4.9 Bushfire Management

A review of recent bushfire mapping identifies Underbank as being located within a bushfire prone area. Bushfire Prone Areas are areas that are subject to or likely to be subject to bushfires. A minimum construction standard applies to all new buildings in a bushfire prone area. Landowners are required to build to a minimum Bushfire Attack Level of 12.5.

Opportunities

- Help 'fire-proof' the Bacchus Marsh township by creating a 'buffer' to bushfire hazard areas further to the west
- Create defendable spaces around open space areas

Constraints:

- Ongoing potential bushfire hazard
- Topography to be considered to ensure emergency vehicle access

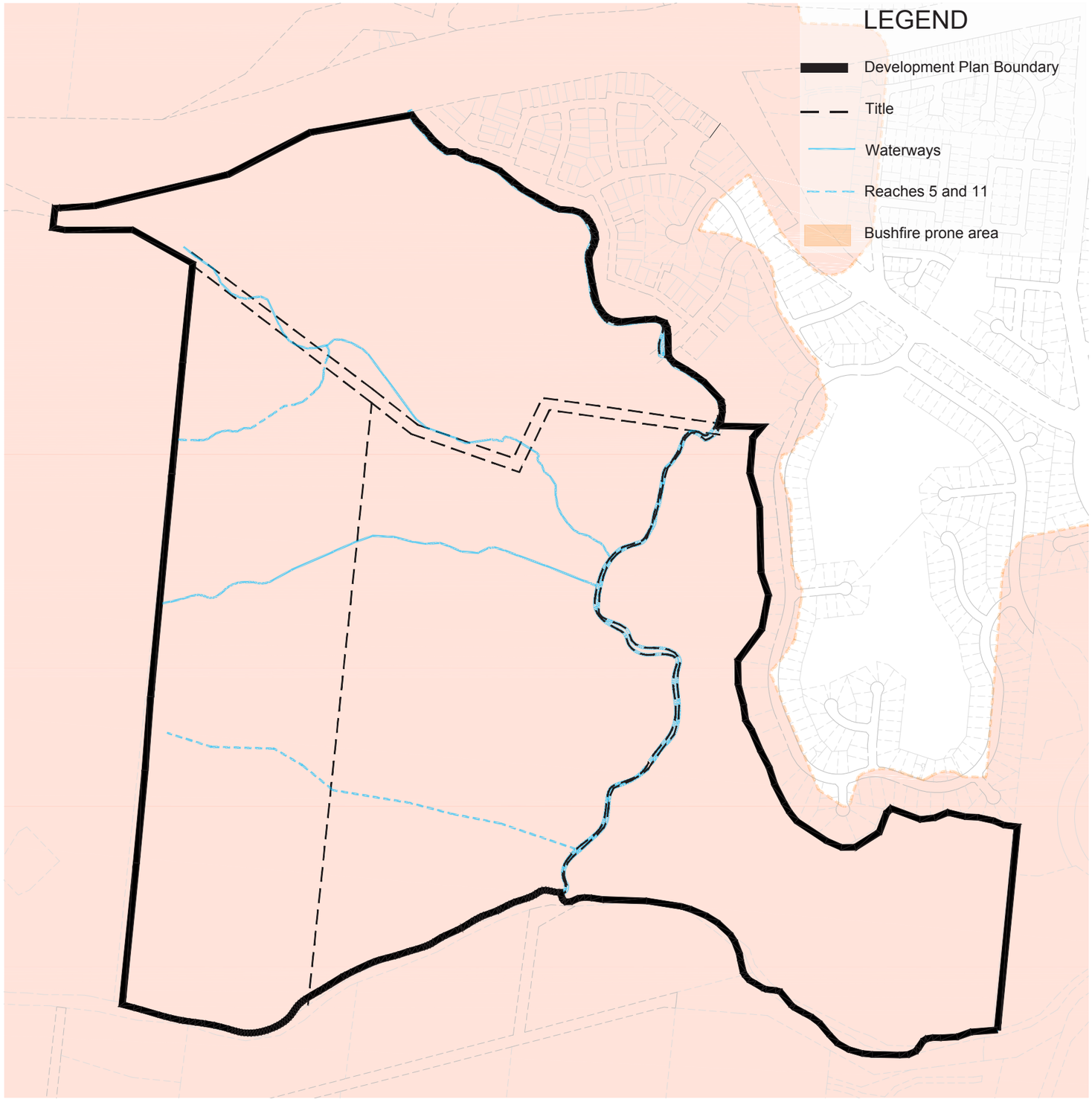


Figure 25: Bushfire Prone Areas

4.10 Acoustics

AECOM has utilised a 3D computer model has been used to predict the potential road traffic noise impacts from the Western Freeway at the location of the proposed residential development in accordance with VicRoads' requirements (see Annex A).

Two scenarios were modelled:

1. Year 2022 noise levels with existing noise barriers
2. Year 2022 noise levels with existing noise barriers and proposed noise barriers for the developable area

The model includes indicative building allotments based on the Development Plan Overlay and the existing (permitted) first stages of Underbank to predict the noise impacts for the Year 2022 at these locations.

Acoustic modelling indicates that the traffic noise levels in the year 2022 without a noise barrier will exceed LA10(18 hour) 63 dB(A) at the indicative residential locations within the area highlighted.

Opportunities

- Enhance amenity for future residents

Constraints:

- Noise has potential to adversely impact on future dwellings
- Provision of noise barrier along Freeway

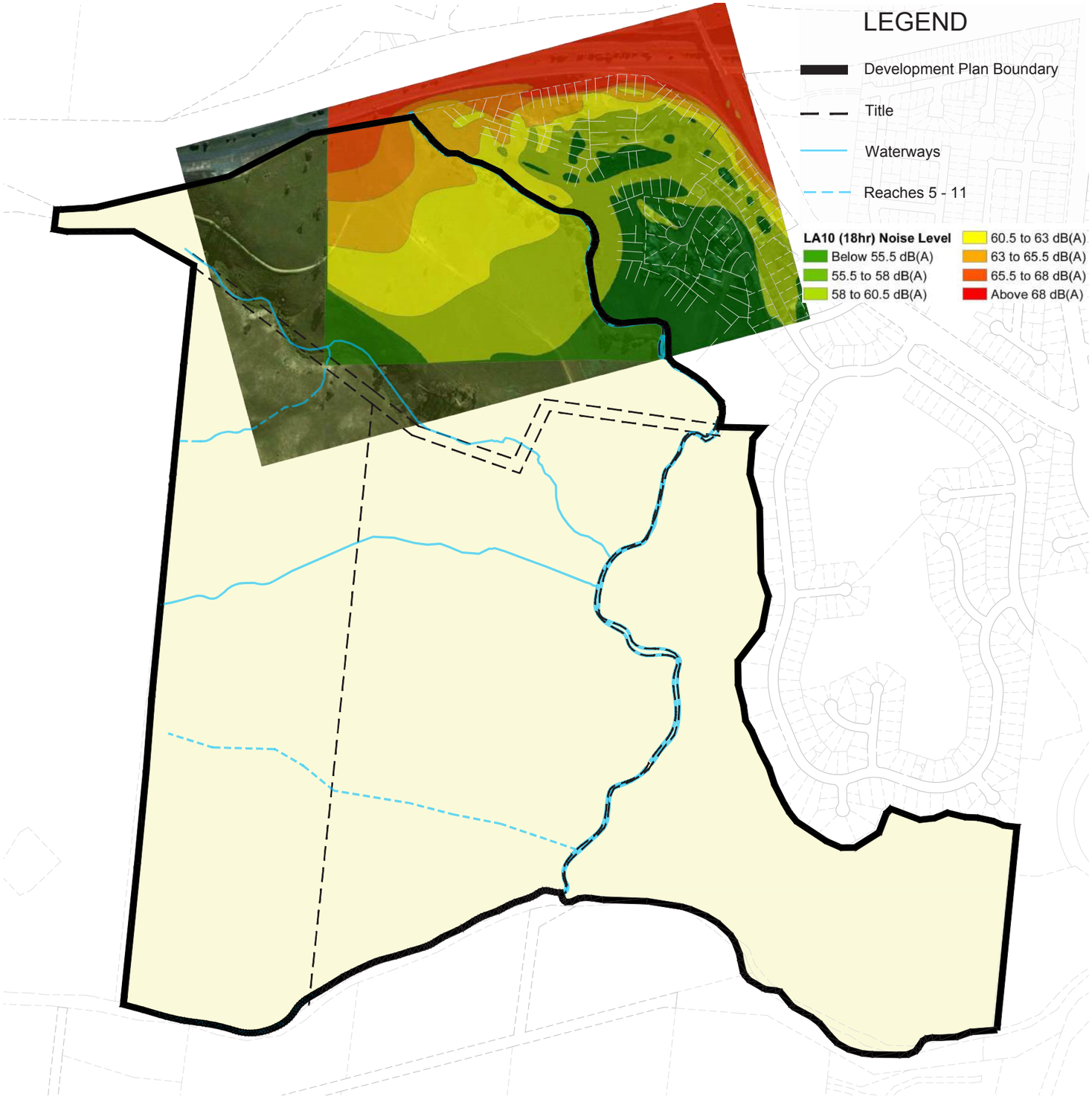


Figure 26: Acoustic Conditions

Servicing

A servicing investigation has been undertaken and is attached as Annex K to this Development Plan.

The investigation notes the following findings:

- **Sewer:** Sewer outfalls would be via 225mm dia sewers to the south-east corner of the site. A servicing assessment for the ultimate Underbank development will not be undertaken until the Bacchus Marsh sewerage model is verified/calibrated and the master plan is updated. This ensures that the servicing of the Underbank ultimate development aligns with the overall servicing strategy for the Bacchus Marsh sewerage catchment.
- **Water:** The final strategy involves an upgrade of the Underbank WPS and construction of looped mains linking into the proposed 375mm Underbank main. Two looped 300mm water mains (2,400m total) connect the proposed lots west of the Underbank main, and a lower level 225mm water main loop (1,800m) incorporates approximately 300 lots east of Korkuperrimul Creek.
- **Electricity:** Infrastructure will be provided in accordance with the requirements of Powercor;
- **NBN:** Pit and pipe infrastructure suitable for optical fibre installation as part of the National Broadband Network will be provided within the road reserve; and
- **Gas:** Will be provided in accordance with Ausnet Service's standard terms and conditions for residential land development. These conditions require the developer to provide shared trenching in conjunction with other services.

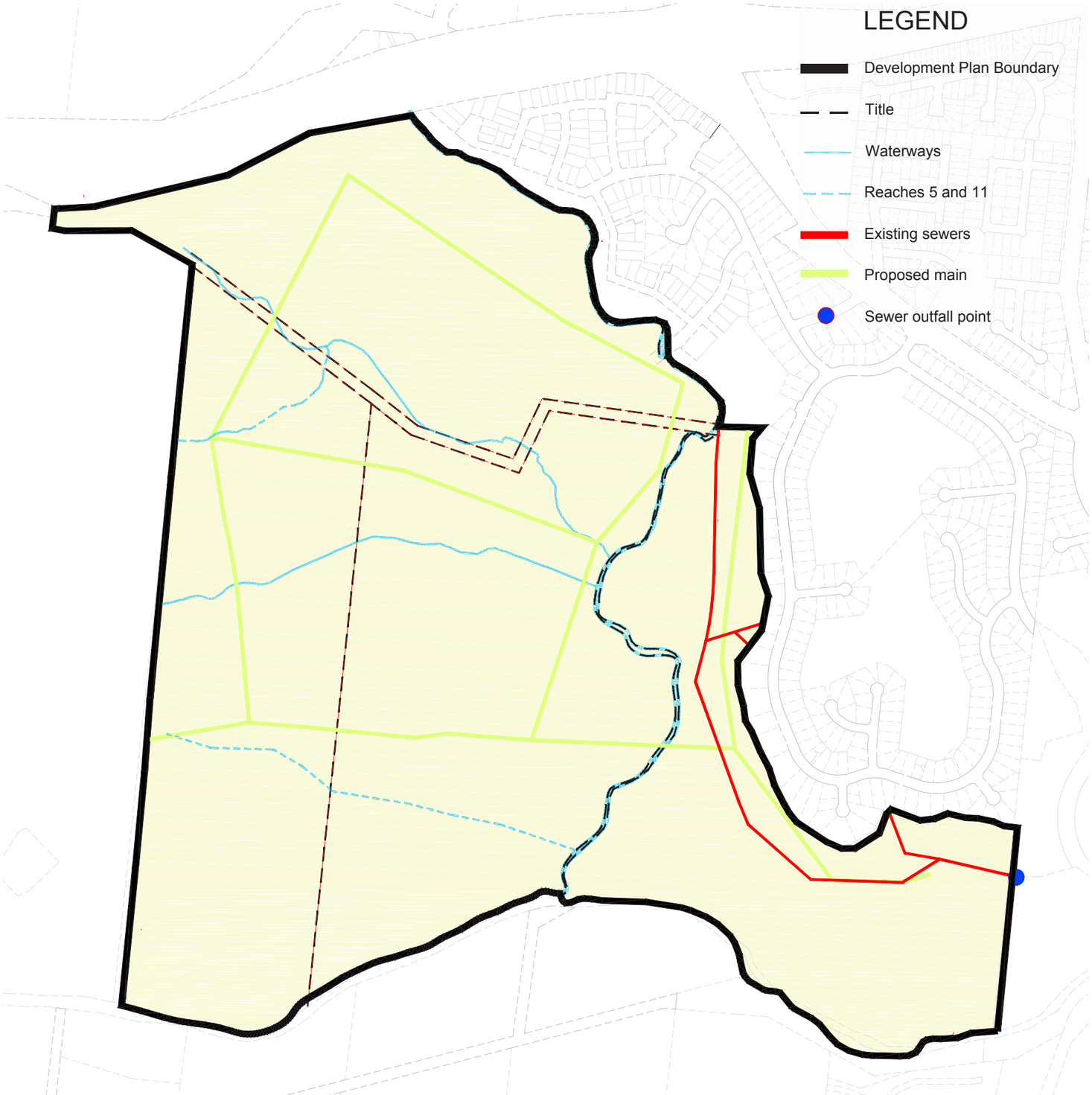


Figure 27: Services Plan

4.11 Site Analysis & Design Principles

Having undertaken a detailed review of the site and surrounds, it is clear that Underbank is a unique site that presents a range of opportunities and constraints. Together, these form the basis of creating a truly unique environment. One which responds to the site, but is also responsive to the existing character of Bacchus Marsh.

The topography and existing creek corridors will form the basis of an urban structure, with the following key design principles informing the process in creating the vision and master plan for Underbank:

- Site Responsive: Master planning that responds to site opportunities and constraints;
- Human Scale: An urban structure based on the neighbourhood unit;
- Permeability: A comprehensive thoroughfare network;
- Walkability: Connect pedestrian and cycle networks into wider systems;
- Integration: Encourage a viable public transport system;
- Environment: Creative a diversity of open space types;
- Identity: Locate identifiable civic structures in key locations;
- Character: Produce efficient private blocks for a diversity of building types.

