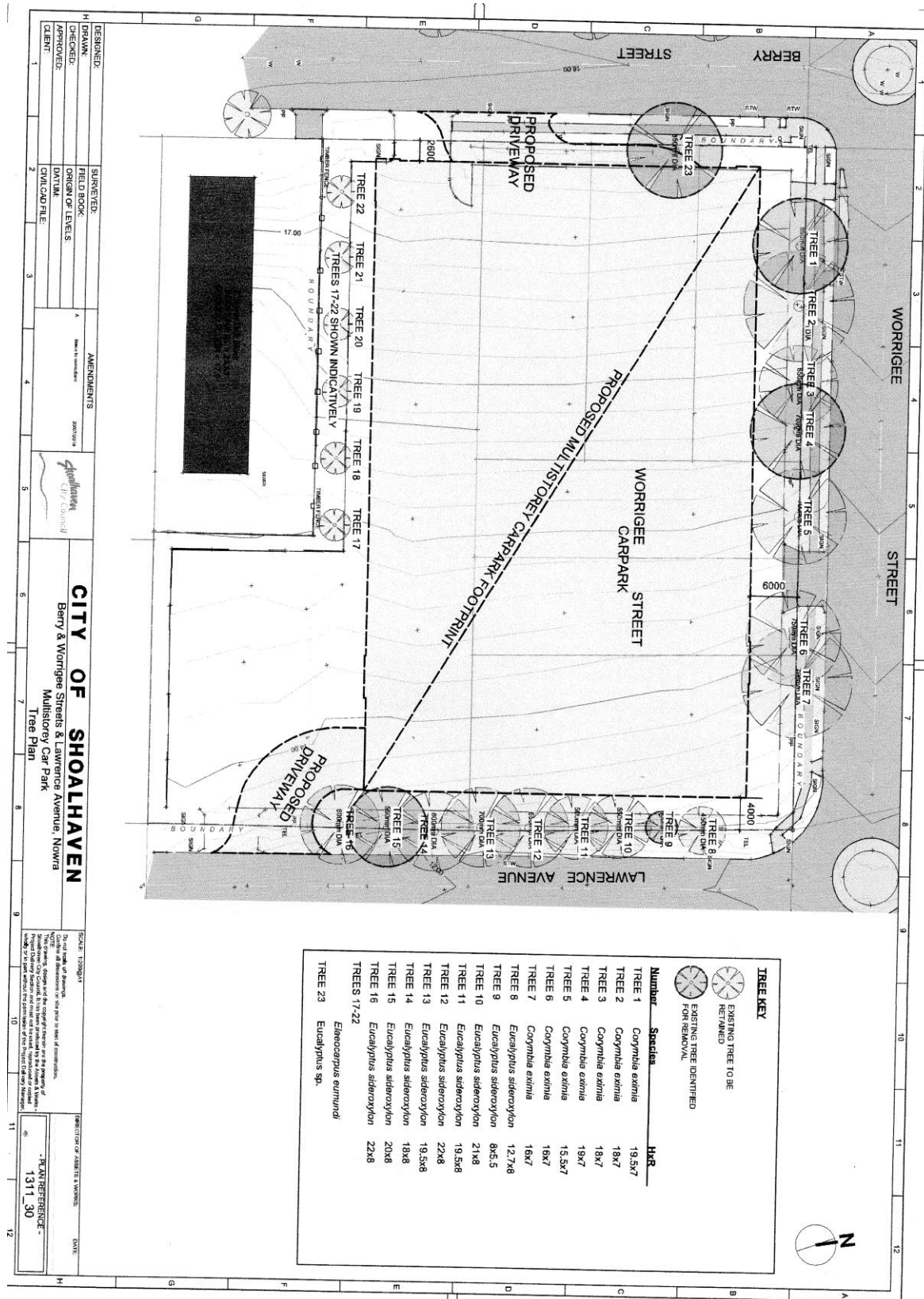
Lesion: (generic) refers to any localised pathology such as decay, disease, infected wound, morbid tissue.

