

Southern Regional Planning Panel Supplementary Report |

19 August 2025

Panel Reference	PPSSTH-311
DA No.	DA-2023/849
LGA	Wollongong City
Proposal	Multi-dwelling housing development comprising 236 dwellings and associated earthworks, road construction and delivery, civil and landscaping works, community facilities (Stage 1) and use of up to five (5) dwellings for temporary exhibition homes
Property	Lot 197 Bong Bong Road Huntley
Applicant	Stockland Development Pty Ltd
Prior SRPP meeting	13 May 2025

1 BACKGROUND

Development Application DA-2023/849 was reported to the Southern Regional Planning Panel ('the Panel') on 13 May 2025. The Panel deferred the matter pending the submission of a supplementary report by Council. This supplementary report provides an overview of the information submitted by the applicant and Council's assessment to assist in the further consideration of the matters outlined in the Panel's Record of Deferral dated 21 May 2025.

This supplementary report should be read in conjunction with Council's Assessing Officer report as presented to the Panel on 13 May 2025.

2 PANEL CONSIDERATION AND DEFERRAL

The following comments are extracted from the Panel's Record of Deferral:

The Panel accepted that there was a level of uncertainty in relation to several issues raised in the Council's assessment report. The Panel was of the view that to enable an informed decision, the results of the additional flood modelling should be considered, along with additional information relating to the impacts associated with the proposal retaining walls across the site.

As such, the Applicant was directed to provide further information and justification relating to the:

1. *Construction of the proposed retaining walls including:*
 - a. *The proposed articulation, height and extent of retaining walls*
 - b. *Internal impacts, particularly in relation to solar access within and between lots*
 - c. *External impacts including any visual impacts from the public domain*
 - d. *The provision of relevant sections demonstrating the above*
2. *Additional flood modelling information.*

The Panel required the above information be uploaded by the applicant to the Planning Portal by Monday 16 June 2025, and for Council to provide an addendum assessment report that fully considers the information provided as well as a without prejudice draft instrument of consent.

The applicant's response to the deferral was uploaded to the Planning Portal on 16 June 2025, and the information included:

- A formal response to the Record of Deferral

- Plans illustrating the retaining wall locations, heights and section
- Site interface sections
- Rear courtyard landscape plans
- Water Cycle Management Strategy – Supplementary Report

The applicant's response to the deferral is provided at the Attachments.

3 CONSULTATION

INTERNAL

The information submitted in response to the Panel's deferral was referred to Council's internal Stormwater/Flooding and West Dapto Urban Release teams. Referral advice was received from each team identifying unsatisfactory matters or matters requiring the provision of further information to enable a complete assessment. The referral responses are detailed as follows:

Stormwater/Flooding

1. **Matters outstanding from previous assessment:**

- *The Water Cycle Management Study version 02 – October 2024 is inconsistent with Councils Mullet Creek FRMSP 2023 in terms of the methodology, events modelled (Defined Flood Event) and mapping of the Flood Risk Precincts. In this regard there is insufficient information to assess the DFE (Defined Flood Event) to determine if the proposed development complies with tables 8.1 and 8.2 of Councils Mullet Creek FRMSP 2023 and in particular controls within the high and medium Flood Risk Precincts. Please include mapping that depicts the DFE, DFE plus 500mm and PMF Flood Risk Precincts. Flood hazard for the DFE should also be provided.*

Comment: *A complete amended Water Cycle Management Study (WCMS), inclusive of amended hydrologic modelling, flood maps, and updated attachments, has not been provided. Instead, Maker Consultants have provided a letter (dated 16 June 2025, subject: Updated Water Cycle Management Strategy Outcomes following adoption of the 2023 MCFRMS) that describes amended modelling that has been undertaken and provides certain flood mapping outputs (but not the complete set of amended maps and attachments, equivalent to the previously provided WCMS). A complete amended WCMS is required to reflect the revised modelling, including the Watershed Bounded Network Model (WBNM), OSD design, and flood modelling, to enable Council to assess the amended WCMS. The amended WCMS will also need to take into account the following comments provided based on a review of the letter (dated 16 June 2025):*

- *It is unclear whether the Flood Risk Precinct map provided in the figure titled 'Proposed DFE Flood Risk Precinct' maps all land below the Defined Flood Event (DFE) level plus 0.5 metres freeboard as 'Medium Flood Risk Precinct', consistent with the methodology used in Council's adopted FRMS. This needs to be clarified.*
- *A DFE flood level map has not been provided. This information is required.*
- *The letter describes a series of changes have been made to the adopted Council hydraulic (under the heading titled 'Hydraulic Modelling'). Further information is required to explain and detail the changes made to Council's adopted model including:*
 - *A plan showing the extent of the 1D network representation of Reed Creek that has been removed*
 - *Contour plans and a TIN or Digital Elevation Model (DEM) showing details of the terrain modifiers added to the model including design tins for the Site and adjoining development*

- *Plans detailing the updated materials roughness files for the existing and proposed developments within the Site (i.e. Manning's n values)*
- *Plans showing location and details of all 1d networks included in the model, including the existing and proposed pipes throughout the Forest Reach precinct, as described in the letter*
- *Digital Elevation Model must be submitted by the consulting engineer who developed the Water Cycle Management Study*

Comment: *The requested information has not been provided. Note this information is required to show the terrain surface used in the post development flood model so that the assumptions made about final landform within the site and on other land external to the site (i.e. works approved under separate development applications). This is necessary (1) to enable Council to assess the application; and (2) so there is a record of the assumptions made in the flood modelling and stormwater design that can be referenced back to in the future if a deferred commencement consent (if granted) is sought to be activated.*

- *1v:3h batters are proposed in certain areas within the floodway/channel. Clarification is required on how regular maintenance will be undertaken in these areas, given the slope and potential access constraints.*

Comment: *Not addressed.*

2. ***Matters arising from consideration of letter by Maker dated 16 June 2025 (subject: Updated Water Cycle Management Strategy Outcomes following adoption of the 2023 MCFRMS):***

The following additional information items relate to the letter by Maker dated 16 June 2025 (subject: Updated Water Cycle Management Strategy Outcomes following adoption of the 2023 MCFRMS). The following issues require further resolution in an amended complete WCMS as noted above:

- *It is unclear from the letter (dated 16/6/2025) which catchment contributes to the flows shown in Table 2 – OSD Results Summary. The tabulated flows do not align with the pre-development catchment plan and WBNM hydrological output in the previously submitted Water Cycle Management Study (Version 2 dated 31 October 2024) and associated catchment plans have not been provided.*
- *Plans of the following must be provided to support hydraulic modelling*
 - i. *Updated Manning “n” maps*
 - ii. *Plans and data used for the 1d network incorporated in the hydraulic model.*
- *The plans showing the southeastern basin reconfiguration must be amended such that the proposed additional stormwater outlets are orientated in the direction of natural flow of the receiving watercourse channel.*
- *Further information must be provided to ensure that the proposed eastern tank configuration functions as intended. Specifically, clarification is required as to whether tailwater levels influence the available storage volume within the basin and how this interaction has been represented in the hydraulic modelling.*
- *Clarification is required on how flow from the weir and spillway is transitioning in a controlled manner to the outlet point to the east of the property/watercourse.*

- *Figure 2 DFE impact map shows that there is an increase in flood levels downstream of the site that exceed the permissible impacts in Table 2 of Chapter E13. This does not demonstrate compliance with Chapter E13.*
3. ***The proposed development relies on external drainage and civil works that are part of separate approvals and have not yet been constructed. The flood modelling and stormwater design are based on assumptions about the final design levels and infrastructure outcomes of those external works.***

As those works are not yet complete to the extent of issuing a final SC for the completed works, and no works-as-executed (WAE) plans are available, there remains uncertainty as to whether the constructed outcomes (when completed) will match the assumptions underpinning the current design. As such, the development may not operate as intended unless those external works are completed as assumed.

For this reason, any consent (if granted) will need to be issued as a deferred commencement, subject to:

- *Completion of the external works relied upon, and*
- *Submission of WAE plans demonstrating consistency with the assumptions used in the flood modelling and stormwater design.*

The following additional information would be required to enable drafting of an appropriate deferred commencement condition, and also to enable future assessment in relation to whether the drafted deferred commencement condition has been satisfied:

- *Confirmation as to which specific external works their proposal relies upon (including final landform and infrastructure), and identify the relevant DA reference numbers under which those works are to be constructed; and*
- *Clearly documented assumptions made in the flood modelling and stormwater design, including:*
 - *Contour plans showing the post-development terrain surface used in the modelling;*
 - *A copy of the TIN or Digital Elevation Model (DEM) used in the flood model (consistent with the above plans); and*
 - *Plans showing all external civil works relied upon, including the northern wetland, roads, detention basins, and any other drainage works both upstream and downstream of the site.*

West Dapto Urban Release Team (WDURT)

Flooding (WDURT only)

- *The previous Urban Release issues raised in relation to flooding have now been addressed with the latest flood report from Maker Engineering dated 16 June 2025.*
- *The previous issues raised by Urban Release in relation to water management, have been partly addressed in the latest Maker Engineering report, however additional comments are provided by Council's Stormwater/Flooding team.*
- *Specific conditioning is recommended, if the application was to be supported, to reflect the revised Chapter E15 Water Sensitive Urban Design of the DCP with respect to updated Water Quality targets, and stormwater re-use and harvesting.*

Retaining Walls

- *The previous issue raised in relation to retaining walls up to 2m high at interfaces with residential development external to the Halcyon site have now been addressed with the use of terraced walls.*

Note to Planner

- The previous issue raised in relation to retaining walls up to 2m high at common lot boundaries has not been addressed. The extracts below show areas of retaining walls at 1.75-2.0m high as highlighted in yellow. These areas would potentially affect the amenity and solar access of the rear alfresco and clothesline areas of the proposed dwellings. This issue could be potentially improved with localised earthworks to reduce the heights of the lot boundary retaining walls at these locations.



Figure 1: Highlighted retaining walls likely to result in adverse amenity impacts

EXTERNAL

Sydney Trains

Concurrence for the proposal is required from Sydney Trains under section 2.97 *Development involving access via level crossings* as the development will likely result in a significant increase in the total number of vehicles or the number of trucks using a level crossing.

Sydney Trains requested the provision of a Traffic Impact Assessment (TIA) that incorporates the Bong Bong Road and Avondale level crossings and any associated risks associated with the proposal's traffic movement on 12 December 2023. The additional information was referred to Sydney Trains on 9 October 2024. Following a further request for information made by Sydney Trains on 19 May 2025, information provided by the applicant was provided to Sydney Trains for consideration on 18 August 2025. A response is yet to be received.

1. Construction of the proposed retaining walls including:
 - a. The proposed articulation, height and extent of retaining walls
 - b. Internal impacts, particularly in relation to solar access within and between lots
 - c. External impacts including any visual impacts from the public domain
 - d. The provision of relevant sections demonstrating the above

1a. The proposed articulation, height and extent of retaining walls

The applicant's response is included at **Attachment 1** and is summarised as follows:

- Whilst retaining walls 2 metres in height sound significant, there is a significant level change across the site and the development aims to deliver more accessible housing outcomes
- Boundary retaining walls of 1m to 1.2m are considered typical to manage level changes between lots of this size
- there are only a total of 40 instances where rear courtyards of dwellings share a rear retaining wall greater than 1m, with only 60 dwellings (25% of the development) having a height of greater than 1.2m to 2m.

With respect to retaining walls proposed at site boundaries, the following summary was provided:

Location	Retaining wall detail	Applicant comment	Council comment
Northern boundary (Section 7 and 8 Sheets SK044 and SK045)	Interface with future public road, which will sit higher thus wall not visible from public domain Majority 1.25m in height or lower Eastern portion 1.5m and 2m with a short terraced 3m section due to transmission line easement interface	Minimal visual impact for future pedestrians and motorists as future road will sit higher than proposed multi dwelling housing development. Landscaping buffer at base of retaining wall will screen wall heights to minimise visual impacts internal to the development (note interface is secondary street façade for only 7 dwellings).	<i>Terracing of wall with landscaping provides a satisfactory design response to height differential between developments, subject to appropriate landscape provision.</i>
Eastern boundary (Section 2 Sheet SK042)	Interface with Forest Reach Drive. 1.5m high retaining wall originally proposed inside Site boundary. Now proposed to amend the design to utilise terraced retaining walls comprising of 1m high wall and 0.5m high wall at rear of dwellings with	Subject to condition, visual impact to Forest Reach Drive will be significantly reduced through reduced wall height and	<i>Terracing of wall with landscaping provides a satisfactory design response to height differential between development and Forest Reach</i>

	gentle batter in between to minimise visual impact. Sandstone block retaining wall.	landscaping of gentle batter. Sandstone block wall at 1m at boundary is more sympathetic to public domain and consistent with past Council approvals.	<i>Drive, subject to appropriate landscape provision.</i>
Eastern boundary (Section 3 and 4 Sheets SK042 and SK043)	Interface with Forest Reach Drive 2m high retaining wall originally proposed inside Site Boundary Amended to utilise terraced walls comprising 2 x 1m high walls with landscape terrace in between to minimise visual impact Sandstone block retaining wall	Subject to condition, visual impact to Forest Reach Drive will be significantly reduced. Sandstone wall at 1m at boundary more sympathetic to public domain and consistent with past Council approvals	<i>Terracing of wall with landscaping provides a satisfactory design response to height differential between development and Forest Reach Drive, subject to appropriate landscape provision.</i>
Western boundary (Section 5 SK043)	Interface with Northern Precinct Road No. 1 approved under DA-2023/19 currently under construction. Retaining wall up to 1.5m in height. Adjoining road levels to sit higher than this DA, retaining wall no visible from public domain. Split face of feature sleeper retaining wall subject to detailed design.	Minimal visual impact for future pedestrians and motorists as future road will sit higher than proposed multi dwelling housing development.	<i>Wall height has the potential to impact on internal amenity- screen landscaping should be provided in between street trees to break up wall.</i>
Western boundary (Standard decorative wall not detailed in Attachments)	Interface with Northern Precinct Road No. 1 approved under DA-2023/19 currently under construction. This is a landscape feature retaining wall up to 1m in height with integrated open blade fencing and landscaping that ties into the western entry feature. Sandstone block retaining wall.	This retaining wall is incorporated within landscape design of entry feature and not considered to be of a scale that would have visual or amenity impacts to pedestrians or motorists.	<i>Acceptable.</i>
Western boundary (Section 1 Sheet SK041)	Interface with Northern Precinct Road No. 1 approved under DA-2023/19 currently under construction.	This retaining wall is more typical of interface with stormwater management	<i>The overland flow path will assist in providing a landscaped transition between</i>

	The section of wall is required to form an overland flow path and swale and will be landscaped. 2m retaining wall that steps down into the Site, adjoining road levels to sit higher than this DA, retaining wall no visible from public domain. Sandstone block retaining wall.	infrastructure that will provide a landscaped area before transitioning back to the proposed multi dwelling housing development. It is of a scale approved by Council for similar interfaces with stormwater infrastructure and considered to have minimal visual impact for pedestrians and motorists.	<i>the community areas and the proposed 2 metre high walls. The 2 metre high sandstone walls in this location are acceptable.</i>
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Council response:

Overall, and as commented in the table, the amendments to design suitably address the visual impacts of retaining walls on the perimeter only on the site (excluding the southern boundary) through amendments to wall heights, the provision of terracing or increased areas for landscaping in already terraced designs and the provision of sandstone block retaining walls, which are reflective of works within the greater Forest Reach subdivision.

1b. Internal impacts, particularly in relation to solar access within and between lots

Applicant response:

- Solar access is one aspect of amenity influenced by all built form, not just retaining walls. Regardless the development has been designed to achieve compliance with solar access requirements in Section 5 of Chapter B1 of WDCP 2009
- Neighbourhood Plan generally establishes a majority of north/south street blocks for the site
- Significant topographical changes across the site from east to west, resulting in challenges provide solar access to rear courtyards of west facing dwellings
- Design of earthworks used stepping of dwellings through minor retaining walls and drop edge beams
- Council report notes that proposed development complies with Control 5.11(2)(b) in that “70% of dwellings proposed received a minimum of three hours of sunlight to the Private Open Space mid winter”.
- Council DCP assessment makes a contradictory comment stating that each dwelling ‘fails to demonstrate that at least 50% of the private open space area for each dwelling receives 3 hours solar access of sunlight mid winter’ as required by control 5.12.2(5) of the DCP.
- Council report references number of dwellings with dwellings with north facing living rooms, however this is not of relevance as the DCP does not specify a minimum requirement in this regard – this becomes a greater function of the street block layout in Council’s adopted NP
- Proposal delivers a superior landscaped and courtyard amenity than would reasonably be expected to be delivered under the Greenfield Housing Code.

Council response:

Controls within WDCP 2009 relating to solar access to private open space areas in multi dwelling housing are two fold and as follows:

5.11 Private Open Space

5.11.1 Objectives

(a) To ensure that private open spaces are of sufficient size to accommodate a range of uses and are accessible and connected to indoor spaces where appropriate

(b) To ensure functionality of private open space by reducing overlooking and overshadowing of such spaces

5.11.2 Development Standards

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(b) The primary private open area of at least 70% of the dwellings within a multi dwelling housing development must receive a minimum of three hours of direct sunlight between 9.00am and 3.00pm on June 21.

and

5.12 Solar Access Requirements

5.12.1 Objectives

(a) To minimise the extent of loss of sunlight to living areas and private open space areas of adjacent dwellings.

(b) To maximise solar access into living rooms and private open space of dwellings in the subject development.

(c) To use a consistent sunlight access assessment approach for the assessment of solar access issues.

5.12.2 Development Controls

4. Windows to north facing living rooms for each of the subject dwellings in the development must receive at least 3 hours of sunlight between 9.00am and 3.00pm on 21 June.

5. At least 50% of the private open space area for each of the subject dwellings in the development must receive at least 3 hours of sunlight between 9.00am and 3.00pm on 21 June.

Whilst the development appears to satisfy the control relating to 70% of the private open space areas receiving three hours of sunlight, the plans do not indicate that at least 50% of each private open space area achieves three hours of sunlight.

The shadow diagrams have not been provided at a sufficient scale to clearly demonstrate compliance with private open space/solar access requirements. Ideally, the application should also be supported with sun eye diagrams and modelled elevations (inclusive of retaining walls and fencing) which would enable a complete assessment of the solar access impacts arising from the design of the development.

The retaining wall plan provided at **Attachment 2** shows numerous instances where interallotment retaining walls are 1.75m to 2m in height. An example of the impacts of proposed retaining walls with associated fencing can be seen around Sites 102 to 104 inclusive on the civil layout plans – these sites are identified as having a maximum 2 metre high rear retaining wall on the most recent Retaining Wall location plan (Site Typical Sections Layout Plan). A 1.8 metre high interallotment boundary fence, as proposed, placed on top of this wall would result in a 3.8 metre high “wall/fence” along the rear boundary, within 1.8 metres of the private open space of the lower dwelling, and does not appear to have been considered in the shadow diagrams.

Assuming a 600mm deep edge beam/ associated retaining wall with dwelling/fencing respectively atop along the side interallotment boundary for these sites, the rear yards would be severely constrained with respect to solar access – it is not possible to understand the true extent of this through the interrogation of the submitted shadow diagrams, and does not appear to have been considered in their preparation. The use of the drop edge beams is shown to occur in many instances on the individual site boundaries, with only a one metre setback to the adjoining dwelling- this further exacerbates the impacts of built form as the development steps down the overall site.

Further, the plans within the civil set and the updated information provided are inconsistent with respect to the provision of retaining walls and deep edge beams. For example, for Lots 102 to 104, the civil plans indicate concrete sleeper retaining walls at the side and rear boundaries, however the retaining wall location plan indicates retaining walls along the rear boundaries only, and not alongside boundaries. Further, the site layout shown on the architectural plan is not reflective of the layout shown on the civil plans (see sites labelled 185/213 versus sites 99-101 on the civil layout plan). The plans also indicate a drop edge beam in some instances where that is not logical- a deep edge beam is effectively a retaining wall within the edge beam of a reinforced concrete slab for the dwelling. Where deep edge beams are shown along a boundary, the dwelling would have a zero side boundary setback, which is contrary to the indicative dwelling placements shown on a number of lots in the Civil Set, including but not limited to Lots 201, 223, 224, the rear of lot 197.

1c. External impacts including any visual impacts from the public domain

Applicant response- impacts on adjoining residential development to the South

Council's assessment report noted that the retaining wall along the southern boundary of the development will adversely affect solar access to the adjoining properties to the south - revised Civil Plans submitted to Council via the Planning Portal in response to Request for Information 1 on 4 September 2024 removed the inclusion of the retaining wall in this location.

Council response- impacts on adjoining residential development to the South:

Whilst the amended Civil Plan set provided on 4 September 2024 does not indicate the provision of a retaining wall along the southern boundary interface with adjoining residential development on the Layout Plan or the Retaining Wall Plan, the Section plans clearly identify retaining walls of up to 2 metres along this interface. This is consistent with this boundary defining the extent of the civil works for this development, and the bulk earthworks plan that shows up to 1.5m of fill in this location. If retaining walls are not intended to be constructed in this location, there is no indication of the proposed treatment of this extent of earthworks and how the interface will be managed.

The development consent for the adjoining subdivision does not include an approval for retaining walls in this location, and so it is assumed that the necessary retaining will occur under this application.

The application submission fails to demonstrate the impacts of the development at this interface on adjoining residential development – this matter remains unresolved.



Figure 2: extract from Section 03 showing proposed retaining between chainage 450 and 465 - site southern boundary (green line existing ground, red line proposed ground)

(Bulk Earthworks Sections Plan MKR00256-13-C0251 dated 3 September 2024 prepared by Maker)

Applicant response – impacts from the public domain:

The applicant provided amended and additional information with respect to the impacts of retaining walls visible from the public domain. These walls are:

- Retaining walls along the northern boundary, adjoining future local road – this wall ranges in height from 1 metres to 3 metres. The wall design has been amended to provide greater terracing between walls to enable the provision of additional landscaping for screening.
- Retaining wall south of the eastern access point to the development, adjoining Forest Reach Drive – the wall has been terraced with a 7.5 metre to 13.5 metre landscaped section between the walls and wall material changed to sandstone block walls. This has allowed a reduced wall height along the Forest Reach boundary.
- Retaining wall along the south eastern boundary of the site, adjoining Forest Reach Drive – the previous 2 metre high walls has been terraced to walls of maximum one metre each, and material changed to sandstone blocks. Permeable fencing provided.
- Retaining wall south of the western access point to the development, adjoining Little Forest Reach Drive – wall not visible from public domain, maximum height reduced to 1.5 metres from 2 metres
- Retaining wall immediately south of the western access point to the development, adjoining entry feature and Little Forest Reach Drive – forms part of entry landscaped feature

- Retaining wall north of the western access point to the development, adjoining Little Forest Reach Drive and drainage swale internal to the site – sandstone blockwork to be utilised, not highly visible from public land

Council response – impacts from the public domain:

The walls likely to impact on the public domain are described further under **1a** above. The updated information was also referred to Council’s West Dapto Urban Release Team for consideration, and no objections were raised with respect to visual impacts from the public domain.

The amended walls provide a suitable design response to minimising visual impacts from public areas and are capable of support, subject to appropriate conditioning regarding finishes, wall heights and the provision of screen landscaping if the development was to be supported.

2. Additional flood modelling information.

The applicant provided additional flood modelling information by way of a supplementary report to the Water Cycle Management Strategy. The information was referred to Council’s Stormwater/Flooding Engineer who advised that there were a number of matters that remained outstanding from the previous assessment of the application, matters arising from the response provided by the applicant as well as insufficient information to enable a complete assessment and uncertainties around external works upon which the application relies. These matters are detailed above under “Internal Consultation”.

3 CONCLUSION AND REASONS

At the Panel meeting of 13 May 2025, the Panel determined to defer the development application to allow the applicant an opportunity to address a number of concerns as described in **Section 1** of this report.

The applicant has provided amended plans and supporting information. Council’s Assessing Officer is of the view that the information provided has only in part addressed the matters for deferral, with significant flooding and solar access/amenity issues remaining unresolved.

The internal referrals to Council’s Stormwater/Flooding Officer and Urban Release Team identified outstanding issues. Concurrence from Sydney Trains in relation to impacts on level crossings also remains outstanding.

In its current form, the development application fails to demonstrate that it is unlikely to result in adverse impacts as a result of flooding matters. The application also fails to demonstrate that it provides for sufficient solar access and amenity within the proposed development, and that it does not adversely impact on the same for future adjoining residential development.

The Panel’s deferral of the application included a requirement for Council to provide a without prejudice draft instrument of consent – as the recommendation by Council is for the refusal of the application, draft reasons for refusal have been provided below.

4 RECOMMENDATION

DA-2023/849 be refused pursuant to Section 4.16(1) of the Environmental Planning & Assessment Act 1979 for the following reasons:

1. Pursuant to the provisions of Section 4.15 (1)(a)(i) of the Environmental Planning and Assessment Act 1979, concurrence for development involving access via level crossings has not been received from Sydney Trains in accordance with Section 2.97(3) of the State Environmental Planning Policy (Transport and Infrastructure) 2021.
2. Pursuant to the provisions of Section 4.15 (1)(a)(i) of the Environmental Planning and Assessment Act 1979, the application submission fails to demonstrate consistency with Wollongong Local Environmental Plan 2009 with respect to Clause 5.21 Flood planning.

3. Pursuant to the provisions of Section 4.15 (1)(a)(iii) of the Environmental Planning and Assessment Act 1979, the proposal is not consistent with the Bong Bong South Neighbourhood Plan applicable to the land.
4. Pursuant to the provisions of Section 4.15(1)(a)(iii) of the Environmental Planning and Assessment Act 1979, the proposal fails to demonstrate consistency with the provisions of the Wollongong Development Control Plan 2009 with respect to the following chapters:
 - a. Chapter B1 - Residential Development
 - b. Chapter D16 – West Dapto Release Area
 - c. Chapter E13 – Floodplain Management
5. Pursuant to the provisions of Section 4.15 (1)(b) of the Environmental Planning and Assessment Act 1979, the application submission fails to demonstrate the likely impacts of the proposed development will not be adverse with respect to:
 - a. The site levels proposed at the interface of the proposal development with adjoining residential development, including the physical treatments proposed to address those levels
 - b. The proposed public shared pathway, in relation to sufficient and ongoing, in-perpetuity access
 - c. Conflicts arising from the provision of a proposed public shared pathway through a private community, including safety, security and crime prevention for the occupants of the development
 - d. The lack of provision of motorcycle parking
 - e. Lack of pedestrian permeability through the site for the development's occupants
 - f. Impacts on Lake Illawarra arising from the proposed stormwater targets
 - g. Flooding
 - h. Site design and internal design
 - i. Solar access to private open space areas
 - j. Sustainability such that the orientation and design of dwellings does not maximise solar access to living areas
 - k. Cumulative impacts
6. Pursuant to the provisions of Section 4.15 (1)(c) of the Environmental Planning and Assessment Act 1979, the application submission fails to demonstrate the site is suitable for the development as proposed.
7. Pursuant to the provisions of Section 4.15 (1)(e) of the Environmental Planning and Assessment Act 1979, approval of the development would set an undesirable precedent for similar inappropriate development and is therefore, not in the public interest.

5 ATTACHMENTS

1	Applicant response to SRPP deferral
2	Retaining Wall Location Plan (Site Typical Sections Layout Plan)
3	Retaining Wall Sections
4	Rear Courtyard Landscape Plans
5	Overall Site Interface Plan
6	Updated Water Cycle Management Strategy Outcomes

ATTACHMENT 1: APPLICANT RESPONSE TO SRPP DEFERRAL REQUEST



16 June 2025

The Panel Chair
Southern Regional Planning Panel
Department of Planning, Housing and Infrastructure
Vis NSW Planning Portal

CC: Nicole Ashton, Wollongong City Council

Dear Panel Chair,

RE: Response to Southern Regional Planning Panel deferral of DA 2023/849
Property: Lot 197 in DP1258914; Bong Bong Road, Huntley NSW 2530

Further to the briefing with the Southern Regional Planning Panel (the **Panel**) on 13 May 2025 regarding the above Development Application (**DA**), this submission has been prepared on behalf of Stockland Development Pty Ltd (the original DA applicant) and PM Nominees G Pty Ltd (the **Applicant**), the new owner of the site following a recent change of ownership to provide a response on the Actions listed in the Panel's Record of Deferral issued on 21 May 2025. The Actions directed to the Applicant to provide further information and justification related to the:

1. *Construction of the proposed retaining walls including:*
 - a. *the proposed articulation, height and extent of retaining walls*
 - b. *Internal impacts, particularly in relation to solar access within and between lots*
 - c. *external impacts including any visual impacts from the public domain*
 - d. *the provision of relevant sections demonstrating the above*
2. *Additional flood modelling information*

We appreciate the Panel's consideration of the verbal submissions that were made by the Applicant and its representatives, and the opportunity to provide additional information and justification in support of the proposed development. Further, we appreciate the Panel's position that Wollongong City Council's (**Council**) refusal of the Applicant's separate application made under S68 of the *Local Government Act 1993* is not an impediment to the favourable determination of this DA.

With the benefit of a greater understanding of Council's outstanding concerns and the direction of the Panel, we are confident that the additional clarification and justification provided in this letter and supporting documentation will facilitate the favourable determination of the DA.

This letter is supported by the following documentation:

- **Attachment A – Retaining Wall Height Location Plan and Civil Sections**
- **Attachment B – Approved Retaining Wall Heights under DA-2023/19**
- **Attachment C – Rear courtyard Landscape Plans**
- **Attachment D – Consideration of relevant DCP objectives**



- **Attachment E – Architectural Sections of the site**
- **Attachment F – Updated Water Cycle Management Strategy Outcomes**
- **Attachment G – Owners Consent from PM Nominees G Pty Ltd**

This letter and supporting documentation provides a comprehensive response to each of the matters raised to ensure that Council and the Panel are presented with the appropriate detail. The table below a summary position on each of the identified Actions:

Table 1: Submission response summary

Action	Summary Position
Construction of the retaining walls	There is additional site and locality context that is relevant to the retaining wall and earthworks strategy that is worthy of Council's and the Panel's consideration. These include external fixed design level constraints and commitment to delivering homes of superior accessibility and adaptability compared to conventional residential development. It is also of relevance that retaining walls of a similar scale have been approved on neighbouring land to the west. Regarding internal impacts of the retaining walls at rear boundaries, wall exceeding typical heights are limited to 30 rear boundaries (or 60 dwellings out of a total 236 dwellings). The proposed development has demonstrated compliance with the relevant Development Control Plan objectives relevant to the amenity of residents, namely solar access to private courtyards, outlook and functionality of areas of private open space and privacy. Whilst a departure from DCP provisions relating to terracing of rear retaining walls is proposed, strict compliance in this instance would lead to less functional private open space or alternatively dwellings that do not achieve a superior level of accessibility and adaptability for future residents. There are limited external visual and amenity impacts from the public domain caused by the retaining walls located on the boundaries. The review process identified an improved retaining wall interface on the eastern boundary with Forest Reach Drive. This outcome is similar to the form and scale of retaining walls previously deemed acceptable by Council in Wongawilli. To ensure this outcome is delivered, an appropriate condition of consent to revise plans is suggested for the Panel's consideration. The supporting documentation addresses the Panel's request for specific information relating to the location and height of the proposed retaining walls and supporting sections to clarify the built form outcome to be delivered.
Additional flood modelling information	To address the matters raised by Council relating to the Mullet Creek Flood Risk Management Study (MCFRMS), Maker, the Applicant's project engineer, has prepared an updated report. The <i>Updated Water Cycle Management Strategy Outcomes following adoption of the 2023 MCFRMS</i> report dated 16 June 2025 (Maker Report). The Maker Report provides the additional flood modelling information and further assessment against Clause 5.1 of the LEP. The report concludes that "the incorporation of the Mullet Creek Floodplain Risk Management Study and Plan does not have a materially adverse effect on the flood impacts or liability of the proposed development "and that "there is an acceptable level of flood risk associated with the proposed development and there is no basis to refuse the development due to flooding issues. The Maker Report has identified the need for minor refinement to the regional stormwater management basin that is currently under construction to the south east of



Action	Summary Position
	the Site on Lot 197 in DP 1258914. Appropriate owner’s consent is provided from PM Nominees G Pty Ltd to facilitate the construction of these works as necessary.

