

## Australian Walking Company

Wilderness Trail Accommodation – Sanderson Bay

## Flinders Chase National Park – CR 6716/336

520/L008/18 – Deferred Item

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Montage showing aerial image of Sanderson Bay development site with proposed buildings superimposed – Source Fyfe

**OVERVIEW**

<b>Application No</b>	520/L008/18
<b>Unique ID/KNET ID</b>	2018/22409/01 ID 3699
<b>Applicant</b>	Australian Walking Company C/- Fyfe
<b>Proposal</b>	Wilderness Trail Accommodation – Sanderson Bay
<b>Subject Land</b>	Flinders Chase National Park – CR 6716/336
<b>Zone/Policy Area</b>	Conservation Zone
<b>Relevant Authority</b>	SCAP – Development Regulations. Sch 10, 18 – Kangaroo Island
<b>Lodgement Date</b>	19/11/2018
<b>Council</b>	Kangaroo Island Council
<b>Development Plan</b>	Kangaroo Island Council Consolidated – 17 September 2015
<b>Type of Development</b>	Merit
<b>Public Notification</b>	Category 1
<b>Representations</b>	N/A
<b>Referral Agencies</b>	CPB, KI NRMB, CFS, NVC
<b>Report Author</b>	Jeremy Wood
<b>RECOMMENDATION</b>	Development Plan Consent subject to conditions

**EXECUTIVE SUMMARY**

This application is one of three development applications lodged for tourist accommodation within the Flinders Chase National Park, in association with the Kangaroo Island Wilderness Trail (KIWT).

The applicant, Australian Walking Company (AWC), seeks development plan consent for tourist accommodation comprising eight accommodation pods, a communal longhouse, a lookout, a staging post and services building and ancillary water tanks and walking trails. This will provide accommodation for the third night of the walking experience.

On 23 May 2019 the Panel resolved to defer it's decision of this application to enable:

- Further consideration of the site features and context; and
- Request additional information from the applicant.

The applicant has responded by providing clarification for the SCAP, which is included in the ATTACHMENTS.

The details submitted are considered to sufficiently address the questions posed by the SCAP.

The application is a merit, Category 1 form of development and was subject to referrals to Heritage SA, the Coast Protection Board, the Country Fire Service, the Kangaroo Island Natural Resource Management Board, and the Kangaroo Island Council.

The proposal has been assessed and is considered worthy of development plan consent, subject to conditions.

**1. CONCLUSION**

To meet a range of accommodation and tourism experience needs, land use and development policy has been established for Kangaroo Island that seeks well designed accommodation for tourists that does not detract from scenic and landscape value of a location.

In addition, the Conservation Zone provides for and encourages tourist accommodation of varying styles in scenic and landscape areas, located and designed such that scale, height, design and siting is respectful of and does not detract from views of the rural, natural or wilderness landscape, of the ocean and coastline, or the elements of the natural landscape eg native vegetation cover, coastal features, animal habitat.

The applicant has given due regard to refining their proposal to mitigate risk from bushfire hazards, to the satisfaction of the SA CFS, with the SA CFS advising that it has no objection to the proposal subject to conditions. The clearance of native vegetation is being considered through a separate application to the NVC. Kangaroo Island Council is supportive of the application, describing it as 'an exciting opportunity for tourism growth and diversity on Kangaroo Island'.

On balance it is considered that the proposed development warrants planning consent as it has been sensitively designed, will provide a wider range of tourist accommodation options on the Island, and is generally consistent with the relevant provisions of the Kangaroo Island Development Plan.

## 2. RECOMMENDATION

It is recommended that the State Commission Assessment Panel:

- 1) RESOLVE that the proposed development is NOT seriously at variance with the policies in the Development Plan.
- 2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal generally accords with the related Objectives and Principles of Development Control of the Kangaroo Island Development Plan.
- 3) RESOLVE to grant Development Plan Consent to the proposal by Australian Walking Company for tourist accommodation at Sanderson Bay subject to the following conditions of consent.

## PLANNING CONDITIONS

1. The development granted Development Plan Consent shall be undertaken and completed in accordance with the stamped plans and documentation, except where varied by conditions below (if any).

*Reason: to ensure the development is undertaken with its approved plans.*

2. All trade waste and other rubbish shall be stored in covered containers prior to removal and shall be kept screened from public view.

*Reason: To avoid impact on the surrounding natural environment.*

3. All external finishes shall have surfaces which are of a low light reflective nature and be of muted natural colours.

*Reason: To avoid impact on the surrounding natural environment.*

## Coast Protection Board (recommended conditions)

4. The applicant shall also ensure that the ongoing management of the site and visitor control measures minimise disturbance to the surrounding area to retain a high cover of vegetation and reduce the risk of sand drift.
5. The proposed development shall not result in any scouring, erosion or marine sedimentation impacts.
6. Effluent disposal systems shall be designed to minimise impact to the surrounding environment.

*Reason: to ensure appropriate safety requirements and hazard reduction practices are adopted during the construction and operational phases of the development.*

**SA CFS (directed conditions)**

7. The applicant & operators shall develop an Operational Management Plan which will ensure that staff and guests alike are not placed at any unnecessary risk through restricting operations and evacuating from the site prior to elevated fire conditions.
8. Design and Construction of the proposed refuge building shall be in accordance with Community Bushfire Refuges 2014, as published by ABCB and the Fire Services Commissioner Victoria (see Appendix A); and the NCC Part 3.7 "FIRE SAFETY" Australian Standard TM3959 (AS3959) "Construction of Buildings in Bushfire Prone Areas".
9. Siting (of structures) shall be away from existing elevated fuel structures.
10. Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.4.1 prescribes the mandatory provision of a dedicated and accessible water supply to be made available at all times for fire-fighting.

Ministers Specification SA78 provides the technical details of the dedicated water supply for bushfire fighting for the bushfire zone. The dedicated bushfire fighting water supply shall also incorporate the installation of a pumping system, pipe-work and fire-fighting hose(s) in accordance with Minister's Specification SA78 as follows:

- A minimum supply of 22,000 litres of water shall be available at all times for bushfire fighting purposes.
- The water storage facility (and any support structure) shall be constructed of non-combustible material.
- The dedicated fire-fighting water supply shall be pressurised by a pump that has –
  - i. A minimum inlet diameter of 38mm, AND
  - ii. Is powered by a petrol or diesel engine with a power rating of at least 3.7kW (5hp), OR
  - iii. A pumping system that operates independently of mains electricity and is capable of pressurising the water for fire-fighting purposes.
- The dedicated fire-fighting water supply pump shall be located at or adjacent to the habitable building to ensure occupants safety when operating the pump during a bushfire. An 'Operations Instruction Procedure' shall be located with the pump control panel.
- The fire-fighting pump and any flexible connections to the water supply shall be protected by a non-combustible cover that allows adequate air ventilation for efficient pump operation.
- All bushfire fighting water pipes and connections between the water storage facility and a pump shall be no smaller in diameter than the diameter of the pump inlet.

- All non-metal water supply pipes for bushfire fighting purposes (other than flexible connections and hoses for fire-fighting) shall be buried below ground to a minimum depth of 300mm with no non-metal parts above ground level.
  - A fire-fighting hose (or hoses) shall be located so that all parts of the building are within reach of the nozzle end of the hose and if more than one hose is required they should be positioned to provide maximum coverage of the building and surrounds (i.e. at opposite ends of the habitable building).
  - All fire-fighting hoses shall be capable of withstanding the pressures of the supplied water.
  - All fire-fighting hoses shall be of reinforced construction manufactured in accordance with AS 2620 or AS 1221.
  - All fire-fighting hoses shall have a minimum nominal internal diameter of 18mm and a maximum length of 36 metres.
  - All fire-fighting hoses shall have an adjustable metal nozzle, or an adjustable PVC nozzle manufactured in accordance with AS 1221.
11. Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.5 mandates that landscaping shall include Bushfire Protection features that will prevent or inhibit the spread of bushfire and minimise the risk to life and/or damage to buildings and property.
- A vegetation management zone (VMZ) shall be established and maintained within 20 metres of the refuge building as follows:
    - The number of trees and understorey plants existing and to be established within the VMZ shall be reduced and maintained such that when considered overall a maximum coverage of 50% is attained, and so that the leaf area of shrubs is not continuous. Careful selection of the vegetation will permit the 'clumping' of shrubs where desirable, for diversity, and privacy and yet achieve the 'overall maximum coverage of 50%'.
    - No understorey vegetation within 2 metre of the habitable building (understorey is defined as plants and bushes up to 2 metres in height).
    - The VMZ shall be maintained to be free of accumulated dead vegetation.
12. The applicant & operators shall formulate, practice and maintain an Emergency Response Plan that addresses the extreme risk associated this remote location presents, incorporating the following:
- Emergency Communication
  - Evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced
  - Emergency response training & regular drills
  - Operating hours and restrictions on days of extreme weather or bushfire events

*Reason: to ensure appropriate safety requirements and hazard reduction practices are adopted during the construction and operational phases of the development.*

#### ADVISORY NOTES

- a. This Development Plan Consent will expire after 12 months from the date of this Notification, unless final Development Approval from Council has been received within that period or this Consent has been extended by the State Commission Assessment Panel.
- b. The applicant is also advised that any act or work authorised or required by this Notification must be substantially commenced within 1 year of the final Development Approval issued by Council and substantially completed within 3 years of the date of final Development Approval issued by Council, unless that Development Approval is extended by the Council.

- c. The applicant has a right of appeal against the conditions which have been imposed on this Development Plan Consent. Such an appeal must be lodged at the Environment, Resources and Development Court within two months from the day of receiving this notice or such longer time as the Court may allow. The applicant is asked to contact the Court if wishing to appeal. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide, (telephone number 8204 0289).
- d. The applicant is advised of the following requirements of the Heritage Places Act 1993.
  - (a) If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity shall cease and the SA Heritage Council shall be notified.
  - (b) Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works. For further information, contact the Department for Environment and Water.
- e. The applicant is advised of the following requirements of the Aboriginal Heritage Act 1988.
  - (a) If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) should be notified under Section 20 of the Aboriginal Heritage Act 1988.
- f. The applicant is advised that any native vegetation on the site is protected under the Native Vegetation Act 1991 and Native Vegetation Regulations 2017. Prior to any clearance being undertaken (e.g. for trail networks and "look out" platforms), the applicant should seek Native Vegetation Council approval to do so.
- g. Compliance with the fire protection requirements is not a guarantee the habitable building will not burn, but its intent is to provide a 'measure of protection' from the approach, impact and passing of a bushfire.
- h. The proposed development may be subject to sand drift hazard risk, particularly accommodation pod number 7 to the north. It is recommended that the applicant engage a suitably experienced expert to undertake a site specific sand drift hazard assessment and identify any mitigation measures that should be undertaken.
- i. This site has the potential to contain a freshwater lens, which if broken (eg. during construction) may detrimentally affect the surrounding vegetation. The applicant should determine if further investigation into this feature is required.



