# 7 COASTAL DESIGN AND CONSTRUCTION

This section looks at the South Coast from a more practical point of view. Its purpose is to provide general guidelines for those planning or physically carrying out work on the coastal edge.

## 7.1 CONTEXT

The area within the boundaries of the South Coast, Point Dorset through a variety of bays to Karori Stream, deserves particular care. This area of coastline provides value for spectacular sea views of the harbour entrance and Cook Strait and is a gateway for recreation. It is a refuge for areas of endangered and special ecological plant species and a habitat for native birds and fish.

These aspects provide special character - as do the variety of bays - from those that are mainly urban such as Lyall Bay - to the smaller bays such as Owhiro Bay - and then to those that are mainly uninhabited such as Tarakena or those west of the old quarry site. Seen in the greater context of the overall area, the bays vary from a strong urban coastal focus to a very rural coastal aspect. Design treatment for individual bays can be drawn from an understanding of the type of bay where work is to be carried out.

Many parts of Wellington's coast are highly modified (for example the coast road from Oriental Bay to Greta Point). In contrast, the southern coast has large areas of undeveloped, natural character. Therefore there should be careful consideration given to any proposal to build or place structures within the coast area. A strong desire has been expressed by the community that the natural character should generally be maintained unless there are significant, strong reasons for not doing so.

When considering whether to introduce new, built structures onto the coast a **minimum impact approach** should be adopted. This should ensure that only necessary structures are developed - or are developed only to the necessary extent so that the least amount of impact in relation to new structures occurs.

## 7.2 PURPOSE AND FOCUS FOR DESIGN

The intention of this section is to establish a direction for future work that is carried out by the Council and other public authorities. An important focus is on the seaward side of the road but the inland side of the road is also included where applicable.

The design and building of any works should use the coastal environment as a basis. Relationships between competing points of view, such as engineering standards and environmental needs, require negotiation prior to construction. For example, tarsealing a coastal carpark may be the most cost effectiveness option but this may not be appropriate in an area identified for restoration of its natural features - a natural gravel surface may be preferable. Maintaining and enhancing the coastal character should generally take precedence.

Consistent design and construction approaches to elements such as wall construction, steps, stormwater outfalls and lighting fixtures should be developed that respect the coastal character. At the same time functional issues must be considered including safe and convenient access to beach areas, protection of the road, and safety of vehicles and pedestrians.

# 7.3  GENERAL DESIGN PRINCIPLES

The design of any works for placement of new elements should start with the consideration of the whole coastal environment. Construction work carried out in relation to traffic, drainage, lighting, beach access for vehicles and pedestrians can have major visual impacts on the environment. Work done poorly or out of character leaves a statement of lack of understanding and care by those carrying out the work.

## 7.3.1    Identity
The identity of the South Coast should be considered as a whole - and also from the point of view of part of the coast. For example, local differences of each bay are important, but must also be seen against the greater area as a whole. Elements placed in the coastal arena should display a 'family resemblance'. Major elements such as seawalls, boardwalk/steps and street lighting features should have general consistency. Promontories at the end of each bay offer points where elements can be more easily changed, such as the style of seawall. Changing types of materials in the middle of a bay should be avoided.

## 7.3.22  Views
When moving around the coastline, there are continuous views that are experienced. The placement of structures or structural elements needs to be undertaken with this in mind as they need to be placed carefully to be unobtrusive and to avoid visual clutter. Guidelines to address this issue include:

- placement of larger or taller structures against hills or into vegetation rather than on promontories or the beach side of the road.
- avoiding creating silhouettes against the sea background. Place structures carefully and try to have them against the hillside or rock outcrops.
- limit signage to those that are essential.
- place signs together or on as few poles as possible - not scattered randomly along long stretches.

The coastal edge is primarily a natural environment and needs to be seen as such by those living in and visiting the area.