1 Construction of the proposed retaining walls

Appreciating the breadth of matters Council needs to consider under their Development Control Plan and the need to ensure reports to the Panel are digestible, a degree of generalisation may be required in detailing concerns related to the proposed development and retaining walls. Prior to responding to specific matters raised in the Actions issued by the Panel, it is appropriate to provide further site and approval context to clarify a number of comments made in Council’s Assessment Report:

- Fall across the Site** – Council’s report to the Panel (at page 11 of 27) significantly understates the existing level conditions across the site, by suggesting that there is only a 10m level difference across the Site. This is incorrect. The Civil Plans shown in cross sections (C0200, C0250 to C0253), confirm existing level changes through the middle of the Site running from north to south range up to 13.4m to 19.4m with level change running east to west in the southern portion of the Site ranging up to 14.4m to 16.2m. Regardless of the built form, significant refinement of site levels would be required to achieve the relevant minimum lot sizes and house typologies permissible in the R2 and R3 zones that apply to the land.
- Suitability of Earthworks** – Despite later views in Council’s report, in their consideration of clause 7.6 of *Wollongong Local Environmental Plan 2009* relating to earthworks, Council notes that the degree of earthworks proposed ‘are not expected to have a detrimental impact on environmental functions and process, neighbouring uses or heritage items and features surrounding the land’.
- Balancing earthworks** - Best endeavours have been taken by the project engineers to balance cut to fill over the Site. Despite an area of 14.8ha with significant level change, there is only a net import of 11,960m³ of fill material to the Site.
- Approach to retaining** – As far as possible, the road network has tried to align with the north/south street block alignment identified in the Neighbourhood Plan. This serves to allow the more significant level changes across the Site (up to nearly 20m from north to south) to be managed incrementally and sensitively through the use of drop edge beams and landscape retaining walls along side boundaries with heights well below 1m that is typical of greenfield release areas.

The use of north/south street blocks allows for the majority of retaining walls at the rear boundaries of dwelling lots to be below 1m in height with only two significant parts of street blocks needing to utilise higher retaining walls to manage the level change over the southern portion of the Site (up to 16m from east to west) and minimises the number of lots with this interface than would otherwise be achieved with a different street block alignment.

Single retaining walls, rather than terracing of walls, between rear boundaries of dwellings have been utilised to maximise useability of rear courtyards to benefit from a level area and



reduce resident maintenance constraints that can occur with having to work on multi levelled spaces.

Council would also appreciate a number of fixed level constraints at the boundaries to the Site, namely Forest Reach Drive (the eastern boundary of the Site) approved by Council in DA-2020/673, TransGrid Transmission line that truncates the site north north/south and the Northern Precinct Road 01 (western and southern boundary of the Site) approved by Council in DA-2023/19.

- **More accessible and adaptable homes** – A key factor in setting grading for the Site has been the Applicant's commitment to achieve a minimum Silver Standard from the Liveable Housing Association of Australia. This is to ensure the homes provide a far greater level of accessibility and adaptability for aging in place compared to the introduction of split level homes.
- **Retaining walls at interface with adjoining residential sites** – The Site has two instances where there will be an interface with future residential development (along the southern boundary and north eastern corner). In both of these areas, no retaining walls are proposed at the boundary.
- **Retaining walls at interface with adjoining local roads** – Along the north western boundary of the Site at the interface with Northern Precinct Road No. 1 there is a requirement to convey infrequent overflow from the wetland (blocked Probable Maximum Flood scenario only) through a drainage depression within the Site. Outside of the swales role in handling overflows in a blocked Probable Maximum Flood scenario, the swale receives minimal flows from the surrounding catchment and will largely be a landscape feature within the community facility area of the development. Whilst a wall with max height up to 2m is required in this location, it is required to step down from the road level to form the swale before stepping back up to the future Community Facility level.

At the southern portion of the western interface with Northern Precinct Road No. 1, immediately south of the sentry, a feature retaining wall up to 1m in is proposed to be utilised. This wall will be visible from the public domain and utilise sandstone block walls to integrate as part of an entry and arrival feature for the development. Further to the south, a 1.5m wall is required to transition levels down from the public domain to an internal private road and as such are not visible from the public domain. The internal private road contains a landscaping buffer at the front of this wall.

Along the northern boundary, the Site the development proposes an internal private road that will have an interface with a future public road. The public domain will typically be up to 2m above the site with limited sections up to 3m located at the interface with the TransGrid easement that has more fixed level controls than other parts of the site. For the limited sections of the wall that is greater than 2m in height, tiering of walls has been adopted.

Along the eastern boundary interface with Forest Reach Drive, outside of the entry feature retaining wall, sandstone retaining walls between 1m and 2m are required to transition levels. The Applicant has however identified opportunities to reduce the wall heights in this location through the use of batters and terraced walls. Refer to **Attachment A** (Sections 2, 3 and 4, Sheets SK042 and SK043).

- **Previously endorsed retaining wall heights in Forest Reach** – Council has previously considered and approved retaining walls at rear boundaries at heights that are consistent with, and in some instances are greater than those proposed in this DA. Refer to excerpt of Northern Precinct approved plans under DA-2023/19 at **Attachment B**. As part of the Northern Precinct subdivision (located directly west of the Site) Council has already approved and endorsed similar retaining walls outcomes as follows:
 - Rear boundary retaining walls from 1.5m to 2.5m in height, with some south facing lots on the low side of the walls
 - Corner lots with 1.5m high retaining walls along street boundary

Council has previously acknowledged that further refinement of levels from the bulk earthworks DA and the need for retaining walls, with no terracing, is appropriate in the context of Forest Reach.

1a. The proposed articulation, height and extent of retaining walls

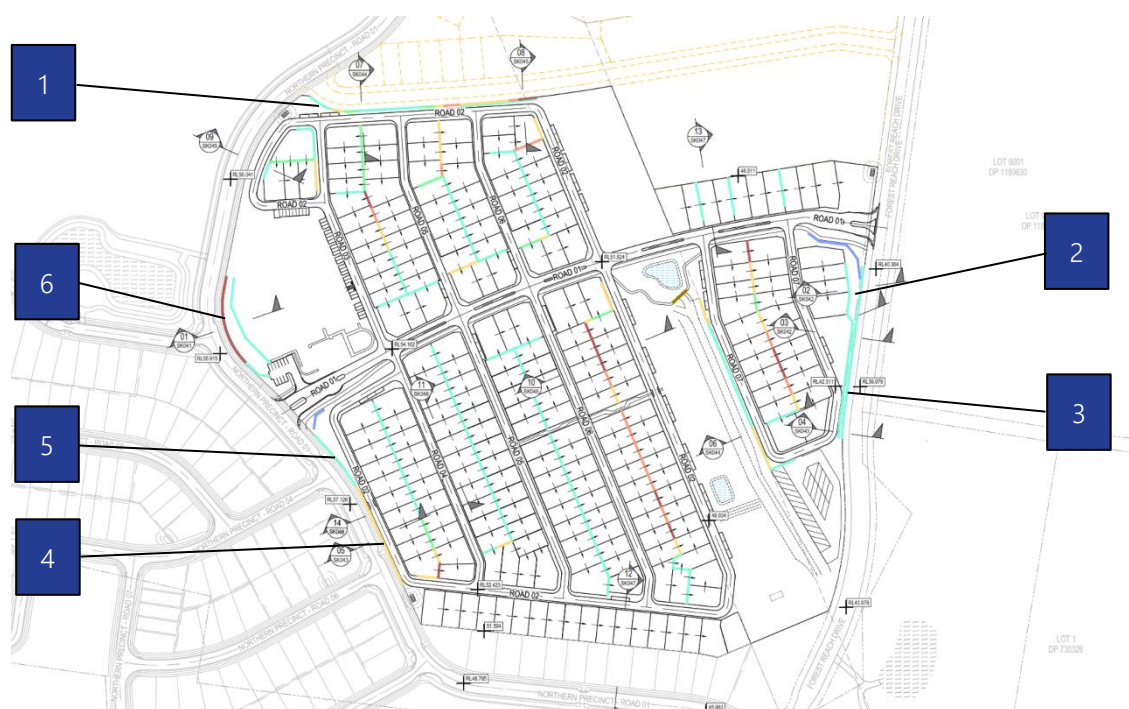
Appreciating that retaining walls in the order of 2m sound significant, they are justified in the context given the extent of level change required to be managed and the more accessible housing outcomes that will be delivered. Further the number of residential lots that rely on retaining walls of up to 2m are in the minority of the development. With these outcomes and constraints in mind, **Attachment A** illustrates the wall heights and locations. It should be noted that a number of dwellings utilise Drop Edge Beams along side boundaries to transition levels. These are typically below 1m in height and typical of stepping levels through greenfield sites of this nature.

In both a greenfield planning context, rear boundary retaining walls in the order of 1m to 1.2m are considered typical to manage level change and housing and open space outcomes between lots of this size. With regard to this DA, there are only a total of 40 instances where rear courtyards of dwellings share a rear retaining wall greater than 1m, with only 60 dwellings (25% of the development) having a height of greater than 1.2m to 2m.

Table 2: Summary of higher retaining walls at rear boundaries

Height of Rear Boundary Retaining Wall	No. of Lots	Shared Interfaces
1m+ to 1.25m	17	10 shared boundary walls
1.25m+ to 1.5m	18	9 shared boundary walls
1.5m+ to 1.75m	22	11 shared boundary walls
1.75m+ to 2m	20	10 shared boundary walls
Total	77	40

The plan at **Attachment A** also details the location of retaining walls along the Site's boundaries and is provided in **Figure 1** for ease of reference. Details of these walls are summarised as follows:



Source: Maker, 2025

Figure 1: Location of retaining walls at Site boundaries

Table 3: Summary of retaining walls at Site boundaries

No.	Location	Attachment A Section	Retaining Wall details	Comments
1.	Northern Boundary	Section 7 and 8 Sheets SK044 and SK045	Interface with future public road. Adjoining road levels to sit higher than this DA, retaining wall not visible from public domain. Majority of length (85m) 1.25m or less in height. Eastern portion of the retaining wall typically between 1.5m and 2m with a short section up to 3m (terraced) due to interface with transmission line easement and requirement to match levels, wall terraced to manage interface with multi dwelling housing development	Minimal visual impact for future pedestrians and motorists as future road will sit higher than proposed multi dwelling housing development. Landscaping buffer at base of retaining wall will screen wall heights to minimise visual impacts internal to the development (note interface is secondary street façade for only 7 dwellings).
2	Eastern Boundary	Section 2 Sheet SK042	Interface with Forest Reach Drive. 1.5m high retaining wall originally proposed inside Site boundary. Now proposed to amend the design to utilise terraced retaining walls comprising of 1m high wall and 0.5m high wall at rear	Subject to condition, visual impact to Forest Reach Drive will be significantly reduced through reduced wall height and landscaping of gentle batter. Sandstone block wall at 1m at boundary is more



No.	Location	Attachment A Section	Retaining Wall details	Comments
			of dwellings with gentle batter in between to minimise visual impact. Sandstone block retaining wall.	sympathetic to public domain and consistent with past Council approvals.
3	Eastern Boundary	Section 3 and 4 Sheet SK042 and SK043	Interface with Forest Reach Drive. 2m high retaining wall originally proposed inside Site boundary. Now proposed to amend the design of the wall to utilise terraced retaining walls comprising of 2 x 1m high walls with landscaped terrace in between to minimise visual impact. Sandstone block retaining wall.	Subject to condition, visual impact to Forest Reach Drive will be significantly reduced. Sandstone block wall at 1m at boundary is more sympathetic to public domain and consistent with past Council approvals.
4	Western Boundary	Section 5 Sheet SK043	Interface with Northern Precinct Road No. 1 approved under DA-2023/19 currently under construction. Retaining wall up to 1.5m in height. Adjoining road levels to sit higher than this DA, retaining wall no visible from public domain. Split face of feature sleeper retaining wall subject to detailed design.	Minimal visual impact for future pedestrians and motorists as future road will sit higher than proposed multi dwelling housing development.
5	Western Boundary	Standard decorative wall not detailed in Attachment A.	Interface with Northern Precinct Road No. 1 approved under DA-2023/19 currently under construction. This is a landscape feature retaining wall up to 1m in height with integrated open blade fencing and landscaping that ties into the western entry feature. Sandstone block retaining wall.	This retaining wall is incorporated within landscape design of entry feature and not considered to be of a scale that would have visual or amenity impacts to pedestrians or motorists.
6	Western Boundary	Section 1 Sheet SK041	Interface with Northern Precinct Road No. 1 approved under DA-2023/19 currently under construction. The section of wall is required to form an overland flow path and swale and will be landscaped. 2m retaining wall that steps down into the Site, adjoining road levels to sit higher than this DA, retaining wall no visible from public domain. Sandstone block retaining wall.	This retaining wall is more typical of interface with stormwater management infrastructure that will provide a landscaped area before transitioning back to the proposed multi dwelling housing development. It is of a scale approved by Council for similar interfaces with stormwater infrastructure and considered to have minimal visual impact for pedestrians and motorists.



1b. Internal impacts, particularly in relation to solar access within and between lots

Solar access is one aspect of amenity for residents in new dwellings that Council considers. In turn solar access is assessed based on a cumulative consideration of the development including all built form, not just the impact of retaining walls on solar access in isolation. Regardless of the height of some of the retaining wall proposed at the rear of dwellings, the proposed development has been designed to achieve compliance with Council's requirements for solar access as specified in Section 5 of Chapter B1 of *Wollongong Development Control Plan 2009 (DCP)* that applies to attached dwellings and multi dwelling housing development.

It is important to note that the Neighbourhood Plan generally establishes a majority of north/south street blocks for the Site. This in turn perpetuates a significant number of west facing residential dwellings. The proposed development serves to implement this street block alignment in the Neighbourhood Plan whilst also removing a number of east/west street blocks that would have a greater number of south facing dwellings that would have limited opportunity to achieve solar access to rear courtyards due to poor orientation.

Given the significant topographical changes that occur from east to west over the Site, west facing dwellings at lower levels, as anticipated by the Neighbourhood Plan, would always be a challenging proposition to achieve solar access for rear courtyards considering the cumulative impact of retaining walls, fences, as well as individual and adjoining dwelling built form. In this regard, the rear retaining walls are not the outright cause of constrained solar access.

The design of earthworks has used the stepping of dwellings, through minor retaining walls and drop edge beams to respond to the north/south level change to help optimise solar access for each dwelling where possible. This has been coupled with the use of operable pergolas to give residents the opportunities to allow more sunlight into their rear courtyards if deemed necessary.

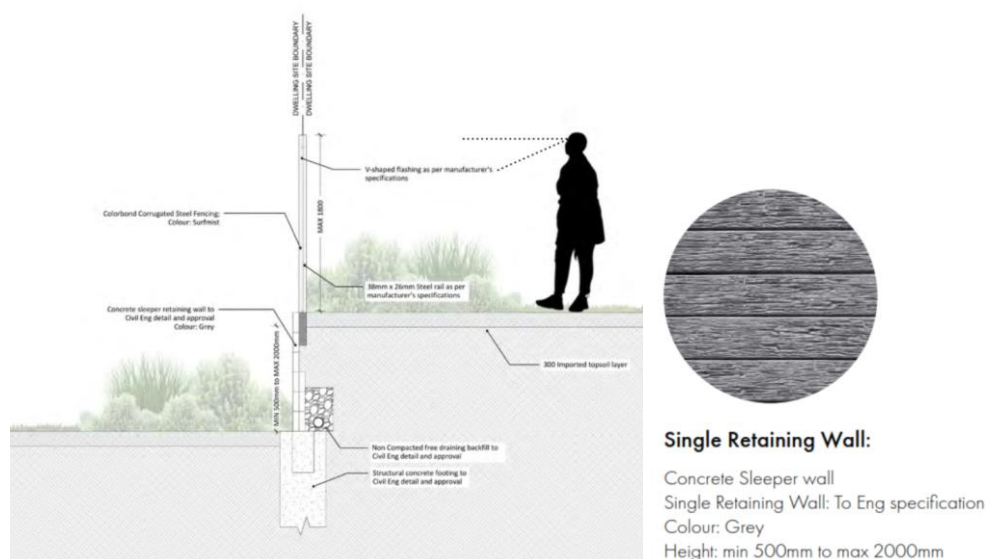
Nonetheless, as noted in Council's assessment against the DCP in Attachment 7 that accompanied the report to the Panel, the proposed development demonstrates compliance with the requirement of Control 5.11(2)(b) in that *'70% of dwellings proposed receive a minimum of three hours of sunlight to their Private Open Space mid winter'*. Whilst solar access is just one aspect of amenity of rear courtyards, the DCP acknowledges that for development of scale, similar to apartment buildings under the Apartment Design Guide, that not each dwelling is required to achieve solar access.

From the Applicant's architect's modelling, 70% of dwellings (163 of 236) achieve the requisite solar access to the rear courtyards. This modelling was provided to Council via the Planning Portal on 4 September 2024 as part of the updated plans provided in response to Request for Information 1. Council's DCP assessment also makes a contradictory comment stating that each dwelling *'fails to demonstrate that at least 50% of the private open space area for each dwelling receives 3 hours solar access of sunlight mid winter'* as required by control 5.12.2(5) of the DCP. As outlined above in Condition 5.11(2)(b), for the purposes of multi dwelling housing, there is no requirement for each and every dwelling to achieve solar access to their private open space.

In reference to DCP control 5.12.2(4), Council's report also makes note that only 30 of the 236 dwellings are orientated to have north facing living rooms and that even if more north facing living rooms were provided they may have difficulty achieving solar access. This is not considered relevant to the assessment as the DCP does not specify a minimum number of dwellings with north facing

living rooms to be provided and compliance with the requirements has been demonstrated by Applicant's architect's modelling. This becomes a greater function of the street block layout in Council's adopted Neighbourhood Plan.

On the basis the architectural package has demonstrated that the future dwellings on the site would be capable of complying with the relevant solar access requirements, other key amenity consideration from the retaining walls is functionality and enjoyment of the rear courtyards provided and associated privacy. This concern relates to dwellings on the lower side of the higher retaining walls (i.e. 1.25m+), of which there are 30 instances (i.e. half of the 60 dwellings that share a rear boundary with a retaining wall of 1.25m to 2m). Council's DCP sets key criteria for private open space to address these considerations. For the purposes of these dwellings, DCP control 5.11.2(2)(a) requires the provision of an area of 20m² with dimensions of 4m x 5m with provision of a landscaped area 1.5m in depth before the retaining wall. 1.8m high fencing is provided on top of the retaining wall to restrict views from the high side dwelling to the low side dwelling that is typical of greenfield release areas. As shown in **Attachment C** and **Attachment E**, each dwelling has had an integrated landscape design approach to achieve these mandated requirements. **Figure 2** provides a section and retaining wall material at the rear boundary condition for reference with **Figure 3** providing an example of the typical landscaping treatment provided by Stockland in other land lease developments it has undertaken.



Source: SQ1, 2024

Figure 2: Rear lot boundary retaining wall section



Source: Stockland, 2025

Figure 3: Rear lot boundary retaining wall built examples

With these outcomes in mind, consideration had been given to terracing the retaining walls in these instances given there was an additional 1.5m depth of landscaping that could be provided in an elevated position. However, this would not reduce the overall wall height requirements, nor reduce the extent of retaining wall that is visible. It would however add additional maintenance to the landscaped area and also make the retaining wall façade far more prominent in the rear courtyard and add a great sense of confinement the courtyard compared to the single wall façade that is proposed. In our view, the proposal provides a superior private open space outcome than would otherwise be achieved if the retaining wall was terraced.

The proposed dwelling site sizes range from 269m² to 505m². These dwelling sites are comparable to the type of lot sizes that could otherwise be delivered in the Forest Reach development and housing that could be delivered under the Greenfield Housing Code. Notably, Council has approved residential lots in this size with retaining walls up to 2.5m at the rear boundaries to the west of the Site in DA-2023/19. The Greenfield Housing Code does not mandate either a minimum amount of solar access. Nor does it mandate a minimum amount of private open space to be provided or additional depth of landscaped area at the rear boundary. Instead, it relies on site coverage provisions and the adoption of a rear setback of at least 3m. This does not guarantee a minimum courtyard space will be provided, with a number of designs providing the rear setback of 3m as a minimum with no requirement for landscaping to be reasonably applied to this setback. In this regard, the proposed development delivers a far superior landscaped and courtyard amenity than



would reasonably be expected to be delivered under the Greenfield Housing Code for similar sized lots should the Site be otherwise be subdivided for residential lot.

Consistency with objectives and controls of the DCP

As outlined above and in the Applicant's architectural modelling, the proposed development demonstrates compliance with the key solar access and private open space requirements. Whilst Attachment 7 of Council's report to the Panel notes a minor deficiency in some private open space areas (primarily the depth of landscaped area next to side boundaries), they have generally agreed that these deficiencies can be supported as they will not have any impact on the usability of the areas and therefore can be supported. In this circumstance, the reliance on higher than typical retaining walls is not deemed to be detrimental to the overall delivery of complaint solar access outcomes, nor are they anticipated to cause significant loss of amenity and functionality for the areas of private open space. For the abundance of caution, **Attachment D** provides consideration of the key objectives in the DCP that relate to solar access and private open space.

1c. External impacts including any visual impacts from the public domain

In regard to solar access amenity impacts on adjoining residential land, it is recognised that Council's assessment report noted that the retaining wall along the southern boundary of the development will adversely affect solar access to the adjoining properties to the south. It may have been missed by Council, but the revised Civil Plans submitted to Council via the Planning Portal in response to Request for Information 1 on 4 September 2024 removed the inclusion of the retaining wall in this location. As such, there is not considered to be a solar amenity impact in this location. Further, given the orientation of the remainder of the Site and perimeter roads that have been, or are under construction, there is not considered to be an impact on the solar amenity of adjoining residential land.

In terms of visual amenity, broadly speaking, the impacts from the public domain are generally limited to how pedestrians and motorists utilising the adjoining road network experience the Site. At present, when walking the Site, it is evident that there is notifiable level change across the land. This level change is typical of developments along the escarpment and lower areas of Wollongong City Council and would be a typical resident expectation the development steps across the land to respond the topography. This has been a feature of all of Council's approvals to date in the Forest Reach development.

In this vein, architectural sections have been cut through the Site, east to west, to demonstrate how pedestrians and motorists would view the development of the Site, refer to **Attachment E**. As would be typical of development of scale over similar land topography, people viewing the development from the western boundary from Northern Precinct Road No. 1 have an outlook of dwellings stepping up the Site to the east with internal retaining walls in the development effectively screened by the dwelling facades. This is considered reasonable given the scale of the development and that a coordinated and wholistic outcome is proposed in the DA compared to typical subdivision that would merely set ground levels and install retaining walls without certainty of the final built forms relation to the external road network and public domain.

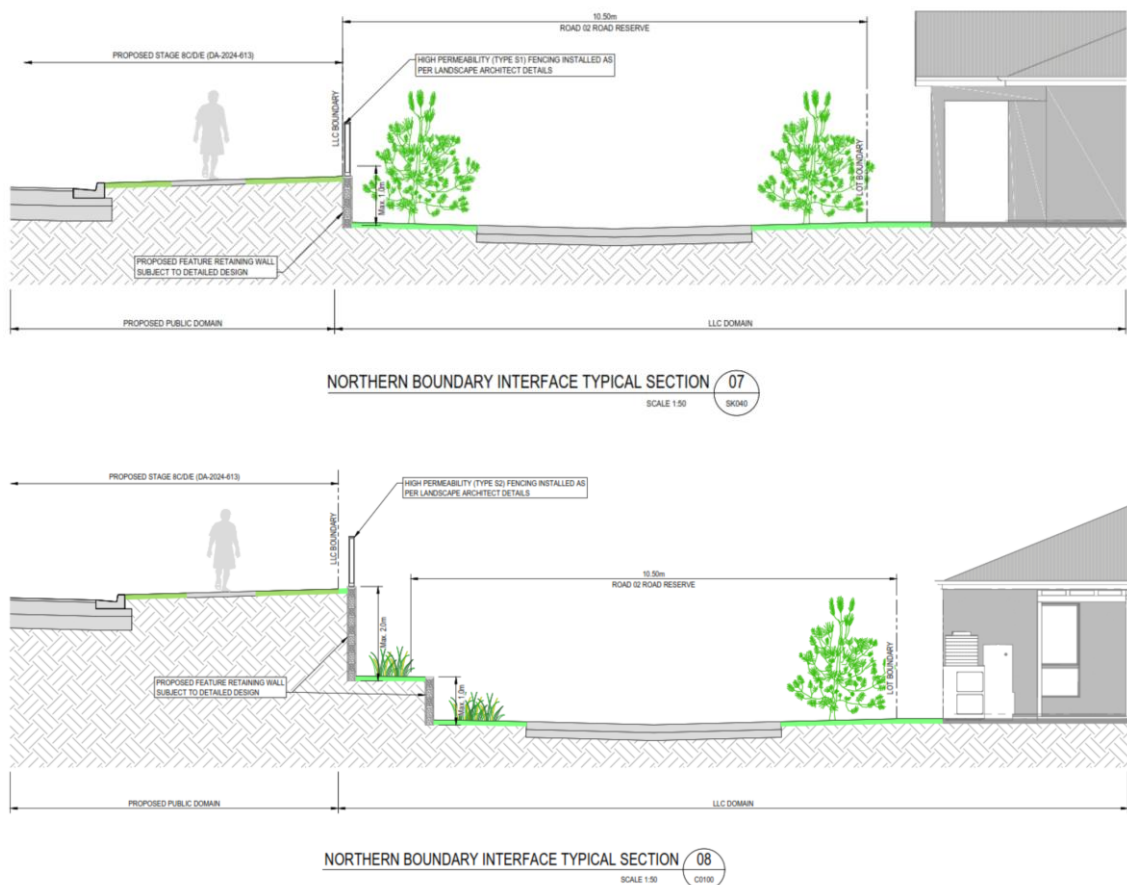
Specific commentary to specific wall locations is provided below.



Boundary retaining wall Location 1

Along the northern boundary of the Site (Location 1 in **Figure 1**) the retaining wall ranges in height from 1m to 1.25m for the majority on the western side, before transitioning to 1.5m to east and up to 3m, for a limited length, at the interface with the TransGrid transmission line. At the eastern extent, the retaining wall will be terraced to manage the level change. This boundary will adjoin a future local road that will form part of Stage 8C, with the road sitting higher than the multi dwelling housing development and retaining wall not being visible from the public domain. This retaining wall is to be a split face or feature sleeper wall, located within the boundary of development with the ongoing ownership and maintenance the responsibility of the Applicant.

At this location, pedestrians along the Northern Precinct Road No. 1 would be looking down to the development and side facades of dwellings not dissimilar to a standard residential development that provides a slip road to a higher order road like Northern Precinct Road No. 1 to avoid driveway and vehicle movements. Permeable blade fencing will run along the boundary with landscaping provided at the low side of the wall, complemented by street tree planting within the opposite private road. Refer to Section 7 and 8 on sheets SK044 and SK045 in **Attachment A**. and **Figure 4** below:



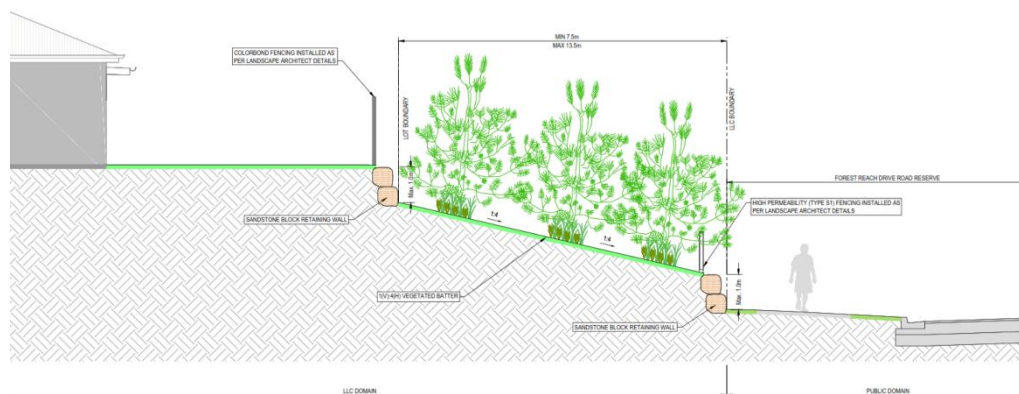
Source: Maker, 2025

Figure 4: Retaining walls at northern boundary to future public road



Boundary retaining wall Location 2

Below the eastern entrance to the development (Location 2 in **Figure 1**), a retaining wall in the order of 1.5m was proposed to manage level changes from Forest Reach Drive west to the TransGrid easement. Following review of the design in response to Council's report to the Panel, the opportunity to refine the retaining walls in this location was identified to reduce the direct interface and visual impact to Forest Reach Drive. As detailed in Figure 5, this wall is able to be replaced with a terraced retaining wall and landscaped batters. This would comprise of a 1m high wall at the boundary with Forest Reach Drive, with terraced landscape batter and 0.5m high wall at the rear of the dwellings. This will serve to remove significant bulk and scale from the retaining wall interface in this location. Refer to Section 2 on Sheet SK042 at **Attachment A**.



Source: Maker, 2025

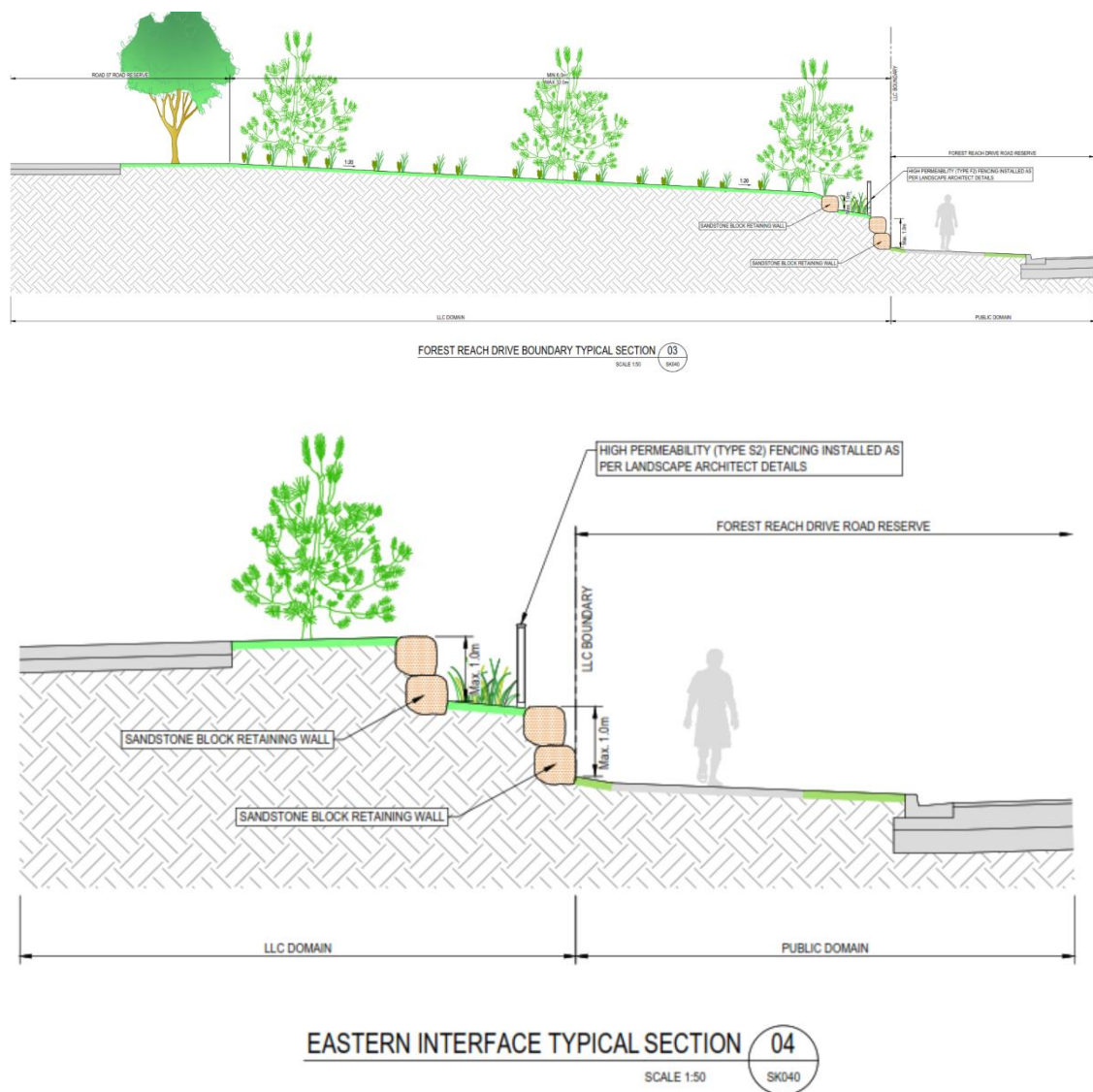
Figure 5: Cross section of 2m retaining wall with Forest Drive interface

Assuming the Panel is supportive of this configuration, it would be appropriate to impose a condition of consent to the following effect in the 'Before the Issue of a Subdivision Works Certificate' section of the consent:

Prior to the release of the Subdivision Works Certificate, the civil works plans are to be amended to revise the retaining wall design (excluding the entry feature retaining wall) to adopt a terraced retaining wall for frontage to Forest Reach Drive. Each terrace of retaining wall is to have a maximum height of 1m with landscaped batters not to exceed 1:3.