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**Australian Walking Company – Kangaroo Island Lodge Walk**

Kangaroo Island Wilderness Trail, Kangaroo Island, South Australia

**Site Selection Process – A History**

Prepared for:

**State Assessment Commission Panel**

**6 June 2019**

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## Attachments

Attachment 1	AWC KILW Site Selection Timeline chart
Attachment 2	Tropo Construction and materiality notes
Attachment 3	Drawings: 1. Suggested bushfire clearance reductions 2. Staging Post reductions 3. Trail areas May 2019
Attachment 4	AWC Ecologically Sustainable Design Criteria
Attachment 5	Geotechnical Report extracts



## **Australian Walking Company – Kangaroo Island Lodge Walk**

Kangaroo Island Wilderness Trail, Kangaroo Island, South Australia

### **Site Selection Process – A History**

#### **Preamble**

The Kangaroo Island Wilderness Trail (KIWT) was conceptualised and developed by the Department of Environment, Water and Natural Resources (DEWNR, now known as DEW, Government of South Australia) in 2013 and 2016 respectively, with the view to boosting South Australia's reputation as a world-class walking tourism destination. In 2015 the *Flinders Chase National Park, Kelly Hill Conservation Park, Ravine des Casoars Wilderness Protection Area and Cape Bouguer Wilderness Protection Area Management Plans Draft Amendment 2015*, a revision of the 1999 Management Plan, was produced to facilitate and support the development of appropriate small-scale, in-park ecologically-sensitive accommodation facilities along the Kangaroo Island Wilderness Trail.

In 2013 the Kangaroo Island Futures Authority (KIFA) conducted a detailed feasibility study (*Kangaroo Island Multiday Walk Feasibility Study 2013*) into the Kangaroo Island Wilderness Trail model for accommodating a number of different visitor experiences on the trail and suggested locations for both the Parks-operated public trail infrastructure and sites for eco-lodges and standing camps for the nominated private commercial tour operator.

In 2017 the Government of South Australia selected the Australian Walking Company (AWC), through a competitive 3-stage tender process, as the preferred proponent for developing ecologically sensitive accommodation facilities and associated walking tour, along the Kangaroo Island Wilderness Trail. AWC's proposal to develop fully-guided walking tour with in-park accommodation was deemed to be in alignment with the Government's vision to provide a range of different visitor experiences associated with the trail. AWC's proposal would provide a different yet complementary experience to the existing tent-based, free and independent model offered by SA Parks, giving visitors the choice to embark upon a supported walking journey with a higher level of accommodation wholly located within the National Park.

As part of the SA Government's vision, up to four sites plus the Cape du Couedic Cottages were offered up for potential overnight accommodation node development. Despite offering up to 4 potential nodes for the development of eco-sensitive trail facilities, the State did not identify any exact locations for the successful tenderer to develop their accommodation. Instead a collaborative approach to site selection (between DEW, SA Parks and AWC) evolved in partnership with the State.

AWC has developed a strategic approach to developing the walk that has transitioned through various scales since its initial proposal tendered in March 2017. Our tale is one of continuous refinement and reduction in scale and scope to the current proposal that sits before the Native Vegetation Council (NVC) and the State Assessment Commission Panel (SCAP) for their consideration.

In addition to the site selection information provided below AWC has also included information pertaining to construction methodology, material selection and geotechnical information at **Attachment 2 – Construction Methodology** and **Attachment 5 – Geotechnical report extracts**. Additional diagrammatic information relating to construction is also contained within **Attachment 3 – Drawings under Part 2 – Troppo Site diagrams**.

## **AWC site philosophy – in short**

Our walks are **fully immersive, educational** and **low environmental impact** experiences, with environmental preservation and appreciation as the main focus of our offering

- **Site preservation** is not only critical to our environmentally driven ethos but it is a critical part of our guest experience
- **Leave No Trace** principles for best-practice bushwalking and minimal impact visitation for wild places are observed and practised at every level of our business
- **Site choice strategy** - Degraded land or minimally vegetated areas are preferred sites for locating buildings to minimise vegetation clearance where possible
- **Bushfire strategy** - Sacrificial structures and fire refuges are preferred for addressing bushfire risk so that vegetation clearance is kept to an absolute minimum
- **Maintaining separate site zones** from public areas is important for both the public and private walker experience. This is important:
  - to coexist harmoniously and to maintain respectful distances both ways (for private and public to have their own space);
  - to provide a fully immersive journey;
  - to provide site relief from overcrowding of already heavily visited sites – ie Snake Lagoon campground)
- **Pack it in pack it out** - all waste is totally removed from site
- **Sustainable transport use** - Not using helicopters is our preferred option, with the use of tracks and trails preferred, small vehicles create less socio-environmental impact than heli-use.

For a more detailed description of our company's commitment to best practice ecologically sustainable design and operations refer to attached **AWC Environmentally Sustainable Design Criteria** at **Attachment 4**.

## **A comment on tents versus hard-build structures**

As part of its feasibility studies into the design, construction and future operation of a walk on Kangaroo Island, AWC conducted extensive research into the suitability of tents and various other types of prefabricated and lightweight structures. Whilst AWC's initial EOI proposal suggested the use of tented camps, subsequent research revealed that tented structures would require significant vegetation clearance to achieve required bushfire standards and also relevant building code standards. AWC deemed this unacceptable for a National Park context and as such made the shift toward hard-build structures.

In addition to AWC's own internal research, a feasibility study produced by the Tasmanian Government into its Three Capes Track Hut<sup>1</sup> development also revealed that if using tents the required BAL ratings were not able to be achieved without significant site clearance which was unacceptable for areas of high conservation value. Indeed from a bushfire safety perspective, a building built to higher BAL rating will require less land clearance, so in effect a hut/lodge option produces a smaller clearance footprint.

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<sup>1</sup> *Three Capes Track Feasibility Study 2007, Department of Tourism, Arts, and the Environment, Tasmanian Government*

## **Accompanying document – AWC Site Selection Timeline chart**

Refer to attached **AWC Site Selection Timeline**

This document is intended to be read in conjunction with the attached **AWC Site Selection Timeline** chart (**Attachment 1**) and **AWC Site Selection Diagrams, and Troppo Site Selection Diagrams** contained in **Attachment 3**.

The timeline chart in effect tracks all stages of the project's site selection process with regards to site, tracks and trails, building footprint and scope changes to each of these items throughout the Predesign and Design phases.

The chart shows estimates for tracks and trails as extrapolated from external documentation (KIFA 2013 report) and DEW EOI/RFDP documentation and site visits) in **grey** cells, and then shows AWC's response to scope reduction in **yellow** cells, and any subsequent scope increases in **orange** cells.

### **AWC Site selection process - commentary**

The following notes have been produced to provide commentary on the contents of the accompanying **AWC Site Selection Timeline**, tracking the evolution in both offering (by DEW/SA Government) and response (by AWC) to the Kangaroo Island Wilderness Trail EOI and subsequent processes, up to the proposals that now sit before SCAP and NVC for their consideration.

Both the chart and the commentary below demonstrate an overall continual reduction in both scale and scope of the project as the relevant site investigations, consultations with Referral Agencies and consultant advice were contributed to each stage of the process.

## **a. PRE-DESIGN PHASE**

### **KIFA 2013**

#### **Kangaroo Island Futures Authority Kangaroo Island Walking Trail Feasibility Report 2013**

This study identified 4 key sites for development of KIWT public and commercial walker infrastructure, paving the way for camps, eco-retreats and standing camps to be developed along the trail. The *KIFA 2013* report identified two distinct opportunities and separate sites for the public walker offering by SA Parks, and a yet to be identified Commercial Tour Operator (CTO). The premise of the KIFA 2013 study was that the CTO campsites were to be located separately and discreetly away from the KIWT trail public facilities.

A desktop analysis of each of the sites identified in the *KIFA 2013* study estimates that up to **3.5km** of walking trail and **3km** of vehicle trails (combined total of **6.5km**) would be required to access the **4 sites** identified for the CTO's operations. (Refer to December 2013 in **Attachment 1 - AWC Site Selection Timeline** for details)

### **RFI 2015**

#### **Request For Information – Commercial Opportunities, Kangaroo Island Wilderness Trail**

AWC provided a profile for the company and expressed interest in becoming a commercial tour operator associated with the KIWT. No itinerary, sites or product specifics were requested or provided.

### **EOI 2017**

#### **Expression of Interest – Commercial Opportunities, Kangaroo Island Wilderness Trail**

SA Parks/DEW offered up **4** previously undeveloped locations (Snake Lagoon, Cape du Couedic, Sanderson Bay and Grassdale) plus the Cape du Couedic Cottages for potential node overnight development. Of this AWC chose only **3** locations, with the use of the Cape du Couedic Cottages as the second night's accommodation node.

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AWC noted in its submission that its sites would need to be located discreetly and at some distance from existing public infrastructure (as per its other successful walks) so that it would not adversely impact upon the experience of other trail users or public campers. In choosing to locate the sites discreetly and away from the general public visitor sites, with secret/hidden access trails, the AWC sites are then afforded an elevated level of site protection from incidental and damaging off-track visitation (by non-guests). This phenomenon is known to occur when sites are co-located within short walking distances. For example, in the case of one of our existing walks, the private Tasmanian Walking Company hut, co-located within eye-sight of the public hut on the Overland Track, has developed several desire-line tracks where non-guided visitors have come to site to have a look about.

## **RFDP 2016**

### **Request For Detailed Proposal – Commercial Opportunities, Kangaroo Island Wilderness Trail**

In producing the RFDP proposal, AWC conducted a site visit to Kangaroo Island with DEW and Parks representatives, and visited each of the overnight nodes developed by DEW as part of its KIWT experience. Following the site visit, AWC identified through a combination of on-the-ground searching and desktop study three potential site zones. Sandy Creek/Rocky River, Sanderson Bay and Grassdale were identified as potential locations for the camps, with Cape du Couedic cottages deemed suitable for use for accommodation for the second night.

*It should be noted that DEW had also carried out preliminary site investigations and a number of informally identified site options were presented to AWC as potential site zones, including the West Bay Road site (Sandy Creek region) approximately 1-1.5km away from the Snake Lagoon public campsite. This site was initially deemed unsuitable for locating the AWC Camp due to distance away from main KIWT trail and proximity to West Bay Road, but in essence gave the impression that DEW was in agreement that AWC could locate its camps a reasonable distance away from the main trail, as requested in AWC's EOI submission, and reiterated in the RFDP proposal and subsequent presentation.*

#### **AWC Proposed Building footprint**

AWC identified that it was interested in looking at permanent tented standing camp accommodation at only **3** camp nodes, with a mixture of hard and soft structures. At this time the overall building footprint was estimated to be at approx. **460m<sup>2</sup>** per site, (a total of **1380m<sup>2</sup>** for all three camp sites) including all accommodation and service buildings.