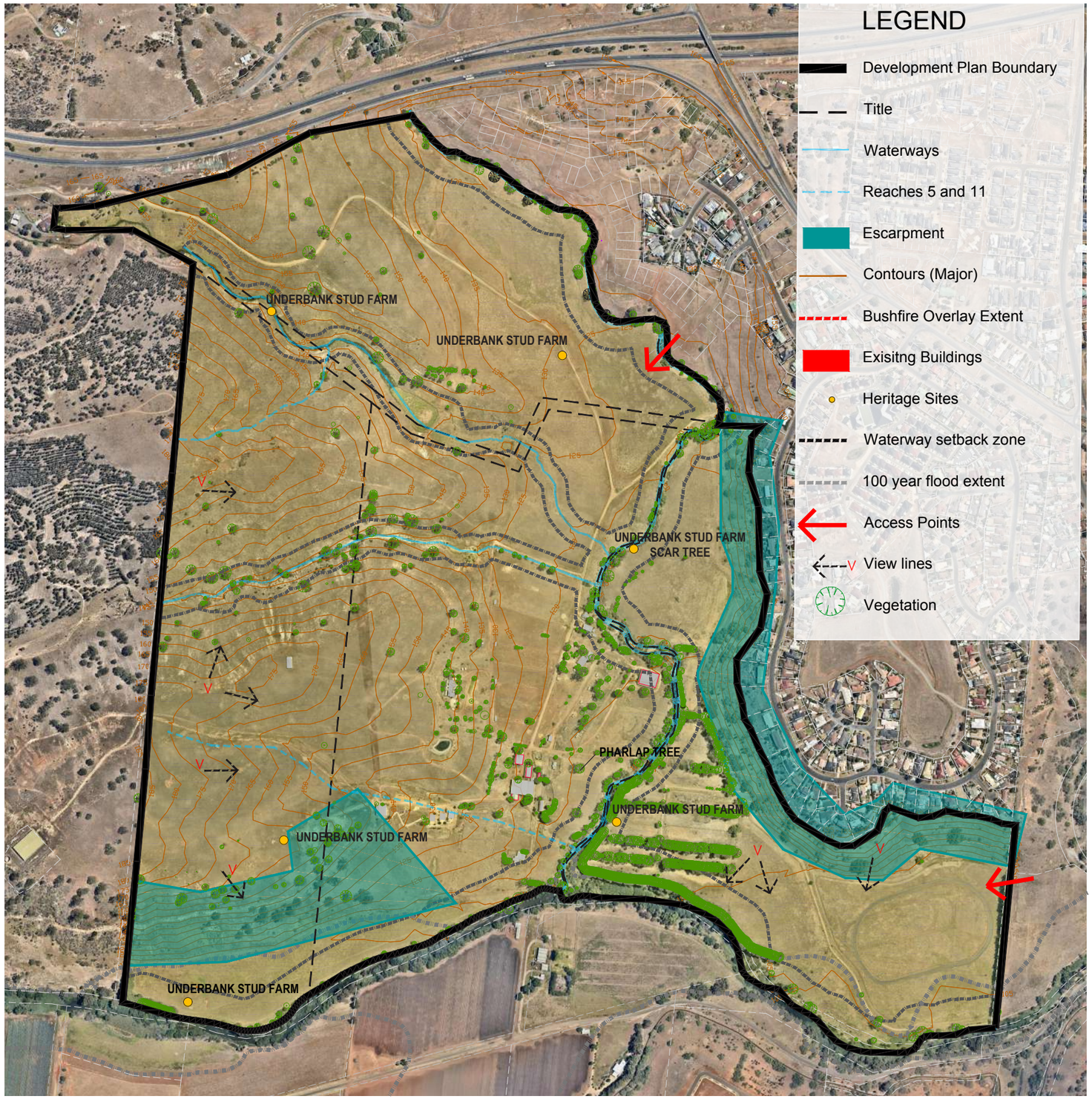


Figure 28: Consolidated Site Analysis

5.0
Design Response

5.1 Design Response

Having considered the site opportunities and constraints, Kataland has developed a design response to capitalise on the natural features of the site. Underbank will create a vibrant community where residents can live and play amongst beautiful and tranquil green spaces.

While the plan is subject to further detailed design as part of subsequent permit applications, Underbank has considered the key issues associated with the development of the land and has responded to site conditions to create a master plan that responds to the site and surrounds.

The layout of the neighbourhoods and road network is designed to respond to the natural topography of the land and minimise the extent of cut/fill requirements to ensure that Underbank can be delivered in a logical and cost effective manner.

Infrastructure will be delivered on a staged basis, in line with development to ensure appropriate sequencing and will seek to utilise and/or enhance the existing infrastructure network as required. Key internal and external access points are structured without compromising the broader urban systems and will compliment Bacchus Marsh as a logical new town extension.

The Underbank community will be supported by physical and community infrastructure which will enhance livability of the precinct and surrounding area. Underbank will be supported by a network of green corridors and open spaces, and may provide for a mixed use town centre (subject to demand and further investigation); creating the potential for a small main street grouping of shops, community facilities and a public bus stop focused around a Village Square.

The master plan also provides for the effective management of environmental and heritage values; including the retention of the existing stables (in an owners corporation) for community purposes which will further contribute to the vitality of the area. Natural assets have been incorporated into permanent greenways, stands of important trees preserved, and prominent topographic features are also incorporated into the public open space system.

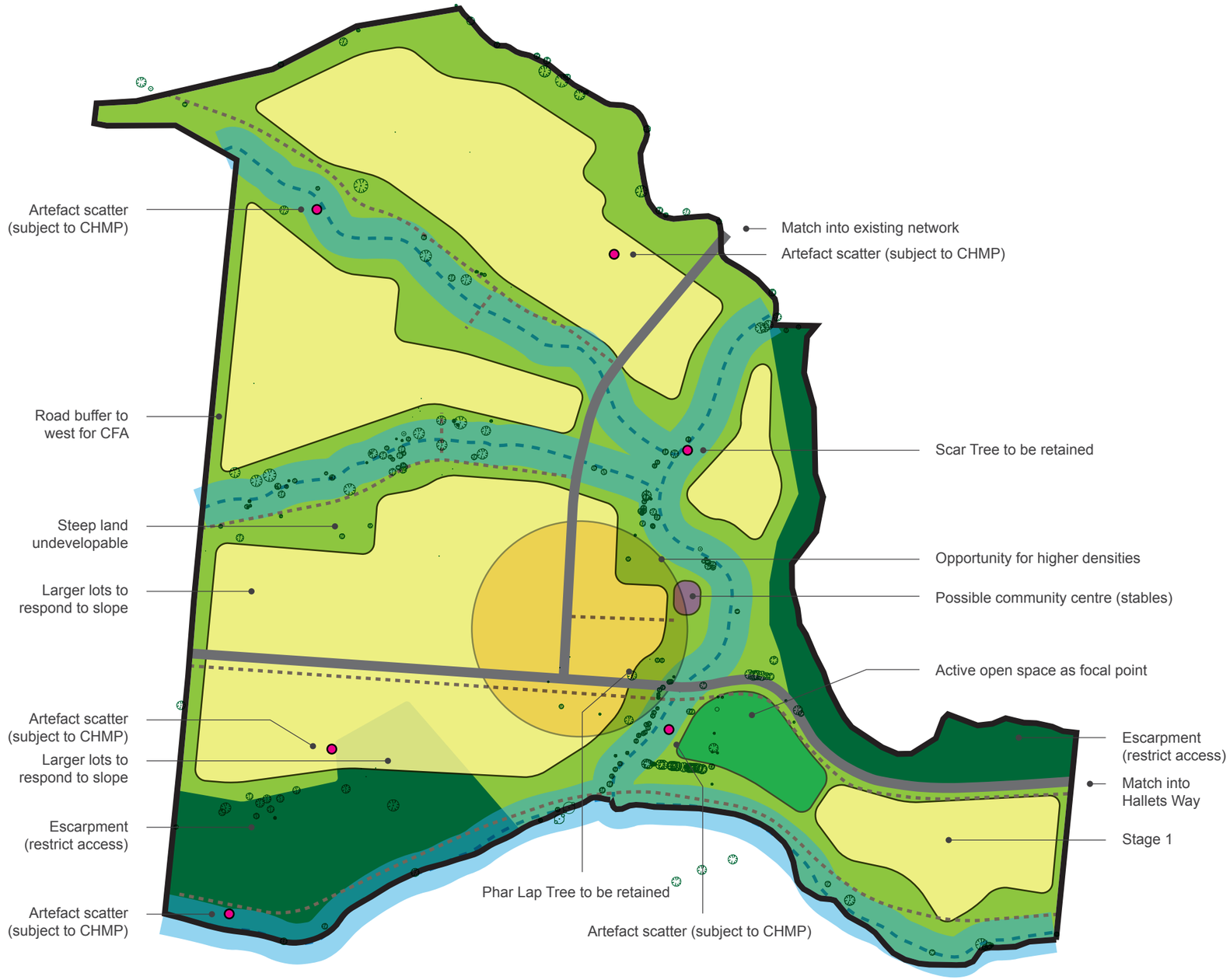


Figure 29: Design Response

5.2 Objectives & Principles

The Underbank Master Plan is based on a more traditional neighbourhood design approach. These principles look to respond to the natural features and context of the site to allow for the identity of Underbank to develop organically and grow over time.

These core principles have informed the master plan for Underbank; resulting in a holistic design approach that will create a distinct village character that responds to the natural features of the site.

In order to realise the vision for Underbank as a vibrant residential community, the following key principles and objectives have been considered:

- **Identity & Character:**
  - Encourage a high standard of contemporary built form and landscape outcomes;
  - Local parks to provide focal points and destinations, and look to enhance safety and interaction;
  - Utilise creek environs as community asset.

- **Compact & Walkable Neighbourhoods:**
  - Ensuring all residents are within a five minute walk to open space;
  - Neighbourhoods have a discernible centre (park/community facility) with clearly defined edges via landscape features and creek environs;
  - Ensuring the majority of residents are within a 10min walk of community facilities;

- **Connected Street Network:**
  - Creating a permeable thoroughfare network;
  - Pedestrian-friendly - designed to allow for pedestrians, cyclists and public transport;
  - Integrate with the surrounding road and pedestrian network;

- **Site Responsive:**
  - Master planning that responds to site opportunities and constraints;
  - A street layout that responds to the slope and creek environs;
  - Range of lot sizes that respond to site features and propose use/s.

- **Open Space & Environment:**
  - Creative a diversity of open space types to provide for a range of active and passive recreational opportunities;
  - Enhance and rehabilitate degraded creek environs to form part of the landscape;
  - Avoid development along escarpments;

- **Variety:**
  - To provide for a range of lot sizes and styles to contribute to diversity;
  - Incorporate a range of public facilities to encourage community integration;
  - Identify opportunities for community facilities subject to local demand.

Figure 30: Indicative Development Plan

5.3 Movement

Design Response

Underbank creates a legible and responsive road network to ensure the safe and efficient movement of vehicles and pedestrians into, and around the site. While the varied topography constrains parts of the site for development, it also provides an opportunity to respond to the existing landform to create a unique environment.

The is structured around the major entry avenues to the north and south east. The northern external access routes are from Randwick Avenue and Mortons Road which provide for direct access to the Western Freeway, while in the south a connection will be provided to Halletts Way (currently under construction).

Each of the neighbourhood quadrants fall out between the major thoroughfares and contain a grid of local routes that disperse traffic and provide multiple paths to important destinations within each neighbourhood and by extension to the town as a whole.

The future road layout has been considered in the context of the slope and is generally sited to ensure that the extent of cut and fill can be minimised to ensure a responsive design outcome. Underbank will seek to minimise the use and extent of retaining walls throughout the development.

Further Work/s

Additional investigation and analysis will be undertaken to determine site levels and expected grades to finalise road alignments and will be incorporated as part of any future permit application/s. Detailed design as part of the engineering design phase will also ensure that final levels provide for appropriate vehicle and pedestrian access in accordance with PTV Guidelines and the Infrastructure Design Manual Requirements (IDM) as per below:

Type of Grade	Grade
Desirable minimum grade	0.5 % (1 in 200)
Absolute minimum grade	0.33 % (1 in 300)
Desirable maximum grade	10 % (1 in 10)
Absolute maximum grade	20% (1 in 5) or greater with specific Council approval.

Table 3: Road Grades

Notes:

- Melbourne Water has indicated a preference to providing a clear span bridge to the east-west crossing of Korkuperrimul Creek. The final design of any crossings will be subject to further design and consultation with Melbourne Water.

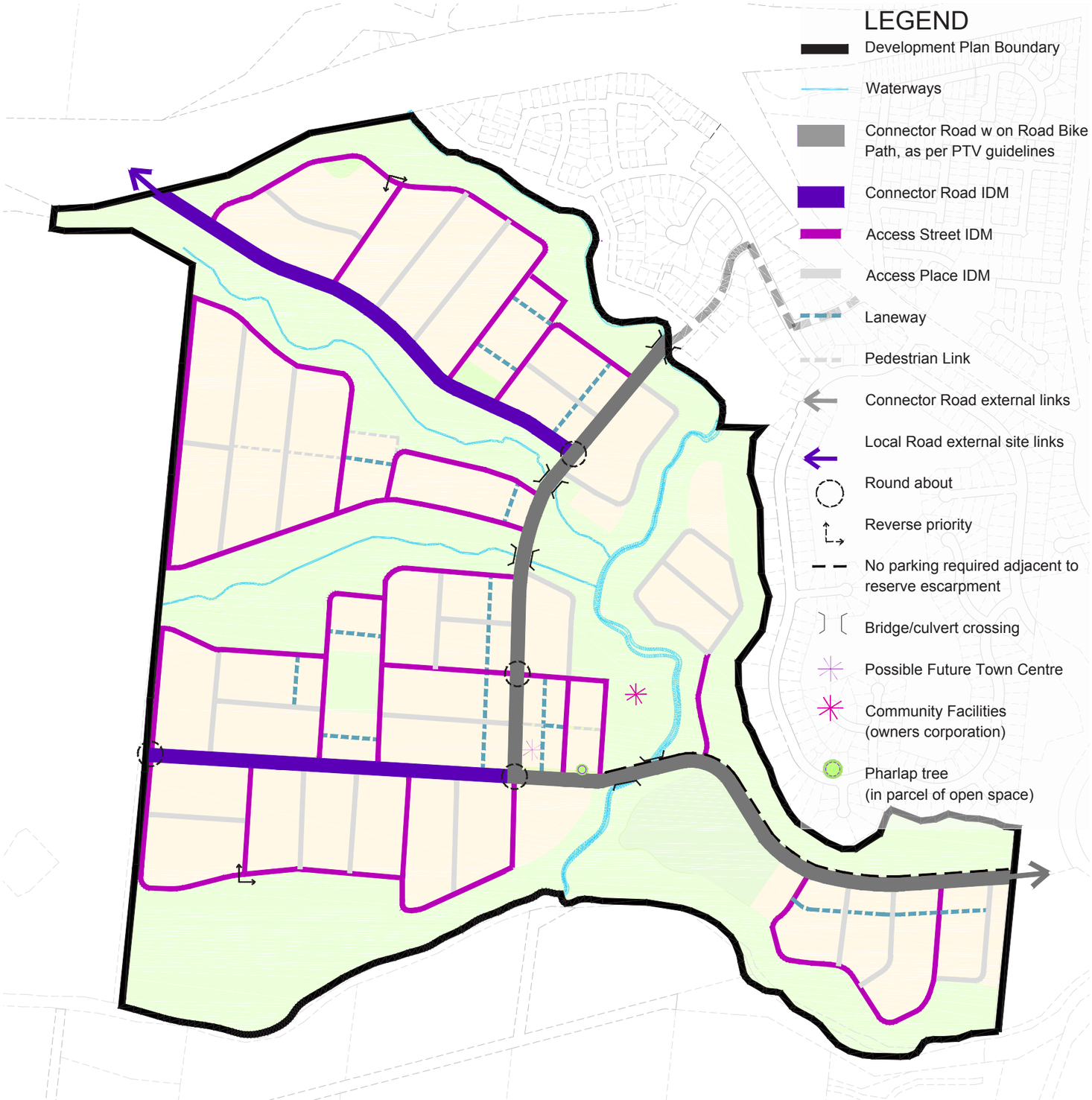


Figure 31: Movement Network

Pedestrian & Cyclist Movements

Underbank creates an integrated and connected pedestrian and cycling network to encourage movement in and around the site. Utilising the natural features of the site, Underbank will provide for a mix of more formal and informal trails to create a diverse range of experiences for residents.

Further Work/s

Additional investigation and analysis will be undertaken to determine site levels and expected grades to finalise path / trail alignments and will be incorporated as part of any future permit application/s. Detailed design as part of the engineering design phase will also ensure that final levels provide for appropriate pedestrian access.