Lopping and topping: a structurally and pathologically destructive method of pruning trees. It is an unacceptable tree working method under AS 4373-2007 Part 8 “Pruning of Amenity Trees”

Pre-emptive removal: Trees not expected to fail immediately, but with serious structural fault or disease that give a poor prognosis and foreseeable hazard. In some cases, pre-emptive removal is advisable. May be shown in the report as SULE Category 3d(4c)

Provenance: Australian or exotic centre-of-origin of the species (in species column).

1.3 PROPOSED WORRIGEE ST. CAR PARK FOOTPRINT & EXISTING TREE PLAN



1.4 TREE INVENTORY: INSPECTION TABLE & PHOTOS Oct 2015

(see glossary p.3 for technical definitions)

25.7.2018 inspection updates added in red

no	Species *provenance (centre-of-origin)	DBH in cm	H x R in m	Age, inspection comments Age code: Y = Young, EM = Early-mature M = Mature, A = Aged, S = Senile	SULE rating/ photo
	Worrigee St				
1	<i>Corymbia eximia</i> Yellow Bloodwood	80	19.5 x av. 7	M: <i>codominant trunks</i> (self-grafted); lesion @ 4.2m up with longstanding decay ex stub (west trunk) 15cm diameter “bracket” <u>also</u> large decay brackets south side @ 2.5 & 3.5m up south: unsafe. Remove the entire west trunk or whole tree. 25.7.18 Same comment	3d (4c) 2 photos p. 7
2	<i>Corymbia eximia</i>	64	18 x av. 7	M: <i>codominant trunks</i> @ 3.3m up otherwise no observable faults 25.7.18 Same comment	2d
3	<i>Corymbia eximia</i>	62	18 x av. 7	M: no observable faults. 25.7.18 Same comment	2d
4	<i>Corymbia eximia</i>	64	19 x av. 7	M: rubbing branches causing weak point @ 9m up east, otherwise no observable faults. 25.7.2017 west/north-west trunk between 3 & 4 metres up now presents with mature fungal decay fruiting bodies (“brackets”) similar to T.1 – the spacing of about a metre between the brackets indicates systemic trunk infection and flags systemic internal trunk infection, possibly heart rot. The SULE rating has been downgraded to Category 3d(4c/f)	2d photo p.7 3d(4c) + 2018 photo p.12
5	<i>Corymbia eximia</i>	64	15.5 x av 7	M: no observable faults 25.7.18 Same comment	2d
6	<i>Corymbia eximia</i>	76	16 x av. 7	M: <i>quadruple codominant trunks</i> apparently not liable to split imminently, otherwise no observable faults. The very narrow forks are at the least a technical fork, currently no kino (gum) bleeds to indicate a fissure (crack) developing there. The Bloodwood group will bleed red kino freely if there is a breach in the sapwood however this remains a serious technical fault hence the short SULE prognosis	2d (3d) photo p.7 3d + 2018 photos p.12

no	Species *provenance (centre-of-origin)	DBH in cm	H x R in m	Age, inspection comments Age code: Y = Young, EM = Early-mature M = Mature, A = Aged, S = Senile	SULE rating/ photo
7	<i>Corymbia eximia</i>	75	16 x av. 7	M: north branch weakened @ 5m up north by decaying stub, otherwise no observable faults 25.7.18 Same comment	2d photo p.8
	Lawrence Ave				
8	<i>Eucalyptus sideroxylon</i> Mugga Ironbark	54	12.7 x av. 8	M: no observable faults 25.7.18 Same comment	1b
9	<i>Eucalyptus sideroxylon</i>	28	8 x 5.5	EM: younger tree, (possible replacement?); numerous epicormics lower half otherwise no observable faults. 25.7.18 Twiggy dead wood lower canopy otherwise same comment	1b
10	<i>Eucalyptus sideroxylon</i>	53	21 x av. 8	M: vertical lateral branch weakened @ 10m up west by stub (over car park) otherwise no observable faults 25.7.18 Same comment	2d photo p.8
11	<i>Eucalyptus sideroxylon</i>	40	19.5 x av. 8	M: limited deadwood & epicormics otherwise no observable faults 25.7.18 Same comment	2d
12	<i>Eucalyptus sideroxylon</i>	64	22 x av. 8	M: 20% epicormics, scattered small/medium deadwood otherwise no observable faults 25.7.18 Same comment, also significant 1.3m long vertical fissure ~ 8m up has developed with some kino fluxing and associated dead stubs which probably confirm internal fungal infection. Remediation difficult, downgraded SULE prognosis. Consider EWP close inspection as per Cameron Low advice	2d 3d (possibly 4c) + 2018 photos p.13
13	<i>Eucalyptus sideroxylon</i>	59	19.5 x av. 8	M: large limb dieback @ 4.5m & 6m up, epicormics developing 25.7.18 Same comment	2d
14	<i>Eucalyptus sideroxylon</i>	63	18 x av. 8	M: large epicormics on the lower trunk, also brittle epicormics at wind fracture @ 10m up east; otherwise no observable faults 25.7.18 Same comment	2d photo p.8

