

SHR/12
Tender document
Walking Track Construction
Gap Bluff

NATIONAL PARKS AND
WILDLIFE SERVICE



CONTRACT NUMBER: NP-SH-1.



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TAB "B" : *Specifications as set out in the Tender Documents and Maps One Gap Bluff Track (Colin Killick Sept.1989) to Three Gap Bluff Track (Colin Killick Sept.1989) inclusive.*

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DESIGN AND CONSTRUCTION BRIEF

WALKING TRACK AT GAP BLUFF
SYDNEY HARBOUR NATIONAL PARK

1.0 INTRODUCTION

1.1 Location: Gap Bluff, part of Sydney Harbour National Park, is located at South Head, Watsons Bay (fig 1). The area includes approximately 7 hectares of land flanked, on its eastern margin, by steep cliffs overlooking the Pacific Ocean and on its western side by the village of Watsons Bay. The southern boundary is marked by 'The Gap', while the northern perimeter fence is shared with HMAS Watson, a naval training installation.

1.2 Site History: The area was gazetted part of Sydney Harbour National Park in 1982. Previously the area was controlled by the Army, being used, from 1895 to the early 1940s, as the School of Artillery. The original landscape and vegetation were extensively altered during the Army's period of occupation. A large number of buildings were also built, of which several still remain. The most prominent of these is the Officers' Mess.

1.3 The Walking Track: There has been no public access to this land for about a century. The National Parks and Wildlife Service wants people to be able to enjoy this beautiful area. This project is therefore to build a public walking track. The track will be mainly built of concrete and will include steps; fencing and lookouts; interpretative and directional signs (the builder will be required to install, but not manufacture, these); and some seating.

The Walking Track will link the present Coastal Walkway, maintained by Woollahra Council, with Camp Cove via the high plateau of Gap Bluff.

The track will follow the cliff along the northern edge of The Gap, ascending via steps to a high point which overlooks the Pacific Ocean and has extensive views along Sydney Harbour. From here, the track will head slightly inland to the northwest to avoid damaging natural revegetation along the cliff margin. A side track will be built to take visitors to a lookout at the cliff where there are spectacular views of North Head and Manly.

The route will then descend through a small area

of bush, using existing steps built by the Army, to emerge beside the old Quartermaster's Store (also referred to as the Armoury Building). A toilet nearby is being refurbished for visitor use.

There must also be disabled access to The Gap from the Officers' Mess. Thus a level path will be required from the bitumen outside the Officers' Mess south to the cliffline.

2. GENERAL CONSIDERATIONS

- 2.1 Why concrete?: This track is in an urban area and will be get a lot of use. A concrete track will be durable, require little maintenance and be consistent with the present coastal walkway with which it will link. However, concrete can look unattractive and intrusive. Therefore, the attached plans have been prepared with thought being given to minimising concrete's stark appearance.

Beyond lookout two, the concrete should be lightly tinted to match the colour of the surrounding sandstone outcrops (colour to be discussed with the NPWS project officer), all areas where tinting is required are marked on the plans. Towards lookout three, there are many areas where the rock outcrop will be used as the track surface. Care will have to be taken in such places to ensure the transition from concrete to rock and back to concrete is handled carefully. The less aware walkers are that the track surface has changed, the more successful the builder will have been in achieving this.

The surface of the concrete throughout should be similar in texture to the Council's existing Coastal Walkway at The Gap.

A number of the lookouts require either sandstone or textured concrete edging (see attached plans). A firm decision has not yet been made as to which of these two types of edging will be used. The builder should therefore tender a price based on sandstone edging throughout and an alternative price based on a concrete textured edging using no sandstone blocks.

- 2.2 Drainage: One of the greatest problems facing all tracks is drainage. By building the track in concrete, erosion of the actual track surface will not be a problem. However, concentrated runoff from the non-porous concrete surface will scour gullies into the surrounding landscape if it is not properly drained away.

At all stages in construction, the builder should think about where the water will go in a heavy downpour. Suitable drainage routes have been marked on the plans and these will provide a guide.

In general, the builder should avoid long stretches of track or steps without a runoff point.

Level stretches of track should have a camber or cross-fall of about 1:50. The low point of the camber should be directed downslope, where a such a slope can be detected.

Steps should have a slight backward tilt and a camber. Cascades down steps will then be avoided (fig 2).

Where possible, water should be directed towards the cliff edge by the shortest practicable route that will not result in erosion.