Figure 32: Example of Shared Trail

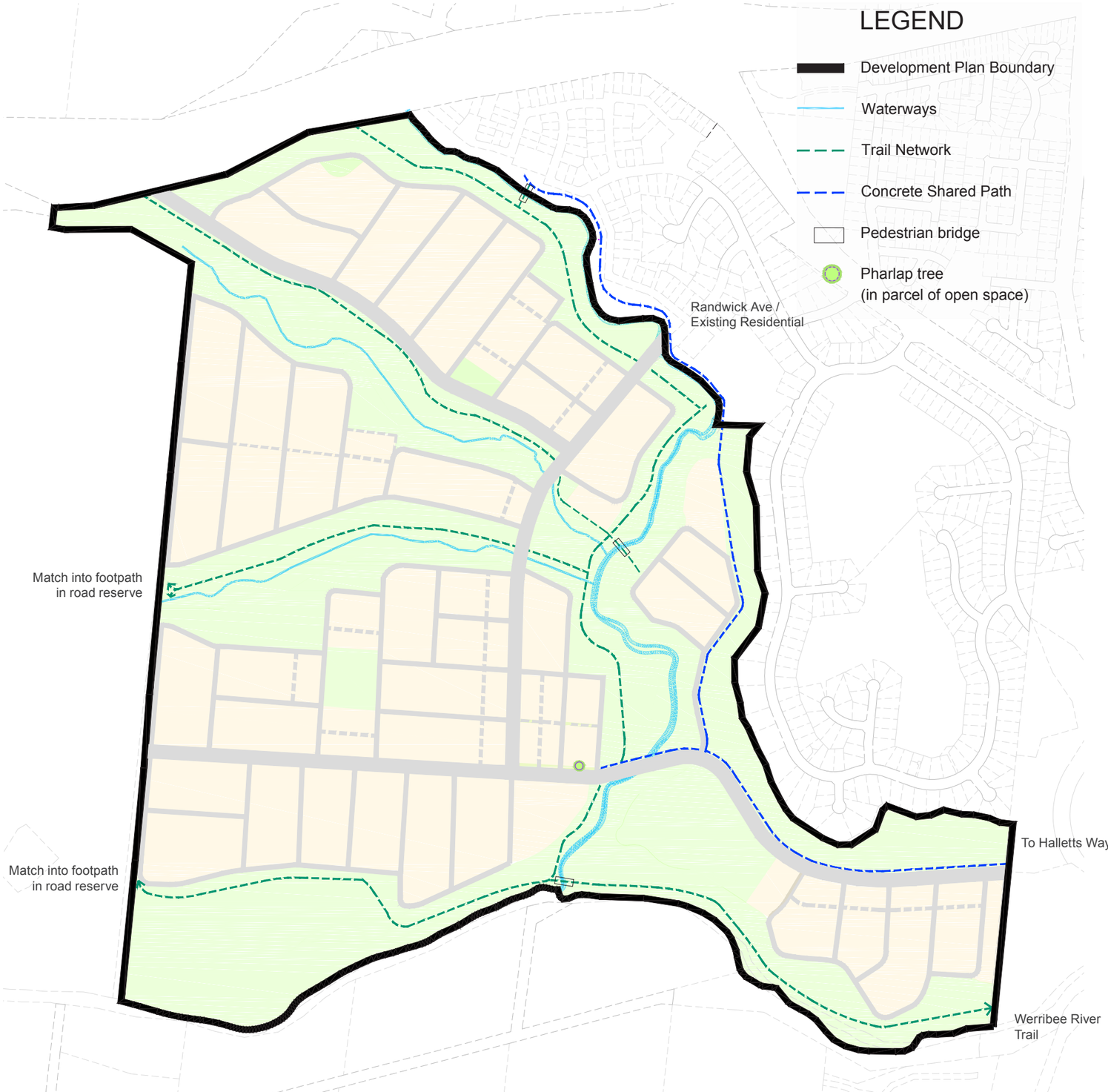
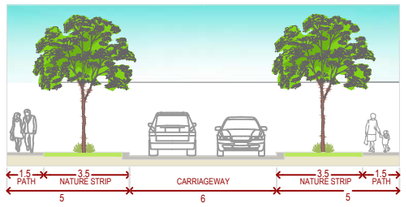
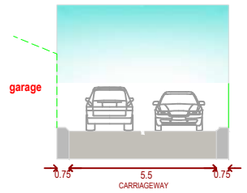


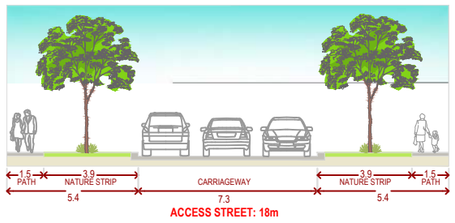
Figure 33: Pedestrian & Cyclist Network



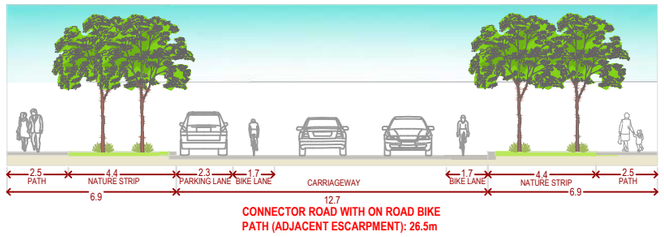
ACCESS PLACE: 16m



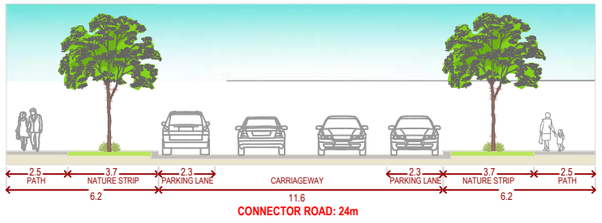
LANEWAY: 7m



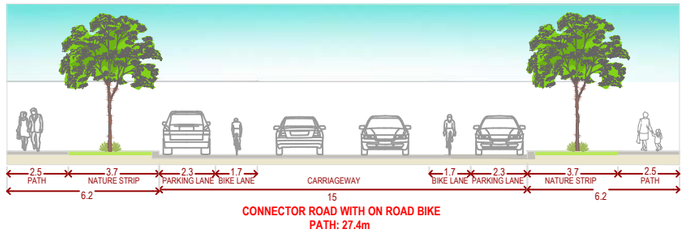
ACCESS STREET: 18m



CONNECTOR ROAD WITH ON ROAD BIKE PATH (ADJACENT ESCARPMENT): 26.5m



CONNECTOR ROAD: 24m



CONNECTOR ROAD WITH ON ROAD BIKE PATH: 27.4m

Figure 34: Indicative Streetscape Cross-Sections

Proposed Bus Route

The proposed route departs from Bacchus Marsh Railway Station, heads north along Grant Street, stops at the existing town centre, continues along Bacchus Marsh Road, Ascot Avenue, Rosehill Drive, Randwick Avenue, stops within the confluence of higher density areas, continues along the internal connector road network through to Halletts Way extension, heads south across Werribee River, stops at the proposed future neighbourhood activity centre within the Stonehill Development (Maddingley) and returns to Bacchus Marsh Railway Station. The route would also operate in reverse.

Bus stops within Underbank have been located to ensure that each neighbourhood is serviced by a bus service, with the bus stops proposed around:

- North: to service the northern neighbourhoods
- Central: centred around higher density living and the 'heart' of Underbank
- South East: in proximity to open space and proposed Stage 1

The final bus route alignment will be subject to further discussions and sign off from PTV.

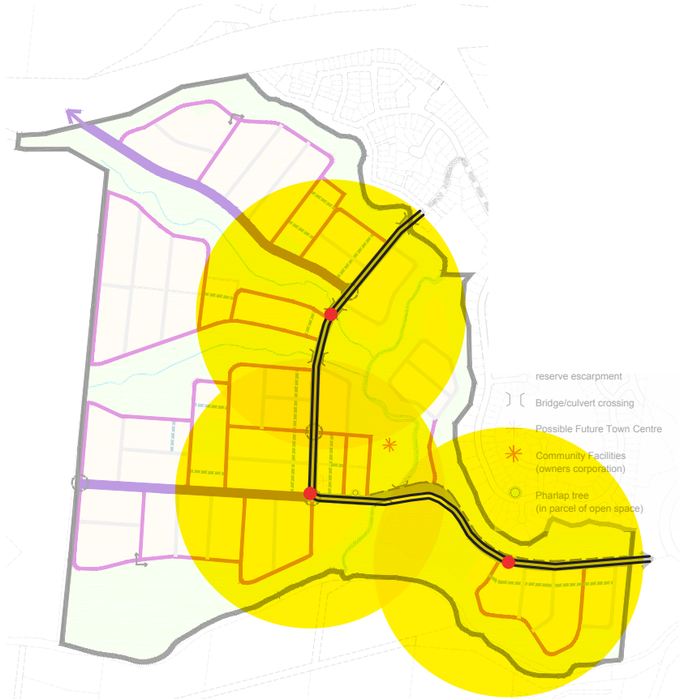


Figure 35: Proposed Bus Route

Traffic Assessment

A detailed traffic engineering assessment for Underbank was undertaken by Traffix Group and is attached as Annex K. By way of summary, the report concluded:

- The Rosehill Drive/Ascot Drive intersection should be upgraded by formalising the existing T-Intersection, including installing give-way line-marking and a splitter island prior to the occupancy of 100 lots in Neighbourhood 6;
- The proposed road cross-sections meet the requirements of DPO6 and the IDM;
- The proposed road layout and traffic management measures will ensure roads do not exceed the traffic volume range commensurate with their position in the road hierarchy;
- Proposed bicycle/recreational path network is integrated and connective with the existing network external to the site, and paths proposed along waterway corridors will be designed in accordance with Melbourne Water's Shared Pathways Guidelines;
- The proposed transportation network (including roads, bicycle/pedestrian paths and the public transport route) provides a high level of access for vehicular and non-vehicular traffic and responds to the topography of the land;
- Roads can be provided parallel to and adjoining the boundary of most of the public open space within the site;
- The proposed road layout has taken into consideration the need to maximise solar efficiency to lots;
- Bridge/culvert crossings within the site will be designed in accordance with Melbourne Water's Constructed Waterway Crossing Guidelines. Melbourne Water has indicated a clear span bridge is the preferred option to be investigated further for crossing of Korkuperrimul Creek to the south; and
- This report satisfies all of the "Traffic and Movement Networks" requirements set out in Schedule 6 to the Development Plan Overlay.

Street Lighting

Lighting plans will be prepared during the detailed engineering design phase, in consultation with Powercor. Notwithstanding this, the following preliminary street lighting specifications are recommended:

- Local access streets and access places (in low pedestrian activity areas): standard type street light pole (5.5m minimum height), lighting category P4;
- Collector and higher order roads: standard type street light pole (5.5m minimum height), lighting category P2.

Rosehill Drive / Ascot Drive Intersection

An assessment of the existing intersection was undertaken by Traffix Group. The existing Ascot Avenue/Rosehill Drive intersection exceeds the required SISD to the north but falls short to the south by 20m.

It is noted however that this assessment is based on the 85%ile speed being assumed to be equal to the speed limit (50km/h). As Rosehill Drive terminates 100m south of Ascot Avenue it is highly unlikely vehicles will be travelling this quickly and the 75m sight distance is deemed satisfactory. Accordingly, Traffix are of the opinion that no road safety audit is required.

However, it is noted that due to the increased traffic on the Ascot Avenue/Rosehill Drive intersection as a result of the proposed development, it would be beneficial to formalise the existing T-intersection treatment. This would involve installing give-way line marking, to reinforce to drivers on Ascot Avenue the need to yield to vehicles on Rosehill Drive, and a splitter island so as that vehicles cannot cut the corner.

Figure 36: Intersection Works

5.4 Open Space

Design Response

The open space through the Underbank precinct is thoughtfully planned and designed to provide for a range of passive and active open space areas. A detailed landscape concept masterplan (attached as Annex I) provides further detail with respect to the landscape and open space outcomes being sought in Underbank.

In addition to providing a recreational function, open space areas are located to maximise buffers to creek corridors - providing opportunities to rehabilitate these spaces as creek environments that support an ecological function and create linear 'spines' that define each neighbourhood.

Design Principles

The following principles are derived from the initial permit stages being delivered in Underbank and will form part of the landscape to be delivered throughout the estate:

- **Integrated Approach:** The aim for the landscape Concept Plan is to help create a high quality, integrated environment that is safe, enjoyable, sustainable and unique in its sense of place.
- **Environment:** The landscape design will achieve the environmental outcomes recommended by ABZECO and sought by the ESO2 including protecting the existing native vegetation within the creek line and restoring and rehabilitating the degraded creek reserve removing weeds and planting indigenous trees, shrubs and ground flora to maximise the environmental opportunities for biodiversity and habitat.
- **Cultural:** Design that embraces both indigenous and European heritage and use of cultural planting in feature design areas.
- **Aspect:** The undulating topography of the site offers vantage views which are captured in the Master Plan design through placement of neighbourhood parks, street design to topography and view corridors.
- **Accessibility:** The plan provides a network of pedestrian and cycle paths that link neighbourhood cores and key open space areas for safe public enjoyment.

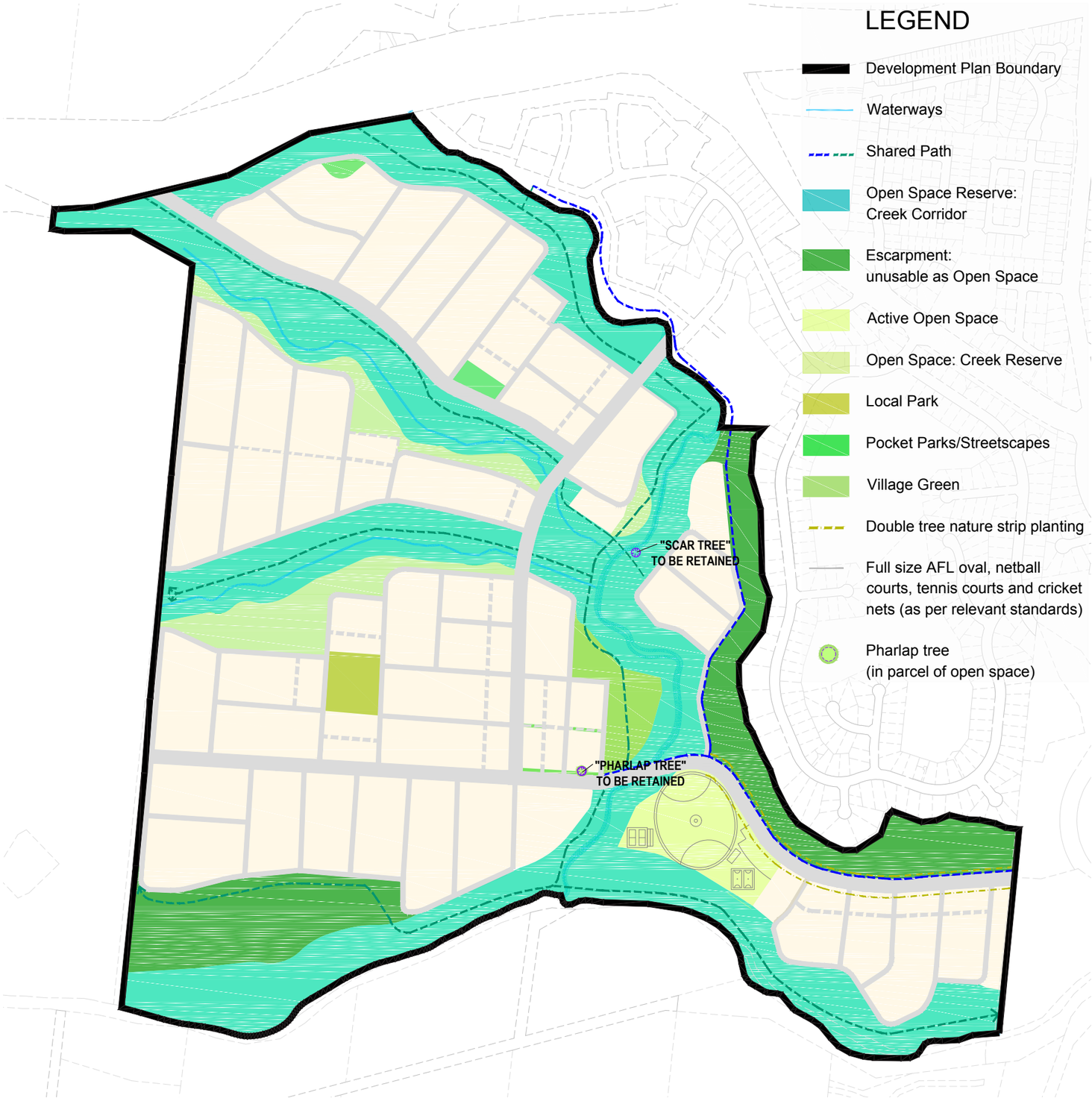


Figure 37: Open Space Network

Open Space Typologies

The proposed open space typologies within Underbank aim to reinforce the local character in the surrounding area and will retain and enhance the existing ecological systems and guide appropriate reserve and street tree design. A detailed landscape masterplan is attached as Annex I.

The key typologies that have been incorporated into the concept plan include:

- **Village Green:** Open space located at important intersections and locations that is available for recreation and community facilities. Ideally houses will front onto this space, providing passive surveillance and interest to this activity node. The landscape of this typology will include an equine theme to reflect and celebrate the current land use.

- **Parkland:** Parkland is an open space typology dedicated to recreation. The landscape themes include naturalistic paths, trails and trees. Water bodies will be incorporated as part of a comprehensive water sensitive urban design system.