no	Species *provenance (centre-of-origin)	DBH in cm	H x R in m	Age, inspection comments Age code: Y = Young, EM = Early-mature M = Mature, A = Aged, S = Senile	SULE rating/ photo
15	<i>Eucalyptus sideroxylon</i>	53	20 x av. 8	EM: apparent lesion in trunk @ 2m up with callus enlargement otherwise no observable faults. 25.7.18 Callus increase indicates an insect or fungal disorder and confirms SULE now of 3d	2d (3d) photo p.8 3d
16	<i>Eucalyptus sideroxylon</i>	51	22 x av. 8	M: array of medium deadwood lower 1/3 rd otherwise no observable faults 25.7.18 Same comment	2d
	South perimeter				
17 to 22	<i>Elaeocarpus eumundii</i>			Quandong, small tree when mature, planted since 2015 report	
	Berry Street				
23	<i>Eucalyptus microcorys</i> Tallow Wood 25.7.2018	82	25 x av. 9	M: foliage healthy, normal density for species; canopy pruned west side to clear power lines with some expected associated epicormic outbreaks with the wounds; trunk and branching structure normal and healthy except for a <u>distinct fissure in the primary trunk fork</u> about half way up the tree. Because of the positioning of this fissure in the fork the SULE rating was limited to Category 3 (remediation difficult)	3d + 2018 photos p.13

Inspection summary

- Considering the typical harsh street tree environment and compacted, impaired growing zones for the roots, the trees were in generally satisfactory condition, well grown, with average prognoses of SULE Category 2d (15-40 years).
- They are arguably an environmental and visual asset to the precinct
- Some were noted with structural disorders and would be candidates for remediation (pruning) – these individuals are detailed in the table and photos.
- Trees in the table shaded pink had disease or faults that downgraded their SULE ratings to “consider removal” or at least requiring very significant remediation.
- Apart from these pink highlighted individuals, the trees had “suitable to retain” prognoses in their existing circumstances.
- Codominant trunks* are defined in the glossary with a file photo on page 14



