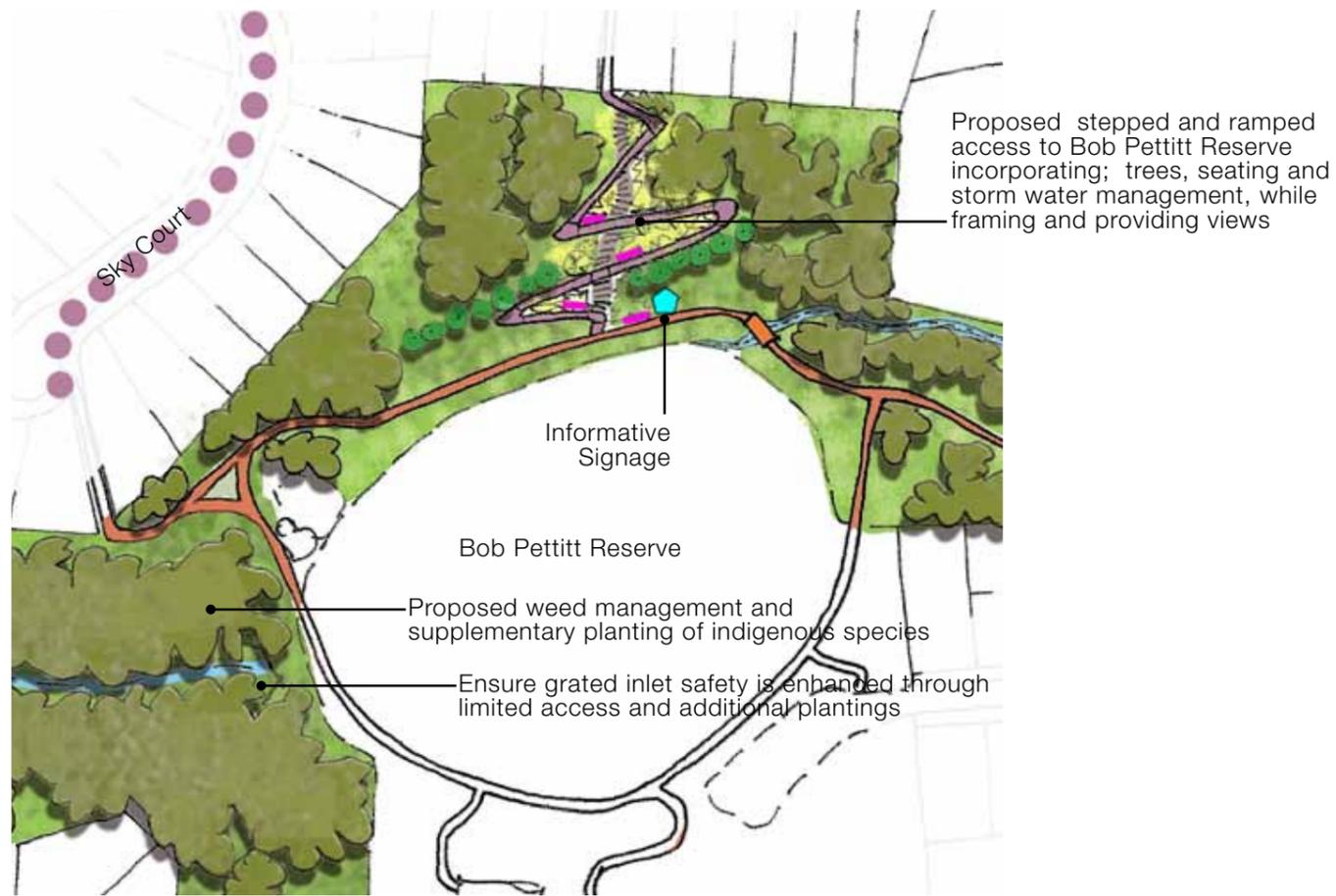


Figure 5. Jan Juc Creek Linear Reserve Master Plan



Plan for Zone 1 - Bob Pettitt Reserve northern access



Representation of strategy for Bob Pettitt northern access

2.2.5 Landscape Treatment of Character Area Zones (1- 6)

Zone 1 - Bob Pettitt Reserve (Wattle Court & Sunset Strip through to Domain Road)

The area of the JJCLR adjacent to Bob Pettitt Reserve will be enhanced through detailed landscape design and water sensitive urban design (WSUD) treatments.

Recommendations

The Landscape Master Plan recommends:

- Management of existing significant mature vegetation and planning of a tree replacement strategy, particularly to west of the entry road off Sunset Strip and to the east of Wattle Court. (These areas are not considered as part of the Bob Pettitt Reserve Masterplan Review.)
- An entry feature to Bob Pettitt Reserve indicating all site facilities (including kindergarten) through articulation of signage, surfacing, and planting.
- Incorporation of directional and informational signage.
- Management of drainage to remove current (sheeting) erosion to the north of Bob Pettitt Reserve via a structured landscape design with a sealed (access for all) pathway, planted drainage swale system, seating and indigenous planting scheme. The design would provide additional micro-climate controlled (shade and shelter) spectator viewing to the oval in a pleasant, natural landscape response. It would also provide an 'access for all' response to the existing pedestrian link through to Delview Drive. It would augment existing planting with the use of indigenous species. Install a retaining wall beside the path that runs along the northern edge of the oval to prevent soil washing on to the path
- Improved safety by preventing access to stormwater drains to the east and west of Bob Pettitt Reserve, including installation of grates and barrier rails, where required.
- Modification and landscaping (including planting) of the existing drainage swale to the eastern end of the reserve. The character of this planting would draw inspiration from planting works already completed as part of the Bob Pettitt Reserve Masterplan (e.g. swale treatment to the car park and the western end of Alexandra Avenue).

- Weed management to the western end (Wattle Court end) of Jan Juc Creek to allow for possible use of small parkland areas between bush for the adjacent community facilities (e.g. child care centre).
- Access across Domain Road would be resolved to allow ease of use for pedestrians, prams, wheelchairs, bikes and skaters. This would include adjustment of the railings, markings on the road and path surface to highlight the crossing point to vehicles on Domain Road, and shared pathway users.
- Directional, information and trail signage would be installed as shown on the Master Plan.
- Minimise accessibility to drainage pipe inlet at eastern end of oval. Additional planting, fencing and signage should be used to deter access and enhance safety, in particular due to its proximity to the kindergarten.
- Consideration should be given to constructing a silt trap upstream of the oval intake grate. This could comprise a broad area to slow the water velocity and allow deposition of silt prior to entering the drainpipe. The design of the silt trap needs to provide for suitable access for Council maintenance. An additional, smaller silt trap should also be considered immediately upstream of the Domain Road crossing. This would assist in enhancing water quality and dissipating water velocity.



Character Area Zone 1



Plan for Zone 2

Zone 2 - Delview Drive to Domain Road

This area is dominated by woodland and is currently difficult to access. Landscape treatments in tandem with water sensitive urban design (WSUD) and vegetation management will help to enhance the area.

Recommendations

The Landscape Master Plan recommends:

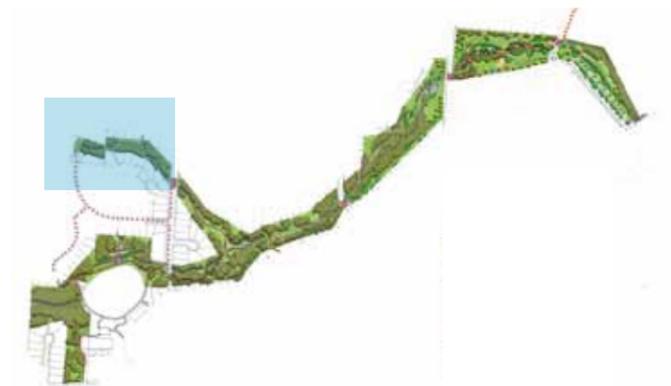
- Concrete path network with two bridges. Paths will be concrete, finished sympathetically to tie in with the natural bushland character and to address the varied topography of the site. Bridges are required to cross the creek in two locations as the path winds through the corridor due to land ownership boundaries. Paths in this location will not address access for all requirements due to constraints including: steep topography in places; a narrow corridor within which to propose the paths; and the need to reduce the impact upon native vegetation.
- Residents existing (appropriate) response to addressing title boundary solutions to be encouraged (permeable, low or no fencing in natural materials, informal play such as tree climbing, indigenous planting, use of local materials, etc).
- Path network to link in with an 'on road shared path connection' (Delview Drive, Cedar Close, Sky Court to Bob Pettitt Reserve).
- Management of weeds and promotion/planting of indigenous vegetation.
- Fire risk is to be addressed through management actions, including fuel load reduction.
- The kerb to the western side of Domain Road should incorporate a pram crossing to improve physical access and permeability.
- Provision of casual resting seats.
- Interpretative signage regarding the habitat and vegetation as well as directional signage in accordance with the SCS Signage Strategy.
- Protect remnant vegetation through the use of understory buffer plantings to deter access in some areas.



Low key creek crossing / bridge in sympathetic materials



Gravel Path example with informal edges and planting



Character Area Zone 2



Zone 3 – Domain Road to Torquay Boulevard

An integrated water management (IWM) system is proposed to enhance the current character of this zone, and directly respond to community feedback.

Recommendations

The Landscape Master Plan recommends:

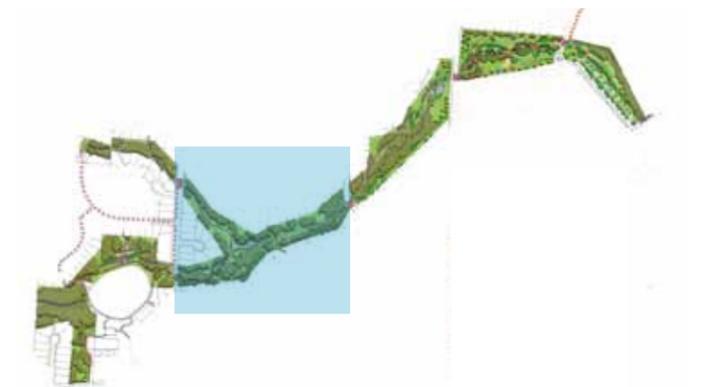
- Development of a 'billabong' at the confluence of the northern arm and linear reserve with timber boardwalk bridge crossings to match the existing crossing linking Dunkeith Avenue and Royal Court. It is to also allow for safe and managed (visual) access to the creek.
- Drainage line weed and vegetation management, with the focus on replacement with indigenous vegetation.
- A meandering concrete path is to be introduced along the northern arm, to link up with the concrete path in Zone 2, further north-west.
- Visibility of the bus stop location is to be improved.
- Stormwater pipe outlet on Domain Road, on the northern arm, is to be made safe.
- The tree management/replacement strategy would remove exotic vegetation over time and replace with indigenous trees, with consideration for fire risk.
- Fire risk would be addressed by keeping the current open urban parkland character of the site of grassed open space, vegetated swale, and grouped (or copses) of trees with clear trunks and low grasses below. Allowances must be made for maintenance access within the planting strategy.
- Planting of indigenous 'feature' trees (e.g. flowering trees, interesting trunks – without stringy bark, as stringy bark poses a potential fire risk).
- Key views are to be maintained and enhanced.
- Provision of casual resting seats.
- Interpretative signage including an upgrade to the community notice board on Domain Road.
- Improved road crossing point, particularly for pedestrians, prams and cyclists of all ages.
- A bin located in close proximity to Domain Road for ease of collection.



