Bayside
CITY COUNCIL

SANDRINGHAM BEACH AND GARDENS
DRAFT MASTERPLAN

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26 July 2016

CONTENTS

INTRODUCTION

The Sandringham Beach and Gardens draft Masterplan directly guides design, priorities and staging of on ground works on Council managed land within the precinct, implementing the recommendations of current strategic plans including the *Bayside Open Space Strategy 2012* and *Bayside Coastal Management Plan 2014*.

The scope of the study area extends from Abbott Street to Eliza Street and includes Sandringham Gardens.

The masterplan will inform the Council's capital works program, funding applications and priorities for infrastructure renewal, replacement and redevelopment and over the next decade. The masterplan will also be a key tool to assist Council and other stakeholders in obtaining required coastal management consent from Department of Environmental, Land, Water and Planning (DELWP) for implementation of on ground projects within the precinct.

The *Bayside Open Space Strategy 2012 (BOSS 2012)* classifies this foreshore precinct to be of municipal and regional importance in Bayside. It caters for Bayside residents, tourists and other visitors from outside the City.

The Bayside Coastal Management Plan 2014 (BCMP 2014) was adopted by Council in 2014, its development included extensive consultation with the Bayside community and has informed development of the draft masterplan. The BCMP 2014 along with the *Sandringham Foreshore Masterplan and Management Plan 1998* and the *Sandringham Gardens South Landscape Masterplan 2006* provides the strategic direction for actions and works proposed within the draft masterplan.

The key objectives for the draft masterplan include:

- Identify and improve access and safety on the designated Coast Walking Path, maintain existing character while sustainably managing for increasing future use.
- Ensure protection of the foreshore environment, particularly areas of remnant coastal vegetation and habitats for native wildlife.
- Identify and protect areas of cultural heritage significance.
- Investigate the removal/relocation of the electricity substation at the end of Bay Road.
- Improve paths and lawn areas at Sandringham Gardens.
- Investigate opportunities for stormwater harvesting to enable sustainable reactivation of the irrigation system for Sandringham Gardens.
- Investigate opportunities to improve stormwater quality treatment for drains discharging at Sandringham Beach.
- Identify opportunities to remove redundant fencing and rationalise duplicated secondary tracks and paths to reduce impacts on environmental and cultural heritage values.
- Improve all ability access to the beach via staged upgrade of existing ramps and stairs.
- Improve safety on the Bay Trail, resolving key pinch points Sandringham Gardens, B12 Car park and Red Bluff Street.
- Replace the Southey Street toilets.

Sandringham Beach and Gardens Foreshore

Bayside City Council

LAND MANAGEMENT

The Sandringham Beach and Gardens Foreshore between Abbott Street and Eliza Street is Crown Land with Bayside City Council having Committee of Management responsibility in accordance with the requirements of the *Crown Land Reserves Act (1978), Coastal Management Act (1995)* and *Bayside Coastal Management Plan (2014).*

Management and any future redevelopment of the existing building and lease area on the foreshore precinct is guided by the requirements of the *Victorian Coastal Strategy (2014)*, Council Policy and the recommendations of the *Bayside Coastal Management Plan (2014)*. These include:

- Encourage consideration of joint partnerships and increased public access in any redevelopment proposals for aging infrastructure.
- Ensure no net increase in building footprint and seek rationalisation of existing buildings where possible in any redevelopment works.

SANDRINGHAM LIFE SAVING CLUB

The Sandringham Life Saving Club was formed in early 1917 and will be celebrating 100 years of volunteer service to the Sandringham community in 2017. The Sandringham Life Saving Club facilitates beach patrols and training for its members. Declining membership numbers have been offset by support from the nearby Hampton Life Saving Club to ensure beach patrols are available throughout the summer.

The existing building provides an excellent patrol vantage point and storage area but limited other facilities for club members.

BAY ROAD ELECTRICAL SUBSTATION

The electrical sub station in Sandringham Gardens is part of the network managed by ZNX and operated by United Energy. The substation regulates power to residential properties and businesses in the Sims Street/Bay Road area. In consultation with ZNX and United Energy, Council is investigating options to remove the pinch point on the Bay Trail created by the proximity of the existing substation to Bay Road and the existing pedestrian crossing

LOCAL COMMUNITY STAKEHOLDERS

There has been extensive historical and ongoing community involvement in protection and enhancement of native vegetation and habitat along Sandringham Foreshore. Black Rock and Sandringham Conservation Association (BRASCA), Friends of Native Wildlife (FONW), Sandringham Foreshore Association (SFA) and the local community all actively assist Bayside City Council in community education, rubbish removal, weed control and monitoring of the foreshore environment.

Photo 1: Sandringham Life Saving Club

Photo 2: Bay Road Electrical Substation

Photo 3: Windhover Lookout

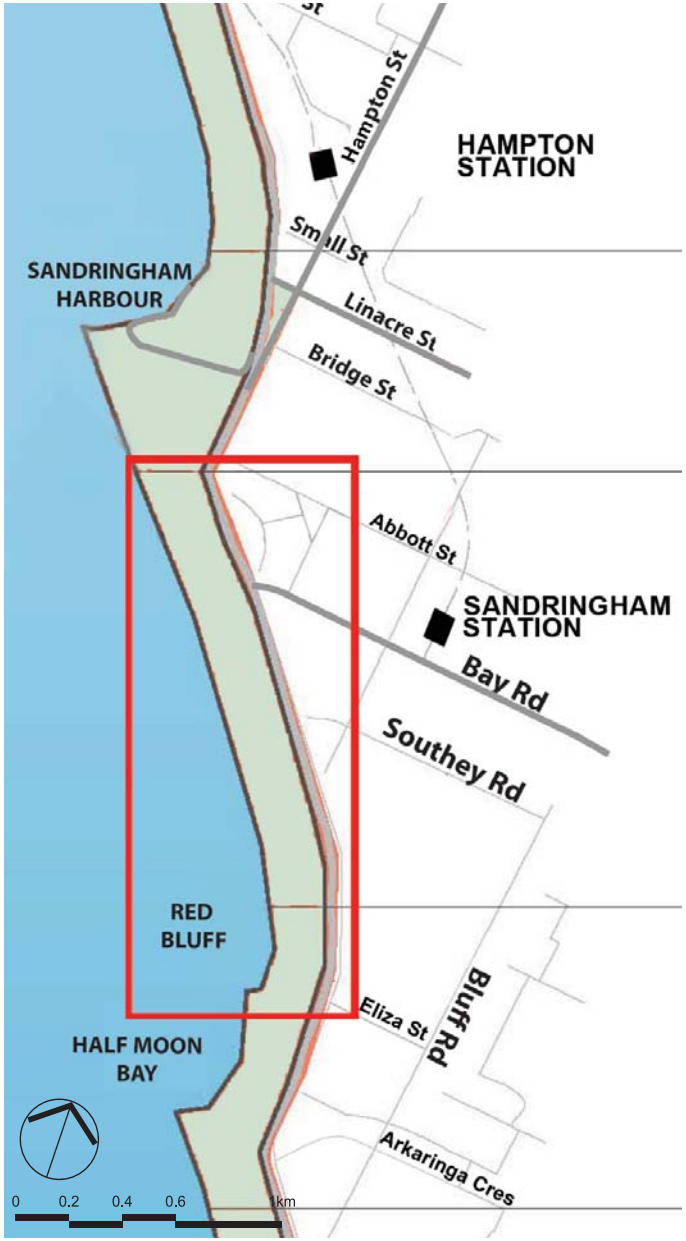

Figure 1 Context Plan
Bayside Coastal Management Plan 2014

CULTURAL HERITAGE

Aboriginal people's occupation of what is now known as the Bayside Foreshore dates back many thousands of years and the area contains registered cultural heritage sites and places that are protected under the provisions of the *Aboriginal Heritage Act (2006)*. The Act recognises Aboriginal people as the primary guardians of their cultural heritage and has established a process for Aboriginal groups to apply to be registered as Registered Aboriginal Parties (RAPs). Currently there is no appointed RAP for Bayside and requirements for ongoing protection and management of indigenous cultural heritage will continue to be co-ordinated by Council through the Office of Aboriginal Affairs Victoria.

The Sandringham foreshore was a popular destination for both holiday makers and day trippers. In 1887 the railway line was extended from Brighton Beach to Sandringham. Photos from this period show the timber Sandringham Sea Baths and bathing boxes, however there are no remains of the sea baths structure or bathing boxes today.

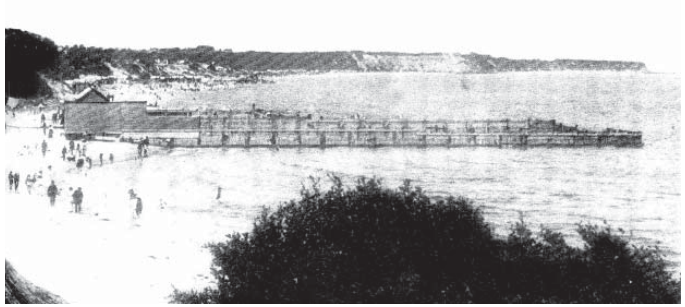

Photo 4: Sandringham Beach c.1886

SANDRINGHAM GARDENS ROTUNDA

Built in 1926, the Sandringham Rotunda is located in Sandringham Gardens, opposite the end of the Melrose Street shopping precinct. Palm trees are planted beside the rotunda, which became a notable feature of the landscape. It is considered to be of aesthetic and historical significance and it is a popular location for weddings.The rotunda in Sandringham Gardens is individually covered under a specific overlay (HO060).

Photo 5: Sandringham Rotunda

SEA WALLS

During the Great Depression councils were encouraged to employ local men on relief work (also known as 'Sussos') In the 1930's Sandringham City Council (recently separated from the Parish of Moorabbin) decided on a project to protect local beaches from further erosion by building bluestone walls and rock facings. The stones in this area and other seawalls on the foreshore at Brighton and Black Rock were taken from the outer walls of the Old Melbourne Gaol.

There is a Heritage Overlay (HO703) which extends along the coast from Picnic Point to Red Bluff covering the area known as Sandringham Beach Park. The area is listed on the Register of the National Estate. The significance relates to the predominantly intact belt of native coastal vegetation and associated history of the adjoining Sandringham Gardens.