TREE 1 significant, systemic decay in the west trunk



TREE 4 weakened / crossed branches



TREE 5 narrow-forked codominant trunks



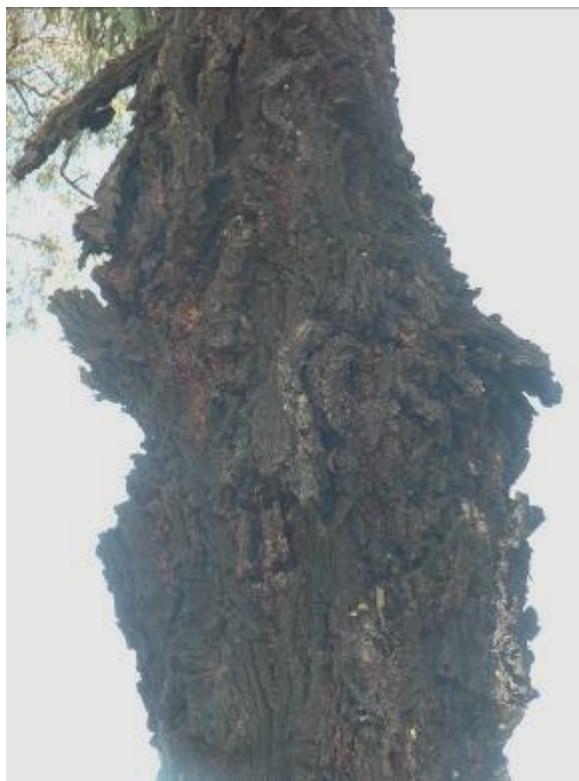
TREE 7 weakened north branch



TREE 10 lateral branch weakened by decayed stub



TREE 14 weakness from wind fracture

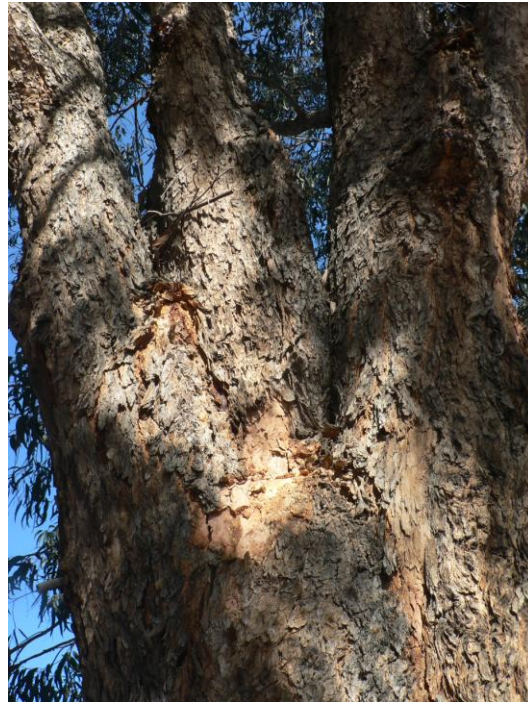


TREE 15 potential weakness in primary trunk

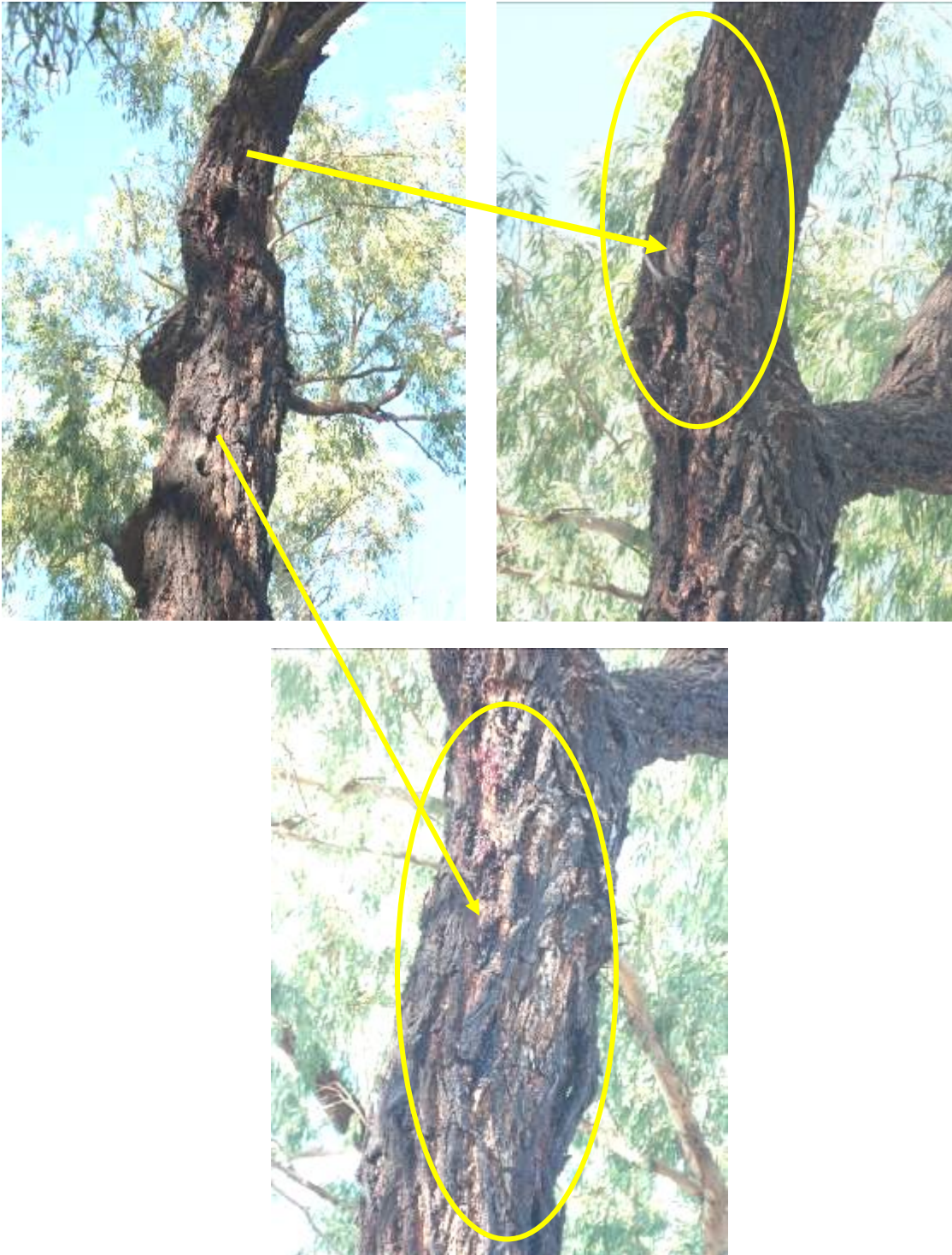
July 2018 update photos follow



Tree 4 views of “bracket” fungal fruiting bodies, the spacing down the trunk strongly implies systemic (internal) trunk infection



Tree 6 views from each side of the codominant trunks' forks



Tree 12 top left photo: view of the 1.3m long lesion in the trunk north, with closer views arrowed