#### **Tracks and trails**

##### DEW sites:

Desktop estimates for the amount of new walking trail and vehicular access trail to service the sites identified by DEW totalled around **4.5km** of additional walking trail, and **3km** of vehicular access trail, for a total of up to **7.5km** combined tracks and trails.

##### AWC sites:

In contrast, desktop estimates for new vehicle tracks and walking trails to access each of the proposed AWC nodes was estimated to be a total of approximately **2.7km** of walking trails and **2.4km** of vehicle access tracks (**5.1km** total tracks and trails)

## **Business Case 2017**

### **Business Case feasibility study and Future Jobs Fund Application**

AWC developed their Business Case conducting a number of internal feasibility studies and research into different building procurement options, which saw a refinement and reduction in scope from the RFDP 2017 proposal reducing the building site footprints to **375m<sup>2</sup>** per site for an overall total of **1125m<sup>2</sup>** for all three camp sites.

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## Post-Business Case review 2018

Following additional internal revisions and review of the product itinerary, AWC further minimised the scope of its site impact by reducing the overall itinerary to a 4 day product. This reduction in itinerary scope led to a significant minimisation of the site impacts by:

1. reducing the number of accommodation sites from *three* to **two**
2. reducing site footprint from *1125m<sup>2</sup>* to **750m<sup>2</sup>**
3. reducing walking trails and vehicle tracks to **1.7km** and **2.4km** respectively, for a total of **4.1km** tracks and trails combined

## b. SITE INVESTIGATION PHASE

### First Detailed site investigation, Feb 2018

#### Referral Agency Site Visit I - Pre-lodgement visit I

This site visit was organised and facilitated by DEW to assist AWC in guiding its site selection process. A number of relevant referral agencies were contacted by DEW to attend, (Country Fire Service, Coast Protection Board, Native Vegetation Council, DEW/SA Parks, NRM-KI, Heritage SA) with DEW, the CFS and NRM KI providing representatives with expertise in fire, bushfire, native vegetation and Park management, for on-site investigations and to provide specialist comment.

The over-arching issue at this meeting was the tension between preservation of the existing landform, vegetation and site features against bushfire and land clearance requirements. AWC indicated to the CFS that it was imperative that land clearance around the campsites and specification of the vehicle access tracks be kept to an absolute minimum, and that it would be pursuing a Performance Solution under the National Construction Code to satisfy its statutory obligations.

During these visits AWC and the referral agencies visited a number of sites, including the Sanderson Bay Mallee Forest site initially identified by DEW. Overwhelming advice from the CFS, Parks and DEW bushfire and vegetation staff suggested that siting camps closer to the coast and in lower, less dense vegetation would provide the best balance for bushfire protection and minimising site and vegetation clearance. The agreed trade-off was that longer vehicle access and walking trails would be required to access these sites, although there were possible solutions for minimising the scale and scope of the roadworks

Three potential site zones for the Sandy Creek/Rocky River area, and four potential site zones for Sanderson Bay were identified for further detailed analysis, refer to **Attachment 3 – Part I - AWC Site Selection Plans** for details. To access these sites ranges of an estimated **1.7km to 3.7km** of new walking trail and between **1.5km and 3km** of vehicle trail (for total of **3.2 – 6.7km** site tracks and trails) were implied.

### AWC Site Selection Process, March 2018

Map diagrams showing the key sites identified at each location are contained within **Attachment 3 – Part I - AWC Site Selection Plans**

Following the February site visit AWC conducted a high level comparative site appraisal of each of the 3 Sandy Creek/Rocky River sites and the 4 Sanderson Bay site nodes. A range of quantitative (environmental and statutory compliance) and qualitative (experiential) criteria, developed by AWC, were used to inform the initial site selection process and to critically evaluate each of the sites:

#### Qualitative Factors

Guest-experience factors: views, privacy, guest comfort (noise/wind/amenity), flexibility of use, special site qualities

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## **Quantitative Factors**

*Compliance factors:* site sensitivity, vegetation clearance, vegetation type, bushfire risk level, flame spread level, Coastal protection zoning, social and environmental impact, access/escape-fire

*Cost factors:* access, climate, suitability for lightweight construction, topographic/environmental costs, cost-risk

Each site was assessed and evaluated with suitability weightings and key risks identified. Note that at this stage no external advisers or experts had been engaged to conduct detailed work.

Based off discussions with the attending referral agencies and AWC staff, the two sites chosen as best fit were SITE A at Sandy Creek and SITE B at Sanderson Bay. Key factors influencing the decision for choosing SITE A at Sandy Creek was the balance between minimal vegetation clearance and satisfying CFS concerns, coupled with the high experiential qualities. At this time SITE B at Sanderson Bay was chosen as a potential site via desktop survey, as sites A and C were determined to be too exposed to the public walking trail and/or required crossing the trail. SITE B was nominated as preferred site with the qualifier that it would require further investigation and comment from referral agencies to prove its suitability.

Lengths for the required walking trails and vehicle tracks to service these sites were estimated to be **3.2km** for walking trails and **3km** for vehicle tracks, or **6.2km** combined length.

## **Second Detailed site investigation, June 2018**

### **Referral Agency Site Visit 2 - Pre-lodgement visit 2**

In June 2018 AWC conducted another site evaluation field trip with CFS, Coast Protection Board, SA Heritage, DEW and SA Parks representatives in attendance. SITE A at Sandy Creek was supported by all attendees as the best compromise between CFS and native vegetation clearance concerns, with Coast Protection Board providing advice for siting off the ridgeline and for mitigating visual impact of the proposed structures. SITE B at Sanderson Bay was visited and deemed unsuitable by CFS, DEW and Parks staff due to the level of site and road clearance that would be required to satisfy bushfire concerns. Other sites were visited, with the SITE C area visited and SITE A zone also given some consideration.

Following this meeting a site choice for Sanderson Bay was left as unresolved until further site visits could be actioned and external experts engaged, as all sites showed complexities.

## **Architect engagement – Detailed site investigation**

Further site investigation at SITE A Sandy Creek, saw a site below the headland ridge being selected to provide a good balance between reducing visual impact on beach users, and to provide additional shelter and protection from prevailing weather in an existing dune swale.

Following review of site options at Sanderson Bay, SITE C was chosen as the preferred site as it provided a balance between minimal site clearance, the opportunity to have access to great views and enhanced visitor experience, and also to minimise the extent of walking trail and vehicle access tracks to access the site.

Site C was initially discounted due to the vehicle access trail crossing the main KIWT trail, however it was deemed that this site would provide the shorter vehicle access trail that could be cleverly concealed and screened with branches so as to minimise impact on public users of the existing walking trail (as per existing walks in Tasmania). The complex site topography and patchy vegetation coverage of SITE C was also seen to be advantageous in that there were suitable open spaces to accommodate buildings in a way that concealed them within the overall site area, thus minimising vegetation clearance and visual impact.

It is also notable that AWC's SITE C is the same site identified in the earlier *KIFA 2013* feasibility study as a suitable location for siting the commercial tour operators standing camp at Sanderson Bay.

At this stage tracks and trails estimates had *increased* to a combined total of **7.74km** from previous estimates with the addition of **2.14km** of walking trail at Cape du Couedic.

Building footprints for each site were developed at around **360m<sup>2</sup>** for Sandy Creek, and **420m<sup>2</sup>** for Sanderson Bay, for combined total of **780m<sup>2</sup>** across both sites.

### **Specialist Consultants Engaged, and Pre-lodgement discussions, Aug-Oct 2018**

During August 2018, AWC engaged a suite of specialist consultants (in disciplines of planning, bushfire and natural values) to work together with Troppo Architects in researching and developing the appropriate site choices and design responses. AWC's consultant team liaised directly with representatives from each nominated Referral Agency to work collaboratively through the various site issues identified during the pre-lodgement site visits for the final preparation of the Development Applications.

With the tension between bushfire requirements and degree of required vegetation clearance being the biggest issue, AWC, Troppo and SA Bushfire Solutions worked collaboratively to devise an innovative Performance-based Solution that would allow minimal clearance around only one building (Refuge Pod) at each site rather than clearing around all site infrastructure, as per standard statutory bushfire codes.

Building on the site selection work already carried out by AWC, Troppo commenced a detailed site investigation to consider further site options for each location.

Troppo's detailed site investigation and siting strategy is described in the diagrams contained at **Attachment 3 – Part 2 – Troppo site selection diagrams** and in the following paragraphs:

#### **TROPPO CAMPSITE LOCATION SELECTION**

Alternative sites at both Sanderson Bay and Sandy Creek were considered, including some requiring shorter access tracks.

The drawings detail positives and negatives for all sites. Alternative sites were primarily discarded for reasons of:

- Excessive vegetation clearance
- Lack of compelling outlooks from campsites
- Lack of shelter against weather
- Adequate space to group site components cohesively within the topographical setting
- Excessive benching (site cut and fill) requirements
- Issues of erosion control
- Visibility from KIWT and other areas of public visitation

#### **VEHICLE ACCESS TRACK DESIGN AND ROUTE SELECTION**

The proposed light vehicle access tracks have been carefully sited to utilise existing animal trails and their width kept to 3.15 m, the bare minimum to provide for construction access by ATV quad bike or narrow track tractors towing purpose-built narrow trailers. Tracks will be stabilised by laying down mulched vegetation without the need for compacting imported fill. Trafficked width will be approximately 1.95 m and allowance made for 0.6 m on each side for drainage control. After construction these tracks will be maintained for service provision including food delivery, waste disposal and maintenance. They follow natural contours to minimise erosion.

At Sandy Creek, the route was also selected with a view to minimising impacts on other trail users, and to provide discreet servicing by vehicle without crossing the main trail. Vehicle access was considered to provide better operational access and less general disturbance than using helicopters, without vehicle track. The selected approach will have no impact on public amenity.

At Sanderson Bay, the route initially utilises a disused construction track (pictured below). This track then angles to discreetly cross the walking trail with minimum visual disturbance. Beyond that crossing, the route is again sited to avoid visibility from the walking trail.

#### WALKING TRACK ROUTE SELECTION

Proposed new walking trails have been carefully sited to generally use existing animal trails and their width kept to 0.6 m, the bare minimum to provide for single file walkers. Drones were used to help determine the path requiring the least clearance.

### Development Applications submitted to SCAP Nov 2018

AWC submitted 3 separate Development Applications to the SCAP in November 2018.