Boundary retaining wall Location 3

At the south eastern boundary of the Site with Forest Reach Drive (Refer to Location 3 in **Figure 1**), a retaining wall up to 2m in height, for approximately 65m, was proposed to transition levels between Forest Reach Drive and the TransGrid easement to the west. Similar to the above discussion, the retaining wall in this location is able to be designed to accommodate a terraced sandstone block wall reduce the direct interface and visual impact to Forest Reach Drive. Refer to Sections 3 and on Sheets SK042 and SK043 at **Attachment A** and **Figure 6**. Walls of this scale and interface with local roads have been approved by Council in similar greenfield release areas in Wollongong City Council including Wombarra, Wongawilli and Norman estates, refer to example at **Figure 7** that would be indicative of the outcome that would be delivered along Forest Reach Drive.



Source: Maker, 2025

Figure 6: Cross section of revised retaining wall with Forest Drive interface



Source: Maker, 2025

Figure 7: Example of 2m tiered sandstone retaining wall in Wongawilli estate in Wollongong

There are limited alternatives in this location given the fixed constraints of Forest Reach Drive, the TransGrid easement and imperative to create flat dwelling sites to achieve compliance with Liveable Housing Australia standards for more accessible homes. It also seeks to preserve functional opportunities for RV parking in a designated area to avoid parking on Council's broader street network. Even without the proposed multi dwelling housing development, significant retaining walls or built form modulation would be required given the depth available and necessity to deliver a denser housing outcome consistent with the R3 Medium Density Residential zone that applies to this part of the Site.

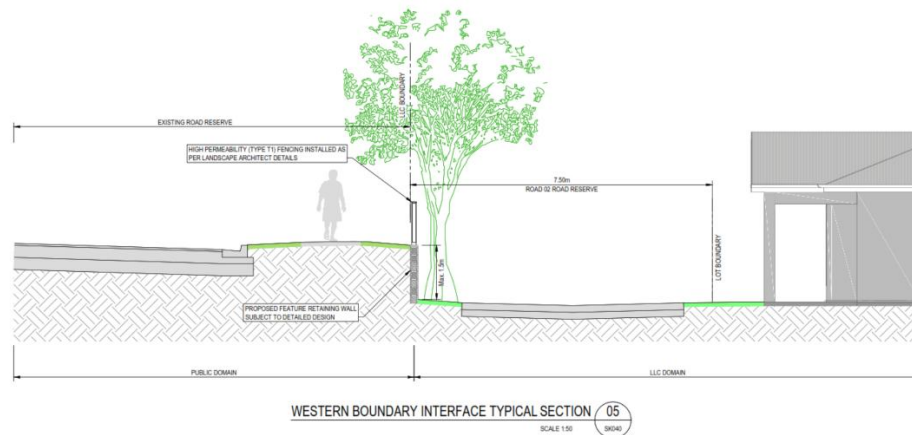
From a pedestrian amenity perspective, the retaining wall of this height and tiered arrangement, does not compromise the verge allocation for footpath and street tree planting, nor would it likely result in significant shade over the footpath in afternoons. On balance, given the functional improvements that the wall provides in the development in terms of managing level change, superior accessibility for dwellings and RV parking, it is considered an appropriate outcome for the Site.

Boundary retaining wall Location 4

Further south of the western entrance (Location 4 in **Figure 1**) levels over the Site fall away to assist in the overall transition of easter/west fall over the Site with the Northern Precinct Road No. 1 sitting above the development levels. At this location, pedestrians along the Northern Precinct Road No. 1 would be looking down to the development and front facades of dwellings not dissimilar to a standard residential development that provides a slip road to a higher order road like Northern



Precinct Road No. 1. Permeable blade fencing will run along the boundary with landscaping provided at the low side of the wall, complemented by street tree planting within the opposite private road. Refer to Section 5 on Sheet SK043 at **Attachment A** and **Figure 8**.



Source: Maker, 2025

Figure 8: Northern Precinct Road No. 1 retaining wall interface

Boundary retaining wall Location 5

South of the western entrance (Location 5 in **Figure 1**), retaining walls are more of a landscape intervention to compliment the entry feature. Limited to 1m in height with open blade fencing that is integrated within the landscape design, this wall is not considered to have any significant impacts to the public domain and typical of other greenfield developments. Refer to **Figure 9** for a render of the western entry.



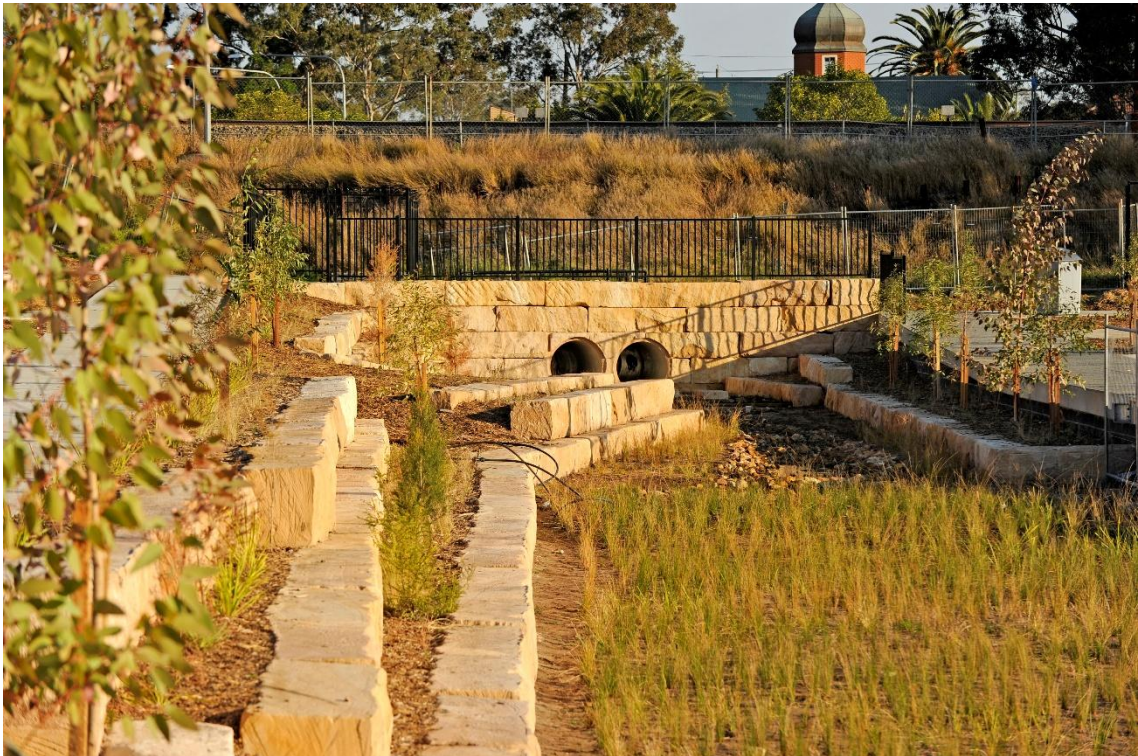
Source: SQ1, 2024

Figure 9: Western entry retaining wall materiality



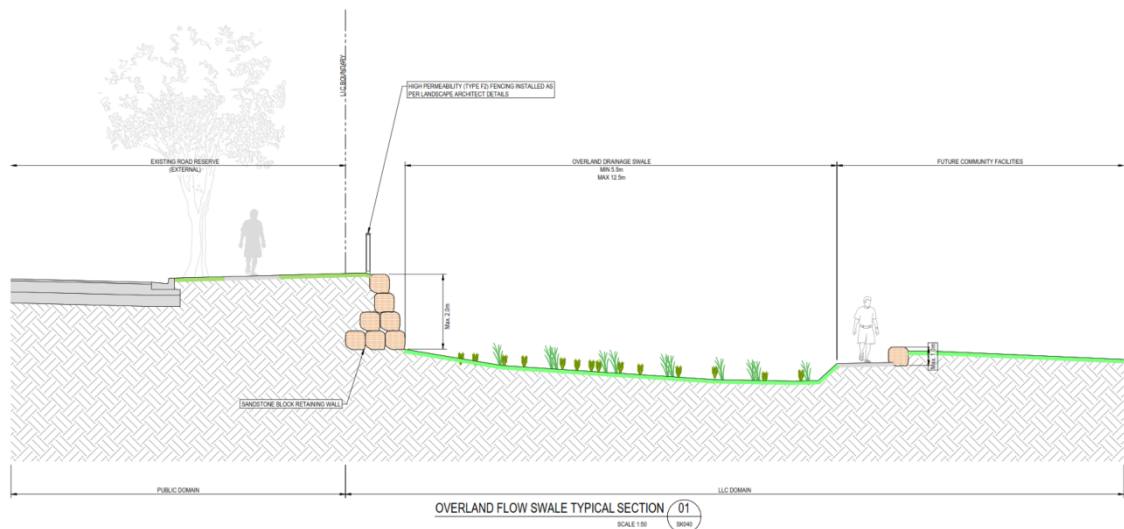
Boundary retaining wall Location 6

To the north of the western entrance (Location 6 in **Figure 1**), the road sits higher than the adjoining retaining wall that is used to form a stormwater management swale that will present not dissimilar to other pieces of landscaped stormwater infrastructure approved by Council before transitioning to the Community Buildings proposed in DA-2024/202. Refer to **Figure 10** for a typical basin outcome in this location and section of the wall at **Figure 11**. This interface is considered to be appropriate in a new release setting where it is a common occurrence for interfaces with stormwater management infrastructure, with the benefit that it will be the operator maintaining the landscape in this area compared to Council's often constrained maintenance.



Source: Blacktown City Council, 2025

Figure 10: Example interface with stormwater infrastructure to be delivered on Site



Source: Maker, 2025 Figure 11: Northern Precinct Road No. 1 retaining wall interface

Consistency with objectives and controls of the DCP

Whilst the external retaining walls may not strictly comply with each of the numeric controls within Section 4.17 of the DCP that relate to retaining walls, they are consistent with past approvals issued by Council and meet the objectives of the DCP as detailed in **Attachment C**. It is noted from Council's report to the Panel that Council's main concern regarding variation to the DCP, for external retaining walls related to retaining walls up to 2m in height at the interface of the development adjoining residential sites and roads and general compliance with Control 4.17.3(4) and (5) that require the following:

4. *To limit the overall height impact, terracing of retaining walls is required, limiting the maximum vertical rise of a retaining wall to 1 metre, with a minimum horizontal setback of 1 metre.*
5. *Any retaining wall with a vertical height exceeding 1 metre in any one vertical rise must be supported by appropriate justification demonstrating how the proposal meets the objectives above.*

In response to this concern the following variation is provided in addition to the earlier commentary provided in this letter:

- The development only has one direct interface with residential lots along the southern boundary. No retaining walls are provided at this boundary.
- Along the northern boundary, retaining walls are provided to step down into the Site from the future local road to be delivered as part of Stage 8C. This wall will not be visible from the public domain, with appropriate plant screening provided within the development and only the secondary street frontages of dwellings having an interface with this wall. This retaining wall height is therefore considered appropriate given the content without the strict need for terracing.
- Along the northern portion of the western boundary of the Site to Northern Precinct Road No. 1, larger height retaining walls are utilised to step down into the Site to form the necessary stormwater management infrastructure. This is no different from where retaining walls are used



to form public stormwater management infrastructure and have been incorporated within an integrated landscape design response.

- Along the southern portion of the western boundary of the Site to Northern Precinct Road No. 1, larger height retaining walls are utilised to step down into the Site. This wall will not be visible from the public domain, with appropriate plant screening provided within the development and is limited to a total of 6 dwellings within the development having an interface with this wall. This retaining wall height is therefore considered appropriate given the context without the strict need for terracing.
- The retaining wall design along the northern portion of the eastern boundary with Forest Reach Drive has been revised to adopt a terraced approach to retaining walls, consistent with the DCP. This requirement to formally revise the design can be achieved through the imposition of an appropriate condition.
- The retaining wall design along the southern portion of the eastern boundary with Forest Reach Drive originally proposed a retaining wall up to 2m. Significant retaining is required in this location to transition fixed external levels of Forest Reach Drive and the TransGrid easement. It is now proposed to tier this retaining wall to significantly reduce its visual impact in a form consistent with past Council approvals in Wongawilli. This requirement to formally revise the design can be achieved through the imposition of an appropriate condition.

1d. The provision of relevant sections demonstrating the above

Relevant sections are provided in **Attachment A** and **E** and discussed above.'

2 Additional flood modelling information

As outlined earlier, **Attachment F** comprises the Maker Report providing the additional flood related information as requested by the Panel. The Maker Report includes an assessment against Clause 5.21 of the LEP and confirms that, including having regard to Council's latest flood study, the proposed development is not unacceptably exposed to flood risk, nor will it create unacceptable additional downstream flood impacts. In this regard, we are confident that both Council and the Panel can from the view that the proposed development is:

- compatible with the flood conditions of the site
- will not detrimentally affect flood behaviour over the site or properties
- will not result in the unsafe occupation of the land or place undue pressure on evacuation routes in flood events
- includes appropriate measures over the site to manage flood risk
- not adversely affect the environment or cause avoidable erosion, siltation or destruction of riparian vegetation or destabilisation of riparian corridors external to the site

Among its recommendations, the Maker Report proposes the variation of conditions 1 and 38 of DA 2020-673 (as modified by DA 2023-19) to facilitate the incorporation of its recommendations relating to augmentation works to pre-existing OSD structures (Central OSD basin) outlet also located on Lot 197 in DP 1258914 (but outside of the proposed land lease community) to maintain predevelopment outflows from the proposed development.



The variation to these conditions can be achieved by way of a condition on the subject consent that, pursuant to section 4.17(5) of the *Environmental Planning and Assessment Act 1979* and section 67 of the *Environmental Planning and Assessment Regulation 2021*, requires the Applicant to submit a notice requesting these variations to DA 2020-673 (as modified by DA 2023-19).

Consent to this variation to DA 2020-673 (as modified by DA 2023-19) along with owner's consent has been provided as set out below.

Finally, I have reviewed the Maker Report's assessment of the jurisdictional pre-requisites to the grant of development consent relating to flooding as set out in clause 5.21 of the *Wollongong Local Environmental Plan 2009* and confirm that the analysis demonstrates that these jurisdictional pre-requisites are all satisfied.

Owner's Consent and amendment to DA 2020/67 (as modified by DA 2023/19)

Attachment G, is a letter from PM Nominees G Pty Ltd that provides:

- (a) Owner's consent for the subject DA, inclusive of the works to be undertaken on the pre-existing OSD structures (Central OSD basin) outlet, which is also on Lot 197 in DP 1258914, as contemplated by the Maker Report;
- (b) Confirmation from PM Nominees G Pty Ltd that it has no objection to development consent DA 2020-673 (as modified by DA 2023/19) being amended as contemplated by the Maker Report, to allow for the above changes to be made to the pre-existing OSD structures and to ensure alignment between the two consents

3 Draft Conditions of Consent

Finally, we would be grateful if the Council could provide the draft conditions of consent for review as soon as practicable so that the Applicant has sufficient time to provide feedback, ideally in advance of the final assessment report.

I trust this information is of assistance in the consideration of the Applicant's proposal and working towards a favourable determination that will aid in the delivery of housing within the Southern Region and offer an alternative housing ownership and tenure opportunity that is attractive to the community and serve to free up existing housing stock. Should you require any additional information or want to discuss the content of this letter, please don't hesitate to contact me on 9249 4100.

Kind regards,

MATT COOPER
DIRECTOR



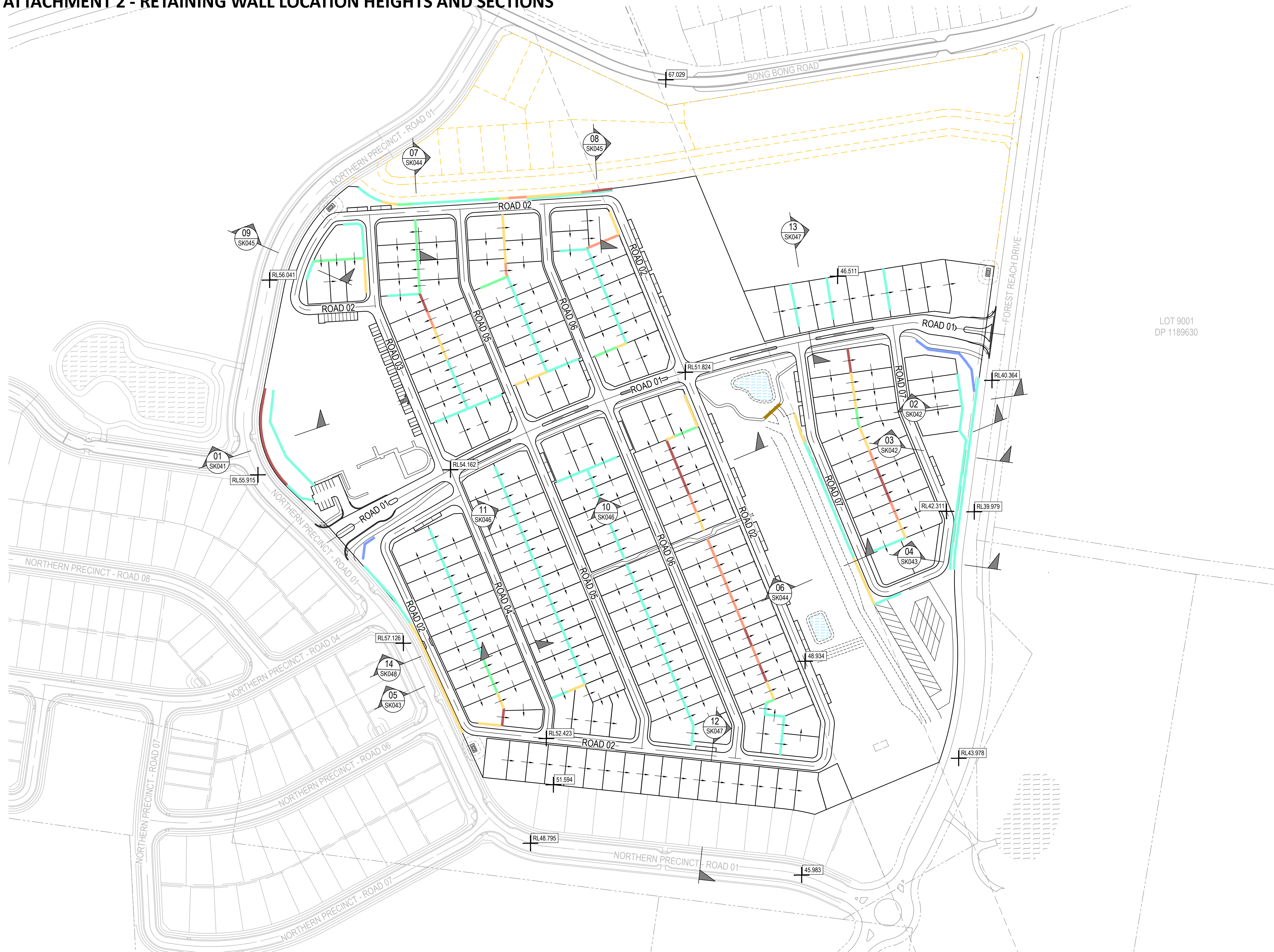
Attachment D – Consideration of relevant DCP Objectives

No.	Objective	Comment
4.17 Retaining Walls		
4.17.2(a)	To ensure that retaining walls are structurally sound and are located to minimise any adverse stormwater drainage, visual, amenity or overlooking impacts upon adjoining properties.	The retaining walls along the boundary of the Site will be required, by condition of consent, to be designed and certified by a Structural Engineer as per Council standard practice. The retaining walls at the boundaries do not result in amenity or overlooking impacts to adjoining residential properties, noting that retaining walls are not proposed along the southern boundary that is the Site's only direct interface with residential development. Largely, the design and scale of the retaining walls will not result in undue visual impact at the interface with the public domain, noting that external fixed level constraints dictate a higher wall in the south eastern frontage to Forest Reach Drive.
4.17.2(b)	To guide the design and construction of low height aesthetically pleasing retaining walls.	Where possible, low height retaining walls have been utilised at the Site's boundaries as part of an integrated landscape design response, particularly in proximity to the entrances to the development. Otherwise, with the exception of retaining walls fronting Forest Reach Drive, the walls will sit below the levels of adjoining public domain. In line with the controls, this objective is not intended to apply to every wall noting that the DCP provides for greater height retaining walls.
4.17.2(c)	To ensure any retaining wall is well designed, in order to achieve long term structural integrity of the wall.	The proposed retaining walls are located within private property and to be managed by the Applicant through the life of the development. The retaining walls will be designed and certified by a Structural Engineer in line with Council's standard conditions of consent.
4.17.2(d)	To ensure slope stabilisation techniques are implemented to preserve and enhance the natural features and characteristics of the site and to maintain the long term structural integrity of any retaining wall.	The retaining walls and broader development have been designed to respond to the unique Site conditions that allow the built form to step up and across the development Site in response to the general topography of the land and fixed external level constraints. This will ensure that the final built form continues to mimic the broader level changes that occur over the Site.
5.11 Private Open Space		
5.11.1(a)	To ensure that private open spaces are of sufficient size to accommodate a range of uses and are accessible and connected to indoor spaces where appropriate	The proposed development provides each dwelling with rear courtyards for the purposes of private open space. Each area meets the minimum dimension requirements and areas specified for Multi Dwelling Housing.
5.11.1(b)	To ensure functionality of private open space by reducing	The proposed development demonstrates compliance with the relevant solar access provisions that apply, noting that in multi dwelling housing development, the DCP only



No.	Objective	Comment
	overlooking and overshadowing of such spaces	requires 70% of dwellings to achieve the relevant solar access requirements. Privacy between lots is not exacerbated by the proposed retaining walls, with conventional 1.8m high rear boundary fencing restricting opportunities for overlooking.
Solar Access Requirements		
5.12.1(a)	To minimise the extent of loss of sunlight to living areas and private open space areas of adjacent dwellings.	Despite the use of retaining walls to respond to the Site's topography, the proposed development delivers solar access outcomes that comply with the requirements for private open space areas and dwellings with a northern living room orientation.
5.12.1(b)	To maximise solar access into living rooms and private open space of dwellings in the subject development.	The proposed development utilises site responsive grading and retaining walls to maximise the opportunities for rear courtyards to achieve solar access and northern orientated living rooms. The DCP provides a specific target of 70% of dwellings to achieve solar access compared to other types of residential development.
5.12.1(c)	To use a consistent sunlight access assessment approach for the assessment of solar access issues.	The proposed development has adopted the requirement of 50% of the private open space to achieve 3 hours of sunlight on the winter solstice, consistent with the requirements of the DCP controls.

ATTACHMENT 2 - RETAINING WALL LOCATION HEIGHTS AND SECTIONS



PROPOSED

LOT BOUNDARY

PROPOSED STAGE 8C/D/E LAYOUT
(UNAPPROVED DA-2024-613)

ROAD CENTERLINE

BATTER TOP / BOTTOM

FEATURE WALL

MAX 1.0m RETAINING WALL

MAX 1.25m RETAINING WALL

MAX 1.5m RETAINING WALL

MAX 1.75m RETAINING WALL

MAX 2.0m RETAINING WALL

SPOT HEIGHTS

INTERALLOTMENT GRADE
DIRECTION (HIGH TO LOW)

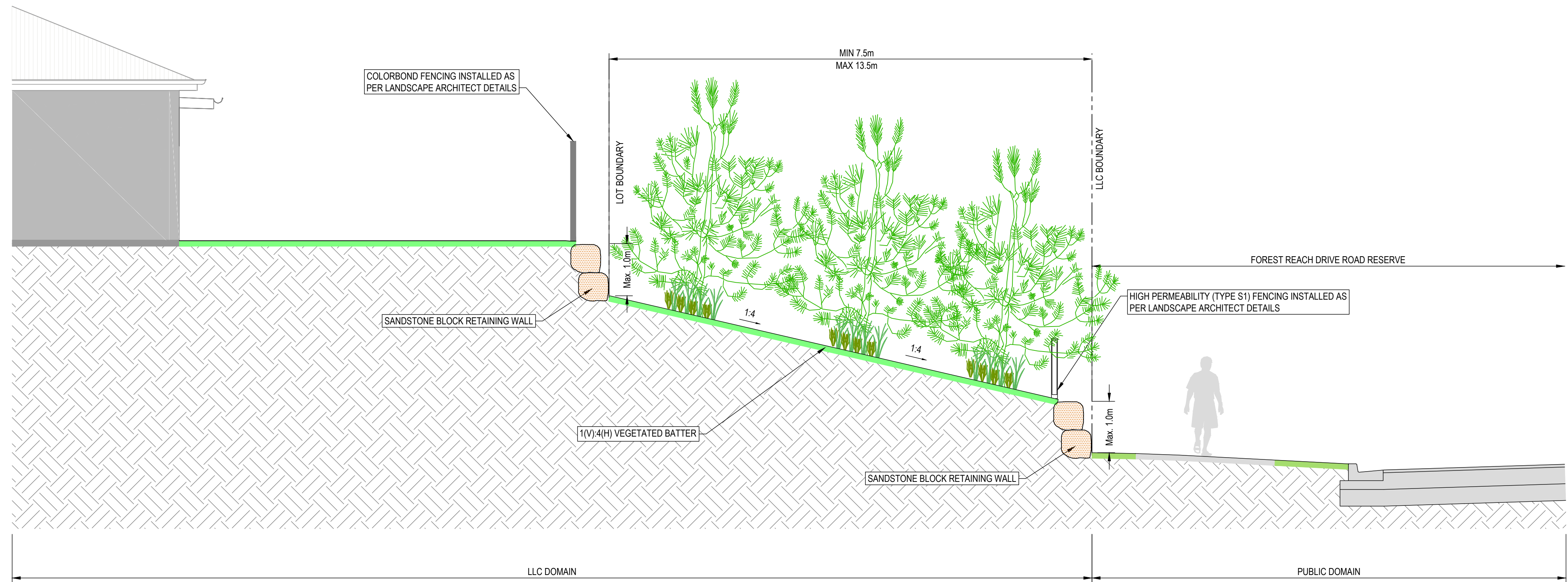
EXISTING

LOT BOUNDARY

EASEMENT

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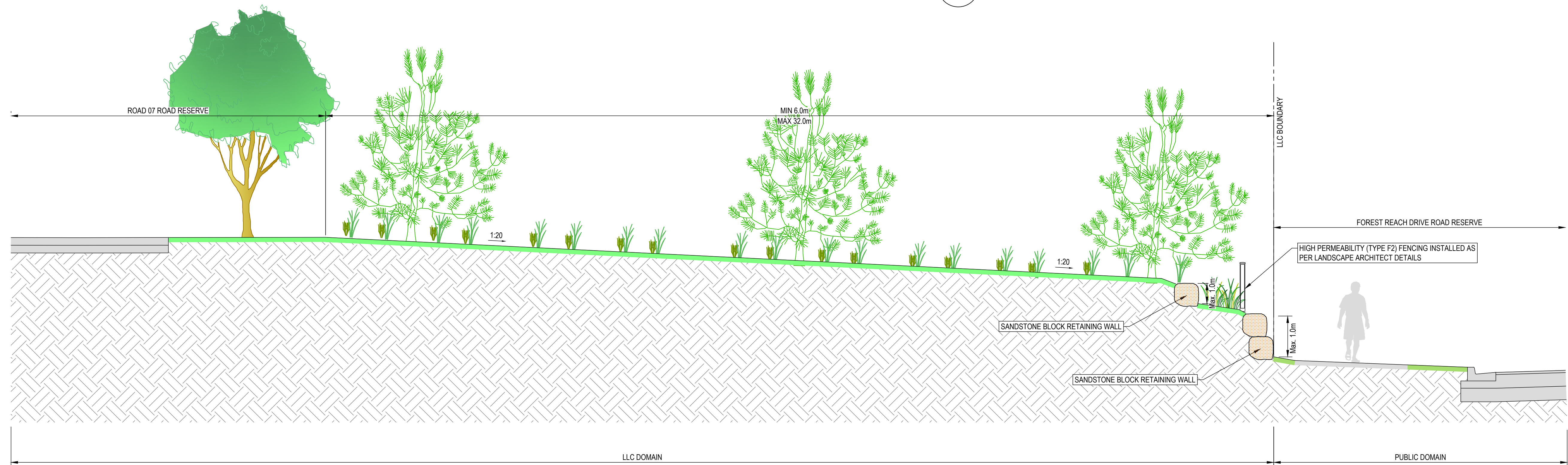
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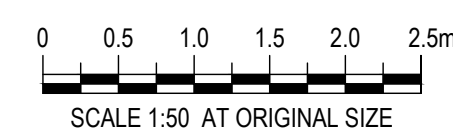
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FOREST REACH DRIVE BOUNDARY TYPICAL SECTION 03

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M.ALLAN
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K.MACDONALD