Tree 23 Berry Street view of the Tallow Wood and location of the fissure in the primary trunk fork



Zoom views of the same fork fissure from west and east sides. This fissure predisposes the trunk to splitting apart about half way up the tree

FILE PHOTOS: CODOMINANT TRUNKS



CODOMINANT TRUNKS: chaos in Radium Park, Princes Highway, Berry
- aftermath of failed *codominant trunks* on a large Blackbutt

PART 2 THE TREES AND THE PROPOSED CAR PARK

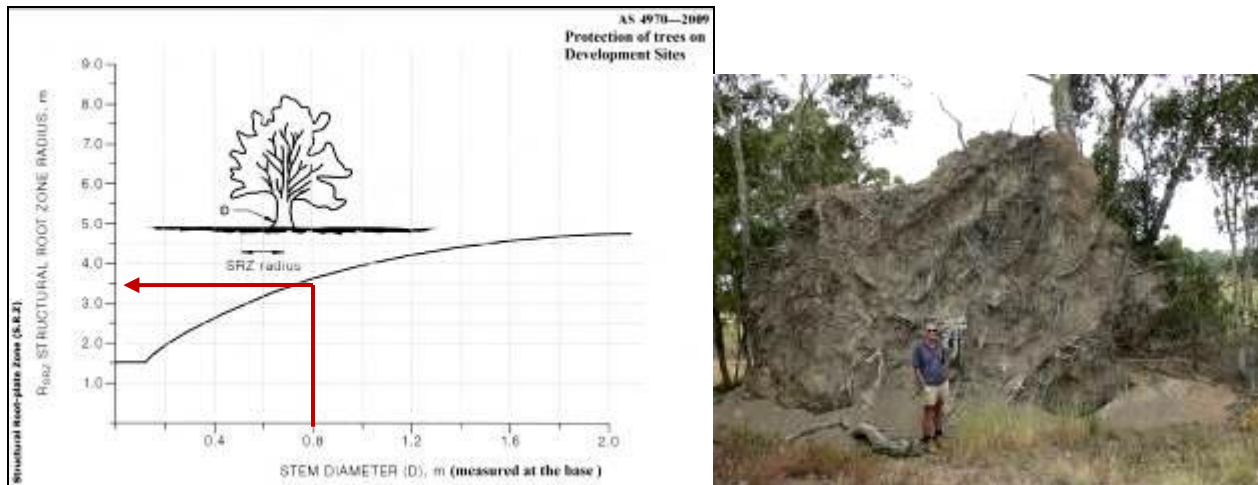
Table 2a AS 4970-2009

AS4970-2009 *Protection of Trees on Development Sites* prescribes formulae for determining a tree's Structural Root Zone (SRZ) radius, as in the table below, and the overall Tree Protection Zone (TPZ) radius, calculated as the trunk diameter at 1.4m up (DBH) x a multiple of 12.