  Elements within parkland spaces will consist of shelters, playgrounds, grassed areas, trees and seating subject to future detail. The location of the park within the wider estate will also effect the parks connection to hertiage sites or significant landscape overlays.

- **Creek Corridor:** The Korkuperrimul Creek and Werribee River Green Corridor is a linear reserve. The priority is to protect, retain and enhance the remnant indigenous vegetation. In addition the linear reserves will maintain their integrity as ecological corridors and weed removal will be prioritised. The landscape design proposes the planting of indigenous plants complementing the existing vegetation communities. The biodiversity of planting will enhance the corridors as habitat links for native fauna.

  Development, roads and other infrastructure is to have a minimum setback of 50m from the Werribee River to ensure this can be realised. These reserves provide an opportunity for linkages and shared pathways to connect to the broader open space network.

  In addition the open space along the linear reserves will be designed to incorporate open areas for active and passive recreation activities, signage / interpretation and public art.

- **Pocket parks / Streetscapes:** The urban design of Underbank has created several pocket parks and wider nature strips in road reserves to accommodate existing vegetation and informal recreation. Pocket parks will provide intimate moments within the estate that are an extension of the streetscape. It is proposed that these areas will be mulched and planting with ground covers and supplemented by additional tree planting if adequate space is available. The landscapes with wider nature strips may in some cases will have an established tree that will add character to the local neighbourhood.

Landscape Character

The subject site is characterised by dramatic slopes, distant views to rolling hills and the Korkuperrimul Creek corridor. The existing trees along the creek provide valuable character and amenity to this public open space corridor.

Some key character elements that have been considered in the development of the landscape design of this precinct include the following:

- Creek corridors will be rehabilitated with the planting of indigenous trees, shrubs and groundcovers to upgrade the habitat values and water quality of the creek. The corridors will be treated with the themes of a rural creek way connecting intermittent activity nodes;
- The landscape treatment will align with the urban design concept of evoking a home grown country town feel in the proposed residential areas, town centre and the general public realm;
- Trees from the surrounding Bacchus Marsh area will be used in key public nodes to link with the “sense of place” of the town. A double row canopy tree boulevard will be provided as a formal gateway into Underbank and may utilise the following tree species with a spacing of generally 8 - 12m:
  - *Eucalyptus leucoxylon ssp connata,* Yellow Gum
  - *Eucalyptus leucoxylon ’Rosea’,* Red Flowering Yellow Gum
  - *Eucalyptus polyanthemos,* Red Box
  - *Corymbia citriodora,* Lemon Scented Gum

- WSUD principles will be utilised in open spaces to promote the ecologically sensitive elements of the development.
- Consider significant landscape areas as indicated within the DPCD South West Victoria Landscape Assessment Study. This will assist in continuing the existing landscape aesthetic of the Bacchus Marsh Area.
- Draw upon existing themes and strategies as outlined by Moorabool Shire Council planning scheme for Bacchus Marsh. This includes increased connectivity through pedestrian and cyclist activity and enhancing existing design, style and appearance of Bacchus Marsh area.
- Blank walls to open space areas are to be avoided to ensure a high standard of presentation and to create safe and legible spaces.
- Fencing adjacent open space areas is to generally provide opportunities for passive surveillance, with low, permeable fences encouraged in front yards.

Landscape Masterplan

The overall landscape masterplan aims to illustrate potential key design features and decisions within the Underbank estate. These ideas will be highlighted further through the detailed design phase of the project.

The landscape master plan respects the existing site conditions and local context and will;

- Protect and retain high quality existing trees;
- Utilise historic site and materiality;
- Work with undulating topography;
- Remove weed species especially along Creek corridors; and
- Use of locally indigenous plants in close proximity to creek corridors.

The landscape master plan is committed to sustainable design including:

- Using recycled materials including mulch;
- Consider using materials from renewable resources;
- Use of plants to consider solar efficiency and
- Use water sensitive urban design where possible.

The objective and commitment to the masterplan will respond to the demographic needs of the community. This provides the future design parameters to meet Councils' Recreation and Leisure Strategy.

Active Open Space

An active play space has been proposed for the estate which will facilitate a range of community activities in accordance with the existing s173 Agreement. An indicative layout for the active open space is provided in Figure 39 and will be subject to detailed design as part of a future permit application.

LEGEND

- EXISTING TREES (TO BE PROTECTED AND RETAINED)
- PROPOSED BOULEVARD TREE
- PROPOSED STREET TREE
- 'SCAR TREE' TO BE RETAINED
- 'PHARLAP TREE' TO BE RETAINED IN PARCEL OF OPEN SPACE — ANY ENCROACHMENT WILL BE AN ACCEPTABLE EXTENT OF INCURSION IN ACCORDANCE WITH AS4970-2009 PHAR LAP TREE TO BE SET BACK FROM ROAD IN ACCORDANCE WITH AS4970
- NEIGHBOURHOOD LOTS
- CONVENTIONAL LOTS
- STABLES
- ACTIVE OPEN SPACE *SUBJECT TO S173 AGREEMENTS
- LOCAL PARKS
- ESCARPMENT - UNUSEABLE AS OPEN SPACE
- OPEN SPACE RESERVE : CREEK RESERVE
- OPEN SPACE RESERVE : CREEK CORRIDOR
- SIGNIFICANT LANDSCAPES - DPCD SOUTH WEST VICTORIA LANDSCAPE ASSESSMENT STUDY (BACCHUS MARSH AGRICULTURAL VALLEY)
- CONNECTOR ROAD
- LOCAL ACCESS ROADS
- SHARED PATHWAY
- NEIGHBOURHOOD BOUNDARY
- ESTATE BOUNDARY

Figure 38: Overall Landscape Masterplan

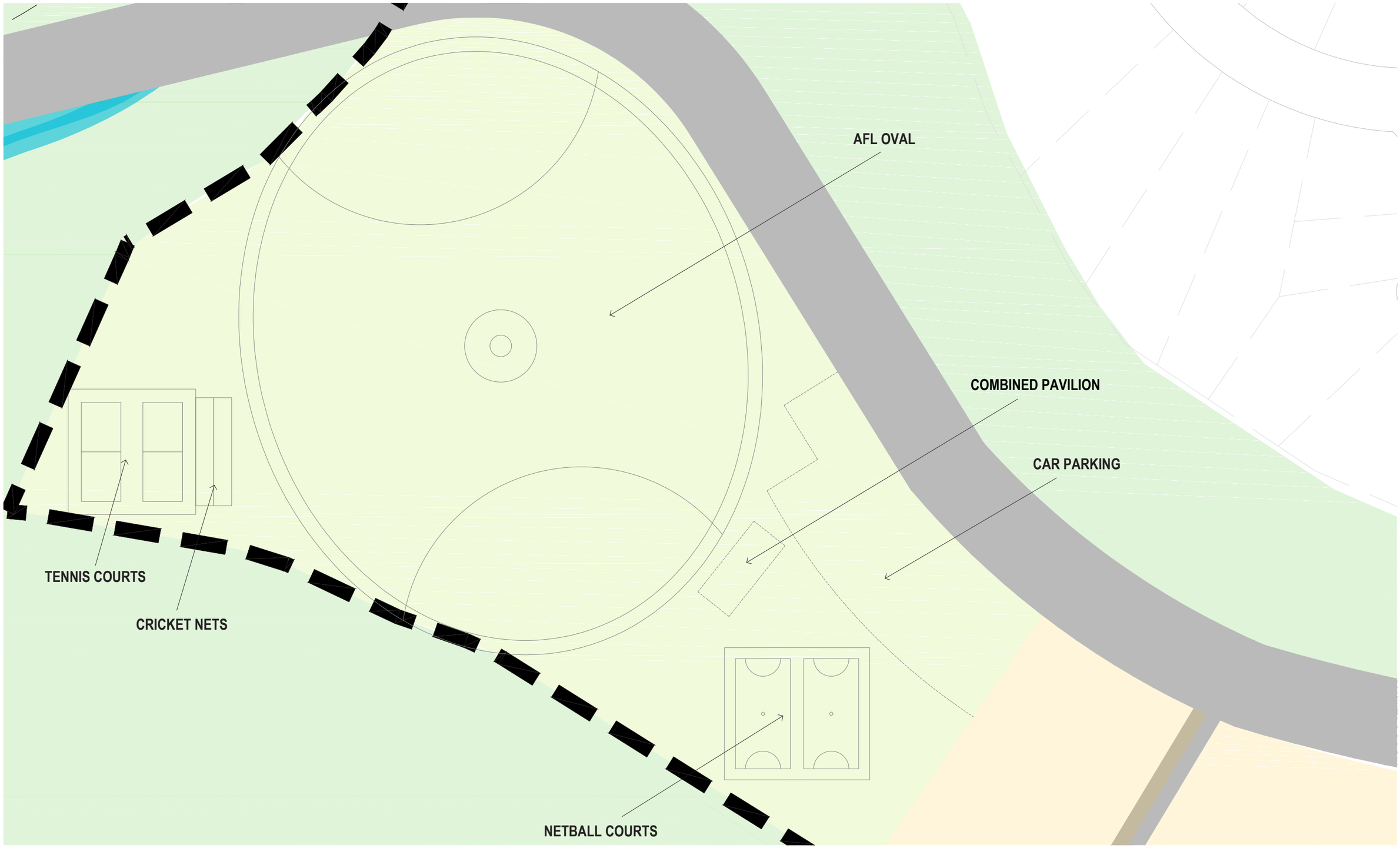


Figure 39: Indicative Open Space Layout

Landscape Features

The Underbank estate will contain various landscape features to assist in creating amenity for future residents. These features will be generated from existing conditions of the site as well as future needs of residents.

Through careful and consider designs, these landscape feature will assist in adding the unique touch to the Underbank estate, setting it apart from other greenfield developments within the wider Bacchus Marsh Area.

Below are some examples of potential landscape feature to be utilised within the Underbank:

- **Artwork:** Artwork could potentially be used as an interpretive tool to tell the historic context of the site. Existing materials as currently seen within the Underbank Stud Farm could form inspiration for such works. The artwork pieces could be located within nodal points in specific park, reserve or open space areas.
- **Fencing:** Drawing upon the existing paddock fencing as seen within the Stud Farm, this feature could be used to symbolise the sites original history. Different types of fencing could be used within an entry feature to the estate and between neighbourhoods to delineate spaces.
- **Furniture:** The landscape furniture used within the estate will reflect the heritage of the buildings. This is important as it allows the estate to retain its historic identity.

Planting Palettes

The overarching principal for the planting design is to use indigenous species as they are hardy and which establish well in this challenging environment. In addition to the indigenous species used we propose other native and exotic species in the streetscapes and formal reserves as outlined in the tables below.

Figure 40: Indicative Landscape Treatment - Shelters, Parks, Reserves

FORM	SPECIES NAME	COMMON NAME	MATURE SIZE
Trees	*Acacia implexa*	LIGHTWOOD	8 x 5 metres
	Allocasuarina verticillata	DROOPING SHEOAK	5-9 x 4-6 metres
	Banksia marginata	SILVER BANKSIA	6 x 8 metres
	Callistemon viminalis 'Kings Park Special'	BOTTLEBRUSH CULTIVAR	5 X 4 metres
	Eucalyptus leucoxylon ssp connata	YELLOW GUM	13 x 10 metres
	Eucalyptus leucoxylon 'Rosea'	RED FLOWERING YELLOW GUM	12 x 7 metres
	Eucalyptus polyanthemos	RED BOX	10-25 x 5-12 metres
	Grevillea robusta	SILKY OAK	20 x 8 metres
	Hymenanthera dentata	TREE VIOLET	2 x 2 metres
	Leptospermum lanigerum	WOOLY TEA-TREE	4 x 4 metres
Shrubs	*Acacia acinacea*	GOLD-DUST WATTLE	2 x 2 metres
	Acacia cognate 'Limelight'	DWARF RIVER WATTLE	1 x 1 metre
	Bursaria spinosa	SWEET BURSARIA	5 x 4 metres
	Callistemon sierberi	RIVER BOTTLEBRUSH	5 x 3 metres
	Cassinia aculeata	COMMON CASSINIA	3 x 3 metres
	Correa alba	WHITE CORREA	2 x 2 metres
	Dodonaea viscosa ssp. spatulata	WEDGE-LEAF HOP BUSH	2 x 2 metres
	Goodenia ovata	HOP GOODENIA	2 x 2 metres
	Grevillea rosmarinifolia 'Crimson Villea'	CRIMSON VILLEA GREVILLEA	0.8 x 0.8 metres
	Myoporum viscosum	STICKY BOOBIALLA	2 x 2 metres
	Westringia fruticosa	NATIVE ROSEMARY	1.2 x 1.2 metres
Small shrubs and groundcovers	*Carpobrotus rossii*	KARKALLA / PIG FACE	spreading
	Chrysocephalum apiculatum	COMMON EVERLASTING	1 metre spread
	Clematis microphylla	SMALL LEAVED CLEMATIS	3 metre spread
	Correa glabra	ROCK CORREA	1 x 1 metre
	Dianella caerulea 'Cassa Blue'	CASSA BLUE FLAX LILY	0.5 x 0.5 metres
	Dianella revoluta	SPREADING FLAX LILY	1 metre spread
	Lomandra longifolia	SPINY-HEADED MAT RUSH	1 metre spread
	Lomandra longifolia ' Tanika'	TANKIA LOMANDRA	0.5 x 0.5 metres
	Myoporum parvifolium 'Fine Leaf Form'	CREEPING BOOBIALLA	spreading

Table 4: Suggested Planting Palette for Underbank

FORM	SPECIES NAME	COMMON NAME	MATURE SIZE
Access Place Adjacent A Reserve: 14.5m	*Allocasuarina verticillata*	DROOPING SHEOAK	5-9 x 4-6 metres
	Eucalyptus leucoxylon ssp connata	YELLOW GUM	13 x 10 metres
	Eucalyptus leucoxylon 'Rosea'	RED FLOWERING YELLOW GUM	12 x 7 metres
	Eucalyptus polyanthemos	RED BOX	10-25 x 5-12 metres
Access Place: 16m	*Acacia implexa*	LIGHTWOOD	8 x 5 metres
	Allocasuarina verticillata	DROOPING SHEOAK	5-9 x 4-6 metres
	Banksia marginata	SILVER BANKSIA	6 x 8 metres
	Callistemon viminalis 'Kings Park Special'	BOTTLEBRUSH CULTIVAR	5 X 4 metres
Access Street: 18m	*Eucalyptus leucoxylon ssp connata*	YELLOW GUM	13 x 10 metres
	Eucalyptus leucoxylon 'Rosea'	RED FLOWERING YELLOW GUM	12 x 7 metres
	Eucalyptus polyanthemos	RED BOX	10-25 x 5-12 metres
Connector Street Level 1: 24m	*Eucalyptus leucoxylon ssp connata*	YELLOW GUM	13 x 10 metres
	Eucalyptus polyanthemos	RED BOX	10-25 x 5-12 metres
	Grevillea robusta	SILKY OAK	20 x 8 metres

Table 5: Suggested Planting Palette for Street Typologies

FORM	BOTANICAL NAME	COMMON NAME	MATURE SIZE
Tall / Large Shrubs and Trees	*Allocasuarina verticillata*	DROOPING SHEOAK	5-9 x 4-6 metres
	Eucalyptus microcarpa	GREY BOX	20 x 5 metres
	Eucalyptus leucoxylon	YELLOW GUM	25 x 6 metres
	Eucalyptus camaldulensis	RIVER RED GUM	20 x 15 metres
	Eucalyptus melliodora	YELLOW BOX	10-30 x 8-25 metres
	Eucalyptus sideroxylon ssp. tricarpa	IRONBARK	25 x 5 metres
Small shrubs and groundcovers	*Acacia implexa*	LIGHTWOOD	8 x 4 metres
	Acacia mearnsii	BLACK WATTLE	10 x 6 metres
	Acacia pycnantha	GOLDEN WATTLE	5 x 5 metres
	Acacia verniciflua	VARNISH WATTLE	3-5 x 3-5 metres
	Atriplex semibaccata	CREEPING SALTBUSH	2 x 2 metres
	Callistemon sieberi	RIVER BOTTLEBRUSH	5 x 3 metres
	Rhagodia parabolica	FRAGRANT SALTBUSH	1 x 2 metres
	Einadia nutans ssp. nutans	NODDIND SALTBUSH	1 x 1 metres
	Enchylaena tomentosa	RUBY SALTBUSH	1 x 1 metres
	Melicytus dentata	TREE VIOLET	2 x 2 metres
	Myoporum insulare	BOOBIALLA	5 x 5 metres
Grasses	*Austrostipa spp.*	SPEAR GRASS	.3 spread
	Lomandra filiformis	WATTLE MAT RUSH	.3 spread

Table 6: Principal Revegetation Species for Underbank

5.5 Vegetation

Design Response

Development of Underbank will inevitably have some impact on the existing environmental values within the site. However, some of these areas are highly degraded and the future development of the land provides opportunities to enhance environmental values and provide greater connectivity to the surrounding areas.