Existing boardwalk style to be replicated for new crossing points.



Billabong Precedent image



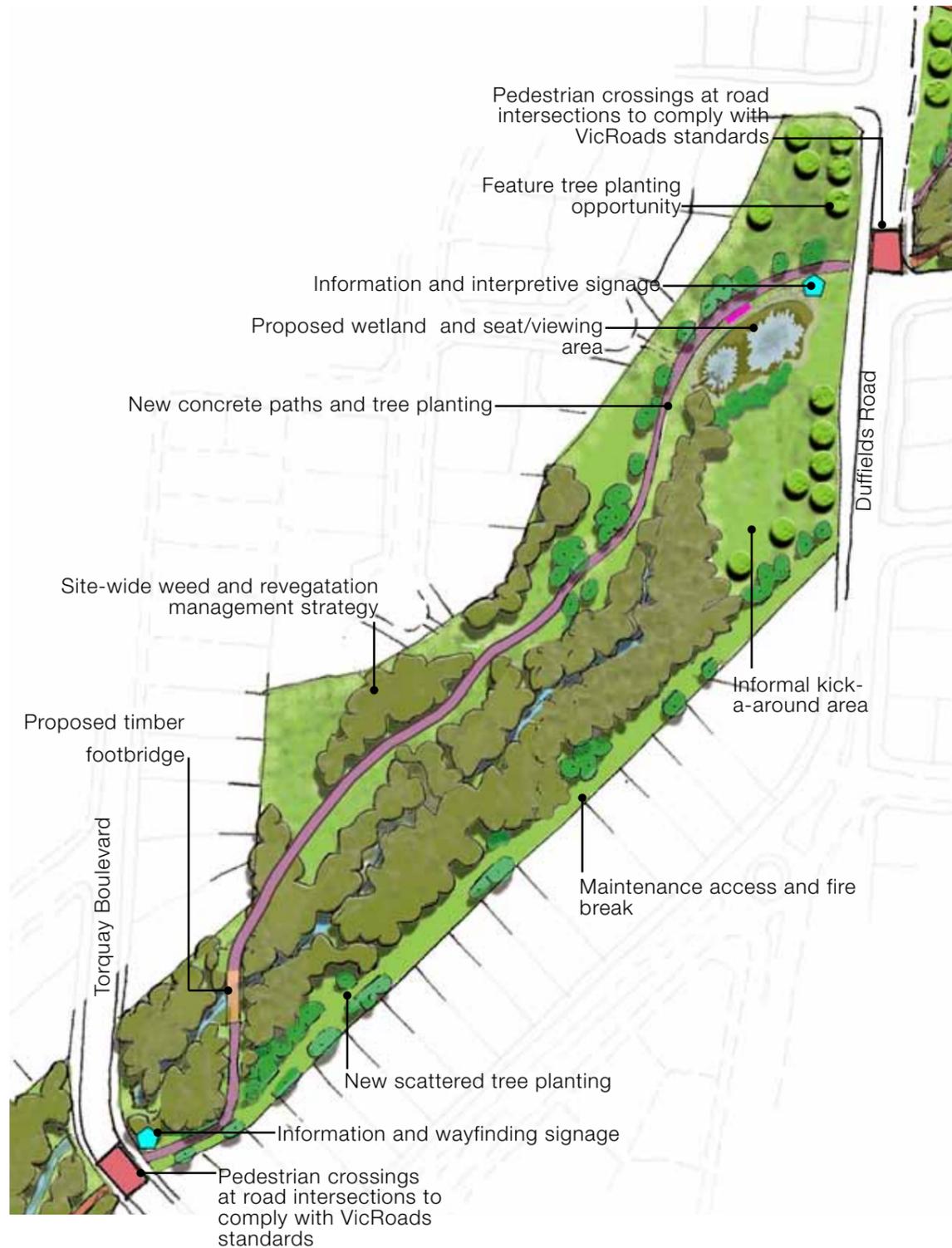
Character Area Zone 3

Zone 4 – Torquay Boulevard to Duffields Road

Recommendations

The Landscape Master Plan recommends.

- The current pathway strategy incorporates a bridge crossing and sealed path that will connect to a pedestrian crossing to 3 Bridges Park.
- A wetland is also proposed in the area where the creek currently terminates into the stormwater pipe network in the open space near Duffields Road.
- Vegetation and weed management within the creek line, to the riparian zone and parkland, is critical to this area to improve its visual amenity, promote biodiversity and reinforce a sense of place and character.
- The gradual opening up to a grass parkland, with groups of trees from west to east, would be reinforced to allow a gradational transition from a more 'treed' natural parkland and creek line to open parkland with activity nodes and grass drainage line to the east.
- Provision of casual resting seats, one to be provided adjacent to the proposed wetland with informative signage nearby as shown on the Master Plan.
- Long views to the east as the user emerges from trees are to be retained and framed by vegetation if possible.
- Some additional groups of trees to be planted on the north side, whilst still allowing visual permeability into the site (i.e. prune trees to have clear trunks).
- A bin located in close proximity to Duffields Road for ease of collection.



New path connections indicative plan Zone 4

Planting species to be strategically chosen and placed to reduce fire risk, and understorey managed



Character Area Zone 4

Zone 5 – Duffields Road to Hoylake Avenue (Three Bridges Park)

This zone currently acts as a valuable second ‘activity hub and community meeting/interaction’ node to that provided at Bob Pettitt Reserve. The character and sense of place of this area is to be strengthened through a deliberate landscape design approach.

Recommendations

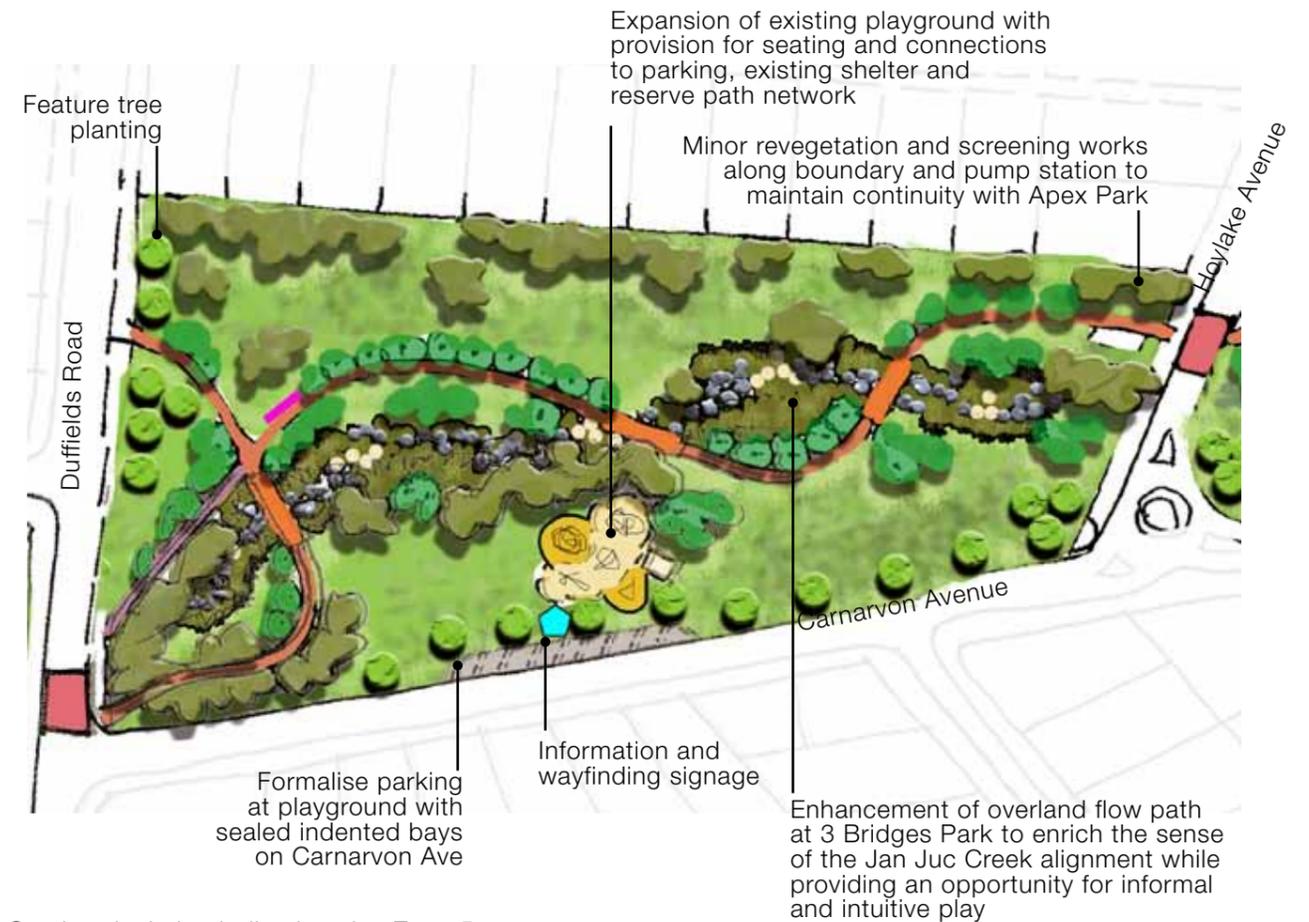
The Landscape Master Plan recommends:

- Informal ‘kick-about’ space delineated by either mowing of grass to different heights and/or utilising alternate species or mass planting to the northern side.
- Improved articulation of the creek line along the existing depression through rockwork (using local stone) and planting (indigenous species), which would provide: an additional play feature for children within a clearly visible and safe (from roads) area; a unique sense of place for Jan Juc; an enhanced destination point for the community; improved visual amenity; and an educational opportunity about water and site history (history of creek, water cycle management, habitat, etc). Allowance for informal crossing points would be made.
- Interpretative signage.
- Copses of indigenous trees in a parkland setting.
- Weed and vegetation management to existing vegetation to the western end.
- A formalised sealed car park on Carnarvon Avenue adjacent to the playground, in response to community concerns.