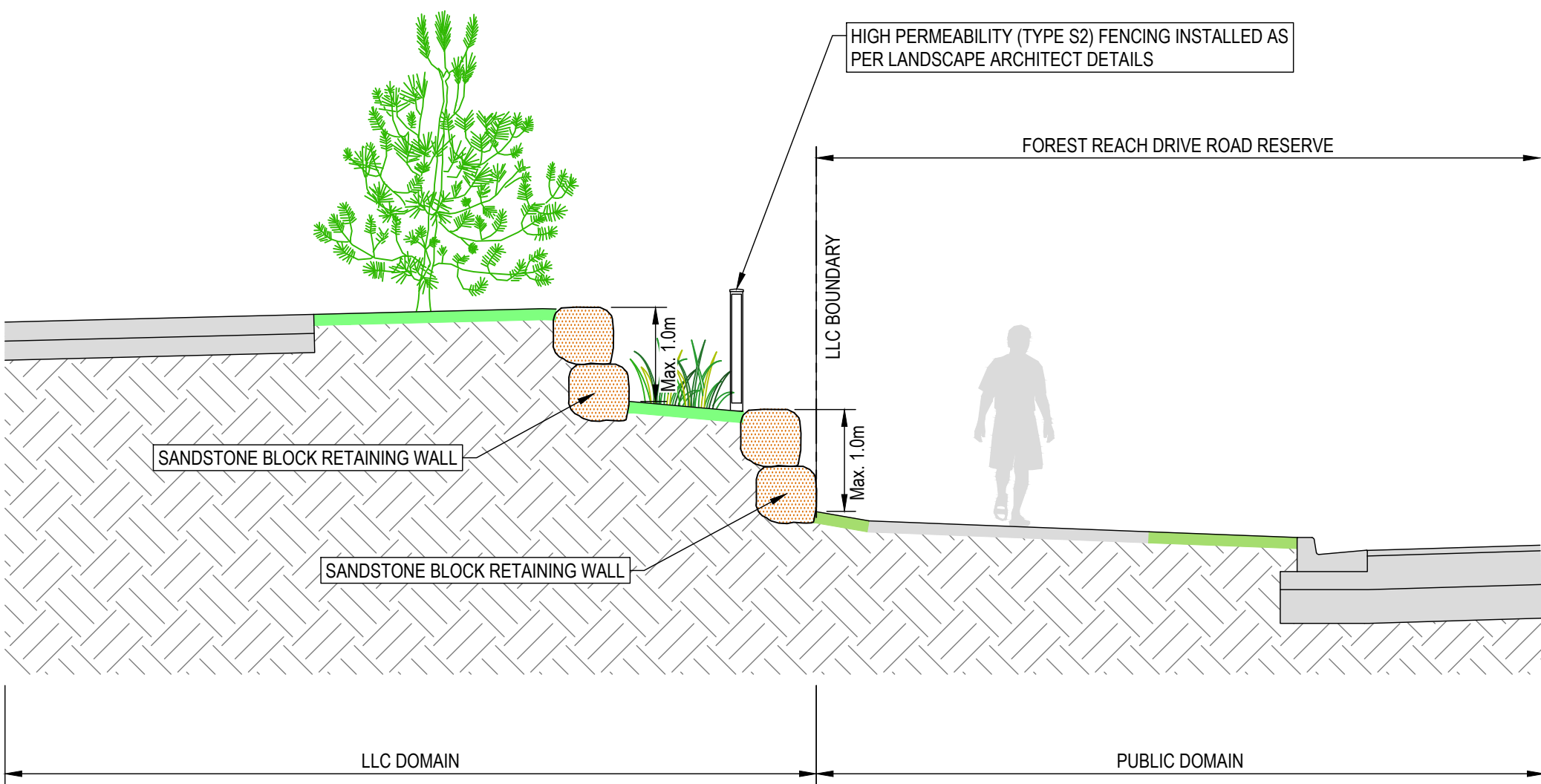
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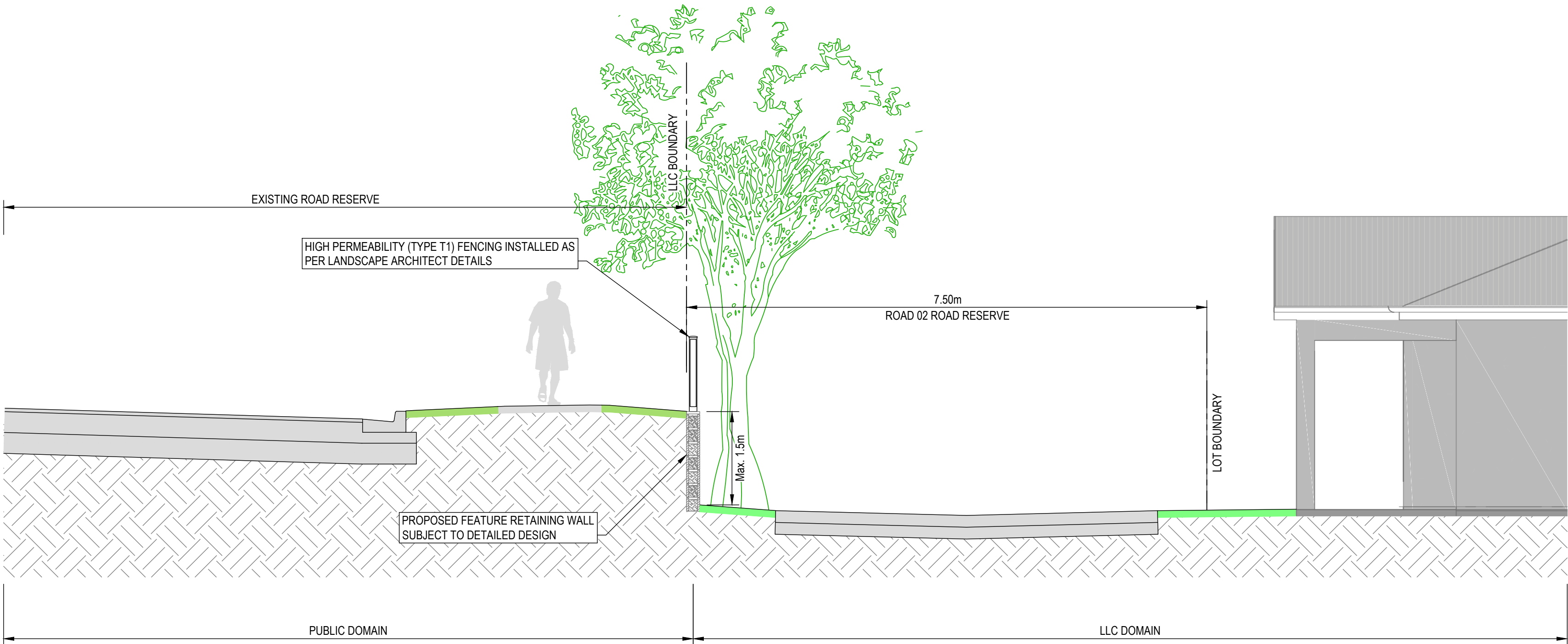
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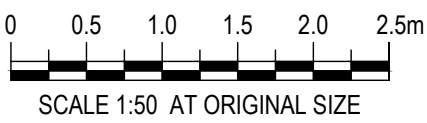
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REVISION
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WESTERN BOUNDARY INTERFACE TYPICAL SECTION 05
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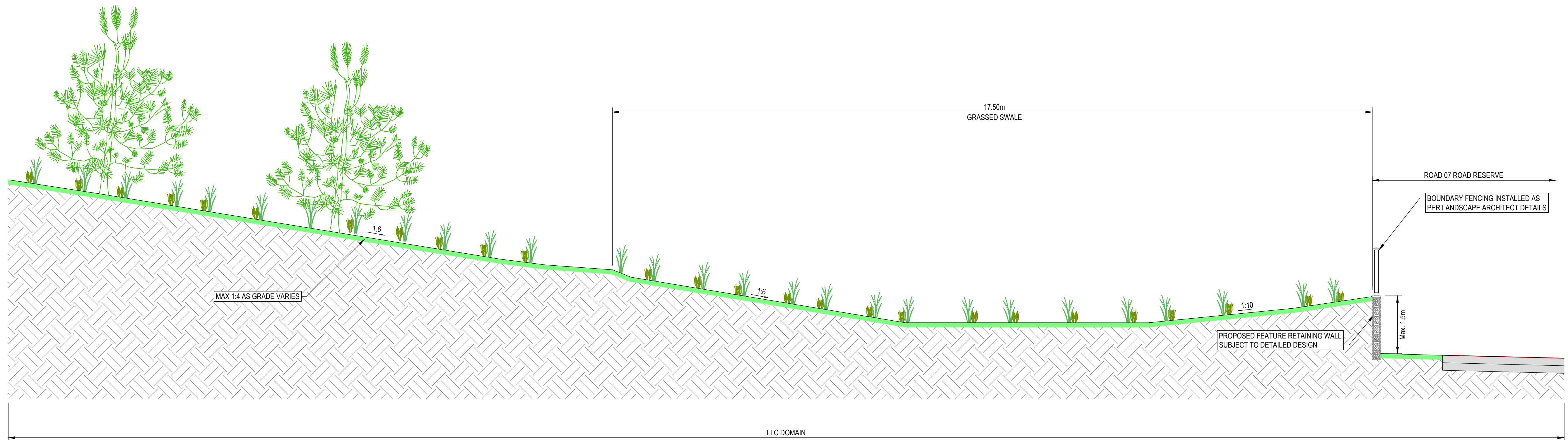
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APPROVED: K.MACDONALD	
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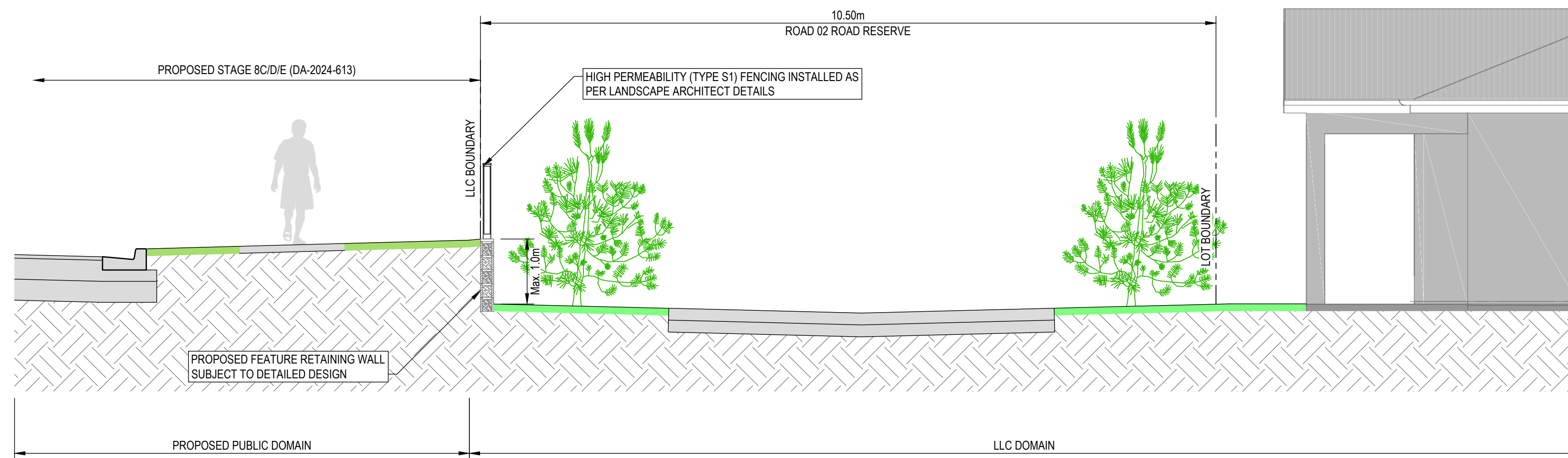
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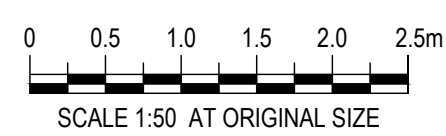
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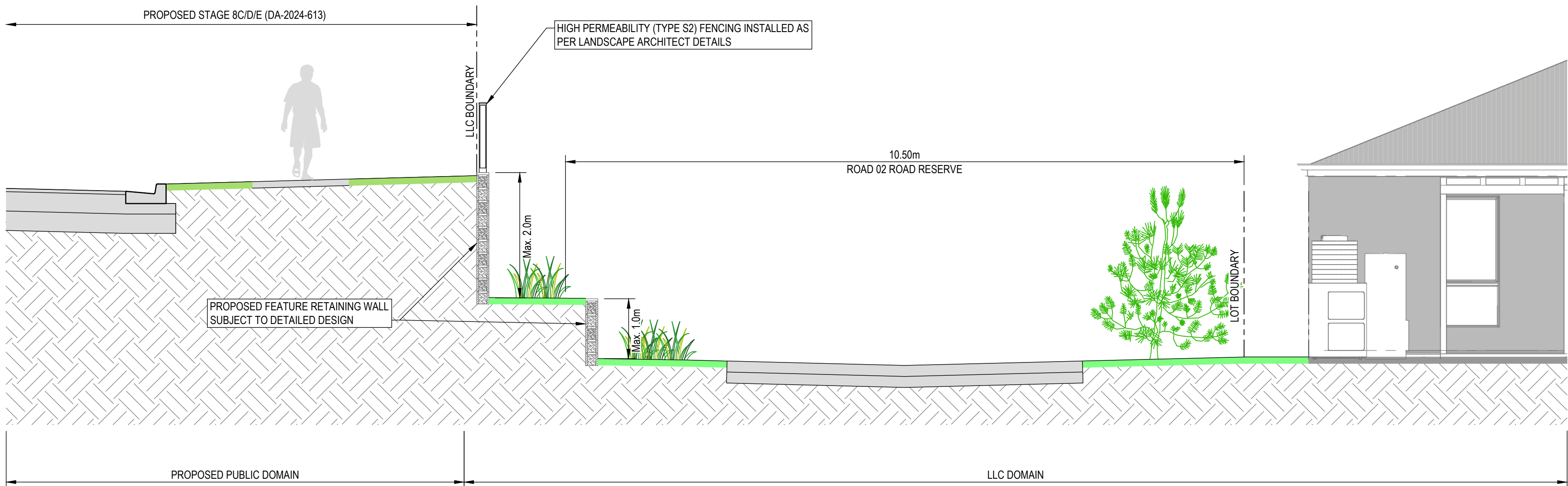
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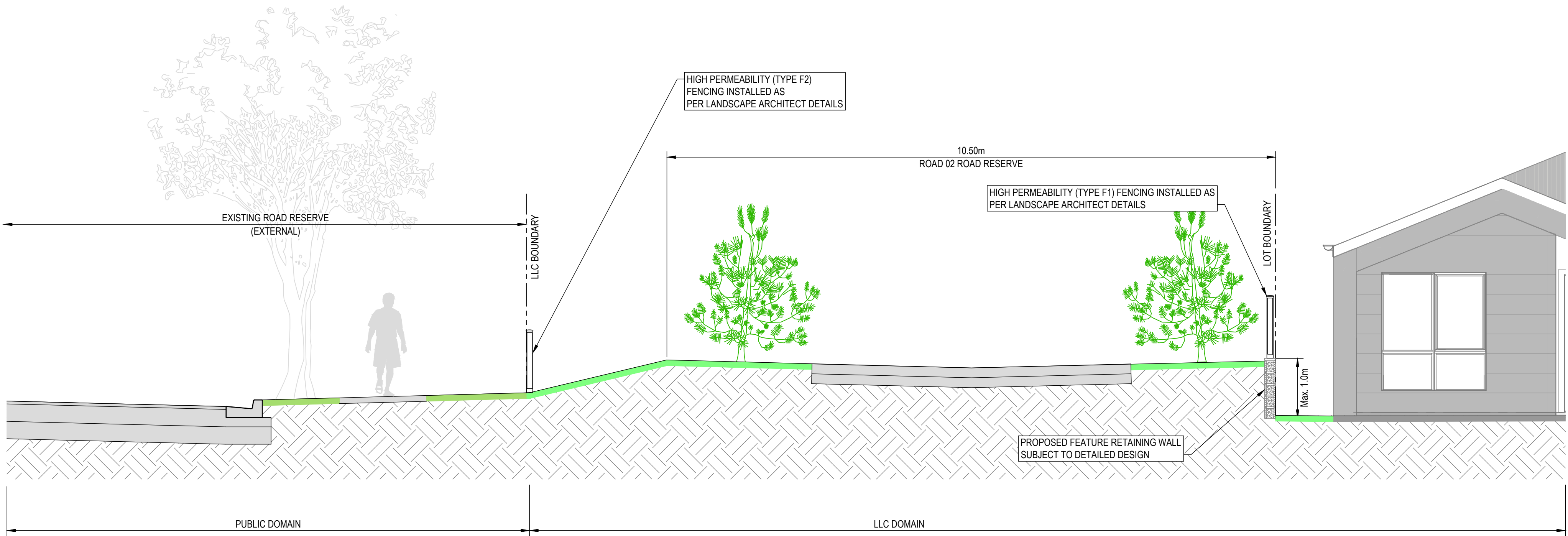


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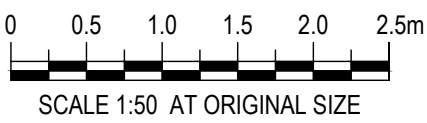
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SCALE 1:50 C0100



NORTHERN BOUNDARY INTERFACE TYPICAL SECTION 09

SCALE 1:50 SK040



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DESIGN CHECK: S.WEATHERBY
APPROVED: K.MACDONALD

AVID
FOREST REACH
SITE TYPICAL SECTIONS

NOT FOR CONSTRUCTION

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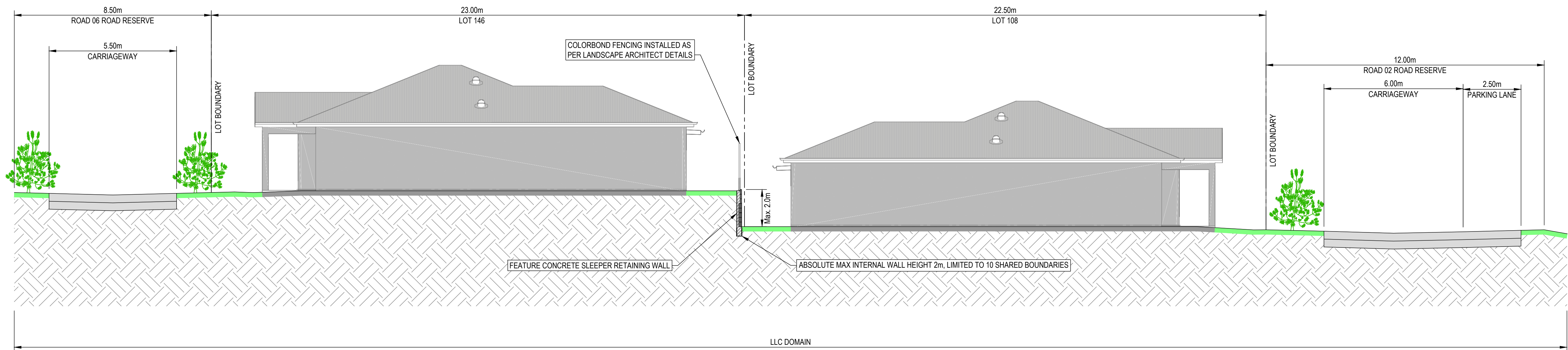
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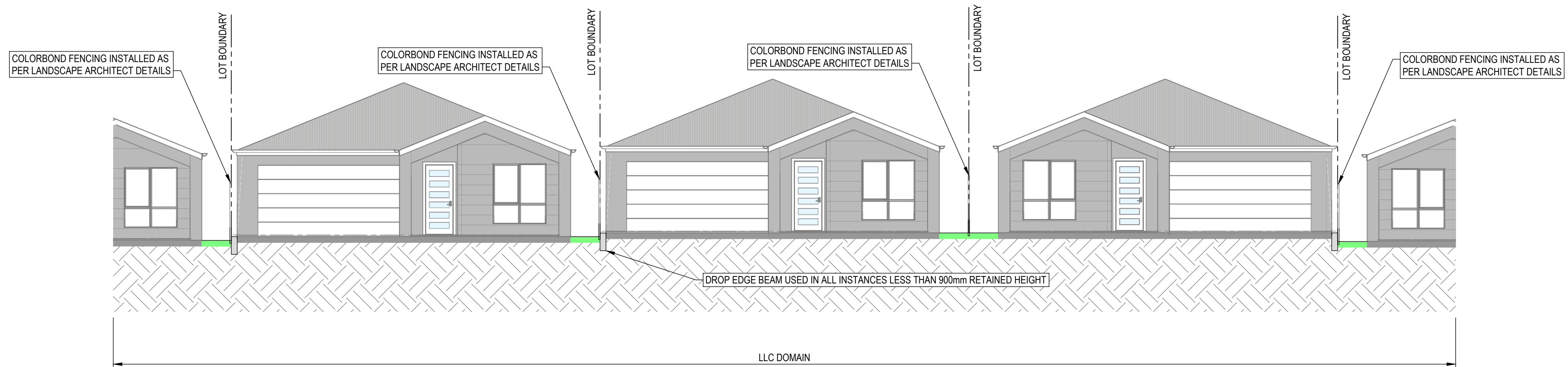
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REV	DATE	DESCRIPTION	AMD BY	APP BY
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LOT INTERFACE TYPICAL SECTION 10
SCALE 1:100 SK040



LOT INTERFACE TYPICAL SECTION 11
SCALE 1:100 SK040



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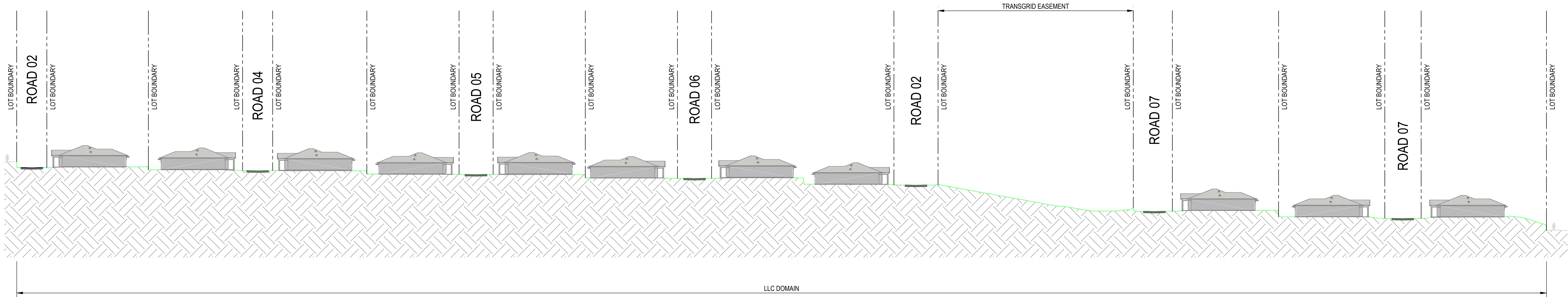


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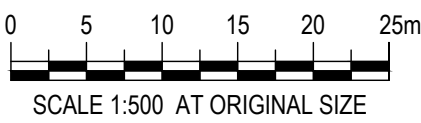


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APPROVED: K.MACDONALD											
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SITE TYPICAL SECTION 14
SCALE 1:500 SK040



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APPROVED: K.MACDONALD	

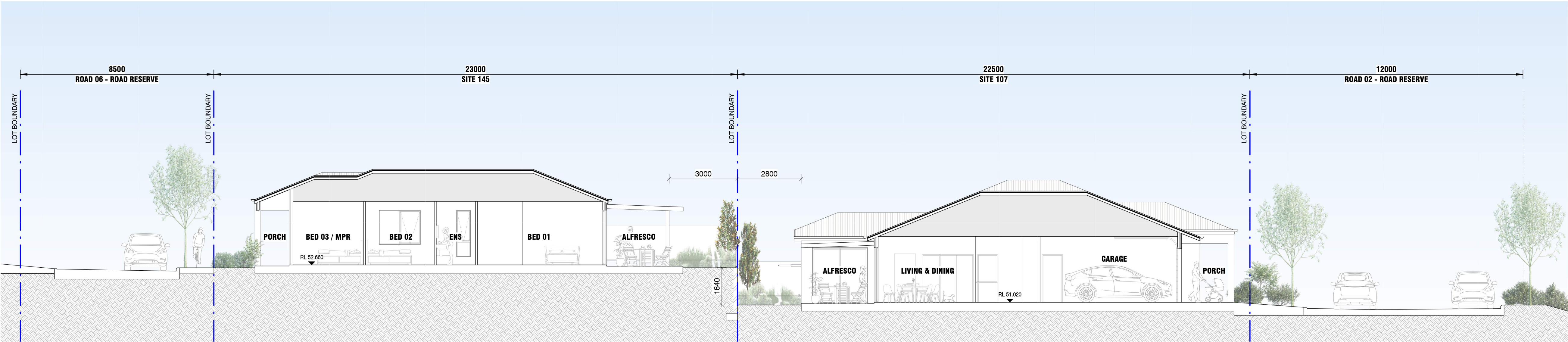
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SITE TYPICAL SECTIONS

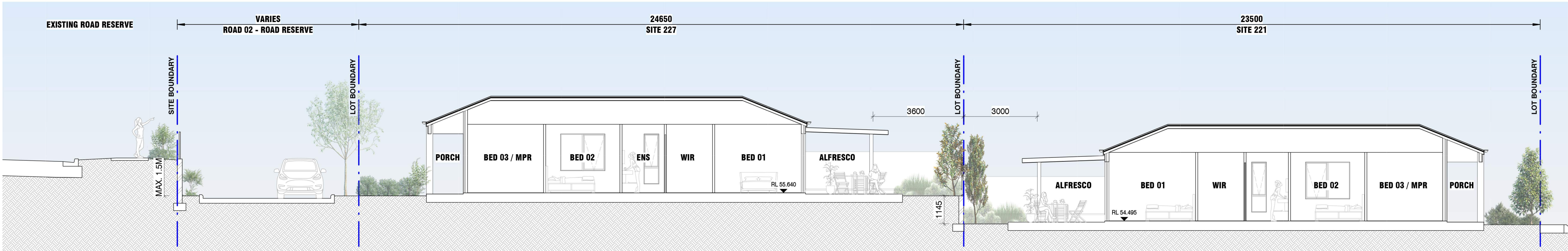
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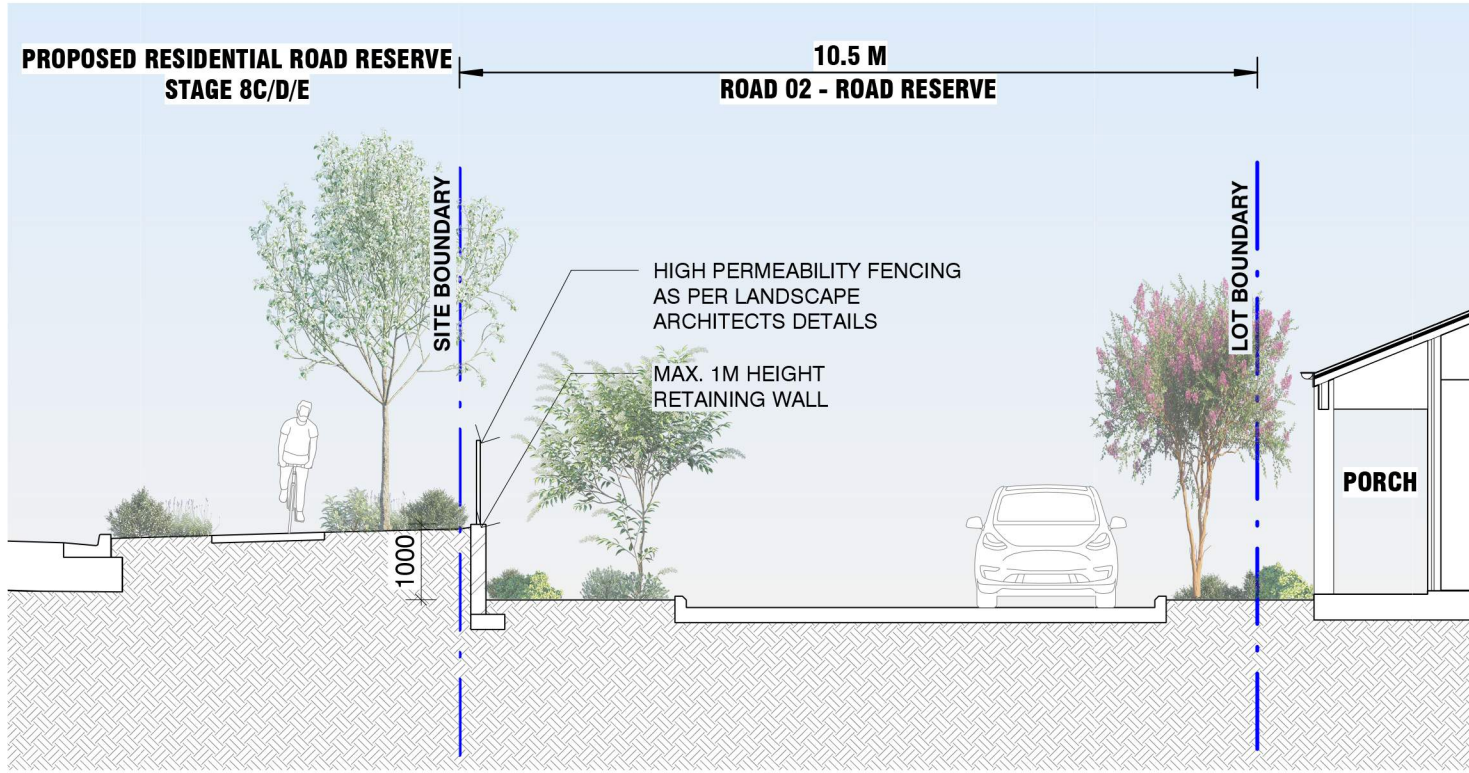
ATTACHMENT 3 - RETAINING WALL SECTIONS



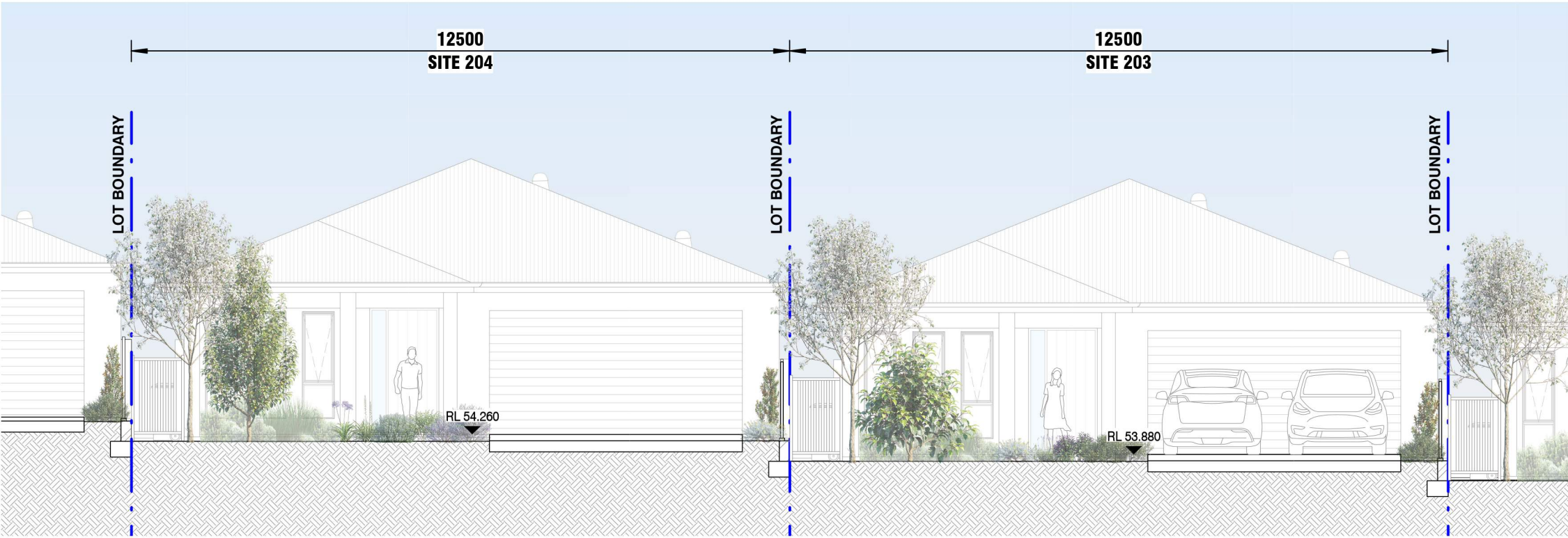
1 LOT INTERFACE SECTION 01 - MAX 2.0 M RETAINING WALL SCENARIO
SCALE: 1 : 100



2 LOT INTERFACE SECTION 02 - MAX 1.5 M RETAINING WALL SCENARIO
SCALE: 1 : 100



3 LOT INTERFACE SECTION 03 - NORTHERN BOUNDARY
SCALE: 1 : 100



4 LOT INTERFACE SECTION 04 - TYPICAL SIDE BOUNDARY RETAINING WALL SCENARIO
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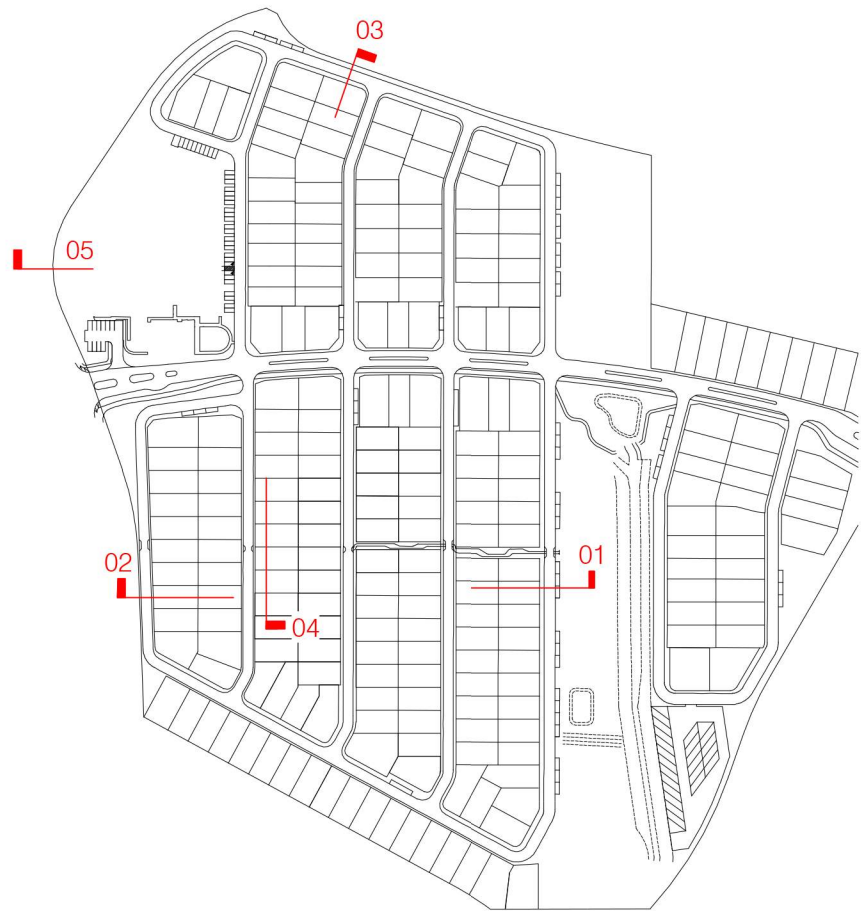


5 LOT INTERFACE SECTION 05 - OVERLAND FLOW SWALE TYPICAL SECTION
SCALE: 1 : 100

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16/06/2025 9:59:10 AM

Client:
AVID PROPERTY GROUP
Project:
FOREST REACH LLC
Project Number:
STO131
Address:
Bong Bong Road, Huntley, 2530

LEGEND



Rev.	Date	Amendment	By	Chk
A	12/06/25	RFT ISSUE	RH	AVID
B	16/06/25	RFT ISSUE	RH	AVID