## 7.3.3    Materials and Construction
When constructing new works along the coast, it is important to think in terms of those materials most commonly seen in coastal environs. Materials that have a coastal 'look' include: chunky timbers, rock groupings, outcrops and aggregates. Materials are generally robust to withstand harsh coastal conditions. Surfaces tend to be irregular and weathered.

It is always tempting to use the least expensive method to achieve a solution to a problem. However, along this environmentally sensitive coastline it is preferable to utilise quality design and construction, rather than compromise to reduce expenditure. It is accepted that this may require additional funds and design time to achieve an appropriate product. This is preferable to ensure that the work achieves a better environmental and visual result, as the work will be seen and experienced by a large number of people for a long time.

An example might be wall construction. The coast has endless variations of rock and rock outcrops. With walls supporting road edges or seawalls it seems obvious to use rock. The South Coast rock is mainly brown grey, not blue grey. Walls should be seen as a continuation of existing rocky outcrops - not a few neatly stacked rocks placed in a sea of concrete. New structures need to take into account the irregular patterns of nature. Use of concrete substructures with a stone facing that provided a 'natural' finish would be an acceptable solution.

Be creative - use of vehicle barriers could include large rocks, large timbers, timber bollards, vegetation or a combination. Think about views and good placement when installing various elements. Temporary structures may be used to allow vegetation barriers to establish.

Be aware that there are some elements already in regular use on the coastal edge including bollards, fencing, rock groupings and native planting.

The exception to these statements is where emergency work is required to address health and safety risks or impending risk to infrastructure. 'Stop gap' measures will be used in these instances until more appropriate work to the site can be carried out.

A general list of coastal materials includes:

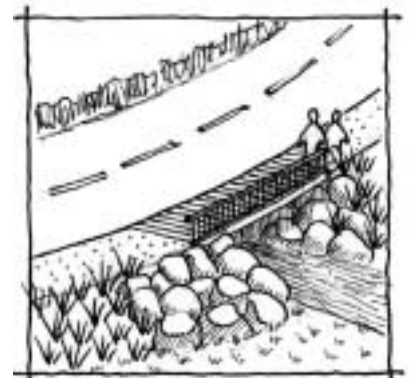| | |
|---|---|
| ∉ large chunky timbers | ∉ shingles of various sizes |
| ∉ rough sawn timbers | ∉ shell - crushed and broken |
| ∉ unpainted timbers | ∉ driftwood |
| ∉ natural brown grey rock | ∉ aggregate finishes on concrete |
| ∉ rock of suitably large size | ∉ stainless steel/galvanised metals |



# 7.4 ELEMENTS

### 7.4.1 Footpaths

Access is required along the coastal road edge. The footpath is intended for pedestrians and would generally be located along the edge of the roadway. However there are areas, such as at Moa Point, where the footpath has taken an alternative route and is located away from the roadway. In this particular case, the path is not sealed and gives a more natural experience in keeping with the 'rural-ness' of that area of the coast.
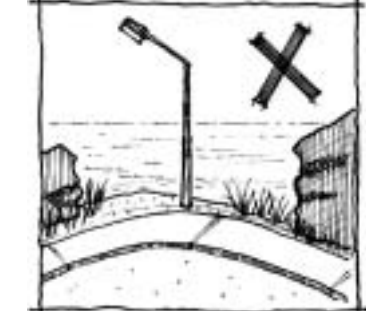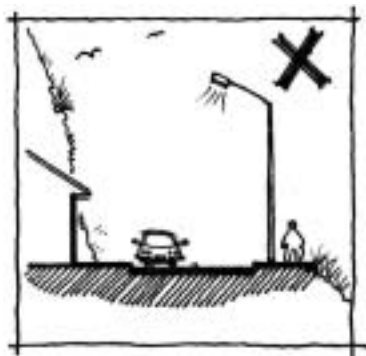
It is important to ensure that a footpath or track is available for those walking. The width should be appropriate to its setting. In general terms, people should be able to walk side-by-side or easily walk past each other (approximately 1.4m in width).