- 2.3 Environmental sensitivity: This track is in a National Park and will receive a great deal of use. The quality and environmental sensitivity of the track will reflect on the skill of the builder.

All flora and fauna are protected in National Parks. While some damage to plants cannot be avoided during this type of work, it should be kept to an absolute minimum.

Rainforest timber must not be used at any stage of this project.

- 2.4 Signs: Two types of signs are to be installed:

- 2.4.1 Directional signs are made of routed timber painted 'Oxford Blue' with white lettering. There are 9 of these signs to be installed. The positions are marked on the accompanying plans. The National Parks and Wildlife Service will supply the lettered signs. However, installation of the sign, including supply of the upright posts to support the signs, are the responsibility of the contractor. See figure 18 for installation details. Posts must be painted to match the signs, including a coat of wood primer, undercoat and two coats of blue acrylic enamel. Check with the NPWS Project Officer responsible for the job before installing any signs to ensure that the location and orientation is correct.

Interpretative signs will give the public

information about the place. There are 8 interpretative signs to be installed at locations marked on the attached plans. Metal posts for the signs will be supplied by the National Parks and Wildlife Service. Check with the NPWS Project Officer before installing any signs to ensure that the location and orientation is correct.

- 2.5 Workmanship: All work is to be carried out in a tradesman-like manner and the area left clean and tidy. The bulk of this job involves concrete work and a high professional standard is expected. Uneven or undulating surfaces, inconsistent track widths, incorrect curing and spillage of concrete are not acceptable.

3. THE TRACK IN DETAIL

- 3.1 Lookout One (figs 3,4 & 5; map 1): Lookout One will link with, and continue, Woollahra Council's Coastal Walkway at The Gap. On one side of the lookout is the sheer drop down to the sea, on the other, a steep embankment down to the bus turning circle.

A concrete slab is required, consistent in colour, surface texture and linked to, the Council's existing track. The surface of the slab must be even. It should direct stormwater runoff towards the oceanside cliff.

The western (embankment) side will have to be built up. This will require the construction of a retaining wall. The retaining wall can be built of any material meeting the engineering specifications, such as concrete blocks, but because the wall will be clearly visible from the road it must be attractive and should therefore be bag rendered with tinted concrete of a colour similar to sandstone (colour to be discussed with the project manager).

Along the edge of the embankment and along the concrete platform on the cliff side, fences must be built. These will be linked with the existing council fences and should be similar in design, though child-proof mesh must be used in the new fence. Lookout One is the only location in which fencing similar to that on the existing Coastal Walkway will be used. The fencing should conform to the specifications in appendix one (fence type one). As with fences throughout this work, the builder should ensure that an even, consistent height is maintained. Straight stretches of fenceline should not have kinks or meanders. Curved fencelines are to be as smooth as possible. The footings of all fence posts are to be buried at least 200mm deep and secured with

concrete.

Removal of the present fence marking the end of the Coastal Walkway will be the final task of the whole walking track project. A sign is to be placed on the old fence saying 'Danger - No Access' until the whole track is complete and ready to be opened.

Beside the 'embankment (Military Road) side fence a small garden is to be planted. It is to be edged with sandstone (see appendix two) or textured concrete and the surface of the soil is to be covered with a layer of newspaper and bark chips. Plants selected from the list in appendix three are to be planted at one metre intervals in the garden.

A type 1 bench is to be placed in front of the garden (see appendix four for bench specifications).

A stand to hold an interpretative sign is to be placed beside the safety fence overlooking The Gap.

Running north-west from lookout one is a natural ramp (A to B on map 1). A retaining wall, continuing on from that constructed on the western side of lookout one, should be built. The ramp must then be concreted. It should be 1.5 metres wide and a fence is to be built into the concrete 10 cm from the edge of the track. The fence will be the same style as that used at lookout one. The gradient should be as even as possible, but no steps are to be built. Ideally, the gradient should not exceed 1:20 (2.7 degrees) to allow wheelchair access. It may be necessary to exceed this gradient, though in any case, a steep ramp is better than steps for a wheelchair.

The existing New Zealand Christmas Tree will have to be removed (see map one).

- 3.2 Lookout Two (figs 6,7 & 8; map one): From the top of the ramp leading up from lookout one (A to B, map one), an untinted concrete track should run almost directly north for several metres to the existing garden wall. The path will then follow the garden wall to its end, where it will join lookout two (B to C on map 1). The path is to be 1.5 metres wide and consistent in appearance with the ramp between A & B on map one.

The existing fences must be removed.