Total building footprint for Sandy Creek = **359m<sup>2</sup>**, and Sanderson Bay = **423.8m<sup>2</sup>**, with combined total of **783.5m<sup>2</sup>** across both sites.

At this stage tracks and trails estimates were *increased* again to a combined total of **10.68km** from previous lengths to provide a degree of flexibility in the tracks and trails scope. The main increase was in the walking trails component which had increased to **7.52km**, to provide different options should any of the trails be found to be unviable during future ground-truthing processes.

### DA Referral Responses, Jan-Apr 2019

The Native Vegetation Clearance Application was submitted on 5 March 2019, with Fauna Survey as prepared by EBS Ecology tendered to Native Vegetation Council on 12 April 2019.

The results of the fauna survey demonstrated that sites located closer to the coast provided a lower quality habitat for threatened fauna species than habitat located further away from the coast. Given that a high level of vegetation clearance would be required to site buildings further back from the coast, (and in better quality habitat) provides a level of support to the sites being located closer to the coast. AWC acknowledges that the extent of tracks and trails required to access these sites however does pose some potential issues with habitat fragmentation, which it has addressed through further scope reductions in both vegetation clearance and track and trail scope. The fauna survey also provided further recommendations for reducing scope and scale of walking trails, which AWC is currently considering.

AWC, Troppo and consultant team continued to work together with all Referral Agencies to further refine and reduce the scale and scope of trails and level of native vegetation clearance across each of the sites.

#### **Tracks and trails**

Removing the **2.14km** of walking trail at Cape du Couedic and by reducing the walking trail at Sandy Creek from **4.3km** to **2.05km** of trail provided a significant reduction in walking trail scope to a total of **3.08km** of walking trail across both sites. Overall combined tracks and trails were thus reduced from **10.68km** to **6.35km**.

#### **Native Vegetation Clearance**

Total native vegetation clearance across all sites was reduced to **1.7151 hectares** (down from the original **1.8621 ha** for Sandy Creek and Sanderson Bay combined, or **1.9821 ha** across all three sites).



**Attachment 1**

**AWC KILW Site Selection Timeline chart**

TIMELINE	2013	2015		2017	
	DECEMBER	OCTOBER	NOVEMBER	MARCH	
PHASE	a. PRE-DESIGN				
SUB-PHASE	Government Feasibility	Government Tender - EOI part 1		Government Tender - EOI part 2	
KEY REPORTS/ MILESTONES	Kangaroo Island Futures Authority Report	Request For Information - Commercial Opportunities on KIWT		Invitation for Expression of Interest (EOI) Government of South Australia - Open tender	
	KIFA Recommendations	DEW/Parks offer	AWC Response	DEW/Parks offer	AWC response
Itinerary	5 days/ 4 nights	open invitation	no specific itinerary	5 days/4 nights	5 days/4 nights
KI Wilderness Trail usage	full trail <b>67km</b>	full trail <b>67 km</b> + extension if desired	no length specified	full trail <b>67 km</b>	full trail <b>67 km</b>
No. of sites		none specified	none specified	<b>4</b> + Cape du Couedic cottages	<b>3</b> + Cape du Couedic cottages
Type/style of new accommodation	-	-	-	-	Permanent tents
Individual Site footprint (area m2)	-	-	-	-	-
TOTAL All Sites footprint (area m2)	-	-	-	-	-
Commercial Tour Operator Campsite locations by Overnight Node:		none specified	none specified	none specified	none identified
Node 1 Snake Lagoon/ Rocky River	Rocky River site	-	-	-	-
Node 2 Cape du Couedic	Maupertuis Bay - Clifftop Eco-retreat site	-	-	-	CDC cottages
Node 3 Sanderson Bay	Dune site (same as AWC SITE C choice June 2018)	-	-	-	-
Node 4 Grassdale	Grassdale Plains site	-	-	-	-
Additional tracks and trails required		none specified	none specified	none specified	n/a
Node 1 Snake Lagoon/ Rocky River					
walking trail	up to <b>500m</b>	-	-	-	-
vehicle track	up to <b>1 km QR helicopter</b>	-	-	-	-
Node 2 Cape du Couedic					
walking trail	up to <b>1 km</b> (assuming KIFA site)	-	-	-	-
vehicle track	up to <b>1 km QR helicopter</b>	-	-	-	-
Node 3 Sanderson Bay					
walking trail	up to <b>500m</b>	-	-	-	-
vehicle track	up to <b>500 m QR helicopter</b>	-	-	-	-
Node 4 Grassdale					
walking trail	up to <b>1.5km</b>	-	-	-	-
vehicle track	up to <b>500m QR helicopter</b>	-	-	-	-
<b>TOTAL additional walking trail</b>	<b>3.5 km</b>	-	-	-	-
<b>TOTAL additional vehicle trail</b>	<b>3 km</b>	-	-	-	-
<b>TOTAL walking + vehicle trail</b>	<b>6.5km</b>	-	-	-	-
Native Vegetation Clearance					
Node 1 Sandy Creek	-	-	-	-	-
Node 2 Cape du Couedic	-	-	-	-	-
Node 3 Sanderson Bay	-	-	-	-	-
<b>TOTAL NATIVE VEG CLEARANCE</b>	-	-	-	-	-
Site Selection type + advice					

2017 (continued)				2018	
JUNE	SEPTEMBER	DECEMBER	FEBRUARY	MARCH	
<b>Government Tender - EOI part 3</b>			<b>B. SITE INVESTIGATION PHASE</b>		
<b>Request for Detailed Proposal (RFDP)</b>		<b>AWC Feasibility Study</b>	<b>AWC Feasibility Study</b>	<b>AWC Site Investigation - Part 1</b>	<b>AWC Site Investigation - Part 2</b>
Government of South Australia - selected tender		<b>Business Case</b> + Future Jobs Fund submission	<b>Post-Business Case Review</b> Internal AWC Review	<b>First Detailed site investigation</b> AWC and Referral Agencies	<b>AWC Site Selection process</b> Internal AWC Review
DEW/Parks offer	AWC response	AWC response	AWC response	AWC response	AWC response
5 days/4 nights	5 days/4 nights	5 days/4 nights	4 days/3 nights	as per previous	as per previous
full trail <b>67 km</b>	full trail <b>67 km</b>	part trail <b>67 km</b>	part trail <b>51 km</b>	as per previous	"
<b>4</b>	<b>3</b>	<b>3</b>	<b>2</b>	as per previous	"
+ Cape du Couedic cottages	+ Cape du Couedic cottages	+ Cape du Couedic cottages	+ Cape du Couedic cottages		
-	Permanent tents and hard structures	Permanent tents + hard structures	Permanent tents + hard structures	Hard structures	Hard structures
-	460 m2 per site	375 m2 per site	375 m2 per site	as per previous	as per previous
-	1380 m2 all sites	1125 m2 all sites	750 m2 all sites	as per previous	"
<b>3 sites</b> informally suggested (visited by DEW + AWC):  West Bay Road area CDC cottages as per AWC EOI  Sanderson Bay east of Fire Trail in mallee forest  Grassdale plain	<b>3 site zones</b> identified (during site visit):  Sandy Creek/Rocky River site - Zone only CDC cottages as per AWC EOI  Sanderson Bay - Zone only - east of Fire Trail  Grassdale Sugar Gum area - Zone only	<b>3 site zones</b>  as per RFDP " " "	<b>2 site zones</b> (reduced from 3, omitting Grassdale site)  as per RFDP  CDC cottages as per RFDP  -1 (deleted)	<b>2 site zones</b>  <b>3 potential Site zones</b> identified: A, B and C  CDC cottages  <b>4 potential Site zones</b> identified: A, B, C and D  n/a	<b>2 sites</b>  <b>SITE A</b> selected as preferred site  CDC cottages  <b>SITE B</b> selected as preferred site  n/a
<b>Estimate:</b>  up to <b>1.5km</b> up to <b>1 km</b>  up to <b>1 km</b> (assuming KIFA site) up to <b>1 km</b> (assuming KIFA site)  up to <b>500m</b> up to <b>500m</b>  up to <b>1.5km</b> up to <b>500m</b>	<b>Estimate:</b>  up to <b>1 km</b> up to <b>1 km</b>  <b>200m</b> n/a  up to <b>500m</b> up to <b>1 km</b>  up to <b>1 km</b> up to <b>400m</b>	<b>Estimate:</b>  up to <b>1 km</b> up to <b>1 km</b>  <b>200m</b> n/a  up to <b>500m</b> up to <b>1 km</b>  up to <b>1 km</b> up to <b>400m</b>	<b>Estimate:</b>  as per previous "  <b>200m</b> n/a  as per previous "  deleted deleted	<b>Estimate:</b>  <b>1 - 2.5 km</b> <b>1 - 2 km</b>  <b>200m</b> n/a  <b>500m - 1 km</b> <b>500m - 1 km</b>  n/a n/a n/a	<b>Estimate:</b>  <b>SITE A</b> up to <b>2km</b> up to <b>2km</b>  <b>200m</b> n/a  <b>SITE B</b> up to <b>1 km</b> up to <b>1 km</b>  n/a n/a n/a
<b>4.5 km</b> <b>3 km</b> <b>7.5km</b>	<b>2.7 km</b> <b>2.4 km</b> <b>5.1 km</b>	<b>2.7 km</b> <b>2.4 km</b> <b>5.1 km</b>	<b>1.7 km</b> <b>2.4 km</b> <b>4.1 km</b>	<b>1.7 km - 3.7 km</b> <b>1.5 km - 3 km</b> <b>3.2 km - 6.7 km range</b>	<b>3.2 km</b> <b>3 km</b> <b>6.2 km</b>
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
<b>Desktop</b> estimates only	<b>Desktop and site visit</b> 1. Desktop site selection 2. KIWT trail site visit 3. Advice from Parks SA FCNP Management staff 4. No advice from Referral Agencies	as per previous	as per previous	<b>First Referral Agency Site Visit</b> 1. Site visit - AWC Board + Project Team with Parks SA FCNP Management staff 2. First Referral Agency Advice & Site visit <i>Present:</i> - DEW (Parks) - Country Fire Service - NRM KI (Native Veg - declined invitation) (Heritage SA - unavailable) (Coast Protection Board - unavailable)	<b>Site Appraisal Report April 2018 v1.1</b> <b>SITE A</b> chosen to address CFS and to address site clearance scope