Character Area Zone 5

- All future paths and bridge works will ensure compliance with Australian Standards regarding access and mobility.
 - Maintain views into the park from streets surrounding the park for passive surveillance.
 - This is an excellent location for a public art feature that could form part of the creek landscape design, as a stand alone feature (due to the openness of the site) or as an additional art/play equipment piece. It may comprise some form of ‘land art’ such as an earthwork, sculpture or feature on the ground plane that unifies the site, tells a story and assists in transitioning from Zone 5 parkland into Zone 6 and the coastal reaches.
 - Planting to the reserve boundary is to consider visual permeability into the site reinforcing safety, and reducing fire risk. Landowners bordering the reserve would be encouraged to plant indigenous vegetation and have permeable, low or no fencing. The existing playground and associated facilities (bbq and shelter) will need to be expanded upon and upgraded through the detailed design of this park. The play equipment has a limited remaining lifespan and the playground equipment has been programmed for replacement in 2015/2016.
 - Accessibility to both the playground and parking from Carnarvon Avenue should be addressed in a similar fashion to the Bob Pettitt Reserve parking solution for Sunset Strip, where possible incorporating WSUD and access for all.
 - Buffer planting around existing storm water entry grates will improve safety and undesired minimise access. Dissipating flow velocities will also assist.
- For future consideration:
- Removal of bridges throughout park or re design at end of life to ensure maximum accessibility and enhanced sightlines.
 - Upgrade of playground based on patronage and demographic changes.
 - Redesign entire park between Duffields Road and Hoylake Avenue to include such elements as amphitheatre space, large open areas for community gatherings, markets, events (i.e. cinema in the park).
 - Consider this park as a hub and “open space facility” for the community of Jan Juc.
 - Additional seating with shade structure or structures



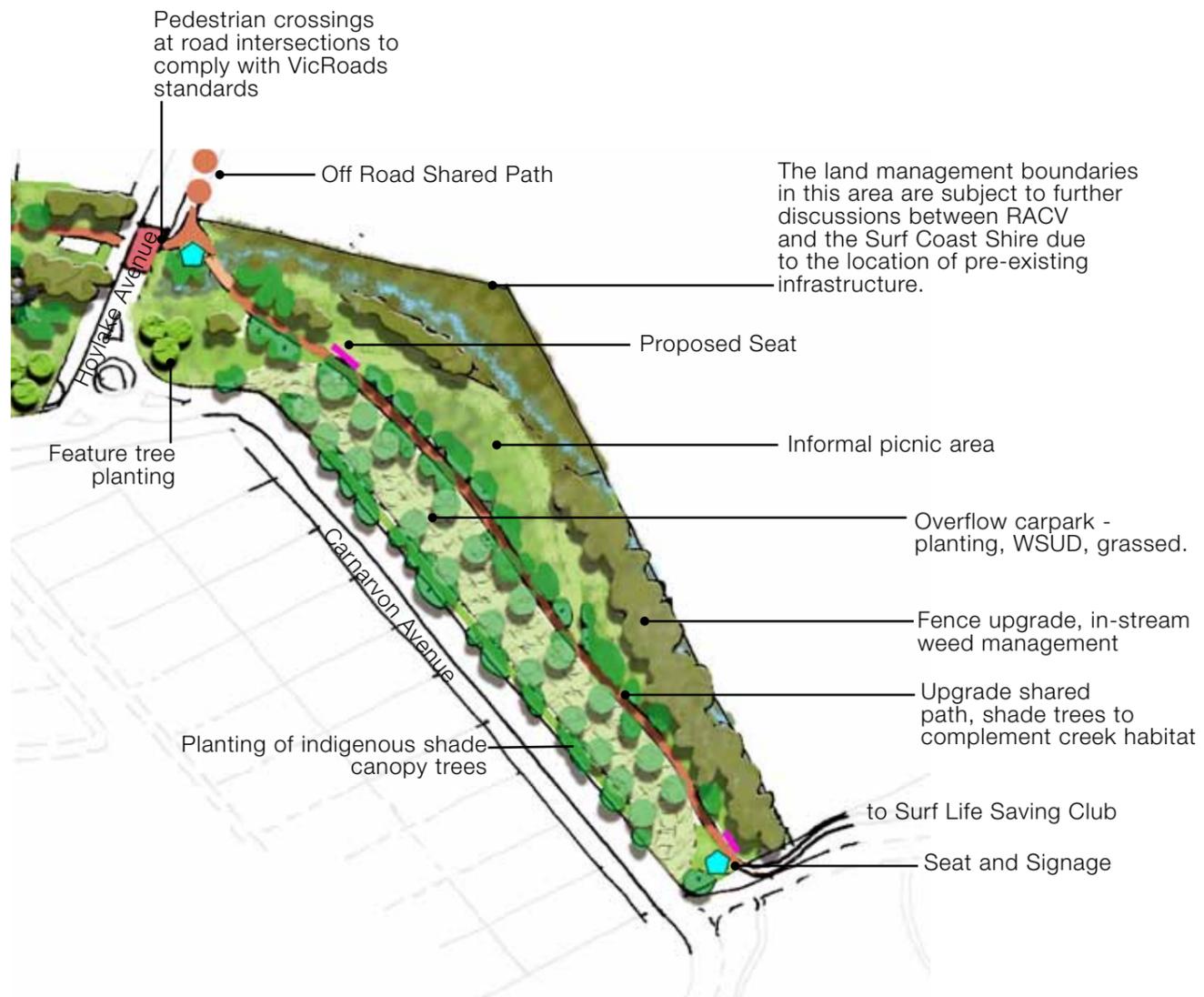
Creek articulation indicative plan Zone 5



Precedent images of creek articulation



Precedent image of swale plantings



Apex Park overflow carpark indicative plan Zone 6



Character Area Zone 6

Zone 6 – Hoylake Avenue to the SLSC access road (Apex Park)

This zone is to improve comfort in its role as a thoroughfare to the beach and functionality in its role as an overflow car park in the peak summer period.

Recommendations

The Landscape Master Plan recommends:

- Provide shade and shelter along the shared pathway with tree planting to complement the coastal reaches habitat. The change in environment is clearly visible as path and road users turn south east around the corner from Hoylake Avenue/from Apex Park/from Carnarvon Avenue east. This character should be reinforced to ensure a varied experience, site legibility and character. Planting is also proposed to enhance environmental values, biodiversity and act as a buffer to the creek.
- Upgrade the shared path and seal it as per the pathway strategy, in keeping with the rest of the JJCLR. The path is to act as a physical buffer to the creek to prevent turf species from spreading into the habitat zone.
- Provide seating as shown on the plan.
- Fence replacement to the site boundary (interface with RACV) to complement the character of the site.
- Interpretative and directional signage in accordance with the SCS Signage Strategy, (refer plan).
- Removal of existing shelter. This is no longer an appropriate location for a shelter of this type.
- In-stream weed management plan.
- Delineate a car parking strategy through tree and mass planting. A combination of minor earthworks and WSUD plantings are recommended. This will ensure the park's amenity is improved year round to function as a picturesque park and not just a seasonal car parking space. The existing gravel car park is to be grassed with durable turf and incorporated into the whole zone strategy.
- The land management boundaries in the area where the angle of the fences meet are subject to further discussions between RACV and the Surf Coast Shire due to the location of pre-existing infrastructure.



Precedent image of shaded path (on edge of car park)



Precedent image of overflow car park



Example of a building integrated into the public realm

2.2.6 Areas of Upstream Influence

With forward planning and guidance from the SCS, areas upstream of the study area (but outside the scope of this report) could provide benefits for the JJCLR by augmenting the study area's social and environmental values including: habitat significance, water quality, local connectivity and access, character and improved permeability, and connectivity for native flora and fauna species.

Recommendations

The Landscape Master Plan recommends:

- Council should influence any additional development that may occur in these areas to the west and north-west of the study area to complement the JJCLR Master Plan, and ensure connectivity and permeability throughout the local area through forward planning and community consultation.

2.2.7 Integration of Public and Private Realms

Private properties adjoin the JJCLR along many of its boundaries with the exception of the eastern edge of Apex Park and Canarvon Road, and along its interface with Bob Pettitt Recreation Reserve on Sunset Strip. Many residences utilise the adjacent POS areas in a positive way and have direct access from their back yards to the park. The style/material of boundary fences, views into and out of backyards, and garden's styles/vegetation have a direct impact upon visual amenity, ecology (through choice of planting), run-off (including sediment and nutrient pollutants) and safety of the reserve.

Recommendations

The Landscape Master Plan recommends:

- Fencing on the reserve boundary should be minimised to maintain an open character for the reserve and encourage passive surveillance. Landowners should be encouraged to consider low indigenous planting along boundaries to soften the appearance of fencing or as an alternative to fencing. Ideally, fencing should be no higher than 1.3m or built with permeable materials in a form complementary to the reserve character. This theory supports Crime Prevention through Environmental Design (CPTED) principles,

which considers housing overlooking public places and paths (i.e. visual permeability into the site reinforcing safety), permeable front fences, adequate night lighting and community 'ownership' of public reserves.

- Landowners bordering the reserve should be encouraged to plant indigenous vegetation consistent with the aims of the Master Plan.
- Appropriate use by private residences adjoining the reserve to take advantage of the JJCLR for informal ball sports, or as an extension to their garden by planting indigenous species and landscaping with local materials for 'picnicking', or for direct access and views into the reserve should be encouraged, if the works are undertaken with the acknowledgement and approval of SCS.
- Inappropriate use is to be discouraged, which would include: planting of inappropriate species, illegal removal of indigenous vegetation, illegal construction of private facilities in public reserves, parking of private vehicles (e.g. cars, trailers, boats) within the reserve, use of public reserve as a storage area, etc.



2.2.8 Pathway Network

The aim of the pathway network is to provide an environment that is attractive to walk and includes circuits, direct routes to facilities, shared use, routes that are suitable for parents with prams or people with disabilities, paths through a variety of settings and resting places at suitable intervals. Well located and appropriately surfaced formal paths are to be provided to achieve access for all, and will act as an essential tool in preventing 'desire lines' being created by people forging their own trails into sensitive habitat/vegetation and inundation (where public safety is a concern) areas.