Photo 6: Sandringham sea wall

SANDRINGHAM LIFE SAVING CLUB

The Sandringham Life Saving Club was established in 1917 and photos from the 1920's and shows the old timber Sandringham Life Saving Club. This building was on the site of the existing club building, and there is no sea wall present in the background. Photo 8 from the 1950's clearly shows the existing stormwater outfall and sea wall with plenty of bathing boxes still on site and the roof line of the old timber Life Saving Club is also clearly visible. The current Sandringham Life Saving Club building was constructed in the 1960s.

Photo 7: Sandringham Life Saving Club 1920's

Photo 8: Sandringham Beach 1950s

Photo 9: Sandringham Beach 2016

A bluestone kiosk and change rooms were built north of the SLSC building in the 1940's with new ramps improving access to the beach. Plans for this building, date from 1936-38 and illustrate an 'Art Deco' style pavilion of concrete and masonry, however, the actual bluestone building constructed on site was entirely different. The bluestone change rooms and kiosk were demolished in 2006 after becoming structurally unsound and the area was reset as parkland and the ramp widened to provide maintenance and emergency vehicle access to the beach. Public toilets were added to the front of the SLSC in 2010.

The Crescent Gardens and Monument (HO136) on the east side of Beach Road are also of heritage significance.

The stainless steel Windhover (Photo 3) was designed by a local Sandringham artist, Lenton Parr, who was involved in locating and installing the sculpture in this highly visible location. The visual and physical connection between the sculpture and the Bay is important to maintain. Refer photo 3.

Indigenous and European cultural heritage must be protected during masterplan implementation, and on sites where major ground breaking work are involved a due diligence Cultural Heritage Assessment will be required.

ZONING AND OVERLAYS

The site is Crown land managed by Bayside City Council. The site is zoned Public Park and Recreation Zone (PCRZ) in the Bayside Planning Scheme.

Erosion Management Overlay (EMO):

There is an Erosion Management Overlay (EMO) over the entire study area and coastline to protect areas prone to erosion, landslip or other land degradation process by minimising land disturbance and inappropriate development.

Vegetation Protection Overlay (VPO):

Native vegetation at Sandringham Beach and Gardens is included in the Vegetation Protection Overlay (VP01) in the Bayside Planning Scheme. The VPO applies to the entire Sandringham beach and Gardens precinct. A permit is required to remove, destroy or lop native vegetation.

Special Building Overlay (SBO):

Special Building Overlay (SBO) covers areas liable to inundation by overland flows from urban drainage system. The SBO applies to the Royal Ave section to the foreshore and The Crescent foreshore from Charlmers Ave.

Design Development Overlay (DDO)

The Design Development Overlay (DDO1) relating to building height controls on the coast applies to the whole of the foreshore reserve. Buildings must not exceed two storeys and must comply with requirements as outlined in the Victorian Coastal Strategy (2014) and the Bayside Coastal Management Plan (2014). Including:

- Investigate opportunities for multi-use of existing buildings and any in any redevelopment proposals.
- No net increase in building footprint and seek rationalisation of existing buildings where possible in any redevelopment works.
- Prioritise costal dependent uses.

Heritage Overlays (HO):

- HO60 – Rotunda Sandringham Gardens
- HO703 – Sandringham Beach Park (Tree Controls Apply)
- HO136 – Crescent Gardens and Monument

Figure 2. Land Management

EXISTING CONDITIONS

Figure 3. Existing Conditions

RECREATIONAL FACILITIES

PLAYGROUND PICNIC AREA

The popular foreshore playground picnic area at Sandringham Gardens is well serviced by car parking and accessible via the Bay Trail and Coast Walking Path. The playground was most recently upgraded in 2010 and is well protected by native vegetation and shade sails. The picnic facilities include electric BBQs and shaded picnic tables. The fenced open grass area adjacent to Beach Road is popular for informal ball games.

Photo 13: Sandringham Gardens Playground

LOOKOUTS AND VIEWING AREAS

The elevated cliffs provide a range of views out over Port Phillip Bay and to the spectacular cliffs at Red Bluff. The formalisation of new lookout points and replacement of coastal cliff fencing requires installation of substantial footings in order to overcome potential risk associated with land slip on cliffs that exceed 10m in many areas. This risk is compounded by unconsolidated fill dumped historically along the foreshore during construction and widening of Beach Road in earlier development of the area. Council have been progressively upgrading and replacing seating and pine log fencing at these popular lookout points.

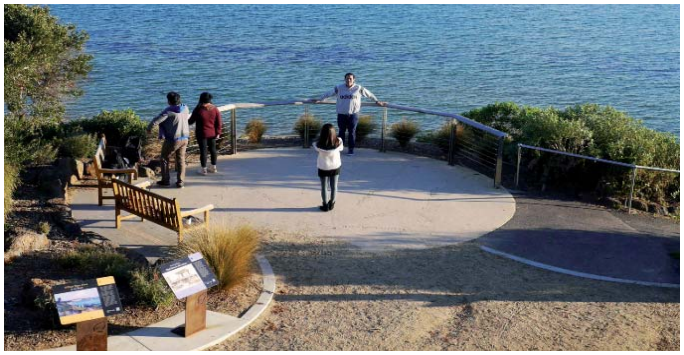

Photo 14: Sandringham Rotunda Lookout

Proposed works include:

- Undertake staged replacement of coastal cliff fencing establishing new timber post and cable fencing with maintenance anchor points where possible to assist safety when completing weed control and planting on the steep cliffs. (H)
- Establish a new lookout point in conjunction with replacement of the Bay Road timber stairs when required. (M)
- Establish a new lookout point and seating area at Southey Street. (L)
- Establish a new lookout point and seating area at Red Bluff Street.(L)

FORMAL LAWNS AND GRASS AREAS

The formal lawns at Sandringham Gardens, shaped by the concrete edged symmetrical path network are an important part of the historic formal landscape character of the park. The gardens lawns were once irrigated however they have been degraded by a combination of drought, poor drainage and compaction from maintenance vehicles in many areas.
Proposed works include:

- Rationalise rubbish bin collection points to reduce impacts from maintenance vehicles. (H).
- Top dress the unsealed paths, reinstate concrete path edging, improve drainage and returf kikuyu lawns through the gardens. (H)
- Investigate option for stormwater harvesting to enable sustainable reactivation of irrigation systems through the formal gardens. (L)

Photo 15: Sandringham Gardens grassed area

TOILETS

There are three public toilet facilities located within the Sandringham Beach and Gardens Precinct. The Exceloo facility integrated to the front of Sandringham Life Saving Club provides toilet and change facilities for beach users. It is less than ten years old and provides for disabled access in accordance with current standards. There is a public beach shower directly opposite on the Bay side of the sea wall.

The Sandringham Gardens toilet, located on the southern edge of the playground is also an Exceloo facility. It is less than ten years old and provides for disabled access in accordance with current standards. Vegetation around the toilets requires ongoing maintenance to maintain clear sightlines for safety.

The older brick public toilet on the foreshore at Southey Street is visible from Beach Road and services predominantly walkers and Bay Trail users. It does not meet current accessability standards and has been ranked within the top ten for major upgrade/replacement in *The Bayside Public Toilet Strategy (2012).*

Proposed works include:

- Install signage within the B12 car park and at the pedestrian lights to alert visitors to the nearest public toilet at Southey Street. (H)
- Replace the Southey Street toilet to provide accessible male and female cubicles within a smaller contemporary facility at the same location. (M)
- Following upgrade establish a short sand coloured concrete path from the Bay Trail to the Southey Street toilets to improve all ability access. (M)
- Undertake weed control and revegetation around the existing SLSC toilet and beach shower using coastal indigenous species.(M)
- Continue ongoing management of vegetation to maintain clear sightlines for safety around all public toilet facilities. (O).

Photo 11: Southey Street Toilets

Photo 12: Sandringham Gardens Toilets

PARKING AND VEHICLE ACCESS

There is extensive public parking on the Sandringham Foreshore and along Beach Road. The area is also serviced by the nearby Sandringham Railway Line and local bus services operating from Bay Road and the station.

B10 Abbott Street Car park

The unsealed B10 car park has 100-120 spaces and services Sandringham Beach and the Sandringham Life Saving Club. It is mainly used on weekends, with less use on weekdays and over winter. There are no designated accessible parking bays and the lack of turnaround space at the southern end contributes to congestion during peak periods. It is proposed that car parks that are currently unsealed, will remain unsealed, with only the addition of some sealing of the entrance crossovers to enable safe entry and exit for vehicles.

Proposed works include:

- Realign the Bay Trail crossing and improve sightlines and space for vehicles turning in and out at the entry from Beach Road.
- Provide designated accessible parking bays adjoining the croquet club and with views to the foreshore.
- Establish WSUD infiltration systems to manage stormwater runoff and improve quality prior to discharge to the beach.
- Improve safety and amenity for pedestrians using the Coastal Walk adjoining the car park.
- Some sealing of entrance crossovers to enable safe entry and exit for vehicles.

Photo 16: B10 Car park

B11 Sims Street Car park

The sealed B11 car park services both the playground in Sandringham Gardens and beach users. The car park is popular on both on weekdays and weekends. The car park was recently upgraded and includes 55 spaces and 2 accessible parking bays with integrated WSUD stormwater management and indigenous shade and ground layer planting.

B12 Masefield Avenue Car park

The sealed B11 car park is used predominantly by dog walkers and beach users over summer. The car park was recently upgraded and includes 44 spaces and 2 accessible parking bays with integrated WSUD stormwater management and indigenous shade and ground layer planting.

Photo 17: B12 Carpark - sealed

B13 Love Street Car park

The unsealed B13 car park has 140-160 spaces and services Half Moon Bay and Black Rock Beach. The southern end with views to HMS Cerberus and Half Moon Bay is popular at lunchtimes however it is mainly used on weekends by beach users and for over flow boat trailer parking. There are no designated accessible parking bays and poor sightlines at the Bay Trail crossings at both entry/exit. It is proposed that car parks that are currently unsealed, will remain unsealed, with only the addition of some sealing of the entrance crossovers to enable safe entry and exit for vehicles.

Proposed works include:

- Realign the Bay Trail crossings at both ends to improve sightlines and space for vehicles turning in and out at the entry from Beach Road.
- Provide designated accessible parking bays with views to Half Moon Bay.
- Establish WSUD infiltration systems to manage stormwater runoff and improve quality prior to discharge to the beach.
- Improve safety and amenity for pedestrians using the Coast Walking Path adjoining the car park.
- Some sealing of entrance crossovers to enable safe entry and exit for vehicles.