The track is to be 1.5 metres wide with a type 2

(appendix 1) fence beside it, the posts of which should be embedded in the concrete of the track 10 cm from the edge of the track. As all post footings are to be sunk to a minimum depth of 200mm below the track surface, it may be necessary to drill into the rock underlying the track before placing the posts and pouring the concrete.

The cross/fall of the track should be towards the cliff.

At the point where the garden wall ends the track will enter lookout two.

Lookout two will be constructed of untinted concrete. It will be edged with sandstone blocks or textured concrete. In the centre and northern section of the lookout will be a garden, also edged with sandstone blocks or textured concrete. The garden will incorporate existing plants (Coast Rosemary) and sandstone outcrops already found on the lookout site. Care must be taken not to damage the plants to be included in the garden while building the lookout.

Three type 1 benches and an interpretative sign will be placed at the lookout in the locations marked on the attached plans.

Along the northern edge of the lookout site at the base of the start of the slope is a rough drain. For the length of the lookout, this drain is to be improved. It is to have a cement floor until it reaches exposed rock close to the cliff. The lookout side of the drain is to be edged with sandstone blocks or textured concrete. Along the length of the garden, weep holes must be placed at 1 metre intervals to allow water accumulating in the garden to seep into the drain. The slope (or northern) side of the drain is to be retained with textured concrete.

Runoff from the lookout should flow towards the drain and the cliffedge.

An untinted cement track, 1.2 metres wide, with no fence, is to be built to connect lookout two with the bitumen road beside the Officers' Mess.

3.3

The Gap Steps - Map Two: All concrete used in the construction of this section of track is to be tinted (colour to be discussed with the NPWS project officer).

In general, the track should be 1.2 metres wide. In places this will not be possible, for example, where the route passes between rock outcrops

leaving only a small gap, and it is then acceptable for the path to be narrower. Rock excavation is to be kept to a minimum.

The builder is encouraged to make use of existing features such as natural sandstone steps wherever possible. It is important to try to make the track blend into the landscape. If in any doubt about the route or any details of construction, contact the NPWS officer responsible for the project for advice.

The fence route has been selected to avoid too many changes of direction and to use as much flat or evenly sloping ground as possible. It is important that the fence ascend the slope as smoothly as possible, without abrupt changes in height and direction.

- 3.3.1 D to E (map two): A small 1.2 metre wide hardwood timber footbridge is to be built to allow walkers to cross the drain at the northwestern corner of lookout two.

The track will run towards a gap between two large boulders, where steps will be needed. The path is to have a cross fall to the east (towards the cliff) and a 25 cm wide dish drain is to be built on the eastern (or cliff) side of the track. This drain is to collect runoff from the track and the steps and take it down to the large drain beside lookout two, with which it will connect.

- 3.3.2 E to F (map two): Steps should not be required on this section of track until the boulders are reached at F. Some vegetation in the area of bush will have to be cut back about 1 metre for the new path. The large banksia and hakea (the plant with the sharp spines) near the cliff edge should not be disturbed.

The cross fall of the track is to be towards the cliff. In the lower section of track, drainage will be directed towards a narrow slot between two large boulders.

At F there is a large boulder beside the cliff which will be undercut by runoff from the new track. A small sandstone wall under the boulder is to be built to prevent this from occurring. Sandstone for this job will be supplied by the Service.

- 3.3.3 F to G (map two): A relatively long section of steps will have to be built in the upper part of this section of track. The crossfall of the steps should be towards the cliff.

- * The nature of the surface on which the track is to be built changes above point G. Below this point there is much thin sandy soil which could easily erode. Above G the track will mainly be directed over rock platforms and erosion will be much less of a problem. In many places the rock platform itself will be used as the track surface and no work will be required on it other than to install the fence.

- 3.3.4 G to H (map two): This section of track crosses two sandstone terraces. On the first terrace, the large boulder to be shifted should be moved only as far as necessary for the track construction.

Concrete steps will have to be built up to and across the second terrace of this section.

- 3.3.5 H to J (map two): Concrete steps are to be built into a small gully reaching up into this terrace. The route will then proceed east across the terrace to a pile of boulders near the cliff. No concrete is required for the track across this sandstone terrace.

A flight of steps is to be built to link this terrace with the one above. The steps should be 1.5 metres wide and enclosed by the fence.

- 3.3.6 J to K (map two): There is a low semi-circular platform at the eastern end of this terrace. This platform can be ascended using some natural steps. There is no need to alter these steps.