Recommendations

The Landscape Master Plan recommends that the path network role aims to double as:

- A landscape tool for buffering residential areas (particularly those on north west slopes) for fire management purposes.
- Buffer valued planting and/or habitat areas from turfed or weed areas.
- Provide a path construction suitable for vehicle use including; emergency, maintenance and fire access.
- Large areas of paved surfaces will be avoided or broken up with discrete patterning in the surface and/or landscaping, such as is provided at the Bob Pettitt Reserve play hub/sensory garden.
- Paths are to follow the natural contours, winding through the landscape, wherever possible, and be broken up/screened by planting/habitat.
- Paths are to be built without over clearing at their margins.
- Create an experience for the user moving through the site.
- Are to consider life cycle, sustainability (procurement, infiltration, embodied energy, access, etc), cost and maintenance concerns (e.g. drainage/run-off control, weed control, durable).

New and/or upgraded path locations and materials have been outlined in section 2.2.4 POS and recreation within each character zone.

Concrete shared path in open space, precedent image

Recommendations

This Landscape Master Plan generally embraces the current pathway strategy, with few options or amendments proposed, including (refer to section 2.2.4 POS and recreation for details):

- Proposed on-road shared path connection from Delview Drive, Cedar Close, Sky Court to Bob Pettitt Reserve (refer section 2.2.4 POS and recreation Zone 1 & Zone 2 for details).
- New path to the north of Bob Pettitt Reserve, Zone 1.
- An alternative (lower order) solution to a sealed path, including a boardwalk along the northern arm of the reserve (section 2.2.4, Zone 3).
- Alternative path route to Zone 4 for better site aspect.
- Improved connectivity across Duffields Road (Zone 5) via a new (short) path.

Definitions of path hierarchy and types of construction in terms of the Council Pathway Strategy (2006) would be consistent with those proposed.

Recommendations

The Landscape Master Plan also recommends that road/shared path points are to be resolved to:

- Ensure legibility for shared path users through the use of materials, textures and signage.
- Alert road users (vehicular, pedestrian and cyclists) of the crossing points to improve safety and prevent conflicts. This would be through the use of signage, road and path markings, and/or corrugation solutions on the ground plane. These need to be vibrant, highly visible and yet fit in with the urban parkland environment and road safety standards.
- Improve signage and interpretation (directional, distances, information, access to public transport, etc).
- Ensure access for all is achieved (i.e. pram crossings, sealed surfaces, slope, achievable to cross in short time frame).
- Consider options for slowing cyclists/skaters at road crossings, without difficult navigable obstructions.



Thermoplastic marking the pedestrian route



Thermoplastic marking the pedestrian route



Path in Bob Pettitt Reserve - large areas of paved surface broken up with textures & colour



2.2.9 Interpretation and Public Art

Interpretation

The current lack of interpretation signage throughout the reserve was raised by both the Council and community.

Information throughout the site, in the form of signage, is required to guide users in the use of spaces, for wayfinding and to understand their environment, create a sense of space and meaning. Additional information may be provided in an indirect manner through public artworks and landscape design details.

Recommendations

The Landscape Master Plan recommends that interpretation elements are to be strategically located throughout the site in easily accessible and visible locations. They will serve a variety of uses including:

- extending the community's understanding of place through information on the natural and cultural environment, heritage and significance;
- contributing to a sense of place and unified site character through interpretation 'language' (or style, design, etc.);
- providing, recording or conserving local knowledge;
- modification of behaviour to help create spaces that are valued by the community; and
- provide a dialogue about the Jan Juc area regarding past and present.

This Master Plan recommends a particular language (style) of interpretation to be installed site wide, which is complementary to others in the local area. The choice of materials and style has been informed by existing good examples displayed elsewhere in the local environment (e.g. Bob Pettitt Reserve and Torquay Common) is robust in materials choice to withstand harsh site conditions and both reflects and integrates with the natural character of the site.

The Master Plan recommends development of an interpretation strategy, which would include consultation with an artist and local specialist information (e.g. documentation of cultural heritage). It will have a signage hierarchy that is unified, but also highlights the character of individual spaces and associated use. Generally, interpretation would comprise:

- Trail markers including directional information and distances to key destinations.

- Educational/informational signage to key cultural or natural heritage/environmentally significant sites throughout. Signage would create an interpretive 'story' pathway as you move through the site, numbered and augmented by pamphlets available on site or from Council offices (interpretation trail). Signage is to be appreciated either on a point basis, or the entire story can be followed through the site. There is an opportunity to work with local indigenous groups to draw out a narrative/cultural interpretation.
- Information at key nodes, such as Bob Pettitt Recreation Reserve and Three Bridges Park, outlining site use and available facilities, including mapping. These sites are community destination points. Signage is to provide information about facilities, encourage appropriate use, and provide specific information.

Public Art

Public art has the potential to help reinforce the character of a place, and improve the quality of life of residents and visitors. An excellent example of this already exists at Bob Pettitt Recreation Reserve in the children's play ground and sensory garden. This Master Plan should draw on inspiration from this site, its characteristics and materials to maintain a consistent language. Some materials from site may be recycled in the production of interpretive works that may also educate on the concepts of sustainability and the environment of the Jan Juc Creek and its catchment.

Within the JJCLR the role of public art must be carefully understood within the context of the site so as not to detract from the intent of the Landscape Master Plan, social or environmental values. It should aim to enrich the natural environment, build community capital, engagement, interaction and promote community pride and a sense of ownership in the asset.

Public art would be considered within the detailed landscape design process. An artist/s can form part of a team to provide a fresh perspective to the design and build, special finishes, design details, and an additional layer of interpretation that becomes embedded in the park. Artworks can vary enormously in scale, form and function from abstract sculpture to craftsmanship on a timber bench or sign.

Recommendations

The Landscape Master Plan recommends public art be included:

- at key activity nodes as part of play equipment or furniture;
- to highlight key park entrances (eg. Bob Pettitt Reserve, Apex Park and Three Bridges Park);
- within paving surfaces, such as at road crossings, or to break up large areas of hard surface paving.; and
- ongoing maintenance and management of the artwork for Council also needs to be considered.



Direction and Interpretive signage inlaid into paving



Public art project articulating road crossings



Examples of interpretive signage

Artistic trail marking painted on pavement





Precedent image of a 'healthy' constructed waterway

2.2.10 Wetlands and Water Sensitive Urban Design

Comprehensive descriptions with regards to WSUD and wetlands are detailed in section 3.3.

Designs of wetland elements should be considered in an organic and responsive manner to fit within the local environment. Consideration of the existing conditions and guiding principles will inform layout and functionality. Engineers and landscape architects should work together to deliver optimal and efficient design outcomes. This could include developing landscape designs for drainage swales, infiltration systems, wetlands and other treatment systems.

A range of solutions that can fit seamlessly/enhance the site's landscape character whilst assisting with the quality of the infiltrate, including: permeable pavements, buffer strips, planted swales and use of indigenous planting to avoid the use of fertilisers and excessive water requirements.

Rainwater harvesting and storing storm water for re-use in landscape irrigation has not been considered necessary for this Master Plan. The plan will not propose any treatments where irrigation will be required.

Recommendations

The Landscape Master Plan recommends to conserve water within the landscape as follows:

- Planting designs and use of local provenance plants, and/or 'water-wise' plants to negate the need for irrigation in the long term.
- 'Watering in' of new plants during the establishment period to utilise captured / stored water from Council facilities, which would be trucked in.
- Schedule planting for mid to late Autumn to take advantage of natural rainfall and soil conditions.
- Surface mulching to retain moisture if complementary to ecological considerations.

The billabong boardwalk crossing point in Zone 3 has been incorporated as part of the overall pathways strategy, and will facilitate nature appreciation, passive recreation pursuits and views of the creek environment. Detailed design of the boardwalk could take inspiration from the existing one to the east.

Existing creek line/treatment system weed management and planting options are outlined in section 3.2.



In-stream revegetation



Wetland fauna habitat.



Swale treatment system - car park



Wetland



BBQ (and shelter) and drinking fountain, existing precedent set at Bob Pettitt Reserve



Rubbish Bin, Bicycle Racks Picnic Table and Benches, as per Bob Pettitt Reserve



2.2.11 Hard Landscape Materials and Site Furniture

The Landscape Master Plan recommends a cohesive and locally responsive materials palette that will be considerate of and contribute to a 'sense of place' to build a unified style and suite of built elements that tie the site, and surrounding area, together over time.

Currently the SCS does not have a set palette for these materials. However, with regards to furniture the SCS does have some preferred furniture elements and these should be taken into account when specifying items in future in order to maintain a degree of consistency.

Recommendations

The Landscape Master Plan recommends that furniture achieves the following:

- coastal exposure – robust and durable materials, reducing life cycle costs to the Council – this would include sustainably sourced timber, local stone, concrete in various forms and corten steel;
- structures and materials that integrate with the environment and respect the local topography;
- the predominant natural, yet with a strong urban influence, environment of the site;
- the changing, yet natural character of the site – woodland, parkland and coastal reaches;
- special features/materials where required that reflect and reference the natural environment and do not visually dominate the site (e.g. corten style steel, weathered timbers);
- appropriate functionality; and
- colour (e.g. built form, bins, signage) is to reflect and integrate with the natural environment.

2.2.12 Protection and Enhancement of Native Vegetation

The Master Plan recommends that the aim for planting is to reinforce existing remnant EVC themes and promote the existing character and biodiversity of the reserve. From a management perspective it will also ensure that species are well adapted to local soil and climatic conditions. It is intended to use indigenous species.