Photo 18: B13 Carpark

Beach Road

Beach Road is managed by VicRoads. The on street parking on Beach Road is time limited (No stopping between 6-10am everyday) however outside these periods it provides additional parking for beach and foreshore visitors.

Emergency and Maintenance Vehicle Access

Sealed asphalt emergency and maintenance vehicle access to the beach is via Sandringham Life Saving Club ramp and from the B11 Sims Street car park.

Photo 19: Sandringham LIfe Saving Club Ramp Access

Photo 20: Sims Street Access Ramp

PEDESTRIAN AND CYCLE ACCESS

BAY TRAIL - SHARED PATH

The 2.5m wide Bay Trail provides continuous off road access for both pedestrians and cyclists travelling along Beach Road. Increasing use of the trail by cyclists and pedestrians will mean the entire path will eventually need to be widened to at least 3.0m in accordance with current standards.

Photo 21: Beach Road and Bay Trail

However where the trail is located to adjoining grass areas or low vegetation there is less risk and congestion and other locations along the foreshore will be a higher priority. Recent assessment confirmed a number of trail pinch points through the study area that require improvement as a high priority: These include:

The Electrical Sub Station at the end of Bay Road severely constrains the trail and there is congestion when pedestrians cross using at the traffic lights. The substation door opens across the shared trail and presents a significant risk to cyclists and staff accessing the substation. It is proposed to investigate relocation and removal of the existing sub station (H) Refer photo 2 and Sandringham Gardens Detail Plan.

Timber boardwalk and retaining wall section south of Red Bluff Street section is only 2.5m wide and is used by both cyclists and as part of the Coast Walking Path as there is no alternative access. When replacement is required investigate options to widen the path to meet current standards while minimising impacts on vegetation. (M) Refer Photo 22.

Pedestrian crossing point at the traffic lights between Masefield Ave and Royal Ave is constrained by fencing and the car park retaining wall. Investigate options to widen the path at this point while minimising impact on vegetation and car parking capacity. (L)

Cantilevered boardwalk section between Harold Street and Edward Street is only 2.5m wide. When replacement is required investigate options to widen the boardwalk to meet current standards. (L)

Photo 22: Bay Trail - Boardwalk at end of Red Bluff Street.

Photo 23: Bay Trail - Pedestrian crossing lights at B12 Carpark

B11 and B12 car park entry/exit points require ongoing vegetation management to maintain clear sightlines. (O) Refer photo 23.

At Sandringham Gardens regular ongoing pruning of the historic Cypress Trees is required to maintain clearance on the Bay Trail. In this area pedestrians typically use the various other unsealed path options through the gardens so there is less conflict with cyclists and the trees need to be carefully pruned to avoid die back. (O) Refer photo 2.

COASTAL WALKING PATH

The unsealed walking path along the cliff top parallel with Beach Road varies in width and is popular with walkers of all ages and abilities. Cyclists are discouraged from using the walking path to minimise congestion and impacts on sensitive coastal vegetation and habitat values.

In accordance with the BCMP (2014) recommendations, maintain a compacted granitic gravel/sand walking path up to 2.5m in width (site specific), inclusive of pruning to either side.

Proposed works include:

- Establish additional timber chicanes and signage to restrict cyclist access and install 'code of conduct 'signage to emphasize the need to consider wildlife, protection of vegetation and other users when passing. (H)
- Remove chain mesh construction fencing and replace with timber post and cable fencing to restrict access to the former beach access ramp. (H) refer Photo 25.
- Retain fencing only to the coast side of the path and use natural cut Tea-tree logs to define the trail alignment on the unfenced side. (H)
- Replace sections of log stairs using an all ability graded durable composite fibre mesh ramp backfilled with local granitic gravel/sand. (H)
- Establish a new handrail and advisory signage on the steep sealed path section between Harold Street and Edward Street. (M) Refer photo 31.
- Retain fencing to the coast side only using more natural log edging to define the trail alignment. Replace timber post and cable fencing where required. (O)

Photo 24: Cyclist using Coast Walking Path

Photo 25: Existing fencing at Royal Avenue.

BEACH ACCESS

The Sandringham Foreshore is serviced by a range of access ramps and stairs.The ad hoc historical development means that the majority of these access points while safe, do not meet contemporary standards for access and mobility. The potential for upgrade or replacement of these existing structures is constrained by the steep topography, unstable and highly erodible soils and the need to minimise impact on environmental and cultural heritage values.

It is proposed to install signage at each beach access points indicating ramp grade/condition with directions to preferred access points as staged upgrades are completed. (H)

Sandringham Beach Access Ramp

This 2.5m wide asphalt ramp provides emergency and maintenance vehicle access to the beach north of the Sandringham Life Saving Club and is used by pedestrians visiting the public toilet and beach from the B10 Abbott Street car park. The ramp grade is approx 1 in 10, with flat landings every 15m and a stainless steel handrail to one side. It is proposed to establish stainless steel handrail to the other side and new bike parking at beach level. (H) Refer photo 26.

Photo 26: Sandringham Beach Access Ramp

Sandringham Life Saving Club Stair Ramp

This 1.8m wide asphalt ramp behind the building has short sections of bluestone stairs and handrail to one side. It provides the most direct access to the club for visitors parked on Beach Road and is sometimes used by club members at night. It is proposed to install a new stainless steel handrail and upgrade exterior lighting behind the SLSC. (M) Refer photo 27.

Bluestone Stairs

There are two sets of bluestone stairs linking the lower asphalt path to the sea wall path. The stairs were likely constructed at the same time as the sea wall and have been retrofitted with stainless steel handrails to both sides. These stairs wil be retained and protected. (O)

Photo 27: Sandringham Life Saving CLub Stairs Ramp

Bay Road Timber Stairs

Established at the southern end of the sea wall path the stairs provide the most direct access to Sandringham Beach from the B11 car park, playground, picnic area and pedestrian crossing to the shops and railway station at Bay Road. The use of treated pine timber in this visually prominent location clashes with the predominant stone and concrete masonry character of the gardens. Despite ongoing maintenance the aging timber stairs will likely require complete replacement within 5 years. Refer photo 28.

Proposed works include:

- Replace the existing timber stairs with a new set of stone/concrete stairs to match the existing character of the gardens. Locate the stairs further south to improve links to the playground/picnic area and pedestrian crossing at Bay Road.
- Undertake revegetation of the former stairs site using low indigenous ground layer planting. (H) Refer Sandringham Gardens Detail Plan.

Photo 28: Bay Road Stairs

Rotunda Ramp

This 1.8m wide asphalt ramp has short sections of bluestone stairs and handrail to one side. The bluestone stairs link the rotunda down to the lower sea wall path. The ramp is typically used by visitors to the rotunda. It is proposed to install new stainless steel handrails to both sides. (L) Refer photo 29.

Photo 29: Rotunda Ramp

Sims Street Access Ramp

The existing asphalt ramp is over 2.5m wide and provides all ability graded walking access to Royal Avenue Beach, south of Red Rocks. The ramp is gently graded and the most direct beach access south from the popular B11 car park and playground and is popular with walkers completing the informal loop around the gardens and Red Rocks.

It is proposed to establish stainless steel handrails to AS1428 on both sides and investigate establishment of a beach shower and bike parking at beach level. (M) Refer photo 30.

Photo 30: Sims Street Access Ramp

BEACH ACCESS

Tennyson Street Stairs

The bluestone stairs link Tennyson Street to the beach at the bottom of the Sims Street ramp access.

Photo 31: Coast Walking Path between Harold Street and Edward Street.

Southey Street Access Ramp

The steep concrete ramp was recently replaced after an older ramp, further south to Royal Avenue beach became unstable and was closed. The ramp is 1.5m wide with a handrail to one side. It is proposed to establish a handrail to the other side with a rest point and seat midway along the ramp. (L) Refer photo 32.

Photo 32: Southey Street Ramp

Royal Avenue Stairs

The long straight set of concrete stairs at the end of Royal Avenue are popular with fitness groups and personal trainers. Overland stormwater drainage has eroded the unsealed path at the top of the stairs.

It is proposed to remove the timber log steps and upgrade the unsealed path from Beach Road to the top of the stairs and replace the drinking fountain. (M) Refer photo 33.

Photo 33: Top of Royal Avenue Stairs.

Photo 34: Royal Avenue Stairs

Edward Street Access Ramp

The steep concrete access ramp varies in width and has a handrail to one side. As the most southern access off the beach this access is well used by walkers and dog walkers.

Proposed works include:

- Install warning and directional signage a beach level directing visitors to the ramp and indicating that there is no safe access via the beach to Half Moon Bay. (H)
- Resurface the existing ramp and establish two flat rest points with seats.
- Install new handrails to both sides. (M) Refer photo 35 and 36.

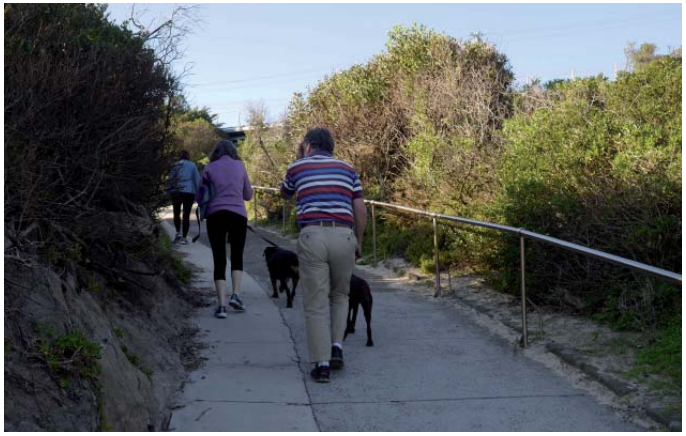

Photo 35: Edward Street Ramp

Photo 36: Edward Street Ramp

COASTAL PROCESSES AND STORMWATER MANAGEMENT

Sand movement is a natural feature of the Sandringham coastline. In summer (Nov-March) predominant drift is north as the waves include a more southerly component than during winter. During this time the beach is typically wide at Picnic Point and narrow at Red Bluff. In winter, stronger westerly and north westerly winds reverse the pattern and the beach narrows at Picnic Point and widens at Red Bluff. Refer Figure 4.

The Sandringham Beach is relatively stable and has been little modified by sea walls. There is a structural bench of Black Rock Sandstone outcrops at the base of the Bluff, forming a low cliff fronted by a gently shelving abrasion platform cut into the sandstone by waves. The platform extends along much of the coastline but is obscured by beach sand deposits in many areas. A wave built sandbar is usually present a few metres offshore along the Sandringham beach. (Bird, 1991).