2018 (continued)				
JUNE	JULY	AUG-OCT	AUG - OCT	NOVEMBER
<b>c. DESIGN PHASE</b>				
<i>AWC Site Investigation - Part 3</i>	<i>AWC Design Commencement</i>	<i>Design - Consultant Advice</i>	<i>Design - Agency Advice</i>	<i>Approvals Phase 1 - SCAP</i>
<b>Second Detailed site investigation</b> AWC and Referral Agencies	<b>Architect Engagement - Troppo</b> Troppo First site visit (17+18th July)	<b>Specialist Consultants engaged</b>	<b>Pre-lodgement discussions</b> Design + preparation of DA submissions	<b>Development Applications submitted</b>
<i>AWC response</i>	<i>AWC response</i>	<i>AWC response</i>	<i>AWC response</i>	<i>AWC DA submissions</i>
as per previous	as per previous	as per previous	as per previous	4 days/ 3 nights
"	"	"	"	part trail <b>5.1 km</b>
"	"	"	"	2 sites (Camps) + <b>Cape du Couedic Cottages</b>
<b>Hard structures</b>	<b>Hard Tents + Longhouse</b>	as per previous	as per previous	Hard structures and Longhouse
as per previous	<b>359 m2 - Sandy Creek</b>	as per previous	as per previous	<b>359 m2 SITE A</b>
"	<b>423.8 m2 - Sanderson Bay</b>	"	"	<b>423.8 m2 SITE C</b>
"	<b>783.5 m2 TOTAL</b>	"	"	<b>783.5 m2</b>
<b>2 sites - one unresolved</b>	<b>2 sites</b>	<b>2 sites</b>	<b>2 sites</b>	<b>2 sites</b>
<b>SITE A</b> (preferred site for minimising building zone veg clearance and CFS clearances)	<b>SITE A</b>	<b>SITE A</b>	<b>SITE A</b>	<b>SITE A</b>
<b>CDC cottages</b>	<b>CDC</b>	<b>CDC</b>	<b>CDC</b>	<b>CDC</b>
<b>Unresolved</b> (SITE B deemed unsuitable due to CFS concerns and required clearances)	<b>SITE C</b> revisited as preferred site	<b>SITE C</b> selected as preferred site	<b>SITE C</b>	<b>SITE C</b>
n/a	n/a	n/a	n/a	n/a
<b>SITE A</b>	<u>Estimate:</u> <b>SITE A</b>	<u>Estimate:</u> <b>SITE A</b> - Ridge site	<u>Calculated distance:</u> <b>SITE A</b> - Lower dune site chosen	<u>Calculated distance:</u> <b>SITE A</b>
as per previous	as per previous	as per previous	<b>4.3km</b>	<b>4.3km</b>
"	"	"	<b>2.49km</b>	<b>2.49km</b>
<b>CDC</b>	<b>CDC</b>	<b>CDC</b>	<b>CDC</b>	<b>CAPE du COUEDIC</b>
as per previous	<b>2.14km</b>	as per previous	<b>2.14 km</b>	<b>2.14km</b>
n/a	n/a	n/a	n/a	use existing road only
<b>SITE B</b>	<b>SITE C</b>	<b>SITE C</b>	<b>SITE C</b>	<b>SITE C</b>
site deemed unsuitable - CFS + Veg	up to <b>1 km</b>	as per previous	<b>1.08km</b>	<b>1.08km</b>
site deemed unsuitable - CFS + Veg	up to <b>600 m</b>	"	<b>671m</b>	<b>671m</b>
n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a
<b>unresolved</b>	<b>5.14 km</b>	<b>5.14 km</b>	<b>7.52 km</b>	<b>7.52 km</b>
<b>unresolved</b>	<b>2.6 km</b>	<b>2.6 km</b>	<b>3.16 km</b>	<b>3.16 km</b>
<b>unresolved</b>	<b>7.74 km</b>	<b>7.74 km</b>	<b>10.68 km</b>	<b>10.68 km</b>
-	-	-	-	<b>1.3325 ha</b>
-	-	-	-	<b>0.12ha</b> (deleted prior to NVC App.)
-	-	-	-	<b>0.5296 ha</b>
-	-	-	-	<b>1.8621 ha (1.9821 ha with CDC trail)</b>
<b>Second Referral Agency Site Visit</b>	1. Multiple site visits 2. Referral Agency engagement		<b>Site A - Sandy Creek</b> - Lower Dune site at Sandy Creek chosen after consultation with CPB and CFS re: visibility and vegetation clearance	
<u>Present:</u> - DEW (Parks) - Country Fire Service - Coast Protection Board  - NRM KI - Heritage SA (Native Veg - declined invitation)	- DEW (Parks) - Country Fire Service - Coast Protection Board  - Heritage SA		<b>Site C - Sanderson Bay</b> - Sanderson Bay Flora report	

2019
JANUARY - APRIL
Approvals Phase 2 - NVC + SCAP
DA Referral Agency Responses
AWC response
as per previous
"
"
"
as per previous
"
"
as per previous
"
"
"
n/a
Revised distance:
<b>SITE A</b>
2.05km
2.49km
<b>CAPE du COUEDIC</b>
use existing SWER trail
use existing road only
<b>SITE C</b>
1.08km
671m
n/a
n/a
n/a
3.08 km
3.16km
6.35 km
1.1855 ha
deleted
0.5296 ha
1.7151 ha
<b>DA revisions</b>
CFS - reduced site clearance through increased BAL and Emergency Mngmt Strategy
NVC - tracks and trails reduced

**Attachment 2**

**Troppo Construction and materiality notes**

## **Notes on Construction Approach and Materiality** provided by Troppo Architects

### **Construction methodology**

The Staging Post will be constructed first to create the construction base (with existing road access). Supplies, building materials and trade vehicles/ personnel will be mustered here and be confined to this area.

The access tracks, boardwalks and site paths are then built second to enable construction of the standing camps. The service point acts as an on-site holding point. Trafficability around the sites will be restricted to the paths, boardwalks, built first, so to minimise potential site degradation during the construction process. Site impacts will be managed during construction to ensure minimal revegetation and disturbance is achieved, commencing with site inductions.

An overall approach is to minimise site construction time through a mix of flatpack and portables construction, with portables being employed for wet area/ high fitout components. This will also remove the common construction impacts that are seen on a traditional build

These elements and bulk materials will be transported to each Staging Posts base. From here all building elements (and personnel) will be transferred to site using ATV's, purpose-built trailers and narrow wheel base vehicles to transport each element to site.

For instance, at Sanderson Bay the sleeping pods are designed to be placed on ramped boardwalk frames. Vegetation (and revegetation) will be allowed to grow right up to and under each building. By utilizing the platform and the elevated boardwalks, the units and flatpacks can be systemically winched and railed over the dunes to their final locations thereby reducing any interference with the dune system. This will result in no vehicles being brought past the service point further reducing site disturbance.

The same methodology will be employed at Sandy creek, where by the units will be brought along the access trails and then railed over the existing vegetation to their paired locations.

It is proposed to use a concrete-free footing system (eg. the proprietary 'Surefoot', 'Mega anchor' or similar) across all sites. These footing types generally comprise of a metal plate, with holes of varying size and number, bedded into the ground surface. Small diameter stainless steel rods of various lengths are then driven through the holes using a handheld jackhammer. The rods are typically splayed at different angles to provide a firm base and some resistance to lateral forces. The footings are quickly and easily installed, and they may be readily removed in the future, with no excavation or ground works of the dune system needed.

This system is proposed over the traditional concrete footing system due to our imposed access limitations to construction machinery and materials, and the high eco-sensitivity of the project. And reduce site time.

### **Materiality**

The pods are proposed to be built with structural steel portal frame (finished marine paint system), inserted into these frames will be light weight Australian hardwood and galvanised steel stud infill panels. Aluminium framing alternatives are being investigated

The pods are built with hard-wearing, highly durable materials. Cement sheet cladding, nil finish hardwood weatherboard, Li-ten weathered steel cladding and Colorbond Ultra roofing have been chosen for their environmental fit – and overall low-embodied-energy. The pods are built robustly, of 'real' materials and are designed to age gracefully with no/minimal maintenance over 45 years.

No applied or painted finishes are to be used other than protective coatings to structural steel, with only natural oils used on timber finishes. This low-toxic approach has been adopted so as to prevent any paint or degradable finishes contaminating the site as they age over time.

Any necessary maintenance will closely follow the initially construction methodology with resources brought to the Staging Post, then transferring to the camp's suite of ATVs. Maintenance contractors will then utilise the existing boardwalks and paths to access in and around buildings.

All camp elements can be fully deconstructed and removed on the conclusion of the lease period.

In construction, performance and maintenance actions, camp construction conforms with the best practice ESD (Ecologically Sustainable Design) principles.

**Attachment 3**

**Drawings:**

- 1. AWC Site Selection plans April 2018**
- 2. Troppo Site selection diagrams**
- 3. Trail areas at May 2018**