Recommendations

The primary landscape design criteria for the selection of plant materials are recommended to be:

- Guided by SCS's "Indigenous Vegetation for Landscaping and Revegetation" guidelines and Indigenous Planting Guide for Coastal Areas within the Surf Coast Shire (July 2003), Precinct 1 Torquay/Jan Juc. Reference should also be made to Beacon Ecological (2009) report Vegetation Assessment of Jan Juc and Spring Creek.
- Indigenous plants grown from seed or propagated from plants within the local area should be obtained wherever possible to retain local variation in the plant gene pool, reduce transportation miles and support local business.
- Provide/reinforce an attractive landscape and character throughout the reserve.
- Ensure plant materials are easy to maintain, once established, for the Council.
- Enhance the micro-climate and habitat of the site.
- Planting is to provide shade (particularly to picnic facilities and play areas), visual interest, spatial structure and general amenity.
- Support flora and fauna habitat and enhance the existing character areas as dictated by the site EVCs.
- Assist in reduction of bushfire risk – to be balanced with habitat and conservation imperatives.
- Reflect the specific use and character of the detailed landscape design of POS, to be undertaken at a later stage.
- Grass planting to informal areas of active recreation will need to be an introduced species to ensure robustness for anticipated use and minimal maintenance for Council. A buffer from this turf planting is to be established adjacent to EVCs through design considerations including: a transition

zone of planting to out-compete the grass, a physical barrier such as a pathway, wall or stone barrier, and use of native grass species, or native/introduced mix to margins to maintain the aesthetic (e.g. *Microlaena stipoides* – Weeping Grass, *Austrodanthonia sp.* – Wallaby Grass, and/or Australian Saltgrass *Distichlis distichophylla*, *Bothriochloa macra* – Red Grass, *Hemarthria uncinata* – Mat Grass.

- Use and manage vegetation to subtly define different use areas while retaining visual permeability into the reserve.
- Consider limb drop risks when placing new trees, particularly near play areas.
- Funding mechanisms for conservation and revegetation may be established as a separate project to support 'Friends of ' groups and encourage local stewardship of the JJCLR.
- Management and control of weed species as outlined in Section 3.1 (Pest plant control),
- Discourage informal paths within existing habitat, and prevent weed dumping through installation of signage and provision of a formalised pathway system.
- Planting should be undertaken in areas of remnant vegetation that can be enhanced and areas where development of remnant vegetation can be established. These areas can be identified by SCS environment officers.

Any removal of native vegetation must be in accordance with Victoria's Native Vegetation Management Framework (Department of Natural Resources and Environment, 2002).

2.2.13 Fire Risk

The Landscape Master Plan is to be in accordance with Australian Standard AS 3959-2009, Construction of buildings in bushfire prone areas (Standards Australia), CFA guidelines for Jan Juc and Bellbrae, and SCS's Spring Creek Reserve Fire Management Plan, which outlines current emergency management, fire ecology and biodiversity management policies and approaches.

However, these standards/guidance restrict the range of plant species that can be used. Therefore, planning for fire must be balanced with other considerations to be achieved by the Master Plan including: use of indigenous species, aesthetically pleasing, enhancing the local site character (in parts woodland), suitability for IWM solutions, water-wise and non-invasive.

A high-level landscape approach for this Master Plan has considered fire risk. However, future design phases should be developed in consultation with specialists in this field (e.g. Country Fire Authority) to ensure informed design through a mixture of planting design, surface treatments and fire retardant plant species selection. It is also recommended that Council develop a JJCLR Fire Management Plan specific to the study area.

Recommendations

The landscape Master Plan has considered design features with the aim of preventing or slowing the momentum of bushfire, whilst still achieving the design intent, including:

- adequate land between adjacent buildings and new planting is either cleared or established with low growing fire retardant species;
- planting to manage fuel loads;
- use of non-combustible, durable materials in built form;
- utilise perimeter roads and footpaths as well as fuel reduced verges and building setbacks to maintain a low fuel zone between any bushland and existing or new homes;
- use of inorganic material, where appropriate;
- ensure dense stands of shrubs and trees away from buildings and fence lines. Buildings 10m clear zone, (fence lines 2-4m clear zone);
- design of screening planting should be non continuous, depending on length of screening, which would dictate the number of breaks;

- design vegetation layout so that fire is not funnelled towards key assets, (e.g. buildings, bush settings, wildlife areas, etc.)
- design needs to have built-in fire buffer zones where residential house blocks adjoin bush setting or natural park lands; and
- buffer zones should be of sufficient size to allow for machinery to access to carry-out pre season fire prevention work.

2.2.14 Sustainability

Design of sustainable environments that consider a broad range of environmental, social and economic imperatives should always be considered within any Landscape Master Plan.

Recommendations

In brief, sustainability is to be considered within this JJCLR Master Plan through consideration of:

- planting and biodiversity
- quality materials and life cycle to reduce wastage
- robust design for a longer life
- community interaction, wellbeing and education
- access for all (paths and parking)
- promotion of cycling as an alternative to short trip driving
- water use awareness and maintaining water quality
- diversity of environments and habitats
- visual amenity as a tool to raise awareness

It is also recommended that:

- SCS develop a sustainability framework to guide design, implementation and management of future works, determine key indicators and targets against which to measure performance, and ensure an optimal outcome for the local community, environment and Council budget.



Existing revegetation planting area

3.0 Management Plan

3.1 River Health

The directions and recommendations contained within this section of the report have been delineated into three defined management categories:

- Vegetation Protection and Management;
- Waterway and stormwater management; and
- Parks and recreational areas.

3.1.1 Vegetation Protection and Management

Protection, enhancement and reestablishment of native vegetation is a key focus of the management activities to be undertaken across Jan Juc Creek Linear Reserve. Currently the remnant vegetation is mainly limited to the reserve above Domain Road and the lower estuarine section below Hoylake Avenue. Beacon Ecological (2009) calculated the potential for a significant net gain in the quality and extent of indigenous vegetation if well managed into the future across the Jan Juc Linear Creek Reserve. Where possible, the preference for vegetation management activities should focus on protection and enhancement of remnant vegetation to reduce the risk of a decline in condition. Vegetation restoration works can also be undertaken as required.

The following sections provide guidance on the future protection and management of the native vegetation in the Jan Juc Creek Linear Reserve. The information presented in the following sections has drawn on relevant site specific information from Beacon Ecological (2009), the Department of Sustainability and Environment Revegetation Planting Standards (DSE 2006), the Victorian Investment Framework Vegetation Draft Work Standards (DSE 2011) and the Corangamite Native Vegetation Plan (CCMA 2005).

Successful protection and management of vegetation requires managers to understand and consider a range of factors that can impact the success of their project. Riverness (2011) identifies when planning vegetation management projects it is important the project manager considers the following factors:

- Project goal
- Condition and extent of remnant vegetation at the project site, which in turn determines whether the project will focus on:
- Protection of remnant vegetation
- Establishment of overstorey and/or understorey

plants within a remnant patch)(i.e. supplementary planting)

- Establishment of native vegetation in formerly cleared areas outside of a remnant patch (i.e. replanting).
- Specific site conditions (e.g. soil type, slope), AND
- The type and severity of threats present.

The following sections provide an overview of the critical factors that affect the success of vegetation management projects. This information can be used in conjunction with other resources to help successfully manage, plan and implement a diverse range of vegetation management projects.

3.1.2 Project Goals

The management recommendations in this report provide guidance on the proposed directions for management of the Jan Juc Creek Linear reserve. However, managers are encouraged to develop goals for their projects to define the purpose of their activities and focus on the desired outcomes.

A key element of the project goal in the Jan Juc Creek Linear Reserve will be to determine if the project is to focus on protection of remnant vegetation or establish vegetation in other more disturbed areas.

Priorities for vegetation management along the Jan Juc Creek corridor that have been adopted by Beacon Ecological (2009), (based on recommendations from Biodiversity Action Planning – Landscape plan for Gherang Zone, Otway Plain Bioregion (Grant et al. 2003) are:

- Protection - reservation, covenants, management agreements, statutory planning and fencing of native vegetation.
- Enhancement - management of existing ecological values by controlling threats such as weeds, introduced predators, inappropriate/uncontrolled grazing by stock and native animals, salinity, and encouraging natural regeneration and revegetation of the understorey.
- Restoration - revegetation to create corridors, buffers, patches of habitat, reintroduction of individual plants and animals into depleted populations.

The recommended focus for vegetation management projects should be to focus on protection and

enhancement of remnant vegetation before embarking on reestablishment of un-vegetated areas.

3.1.3 Protection and Enhancement of Remnant Vegetation

Good management of remnant vegetation in Jan Juc Creek has the potential to yield significant net gain in the quality and extent of vegetation.

In order to achieve an overall net gain in vegetation quality and extent, the management activities should focus as a minimum on the protection of all existing remnant vegetation. This can be achieved through:

- Implementation of permanent protection of native vegetation;
- Retain all standing trees, dead or alive; and
- Retain all fallen timber/branches/leaf litter.

If natural regeneration of native species is inadequate, the quality of existing stands of remnant vegetation can be enhanced through targeted planting of seedlings of canopy and understorey species. This approach will increase the overall habitat hectare value of the stand of vegetation. If this approach is adopted, weed control will also be necessary and should be implemented with caution to minimise impacts to remnant vegetation.

Beacon Ecological (2009) has identified the Ecological Vegetation Classes (EVCs) at Jan Juc Creek. It is critical to ensure species selected for supplementary planting are selected from the appropriate EVC. Failure to do so would negatively impact the anticipated net gain.

Riverness (2011) identifies standards that should be applied to the revegetation and supplementary planting in order to achieve the desired increase in net gain (Table 3.1.1).

Where supplementary re-vegetation is undertaken, the approach must comply with DSE Revegetation Planting Standards (DSE 2006). Key elements include species selection, density of planting, 10-year survival rates, and location in the riparian zone.

It is important to note that, while revegetation to defined EVC benchmarks may be desired, there are practical limitations to restoring the complete diversity of species in an EVC. For example, some species are difficult to cultivate and many grasses do not establish well as they are often out-competed by weeds.

3.1.4 Restoration of Un-vegetated Areas

Restoration opportunities exist along sections of Jan Juc Creek.

Where possible all revegetation should refer to the appropriate EVC benchmark identified by Beacon Ecological (2009).

In parts of Jan Juc Creek where there is a mixed use, it may be more appropriate to restore the overstorey only due to the desire to retain sight lines. Where possible, it should be in accordance with the EVC benchmark for canopy species.

3.1.5 Site Preparation

Good site preparation is critical to the success of all vegetation projects. Site preparation not only includes ground preparation and weed or pest animal control prior to the year of planting, it should also include follow up maintenance of the site to support the establishment of vegetation and reduction in the threat posed by weeds.

The size of the site should be carefully considered to ensure the area is within the capacity of the project manager to adequately implement a pest plant control and revegetation program. It is preferable in sites with high levels of weediness to undertake the work in blocks or sections. Consideration should also be given to use of rabbit proof fencing, instead of tree guards, in areas where there is likely to be high numbers of shrub and smaller species planted. Project areas should generally not be smaller than 300m².

3.1.6 Pest Plant Control

Prior to embarking on a weed control program, a number of factors should be considered in relation to the target area and the vegetation community present. For example, weed control for areas where vegetation is to be re-established is very different to methods used to protect areas of high quality remnant vegetation. Methods for the control of weeds available to managers include chemical application, mechanical removal, manual removal and community education.