The Royal Avenue and Southey Street beaches have been subject to ongoing erosion, especially over summer. Two new rock groynes were established to improve retention of sand on the beach and to protect the Royal Avenue cliffs and infrastructure behind them. The Department of Environment Land Water and Planning (DELWP) is responsible for works and ongoing monitoring of the beaches. The Sandringham Foreshore Association also provide local input and assistance with monitering of coastal conditions and erosion.

Figure 4. Coastal process at Sandringham Beach (DELWP)

Photo 38: Southey Street and Royal Avenue groynes

STORMWATER MANAGEMENT

The existing stormwater drain and outfall at Sandringham Beach is owned by Melbourne Water. The catchment includes the commercial areas of Sandringham Village and discharge after rain events impacts on water quality and litter at the popular swimming beach. The steep topography and developed nature of the catchment limit opportunities for water quality treatment. Council have previously investigated realignment of the pipe to the rocks area south of the Sandringham Life Saving Club, however, the cost was significant and would not provide any improvement to water quality. The smaller stormwater drain outfalls below Sandringham Gardens and at Royal Avenue are managed by Council.

Sandringham Beach

It is proposed to:

Liaise with Melbourne Water to undertake a detailed design investigation of measures to improve stormwater quality prior to discharge at Sandringham Beach. (H) Works may include:

- Installation of an underground gross pollutant trap (GPT) within grass areas at the Crescent Gardens to remove litter and other particulate material larger than 5mm prior to discharge to the beach.
- Installation of a new stormwater surcharge pit with steel grille at beach level to release pressure during high flows and allow extension and lowering of the existing outfall to reduce obstruction on the beach. An internal weir system connected to an underground low flow diversion and sand infiltration system aligned along the edge of the beach/dune area could be used to remove nutrients and improve water quality.

Photo 38: Sandringham Beach outfall

Sandringham Gardens

It is proposed to:

Liaise with Melbourne Water to investigate design for a new stormwater harvesting system to provide a sustainable source of irrigation for lawn areas within the gardens and to improve quality prior to discharge at Sandringham Beach. (L) Works may include:

- Diversion of stormwater from existing pits and pipes in Bay Road to a small water quality treatment bioretention system planted with low indigenous sedges and rushes to clean the water while maintaining views. The system is needed to remove sediment and nutrients when the irrigation harvesting system is not in use. It would be carefully shaped with a concrete mowing edge against lawn areas to maintain the formal character of the gardens.
- A large underground tank/pipe system placed in grass areas near the playground to store stormwater after processing in the bioretention system. The storage will include a UV filter and the stored water will then be used to reactivate the irrigation system for lawns and garden beds within the gardens.
- Excess stormwater, not needed for irrigation, will be returned to the existing pipe outfalls.

Photo 39: Southey Street grassed area.

Southey Street

It is proposed to:

Liaise with Melbourne Water to undertake a detailed design investigation of measures to improve stormwater quality prior to discharge at Royal Avenue Beach. (L) Works may include:

- Diversion of stormwater from existing pits and pipes in Beach Road to a small water quality treatment bioretention system located in open grass areas near the end of Southey Street. The system would be planted with low indigenous sedges and rushes to remove pollutants including nutrients and sediment from the water while maintaining existing views.
- After passing through the biorentention system the stormwater is returned to the existing pipe network and is discharged at the beach outfall near Royal Avenue.
- The wetland system would be integrated with the existing coastal walking path and a new seating and lookout area with views to Red Bluff.

FLORA AND FAUNA MANAGEMENT

There has been extensive historical and ongoing community involvement in protection and enhancement of native vegetation and habitat along Sandringham Foreshore south. Black Rock and Sandringham Conservation Association (BRASCA), Friends of Native Wildlife (FONW) and the local community all actively assist Bayside City Council in rubbish removal, weed control and monitoring of the conditions of flora and fauna.

This foreshore includes Coastal Dune Grassland (EVC 879), Spray-Zone Coastal Shrubland (EVC 876) and Coastal Headland Scrub (EVC 161) providing important habitat and refuge for a range of indigenous native birds, bats, mammals, reptiles and insects in the otherwise built urban environment.

The Sandringham Beach and Gardens is covered by a Vegetation Protection Overlay (VP01) in the Bayside Planning Scheme. The VPO applies to the entire foreshore precinct. The aim of the overlay is to protect and preserve trees and areas of significant vegetation, implementing key requirements of the State Planning Policy Framework and ensuring any new development minimises loss of native vegetation. The overlay and ongoing Council management of the foreshore aim to maintain and enhance habitat and habitat corridors and to encourage the regeneration of native vegetation. A Permit is required to remove vegetation other than as part of weed control, fire prevention, public safety and road safety management actions.

The Bayside Native Vegetation Works Program 2011 identifies the existing vegetation and management issues with a three year monitored list of actions. Vegetation quality assessment is undertaken every five years.

Key Recommendations include:

V1 Focus specialist weed control and management resources into areas with good quality remnant indigenous vegetation implementing recommendations as identified in the *Bayside Native Vegetation Native Works Program.*

V2 Close and revegetate informal access tracks, eroded escarpments and untreated pocket spaces to offset the impacts of ongoing requirement for vegetation pruning and removal to maintain sightlines for safety along the Coast Walking Path and beach access ramps.

V3 Ensure new cliff and escarpment fencing includes anchor points to improve safety in future weed control and revegetation efforts in these difficult to access areas.

V4 Continue staged revegetation in consultation with local community groups' e.g BRASCA. Ensure use of indigenous species grown from locally sourced seed consistent with the prevailing Ecological Vegetation Class (EVC). Carefully plan revegetation, modifying the species mix within the EVC if required to maintain and enhance biodiversity values. Ensure establishment of long term sustainable and manageable planting in areas with existing views or where required for ongoing public access or other use.

V5 The steep embankment north of Red Bluff has been filled using concrete rubble from road works. Revegetation in this area is not considered suitable due to ongoing risk from loose debris. Establish fencing and use signage at the beach level to restrict public access and continue to monitor bank stability.

V6 Undertake ongoing monitoring of fox, rabbits and feral cat numbers initiating targeted control programs where required.

V7 Develop interpretative signage regarding indigenous flora and fauna found on the Sandringham Foreshore.

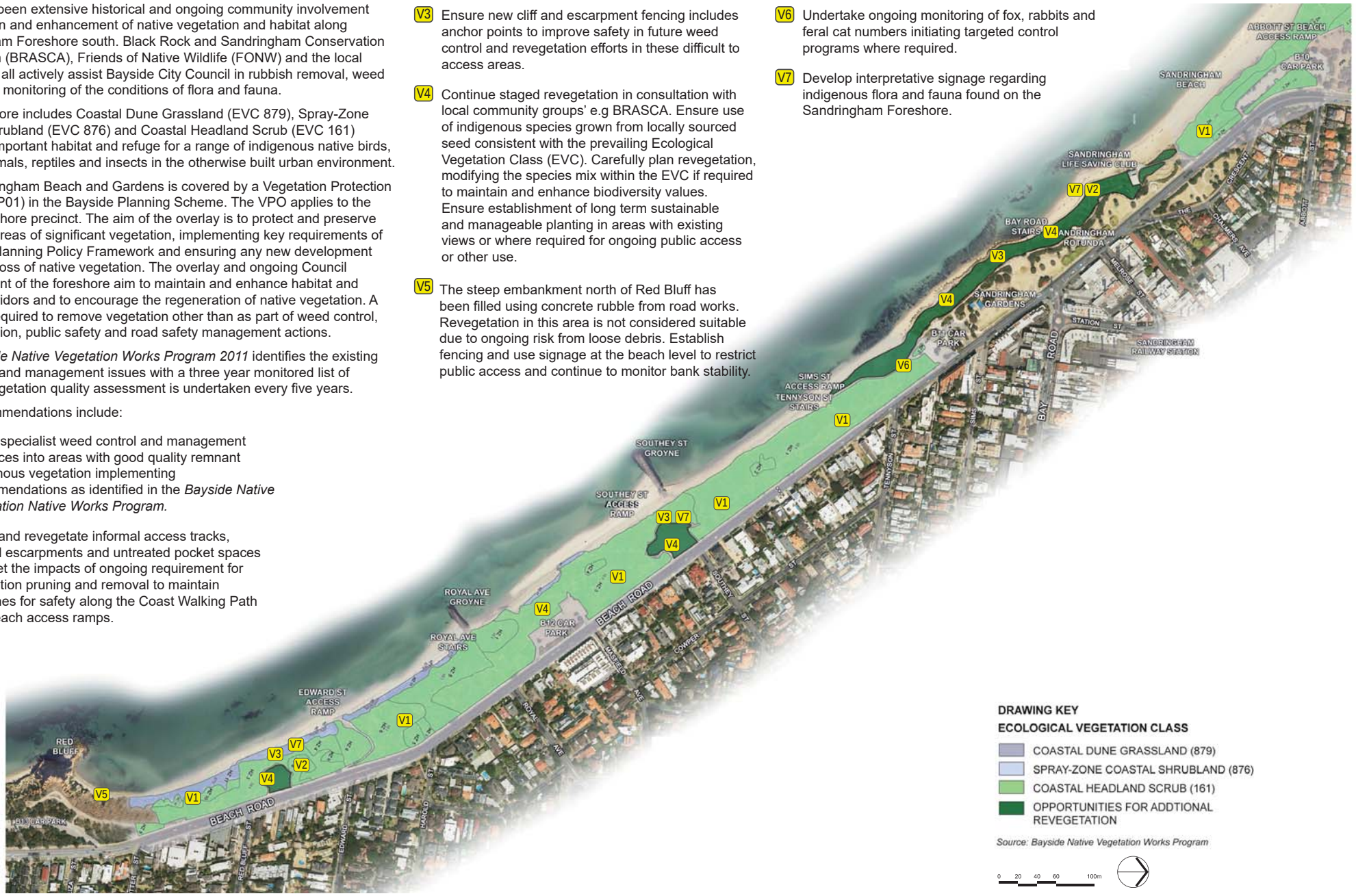

Figure 5. Flora and Fauna Management

OVERALL IMPLEMENTATION PLAN

COASTAL WALKING TRAIL

Consistant with BCMP (2014) maintain a compacted granitic gravel/sand walking path up to 2.5m in width (site specific), inclusive of pruning to either side.