In preparing the masterplan for Underbank, the findings of the supporting reports (Arboricultural Assessment, Biodiversity Assessment, Escarpment Management Plan) were considered and land set aside for development generally:

- Minimises the removal of native vegetation in accordance with Clause 52.17. Opportunities are provided for the retention of offsetting of trees within open space corridors, parkland and along gullies. Additional opportunities will be investigated to retain individual trees within residential areas as part of the Permit stage;
- Improve land quality and minimise the potential for erosion. Development is adequately setback from existing creek corridors and will minimise the potential for topsoil disturbance within these areas. Proposed residential development is located outside of steep land and the development actively seeks to contribute to and improve the quality of escarpment areas through rehabilitation and stabilisation efforts.
- Seeks to avoid development along the eastern escarpment - allowing for the retention of Fragrant Saltbush;
- Minimises the extent of development to the southern escarpment to allow for the retention of older remnant trees;
- Avoids development along the gully and waterway corridors - providing significant opportunities to improve the quality and functionality of these areas through maintenance and revegetation works (as detailed on p. 42).

The current assessment has approximated vegetation impacts given that a detailed subdivision layout has yet to be finalized. This assessment will need to be revised upon receipt of plans that detail scattered tree and/or vegetation patch loss and retention across the development area.

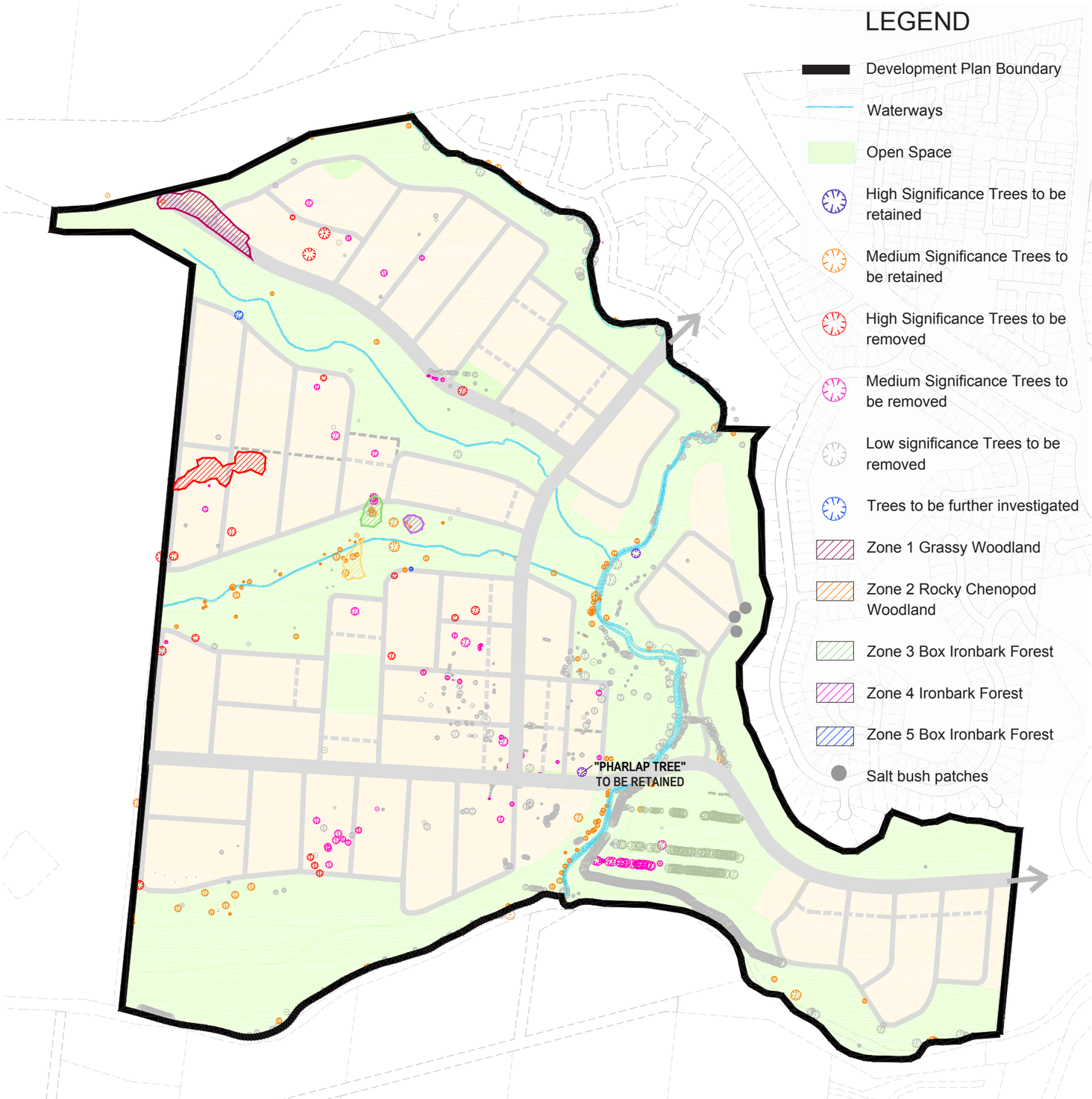


Figure 41: Tree Retention

Further Work/s

As detailed in the Arboricultural Report, some of the trees onsite will need to be subject to pruning and weight reduction to ensure their longer term viability. These works will be undertaken prior to the commencement of development.

During the permit application stage, further assessment will be undertaken to determine the final extent of any tree retention. Where trees are identified for retention, any works are to comply with the relevant standards (AS4970-2009 - Protection of Trees on Development Sites) and avoid encroachment within Tree Protection Zones to ensure the long term viability of the tree. It is further recommended that:

- Development avoid the loss of 'intact' vegetation and 'scattered' indigenous trees where possible, and minimise disturbance to significant flora and fauna;
- Avoid the removal of indigenous trees and habitat stags wherever possible. Trees should be incorporated into a development plan and considered for retention in small reserves, roadsides, pocket parks or within the setbacks of lots;
- Avoid the removal of indigenous trees and habitat stags wherever possible. Trees should be incorporated into a development plan and considered for retention in small reserves, roadsides, pocket parks or within the setbacks of lots;
- Large scale restoration works, involving weed control and revegetation, should be undertaken along the Korkuperrimul Creek and Werribee River.

Required offsets may, in part at least, be able to be achieved through restoration of drainage lines, habitat zones and the eastern escarpment (for which an Escarpment Management Plan has been prepared) within the study site, and a consideration required by the DPO. Although not certain at this stage what will be lost or retained, remnant vegetation areas proposed to be retained will need to be assessed for offsetting potential given the remaining areas of native vegetation available for protection.

5.6 Weed Management

A staged weed management plan informing the management of noxious and other significant weeds during and after the subdivision and development of Underbank has been prepared by ABZECO (see Annex M).

In addition to identifying the various weed species affecting the site, the report provides a methodology for their removal - providing guidelines and principles that will prevent the spread of these species within or from the site In particular, the plan details best practice standards for vehicle and machinery hygiene, 'no go' conservation areas, soil stabilisation, stockpiling and transporting of materials, and weed control timing and methodology for areas disturbed by works.

The following target species were identified for control:

- Grassy weeds;
- Herbaceous weeds;
- Woody weeds.

Staged management actions are based on immediate and longer-term priorities. The plan ensures these actions will be accountable and measurable over time, and that they can be realistically implemented.

The developer will be responsible for ensuring actions detailed in this plan are carried out by contractors with relevant experience in ecological management and restoration. A s173 Agreement will be entered into with the Responsible Authority to ensure the delivery of the works over a five (5) year period.

5.7 Escarpment Management

An escarpment management plan (attached as Annex F) details active management objectives and a methodology for the restoration of the eastern escarpment. The works outlined seek to meet the broad restoration objectives outlined in the DPO. A geomorphological assessment undertaken by Engeny (see Annex G) also outlines a number of principles that are to be considered.

By way of summary, the plan involves a range of methodologies, including:

- Erosion mitigation and prevention, including:
  - Avoiding development on escarpments and in areas where slope exceeds 20%.
  - Strategic, integrated weed control and revegetation with appropriate species.
  - A long-term drainage strategy that addresses stormwater run-off.

- Any necessary works outlined in the geotechnical assessment, including:
  - Constructing a barrier aong the toe of the escarpment (south and east)
  - Preventing access to the escarpment for recreational purposes (south and east)
  - Localised re-profiling of the southern escarpment using free draining granular fill
  - Cutting back vertical soil slopes along waterways to ensure shallower angles, revegetating these areas and utilising 'hard' and 'soft' erosion protection measures.
  - Minimising fill batters

- Weed control - including the identification of, and a detailed methodology on the removal and timing of weed removal;
- Revegetation - including preparation, plant establishment and maintenance;
- Pest animal control; and
- Fire risk mitigation.

It is expected that the developer will be responsible for the resourcing and implementation of the plan. A s173 Agreement can be entered into with the Responsible Authority to ensure the delivery of the works with an understanding that handover will take place at completion of the 10-year management period or upon receipt of ‘Statement of Compliance’ for the subdivision, to the satisfaction of the Responsible Authority.

Although this plan has addressed predicted management requirements, decisions will need to be made in response to environmental conditions. Due to the inherent nature of environmental changes, the detailed works schedule should be viewed as a guide to the most likely timing and duration of works.

It is considered highly likely that if undertaken to a high standard, the proposed works program will achieve the required and restoration objectives over the prescribed management period.

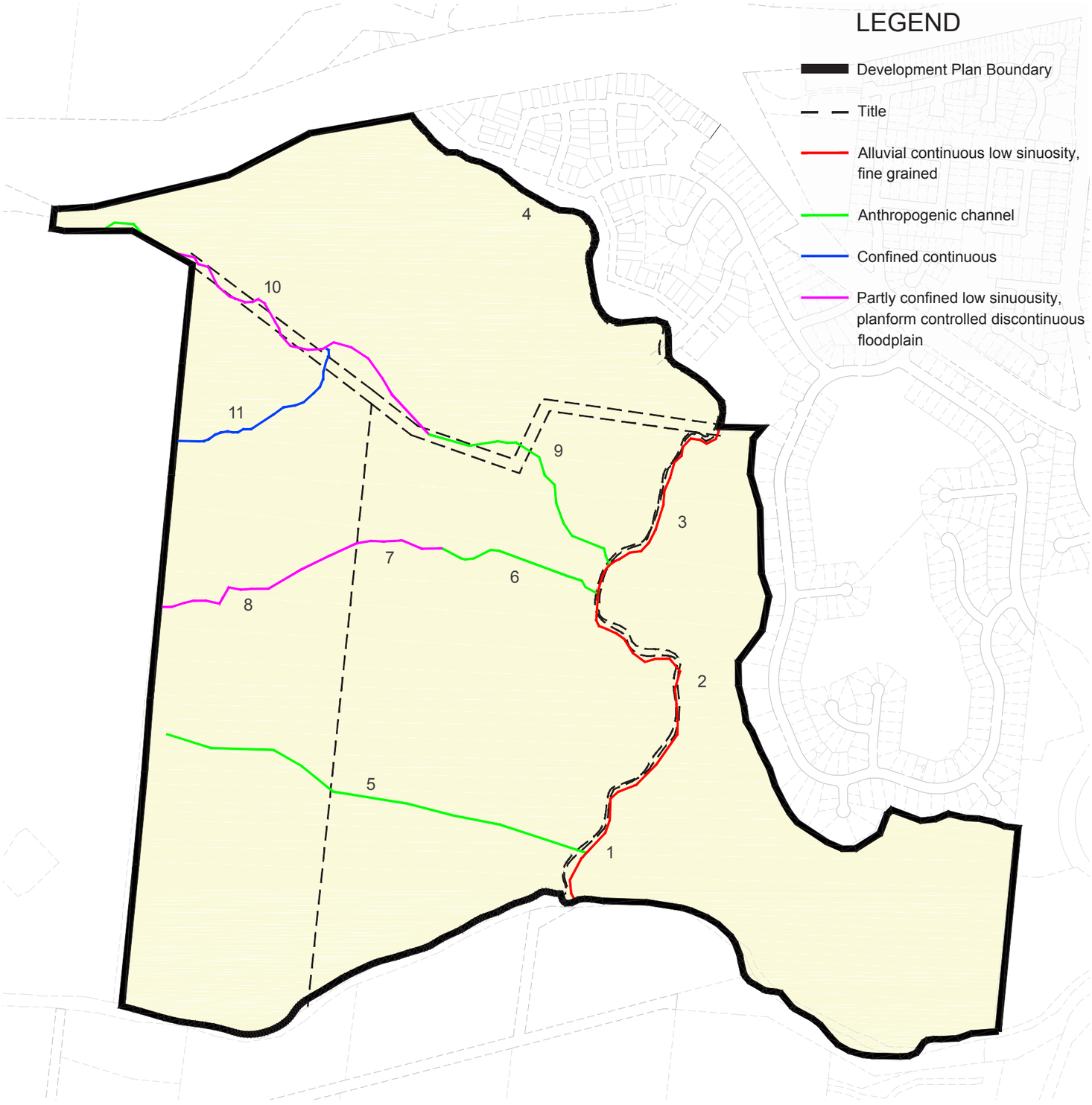


Figure 42: River Style Classification

5.8 Waterway Management

As part of the geomorphological assessment for Underbank (Annex G), a high level strategy was identified with respect to management of the waterways. This is a high level management plan and it should be read in conjunction with ABZECO's management plan for the development, which contains further natural resource management actions to improve existing conditions (including pest and weed management).

Key components of Engeny's water management plan include:

- Retaining most waterways as predominantly natural waterways, with the exception of some sections of constructed waterways. Aesthetic and environmental improvements to the waterways are required to improve overall waterway condition.
- Appropriate waterway setbacks in accordance with Melbourne Water's Waterway Corridor Guidelines. Greater setbacks may be required (such as for reach 8) depending on the success of the management plan, shared pathways along waterways and the stormwater management plan details.
- Stabilisation of the toe, profiling and revegetation to address existing erosion issues in Korkuperrimul Creek.
- Increased riparian zones to improve ecological value and provide buffer against future erosion.
- Potential implementation of urban design features that maintain existing hydrology to protect vegetation and habitat areas that are dependent on ephemeral conditions
- Implementation of constructed waterways where current values are insignificant and hydraulic capacity is required.
- For reach 8, which has significant existing erosion issues, reinstatement of the bed level through incorporation of bed control structures to limit propagation of headcut upstream and through drainage tributaries. It is also recommended to employ safety measures to limit access to waterway until bed and banks stabilise. A detailed management plan will be developed and implemented for erosion mitigation, prevention and enhancement of Reach 8.
- For reach 2 areas of excessive bank erosion on meanders may require stabilisation and the existing drop structure is to be stabilised.

5.9 Site / Environmental Management

A detailed Site Environmental Management Plan (to be used during construction) will be developed to the satisfaction of Melbourne Water and the Responsible Authority. The plan is to incorporate recommendations of various supporting reports relating to:

- Mitigation of noise, vibrations and dust;
- Sediment and erosion controls;
- Native vegetation and tree protection; and
- Commencement and implementation of weed management measures outlined in the Weed Management Plan (Annex M).

It is expected that a Site Environmental Management Plan will form part of future Permit conditions relating to the subdivision of land.

5.10 Geotechnical Work/s

Prior to the approval of any stage of subdivision the following must be prepared by a suitably qualified expert, submitted to and approved by Moorabool Shire Council for the relevant stage, unless otherwise agreed with Council.

- Exploratory Geotechnical Investigations as per the recommendations of "Tonkin + Taylor High Level Geotechnical Assessment, Underbank Residential Subdivision".
- Colour coded maps indicating the land that will and will not be subject to intolerable geotechnical risks before and after the installation of geotechnical risk mitigation measures relevant to the stage.
- Where relevant, details of the construction and ongoing maintenance and management of any measures to mitigate geotechnical risks.

These requirements may be varied to the satisfaction of Council subject to further clarification of the land subject to intolerable Geotechnical risk.