Areas of remnant vegetation in Jan Juc Creek are of very high conservation significance and can be incorporated in net gain accounting for Surf Coast Shire. Inappropriate weed management could cause off-target damage, impacting the condition of vegetation resulting in loss of condition and a reduction in net gain. To minimise impact to high value vegetation, it is recommended the process outlined in the vegetation standards for weed control (Riverness 2011) is followed. The process includes:

1. Assessing the problem.
2. Considering the control options/methods and determining:
 - a. Their effectiveness in treating the problem;
 - b. Their practicality in treating the problem; and
 - c. Potential risks of application to both on-site and off-site values. This needs to also consider the risks around the control options.
3. Developing a weed control program.
4. Implementing the program.
5. Maintaining a monitoring and review program.

Chemical Application

Chemical application of herbicides is one of the most commonly used methods for control of a wide range of weed species. Chemical application has a range of advantages including relatively low cost, can be used with precision in difficult areas, an effective method for control of perennial weeds and limited physical disturbance to a site.

Use of chemicals can also pose a risk to sensitive areas such as waterways. There is the potential for off-target damage to remnant indigenous species if spray drift occurs. A very high degree of experience is required when working with high quality remnants.

Mechanical Removal

Mechanical removal using machinery is effective for

woody species such as gorse and boxthorn. Care should be exercised in areas with remnant vegetation due to the potential for damage.

Manual Removal

Manual removal or hand weeding can be a very effective control method in areas of high quality indigenous vegetation. This approach avoids impacts to non-target species, providing there is significant knowledge of weeds species and native vegetation.

3.1.7 Community Education

The close proximity of Jan Juc Creek to urban areas poses a risk to indigenous vegetation through the spread of plant species from suburban gardens. Community education programs are an effective means to work with communities adjacent to the waterway to implement practices that minimise the risk of spread of exotic garden species.

3.1.8 Pest Animal Control

In the case of Jan Juc Creek, the focus for pest animal management is rabbits. Identifying the most appropriate pest animal control option follows a similar process for weed control. The proximity of the linear reserve to large urban areas limits control options often implemented in vegetation management projects.

There are a range of possible options for control of rabbits in the reserve and; if implemented, it should be reflected as an integrated approach that utilises a number of the options to address the rabbit population, harbour and warrens. Options for control that should be considered include:

- Baiting;
- Warren fumigation;
- Warren destruction;
- Fencing;
- Harbour removal;
- Guarding; and
- Habitat manipulation.

Table 3.1.1 – Planting standards for various project objectives from (Peters 2011)

Objective	Approach to replanting
Restore the structure and diversity of EVCs and maximise resilience to climate change driven stresses and/or Restore critical biodiversity functions/habitat requirements	MUST consider species diversity targets MUST consider species tolerance to climate change MUST consider establishment processes or successional stages SHOULD include establishment of particular overstorey, understorey and ground cover structure/diversity for key species habitat needs (e.g. feeding/foraging/nesting) in high priority fauna locations
Restore important structural components of Ecological Vegetation Classes	MUST be based on DSE Net Gain* objectives MUST use EVC benchmarks MUST include DSE Net Gain* density targets for overstorey and understorey woody life forms (and large tussocks in some grassy EVCs)
Restore the overstorey of Ecological Vegetation Classes	MUST use EVC benchmarks MUST include DSE Net Gain* density targets (overstorey only)
Rehabilitate landscapes (e.g. streambank stabilisation, salinity control, general habitat improvements)	Uses mixed indigenous and/or non-indigenous native species with no density targets Initial planting may focus on trees (and possibly shrubs) with future plantings undertaken as appropriate SHOULD reference EVC benchmarks and Net Gain* density targets

*DSE Revegetation Planting Standards (DSE 2006).



Existing bridge / creek crossing point, looking to shaded northern side of creek

3.2 Landscape and Open Space Management Plan

3.2.1 Purpose of the Landscape Management Plan

This section of the report outlines broad landscape management actions for the JJCLR Master Plan recommendations, which can be implemented immediately, in a specified timeframe, upon funding or contribute to the brief development of future detailed design phases.

Key management issues for the study area are anticipated to include:

- public safety;
- access (i.e. bollards/fencing/signage);
- delineation of boundaries;
- managing areas for recreation including facilities;
- management of weeds and introduced species;
- management and enhancement of planted and revegetation areas;
- protection and supplementation of the existing biodiversity; and
- senescent tree replacement strategy;
- management of drainage and waterway issues;
- fire prevention; and
- future management by community interest groups.

This Landscape Management Plan has been informed by background information, site descriptions, guiding principles provided earlier within this document and specific issues raised by community consultation and the SCS in order to ensure the intent is achieved.

Vegetation management, conservation and protection, and weed management are covered in detail in the preceding section, 3.1 River Health. This includes strategies to maintain the conservation values of the natural environment.

Water quality and stormwater management are covered in detail in section 3.3 below.

Existing concrete path adjacent private property, sunny southern side of creek

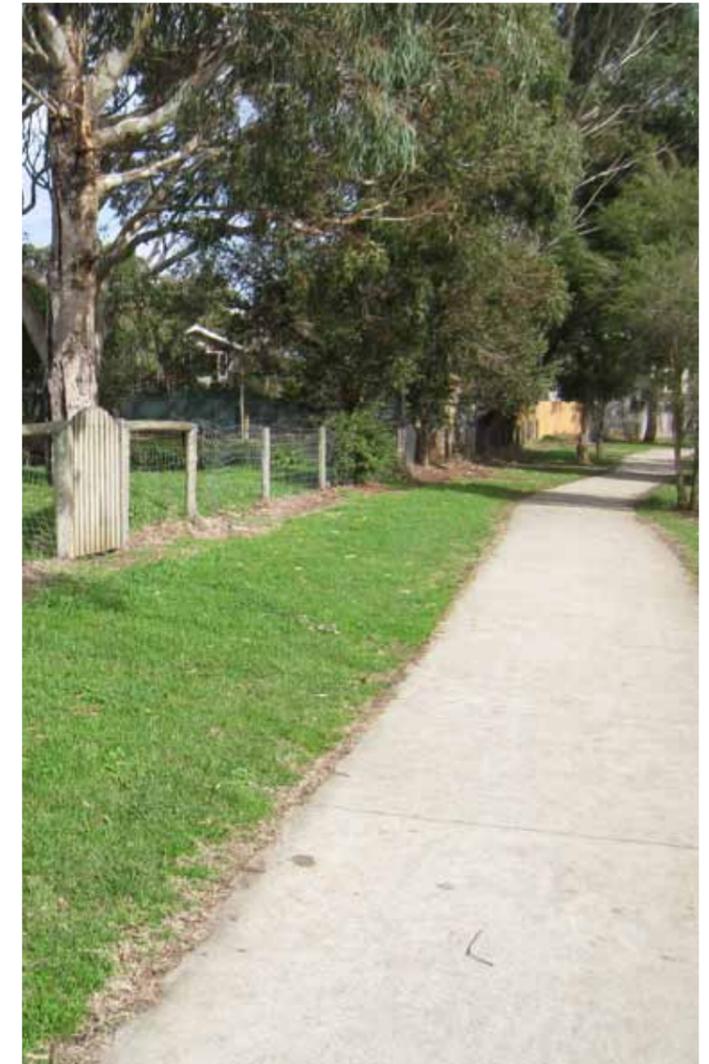




Figure 6. Jan Juc Creek & Spring Creek Master Plan (Current Management Boundaries)

not to scale

3.2.2 Current Management Boundaries

The JJCLR is Council owned and managed land. Areas of upstream influence have a variety of public and private ownership boundaries. The Alkaline scrub area to the south of the study area (outside the scope of this report) is managed by Great Ocean Road Coast Committee (GORCC). The areas of interest include up stream and downstream zones of the Jan Juc Creek and proposed future works should be considerate of private land owners and other management authorities (GORCC).

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GDA
Geographic Data Australia

THE MAP IS PRODUCED ON THE GEOCENTRIC COORDINATE SYSTEM (GDA96). GDA96 replaces the Australian Geodetic Datum 1966 (AGD66).

Current management boundaries



Signage example

3.2.3 Management Zones

The management plan comprises three key zones:

- conservation areas;
- drainage lines/creek lines; and
- parks and recreation areas.

Conservation areas and drainage lines/creek lines are detailed in Vegetation Protection and Management.

The landscape management section addresses parks and recreation areas.

Future detailed design within these zones would dictate the need for a management plan that targets more specific needs. Success of the management strategies outlined below for the recreation areas initially relies on implementation by the Council following detailed POS designs.

Future monitoring and success will depend on numerous local authorities and interest groups.

3.2.4 Wathaurung Heritage

Management should aim to protect Wathaurung heritage sites and interpret them in a way that instills a sense of respect and promotes an appreciation of Wathaurung culture and the Wathaurung heritage of the area. Wathaurung groups and/or nominated indigenous representatives are to be involved in the planning and management of assets. Management actions are to include:

- Protect Wathaurung heritage sites from disturbance or damage by human activities.
- Promote a general understanding and appreciation of the Wathaurung culture and language through interpretive and informative signage, guided walks and talks, information boards, brochures, newsletters and workshops (where feasible).
- Encourage research into past use of the area by the Wathaurung people including site wide surveys for heritage and archeological sites.
- Conduct archaeological survey to prevent works that may disturb, damage or destroy relics from occurring.

3.2.5 Vegetation Management

Management of vegetation is critical to the ongoing amenity of the reserve and should be undertaken proactively as an integral component of Council maintenance regimes. In brief, key landscape management actions are to include:

- Protect and enhance existing remnant vegetation in the reserve through appropriate weed control and supplementary planting.
- Develop a tree replacement strategy for ageing vegetation prior to its decline, and stage removal of exotic vegetation (particularly significant mature exotic tree species) in consultation with the community.
- Reinstate turf areas with a turf type which is easy to establish and tolerant to wear, drought, salt and shade. Turf should not be invasive to adjacent habitat areas.
- Prevent or discourage access to habitat areas via formal paths.
- Instruct contractors to minimise disturbance to natural flora and fauna within the reserve.
- Ensure protection of natural vegetation forms part of any landscape contractual agreement (for general landscape maintenance) via pre-determined measures.