1. Establish additional timber chicanes and signage to restrict cyclist access and install 'code of conduct 'signage to emphasis the need to consider wildlife, protection of vegetation and other users when passing. (H)
2. Remove chain mesh construction fencing and replace with timber post and cable fencing to restrict access to the former beach access ramp. (H)
3. Retain fencing to the coast side of path only using more natural log edging to define the trail alignment. Replace timber post and cable fencing where required. (H)
4. Establish a new handrail and advisory signage on the steep sealed path section between Harold Street and Edward Street. (M)

BAY TRAIL - SHARED PATH

5. Replace and widen the timber boardwalk and retaining wall section south of Red Bluff Street. (M)
6. Widen the path at the pedestrian crossing point at the traffic lights between Masefield Avenue and Royal Avenue. (L)
7. Investigate widening of the cantilevered boardwalk section of Harold Street and Edward Street. (L)

BEACH ACCESS

8. Install signage at each beach access point indicating ramp grade/condition with directions to preferred access points as staged upgrades are completed. (H)
9. Sims Street Access Ramp - Establish stainless steel handrails to AS1428 on both sides and investigate establishment of a beach shower and bike parking at beach level. (M)
10. Southey Street Access Ramp - Establish handrail to the other side with a rest point and seat midway along the ramp. (L)
11. Royal Avenue Stairs - Remove the timber log steps and upgrade the unsealed path from Beach Road to the top of the stairs and replace the drinking fountain. (M)
12. Edward Street Access Ramp - Install warning and directional signage at beach level directing visitors to the ramp and indicating that there is no safe access via the beach to Half Moon Bay. (H)
13. Edward Street Access Ramp - Resurface the existing ramp and establish two flat rest points with seats. Install new handrails to both sides. (M)

LOOKOUTS AND VIEWING AREAS

14. Undertake staged replacement of coastal cliff fencing establishing new timber post and cable fencing with maintenance anchor points where possible to assist safety when completing weed control and planting on the steep cliffs. (H)
15. Establish a new lookout point and seating area at Southey Street. (L)
16. Establish a new lookout point and seating area at Red Bluff Street.(L)

TOILETS

17. Install signage within the B12 car park and at the pedestrian lights to alert visitors to the nearest public toilet at Southey Street. (H)
18. Replace the Southey Street toilet to provide accessible male and female cubicles within a smaller contemporary facility at the same location. (M)