2 4 10
Scale (m) 1 : 100 @A1 Scale (m) 1 : 200 @A3

Drawing Title:
SITE INTERFACE SECTIONS

Drawing Number:
STO131_SK001

Drawn: TT
Approved: RH
Date: 12/06/25
A1 Scale: As indicated
Revision: B

ATTACHMENT 4 - REAR COURTYARD LANDSCAPE PLANS

LANDSCAPE DA REPORT - MASTERPLAN AND CHASER

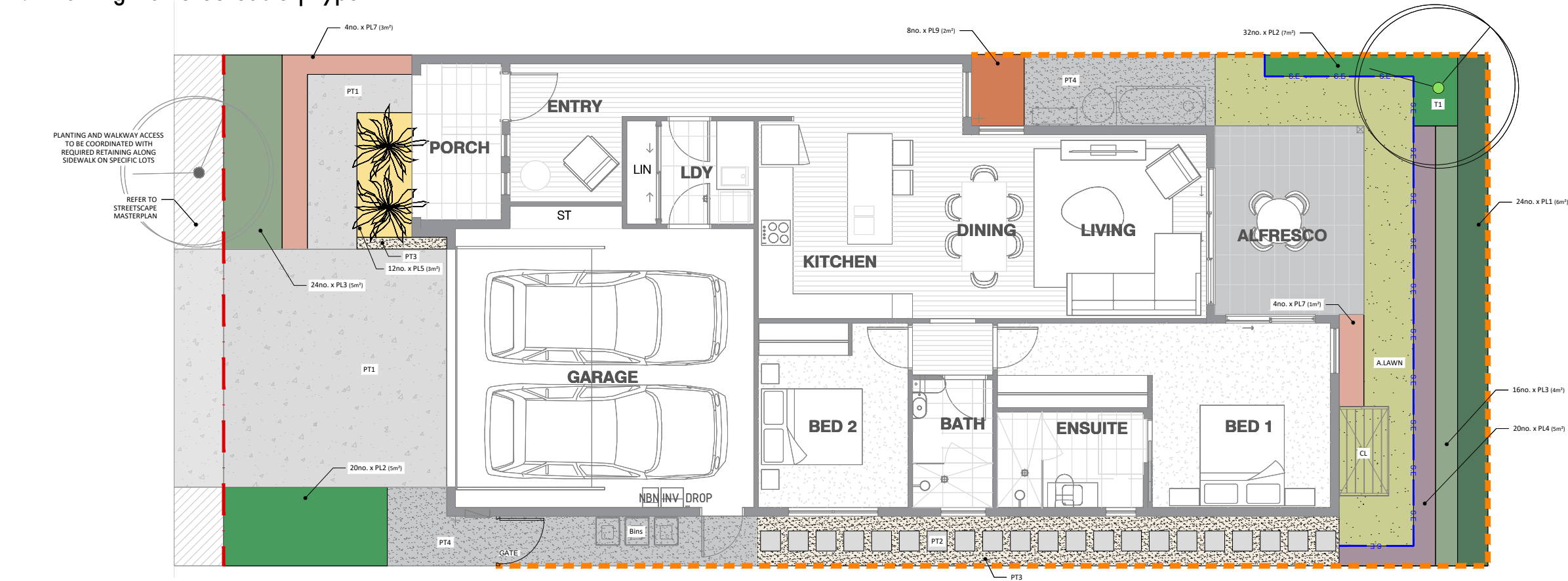
HALCYON FOREST REACH

HUNTLEY, ILLAWARRA, NSW, 2530



Typical Lot Gardens

11.1 Planting Plan & Schedule | Type 1



CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
------	------	--------------	-------------	----------	-------------	------------	------------------

TREES							
T1	Traditional	Cupaniopsis anacardioides	Tuckeroo	200L	12x5		1
T1	Coastal Colour	Corymbia ficifolia	Red flowering gum	200L	9x7,5		1
T1	Natural	Hakea salicifolia	Willow-leaved hakea	200L	6x4		1

FEATURE SHRUB							
	Traditional	Alyxia buxifolia	Sea Box	50L	2x4		2
	Coastal Colour	Adenanthos sericeus	Woolly Bush	50L	4x4		2
	Natural	Xanthorrhoea australis	Grass Tree	50L	4x4		2

PL1 - PLANT TYPE 1 (6m²)							
	Traditional	Callistemon viminalis 'Slim'	Bottlebrush	400mm	3x2	4	24
	Coastal Colour	Callistemon 'All glow'	Bottlebrush	400mm	2x1	4	24
	Natural	Callistemon 'White Anzac'	Coastal rosemary	400mm	2x1	4	24

PL2 - PLANT TYPE 2 (10m²)							
	Traditional	Pittosporum tobira 'Miss Muffet'	Pittosporum	400mm	1x1,5	4	40
	Coastal Colour	Correa alba 'Ivory Bells'	Correa	400mm	2x2	4	40
	Natural	Metrosideros collina 'Velvet Sky'	Callistemon	400mm	3x2	4	40

PL3 - PLANT TYPE 3 (7m²)							
	Traditional	Acmena smithii 'Hedgemaster'	Dwarf Lilly Pilly	200mm	1x1,5	4	28
	Coastal Colour	Hardenbergia violacea 'Meema'	Purple coral pea	200mm	0,5x2	4	28
	Natural	Russelia equisetiformis	Fire cracker plant	200mm	1x2	4	28

PL4 - PLANT TYPE 4 (4m²)							
	Traditional	Westringia fruticosa 'Mundi'	Coastal rosemary	200mm	0,6x1,8	4	16
	Coastal Colour	Anigozanthos 'Bush Diamond'	Kangaroo paw	200mm	0,4x0,4	4	16
	Natural	Lomandra 'Lime tuff'	Mat Rush	200mm	0,4x0,4	4	16

PL5 - PLANT TYPE 5 (4m²)							
	Traditional	Grevillea 'Raptor'	Grevillea	200mm	0,3x1,5	4	16
	Coastal Colour	Scaevola 'Pink fusion'	Pink fan flower	200mm	0,3x1,5	4	16
	Natural	Myoporum 'Yareena'	Creeping boobialla	200mm	0,3x4	4	16

PL7 - PLANT TYPE 7 (3m²)							
	Traditional	Plectranthus parviflorus 'Blue spires'	Spur flower	200mm	0,3x0,4	4	12
	Coastal Colour	Prostanthera sieberi	Minty flower	200mm	1x0,75	4	12
	Natural	Banksia 'Birthday Candles'	Banksia	200mm	0,3x1	4	12

CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
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PL9 - PLANT TYPE 9 (2m²)							
	Traditional	Rhaphis excelsa	Broad leaf lady palm	400mm	4x3	4	8
	Coastal Colour	Alpinia caerulea	Red black Austrian ginger	400mm	2x1	4	8
	Natural	Howea forsteriana	Kentia palm	400mm	4x1	4	8

- NOTES:
- For each property type, the purchaser has the choice between 3 styles of planting as outlined in the Plant Palette - Traditional, Coastal Colour or Nature.
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 - For level information refer to indicative landscape section to be read in conjunction with Architectural information and Civil levels.
 - For Retaining wall details refer to Civil documentation.

LEGEND:

Trees	
T1	Traditional: Cupaniopsis anacardioides OR Coastal Colour: Corymbia ficifolia OR Natural: Hakea salicifolia

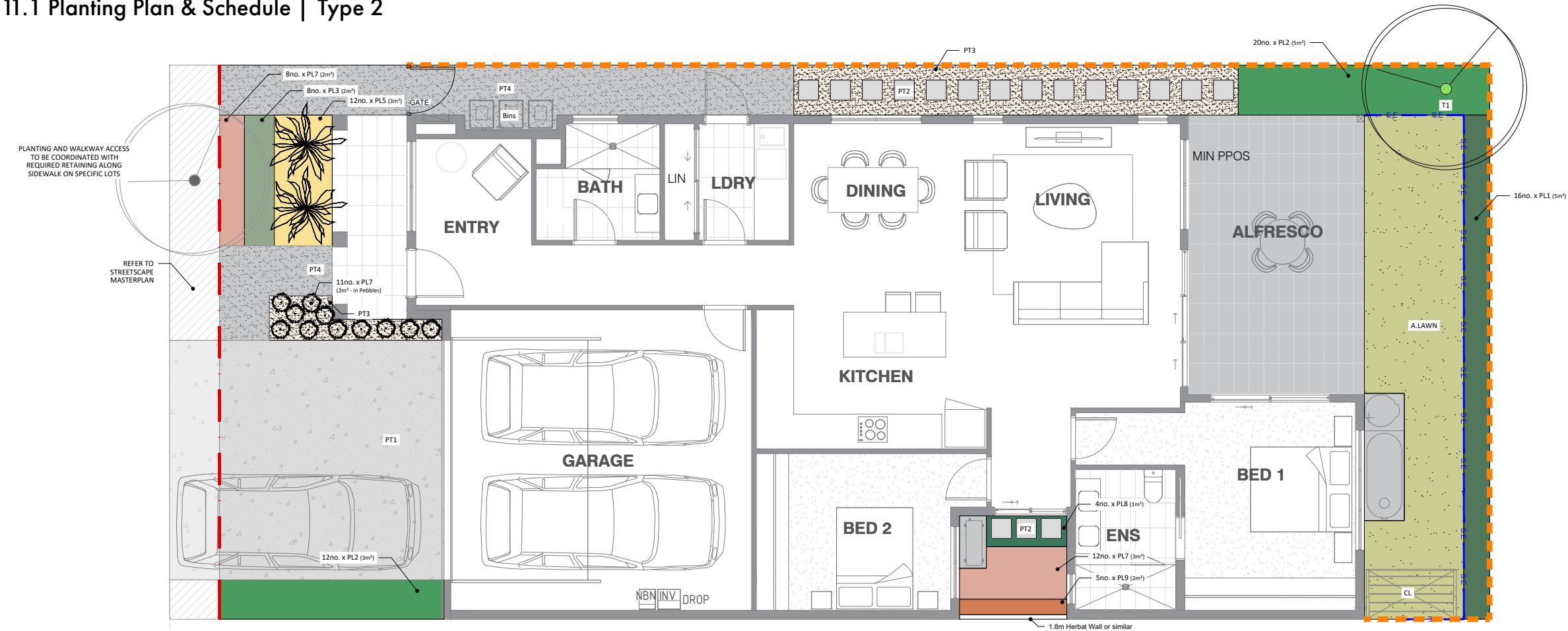
Shrubs and Ground Covers	
PL1	Traditional: Callistemon viminalis 'Slim' OR Coastal Colour: Callistemon 'All glow' OR Natural: Callistemon 'White Anzac'
PL2	Traditional: Pittosporum tobira 'Miss Muffet' OR Coastal Colour: Correa alba 'Ivory bells' OR Natural: Metrosideros collina 'Velvet sky'
PL3	Traditional: Dianella 'Breeze' OR Coastal Colour: Hardenbergia violacea 'Meema' OR Natural: Russelia equisetiformis
PL4	Traditional: Westringia fruticosa 'Mundi' OR Coastal Colour: Anigozanthos 'Bush diamond' OR Natural: Grevillea rhyolitica x juniperina 'Cherry cluster'
PL5	Traditional: Grevillea 'Raptor' OR Coastal Colour: Scaevola 'Pink Fusion' OR Natural: Myoporum 'Yareena'
PL7	Traditional: Plectranthus parviflorus 'Blue Spires' OR Coastal Colour: Prostanthera sieberi OR Natural: Banksia 'Birthday Candles'
PL9	Traditional: Rhaphis excelsa OR Coastal Colour: Alpinia caerulea OR Natural: Howea forsteriana

Feature Shrub	
	Traditional: Alyxia buxifolia OR Coastal Colour: Adenanthos sericeus OR Natural: Xanthorrhoea australis

Hard Landscape	
	Boundary
PT1	Paving Type 1 Coloured concrete or similar
PT2	Paving Type 2 Stepping stones
PT3	Paving Type 3 30-40mm Pebble, color: Natural Brown
PT4	Paving Type 4 Brushed Concrete
	Fence Type 1 Full Panel Colorbond Metal Fencing
	Gate Metal Slats
CL	Clothes Line Refer Architect's Details
B.E	Steel Garden Edging
A.LAWN	Artificial Lawn

Typical Lot Gardens

11.1 Planting Plan & Schedule | Type 2



CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
TREES							
T1	Traditional	<i>Cupaniopsis anacardioides</i>	Tuckeroo	200L	12x5		1
T1	Coastal Colour	<i>Corymbia ficifolia</i>	Red flowering gum	200L	9x7.5		1
T1	Natural	<i>Hakea salicifolia</i>	Willow-leaved hakea	200L	6x4		1
FEATURE SHRUB							
	Traditional	<i>Alyxia buxifolia</i>	Sea Box	50L	2x4		2
	Coastal Colour	<i>Adenanthos sericeus</i>	Woolly Bush	50L	4x4		2
	Natural	<i>Xanthorrhoea australis</i>	Grass Tree	50L	4x4		2
PL1 - PLANT TYPE 1 (5m²)							
	Traditional	<i>Callistemon viminalis</i> 'Slim'	Bottlebrush	400mm	3x2	4	20
	Coastal Colour	<i>Callistemon</i> 'All glow'	Bottlebrush	400mm	2x1	4	20
	Natural	<i>Callistemon</i> 'White Anzac'	Bottlebrush	400mm	2x1	4	20
PL2 - PLANT TYPE 2 (9m²)							
	Traditional	<i>Pittosporum tobira</i> 'Miss Muffet'	Pittosporum	400mm	1x1.5	4	36
	Coastal Colour	<i>Correa alba</i> 'Ivory Bells'	Correa	400mm	2x2	4	36
	Natural	<i>Metrosideros collina</i> 'Velvet Sky'	Callistemon	400mm	3x2	4	36
PL3 - PLANT TYPE 3 (3m²)							
	Traditional	<i>Acmena smithii</i> 'Hedgemaster'	Dwarf Lilly Pilly	200mm	1x1.5	4	12
	Coastal Colour	<i>Hardenberghia violacea</i> 'Meema'	Purple coral pea	200mm	0.5x2	4	12
	Natural	<i>Russelia equisetiformis</i>	Fire cracker plant	200mm	1x2	4	12
PL5 - PLANT TYPE 5 (2m²)							
	Traditional	<i>Grevillea</i> 'Raptor'	Grevillea	200mm	0.3x1.5	4	8
	Coastal Colour	<i>Scaevola</i> 'Pink fusion'	Pink fan flower	200mm	0.3x1.5	4	8
	Natural	<i>Myoporum</i> 'Yareena'	Creeping boobialla	200mm	0.3x4	4	8
PL7 - PLANT TYPE 7 (6m²)							
	Traditional	<i>Plectranthus parviflorus</i> 'Blue spires'	Spur flower	200mm	0.3x0.4	4	35
	Coastal Colour	<i>Prostanthera sieberi</i>	Minty flower	200mm	1x0.75	4	35
	Natural	<i>Banksia</i> 'Birthday Candles'	Banksia	200mm	0.3x1	4	35

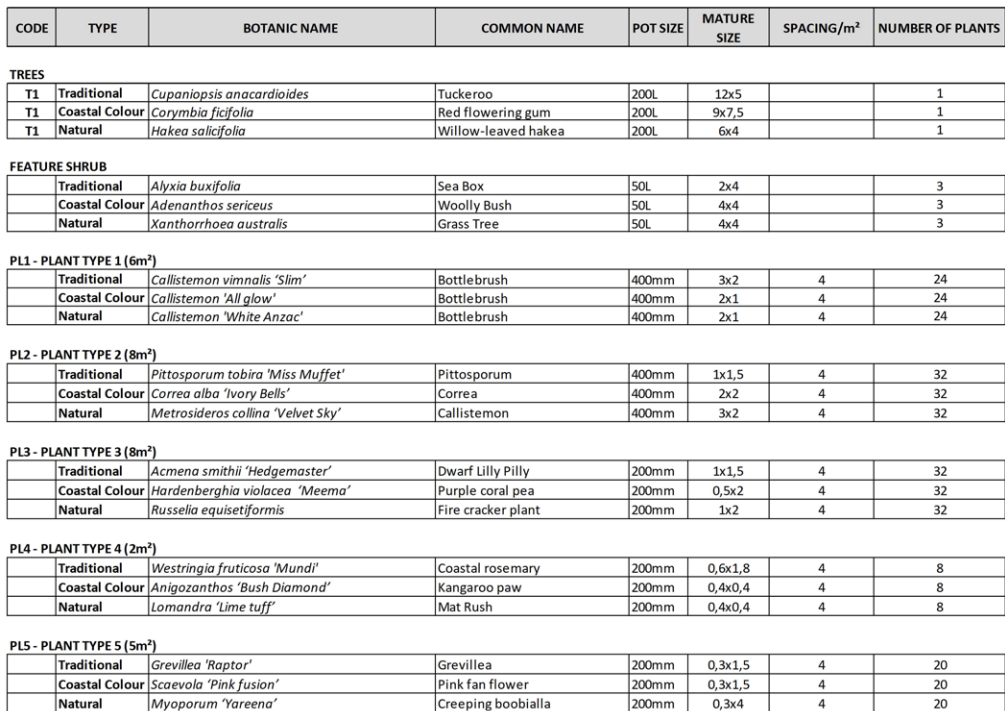
CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
PL8 - PLANT TYPE 8 (9m²)							
	Traditional	<i>Dampiera diversifolia</i>	Dampiera	100mm	Spreading	4	36
	Coastal Colour	<i>Viola hederacea</i>	Native violet	100mm	Spreading	4	36
	Natural	<i>Scleranthus biflorus</i>	Knawel	100mm	Spreading	4	36
PL9 - PLANT TYPE 9 (2m²)							
	Traditional	<i>Rhaphis excelsa</i>	Broad leaf lady palm	400mm	4x3	4	5
	Coastal Colour	<i>Alpinia caerulea</i>	Red black Austrian ginger	400mm	2x1	4	5
	Natural	<i>Howea forsteriana</i>	Kentia palm	400mm	4x1	4	5

- NOTES:
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 - Side Fencing extent is indicative only - dependent on location of adjacent site. Fencing to sides of the site boundary is only required where there is no adjacent House.
 - For level information refer to indicative landscape section to be read in conjunction with Architectural information and Civil levels.
 - For Retaining wall details refer to Civil documentation.

LEGEND:	
Trees	
	Traditional: <i>Cupaniopsis anacardioides</i> OR Coastal Colour: <i>Corymbia ficifolia</i> OR Natural: <i>Hakea salicifolia</i>
Shrubs and Ground Covers	
	Traditional: <i>Callistemon viminalis</i> 'Slim' OR Coastal Colour: <i>Callistemon</i> 'All glow' OR Natural: <i>Callistemon</i> 'White Anzac'
	Traditional: <i>Pittosporum tobira</i> 'Miss Muffet' OR Coastal Colour: <i>Correa alba</i> 'Ivory bells' OR Natural: <i>Metrosideros collina</i> 'Velvet sky'
	Traditional: <i>Dianella</i> 'Breeze' OR Coastal Colour: <i>Hardenberghia violacea</i> 'Meema' OR Natural: <i>Russelia equisetiformis</i>
	Traditional: <i>Grevillea</i> 'Raptor' OR Coastal Colour: <i>Scaevola</i> 'Pink Fusion' OR Natural: <i>Myoporum</i> 'Yareena'
	Traditional: <i>Plectranthus parviflorus</i> 'Blue Spires' OR Coastal Colour: <i>Prostanthera sieberi</i> OR Natural: <i>Banksia</i> 'Birthday Candles'
	Traditional: <i>Dampiera diversifolia</i> OR Coastal Colour: <i>Viola hederacea</i> OR Natural: <i>Scleranthus biflorus</i>
	Traditional: <i>Rhaphis excelsa</i> OR Coastal Colour: <i>Alpinia caerulea</i> OR Natural: <i>Howea forsteriana</i>

Hard Landscape	
	Boundary
	Paving Type 1 Coloured concrete or similar
	Paving Type 2 Stepping stones
	Paving Type 3 30-40mm Pebble, color: Natural Brown
	Paving Type 4 Brushed Concrete
	Fence Type 1 Full Panel Colorbond Metal Fencing
	Gate Metal Slats
	Clothes Line Refer Architect's Details
	Steel Garden Edging
	Artificial Lawn

11.1 Planting Plan & Schedule | Type 3



PL8 - PLANT TYPE 8 (5m ²)							
	Traditional	<i>Dampiera diversifolia</i>	Dampiera	200mm	Spreading	4	20
	Coastal Colour	<i>Viola hederacea</i>	Native violet	200mm	Spreading	4	20
	Natural	<i>Scleranthus biflorus</i>	Knawel	200mm	Spreading	4	20

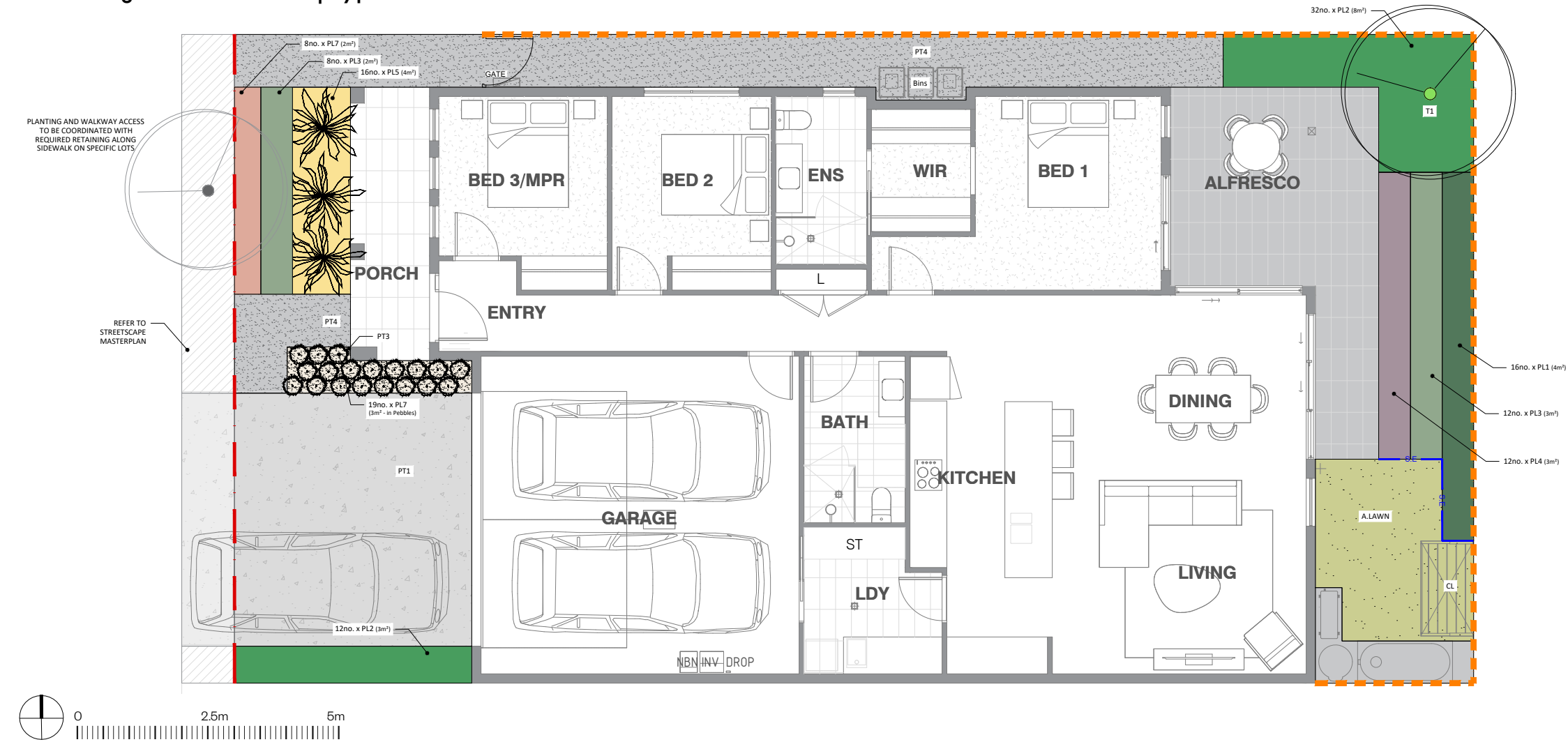
1. For each property type, the purchaser has the choice between 3 styles of planting as outlined in the Plant Palette - Traditional, Coastal Colour or Nature.
2. Side Fencing extent is indicative only - dependent on location of adjacent site. Fencing to sides of the site boundary is only required where there is no adjacent House.
3. For level information refer to indicative landscape section to be read in conjunction with Architectural information and Civil levels.
4. For Retaining wall details refer to Civil documentation.

Feature Shrub	
	Traditional: <i>Alyxia buxifolia</i> OR Coastal Colour: <i>Adenanthos sericeus</i> OR Natural: <i>Xanthorrhoea australis</i>

HALCYON FOREST REACH LANDSCAPE DA REPORT

Typical Lot Gardens

11.1 Planting Plan & Schedule | Type 4



CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
TREES							
T1	Traditional	<i>Cupaniopsis anacardioides</i>	Tuckeroo	200L	12x5		1
T1	Coastal Colour	<i>Corymbia ficifolia</i>	Red flowering gum	200L	9x7,5		1
T1	Natural	<i>Hakea salicifolia</i>	Willow-leaved hakea	200L	6x4		1
FEATURE SHRUB							
	Traditional	<i>Alyxia buxifolia</i>	Sea Box	50L	2x4		2
	Coastal Colour	<i>Adenanthos sericeus</i>	Woolly Bush	50L	4x4		2
	Natural	<i>Xanthorrhoea australis</i>	Grass Tree	50L	4x4		2
PL1 - PLANT TYPE 1 (12m²)							
	Traditional	<i>Callistemon viminalis 'Slim'</i>	Bottlebrush	400mm	3x2	4	48
	Coastal Colour	<i>Callistemon 'All glow'</i>	Bottlebrush	400mm	2x1	4	48
	Natural	<i>Callistemon 'White Anzac'</i>	Bottlebrush	400mm	2x1	4	48
PL2 - PLANT TYPE 2 (8m²)							
	Traditional	<i>Pittosporum tobira 'Miss Muffet'</i>	Pittosporum	400mm	1x1,5	4	32
	Coastal Colour	<i>Correa alba 'Ivory Bells'</i>	Correa	400mm	2x2	4	32
	Natural	<i>Metrosideros collina 'Velvet Sky'</i>	Callistemon	400mm	3x2	4	32
PL3 - PLANT TYPE 3 (13m²)							
	Traditional	<i>Acmena smithii 'Hedgemaster'</i>	Dwarf Lilly Pilly	200mm	1x1,5	4	52
	Coastal Colour	<i>Hardenbergia violacea 'Meema'</i>	Purple coral pea	200mm	0,5x2	4	52
	Natural	<i>Russelia equisetiformis</i>	Fire cracker plant	200mm	1x2	4	52
PL4 - PLANT TYPE 4 (7m²)							
	Traditional	<i>Westringia fruticosa 'Mundi'</i>	Coastal rosemary	200mm	0,6x1,8	4	28
	Coastal Colour	<i>Anigozanthos 'Bush Diamond'</i>	Kangaroo paw	200mm	0,4x0,4	4	28
	Natural	<i>Lomandra 'Lime tuff'</i>	Mat Rush	200mm	0,4x0,4	4	28
PL5 - PLANT TYPE 5 (9m²)							
	Traditional	<i>Grevillea 'Raptor'</i>	Grevillea	200mm	0,3x1,5	4	36
	Coastal Colour	<i>Scaevola 'Pink fusion'</i>	Pink fan flower	200mm	0,3x1,5	4	36
	Natural	<i>Myoporum 'Yareena'</i>	Creeping boobialla	200mm	0,3x4	4	36
PL7 - PLANT TYPE 7 (3m²)							
	Traditional	<i>Plectranthus parviflorus 'Blue spires'</i>	Spur flower	200mm	0,3x0,4	4	12
	Coastal Colour	<i>Prostanthera sieberi</i>	Minty flower	200mm	1x0,75	4	12
	Natural	<i>Banksia 'Birthday Candles'</i>	Banksia	200mm	0,3x1	4	12

- NOTES:
- For each property type, the purchaser has the choice between 3 styles of planting as outlined in the Plant Palette - Traditional, Coastal Colour or Nature.
 - Side Fencing extent is indicative only - dependent on location of adjacent site. Fencing to sides of the site boundary is only required where there is no adjacent House.
 - For level information refer to indicative landscape section to be read in conjunction with Architectural information and Civil levels.
 - For Retaining wall details refer to Civil documentation.

LEGEND:	
Trees	
T1	Traditional: <i>Cupaniopsis anacardioides</i> OR Coastal Colour: <i>Corymbia ficifolia</i> OR Natural: <i>Hakea salicifolia</i>

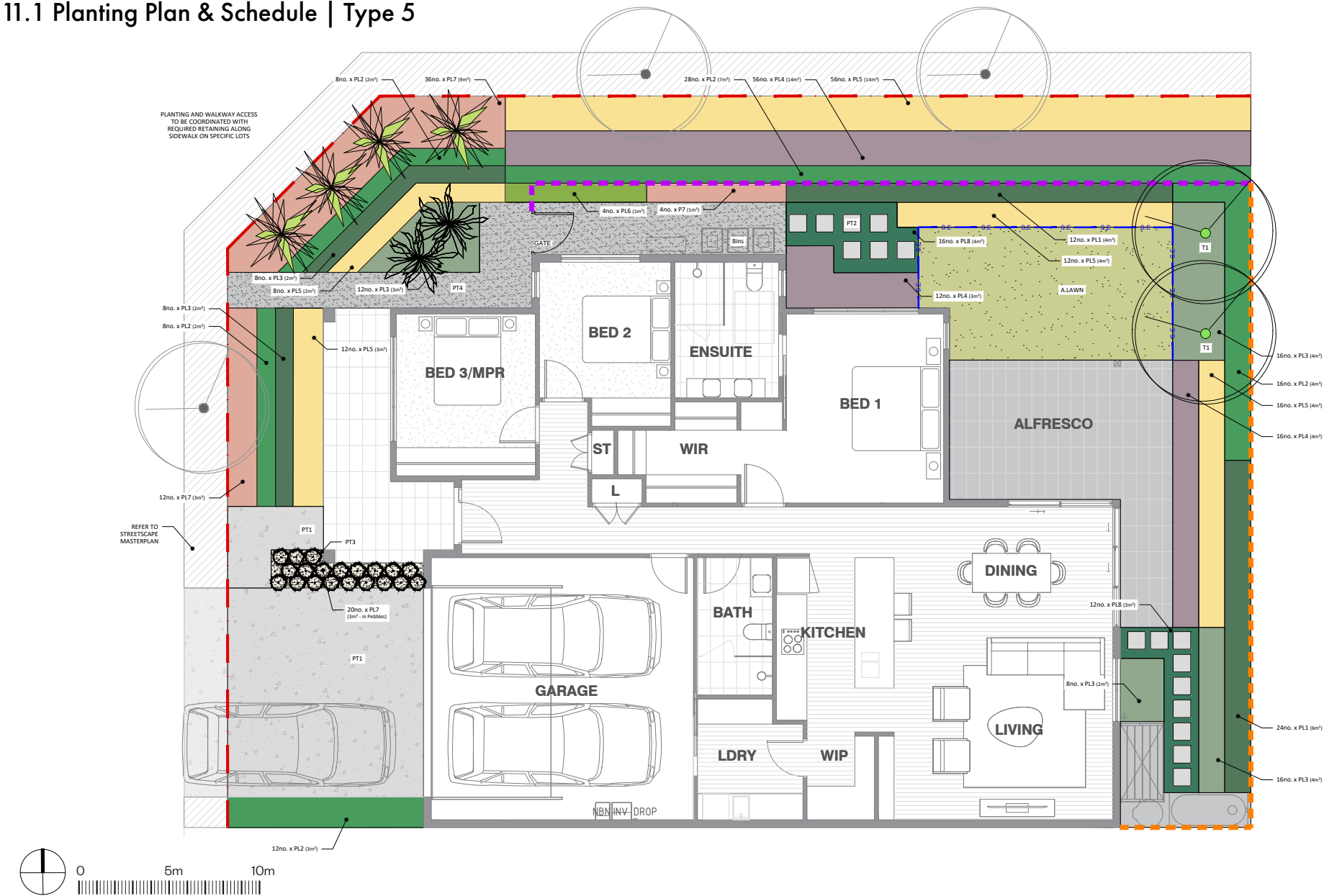
Shrubs and Ground Covers	
PL1	Traditional: <i>Callistemon viminalis 'Slim'</i> OR Coastal Colour: <i>Callistemon 'All glow'</i> OR Natural: <i>Callistemon 'White Anzac'</i>
PL2	Traditional: <i>Pittosporum tobira 'Miss Muffet'</i> OR Coastal Colour: <i>Correa alba 'Ivory bells'</i> OR Natural: <i>Metrosideros collina 'Velvet sky'</i>
PL3	Traditional: <i>Dianella 'Breeze'</i> OR Coastal Colour: <i>Hardenbergia violacea 'Meema'</i> OR Natural: <i>Russelia equisetiformis</i>
PL4	Traditional: <i>Westringia fruticosa 'Mundi'</i> OR Coastal Colour: <i>Anigozanthos 'Bush diamond'</i> OR Natural: <i>Grevillea rhyolitica x juniperina 'Cherry cluster'</i>
PL5	Traditional: <i>Grevillea 'Raptor'</i> OR Coastal Colour: <i>Scaevola 'Pink Fusion'</i> OR Natural: <i>Myoporum 'Yareena'</i>
PL7	Traditional: <i>Plectranthus parviflorus 'Blue Spires'</i> OR Coastal Colour: <i>Prostanthera sieberi</i> OR Natural: <i>Banksia 'Birthday Candles'</i>

Feature Shrub	
	Traditional: <i>Alyxia buxifolia</i> OR Coastal Colour: <i>Adenanthos sericeus</i> OR Natural: <i>Xanthorrhoea australis</i>