The next terrace can be reached using a small natural step. This step needs to be enlarged using sandstone blocks.

- 3.3.7 K to L (map two): Near K there is a small shelf which is to be enclosed by a type two fence and a type 1 bench installed.

The track route will head north east over the rock platform along the base of a collection of massive boulders. Concrete will not be required until the rock platform gives way to soil.

The route then ascends along an obvious slot between the boulders. Steps will be required along much of this section until Lookout three is reached.

- 3.4 Lookout Three (fig 9; map 2): This lookout will

utilise the natural sandstone surface of the rock platform. Little work is required here other than the building of a type two fence and the installation of an interpretative sign stand in the positions marked on map two.

- 3.5 L to M (map three): This exposed high plateau was once the site of numerous army buildings. Debris, foundation blocks and the remains of gardens can still be found scattered over the area.

The new concrete path is to be 1.2 metres wide and tinted. It will have a cross fall to the west (low side). The path runs inland northwest from lookout three towards an old bitumen road, which it will join at M.

In addition to constructing the path, the following work is required:

- * The piles of wharf timber are to be removed. The timber will become the property of the contractor and proper disposal of it is the responsibility of the contractor.
- * The existing fence running from lookout three to the HMAS Watson boundary fence inland along the line of bush is to be removed and disposed of. Fence posts may be cut off flush with the ground surface. Disposal of the posts and wire is the responsibility of the contractor. It is to be replaced with a type three fence, except at lookout four, where a type two fence is required.
- * The existing fence running along the cliff line from lookout three to the HMAS Watson boundary fence is to be removed. Fence posts may be cut off flush with the ground surface. Disposal of the posts and wire is the responsibility of the contractor.
- * The area of damaged bitumen marked on map three is to be removed.

- 3.6 M to N (map 3): The track will follow the bitumen road. An interpretative sign is to be placed near M describing the history of use of this area. A couple of directional signs will show the way to lookout four, the practice battery, toilets and the Officers' Mess.

- * The drain on the north eastern side of the road is to be cleared and repaired where necessary. At the lowest point on the road an open drain is to be built and covered with a grill to allow water to flow across the road. The drain is to be lined with concrete and be

no less than 15cm wide and no greater than 30cm wide.

- * All flaking paint is to be removed from the exterior of the green ammunition store. It is to be given a layer of undercoat and then painted to match its present colour with two coats of exterior acrylic paint.
- * An interpretative sign and a directional sign will be placed beside the road near the ammunition store describing HMAS Watson and the ammunition store.
- * The tile debris in the vicinity of N is to be removed.

- 3.7 N to O (Map 3): For much of this section a concrete path and steps already exist and will be reused. The vegetation overhanging this path is to be removed and any damaged sections of path/steps are to be repaired.

Between the existing path and N, a new section of concrete track is to be built, untinted and 1.2 metres wide.

The steps emerge beside the old Armoury building. From here to the road a concrete path is to be built of untinted concrete 1.2 metres wide. Directional signs will be placed opposite the path where it joins the road, and will point to the Gap, the toilets and HMAS Watson.

- 3.8 The toilets (map three): The toilet block was originally built in 1912 as part of an Army barracks complex and still functions. It is to be used as a public facility.

A new concrete footpath from the road, branching in front of the cabbage tree palm to either entrance of the block is needed. An interpretative sign will be placed in front of the tree describing the history of the block. Also in front of the tree will be a sign indicating which side of the block is the mens and which the womens.

The smaller southeastern side of the block will be used as the mens, the larger northwestern as the womens.

- 3.9 Lookout Four and the Practice Battery (figs 10 & 11, map 2): Lookout four is to be built of tinted concrete. In its centre will be a small garden, edged with sandstone blocks or textured concrete, enclosing an existing plant.

An interpretative sign will be placed in the northern corner of the lookout.

A type A bench is to be placed along the southwestern edge of the lookout.

The lookout will be edged with sandstone blocks or textured concrete.

Drainage should be towards the cliff.

The lookout will be linked to the road by a tinted concrete path 1.2 metres wide. A directional sign pointing to the lookout and towards the practice battery is to be placed where the lookout path joins the bitumen road.

The 1895 practice battery is where artillery guns were positioned to fire practice shots out to sea. There is already plenty of concrete in good condition between the battery and the road, so no track work is required. A directional sign will be placed beside the road near the battery and an interpretative sign placed beside the battery to tell people what it was.

FIGURE ONE

Location Maps