A variety of routes may be applicable along the shoreline, around natural elements, above and below existing road levels and around carpark areas.

**Guidelines**
- ∉ Provide footpaths along road edges but consider other routes as well - including around and through natural features, above or below road levels, and along the shore edge.
- ∉ Consider the use of other materials where feasible such as boardwalks, shingle paths or aggregate paving.
- ∉ Use planting to differentiate between road edges and footpaths.
- ∉ Ensure footpaths have appropriate falls and achieve appropriate drainage.

### 7.4.2   Walls/Seawalls

Walls along the shore edge occur frequently but often vary considerably in style and quality. They are built for a variety of reasons - including retention of banks, to stop coastal erosion, to protect roads and for access onto beaches.

The choice of materials should match the character of the immediate area. For example, a seawall to reduce erosion that is needed in a natural area should generally be constructed of natural rock. If this is not possible, for example, the location is exposed to wave impact, a large vertical height is involved or there is not enough area to sustain the profile of a rip-rap sea wall, a concrete sub-structure visually disguised by natural materials may be appropriate.

When natural rock is being used in wall or seawall construction, the base of concrete should appear as grouting rather than a substrate into which rocks have been pushed. An example that meets this criteria is the seawall to the south of Karaka Bay wharf, Miramar.

Where walls or sea walls already exist, designs should match existing styles, unless the existing styles do not fit with the area's character. In this case, a decision should be made about which style should be adopted. For example, if it is only a small addition or repair then the original style should be used. However, if the existing sea wall will need to be replaced in the near future then a more fitting design should be considered.

**Guidelines**

Maintain a consistency of wall style. It may be better to match an existing style in the area if there is a predominant one.

- ∉   Include natural rock promontories or outcrops in wall design.
- ∉   Construct new seawalls with natural stone facing and a carefully formed concrete top edge.
- ∉   Ensure concrete slurry/grouting is cleaned off stone facings.
- ∉   Do not use construction rubble where it is to remain visible.
- ∉   Do not use coloured concrete products or mortars.
- ∉   Ensure access to the beach/coast edge is included as part of the work when possible.

### 7.4.3   Lighting

In general terms, the purpose of lighting is to increase visibility for motorists and pedestrians with a result of a safer environment. Lighting can cause problems with glare, detraction of views and can cause problems for wildlife when poorly or inappropriately placed. In areas where there are few people living and it is generally an undeveloped coastline, such as from Moa Point to the beginning of Breaker Bay, the value of lighting should be questioned as to whether the area, because of its naturalness, should have lighting installed at all.
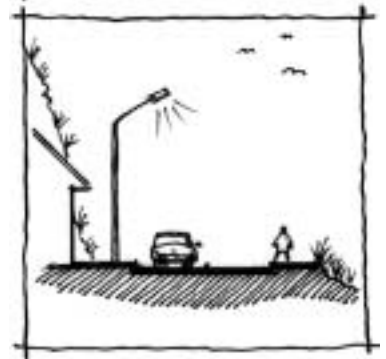
The aesthetics of lighting poles and fittings is also important to the value of specific areas. Specially designed lights and poles to support the uniqueness of an area may be appropriate. An area such as the main beach of Island Bay could have special lights.

Position of lighting poles can be crucial to ensuring views are not compromised. Placement of poles on the landward side of the road can alleviate glare caused by lights shining back at houses. Placement on the landward side also leaves the coastal edge looking more natural.

Lighting colour/rendition can also be important. General streetlights (high pressure sodium) give out an orange light. Lights which give out a white light (metal halide) allow the eye to see colours as they really are. This can be particularly important where special features, bus stops or pedestrian crossing are being lit.