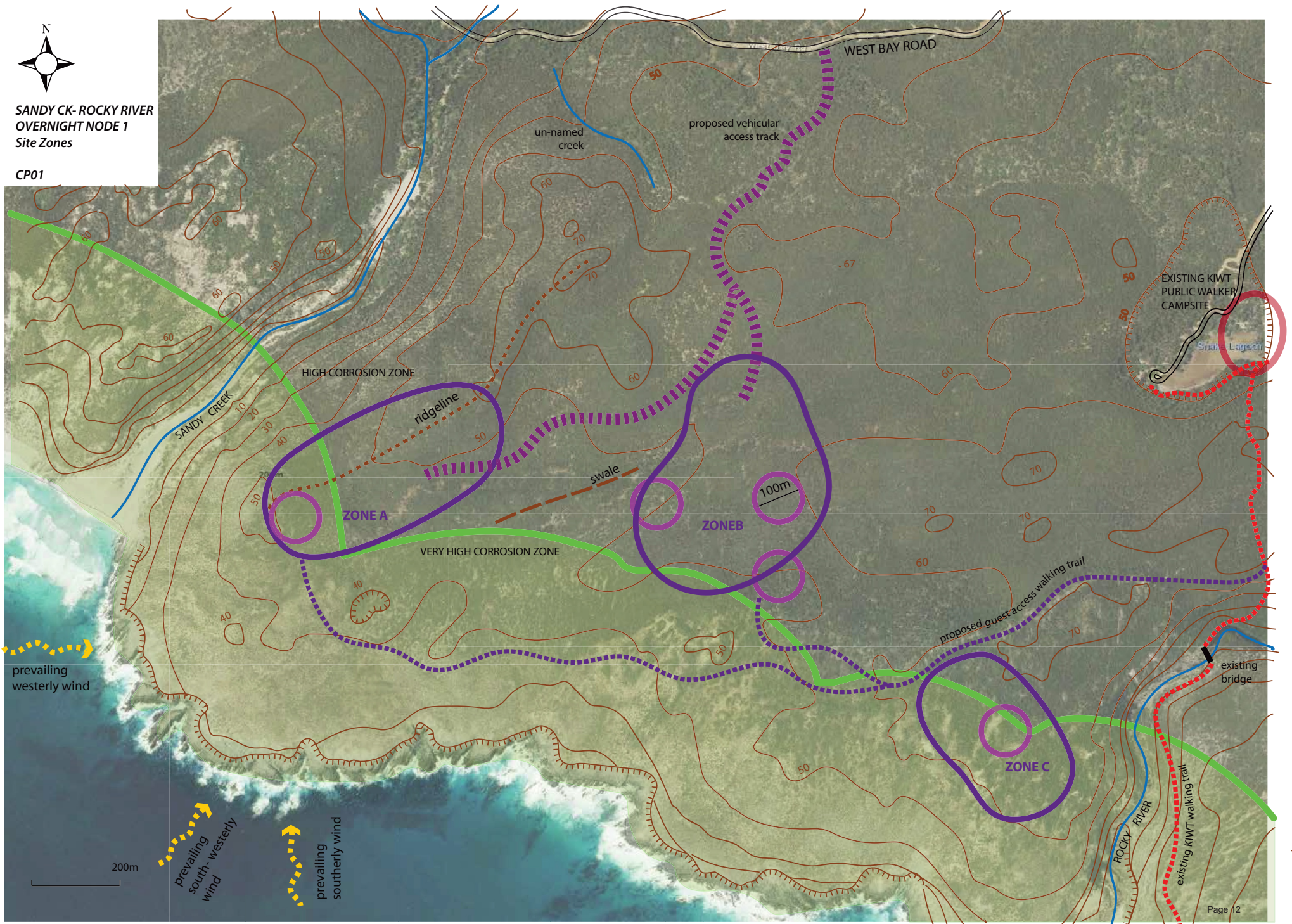


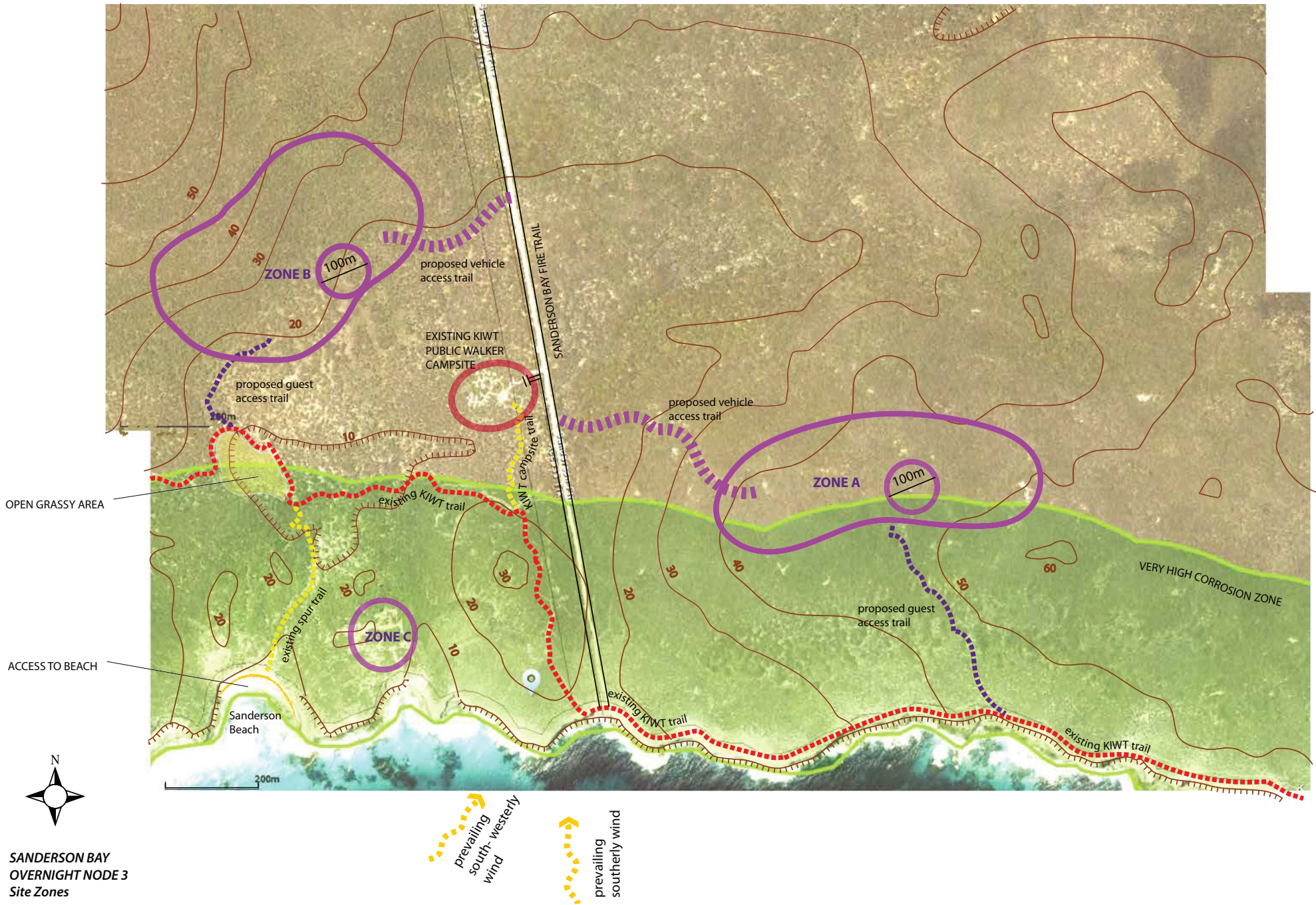
**Part 1 – AWC Site Selection Plans April 2018**



**SANDY CK- ROCKY RIVER  
OVERNIGHT NODE 1  
Site Zones**

CP01





SANDERSON BAY  
OVERNIGHT NODE 3  
Site Zones

**Part 2 – Troppo Site Selection diagrams**

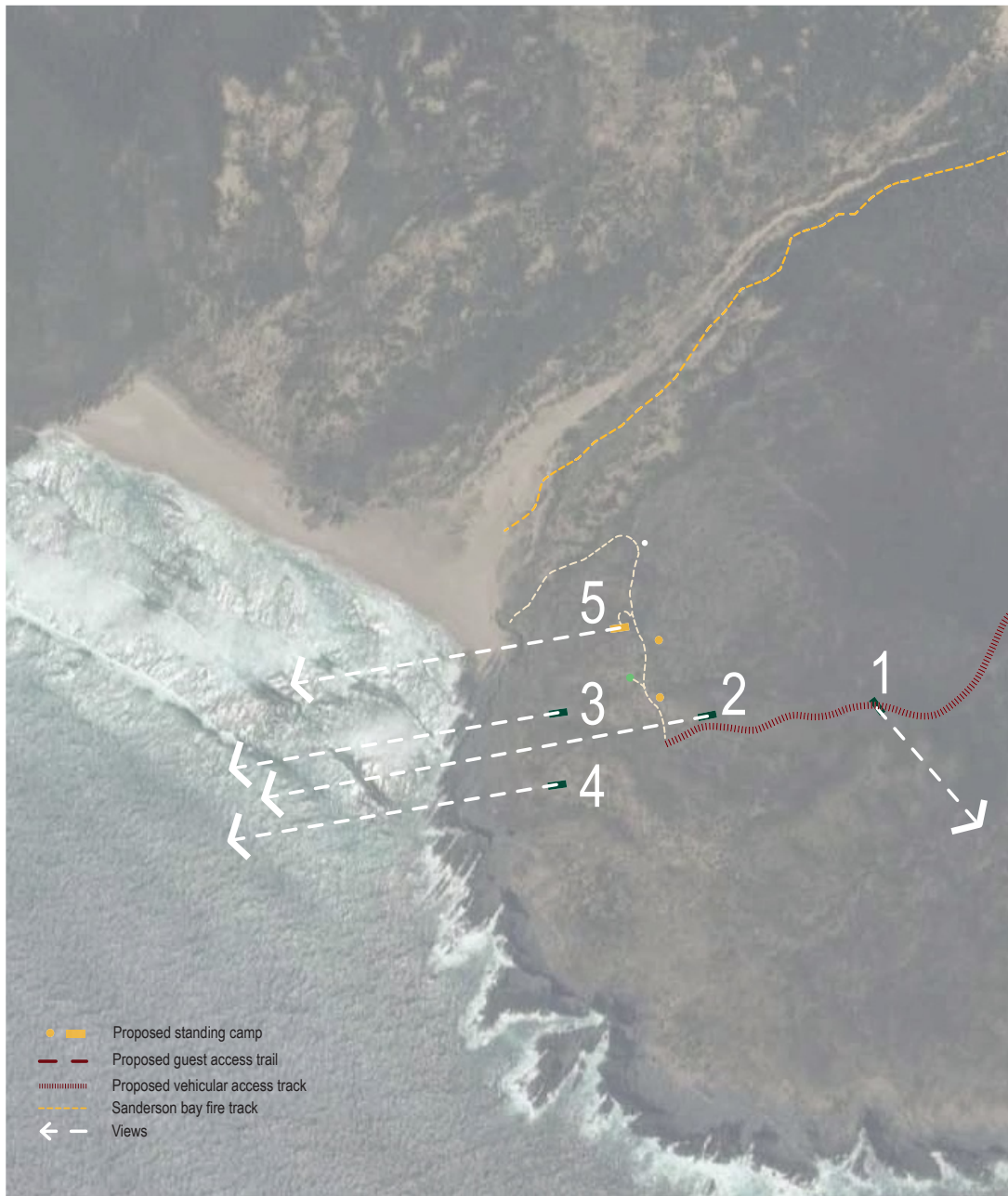


**KANGAROO ISLAND WALK SANDY CREEK**  
**SITE PLAN: SITE SELECTION MACRO**

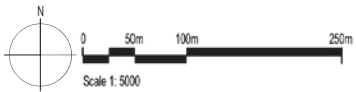
15 FEB 2019



tropo



- Proposed standing camp
- - - Proposed guest access trail
- . . . . . Proposed vehicular access track
- - - Sanderson bay fire track
- ← Views



### ALTERNATIVE CONSIDERED SITES

- 1.**
- X Distant coastal views, southward (not to Sandy Creek bay), and inland bush views
  - X Comparatively non-descript site character
  - ✓ Most sheltered
  - ✓ Some exposure to prevailing south-west winds, but also summer south-easter
  - Adequate space
  - X Falling site requiring benching for all site elements
  - Sleeping pod sites would nestle to bushland, requiring some clearance
  - X Bushfire concerns: adjoins denser shrubland landscape, higher fuel load environment
  - X Very distant beach access
  - ✓ No visibility to trail/ Sandy Creek track/ estuary
  - Extended track access, generally low vegetation clearance levels
  - Extended trail access, but generally at contour level, generally low vegetation clearance levels