SRZ is the critical pedestal or root plate supporting the tree against catastrophic failure.

TPZ is the total exclusion zone, generally regarded as the “dripline” or beyond.

Note: these generic formulae give guidelines for *no-development* offsets from the trunk to protect the stability and long term interests of the tree. Growing conditions, construction methodology and species variables may come into play to exceed or intrude into the theoretical SRZ and/or TPZ offsets.



Theoretical SRZ of a tree with trunk base diameter of 80 cms SRZ of a fallen Spotted Gum

2.1 THEORETICAL SRZ'S AND TPZ'S FOR THE SUBJECT TREES (see Table 2a)

Worrigee St. Bloodwoods

- Base diameters averaged ~ 80cms, hence a *theoretical SRZ* of 3.5 metres radius
- Trunk diameters (DBH) averaged ~ 70cms, hence a *theoretical TPZ* of 8.4m radius
- The trunk centres averaged less than 1.5 metres from the car park kerb

Surprisingly, despite the visible large woody roots (photo next page), there is virtually no uplift, cracking or disruption of bitumen surfacing of the kerbs, footpath (new), road or carpark. This implies a descending root pattern for these long established trees.

However the structural, supply and anchorage roots beyond the visible surface roots will be substantial, they physically and physiologically have to stabilise and sustain these large trees.

Worrige St. Bloodwoods



Growing conditions of the Bloodwoods' root zones: kerb to kerb width is 5.2 metres. It is noted the footpath is relatively new and roots may have been cut.



Lawrence Avenue Ironbarks

- Base diameters averaged 60cms, hence a theoretical SRZ of 3.25 metres radius
- Trunk diameters (DBH) averaged 50+ cms, hence a theoretical TPZ 6.0 metres radius
- The trunk centres averaged 1.5 metres from the car park kerb
- Very little uplift or disruption of kerbs or car park surface



Growing conditions of the Ironbarks, the reserve is 5.3 metres kerb to kerb.
Few surface roots.

2.2 PROPOSED CAR PARK: CONSIDERATIONS & CONSTRUCTION OFFSETS

2.2.1 Considerations

- The Bloodwoods and Ironbarks trunks' centres average 1.5 metres off the existing car park kerbs
- The fact that they are in confined "nature strips" does not mean their root plates, anchorage and supply roots don't range well beyond. Tree roots are generally capable of colonising under-asphalt for physiological resources (warmth, aeration) or physical resources (water, nutrients). Accordingly, the root systems sustaining these large trees **are** to be expected metres beyond the nature strip borders, albeit possibly not as far out as the theoretical AS4970 calculations in Part 2.1
- Apart from the unseen root patterns, more obvious is the above ground canopy, with trunk-to-dripline radii averaging 7.5m, hence they generally overhang the car park by 6 or so metres (the parking spaces first claimed by cars on hot days).
- Structural roots may have been cut when the footpath was constructed between the Worrigee Street Bloodwoods and the road.
- Based on AS4970 Table 2a calculations, all of the subject trees conservatively have structural root zones of 3+ metres radius and tree protection zones of 6+ metres radius.

2.2.2 Construction offsets

The following offsets are based on the following:

(i) on-site observations (ii) Part 2.2.1 considerations (iii), AS4970 "benchmarks" Part 2.1 (iv) the *apparent* compact root pattern (v) works are on one side only.

Accordingly, I would consider it physiologically and structurally unsustainable to excavate footings closer than **3.3 metres nett** from any of the trunk centres.

The primary consideration for this nett construction offset is to avoid loss of stability for these large, heavy-canopied trees, along with excessive removal and/or dieback of severed supply roots.