5.11 Neighbourhoods & Densities

Design Response

Underbank is built around a series of walkable neighbourhoods that are designed to form a unique character. Each of the neighbourhoods is defined by distinct edges and focal points that will form an important part of the local fabric. Examples of these focal points, may include open space areas, significant landscaping/trees, or other notable features, such as public artwork or installations.

Pedestrians and cyclists share the thoroughfares with drivers in an equitable arrangement. Some routes within the urban fabric will be exclusively for pedestrians and cyclists, offering an alternative experience. Off-road trails and cycle paths will be provided through the north-south creek-way system, along the Werribee River, north to the Bacchus Marsh Town Centre and south providing links to the Railway Station and to the Werribee Gorge State Park.

Design Objectives

Underbank is to provide a high quality residential environment through ensuring:

- A range of lot sizes are provided that respond to site features and proposed use/s;
- Lot configurations are designed to accommodate landscaping in front setbacks and avoid excessive areas of paving;
- Battleaxe style lots should be avoided;
- Lots adjoining open space are designed to facilitate positive interfaces and passive surveillance.

Density, Diversity and Slope

Underbank will provided for a range of housing types within walking distance of community facilities to service the needs of local residents. Densities will provide for seamless integration with the existing residential areas to ensure a logical transition into Underbank.

As the diagram illustrates, the Master Plan provides for a range of anticipated housing types which are designed to respond to the topography of the land. Lots are to be design to ensure a site responsive outcome to minimise the extent of cut and fill and the need for retaining walls where practical, and will include:

- **Neighbourhood Lots:** Minimum lot sizes generally in the order of 400m^2 on land below the 125m contour line, except where the land is in proximity to amenities (Neighbourhoods A and B). Opportunities for some larger lots of around 600m^2 will be provided to contribute to diversity nearer the north-south connector road;
- **Conventional Lots:** Minimum lot sizes generally in the order of 700m^2, except where the land has a gradient of less than approximately 1:10 (Neighbourhood C);
- **Rural Interface Lots:** Larger blocks at sensitive interfaces and on steeper land for a less urban experience (Neighbourhood C).

Opportunities for some larger lots on flatter land will be provided to contribute to diversity.

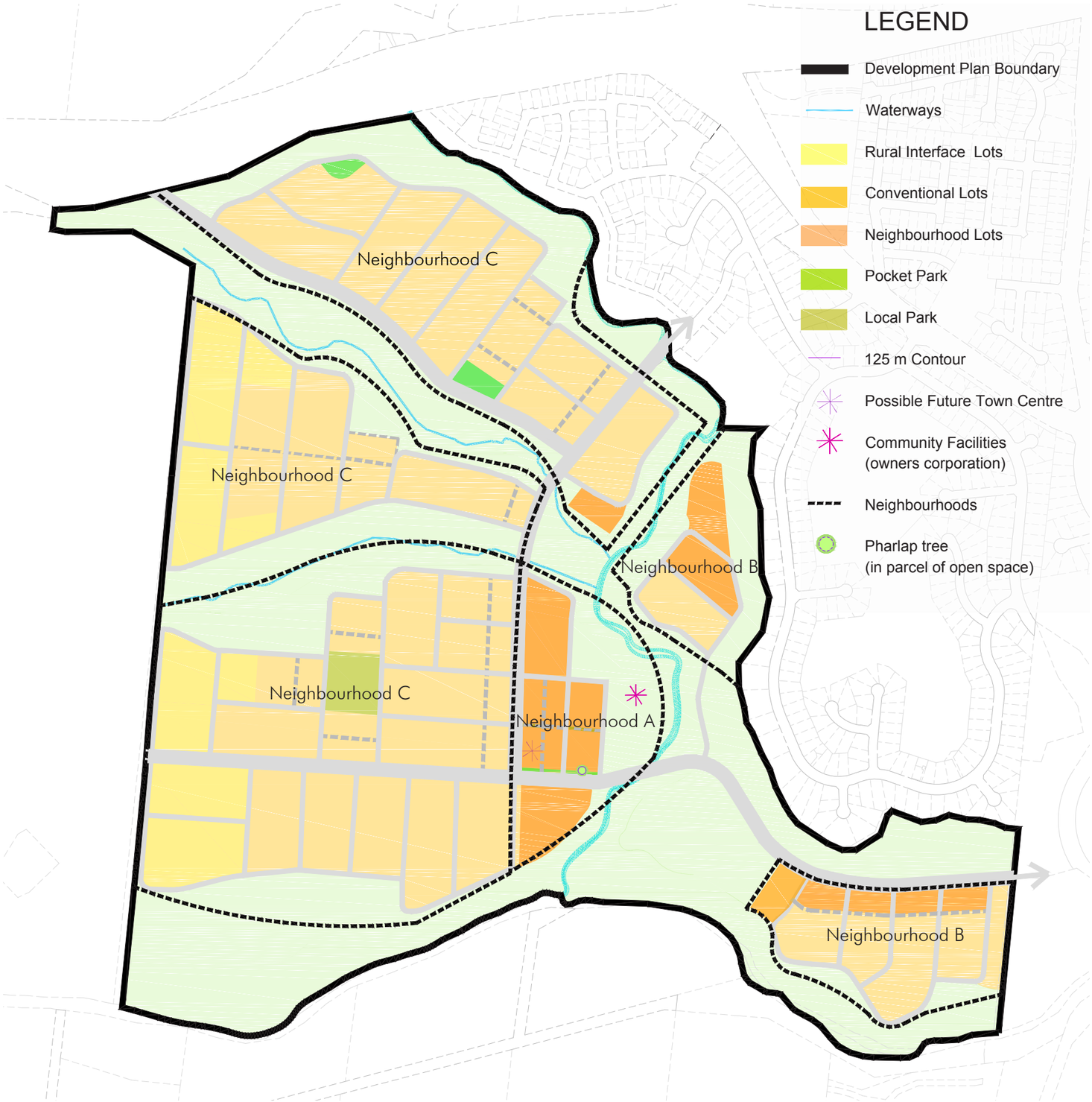


Figure 43: Neighbourhoods and Densities

Neighbourhoods

Underbank will be defined by three (3) distinct residential neighbourhoods which are designed to respond to local features and amenity. Each of the neighbourhoods will be supported by landscaping that is responsive to the site and surrounds and will provide for a contemporary design response, as follows:

- **Neighbourhood A:** Generally located on flatter land, Neighbourhood A represents areas of higher amenity, with access to community facilities, public transport and open space areas. As such, this area will seek to provide for a higher density, with lot frontages generally ranging between 10m - 12.5m.
- **Neighbourhood B:** These neighbourhoods are typically located on land under the 125m contour line and are provided with good access in and around the estate. Lots within Neighbourhood B will be provide for a range of housing outcomes, with lot frontages of approximately 10m - 16m.
- **Neighbourhood C:** Covering much of Underbank, Neighbourhood C will be defined by more conventional residential development, with lots and housing designed to respond to the slope. It is expected that lots will typically have a minimum 16m frontage, with larger lots provided along the western boundary to provide an appropriate interface and transition to existing rural land.

Underbank recognises the natural assets and historical context of the site in its design. The creek waterways will be protected and enhanced - enabling informal recreation and walking / cycling paths through naturalised corridors. Each of the neighbourhoods:

- Are clearly defined by the natural environment;
- Include a local street network which is design to provide view lines through to and access to the creek environs;
- Will be supported by high quality landscaping at the interface between the public and private realms;
- Will look to incorporate existing vegetation into 'naturalised' open spaces and streetscapes (where possible) to provide for diverse housing outcomes and high standard of amenity that contributes to the character of Underbank;
- Will be supported by formal or informal recreational spaces;
- Will include appropriate theming for lighting, furniture and planting.

Built Form & Streetscape Character

Buildings and structures will be designed to reflect the organic and township experience of Bacchus Marsh whilst showcasing contemporary and innovative design through encouraging a high standard of built form and landscape outcomes.

Buildings should be sited and designed to:

- Contribute to the streetscape character through addressing road frontages and integrating landscaping within the front yard;
- Maximise opportunities for passive surveillance to streets, escarpments, gullies, waterways and open space corridors;
- Exhibiting a contemporary built form outcome that is responsive to the existing rural setting of Bacchus Marsh;
- Ensure that built form in prominent locations and corners provide a positive address to both street frontages.
- Respond to site levels to avoid excessive amounts of retaining;
- Define boundaries between public and private spaces, and restrict access to private spaces where necessary
- Dwellings with an interface to open space and waterway corridors are to provide low, permeable fencing to maximise opportunities for passive surveillance (refer example Figure 45).
- Blank walls to open space areas are to be avoided to ensure a high standard of presentation and to create safe and legible spaces.

Figure 44: Indicative Built Form Outcomes

Locally Responsive

Underbank is based on a more traditional neighbourhood design approach that looks to respond to the natural features and context of the site. The following objectives are outlined to ensure a responsive outcome and are to be delivered through the implementation of design guidelines (for each stage) which ensure a high quality outcome can be realised:

- Setback lots from the escarpment areas to minimise visual intrusion and the potential for landscaping - in accordance with Melbourne Water's Waterway Corridor Guidelines.
- Minimise built form on hilltops and ridgelines to preserve higher quality landscapes and maintain key site features.
- Encourage housing styles that respond to local topographical features to minimise the extent of cut and fill and avoid the potential for mass wasting.
- Ensure lots front the primary road network and create a positive outlook by:
  - Encouraging the provision of habitable spaces to the frontage
  - Minimising the extent of hardstand
  - Encouraging a high standard of landscaping
  - Maintaining low / no front fencing

- Provide a road along the base of the eastern and top of the southern escarpment to provide access to these areas.
- Provide pedestrian and vehicle connections that integrate with the surrounding network/s and encourage opportunities for connectivity into/out of the site.
- Setback the street network from the waterways in accordance with Melbourne Water requirements.
- Provide opportunities for larger blocks with single dwellings at interfaces to rural areas for a less urban experience and a transition to undeveloped land.
- Fencing adjacent the western boundary road is to define the edge of the site and prevent livestock entering Underbank. Fencing is to be primarily constructed of natural materials (timber, stone, etc). and be visually appealing.

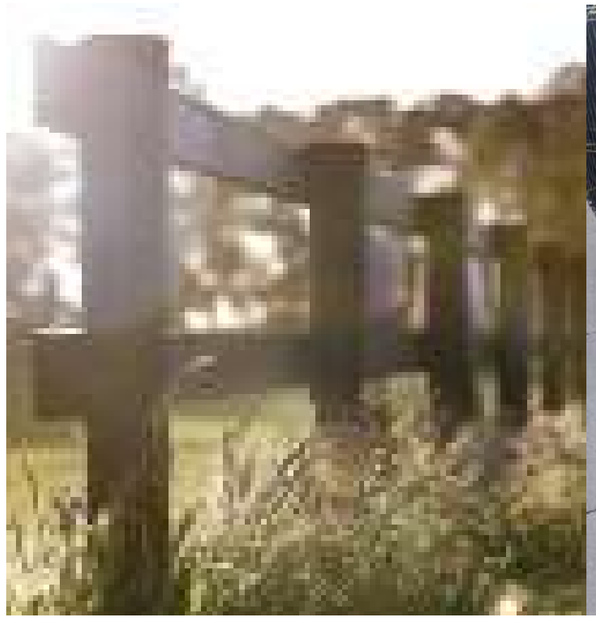


Figure 45: Indicative Fencing to Western Boundary

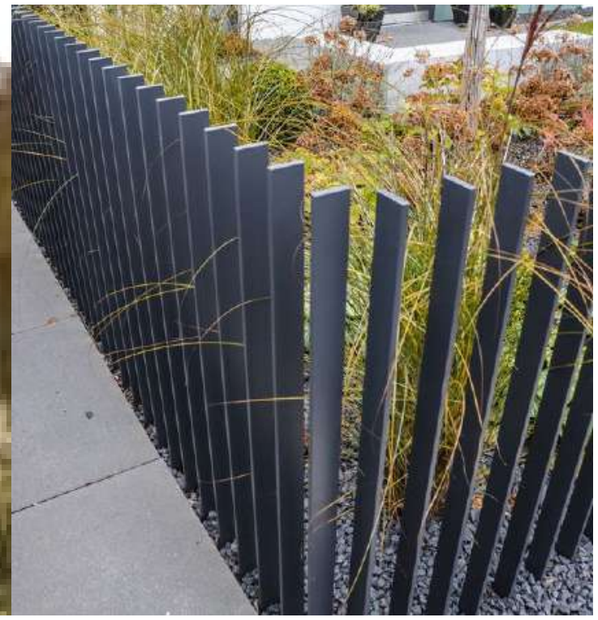


Figure 46: Indicative Fencing to Open Space Areas

Figure 47: Indicative Built Form and Streetscape Outcomes

Staging and Layout

Entry to Underbank is expected to occur from Halletts Way in the south east; forming the first of the tree lined avenues to service the development plan area. This connector road is designed to sit at the base of the escarpment - making a bold statement as residents enter the estate and head toward the active open space and community facilities.

As Underbank grows, a Central Avenue runs north-south and forms the spine of a potential public transport system, distributing traffic and pedestrians to the wider estate.

Utilities & Drainage

In addition to the impending completion of Halletts Way, starting in the south east represents the most logical extension of the existing services network - with access to sewer to cater for the initial stages of development.

Water connections will be provided via two looped 300mm water mains west of the Underbank main, and a lower level 225mm water main loop (1,800m) incorporates approximately 300 lots east of Korkuperrimul Creek.

As detailed in the attached Servicing Report (Annex L), it is anticipated that infrastructure and services can be rolled out in a logical manner to reflect the staging of development and will be done so in conjunction with the relevant authorities as follows:

- **Sewer:** Western Water is responsible for the provision of sewer reticulation. The developer will be required to construct the reticulated sewer within Underbank.
- **Water:** Western Water is responsible for the provision of recycled and potable water reticulation. The developer will be required to construct the reticulated potable and recycled water within the development. Western Water is still in the process of formulating a detailed strategy for the site.
- **Electricity:** Powercor is responsible for the provision of underground electrical supply
- **Telecommunications:** NBN Co will be responsible for telecommunications facilities. The developer is required to install pit and pipe infrastructure suitable for the NBN.
- **Gas:** Ausnet Services is responsible for the provision of gas reticulation. It is anticipated gas will be provided in accordance with Ausnet Service's standard terms and conditions.

Detailed engineering design will make the relevant allowances for services within the road reserve in accordance with authority standards.

Initial Development

Entering from the south east, this potential development front will be designed to match into the (proposed) Halletts Way extension which is expected to be delivered in 2016/17. The entry boulevard is designed to run alongside the base of the escarpment, providing a unique entry vista into the first stage of development.

This neighbourhood will provide for a range of neighbourhood and cottage lots to utilise the flatter land and provide for high quality interface to the entry road and Werribee River.