3.2.6 Landscape Character and Visual Quality

Management actions to reinforce landscape character and visual quality include:

- Regularly maintain facilities including site furniture (e.g. empty bins and remove rubbish, maintain shelter and toilet structures, seats, remove/repair vandalism, etc).
- Ensure all facilities are contained within the asset register and program ongoing maintenance regimes for both hard and soft landscape elements.
- Ensure site components remain visually integrated with the setting.
- Ensure good condition of turfed areas.
- Retain sight lines between key elements/locations.
- Retain significant views and vistas.
- Ensure informal active recreational pursuits do not impact detrimentally on areas provided for passive activities.
- Regularly maintain grassed and landscaped areas, particularly at the interface to habitat areas and areas of environmental value.

3.2.7 Public Safety

Public safety management actions are to include:

- Ensure all built elements are to Australian Standards and Building Codes (e.g. play equipment, pathways, built elements, fire management, etc).
- Fencing, bollards and/or road markings at key locations to prevent pedestrian/cycle and vehicular conflict.
- Signage to inform visitors of potential risks in POS sites and specific use facilities such as play equipment, access to water, etc.
- Maintain views into the site to assist in passive surveillance of the open space. This may involve encouraging residents on the study area boundary to install visually permeable fencing.

3.2.8 Access

Management of access actions include:

- Vehicle access should be minimised to maintenance only through designated access points/routes to reduce unnecessary disturbance to the landscape and assist in protection of habitat areas.
- Controlled access in areas of ecological value using low profile fencing, signage and bollards to exclude unauthorised vehicle access (i.e. trail bikes) of the JJCLR.
- Car parking areas clearly designated, physically separated and signposted.
- Ensure all new crossovers and pathway network-related works are accessible for a variety of mobility levels wherever possible (in accordance with Australian Standards for Access and Mobility). In some areas, local topography will constrain accessibility and alternative routes should be indicated where possible through wayfinding signage.
- At all POS sites provision of signage to inform visitors/community of access point to POS (i.e. clear site maps of all POS areas).

3.2.9 Fire

Landscape management actions to manage fire risk are to comply with Australian Standard AS 3959-2009, Construction of buildings in bushfire prone areas (Standards Australia), CFA guidelines for Jan Juc and Bellbrae, and include (but are not exclusive to):

- A fire management plan to detail “Neighbourhood Safer Places - Places of Last Resort” at Bob Pettitt Recreation Reserve or alternative appropriate site to be determined, risks, past fire management and strategies for fire prevention, and acknowledge that fire management plans and strategies may need to be modified as the reserve is developed.
- Prevent dead vegetation from collecting around the base of trees.
- Prevent/remove piles of dead vegetation. Logs and branches to be scattered to provide fauna habitat, if required.
- Remove long ribbons of loose fibrous bark from the lower section of trees.

- Retain routes for uninterrupted access by emergency vehicles.
- Cut back branches/foliage overhanging within 2m of a roofline, clean out twigs and leaves from roof gutters of structures (or future structures) if applicable.
- A 2-3 metre wide buffer zone is to be maintained / implemented to adjoining properties. This could be an area of the locally indigenous fire retardant species Bower Spinach (*Tetragonia implexicoma*) or a strip of non combustible material such as gravel.

3.2.10 Future management by Community Interest Groups

Actions to encourage involvement in management of the JJCLR public asset include:

- identify opportunities to encourage passive recreational/passive activity groups;
- create community awareness using seminars/publications throughout the design and implementation process;
- initiate community ownership and interest through interpretation signage; and
- foster ownership of the reserve and encourage Friends groups and residents adjoining the reserve.

3.3 Management Recommendations

The following tables provide recommendations for the future management of the Jan Juc Creek Linear Reserve. Actions have been prioritised in accordance with criteria for the three theme areas. The first two, Vegetation Protection and Management, and Waterway and Stormwater Management, are referred to jointly under the title of River Health (Section 3.1). Landscape and Open Space is the third theme, encompassing the terrestrial landscape and public realm.

Prioritisation of actions

The table below identifies how actions have been prioritised in accordance with the three nominated themes.

	Vegetation Protection and Management	Waterway and Stormwater Management	Landscape and Open Space.
High	Actions that protect very high and high conservation value remnant vegetation. Capacity building actions for community members.	Actions to address significant drainage issues including capacity and design issues. Implementing distributional stormwater management.	Actions to address safety; priority issues raised by community and user group consultation; and/or an action that will significantly improve the functionality/use of the reserve.
Medium	Supplementary planting of existing remnant areas and restoration of EVCs fringing remnant vegetation.		Implementation of the action is dependent upon the success of other recommendations that are to be implemented in the short term; the issue is not urgent in terms of the way it affects the use or safety of/ within the reserve; the item exists and is functional in its current form with an upgrade required; or the item requires a thorough investigation, consultation and determination of funding mechanisms prior to implementation.
Low	Restoration of benchmarked EVC vegetation.	Localised drainage issues.	They have a low impact on current functioning/safety of use within the reserve.

* Allow for minimum 3% inflation per year

General Recommendations

These recommendations are of a general nature and can be applied across multiple zones or the entire Jan Juc Creek Linear Reserve.

Implementation Priorities	Priority or Time Frame	Indicative Cost \$
Vegetation Protection and Management		
Protect existing very high and high conservation significance vegetation through formal mechanisms.	High	
Conduct annual monitoring of the reserve to identify and control new and emerging weeds.	Ongoing	\$1,500 per annum
Conduct community education program to increase awareness of native vegetation protection and to reduce the threat that common garden species pose to native vegetation.	High	\$5,000
Increase the capacity of operations staff to identify remnant vegetation and weed species.	Ongoing	\$1,000 per annum
Develop a detailed implementation program for vegetation and weed management across the reserve.	High	\$10,000
Seek external funding to assist protection and management of vegetation in the reserve.	High	
Waterway and Stormwater Management		
Energy dissipation structures should be installed at each outlet to limit flow velocities discharging into the creek. Assumed to be rock structures (5 sites \$10,000/site).	Medium	\$50,000
Install grates on all piped stormwater drains.	High	\$15,000
Investigate the possibility of reconstructing (daylighting) as much of Jan Juc Creek as possible.	High	\$20,000
Undertake a CCTV investigation of the underground pipe network in the vicinity of the creek to assess and confirm the condition of assets.	High	\$5,000
Landscape and open space		
Enhanced pedestrian crossings (x2 Domain Road).	High	\$50,000
Enhanced pedestrian crossings (x3).	High	\$30,000
Interpretive signage.	Low	\$50,000
Landscape Maintenance per annum - Year 1.	High	\$15,000 / ha
Landscape Maintenance per annum - Year 2.	High	\$14,000 / ha
Landscape Maintenance per annum - Year 3.	High	\$13,000 / ha
Landscape Maintenance per annum - Year 4.	High	\$12,000 / ha
Landscape Maintenance per annum - Year 5.	High	\$11,000 / ha
Landscape Maintenance per annum - Year 6 -10.	High	\$10,000 / ha

Zone 1 - Bob Pettitt Reserve (Wattle Court and Sunset Strip through to Domain Road)

Implementation Priorities	Priority or Timeframe	Indicative Cost \$
Vegetation Protection and Management		
Conduct weed management of understorey weeds and supplementary planting of shrub species in accordance with Swampy Riparian Woodland and Grassy Woodland EVC benchmark.	High	\$55,000
Waterway and Stormwater Management		
Inclusion of planted areas to stormwater entry grates and upstream silt traps and velocity dissipation measures to enhance user safety	Medium	\$15,000
Parks and Open Space		
Winding ramp and stairs to north side of oval, concrete paths and stairs <i>in situ</i> with additional planting, trees and stormwater management.	High	\$27,000
Proposed feature tree planting at entry road off Sunset Strip.	Medium	\$3,000
Resting benches/seating.	High	\$4,800

* Allow for minimum 3% inflation per year

Zone 2 - Delview Drive to Domain Road

Implementation Priorities	Priority or Timeframe	Indicative Cost \$
Vegetation Protection and Management		
Conduct weed management of understorey weeds and supplementary planting of shrub species in accordance with Swampy Riparian Woodland and Grassy Woodland EVC benchmark.	High	\$30,000
Waterway and Stormwater Management		
	n/a	n/a
Landscape and Open Space		
New concrete path.	Low	\$15,000
Creek Crossings (x2 bridges).	Low	\$10,000
Manage access at transitions from existing road networks to proposed paths as noted in general recommendations, pram crossings etc.	Medium	\$3,000

* Allow for minimum 3% inflation per year

Zone 3 – Domain Road to Torquay Boulevard

Implementation Priorities	Priority or Timeframe	Indicative Cost \$
Vegetation Protection and Management		
Conduct weed management of understorey weeds and supplementary planting of shrub species in accordance with Swampy Riparian Woodland and Grassy Woodland EVC benchmark.	High	\$20,000
Conduct supplementary planting of Swampy Riparian woodland in areas fringing Plains Freshwater Sedge.	Medium	\$10,000
Waterway and Stormwater Management		
Review hydraulic capacity of stormwater main and replace as required.	High	\$20,000
Provide a drainage path to the outlet of the catchment to enable existing depressions to drain naturally under gravity, in particular at the confluence downstream from Bob Pettitt Reserve. (This recommendation is subject to the further detailed study of the Jan Juc Creek Daylighting and the subsequent community consultation)	Low	\$550,000
Parks and Open Space		
Concrete path.	High	\$5,750
Concrete path.	High	\$60,000
Boardwalk	Medium	\$125,000
Seating and viewing area adjacent boardwalk.	High	\$5,000
Localised earthworks adjacent existing paths to mitigate inundation.	High	\$3,000

* Allow for minimum 3% inflation per year

Zone 4 – Torquay Boulevard to Duffields Road

Implementation Priorities	Priority or Timeframe	Indicative Cost \$
Vegetation Protection and Management		
Weed management of understorey weeds and supplementary planting of shrub species in accordance with Grassy Woodland EVC benchmark.	High	\$7,000
Supplementary planting of Grassy woodland in areas fringing Plains Freshwater Sedge Wetland and Tall Marsh.	Medium	\$6,000
Fill gaps in vegetation in accordance with EVC benchmarks to restore area surrounding remnant vegetation.	Medium	\$2,800
Waterway and Stormwater Management		
New wetland near Duffields Road.	Medium	\$200,000
Landscape and Open Space		
Concrete path.	High	\$18,000
Bridge Crossing.	High	\$11,000
Landscaping and associated elements adjacent proposed wetland.	Medium	\$20,000
Feature tree planting.	Medium	\$4,000

* Allow for minimum 3% inflation per year

Zone 5 – Duffields Road to Hoylake Avenue (Three Bridges Park)