**Guidelines**
- ∉ Place lighting poles on the landward side on or near property boundaries.
- ∉ Locate poles so that they are not silhouetted against the sea.
- ∉ Select fittings and lamps to minimise glare.
- ∉ Use poles and fittings that are compatible with the coastal edge.
- ∉ Use a lower height pole (approximately seven metres) to keep in scale with the existing environment.
- ∉ Use feature lighting for specific locations or features.
- ∉ Lighting control boxes and concrete pads should be placed inconspicuously.
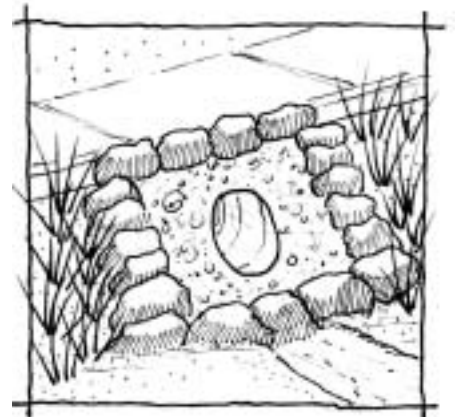- ∉ Poles need to meet existing recognised standards.

### 7.4.4 Drainage Pipes, Outfalls

All along the coast there are stormwater systems connecting to outfall pipes at the coastal edge. These outfalls perform a necessary and practical service, but they often seem to 'stick out' and look poorly placed within the natural setting. Outfalls are there to perform a practical need, but the way in which they are placed in the environment on the sea edge can make the difference between being seen as an eyesore or going unnoticed.

Large slabs of rough concrete, pipes jutting out to mid-air, and vertical concrete walls all need some treatment to help them sit more easily in the coastal environment. Use of stone that matches the existing coastal stone around jutting pipes, aggregate finish on concrete faces, planting up and over concrete abutments, can all contribute to a much more agreeable visual finish to these outfalls.
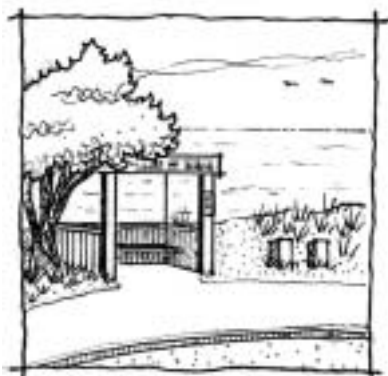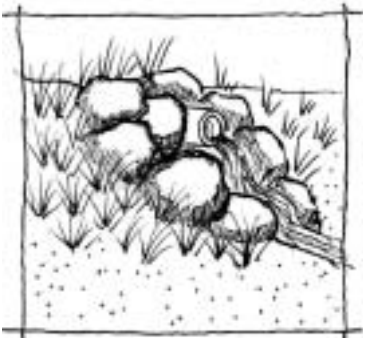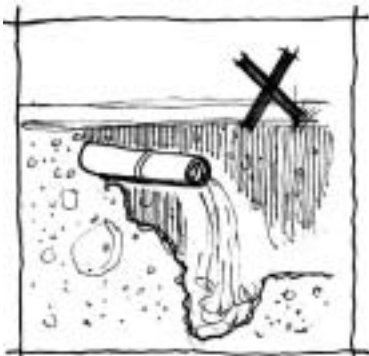
**Guidelines**
- ∉ Construct outfalls to a common theme to fit into the natural environment.
- ∉ Use techniques to make pipe extensions or concrete faces sit more easily in the environment, such as using rock groupings around outfalls, use of exposed aggregate on concrete faces, or use of stone facing on concrete faces.
- ∉ Use planting where possible to soften hard edges of outfalls.

### 7.4.5 Service Structures

Service structures, such as pumping stations, manholes and bus shelters, are generally minor, but not insignificant structures, in the landscape. Concrete slab structures can look very out of place in the coastal environment and if used they need careful treatment.

Be aware of the potential for visual intrusion of structures. Placement of structures should acknowledge views of both those living in the area, and people passing in vehicles and on foot. Use of coastal colours for structures, unpainted timber, aggregate

finishes, placement of rocks around the perimeter and planting all help to ensure these structures blend in with their environment.