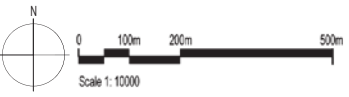
- 2.**
- ✓ Good coastal views westward (Sandy Creek Bay)
  - ✓ Reasonably well sheltered site (in shallow valley)
  - Most exposure to prevailing south-west winds, but also summer south-easter
  - Reasonably level site for longhouse, but with some benching required
  - X Sleeping pods would require to be located over a dune ridge to an adjoining site – dislocating site planning and requiring a boardwalk
  - ✓ Potentially minimal vegetation clearance
  - X Only extended beach access
  - No visibility to trail/ Sandy Creek track/ estuary
  - Extended track access, generally at contour level, generally low vegetation clearance levels
  - Extended trail access, generally low vegetation clearance levels

- 3 & 4.**
- ✓ Good coastal views westward (Sandy Creek Bay)
  - ✓ Reasonably well sheltered site (in shallow valley)
  - Most exposure to prevailing south-west winds, but also summer sou'-easter
  - ✓ Reasonably level site for longhouse, but with some benching required
  - ✓ Adequate space 'up valley' for sleeping pods clustered together, with minimal benching
  - ✓ Potentially minimal vegetation clearance
  - X Sandy topography throughout, requiring board walks, including at trail entry
  - X Only extended beach access
  - No visibility to trail/ Sandy Creek track/ estuary
  - Extended track access, generally at contour level, generally low vegetation clearance levels
  - X Extended trail access, with difficult over dune connection at the end, but generally at contour level, generally low vegetation clearance levels

### PROPOSED SITE (5)

- ✓ Notably the best coastal views westward (Sandy Creek Bay)
- ✓ Reasonably well sheltered site (between dune ridges, in shallow valley)
- Most exposure to prevailing south-west winds, protected from summer sou'-easter
- ✓ Level site for longhouse, with minimal benching required
- ✓ Adequate space 'down valley' for sleeping pods linked together, with minor benching into mostly stony ground
- ✓ Least vegetation clearance
- ✓ Mixed stone/ sand topography throughout, enabling paths generally, rather than boardwalks
- ✓ Natural, contiguous, but shielded-from-view, beach connection – will require erosion control boardwalk
- ✓ No visibility to trail/ Sandy Creek track/ estuary
- Extended track access, generally at contour level, generally low vegetation clearance levels
- Extended trail access, but on solid ground at end, generally low vegetation clearance levels





**STAGING POST**

- Constructed first
- Base for construction
- No transport/ road vehicle past here
- Transfer point to narrow wheelbase construction vehicles + trailers
- Construction elements + pods holding yard

Service Track doubles as construction track

**SERVICE POINT + REFUGE SITES:**

- Site holding yards
- Site base camps

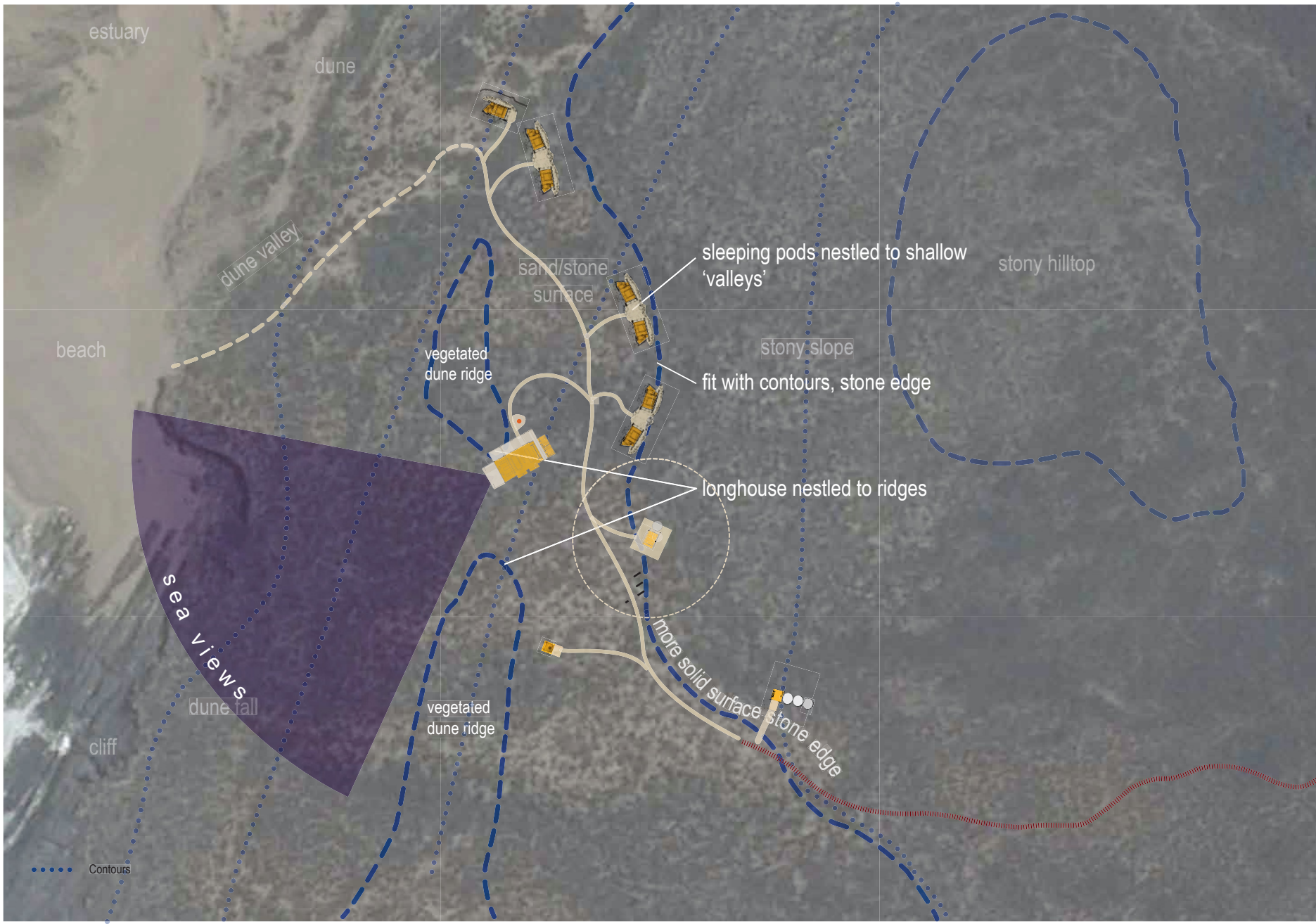
- Staging post
- - - Proposed standing camp
- - - Proposed guest access trail
- - - Proposed vehicular access track
- - - Sanderson bay fire track
- Kangaroo Island Wilderness Trail

**KANGAROO ISLAND WALK SANDY CREEK**  
**SITE PLAN: CONSTRUCTION MACRO**

13 FEB 2019 (Rev. 2)

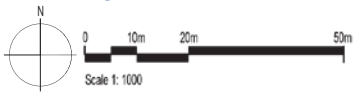


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**KANGAROO ISLAND WALK SANDY CREEK**  
**TOPOGRAPHY: SITING PARAMETERS**