Implementation Priorities	Priority or Timeframe	Indicative Cost \$
Vegetation Protection and Management		
Supplementary planting of Grassy Woodland in areas fringing Tall Marsh.	Medium	\$2,000
Waterway and Stormwater Management		
Three Bridges planted swales and dry creek bed.	Medium	\$80,000
Parks and Open Space		
Concrete path.	High	\$2,000
Upgrade of playground equipment, seating and associated landscaping.	Medium	\$100,000
Sealed car park on Carnarvon Aveune (6-8 spots).	High	\$30,000
Garden beds, shrub planting and tree planting.	Medium	\$10,000
Feature tree planting.	Medium	\$4,000

* Allow for minimum 3% inflation per year

Zone 6 – Hoylake Avenue to the SLSC access road (Apex Park)

Implementation Priorities	Priority or Timeframe	Indicative Cost \$
Vegetation Protection and Management		
Weed management of understorey weeds and supplementary planting of shrub species in accordance with Coastal Alkaline Scrub EVC benchmark.	High	\$6,000
Supplementary planting of Grassy Woodland in areas fringing Tall Marsh.	Medium	\$3,000
Coordinate implementation of vegetation management with Great Ocean Road Coast Committee.	High	
Waterway and Stormwater Management		
	n/a	n/a
Landscape and Open Space		
Tree planting to delineate car parking.	High	\$6,000
Swales and WSUD treatments to car parking area.	Medium	\$25,000
Seat and landscape to informal picnic area.	Medium	\$5,000
Feature tree planting.	Medium	\$3,000

* Allow for minimum 3% inflation per year

4.0 References

1. Beacon Ecological (2009) for the Surf Coast Shire, *Vegetation Assessment of Jan Juc and Spring Creek, Jan Juc, Victoria: EVC Mapping, Assessment of Potential Net Gain and Landscape Planning Recommendations*. Surf Coast Shire.
2. Surf Coast Planning Scheme, www.dse.vic.gov.au/planningschemes/surfcoast/home.html (accessed August 2011).
3. Township Protection Plan (2010), http://cfaonline.cfa.vic.gov.au/mycfa/Show?pagelid=publicDisplayDoc&fname=2011/TPP-W-BSW-Jan-Juc-Bellbrae-2_00_40145.pdf (accessed August 2011).
4. Australian Standard AS 3959-2009, Construction of buildings in bushfire prone areas, Standards Australia.
5. DSE (2009), *Ecological Vegetation Class Benchmarks* for each Bioregion, www.dse.vic.gov.au (accessed October 2011).
6. Grant, C., Duffy, A. and Lowe, K. (2003) *Biodiversity Action Planning - Landscape for Gherang Zone, Otway Plain Bioregion*. Published by The Department of Sustainability and Environment, Victoria.
7. DSE (2006) Native Vegetation Revegetation Planting Standards – Guidelines for establishing native vegetation for net gain accounting. Victorian Government, Department of Sustainability and Environment, East Melbourne
8. DSE (2011), *The Victorian Investment Framework Vegetation Draft Work Standards (DSE 2011)*, www.dse.vic.gov.au/_data/assets/.../VIF_Guidelines_20112012.pdf

COMMUNITY ENGAGEMENT FEEDBACK

Results of community engagement

The Summary of results of the community engagement are listed in the following table as collated by SCS.

General notes

- Total number of submissions 105
- People who made multiple submissions have their comment listed once.
- People who have multiple signatures on their submission have each signatory counted.
- Organisations are listed as they represent more than one individual.
- Members of the Project Steering Group who made submissions are noted with PSG by their name.
- Issues that are management are listed, but will be directed to the relevant part of Surf Coast Shire

Issue / Community engagement feedback	Number (incl org'n)
Revegetation	
Support revegetation.	13 (Tony Smales PSG)
Support canopy raising of trees to create safer views (1)	7 (Greg Sharpley PSG) (Greg Sharpley PSG)
Don't support (adding to fire risk (2) Thickness of vegetation between Torquay Blvd and Duffields makes me feel unsafe (1)	3
Don't revegetate near golf course to allow parking etc	1
Billabong	
Support billabong	3
Support boardwalk there	1
Gravel paths instead of concrete	
Gravel paths instead of concrete in upper creek area. Support gravel in Delview Drive to Torquay Blvd length. (1)	4 (Greg Sharpley PSG)
Path behind Vernon Cres (if constructed – but not favoured) should be a Natural pathway as per the Pathways Strategy. Area subject to flooding (2).	2
Paths	
General support	1 (Friends of JJCK PSG)
Support shown route between Torq Blvd and Duffields	5
Keep path between Torq Blvd and Duffields on south side as an alternative path	2
No need for path behind Vernon Close as this is a deadend and has very rare use (2)	2
Consider path between Torq Blvd and Duffields only on north with no bridge, but crossing creek adjacent to road.	1 (Greg Sharpley PSG)
Review pathways strategy	1 (Greg Sharpley PSG)
Support path north of oval but it must be accessible for prams, wheeled vehicles etc	1
Bridge(s)	
Support for footbridge eastern side of Torq Blvd	1
Road crossings	
Support, as soon as possible.	2 (Friends of JJCK PSG)
Signage	
Support, but not too many	5 (Tony Smales) (Friends of JJCK PSG)

Appendix 1 cont.

Issue / Community engagement feedback	Number (incl org'n)
Reconstruct the creek (daylighting)	
Support reconstructing as much as possible.	1 (Great Ocean Views Pty Ltd)
From Domain rd as far as poss (1)	1 (Great Ocean Views Pty Ltd)
From Domain Rd to Torq Blvd (1) Accept not in vicinity of playspace at Carnarvon Ave but deepen the floodway and 'daylight' small section near Hoylake Ave (1 Greg Sharpley PSG) A deeper creek would benefit fish, birds, etc. (1)	11 (Greg Sharpley PSG) (Tony Smales PSG) (Friends of JJCK PSG)
Stormwater	
No mention of effects of RACV harvesting	2 (Tony Smales PSG) (Friends of JJCK PSG)
No more stormwater harvesting	2 (Friends of JJCK PSG) (Greg Sharpley PSG)
Address safety issues of grate after creek passes under Duffields Rd	1 (Greg Sharpley PSG)
Address safety issues of grate near kindergarten	1 (Greg Sharpley PSG)
Improve intake structure to piped section	1 (Greg Sharpley PSG)
Water management	
Install silt traps, rubbish traps, wetlands to manage pollution, etc	2 (Greg Sharpley PSG) (Friends of JJCK PSG)
Carnarvon play area	
Put in toilets near playground	
Put shade over picnic sets	2
Include fruiting trees	1
More tables and seating	1
Bench seats under trees	1
Drinking fountain	1
More play equipment for variety and for kids of various ages	1
Dogs	
Regrowth areas no dogs or dogs on leads	
Keep as dogs off lead	3
Rubbish bins & dog poo bags	1
Additional rubbish bins	2
Dog poo bag dispensers	2
No need for bins mentioned at Domain Road and Duffields rd	1 (Tony Smales PSG)
Wetlands (south end)	
Concerns about RACV diverting water from	4

Appendix 1 cont.

Issue / Community engagement feedback	Number (incl org'n)
Wetlands (Duffields Rd)	
Have a lake here with silt traps etc	1 (Greg Sharpley PSG)
Parking	
Support parking with trees at south end.	
Support parking at south end but trees should be informally planted, with informal parking.	1 (Tony Smales PSG) 1 (Greg Sharpley PSG)
Support management of	1 (Friends of JJCk PSG)
Traffic	
Speed humps at Carnavon Ave to slow traffic near play area and reduce traffic avoiding lights	5
Address conflict between pedestrians and vehicles at Domain Rd	1
No warning lights at crossings	1 (Greg Sharpley PSG)
Other	
Balance habitat versus public risk of removing dead trees, ribbon bark, fallen logs etc	1
Burn occasionally for fuel reduction	1
Erosion on embankment is a major issue	1
Weed management needed west of oval	1
Ensure floodwater drains quickly	1
Exercise stations along creek tracks	2
Keep area behind houses north of middle bridge unplanted as kickabout space and keep visible	1
Someone has built a fence into the creek land at Matlock Close that prevents access. Is this fence legal? (1)	
RACV License money should be given to Friends of Jan Juc Creek	1 (Tony Smales PSG)

Most common issues

The following is a summary of the most common issues that arose from the community engagement on the Draft Master Plans in order of frequency of mentions, followed in brackets with the recommendation of the Project Steering Group (PSG) and the Project Reference Group (PRG) Where the PRG recommendation differed from the PSG this is included in square brackets.

In addition to these issues a broad range of other issues and suggestions and input came from the community. Where appropriate these are being incorporated into the final plans and/or directed to relevant Council officers for follow up. Refer to the full Analysis of Feedback attached.

- Support reconstructing as much of Jan Juc Creek as possible (PSG Support. Investigation to be undertaken as the highest priority.) [PRG Support. Investigation to be undertaken as the highest priority. Once investigation completed the issue should be taken back to the local community.]
- Support for revegetation at Jan Juc Creek (PSG & PRG Support. Revegetation to be in line with recommendations of the 2009 Beacon Ecological report).
- Support for path location shown between Torquay Blvd and Duffields Rd in Jan Juc Creek Linear Reserve. (PSG Support. However, path to travel parallel to Torquay Blvd and then run behind northern properties. (No bridge needed)) However PRG supports the path layout as shown in the Draft Master Plan which is as per the Pathways Strategy and not as suggested by the PSG.]
- Support signage/interpretation along Jan Juc Creek Linear Reserve. (PSG & PRG Support. Should not be too much and worked with the local stakeholder groups.)
- Speed humps at Carnarvon Ave to slow traffic. (PSG & PRG: Have Surf Coast Shire traffic engineers investigate traffic calming options.)
- Toilets near the Carnarvon Avenue play area (PSG Support.) [PRG does not support. The playground is ranked as 'local' in the Playground Strategy and so does not trigger need for toilet. PRG recommends adding signage to indicate location of nearest toilets.]
- Shade structures. [PRG supports the installation of shade structures in strategic locations in addition to the planting of shade-giving trees.]



View of path to SLSC from end of Apex Park



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B	C.Missio / K.Milburn / P. Joyce / G. Flower	D.May/G. Cater	*DM/*GC	D.May	*DM	24.10.11
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G	K. Milburn	D.May	*DM	D.May	*DM	27.01.12
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I	C.Missio	S. Graham	*SG	D.May	*DM	18.06.12
J	C.Missio	S. Graham	*SG	D.May	*DM	04.07.12

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