Hard Landscape	
	Boundary
PT1	Paving Type 1 Coloured concrete or similar
PT3	Paving Type 3 30-40mm Pebble, color: Natural Brown
PT4	Paving Type 4 Brushed Concrete
	Fence Type 1 Full Panel Colorbond Metal Fencing
	Gate Metal Slats
CL	Clothes Line Refer Architect's Details
S.E	Steel Garden Edging
A.LAWN	Artificial Lawn

Typical Lot Gardens

11.1 Planting Plan & Schedule | Type 5



CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
TREES							
T1	Traditional	Cupaniopsis anacardioides	Tuckeroo	200L	12x5		2
T1	Coastal Colour	Corymbia ficifolia	Red flowering gum	200L	9x7,5		2
T1	Natural	Hakea salicifolia	Willow-leaved hakea	200L	6x4		2
FEATURE SHRUB							
	Traditional	Alyxia buxifolia	Sea Box	SOL	2x4		2
	Coastal Colour	Adenanthos sericeus	Woolly Bush	SOL	4x4		2
	Natural	Xanthorrhoea australis	Grass Tree	SOL	4x4		2
FEATURE STREET SHRUB							
	Traditional	Acmena smithii	Common lilly pilly	400mm	5x3	1	4
	Coastal Colour	Leptospermum laevigatum	Australian myrtle	400mm	2x8	1	4
	Natural	Grevillea 'Moonlight'	Grevillea	200mm	3x2	1	4
PL1 - PLANT TYPE 1 (12m²)							
	Traditional	Callistemon viminalis 'Slim'	Bottlebrush	400mm	3x2	4	48
	Coastal Colour	Callistemon 'All glow'	Bottlebrush	400mm	2x1	4	48
	Natural	Callistemon 'White Anzac'	Bottlebrush	400mm	2x1	4	48
PL2 - PLANT TYPE 2 (8m²)							
	Traditional	Pittosporum tobira 'Miss Muffet'	Pittosporum	400mm	1x1,5	4	32
	Coastal Colour	Correa alba 'Ivory Bells'	Correa	400mm	2x2	4	32
	Natural	Metrosideros collina 'Velvet Sky'	Callistemon	400mm	3x2	4	32
PL3 - PLANT TYPE 3 (13m²)							
	Traditional	Acmena smithii 'Hedgemaster'	Dwarf Lilly Pilly	200mm	1x1,5	4	52
	Coastal Colour	Hardenbergia violacea 'Meema'	Purple coral pea	200mm	0,5x2	4	52
	Natural	Russelia equisetiformis	Fire cracker plant	200mm	1x2	4	52

CODE	TYPE	BOTANIC NAME	COMMON NAME	POT SIZE	MATURE SIZE	SPACING/m²	NUMBER OF PLANTS
PL4 - PLANT TYPE 4 (7m²)							
	Traditional	Westringia fruticosa 'Mundi'	Coastal rosemary	200mm	0,6x1,8	4	28
	Coastal Colour	Anigozanthos 'Bush Diamond'	Kangaroo paw	200mm	0,4x0,4	4	28
	Natural	Lomandra 'Lime tuff'	Mat Rush	200mm	0,4x0,4	4	28
PL5 - PLANT TYPE 5 (9m²)							
	Traditional	Grevillea 'Raptor'	Grevillea	200mm	0,3x1,5	4	36
	Coastal Colour	Scaevola 'Pink fusion'	Pink fan flower	200mm	0,3x1,5	4	36
	Natural	Myoporum 'Yareena'	Creeping boobialla	200mm	0,3x4	4	36
PL6 - PLANT TYPE 6 (2m²)							
	Traditional	Dianella caerulea	Dianella	200mm	0,5x0,5	4	8
	Coastal Colour	Boronia serrulata	Native rose	200mm	0,4x1	4	8
	Natural	Leucophyta brownii	Cushion bush	200mm	0,75x0,75	4	8
PL7 - PLANT TYPE 7 (3m²)							
	Traditional	Plectranthus parviflorus 'Blue spires'	Spur flower	200mm	0,3x0,4	4	12
	Coastal Colour	Prostanthera sieberi	Minty flower	200mm	1x0,75	4	12
	Natural	Banksia 'Birthday Candles'	Banksia	200mm	0,3x1	4	12

- NOTES:
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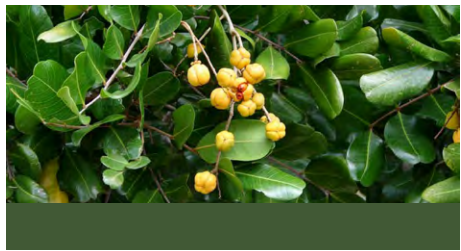
	Traditional:	Cupaniopsis anacardioides OR
	Coastal Colour:	Corymbia ficifolia OR
	Natural:	Hakea salicifolia

	Traditional:	Callistemon viminalis 'Slim' OR
	Coastal Colour:	Callistemon 'All glow' OR
	Natural:	Callistemon 'White Anzac'
	Traditional:	Pittosporum tobira 'Miss Muffet' OR
	Coastal Colour:	Correa alba 'Ivory bells' OR
	Natural:	Metrosideros collina 'Velvet sky'
	Traditional:	Dianella 'Breeze' OR
	Coastal Colour:	Hardenbergia violacea 'Meema' OR
	Natural:	Russelia equisetiformis
	Traditional:	Westringia fruticosa 'Mundi' OR
	Coastal Colour:	Anigozanthos 'Bush diamond' OR
	Natural:	Grevillea rhyolitica x juniperina 'Cherry cluster'
	Traditional:	Grevillea 'Raptor' OR
	Coastal Colour:	Scaevola 'Pink Fusion' OR
	Natural:	Myoporum 'Yareena'
	Traditional:	Dianella caerulea OR
	Coastal Colour:	Boronia serrulata OR
	Natural:	Leucophyta brownii
	Traditional:	Plectranthus parviflorus 'Blue Spires' OR
	Coastal Colour:	Prostanthera sieberi OR
	Natural:	Banksia 'Birthday Candles'
	Traditional:	Dampiera diversifolia OR
	Coastal Colour:	Viola hederacea OR
	Natural:	Scleranthus biflorus

	Traditional:	Alyxia buxifolia OR
	Coastal Colour:	Adenanthos sericeus OR
	Natural:	Xanthorrhoea australis
	Traditional:	Acmena smithii OR
	Coastal Colour:	Leptospermum laevigatum OR
	Natural:	Grevillea 'Moonlight'

Typical Lot Gardens
11.2 Plant Palette - Traditional

TREES



Cupaniopsis anacardioides
Tuckeroo

FEATURE SHRUB

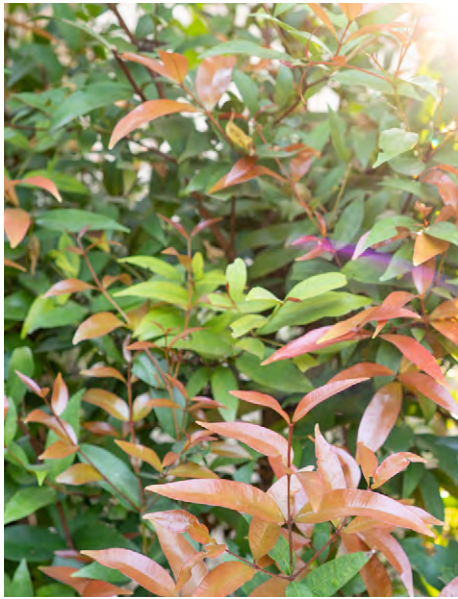


Alyxia buxifolia
Sea box

SHRUBS



Callistemon vimnalis 'Slim'
Bottlebrush



Acmena smithii 'Hedgemaster'
Dwarf Lilly Pilly



Pittosporum 'Miss Muffet'
Miss Muffet Pittosporum



Rhaps excelsa
Lady palm



Acmena smithii
Common Lilly Pilly

GROUNDCOVERS AND GRASSES



Grevillea 'Raptor'
Grevillea



Dianella caerulea
Dianella



Plectranthus parviflorus 'Blue spires'
Spur flower



Dampiera diversifolia
Dampiera



Westringia fruticosa 'Mundi'
Coast rosemary

Typical Lot Gardens
11.2 Plant Palette - Coastal Colour

TREES



Corymbia ficifolia
Red flowering gum

FEATURE SHRUB

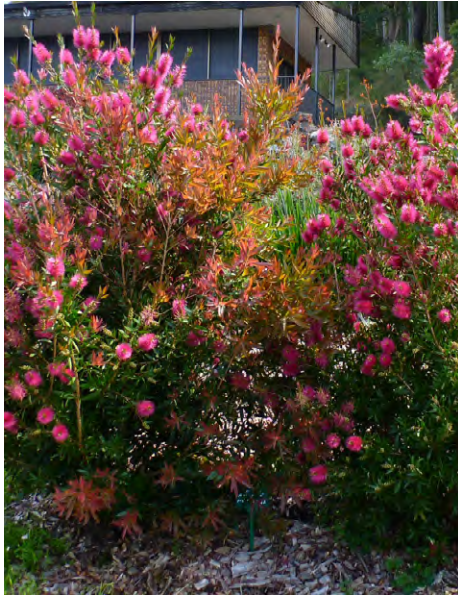


Adenanthos sericeus
Woolly bush

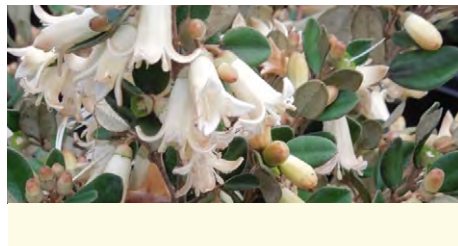


Leptospermum laevigatum
Coast Tea Tree

SHRUBS



Callistemon 'All glow'
Bottle brush

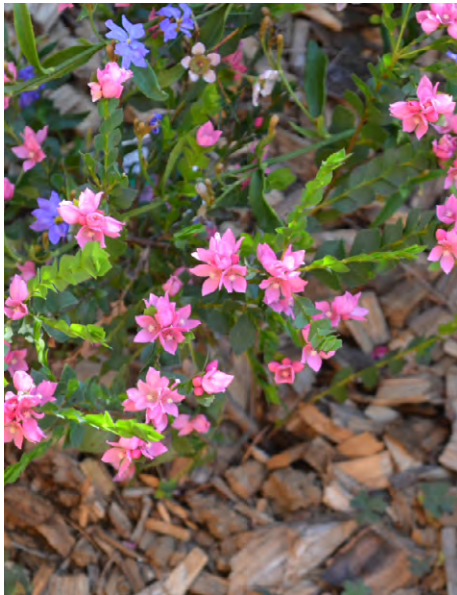


Correa 'Ivory Bells'
Correa



Alpinia caerulea 'Red black'
Red black Australian ginger

GROUNDCOVERS AND GRASSES



Boronia serrulata
Native rose



Prostanthera sieberi
Minty flower



Viola hederacea
Australian violet



Hardenbergia violacea
'Meema'
Purple coral pea



Scaevola 'Pink fusion'
Pink fan flower



Anigozanthos 'Bush Diamond'
Kangaroo paw

Typical Lot Gardens
11.2 Plant Palette - Natural

TREES



Hakea salicifolia
Willow-leaved hakea

FEATURE SHRUB



Xanthorrhoea australis
Grass tree



Grevillea 'Moonlight'
Grass tree

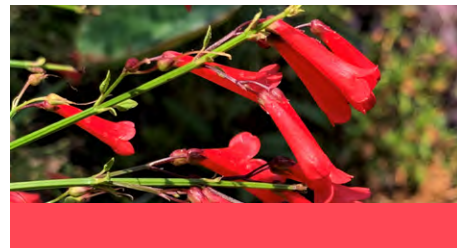
SHRUBS



Callistemon 'White Anzac'
Bottlebrush



Metrosideros collina 'Velvet Sky'
Christmas bush



Russelia equisetiformis
Firecracker plant

GROUNDCOVERS AND GRASSES



Lomandra 'Lime tuff'
Mat Rush



Leucophyta brownii
Cushion Bush



Howea forsteriana
Kentia palm



Scleranthus biflorus
Cushion Bush



Myoporum 'Yareena'
Creeping boobialla

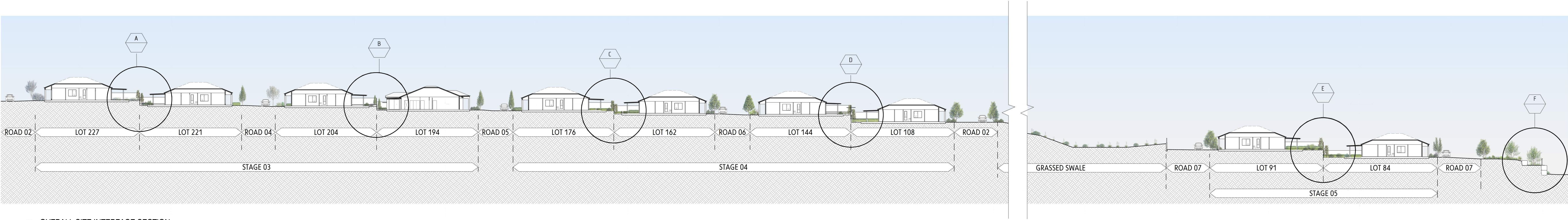


Banksia 'Birthday Candles'
Banksia

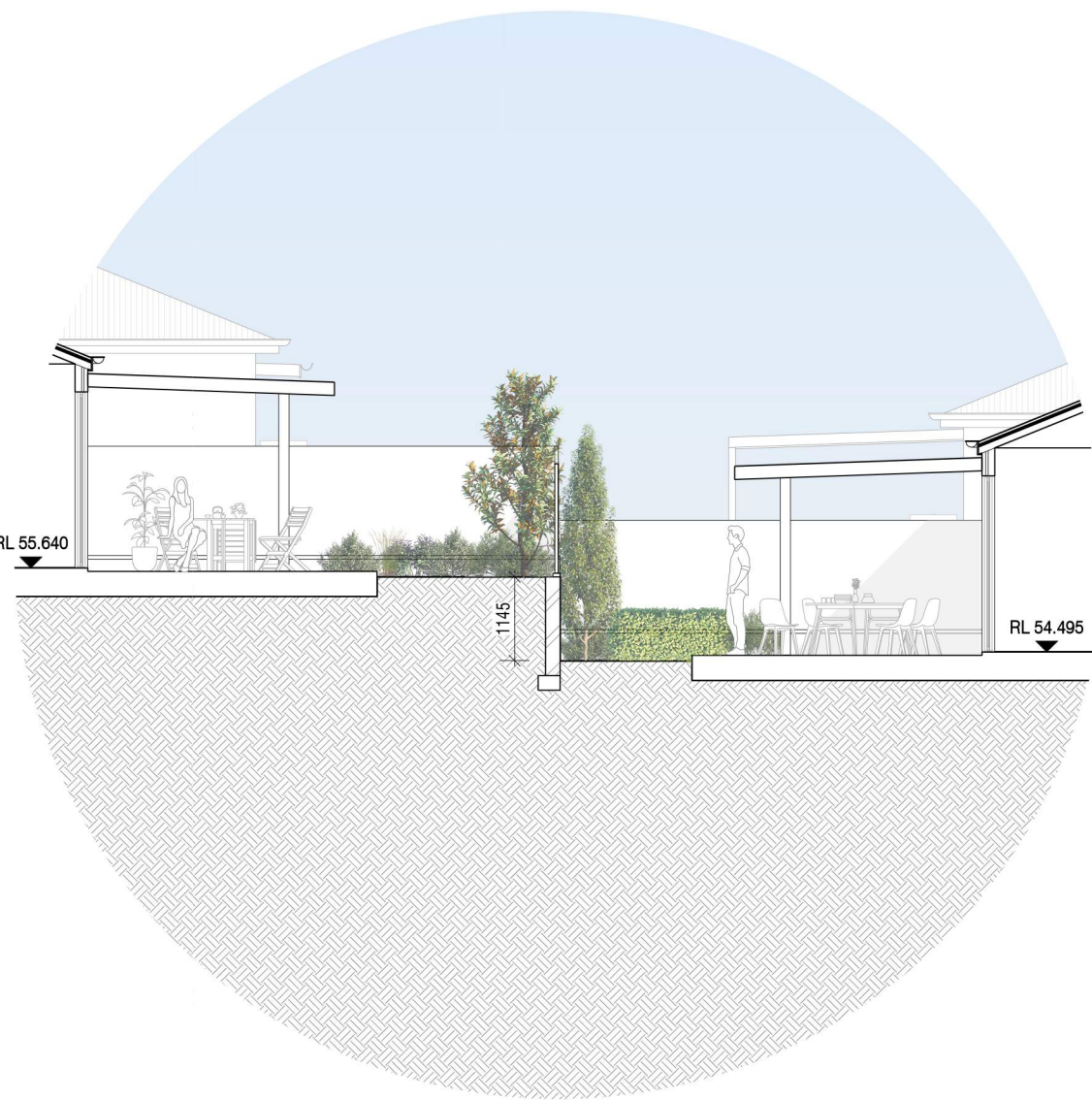
ATTACHMENT 5 - OVERALL SITE INTERFACE SECTION



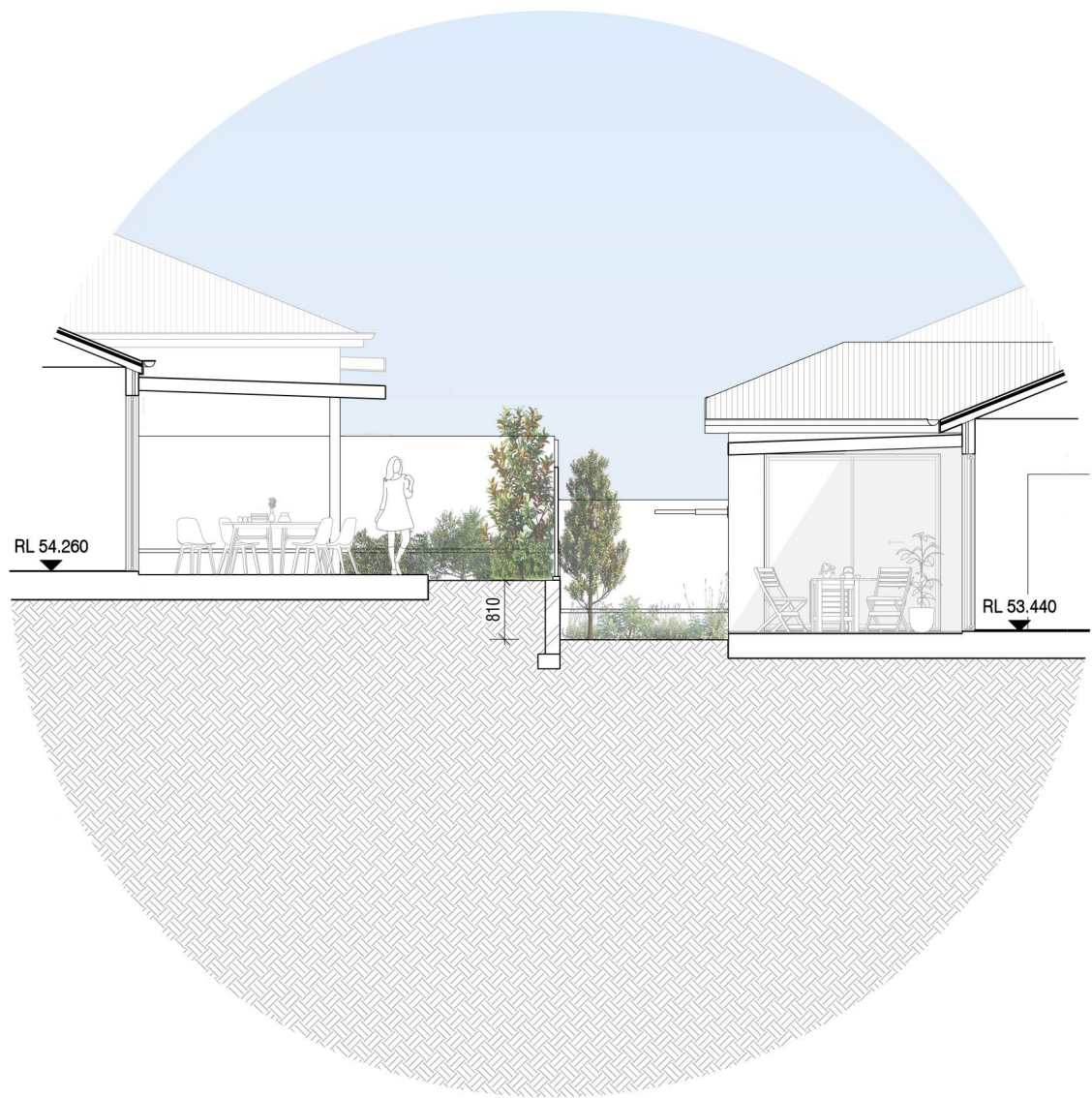
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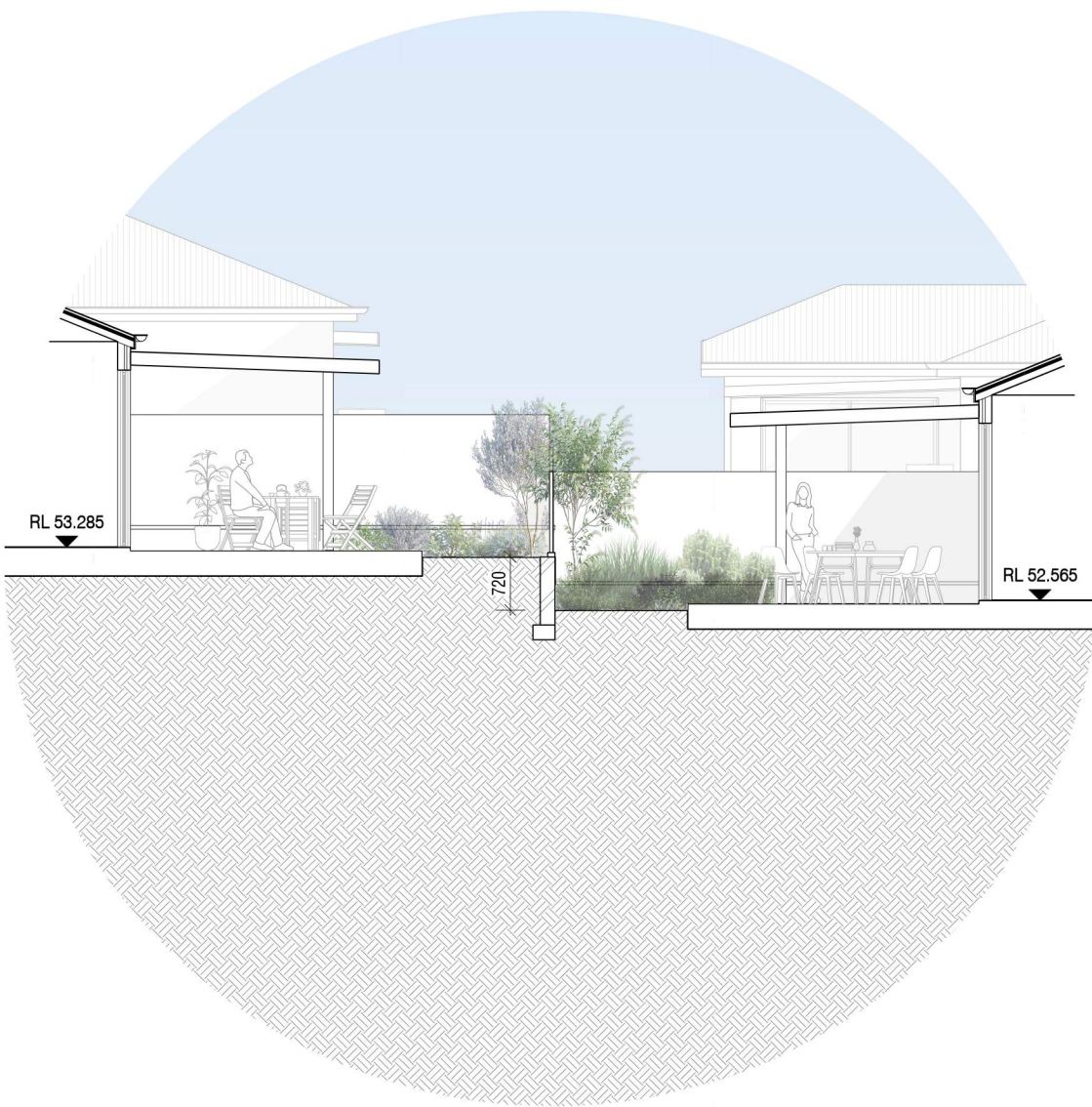
1 OVERALL SITE INTERFACE SECTION
SCALE: 1 : 500



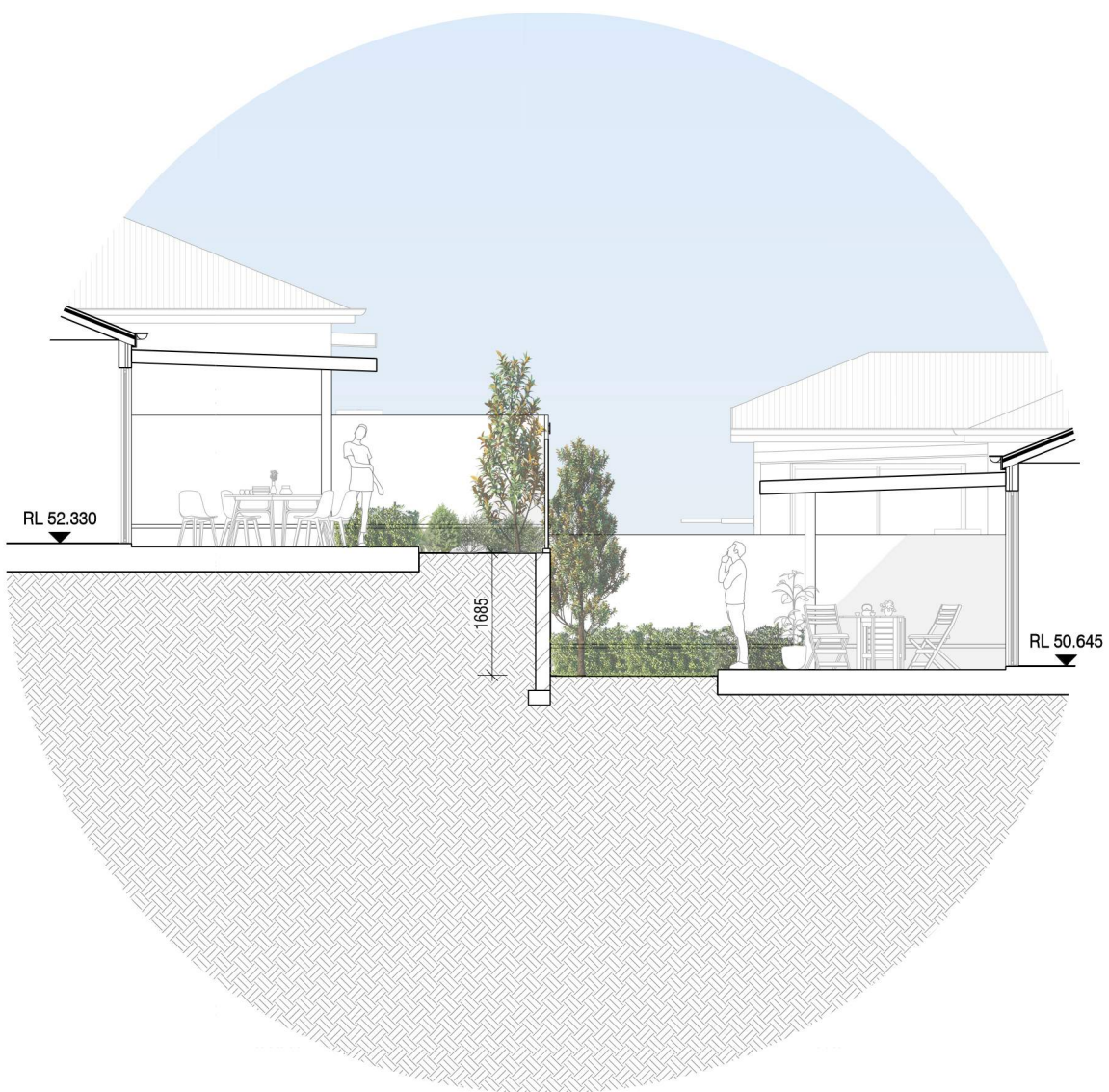
A SITE INTERFACE SECTION - STAGE 3 - LOT 227 & LOT 221
SCALE: 1 : 100