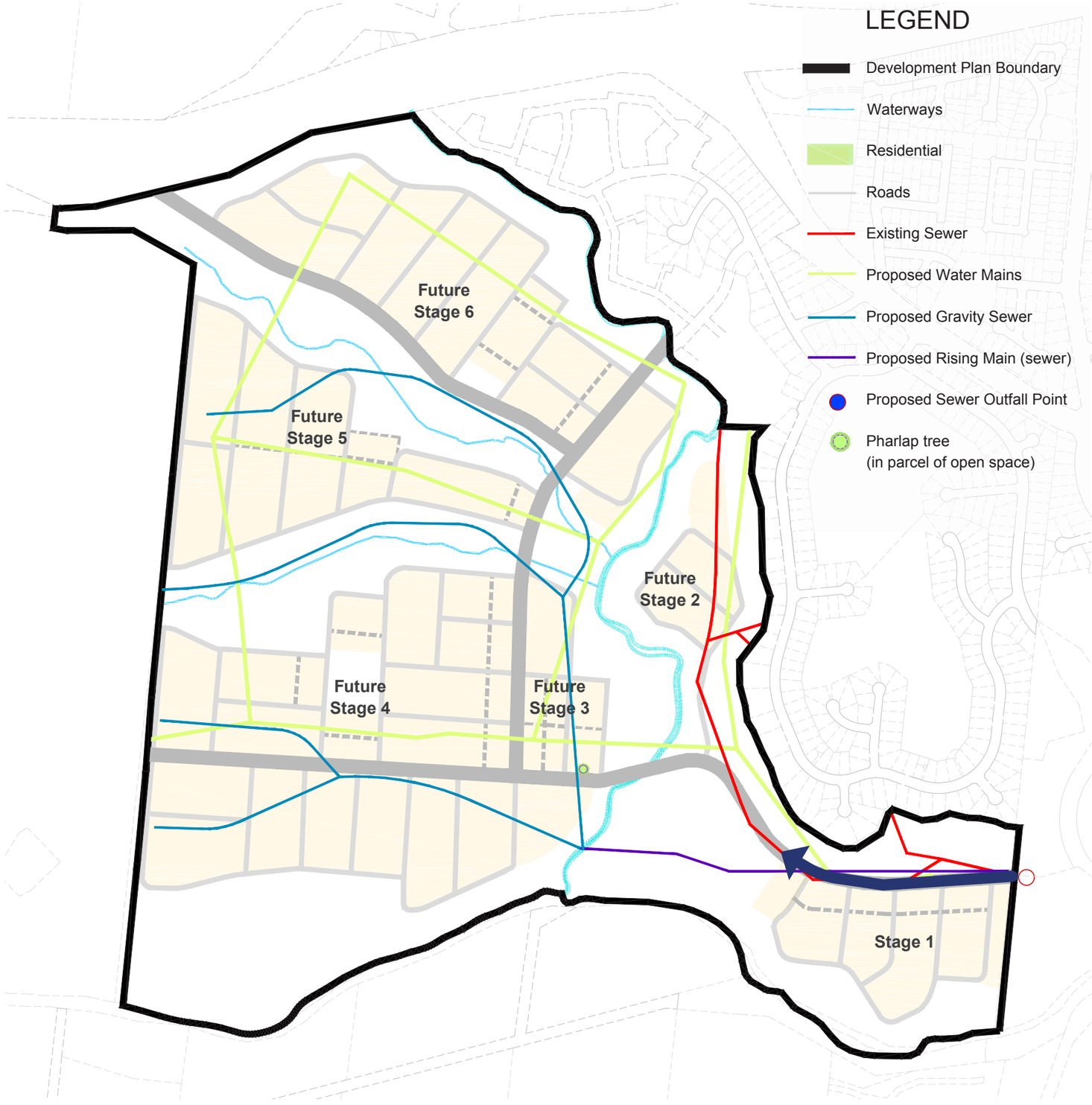


Figure 48: Anticipated Staging & Servicing

5.12 Land Use

Design Response

Underbank is an integrated, master planned extension to Bacchus Marsh comprising:

- Discreet residential neighbourhoods creating a community that is complementary to the existing Bacchus Marsh township;
- Active open space facilities including a sports oval and associated amenities;
- A range of open spaces, including conservation open space along identified sensitive areas complemented by a walking and cycling network providing links to the broader landscape;
- Environmental conservation and restoration corridors along the Werribee River and Korkuperrimul Creek, to facilitate the protection and enhancement of watercourses;
- A potential mixed use town centre to serve retail, service and community needs of the new neighbourhood (subject to demand and further investigation);
- A legible and interconnected street network, to provide for vehicles, cyclists and pedestrians.

Land Budget

As indicated below, Underbank will comprise a balanced use of land, providing for a sensitive mix of residential, community and green space.

Land Use	Area	%
Creek Environs	44.5ha	29.33%
Escarpment - unusable as Open Space	18.1ha	11.93%
Open Space/Local Parks/Active Open Space	6.42ha	4.23%
Net Developable Area	82.7ha	54.51%

Table 7: Overall Land Budget

Notes:

- Final areas will be subject to detailed design, noting that any obligations required under the current s173 Agreement will need to be met by the developer.
- Areas set aside for public open space do not include:
  - Areas identified as non-developable on the Underbank Farm Concept Plan;
  - Areas of environmental significance due to the presence of cultural heritage, indigenous heritage or significant flora and fauna species;
  - Drainage reserves; and
  - Land with a slope in excess of 15%.

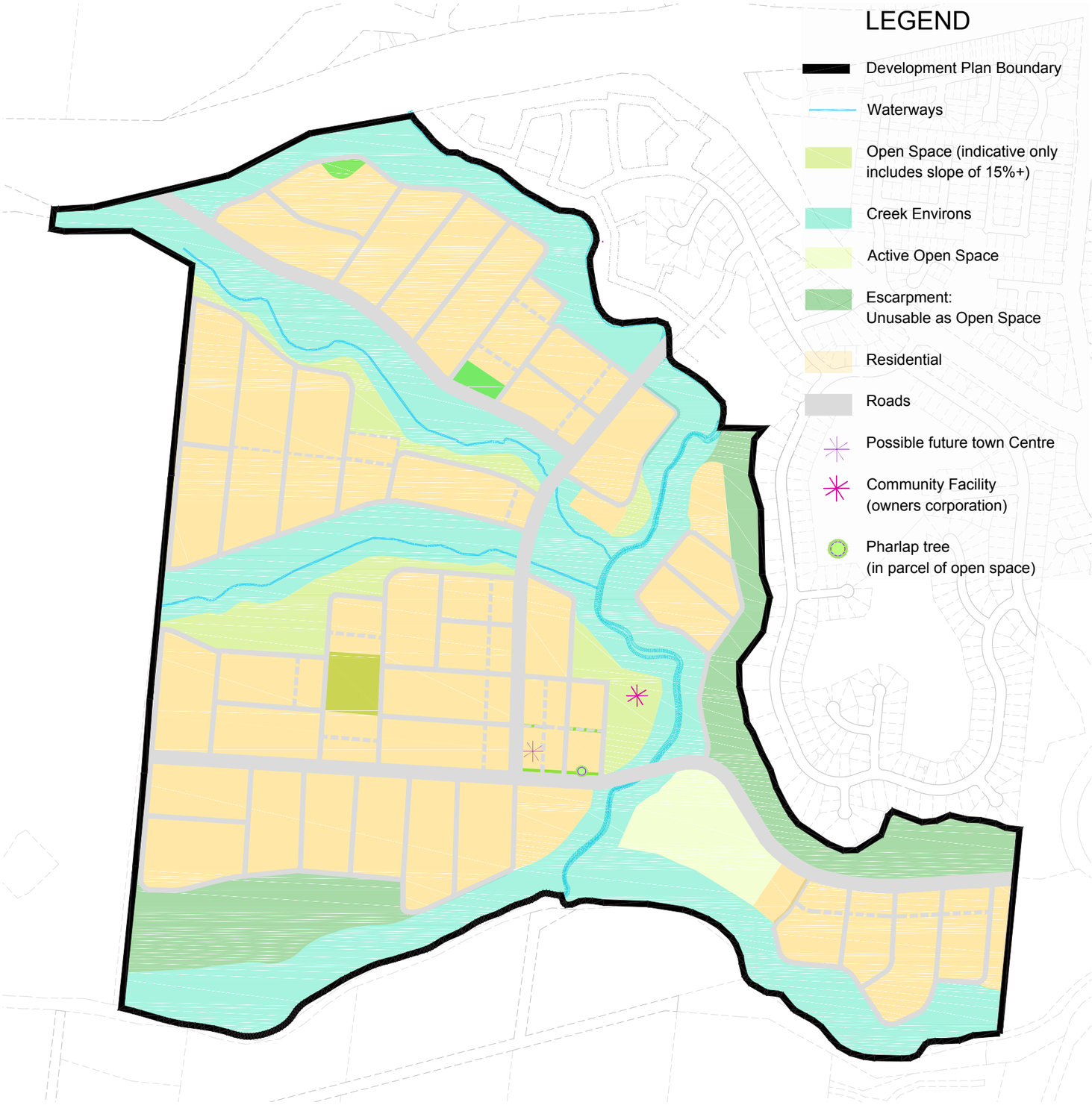


Figure 49: Land Budget

5.13 Drainage

Design Response

Underbank has been designed to ensure that water sensitive urban design is incorporated into the development plan. A Stormwater Management Plan Report is attached as Annex E.

Flooding and Waterways

As detailed above, the extents of waterways have been identified for watercourses traversing the site. Development will not occur within the setback areas to ensure no inundation of properties for the 100 year ARI flood, while also allowing for a wide conservation corridor.

Correspondence with Melbourne Water indicates no specific requirements for flood retarding. Korkuperrimul Creek and its tributaries have a combined catchment of approximately 4000ha, while The Werribee River catchment is larger still. The total area of the Underbank Farm development is approximately 167 hectares. Due to the relative size of the development to that of the receiving waterways, the peak runoff from the development will be much more immediate than the peak flow in the waterways and therefore retarding flows from the development will have minimal effect on peak flows in the receiving creeks and river.

Stormwater Harvesting

A high-level assessment of stormwater harvesting has been undertaken in order to identify potential locations to harvest stormwater, potential storage locations and to estimate the volume of runoff that could be harvested (see Annex E).

Figure 49 highlights a potential location to harvest stormwater in a pond/lake from one or more of the proposed treatment assets which serves both a practical and aesthetic function. The following dot points summarise the concept level stormwater harvesting strategy:

- Treated outflows from proposed treatment assets Wetland 1 and Bioretention 3 are conveyed to a storage area, either by gravity pipe (if sufficient grade is available) or a low capacity pump.
- Harvested stormwater is stored in the pond or lake. Alternatively, below ground storage tanks could be used.
- When there is demand for non-potable water, the level in the storage pond is drawn down, always leaving some water in the pond.
- Outflows from the storage pond will require treatment by an ultraviolet filtration and / or reverse osmosis treatment unit.
- The treated outflows are conveyed to active / passive open space areas via an irrigation system.

As detailed in the report in Annex E, the proposed harvesting asset can achieve compliance with Melbourne Water's guidelines for stormwater harvesting.

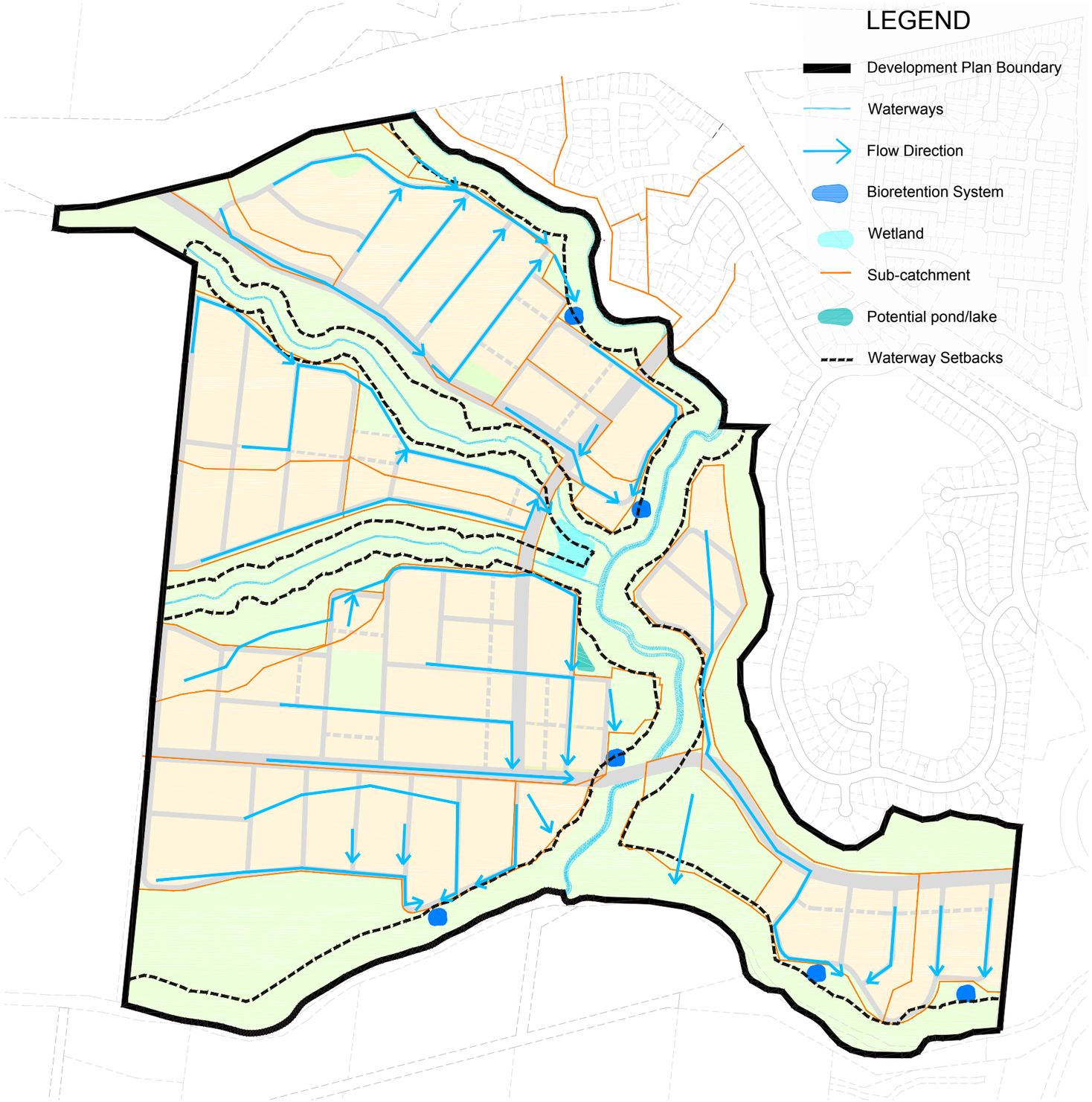


Figure 50: Indicative Wetland, Bioretention and Stormwater Harvesting Locations

Water Quality

Engeny has identified potential locations for water treatment areas and the approximate extent of land required in order to meet stormwater quality targets as set out in 'Urban Stormwater Best Practice Environmental Management Guidelines.'

Due to the steep nature of the site topography, it is proposed to have a combination of a consolidated wetland and a series of smaller bio-retention areas to treat runoff from sub-areas within the site. The final treatment system will be subject to further investigation, design and modelling as development planning progresses to a detailed phase. This may include:

- A restriction on embankment slopes so that they are no steeper than 8:1 where maintenance access is required and 5:1 elsewhere; in accordance with the IDM;
- A maximum of 5 metres in the depth of fill (as measured from natural ground level) to be placed in the gullies, whether for retarding basins or road crossings, unless there are compelling engineering reasons for exceeding this figure;
- A costed construction, management and maintenance implementation plan including appropriate water quality treatment measures for approval, along with associated maintenance and capital costs; and
- Innovative wastewater management strategies that maximise opportunities for waste recycling and or storm water harvesting and reuse must be developed to the satisfaction of the responsible authority.

5.14 Heritage

Design Response

Underbank has been designed to ensure it responds to the existing heritage values of the site. Existing cultural heritage sites are generally located within the creek corridors. Identified sites IA4 and IA5 contained isolated surface artefacts and are located within proposed residential areas (as detailed in the Archaeological Assessment in Annex C). Any artefacts found will be treated in accordance with the recommendations of an approved CHMP.

Phar Lap Tree

The Phar Lap Tree has been identified within the plan and will be retained within a small open space area (pocket park) adjacent the road reserve to ensure it is enhanced and preserved within Underbank.

The extent of open space will be finalised during the detailed design phase, but at a minimum, the tree is to be retained in a local open space area of approximately 176m^2 - being the area of the Tree Protection Zone (TPZ); to ensure the tree continues to have a useful life expectancy within Underbank.

Further Work/s

Any future subdivision and major earthworks which are carried out on the property will trigger the requirement for the preparation of a mandatory CHMP, as required by the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2007. In preparing CHMP's for subdivision stages, open space areas (where practicable) will incorporate and appropriately interpret the cultural landscape to recognise its history and land use.

The Underbank Stud Farm Equine and Water Management site is listed on the Victorian Heritage Inventory and will require a Consent from Heritage Victoria to either a) further investigate the site by archaeological investigation; b) damage or destroy the site in the event of future development.

As indicated on the development plan, there are opportunities to provide for the retention and reuse of the existing stables within an owners corporation. Detailed survey and assessment of the identified areas of heritage significance will be undertaken as part of the respective permit application for development and any improvements / enhancements to be made by the developer.