**Guidelines**
- ∉ Build new shelters out of appropriate material for the natural environment.
- ∉ Ensure placement is appropriate, discreet and does not compromise views.
- ∉ Use natural elements such as rocks and planting to help the structure to recede into the landscape.

### 7.4.6    Furniture: Seats, Bins, Bollards, Fencing, Poles

Items of street furniture fulfil a functional requirement but are also indicative of the character of an area. Furniture along the coastal edge should support the natural setting and should not be visually obtrusive. Furniture should be appropriate to the coastal environment and able to withstand harsh conditions. This requires physical robustness and the ability to weather well - or be corrosion resistant.

The furniture for the South Coast requires a closely related and co-ordinated family of items. Areas which are seen as 'special' may have more unique furniture, but it should generally relate to the overall family of coastal furniture.

**Guidelines**
- ∉ Use a family of similar and related furniture along the coastal edge.
- ∉ Use furniture that is robust and will weather well.
- ∉ Place furniture appropriately and discreetly to avoid blocking views.
- ∉ Use furniture with natural finishes or colours that are related to the coastal edge.

### 7.4.7    Signage

It is important to ensure that signage within the coastal environment is well thought out and co-ordinated either with the existing or an overall theme or family of signs.

Placement is important and should minimise clutter. Often a number of signs can be located on one pole rather than each having their own.

Use essential signage only and ensure removal of old or redundant signage.

**Guidelines**
- ∉ Use signs that are an appropriate size for the location.
- ∉ Place signs to avoid blocking views.
- ∉ Group signs as part of other elements of furniture, walls or planting.
- ∉ Place signage on the landward side of the road except for essential road safety signage.

### 7.4.8 Planting

The choice of plant species will be an important part of a project's design and the choice will be influenced by the particular location. Native species sourced from local seed are generally given preference, but it is acknowledged that there are times when non-local natives or exotic species can also serve a useful purpose. Specific plants can help to enhance local identity through use of a particular species. Creative techniques can allow for planting around new wall construction, to provide a break between roadways and footpaths, and to visually soften hard elements.

Planting can be very useful for softening and assisting integration of structures into the landscape, it can help to reduce visual impact of construction (including structures and walls), define areas and provide shelter from the natural elements.

Planting is generally related to reserve or public land, but can also relate to privately owned land bordering public areas. The location of larger species should be considered carefully where there is potential to block views or traffic sightlines.

**Guidelines**
- Use locally sourced and grown species.
- Consider fire resistant plants.
- Plant to soften structures and walls or for division between walkways and the road.

Plant species that occur on the South Coast includes:

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|---|---|
| *Acaena pallida* | Sand Bidibid |
| *Austrofestuca littoralis* | Sand Tussock |
| *Calystegia soldanella* | Shore Bindweed |
| *Coprosma acerosa* | Sand Coprosma |
| *Coprosma repens* | Taupata |
| *Crassula moschata* | a small coastal herb |
| *Desmoschoenus spiralis* | Pingao |
| *Discaria toumatou* | Matagouri |
| *Disphyma australe* | New Zealand Ice Plant |
| *Euphorbia glauca* | Shore Milkweed |
| *Isolepis nodosa* | Knobby Clubrush |
| *Lepidium oleraceum* | Cook's Scurvy Grass |
| *Muehlenbeckia astonii* | Shrubby tororaro |
| *Phormium cookianum* | Coastal Flax |
| *Pimelea arenaria* | Sand Daphne |
| *Plagianthus divaricatus* | Saltmarsh Ribbonwood |
| *Spinifex sericeus* | Silvery Sand Grass |

Other native plants that are frequently seen - but are not native to the South Coast include: *Metrosideros excelsa* Pohutakawa, *Cordyline australis* Cabbage Tree and *Pittosporum crassifolium* Karo.