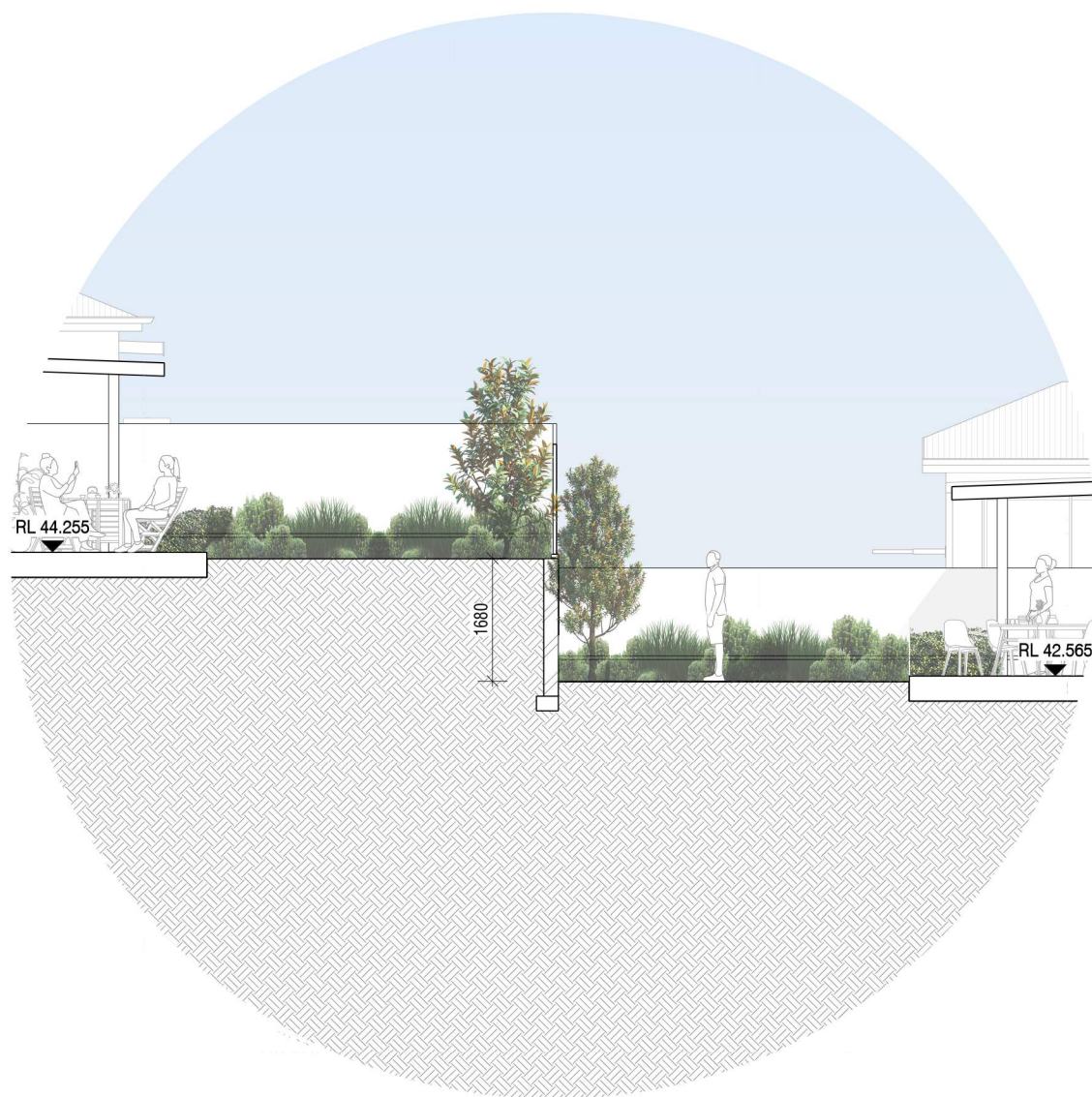
B SITE INTERFACE SECTION - STAGE 3 - LOT 204 & LOT 194
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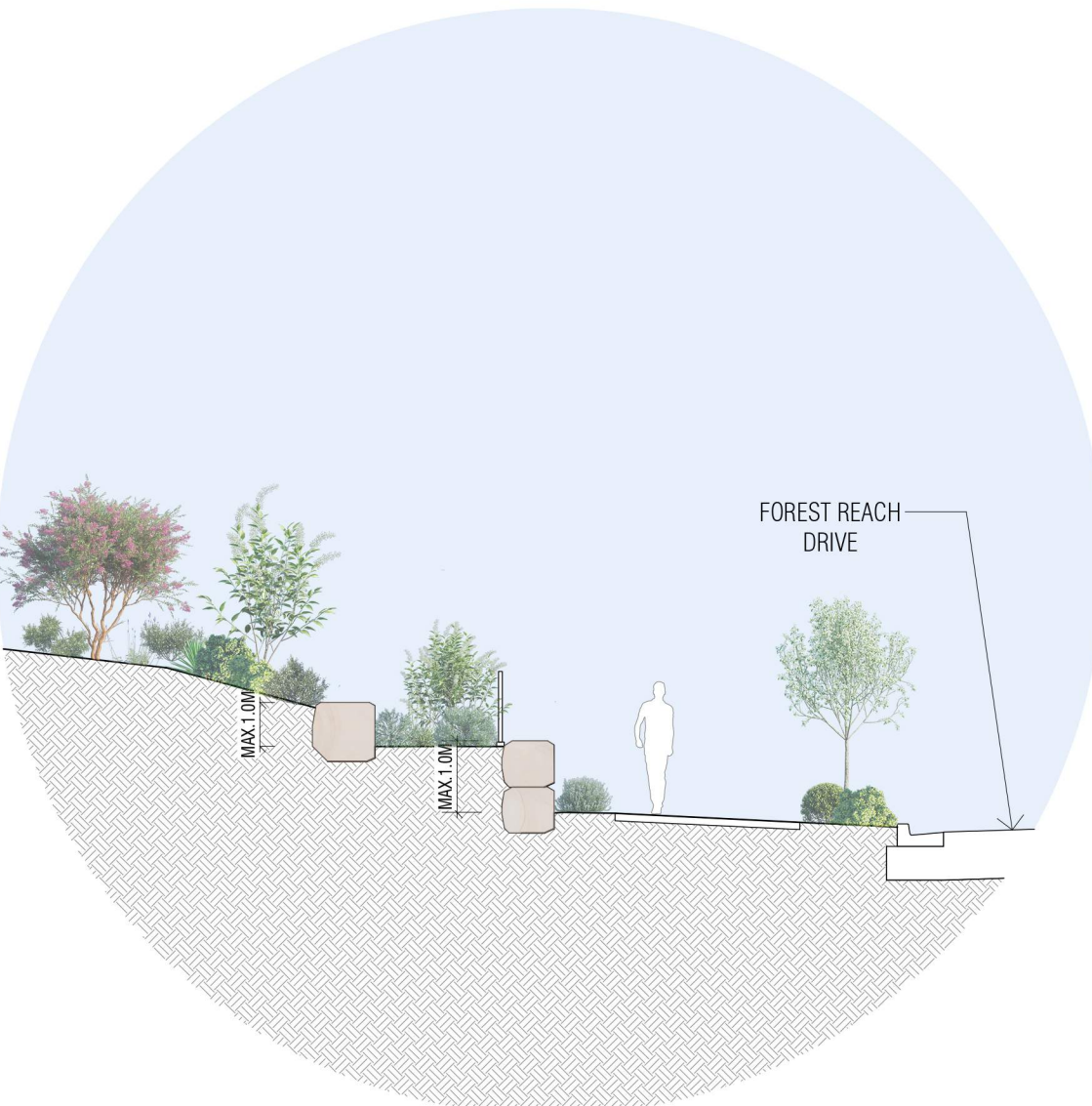
C SITE INTERFACE SECTION - STAGE 4 - LOT 176 & LOT 162
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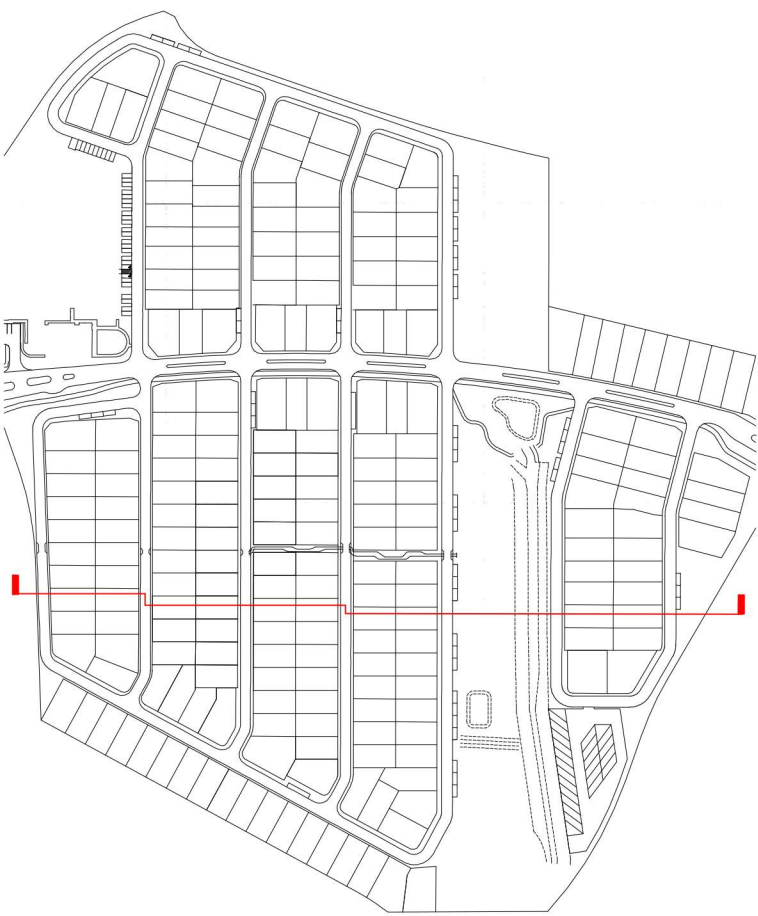
D SITE INTERFACE SECTION - STAGE 4 - LOT 144 & LOT 108
SCALE: 1 : 100



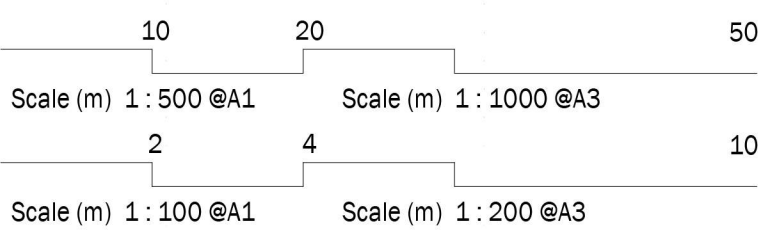
E SITE INTERFACE SECTION - STAGE 5 - LOT 91 & LOT 84
SCALE: 1 : 100



F SITE INTERFACE SECTION - STAGE 5 - FOREST REACH DRIVE INTERFACE
SCALE: 1 : 100



Rev.	Date	Amendment	By	Chk.
A	11/06/25	ISSUED FOR COORDINATION	RH	AVID
B	12/06/25	RFI ISSUE	RH	AVID
C	16/06/25	RFI ISSUE	RH	AVID



Drawing Title:
OVERALL SITE INTERFACE SECTION

Drawing Number:
STO131_SK002

Drawn: TT
Approved: RH
Date: 11/06/25
A1 Scale: As indicated
Revision: C



16 June 2025

Southern Regional Planning Panel

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Web: www.makereng.com.au

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ABN: 50 628 452 719 ACN: 628 452 719

Attention: Southern Regional Planning Panel

Dear Sir/Madam

DA-2023/849 – Halcyon Forest Reach Community- Bong Bong Road Huntley

Subject: Updated Water Cycle Management Strategy Outcomes following adoption of the 2023 MCFRMS

Wollongong City Council (Council) have identified that the Water Cycle Management Study (WCMS) prepared for the above development application (DA) for the proposed Halcyon Forest Reach Community (The Site) did not reference Council's latest 2023 Mullet Creek Floodplain Risk Management Study and Plan (FRMS&P).

Maker have been engaged to assess the impact of the revised procedures within the FRMS&P on the WCMS. This report supplements the WCMS by identifying the key changes in the FRMS&P and providing technical analysis of the results achieved using the latest study for the proposed works at the development site. Modelling was undertaken to determine the effect of the FRMS&P on the proposed development.

As set out in this report, the incorporation of the FRMS&P does not have a materially adverse affect on the flood impacts or liability of the proposed development. In some cases, the flood liability of the Site improves as a result of applying the FRMS&P inputs. Therefore, Maker is of the view that the WCMS, when read together with this supplementary report, indicates that there is an acceptable level of flood risk associated with the proposed development and there is no basis to refuse the development due to flooding issues.

BACKGROUND

The Site is subject to multiple previous DA approvals, specifically, DA 673/2020 (masterplanned community to the south), DA 2021/1401 (site wide bulk earthworks) and DA 2023/19 (masterplanned community to the west). The most recent of these approvals is illustrated below in **Figure 1**.

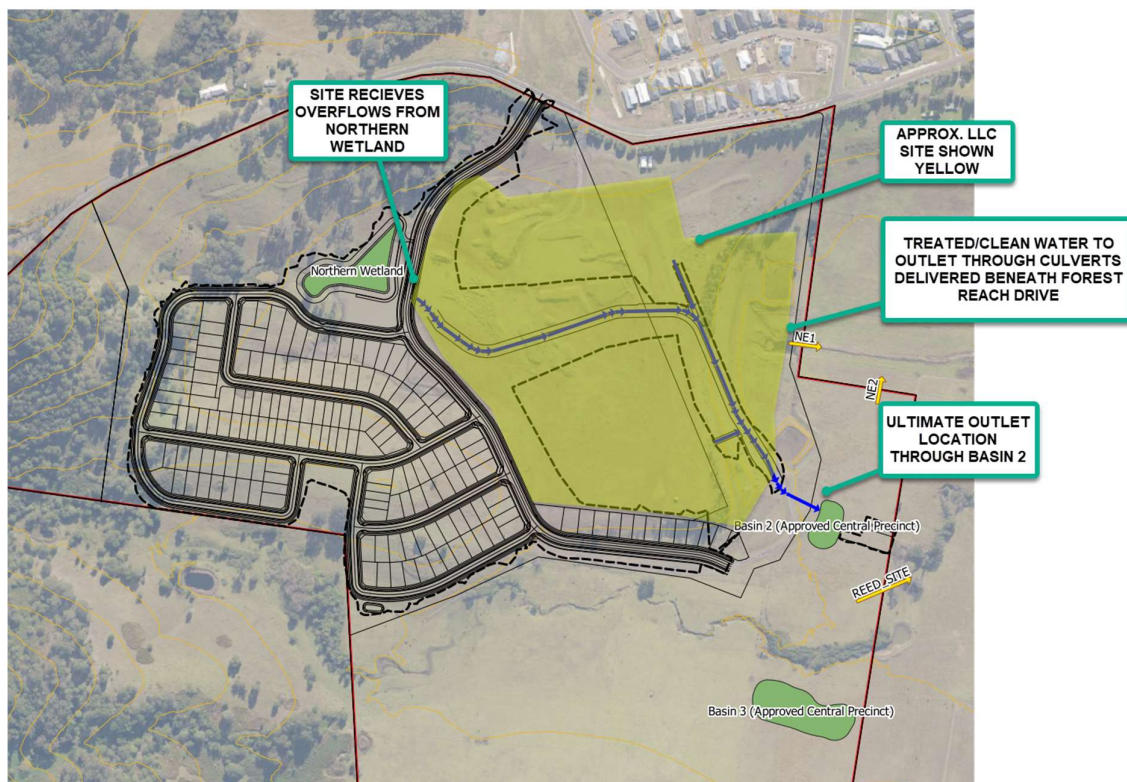


Figure 1 Approved WCMS DA 2023/19 – 8th March 2024

As illustrated in Figure 1, these prior approvals by Council deliver most of the flooding infrastructure related to this site, all of which is currently being constructed as part of the precinct bulk earthworks (DA 2021/1401), and civil works (DA 2023/19). Respective WCMS' and flood modelling historically utilised the 2018 Mullet Creek Flood Study. This analysis does not assess the flooding impacts caused by the changed flood model to any existing or approved infrastructure or strategies modelled using the previous 2018 Flood Study.

In addition to the WCMS, Maker provided a written response dated 9 May 2025 to questions raised by Council in relation to flooding matters. This letter was provided to the Panel prior to its meeting on 21 May 2025. The letter foreshadowed the preparation of further information by Maker arising from its detailed review and analysis of the FRMS&P.

The Panel deferred the determination of the proposed development on 21 May 2025, in part to allow this additional flood modelling information to be prepared.

This supplementary report provides that additional flood modelling information.



KEY CHANGES IN FRMS&P COMPARED TO PRIOR COUNCIL STUDIES

The key changes to the FRMS&P from prior Mullet Creek and Brooks Reach catchment studies undertaken by council are:

- The adoption of new hydrological procedures in line with Australian Rainfall and Runoff, which at that time was ARR2019; and
- Adoption and assessment of a Defined Flood Event (DFE), which is no longer considered to be the 1% AEP but is the 1% AEP with 16.3% increased rainfall and 0.9m increase for Sea Level Rise, to include an allowance for the predicted changes due to Climate Change.

The FRMS&P also included updates to the hydraulic component of the flood model, with some updates to the physical characteristics of the wider catchment and the modelling procedures. However, these are minimal with generally no changes in the hydraulic modelling within the vicinity of Forest Reach, including the Site and surrounding areas.

Specific changes are discussed in further detail below.

Hydrologic Modelling

In accordance with the hydrological setup of the FRMS&P, the Watershed Bounded Network Model (Boyd et al, 2019) (WBNM) was adopted for this supplementary assessment in conjunction with Storm Injector (V1.3.5, Catchment Simulation Solutions) for the hydrological modelling of the study area. Hydrological model files were sourced from the SES flood data portal for direct implementation in this assessment.

All modelling parameters and rainfall IFD's adopted within the hydrological model were in accordance with the FRMS&P, as required by the Mullet Creek Flood Model User Guidelines (2024).

Hydraulic Modelling

Hydraulic modelling was undertaken using the FRMS&P TUFLOW model. The base model was updated in a number of ways, to ensure its accurate representation of features that have changed since the release of the FRMS&P, including the following:

- Removal of the 1D network representation of Reed Creek within the Site
- Addition of terrain modifiers including design tins for the Site and adjoining development
- Updated materials files for the existing and proposed developments within the Site
- Inclusion of 1d networks, being the existing and proposed pipes throughout the Forest Reach precinct

Defined Flood Event

The 'Defined Flood Event' under the FRMS&P is a combination of the 1% AEP event, with climate change increases, conduit blockages and increased riparian roughness. Within this analysis, the DFE storm event was modelled in accordance with the FRMS&P by applying a factor of 16.3% increase to the 1% AEP rainfall data to simulate the rainfall increases due to climate change, then creating a matrix of results including an unblocked and blockage policy scenario with a standard roughness material and high riparian roughness scenario. These four scenarios create the DFE.

Complete DFE mapping is included within Appendix A.



Flood Risk Precinct Definition

The Flood Risk Precinct was calculated utilising the definitions shown in Table 1Error! Reference source not found. below. These definitions are as per those outlined within the FRMS&P.

Table 1 Flood Risk Precinct Definition

Hydraulic Category	Definition
High Flood Risk Precinct	Areas greater than H3 hazard in the DFE DFE floodways
Medium Flood Risk Precinct	Land not within the High flood risk precinct that is less than 0.5m above the DFE flood level
Low Flood Risk Precinct	The remainder of the floodplain defined by the PMF extent

ONSITE DETENTION

Onsite Detention (OSD) has historically been assessed as a precinct-wide strategy for Forest Reach, including the northern precinct, central precinct and the Site. As such, the impacts to OSD for the Site have been assessed using the same approach.

The OSD analysis was undertaken using WBNM which included the updated rainfall and loss factors from the FRMS&P, as set out above. Existing OSD is provided within the existing basins, the northern wetland and the central basin. One new local tank structure has been added at the eastern discharge point as a consequence of this supplementary analysis. No updates were required to be made to the northern wetland.

In order to maintain OSD requirements for the additional flows originating from the Site, the Central OSD basin is proposed to be updated with a new outlet configuration that includes: two culverts, one 2.4m x 0.6m culvert at RL38.2mAHD and one 0.9m x 0.6m culvert at RL39mAHD, as well as a reduced weir length to 8m. An outlet configuration sketch is included in Appendix B. It is proposed that these alterations to the current civil plans within the DA, which will have the effect of refining the design of the Central OSD basin as approved under DA 2020/673 and further modified under DA 2023/19, would be required as a condition of consent of the DA (see 'Conclusion' below).

The local structure is proposed as an underground tank requiring a total volume of 165m³ in the 1% storm event and a 400mm outlet pipe. This structure will be located wholly within the Site and will be privately owned and maintained by the proponent.

The results of the OSD analysis are summarised in Table 2 below.

Table 2 OSD Results Summary

Study location	Event	Existing Flows (m ³ /s)	Proposed Flows (m ³ /s)	Difference
East Discharge	20% AEP	0.554	0.408	-0.146
	10% AEP	0.718	0.691	-0.027



	5% AEP	1.27	1.214	-0.056
	2% AEP	2.957	2.09	-0.867
	1% AEP	3.56	2.493	-1.067
Reed Creek discharge	20% AEP	1.691	1.524	-0.167
	10% AEP	2.482	2.284	-0.198
	5% AEP	3.102	3.04	-0.062
	2% AEP	9.273	8.025	-1.248
	1% AEP	12.639	12.032	-0.607

All events demonstrate that lower discharge flows than the existing case can be achieved, effectively maintaining the OSD requirements for the site wide development.

MODELLING RESULTS

The main storm event considered for this assessment was the DFE, as detailed earlier. The complete set of flood mapping results for the DFE storm event are presented within Appendix A. As per the FRMS&P, all results have been filtered to remove depths less than 0.1m. The blockage policy scenario is conducted in accordance with the WCC DCP Chapter E13: Floodplain Management conduit blockage factors (Section 5.2, Table 1, 25/03/2020).

All proposed new roads remain flood free in the DFE storm event, and no lots are flood affected. Velocities within the conveyance swale reach up to 3m/s and thus hazard in the swale also reaches H5.

Floodplain storage was calculated against the site wide existing model due to the existing floodplain storage provided in the central and northern precincts.

The storage for the DFE storm event is presented in **Table 3** below.

Table 3 Floodplain Storage Calculations

Event	Existing (m ³)	Proposed (m ³)
DFE	63,335	66,433

A flood impact assessment was conducted for the proposed development within the Site for the DFE storm event against the existing approved North and Central Precinct development. As can be seen in **Figure 2** below, the proposed development has negligible impact on the flood levels within the boundaries of the Site. Some impact is observed immediately downstream of the Forest Reach Central OSD basin. This change is attributed to the changing outflow configuration of the basin proposed as part of these works. As such, there is a minor reduction in water level within the basin, and a localised area of increased water level at the discharge point. This increase is limited only to the local existing flood plain and does not impact the downstream function of Reed Creek or any existing lots.

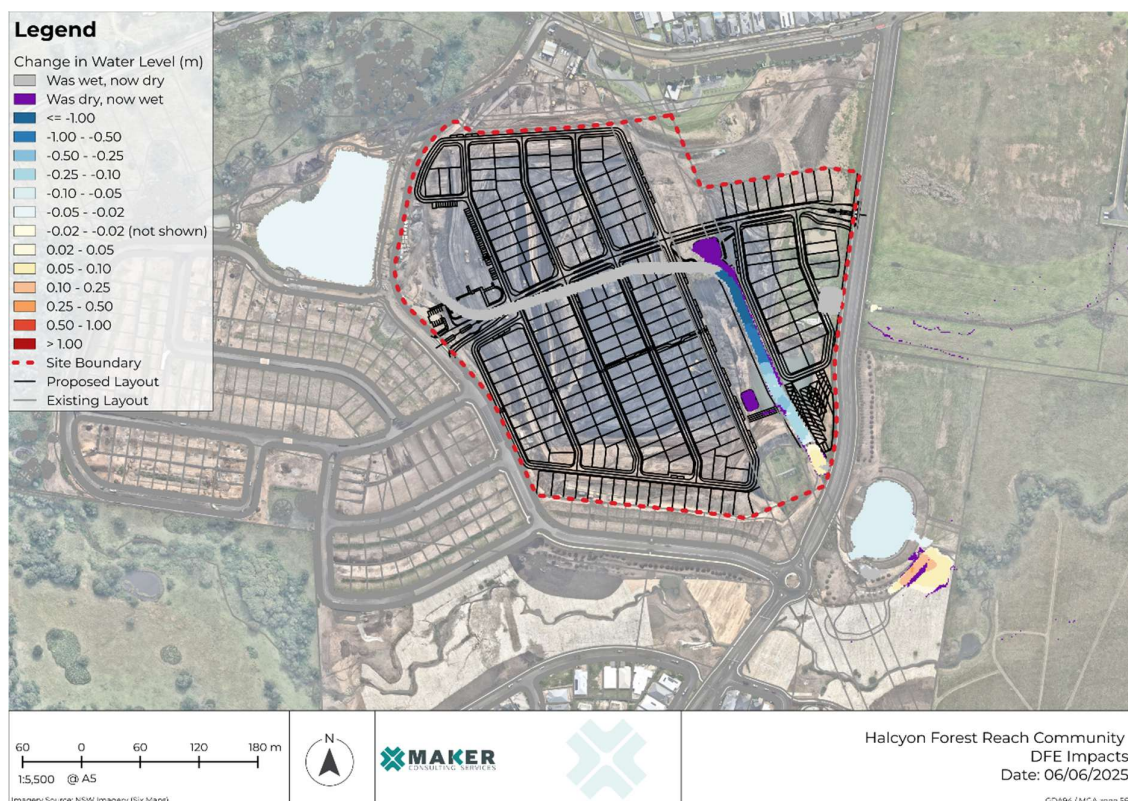


Figure 2 DFE Impacts

The PMF event is understood to be Council's primary concern. It can be seen in **Figure 3** and **Figure 4** that the northern wetland overtops the road, into the high flow swale adjacent to the community facility before continuing down road 01. No lots are inundated in this event. It is noted that the presented results are a matrix of the blocked and unblocked scenarios. During an unblocked scenario, the PMF remains fully within the northern wetland and is conveyed within the culvert, ensuring that all roads remain flood free. The road is only overtopped in the conduit blockage scenario.

It is also noted that the PMF conveyance has improved when compared to the original WCMS, which did not reference the FRMS&P, in which the road experienced greater depths and adjacent lots were experiencing inundation.

The hazard category within Road 01 is now limited to H1 within the actual carriageway, with localised pockets of H2 in the verge. The hazard map is presented in **Figure 4** below. H1 is defined as generally safe for people, vehicles and buildings. Evacuation from the Site is possible under all scenarios, for all residences, via Forest Reach Drive.

The General Controls outlined in the WCC DCP Chapter E13 for the Mullet and Brooks Creek Floodplain requires *Reliable access for pedestrians or vehicles from the building, commencing at a minimum level equal to the lowest habitable flood level to an area of refuge above the PMF level, or a minimum of 20sqm of the dwelling to be above the PMF level.* As lots are no longer inundated during a PMF event in the new modelling, this requirement has been adequately met.

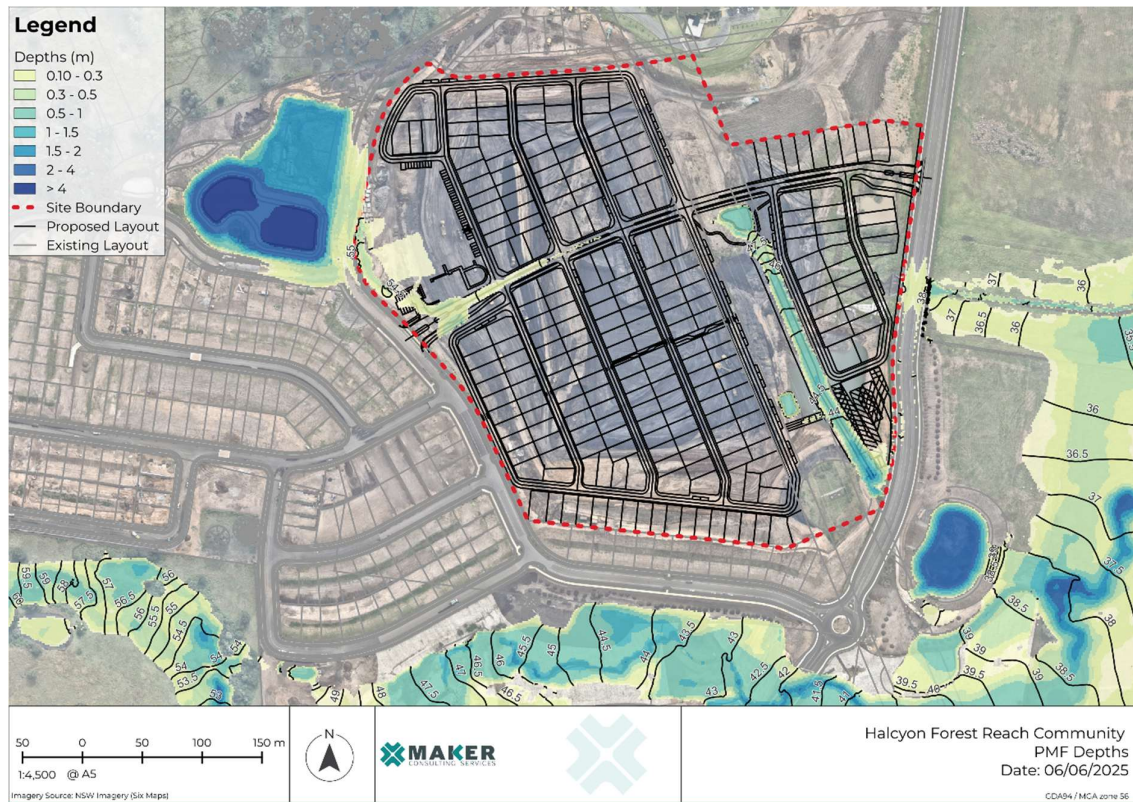


Figure 3 PMF Depths

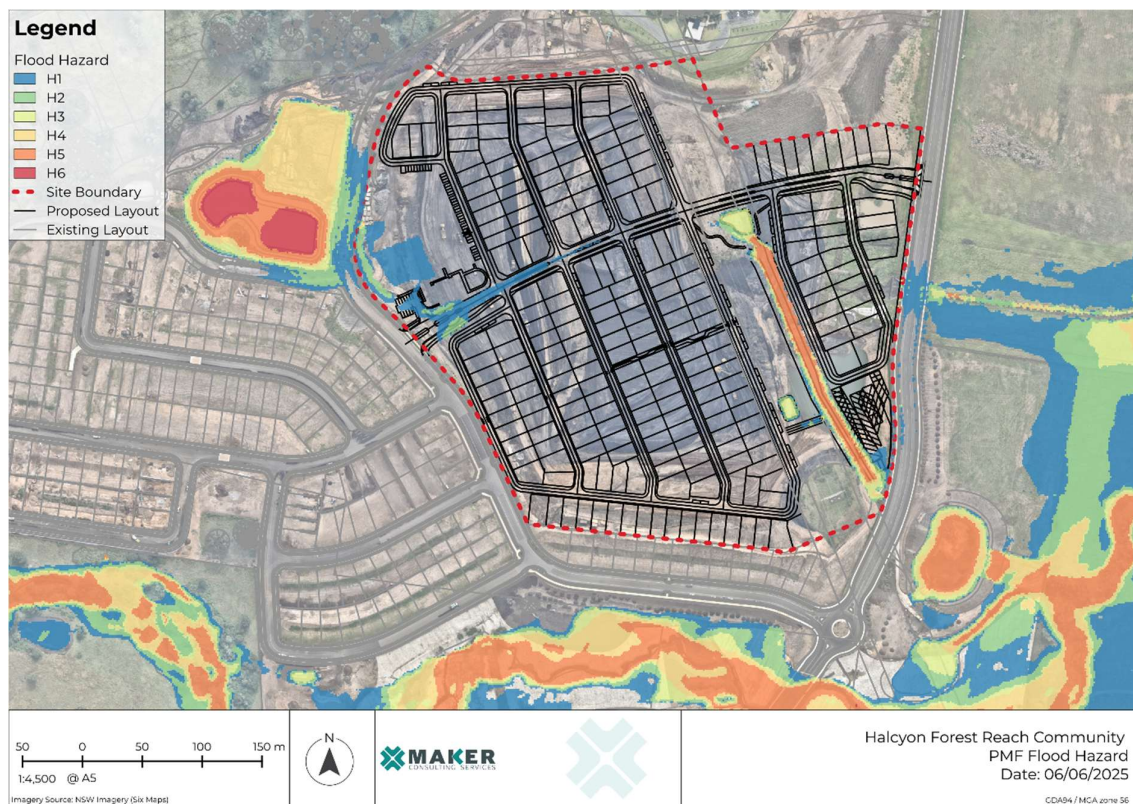


Figure 4 PMF Hazard



LEP CONTROLS

The Wollongong Local Environmental Plan Section 5.21: Flood Planning, sets out the following objectives. These are tabulated against Maker's Response to each applicable objective in **Table 4**

Table 4 Wollongong LEP Objectives Clause 5.21

(1) The objectives of this clause are as follows:	
a) To minimise the flood risk to life associated with the use of land.	The proposed development does not create any flood affected lots. In the blocked PMF scenario, one road is inundated; however, the hazard level is minimal at H1 where adjacent to residential lots ensuring that vehicular egress via Forest Reach Drive remains feasible during this scenario. All lots and roads remain fully flood free in the DFE. Therefore, there is no flood risk to life arising from the proposed development.
b) To allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change.	The FRMS&P incorporates climate change assumptions. The presented results (Appendix A) were undertaken for the DFE under the FRMS&P, which includes the projected changes due to climate change. The results demonstrate that the proposal is consistent with the flood function of the Site.
c) To avoid adverse cumulative impacts on flood behaviour and the environment.	The flood impacts were assessed for the DFE storm event, and the only impacts are limited to localised areas of increased flooding, which does not extend downstream. No adverse impacts on flood behaviour or the environment will occur as part of the development.
d) To enable the safe occupation and efficient evacuation of people in the event of a flood.	All lots remain flood free in storm events up to and including the PMF. Evacuation is possible from the Site Via Forest Reach Drive under all scenarios.
(2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development:	
a) is compatible with the flood function and behaviour on the land, and	The proposed development is outside of any floodways and does not encumber the flood function of the Site.
b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and	The impacts presented in this assessment demonstrate that no other developments will be affected by flooding as a result of the proposed development.



c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and	In all events up to and including the PMF, the lots remain flood free. Evacuation is possible from the site via Forest Reach Drive under all scenarios.
d) incorporates appropriate measures to manage risk to life in the event of a flood, and	All residential areas are clear of any modelled flooding extent and roads have been located outside of high hazard areas to manage the risk to life in the event of a flood.
e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses.	The proposed development does not adversely affect the environment. It conforms to the larger approved Forest Reach strategy and does not propose major works to any water courses. The modification of the Central OSD basin results in works in the watercourse, which will be undertaken in accordance with NRAR guidelines and consistent with the existing controlled activity approval for this basin.
(3) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters:	
a) the impact of the development on projected changes to flood behaviour as a result of climate change,	The assessment has been conducted utilising the DFE, which includes consideration of climate change.
b) the intended design and scale of buildings resulting from the development	The design and scale of the buildings within the Site proposed in the DA, which does not include any residential homes, comply with all relevant planning controls. Residential homes will be approved via a separate planning pathway under the <i>Local Government Act 1993</i> , which is not compromised by any matters related to flood risk.
c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood	All lots remain flood free in storm events up to and including the PMF. Evacuation is possible from all lots within the Site via Forest Reach Drive in all storm events.
d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.	The Site has been designed to have a low risk of impact by flooding or coastal erosion. If modification, relocation or removal of buildings is necessary, the roads within the development have been designed to allow this.



CONCLUSION

In response to the Panel's requested further information on flooding, this supplementary report considers the latest Mullet Creek Floodplain Risk Management Study and Plan (2023) and the procedures in this Study were adopted for this assessment. The DFE storm event was simulated within both the hydrologic and hydraulic models and the results are presented within this document.

Minor updates are required to be made to the design of a pre-existing OSD (Central OSD basin) outlet to maintain predevelopment outflows from the proposed development (see Appendix B). This can be achieved by the implementation of a suitable condition of consent. Additionally, a privately owned, underground detention tank is proposed at the eastern discharge point for OSD purposes. A plan identifying the proposed location of this OSD tank is provided at Appendix B.

A proposed condition of consent to give effect to the proposed minor design improvements to be made to the approved Central OSD basin (under DA 2020-673, as modified by DA 2023-19) as a consequence of this further study are provided below:

Central OSD Basin

The approved development alters the design of the Central OSD Basin, for which development consent was granted under DA 2020-673 and subsequently modified by DA 2023-19.

This development consent requires the modification of conditions 1 and 38 of DA 2023-19 so that:

- a) in respect of condition 1, plan MKR00256-50-C0103 (General Arrangement Plan, Sheet 4 of 4, Maker Eng, 30/04/2024) is to be read consistently with the plan at Appendix B of this document (MKR00256-04-SK050) and, to the extent of any inconsistency, MKR00256-04-SK050 prevails; and
- b) in respect of condition 38, the Water Cycle Management Study, Job no. MKR00256-V04, by Maker Eng, Dated 05/05/2023 is to be read consistently with this document dated 16 June 2025 and, to the extent of any inconsistency, this document prevails.