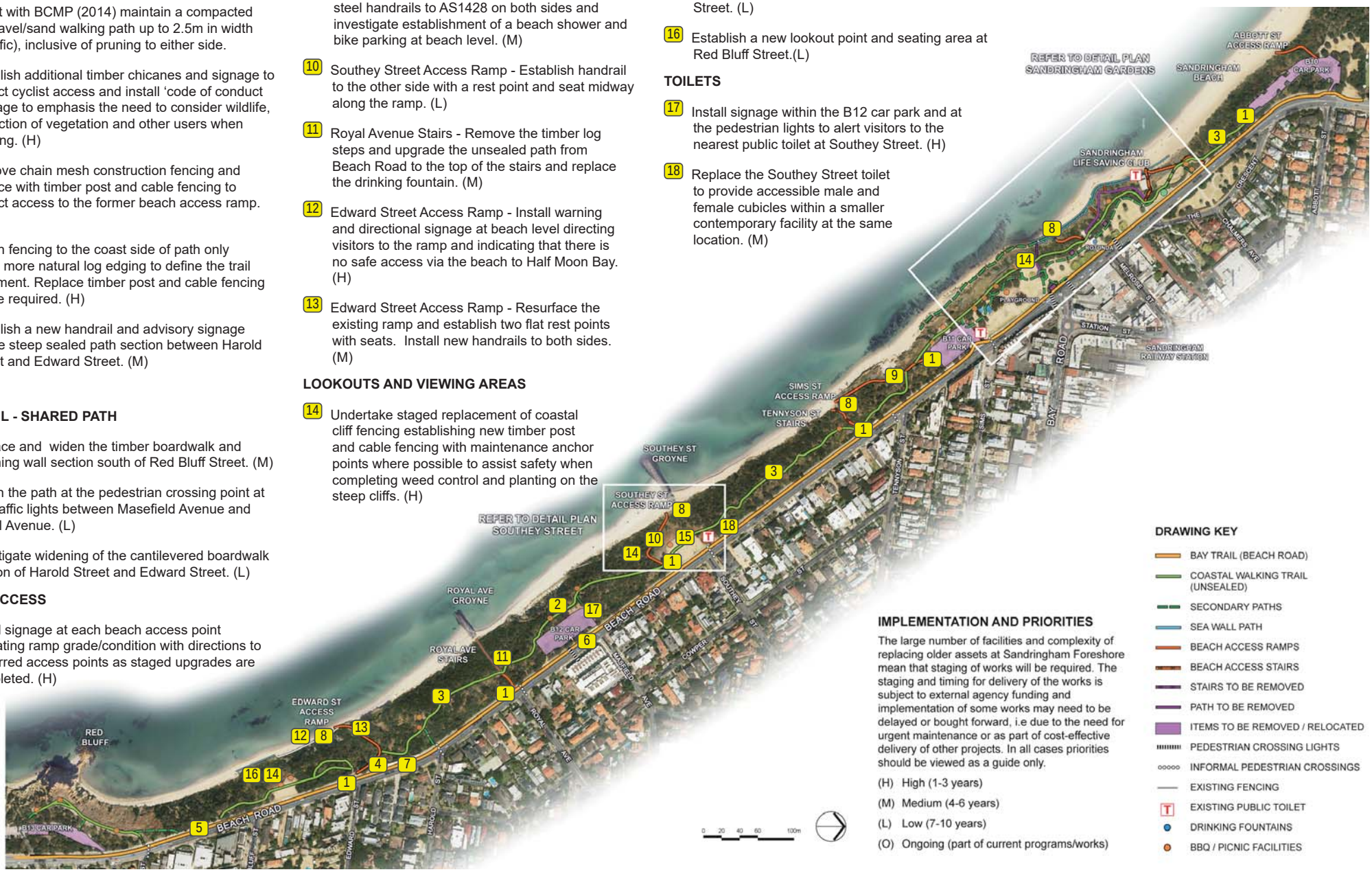

Figure 6. Implementation Plan

SANDRINGHAM GARDENS DETAIL PLAN

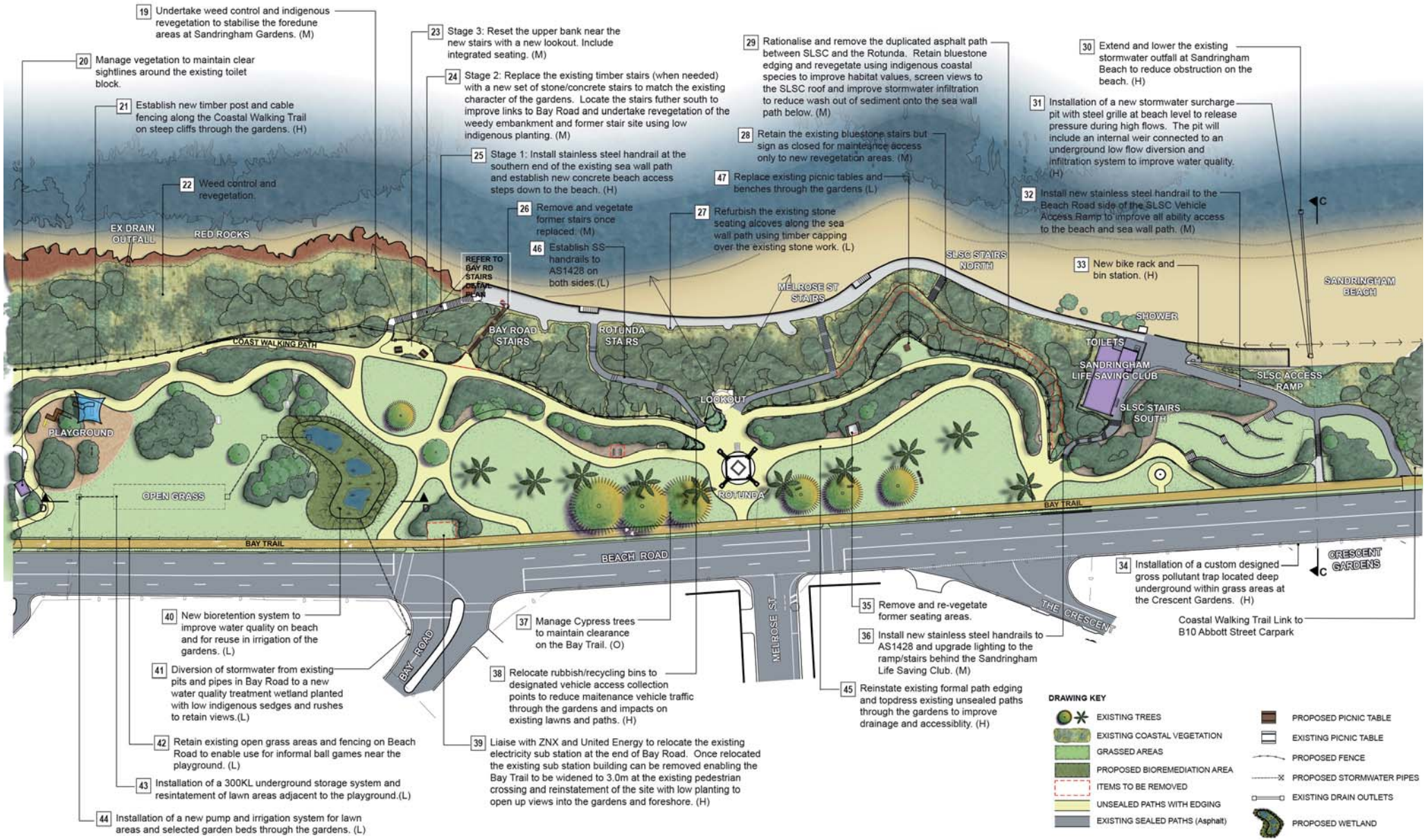

Figure 7. Sandringham Gardens Detail Plan

SANDRINGHAM BEACH OUTFALL SECTION C - C

Photo 40: Sandringham Beach Outfall

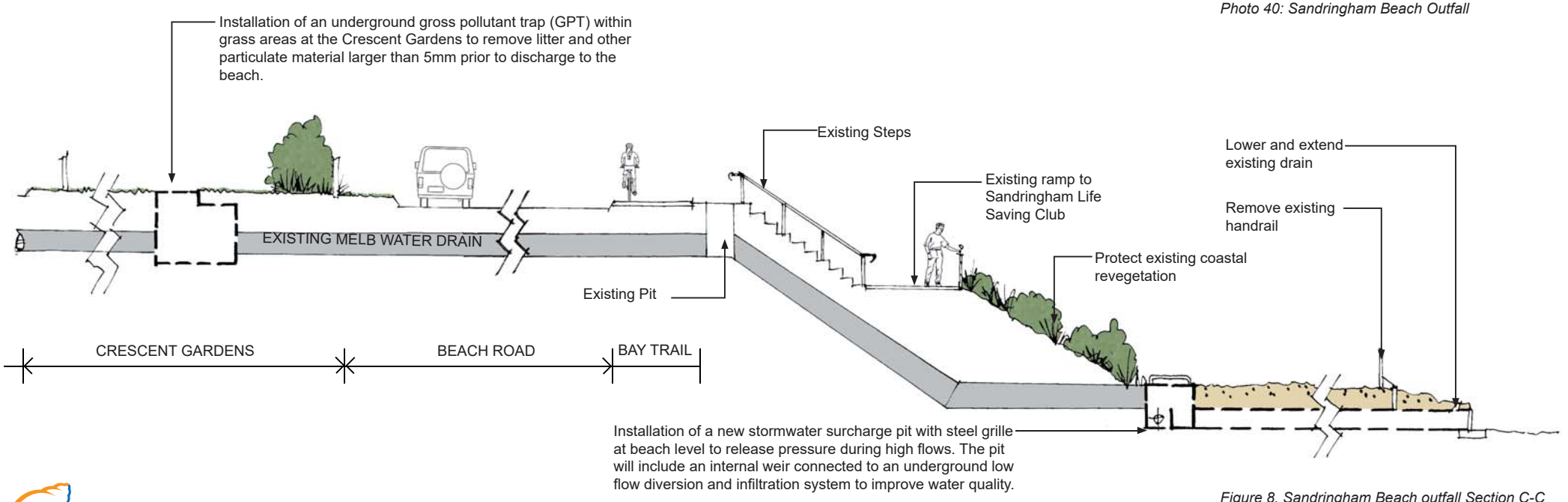

Figure 8. Sandringham Beach outfall Section C-C

BAY ROAD STAIRS TREATMENT DETAIL PLAN

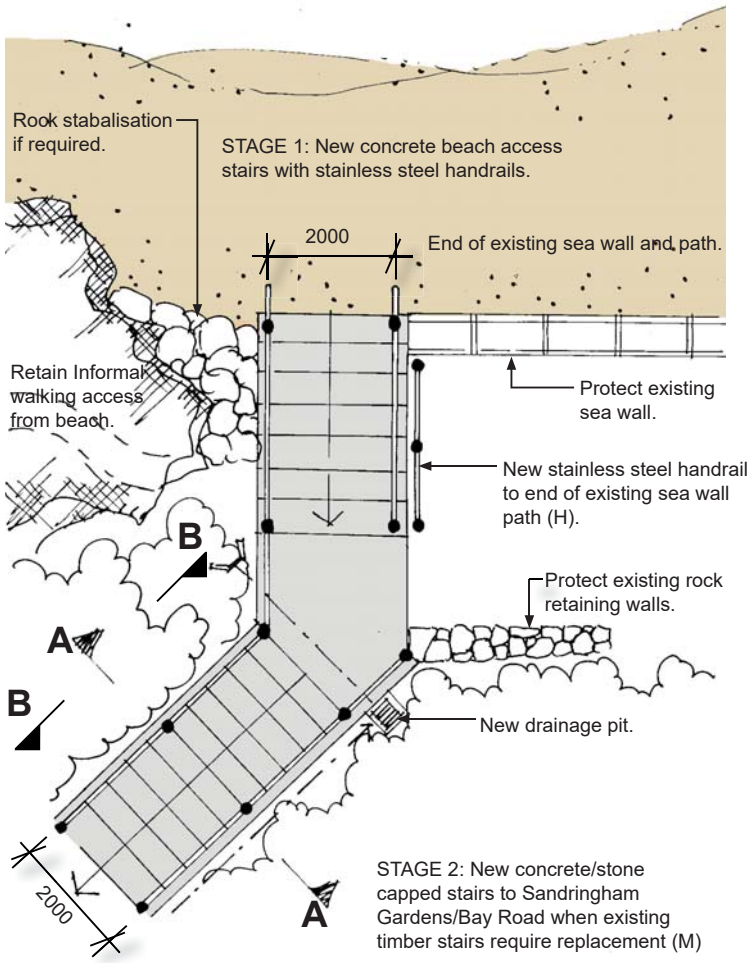

Figure 9. New Bay Road Stairs.

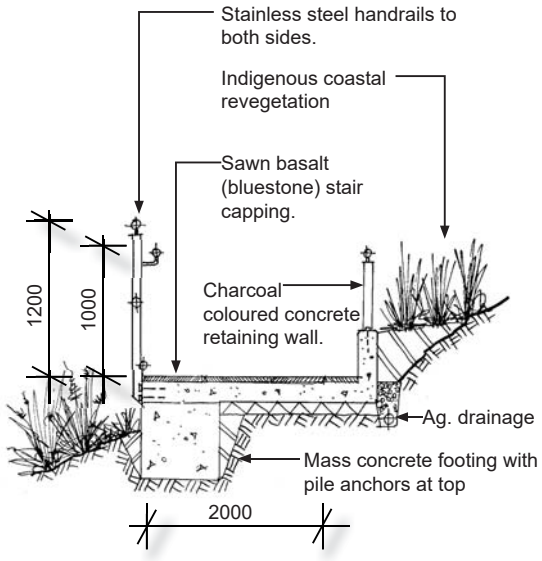

Figure 10. Typical Cross Section A-A

Photo 41. Existing Bay Road Stairs

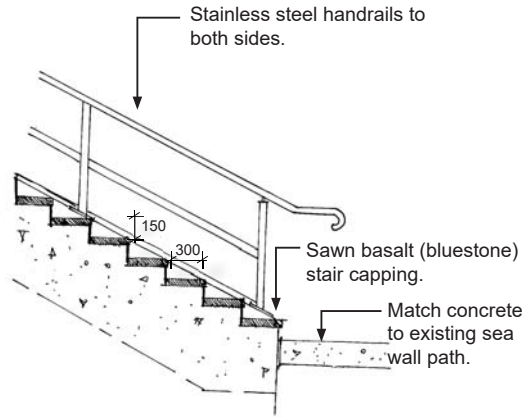

Figure 11. Typical Cross Section B-B

Photo 42. New Stairs location

SANDRINGHAM GARDENS WETLAND TREATMENT SECTION D-D

Photo 43: Sandringham Gardens

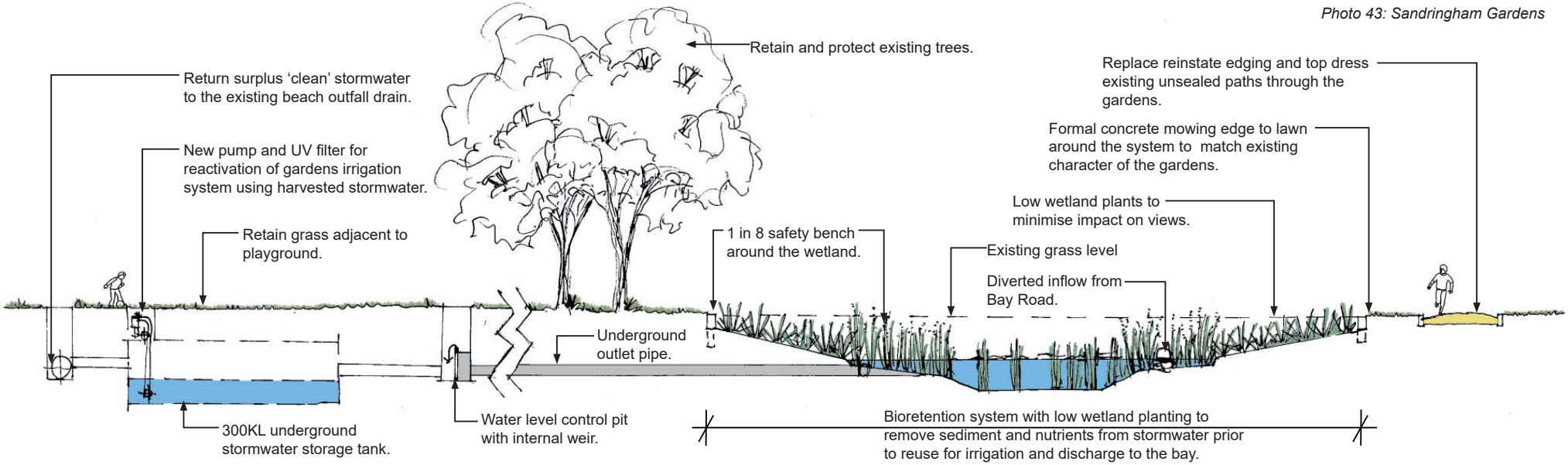

Figure 12. Sandringham Gardens Bioretention system

SOUTHEY STREET DETAIL PLAN

Photo 44: Southey Street Future Bioremediation Area.