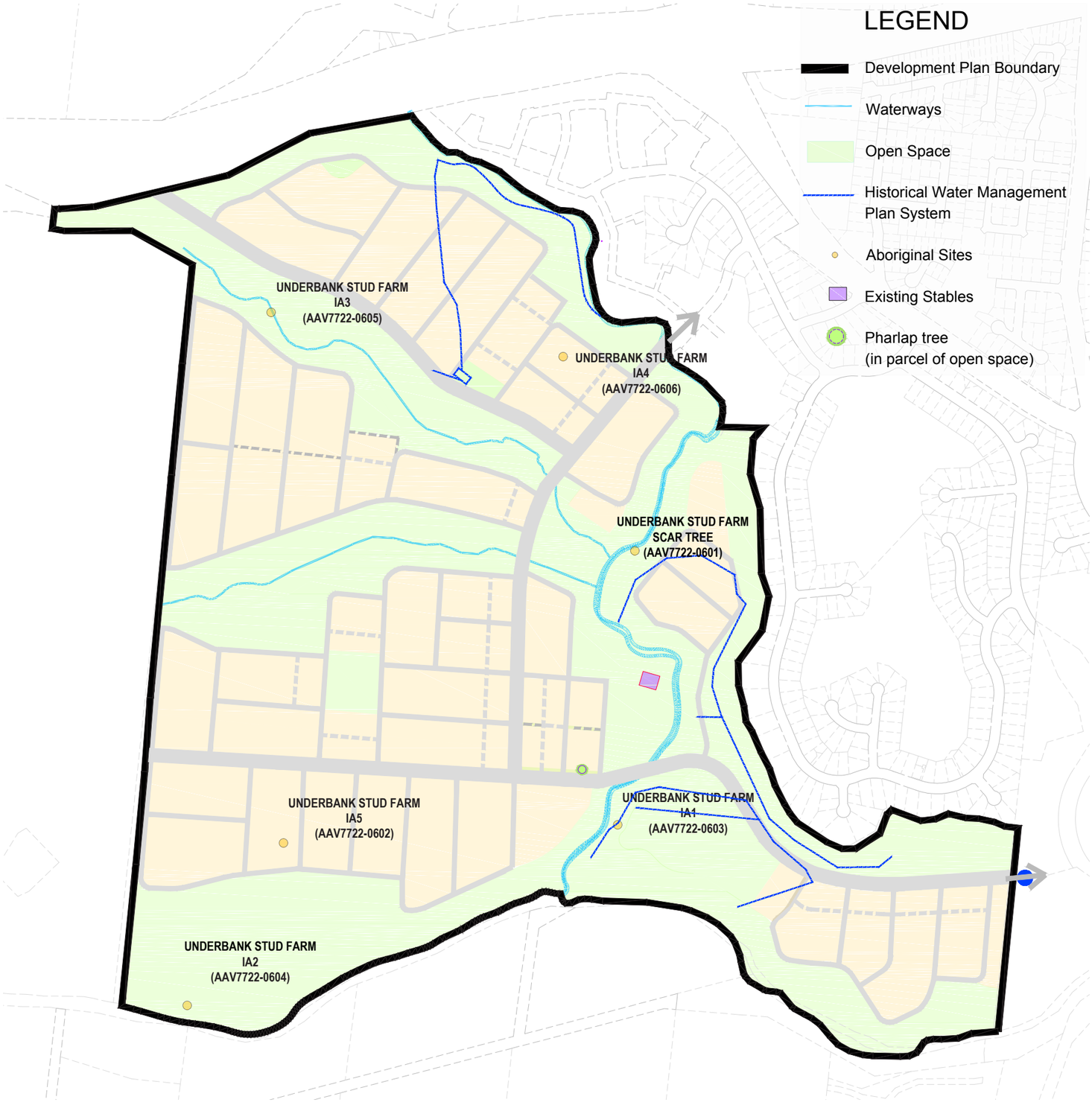


Figure 51: Heritage Areas

5.15 Bushfire Protection Design Response

Despite being located outside areas identified as requiring bushfire management, Underbank is designed to be 'bushfire ready' in accordance with the requirements of the Planning Scheme.

By way of summary:

- Buildings will be appropriately separated from open space corridors;
- All lots have access to a public road and can be serviced by emergency vehicles;
- Access to a static water supply will be available for emergency services;
- Interfaces to open space corridors are generally buffered by public roads to create defendable space areas.
- Appropriate access along the western boundary interface will be provided to the satisfaction of the CFA.

5.16 Noise Attenuation Design Response

Acoustic modelling indicates that the traffic noise levels in the year 2022 without a noise barrier will exceed LA10(18 hour) 63 dB(A) at the indicative residential locations within the area highlighted (see Annex A).

The noise barrier requirements to achieve traffic noise levels of 63 dB(A) LA10(18 hour) or less at all the exposed proposed residences would need to be approximately 430 metres long and 5 to 5.5 meters high. The location and extent of this barrier is shown in the noise contour map.

Any proposed noise barrier is to exhibit a high standard of design and ensure that it does not present as a 'blank wall' to either the Freeway or proposed allotments. Opportunities for transparency should be investigated to provide access to natural light (see Figure 52).

An updated acoustic assessment is required at the time of developing this portion of the site and is to be submitted as part of a future permit application. As part of the future subdivision of land, no new allotment is to be created such that there is insufficient space below the 63db(A) or greater at 1 metre from the most exposed facade of any new residential dwelling.

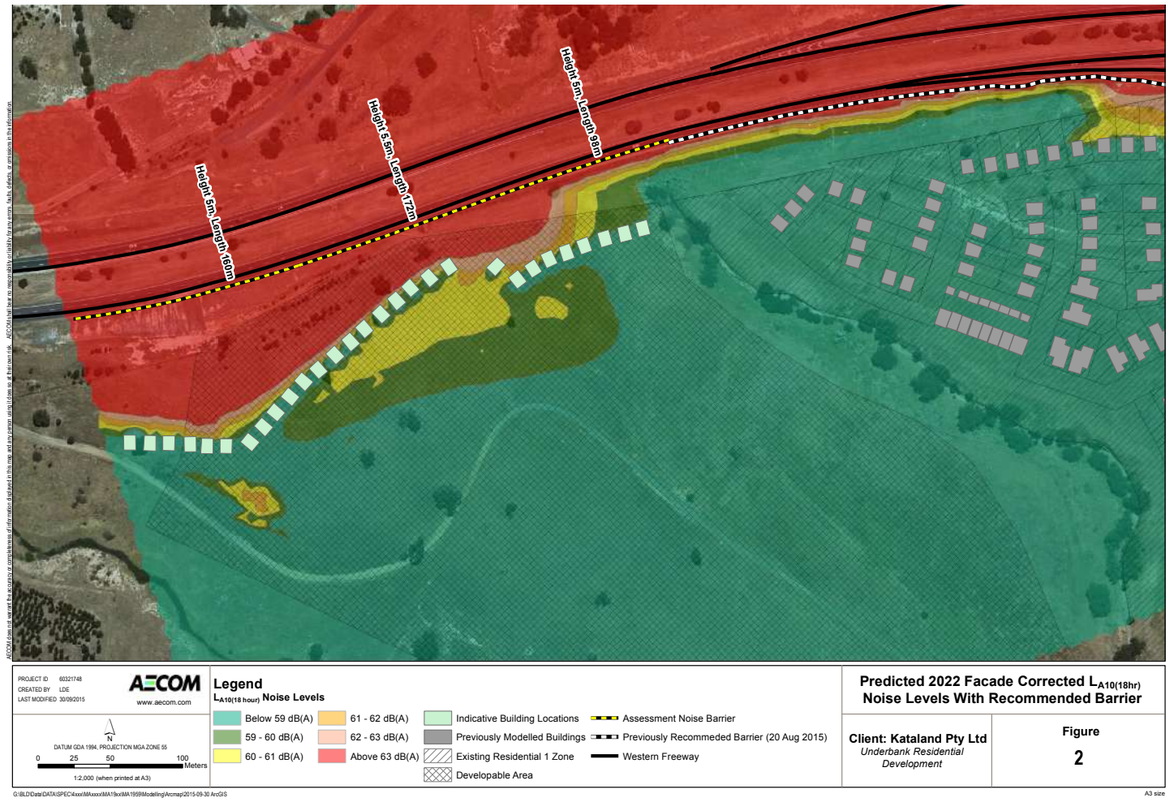


Figure 52: Acoustic Assessment

Figure 53: Indicative Acoustic Fence Treatment

6.0
Community Facilities and Services

6.1 Community Facilities and Services

A Section 173 Agreement will be entered into with Council regarding the provision and upgrades to infrastructure within the wider area. The location of any infrastructure works have been nominated on the plan over and make an active contribution to Underbank and the surrounding Bacchus Marsh area.

The following matters are expected to be included as part of the Agreement:

1. Open Space:
   a) Active Open Space areas;
   b) Water supply connection for irrigation;
   c) Peppertree Park upgrade.

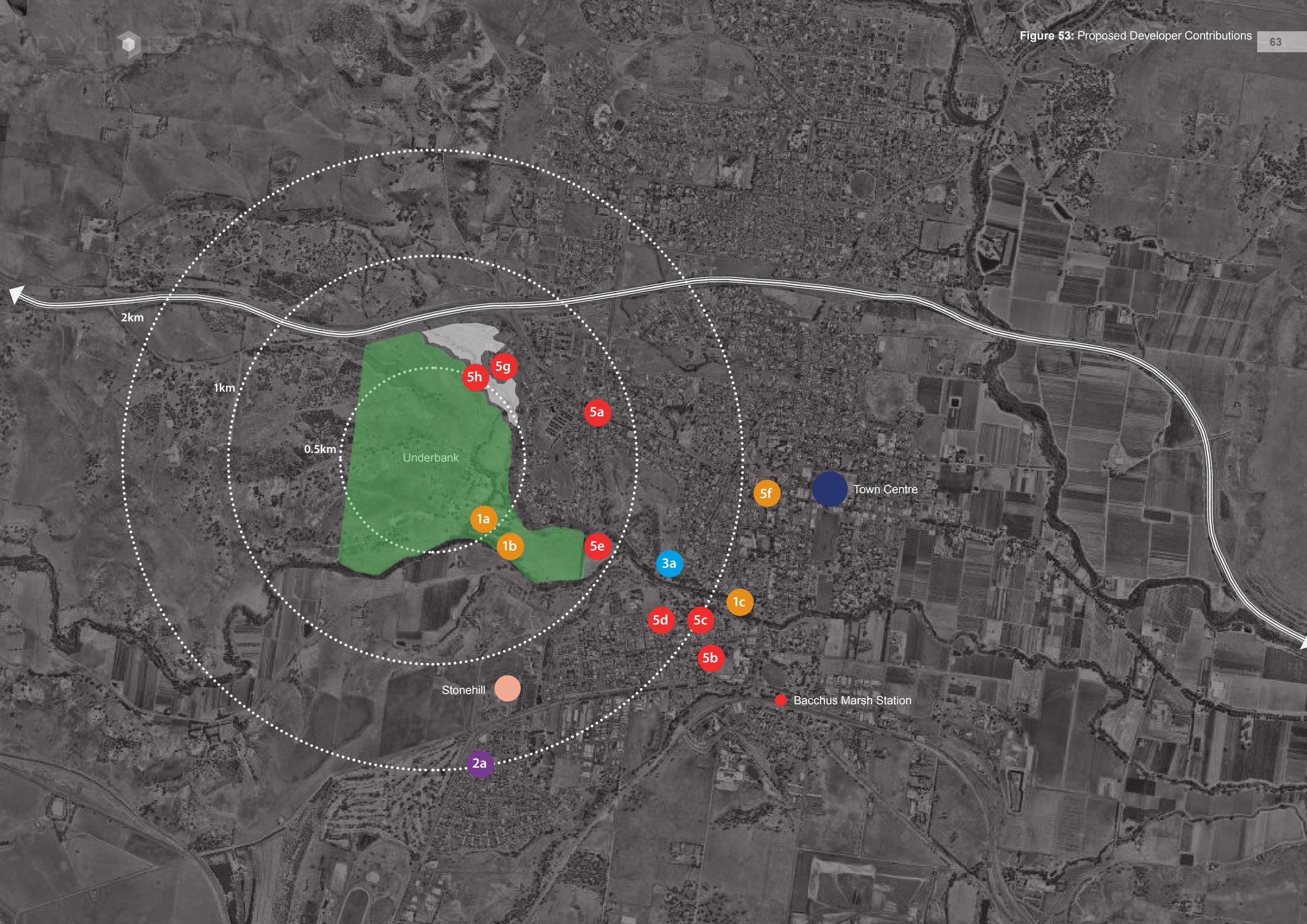
2. Community:
   a) Family Services Hub (West Maddingley)

3. Infrastructure Works:
   a) Pedestrian/shared trails

4. Planning
   a) Strategic Planning

5. Road Network Upgrades:
   a) Bacchus Marsh Road / Halletts Way Round-a-bout;
   b) Upgrade works to Labilliere and Franklin Streets;
   c) Werribee Vale Road / Franklin Street Intersection Upgrade
   d) Werribee Vale Road Carriageway Widening;
   e) Halletts Way
   f) Grant Street / Main Street / Gisborne Road Intersection;
   g) Ascot/Rosehill Upgrade
   h) Pedestrian Links to north.

Figure 53: Proposed Developer Contributions



7.0
Environmental Considerations

7.1 Sustainability

Underbank is committed to ensuring sustainable design outcomes and will deliver housing that is a minimum of six stars in accordance with the National Construction Standard.

The following principles and initiatives are to be incorporated in the detailed design and delivery of the estate and will be incorporated into design guidelines provided to purchasers.

Energy Conservation

- Support the use of solar hot water.
- Encourage residents to fit out buildings with 5 star heating and cooling systems.

Water Conservation

- Encourage the capture and reuse of water where possible.
- Encourage residents to fit dwellings with water efficient showerheads, toilet cisterns and taps.
- Reduce the reliance on mains water for landscape irrigation.

Stormwater Quality

- Reduce stormwater flows.
- Consider the integration of WSUD measures in hard stand areas including car parks.
- Reduce litter and the amount of pollutants leaving the site by stormwater.

Landscape

- Consider the use of native and indigenous planting.
- Encourage low maintenance plants,
- Provide mulch to all garden beds.
- Implement the landscape under suitable conditions to avoid waste.

Material Selection

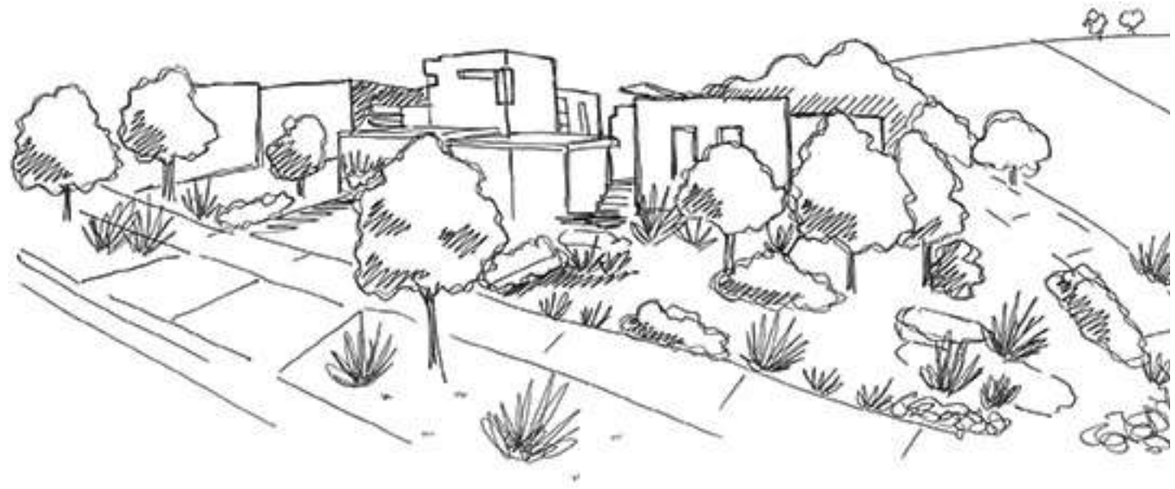
- Encourage residents to utilise sustainable design initiatives in the design and construction of new homes.

Indoor Environment Quality

- Encourage building design that maximises access to natural ventilation and light.

Solar Access

- Solar penetration to landscaped areas, north facing terraces and forecourts should be maximised.
- Support the use of solar energy including solar panels on roofs.



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Having both Australian and international experience, our extensive network extends nationally through Victoria and Queensland, and to the Asia-Pacific region through New Zealand and Indonesia.

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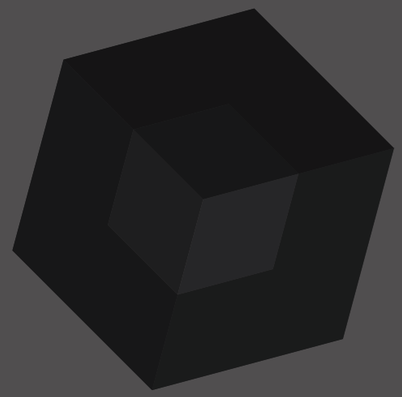

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