Prior to the issue of a subdivision works certificate, the Applicant must submit a notice pursuant to section 4.17(5) of the Environmental Planning and Assessment Act 1979 and section 67 of the Environmental Planning and Assessment Regulation 2021 to Council that seeks to give effect to the above modifications to DA 2023/19. This report presents the additional information requested under the SRPP report and demonstrates that the flooding outcomes as set forth within the Wollongong City Council DCP, Chapters E13 and D16 as well as the Wollongong LEP can be achieved for the proposed development.

Yours faithfully,

Maker ENG



APPENDIX A – DFE FLOOD MAPPING

Proposed DFE Flood
Depth
M107

Legend

- Depths (m)
- 0.10 - 0.3
 - 0.3 - 0.5
 - 0.5 - 1
 - 1 - 1.5
 - 1.5 - 2
 - 2 - 4
 - > 4
- Site Boundary
- Proposed Layout
- Existing Layout

0 50 100 150 m

1:3,000 at A3 Paper Size

M107 - DFE
Proposed



Revision Date: 06-06-2025



Proposed DFE Flood
Velocity
M117

Legend

- Velocity (m/s)
- <= 0.5
 - 0.5 - 1
 - 1 - 2
 - 2 - 3
 - 3 - 4
 - > 4
- Site Boundary
- Proposed Layout
- Existing Layout

0 50 100 150 m

1:3,000 at A3 Paper Size

M117 - DFE
Proposed



Revision Date: 06-06-2025



Proposed DFE Flood Hazard
M147

Legend

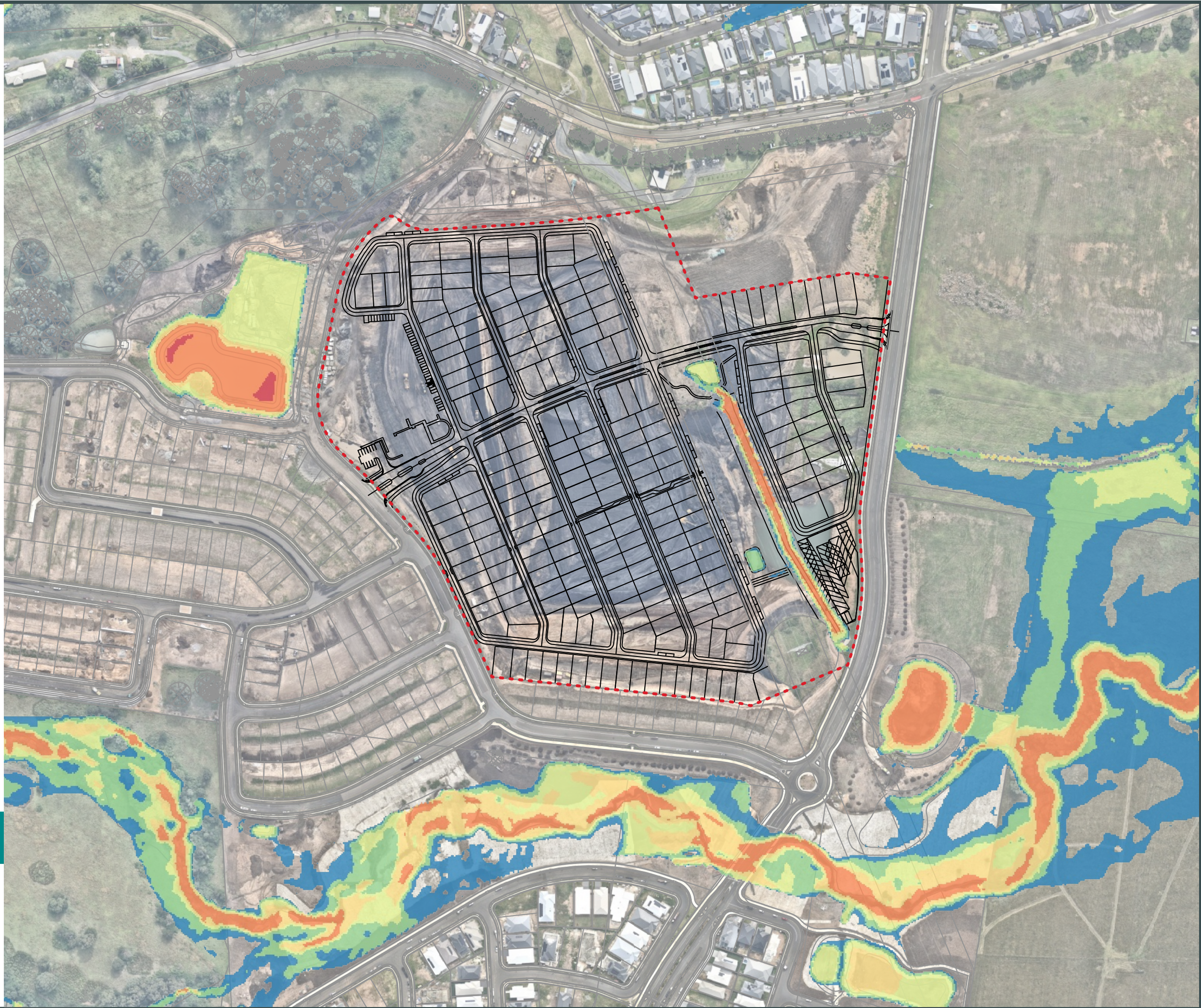
- Flood Hazard
- H1
 - H2
 - H3
 - H4
 - H5
 - H6
 - Site Boundary
 - Proposed Layout
 - Existing Layout

0 50 100 150 m
1:3,000 at A3 Paper Size

M147 - DFE
Proposed



Revision Date: 06-06-2025



Proposed DFE Hydraulic
Categorisation
M157

Legend

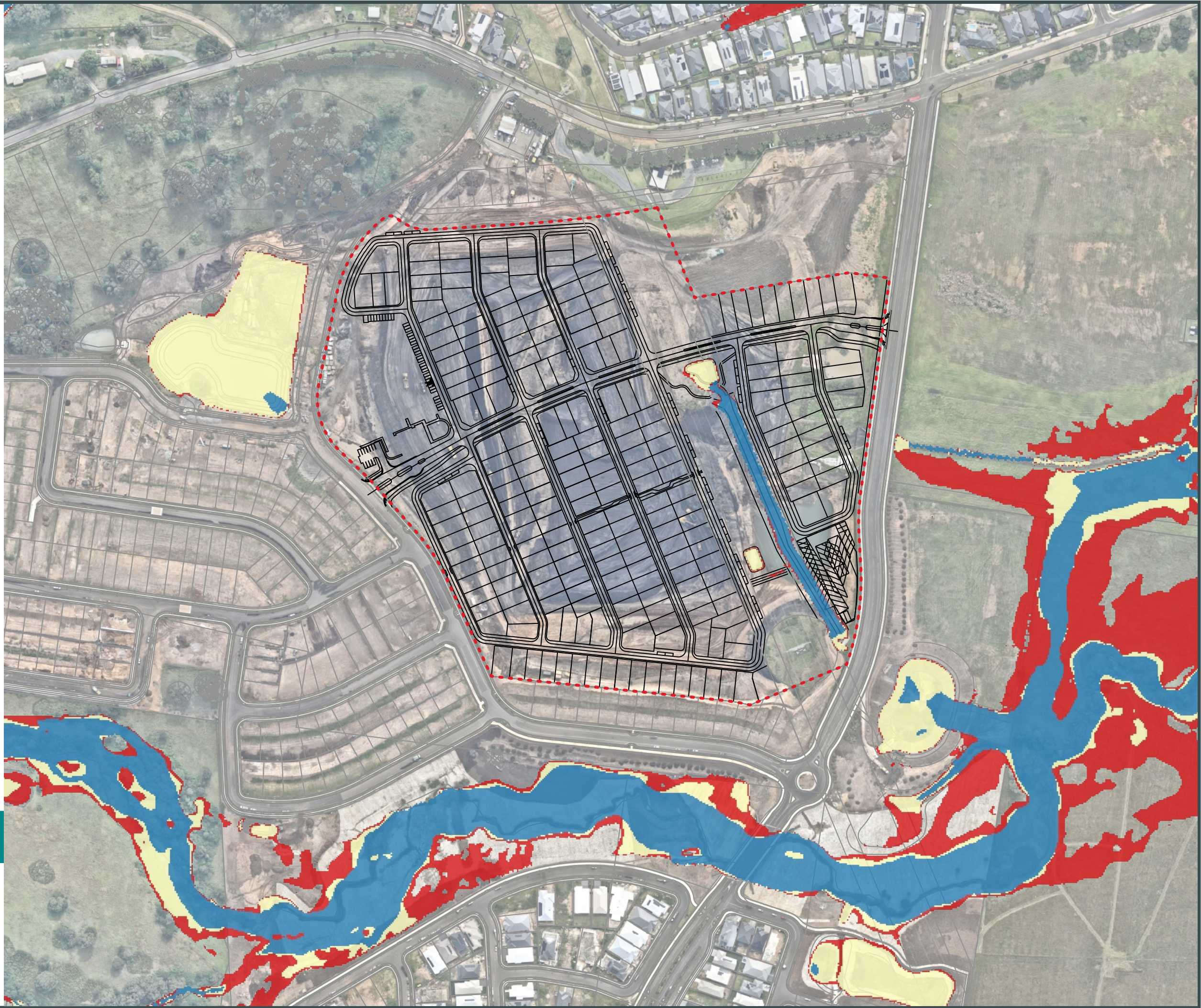
- Hydraulic Categorisation
- Flood Fringe
 - Flood Storage
 - Floodway
 - Site Boundary
 - Proposed Layout
 - Existing Layout

0 50 100 150 m
1:3,000 at A3 Paper Size

M157 - DFE
Proposed



Revision Date: 06-06-2025



Proposed DFE Flood Risk
Precinct
M167

Legend

- Flood Risk Precinct
- Low
 - Medium
 - High
- Site Boundary
- Proposed Layout
- Existing Layout

0 50 100 150 m

1:3,000 at A3 Paper Size

M167 - DFE
Proposed

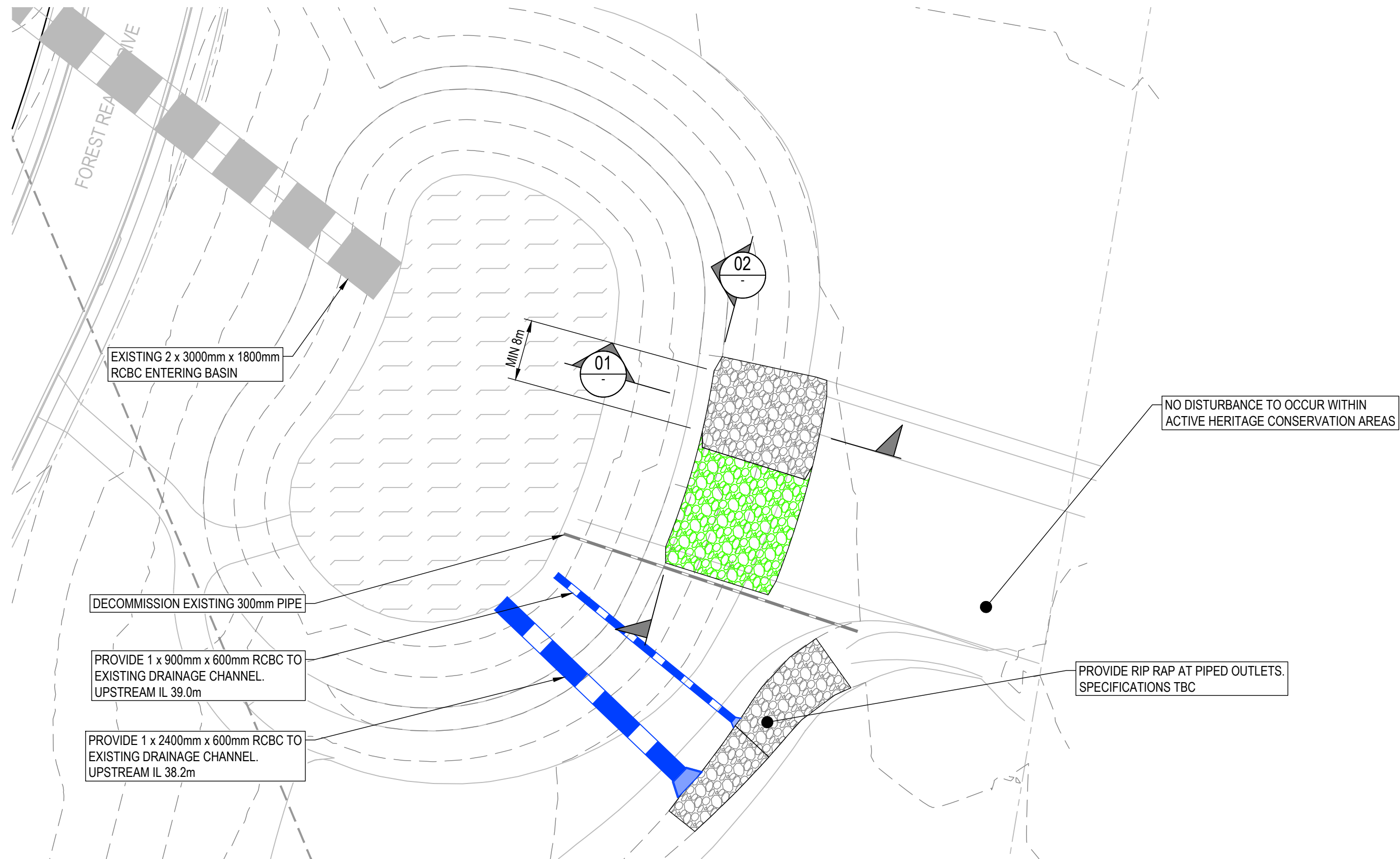


Revision Date: 06-06-2025

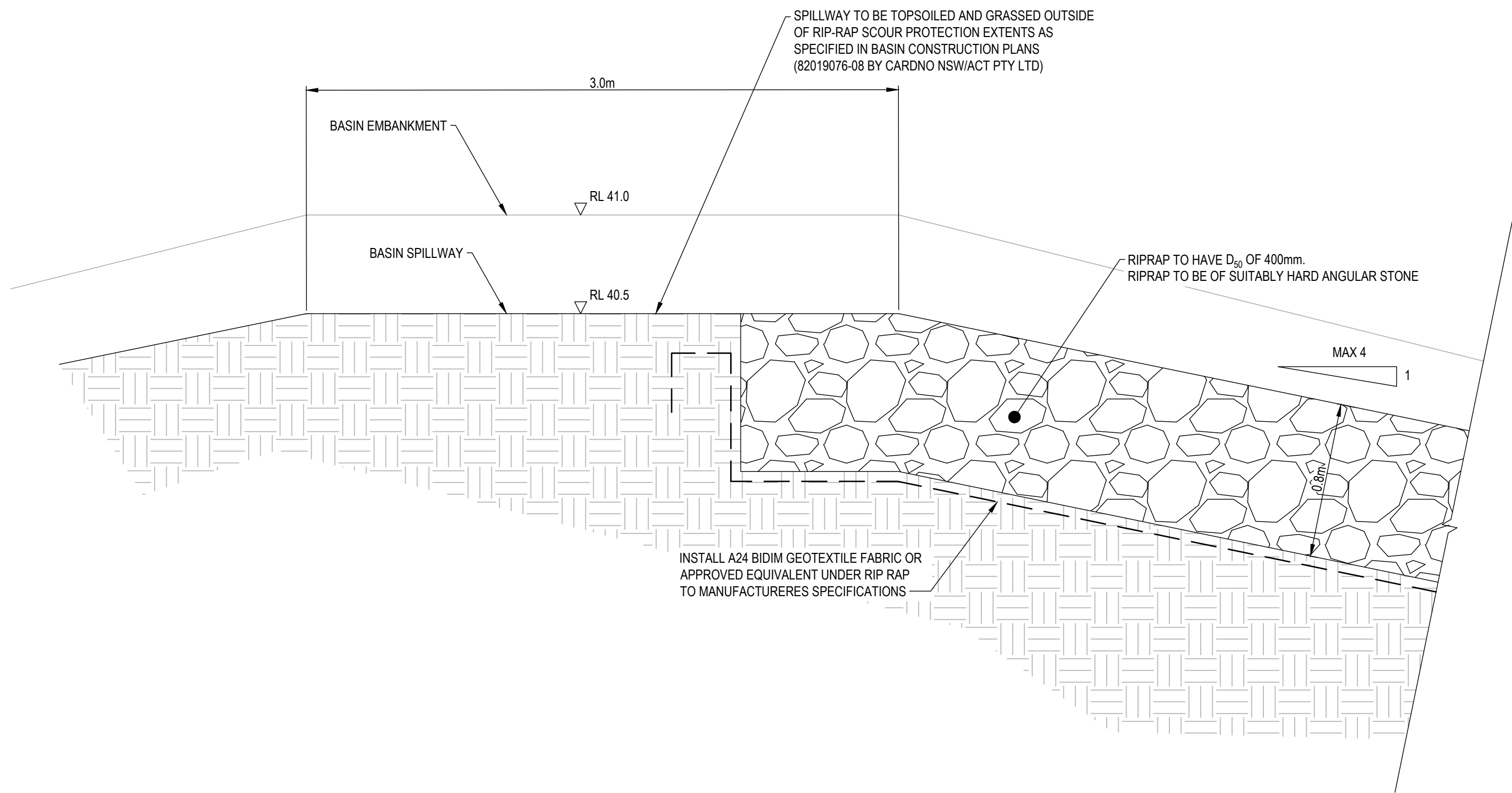




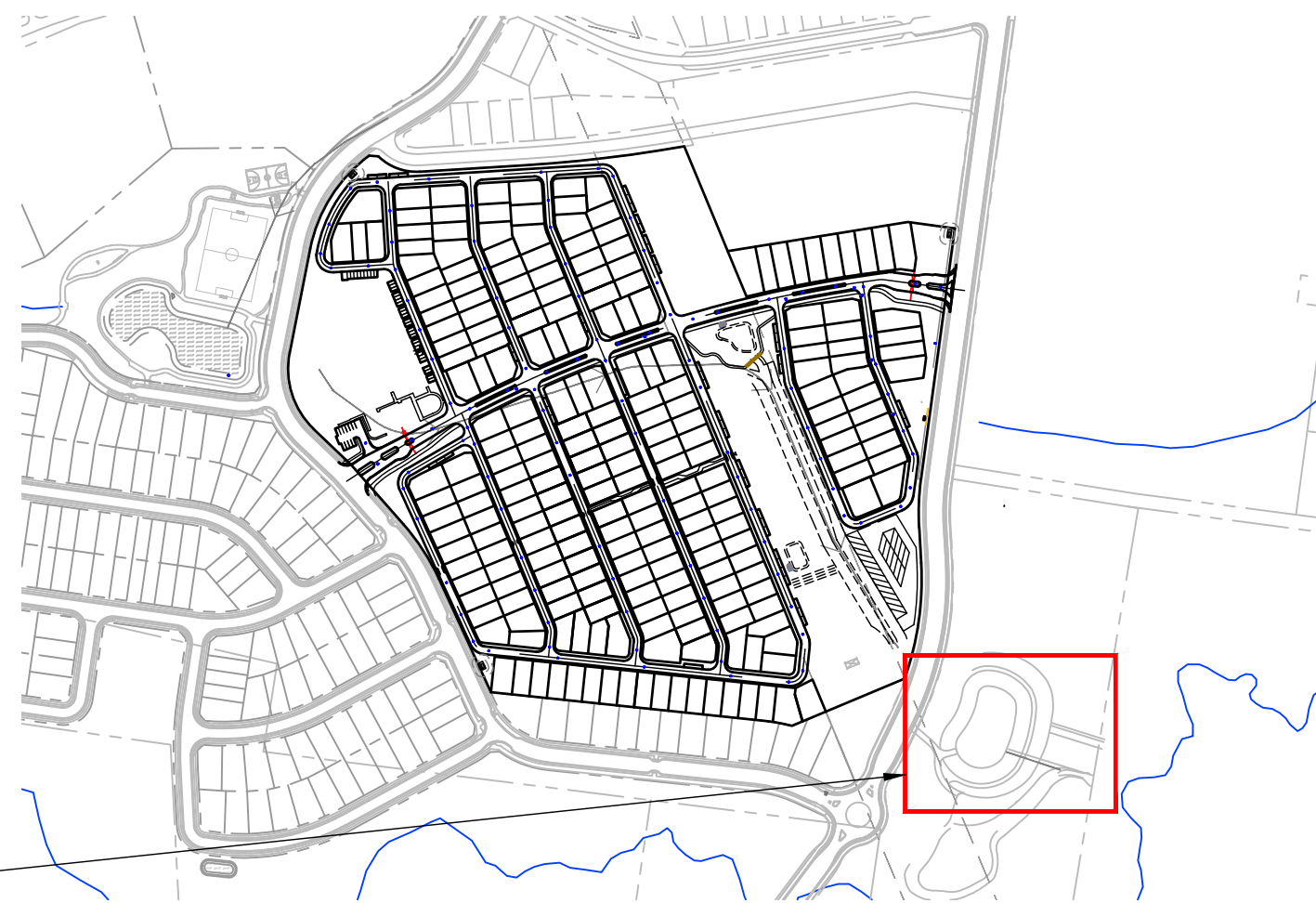
APPENDIX B – OSD TANK AND OSD BASIN OUTLET CONFIGURATION PLAN



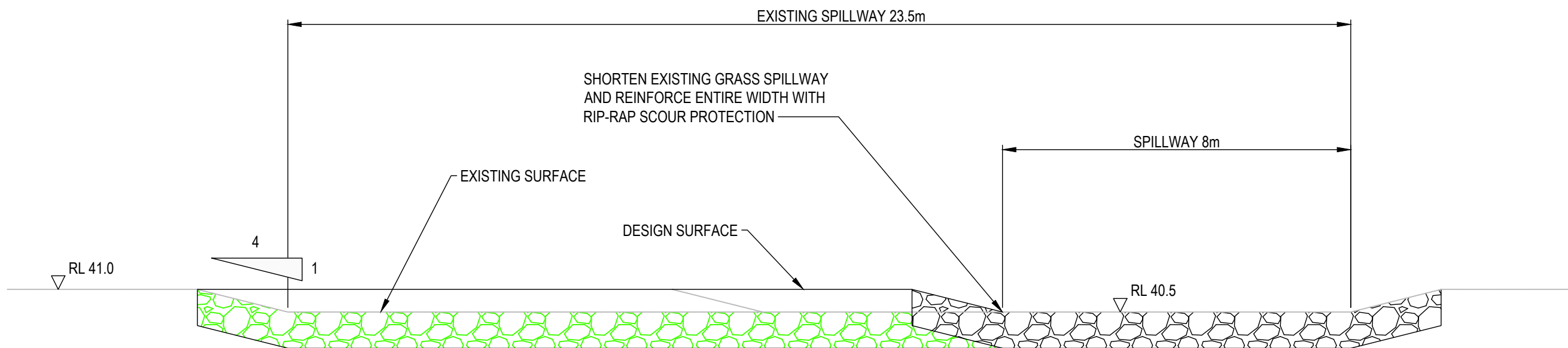
BASIN RECONFIGURATION LAYOUT
SCALE 1:500



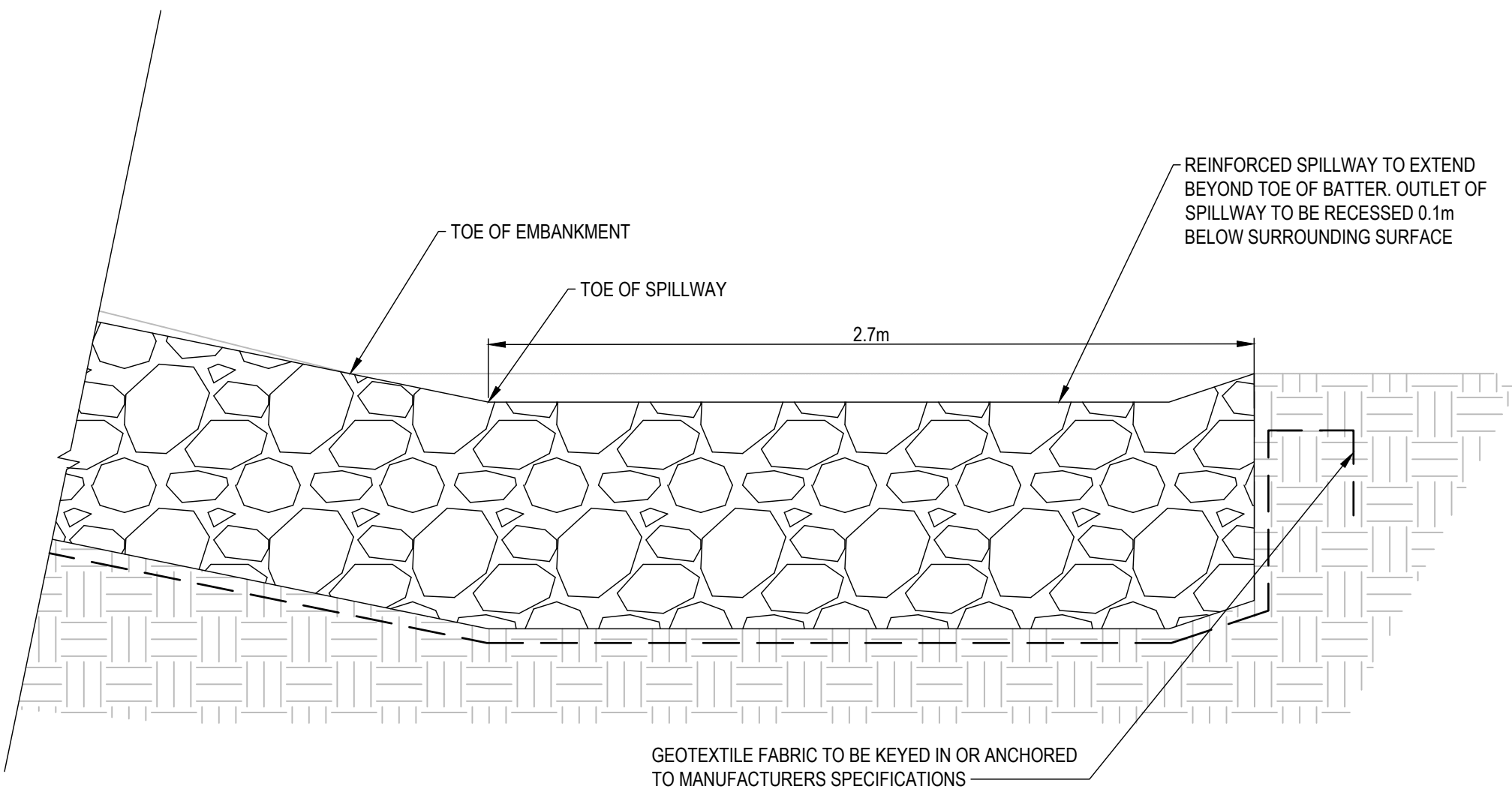
SECTION 01
SCALE 1:20



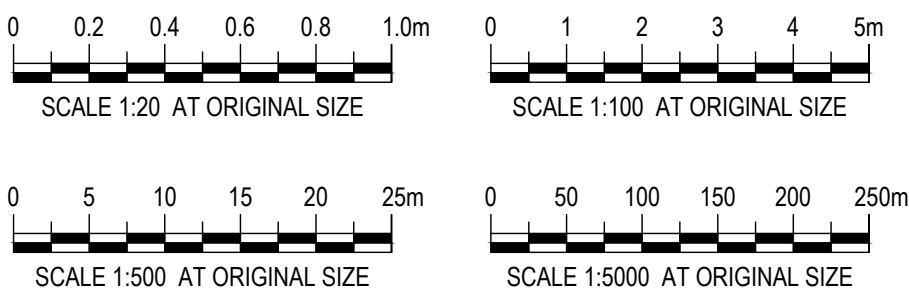
SITE CONTEXT PLAN
SCALE 1:5000



SECTION 02
SCALE 1:100



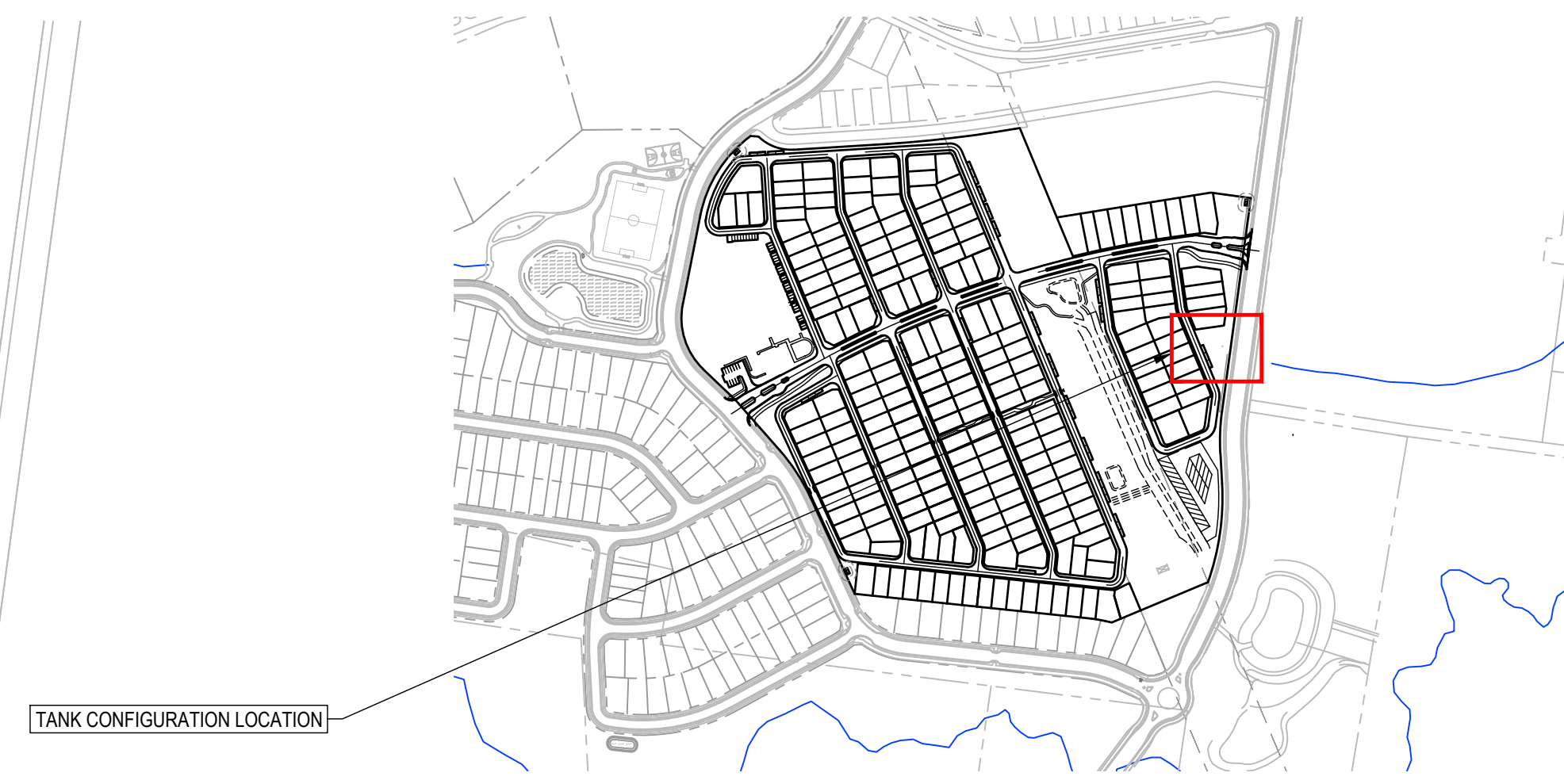
REV	DATE	DESCRIPTION	MA	KJM	AMD BY	APP BY
P1	12.06.25	ISSUED FOR DISCUSSION	MA	KJM		



DRAWN: M.ALLAN	DESIGNED: M.ALLAN
DRAFT CHECK: P.MCGEE	DESIGN CHECK: P.MCGEE
APPROVED:	K.MACDONALD
NOT FOR CONSTRUCTION	

AVID
FOREST REACH
SOUTHEASTERN BASIN
RECONFIGURATION

DRAWING NUMBER MKR00256-04-SK050	SHEET No.	ORIG. SIZE A1	REVISION P1
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DRAWN: M.ALLAN	DESIGNED: M.ALLAN	AVID FOREST REACH EASTERN TANK CONFIGURATION			
DRAFT CHECK: P.MCGEE	DESIGN CHECK: P.MCGEE				
APPROVED:	K.MACDONALD				
NOT FOR CONSTRUCTION		DRAWING NUMBER MKR00256-04-SK051	SHEET No.	ORIG. SIZE A1	REVISION P1