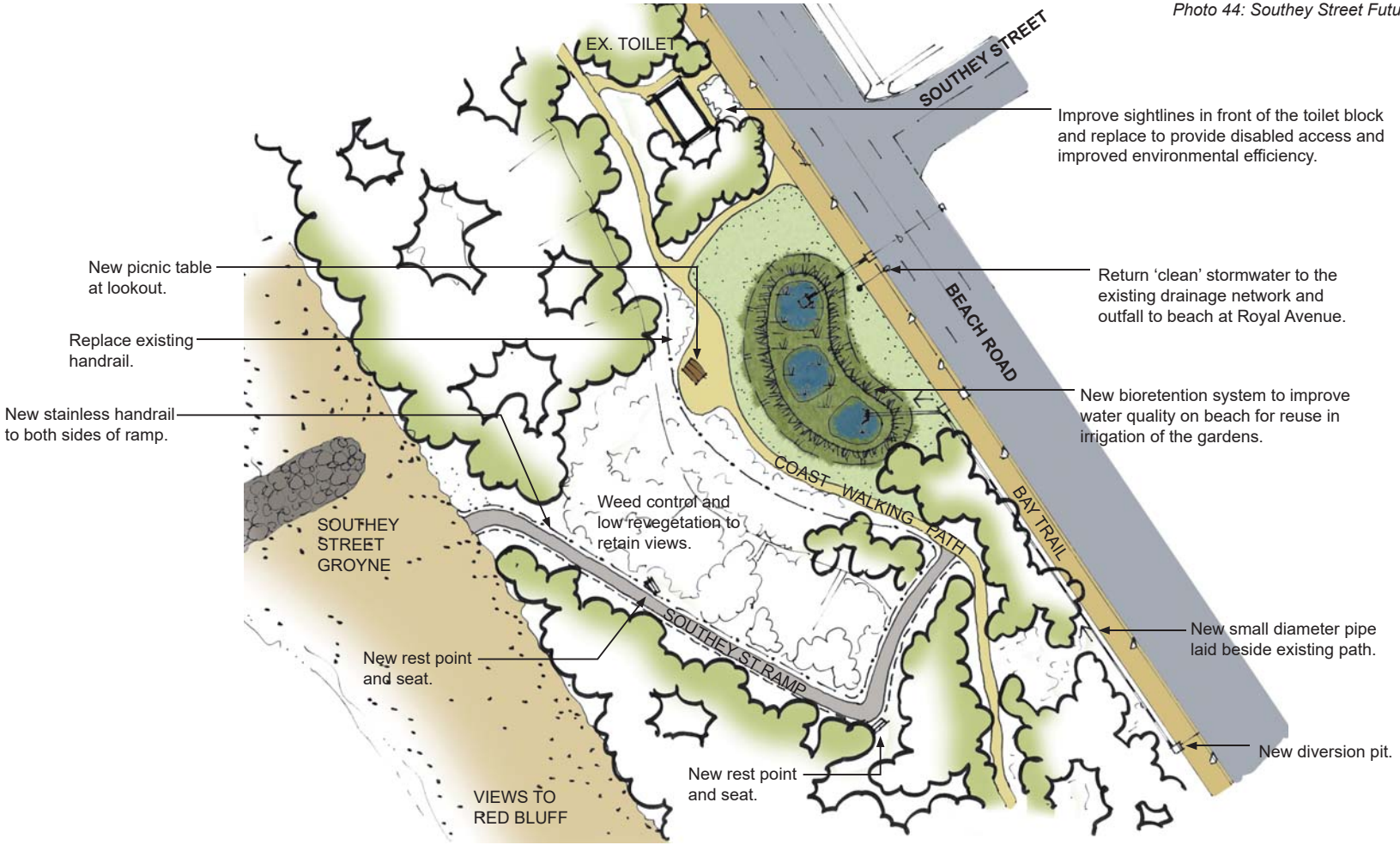

Figure 13. Southey Street Bioretention System

IMPLEMENTATION SCHEDULE

The following section provides an overview of the indicative capital costs to implement key improvements and actions identified in the Draft Masterplan. Draft priorities have been allocated to enable consideration of staging of works subject to confirmation of funding availability.

The large number of facilities and complexity of replacing older asset at Sandringham Beach and Gardens Foreshore mean that staging of works will be required. The staging and timing for delivery of the works is subject to external agency funding and implementation of some works may need to be delayed or bought forward, i.e due to the need for urgent maintenance or as part of cost-effective delivery of other projects. In all cases priorities should be viewed as a guide only.

(H) High (1-3 years)

(M) Medium (4-6 years)

(L) Low (7-10 years)

(O) Ongoing (part of current programs/works)

Please note all works estimates are for preliminary planning purposes, prepared without access to survey and detailed design and are a guide only.

NOTE: The adoption of the Sandringham Beach and Gardens Foreshore Masterplan by Council does not constitute a decision to proceed with any identified opportunities. It provides a long-term concept to guide decision making and will be subject to future decisions and funding considerations by Council.

DRAFT MASTERPLAN WORKS SUMMARY					TOTAL BCC	TOTAL OTHERS
STUDY AREA (BCC)	HIGH	MEDIUM	LOW	Ongoing		
SANDRINGHAM GARDENS	$172,000	$59,500	$90,000	$0	$321,500	$0
BEACH ACCESS	$135,500	$510,000	$25,000	$0	$670,500	$0
BAY TRAIL	$0	$100,000	$150,000	$0	$250,000	$0
COAST WALKING PATH	$40,000	$50,000	$0	$20,000	$110,000	$0
PUBLIC TOILETS	$1,000	$257,000	$0	$2,000	$260,000	$0
LOOKOUTS AND VIEWING AREAS	$20,000	$0	$100,000	$0	$120,000	$0
PARKING	$5,000	$997,000	$0	$0	$1,002,000	$0
STORMWATER MANAGEMENT	$455,000	$0	$866,000	$0	$520,000	$801,000
CULTURAL HERITAGE	$50,000	$0	$0	$0	$50,000	$0
SUBTOTAL SANDRINGHAM BEACH AND GARDEN WORKS	$878,500	$1,973,500	$1,231,000	$22,000	**$3,304,000**	**$801,000**
CONTINGENCIES (20%)					$660,800	$160,200
TOTAL SANDRINGHAM MASTERPLAN - CAPITAL IMPLEMENTATION WORKS					$3,964,800	$961,200

IMPLEMENTATION SCHEDULE

Item No.	Plan Ref	Action Description	Amount	Item	Rate	Cost	Priority	Agency Responsible for approval	Agency responsible for funding	Related Actions
SANDRINGHAM GARDENS										
1.1	39	Liaise with ZNX and United Energy to relocate the existing electricity sub station at the end of Bay Road. Once relocated the existing sub station building can be removed enabling the Bay Trail to be widened to 3.0m at the existing pedestrian crossing and reinstatement of the site with low planting to open up views into the gardens and foreshore.	1	Item		$20,000	High	ZNX - United Energy	BCC	
1.2.1		Option 1 - Require incorporation of a new sub station as part of planning conditions for any large scale potential future development near the end of Bay Road.	1	Item				BCC	ZNX - United Energy	1.1
1.2.2		Option 2 - Relocate the sub station to the no parking area on Council managed land at No. 24 Bay Road.	1	Item				BCC	ZNX - United Energy	1.1
1.2	38	Relocate rubbish/recycling bins to designated vehicle access collection points to reduce maintenance vehicle traffic through the gardens and impacts on existing lawns and paths.	1	Item		$2,000	High	BCC	BCC	1.3
1.3	45	Reinstate existing formal path edging and top dress existing unsealed paths and repair grass areas through the gardens to improve drainage and accessibility.	400	lin.m	$150	$60,000	High	BCC	BCC	1.2
1.4	21	Establish new timber post and cable fencing along the Coastal Walking Trail on steep cliffs through the gardens. Establish anchor points as part of fencing to improve safety when completing weed control and revegetation works on the foredune below.	450	lin.m	$200	$90,000	High	BCC	BCC	1.7
1.5	29	Rationalise and remove the duplicated asphalt path between the SLSC and the Rotunda. Retain bluestone edging and handrail and revegetate using indigenous coastal species to improve habitat values, screen views to the SLSC roof and improve stormwater infiltration to reduce wash out of sediment onto the seawall path below.	90	lin.m	$100	$9,000	Medium	BCC	BCC	1.6
1.6	28	Retain the existing bluestone stairs up from the sea wall but sign as closed for maintenance access only to new revegetation areas.	1	Item		$500	Medium	BCC	BCC	1.5
1.7	19	Undertake weed control and indigenous revegetation to stabilise the foredune areas at Sandringham Gardens.	1	Item		$50,000	Medium	BCC	BCC	1.4
1.8	27	Refurbish the existing stone seating alcoves along the sea wall path using timber capping over the existing stone work.	6	No.	$10,000	$60,000	Low	BCC	BCC	
1.9	47	Replace existing older picnic tables and bench seats through the gardens.	1	Item		$30,000	Low	BCC	BCC	
		Subtotal Sandringham Gardens				$321,500				

IMPLEMENTATION SCHEDULE

Item No.	Plan Ref	Action Description	Amount	Item	Rate	Cost	Priority	Agency Responsible for approval	Agency responsible for funding	Related Actions
BEACH ACCESS										
2.1	8	Install signage at each beach access point indicating ramp grade/condition with directions to preferred access points as staged upgrades are completed.	20	No.	$500	$10,000	High	BCC	BCC	
2.2	12	Install warning and direction signage at beach level at the Edward Street Access ramp indicating there is no safe access via the beach to Half Moon Bay.	1	Item	$500	$500	High	BCC	BCC	
2.3	9	Sims Street (B11 car park) beach access ramp. Establish stainless steel handrails to AS1428 on both sides.	220	lin.m	$250	$55,000	High	BCC	BCC	7.1
2.4	14 & 26	Undertake detailed design for replacement of the existing Bay Road timber stairs at Sandringham Gardens, works to include:	1	Item		$10,000	High	BCC	BCC	
2.4.1	25 & 26	Survey, geotechnical and structural engineering assessment.	1	Item		$10,000	High	BCC	BCC	2.4
2.4.2	25	Stage 1: Install stainless steel handrail at the southern end of the existing sea wall path and establish new concrete beach access steps down to the beach.	1	Item		$50,000	High	DELWP	BCC	2.4
2.4.3	24	Stage 2: Replace the existing timber stairs (when needed) with a new set of stone/concrete stairs to match the existing character of the gardens. Locate the stairs further south to improve links to Bay Road and undertake revegetation of the embankment and former stair site using low indigenous planting	1	Item		$250,000	Medium	DELWP	BCC	2.4
2.4.4	23	Stage 3: Reset the upper bank near the new stairs with a new lookout point. Install integrated seating.	1	Item		$50,000	Medium	DELWP	BCC	2.4 & 6.1
2.5	36	Install new stainless steel handrails to AS1428 and upgrade lighting to the ramp/stairs behind the Sandringham Life Saving Club.	1	Item		$15,000	Medium	BCC	BCC	
2.6	32	Install new stainless steel handrail to the Beach Road side of the SLSC Vehicle Access Ramp to improve all ability access to the beach and sea wall path.	100	lin.m	$250	$25,000	Medium	BCC	BCC	7.1
2.7	11	Royal Avenue stairs. Improve gradient and surface drainage on the approach path to the existing stairs.	1	Item		$5,000	Medium	BCC	BCC	
2.8	13	Edward Street beach access ramp. Resurface and establish flat resting spots to the side of the existing ramp. Install new stainless steel handrails to AS1428 on both sides.	1	Item		$100,000	Medium	BCC	BCC	
2.9	10	Southey Street access ramp. Widen the path to min1.5m, establish flat resting spots and install stainless steel handrails to AS14285 on both sides	1	Item		$65,000	Medium	BCC	BCC	
2.10	46	Sandringham Gardens Rotunda stairs. Establish stainless steel handrails to AS1428 on both sides.	100	lin.m	$250	$25,000	Low	BCC	BCC	
		Subtotal Beach Access				$670,500				