Above ground, pruning any closer to the trunks would cause brittle epicormic branch response at best, and systemic decay infection of the large diameter wounds, noting also that scaffolding will also have to be allowed for.

This compromise 3.3 metres nett is about half the theoretical AS4070 *Tree Protection Zone* offset (see Part 2.1), but is limited to one side of the trees' compass only – i.e. the balance of their 360° growing zones are unaffected.

Theoretical offsets: considering the existing ground compaction/ hard surfacing restraints on the root zones, I consider the SRZ (structural root zone) offsets in the current 2018 plan (Part 1.3 page 5 in this report) of Worrigee St trees 5.8m and Lawrence Ave 4.2m to be satisfactory, with limited above-ground branch pruning needed.

It is essential the TPZ (Tree Protection Zone) measures are in place prior to works and throughout the project and the accepted contractors have this clearly stated on plans. written (see Part 3).



Physical mass, wind leverage and large canopies of the 18m tall Worrigee St. Yellow Bloodwoods



North end-on views of the Ironbarks' canopies



West side view, south border trees

PART 3 OPTIONS (see update in Part 2.2.2).

3.1 OPTION 1 Retain the trees with prescribed offsets & protection

The current draft plan does *not* harmonise with the minimum 3.3m nett offset for footings' excavation. Accordingly, acceptance of the prescribed no-development clearance would require modification of the plan footprint. The inspection summary on page 6 indicated conservative SULE prognoses of Category 2d (15-40 years) and the trees arguably an environmental and visual asset to the precinct.

In this option, a revised footprint should allow for the prescribed nett offset.

3.1.1 Protection of retained trees

Pruning: to be undertaken with discretion to minimise cut diameter or "lopping" and conforming to *AS4373*

Pruning of Amenity Trees

TPZ fencing: 1.8m worksite panels to be placed just outside the excavation line after pruning and any tree removals (see inspection table). It is understood the TPZ fence may need adjustment for scaffolding, otherwise an arborist to be consulted if any need to open the TPZ fence during works such as for services trenching.

Root protection during works: an arborist to be engaged during footings excavation to cut and treat roots if/as encountered. Thick grade fabric filters membrane to be placed along the tree roots' side of the footings trench prior to setting out of formwork and steel placement.



3.2 OPTION 2 Remove and replace the trees

Retain the car park footprint "as is" Remove and replace the trees with site-tolerant trees or tall shrubs. If the trees generally had poor SULE prognoses and little amenity value, this may have been the preferred action, but this was not the case.

END OF REPORT

APPENDIX 1 SULE CATEGORIES FOLLOWS

APPENDIX 1

SAFE USEFUL LIFE EXPECTANCY “S.U.L.E.” CATEGORIES (Barrell Jan 2001 update)

1. LONG SULE (40+ years): *Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.*

1a) Structurally sound trees located in positions that can accommodate future growth.

1b) Trees that could be made suitable for retention in the long term by remedial tree care.

1c) Trees of special significance for historical, commercial or rarity reasons that would warrant extraordinary efforts to secure their long term retention.

2. MEDIUM SULE (15-40 years) *Trees that appeared to be retainable at the time of assessment for 15-40 years with an acceptable level of risk.*

2a) Trees that may only live between 15 and 40 years.

2b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.

2c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.

2d) Trees that could be made suitable for retention in the medium term by remedial tree care

3. SHORT SULE (5-15 years) *Trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable level of risk.*

3a) Trees that may only live between 5 and 15 years

3b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.

3c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.

3d) Trees that require substantial remedial care and are only suitable for retention in the short term

4. REMOVE *Trees that should be removed within the next 5 years.*

4a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.

4b) Dangerous trees because of instability or recent loss of adjacent trees.

4c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds, poor form.

4d) Dangerous trees that are clearly not safe to retain.

4e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.

4f) Trees that are damaging or may cause damage to existing structures within 5 years.

4g) Trees that will become dangerous after the removal of other trees for the reasons given in a) to f).

5. Trees shown as Category 3d(4c) in report

Demise of the tree not necessarily imminent, but has significant inbuilt fault or pathology. Schedule for pre-emptive removal is recommended, especially for trees in high risk location and where remediation is not possible.