IMPLEMENTATION SCHEDULE

Item No.	Plan Ref	Action Description	Amount	Item	Rate	Cost	Priority	Agency Responsible for approval	Agency responsible for funding	Related Actions
BAY TRAIL										
3.1	5	Timber boardwalk and retaining wall section south of Red Bluff Street section is only 2.5m wide and is used by both cyclists and as part of the Coastal Walking Trail as there is no alternative access. When replacement is required investigate options to widen the path to meet current standards while minimising impacts on vegetation.	1	Item		$100,000	Medium	BCC	BCC	
3.2	6	Pedestrian crossing point at the traffic lights between Masefield Ave and Royal Ave is constrained by fencing and the car park retaining wall. Investigate options to widen the path in this section while minimising impact on vegetation and car parking capacity.	1	item		$50,000	Low	BCC	BCC	
3.3	7	Cantilevered boardwalk section between Harold Street and Edward Street is only 2.5m wide. When replacement is required investigate options to widen the boardwalk to meet current standards.	1	Item		$100,000	Low	BCC	BCC	
3.4	37	At Sandringham Gardens regular ongoing pruning of the historic Cypress Trees is required to maintain clearance on the Bay Trail. In this area pedestrians typically use the various other unsealed path options through the gardens so there is less conflict with cyclists and the trees need to be carefully pruned to avoid die back.	1	Item		N/C	Ongoing	BCC	BCC	
3.5		B11 and B12 car park entry/exit points require ongoing vegetation management to maintain clear sightlines.	1	Item		N/C	Ongoing	BCC	BCC	
		Subtotal Bay Trail				$250,000				
COAST WALKING PATHS										
4.1	1	Establish additional timber chicanes and signage to restrict cyclist access and install 'code of conduct' signage to emphasise the need to consider wildlife, protection of vegetation and other users when passing.	8	No.	$2,500	$20,000	High	BCC	BCC	
4.2	2	Remove temporary chain mesh construction fencing and replace with permanent timber post and cable fencing to restrict access to the closed form beach access ramp north of Royal Avenue.	1	Item		$20,000	High	BCC	BCC	
4.3	3	Remove duplicated fencing from the Coastal Walking Trail retaining only fencing to the coast side and use logs and revegetation to maintain width at max 2.5m inclusive or pruning in accordance with the *Bayside Coastal Management Plan (2014)*.	1	Item		$20,000	Medium	BCC	BCC	
4.4		Establish a new handrail and advisory signage on the steep sealed path section between Harold Street and Edward Street.	1	Item		$30,000	Medium	BCC	BCC	
4.5	V1 & V4	Continue ongoing weed control and indigenous coastal revegetation in collaboration with local community groups.	1	Item		$20,000	Ongoing	BCC	BCC	1.7, 6.2 & 6.3
		Subtotal Coastal Walking Paths				$110,000				

IMPLEMENTATION SCHEDULE

Item No.	Plan Ref	Action Description	Amount	Item	Rate	Cost	Priority	Agency Responsible for approval	Agency responsible for funding	Related Actions
TOILETS										
5.1	17	Install signage within the B12 car park and at the pedestrian lights to alert visitors to the nearest public toilet at Southey Street.	2	No,	$500	$1,000	High	BCC	BCC	
5.2	18	Replace the Southey Street toilet to provide accessible male and female cubicles within a smaller contemporary facility at the same location.	1	Item		$250,000	Medium	BCC	BCC	5.3
5.3		Following upgrade establish a short sand coloured concrete path from the Bay Trail to the Southey Street toilets to improve all ability access.	1	Item		$2,000	Medium	BCC	BCC	5.2
5.4		Refurbish Sandringham Surf Life Saving Club garden beds around the existing toilet block and beach shower with low indigenous ground layer planting to improve landscape amenity.	1	Item		$5,000	Medium	BCC	BCC	
5.5		Continue ongoing management of vegetation to maintain clear sightlines for safety around all three public toilet facilities within the precinct.	1	Item		$2,000	Ongoing	BCC	BCC	5.2
		Subtotal Public Toilets				$260,000				
LOOKOUTS AND VIEWING AREAS										
6.1	14	Complete survey and geotechnical assessment to inform detailed design for upgrade of lookout points including options for establishment of maintenance anchor points where possible to assist safety when completing weed control and planting on the steep cliffs below.	1	Item		$20,000	High	BCC	BCC	
6.2	15	Establish a new lookout point and seating area at Southey Street.	1	Item		$50,000	Low	BCC	BCC	
6.3	16	Establish a new lookout point and seating area at Red Bluff Street.	1	Item		$50,000	Low	BCC	BCC	
		Subtotal Lookouts and Viewing Areas				$120,000				
PARKING										
7.1	9 & 33	Establish new bicycle parking areas at beach level at the bottom of the Sims Street Beach Access Ramp and SLSC Access Ramp.	2	No.	$2,500	$5,000	High	BCC	BCC	2.3 & 2.6
7.2		Upgrade the B10 Abbott Street car park. Proposed works include;	1	Item		$507,000	Medium	BCC	BCC	
7.2.1		Seal entry, realign the Bay Trail crossing, improve sightlines and space for vehicles turning in and out at the entry from Beach Road.								
7.2.2		Provide designated accessible parking bays adjoining the croquet club and with views to the foreshore.								
7.2.3		Establish WSUD infiltration systems to manage stormwater runoff and improve quality prior to discharge to the beach.								

IMPLEMENTATION SCHEDULE

Item No.	Plan Ref	Action Description	Amount	Item	Rate	Cost	Priority	Agency Responsible for approval	Agency responsible for funding	Related Actions
7.2.4		Improve safety and amenity for pedestrians using the Coastal Walking Trail adjoining the car park.								
7.3		Upgrade the B13 Love Street car park. Proposed works include:	1	Item		$490,000	Medium	BCC	BCC	
7.3.1		Seal entrys and realign the Bay Trail crossings at both ends to improve sightlines and space for vehicles turning in and out of Beach Road.								
7.3.2		Provide designated accessible parking bays with views to Half Moon Bay and HMS Cerberus								
7.3.3		Establish WSUD infiltration systems to manage stormwater runoff and improve quality prior to discharge to the beach.								
7.3.4		Improve safety and amenity for pedestrians using the Coastal Walking Trail adjoining the car park.								
		Subtotal Parking				$1,002,000				
STORMWATER MANAGEMENT										
8.1	30,31 & 34	Liaise with Melbourne Water to undertake survey, geotech and detailed design investigation of measures to improve stormwater quality prior to discharge to Sandringham Beach. Works may include:	1	Item		$55,000	High	BCC/ Melbourne Water	BCC/ Melbourne Water	8.1.1, 8.1.2 & 8.1.3
8.1.1	34	Installation of an underground gross pollutant trap (GPT) within grass areas at the Crescent Gardens to remove litter and other particulate material larger than 5mm prior to discharge to the beach.	1	Item		$100,000	High	BCC	Melbourne Water	
8.1.2	31	Installation of a new stormwater surcharge pit with steel grille at beach level to release pressure during high flows and allow extension and lowering of the existing outfall to reduce obstruction on the beach. An internal weir system connected to an underground low flow diversion and sand infiltration system aligned along the edge of the beach/dune area could be used to remove nutrients and improve water quality.	1	Item		$200,000	High	BCC	Melbourne Water	8.1.1
8.1.3	30	Lower and extend the existing drain outfall to reduce obstuction on the beach.	1	Item		$100,000	High	DELWP	BCC	8.1.2
8.2	40	Liaise with Melbourne Water to investigate design for a new stormwater harvesting system to provide a sustainable source of irrigation for lawn areas within the gardens and to improve quality prior to discharge at Sandringham Beach. Works may include:	1	Item		$75,000	Low	BCC	Melbourne Water	8.2.1 & 8.2.2
8.2.1	41	Diversion of stormwater from existing pits and pipes in Bay Road to a small water quality treatment bioretention system planted with low indigenous sedges and rushes to clean the water while maintaining views. The system is needed to remove sediment and nutrients when the irrigation harvesting system is not in use. It will be carefully shaped with a concrete mowing edge against lawn areas to maintain the formal character of the gardens.	1	Item		$350,000	Low	BCC	Melbourne Water	

IMPLEMENTATION SCHEDULE

Item No.	Plan Ref	Action Description	Amount	Item	Rate	Cost	Priority	Agency Responsible for approval	Agency responsible for funding	Related Actions
8.2.2	43 &44	A large underground tank/pipe system will be placed in grass areas near the playground to store stormwater after processing in the bioretention system. The storage will include a UV filter and the stored water will then be used to reactivate the irrigation system for lawns and garden beds within the gardens. Excess stormwater, not needed for irrigation, will be returned to the existing pipe outfall.	1	Item		$350,000	Low	BCC	BCC / Melbourne Water	
8.3		Liaise with Melbourne Water to undertake survey and detailed design investigation of measures to improve stormwater quality prior to discharge at Royal Avenue Beach. Works may include:	1	Item		$15,000	Low	BCC	BCC / Melbourne Water	8.3.1
8.3.1		Diversion of stormwater from existing pits and pipes in Beach Road to a small water quality treatment bioretention system located in open grass areas near the end of Southey Street. The system is planted with low indigenous sedges and rushes to remove pollutants including nutrients and sediment from the water while maintaining existing views. After passing through the biorentention system the stormwater is returned to the existing pipe network and is discharged at the beach outfall.	1	Item		$76,000	Low	BCC	Melbourne Water	
		Subtotal Stormwater Management				$1,321,000				
CULTURAL HERITAGE										
9.1		Undertake due diligence Cultural Heritage Assessment	1	Item		$50,000	High	OAAV	BCC	
		Subtotal Cultural Heritage				$50,000				
		SANDRINGHAM BEACH AND GARDENS MASTERPLAN WORKS				$4,105,000				
		Contingencies (20%)				$821,000				
						$4,926,000				

REFERENCES

Bayside City Council, *Bayside Open Space Strategy,* Bayside City Council, 2012.

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