15 FEB 2019 (Rev. 2)

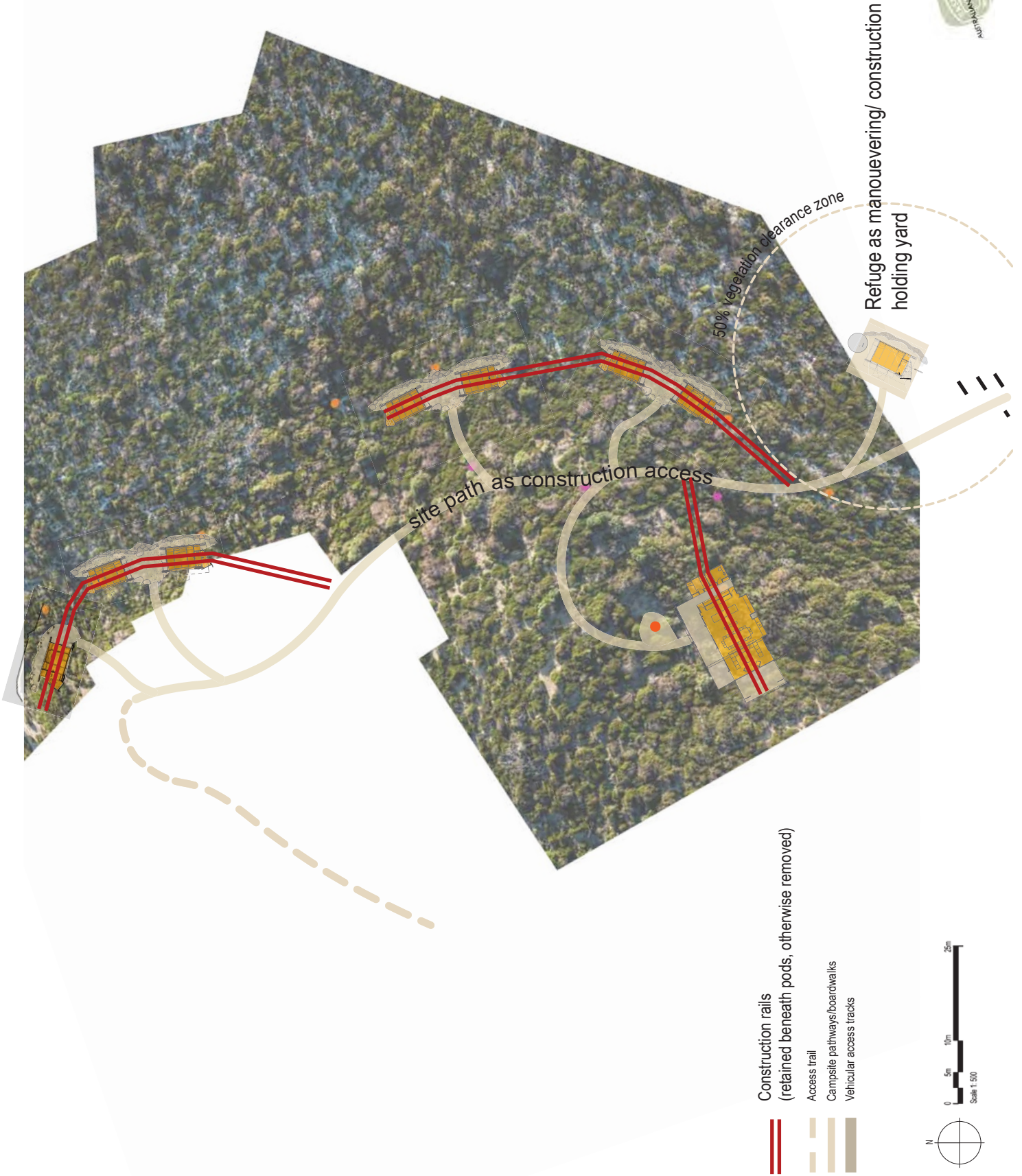


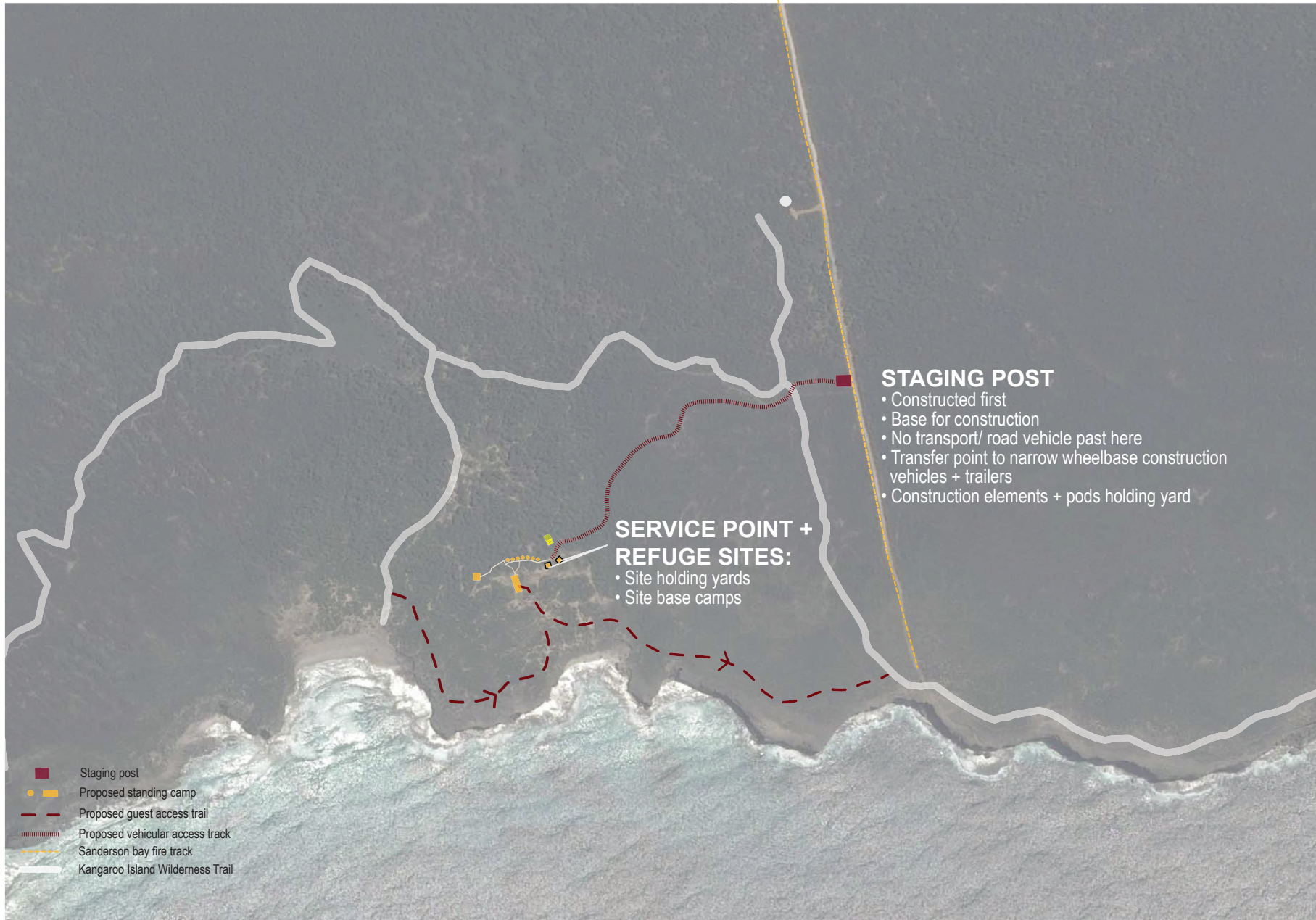


# KANGAROO ISLAND WALK SANDY CREEK SITE PLAN: CONSTRUCTION MICRO

13 FEB 2019 (Rev. 2)

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**STAGING POST**

- Constructed first
- Base for construction
- No transport/ road vehicle past here
- Transfer point to narrow wheelbase construction vehicles + trailers
- Construction elements + pods holding yard

**SERVICE POINT + REFUGE SITES:**

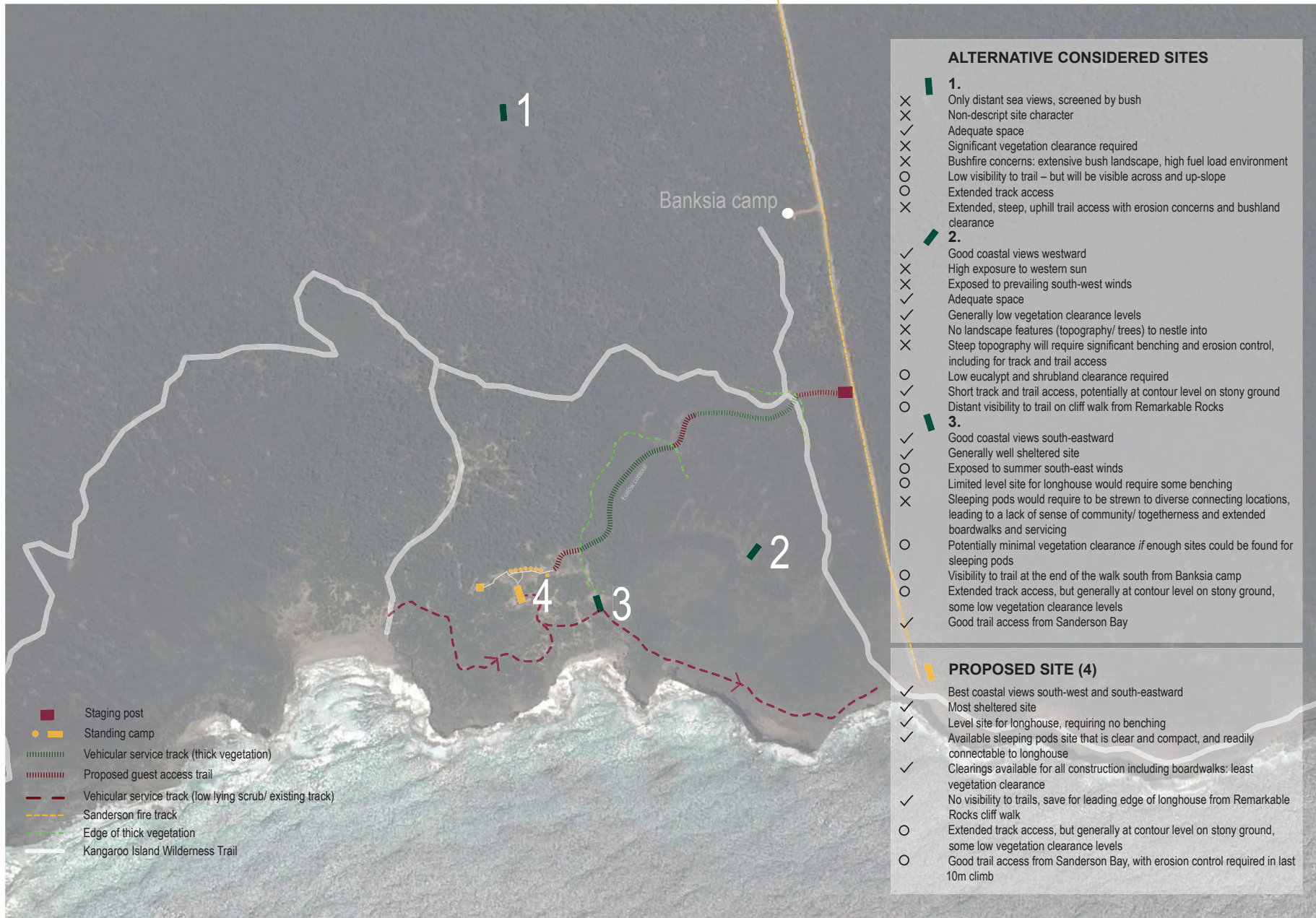
- Site holding yards
- Site base camps

**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: CONSTRUCTION MACRO**

15 FEB 2019 (Rev. 2)



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**ALTERNATIVE CONSIDERED SITES**

- 1.**
- X Only distant sea views, screened by bush
  - X Non-descript site character
  - ✓ Adequate space
  - X Significant vegetation clearance required
  - X Bushfire concerns: extensive bush landscape, high fuel load environment
  - O Low visibility to trail – but will be visible across and up-slope
  - O Extended track access
  - X Extended, steep, uphill trail access with erosion concerns and bushland clearance

- 2.**
- ✓ Good coastal views westward
  - X High exposure to western sun
  - X Exposed to prevailing south-west winds
  - ✓ Adequate space
  - ✓ Generally low vegetation clearance levels
  - X No landscape features (topography/ trees) to nestle into
  - X Steep topography will require significant benching and erosion control, including for track and trail access
  - O Low eucalypt and shrubland clearance required
  - ✓ Short track and trail access, potentially at contour level on stony ground
  - O Distant visibility to trail on cliff walk from Remarkable Rocks

- 3.**
- ✓ Good coastal views south-eastward
  - ✓ Generally well sheltered site
  - O Exposed to summer south-east winds
  - O Limited level site for longhouse would require some benching
  - X Sleeping pods would require to be strewn to diverse connecting locations, leading to a lack of sense of community/ togetherness and extended boardwalks and servicing
  - O Potentially minimal vegetation clearance *if* enough sites could be found for sleeping pods
  - O Visibility to trail at the end of the walk south from Banksia camp
  - O Extended track access, but generally at contour level on stony ground, some low vegetation clearance levels
  - ✓ Good trail access from Sanderson Bay

**PROPOSED SITE (4)**

- ✓ Best coastal views south-west and south-eastward
- ✓ Most sheltered site
- ✓ Level site for longhouse, requiring no benching
- ✓ Available sleeping pods site that is clear and compact, and readily connectable to longhouse
- ✓ Clearings available for all construction including boardwalks: least vegetation clearance
- ✓ No visibility to trails, save for leading edge of longhouse from Remarkable Rocks cliff walk
- O Extended track access, but generally at contour level on stony ground, some low vegetation clearance levels
- O Good trail access from Sanderson Bay, with erosion control required in last 10m climb

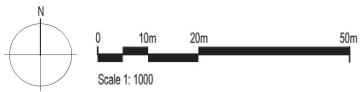
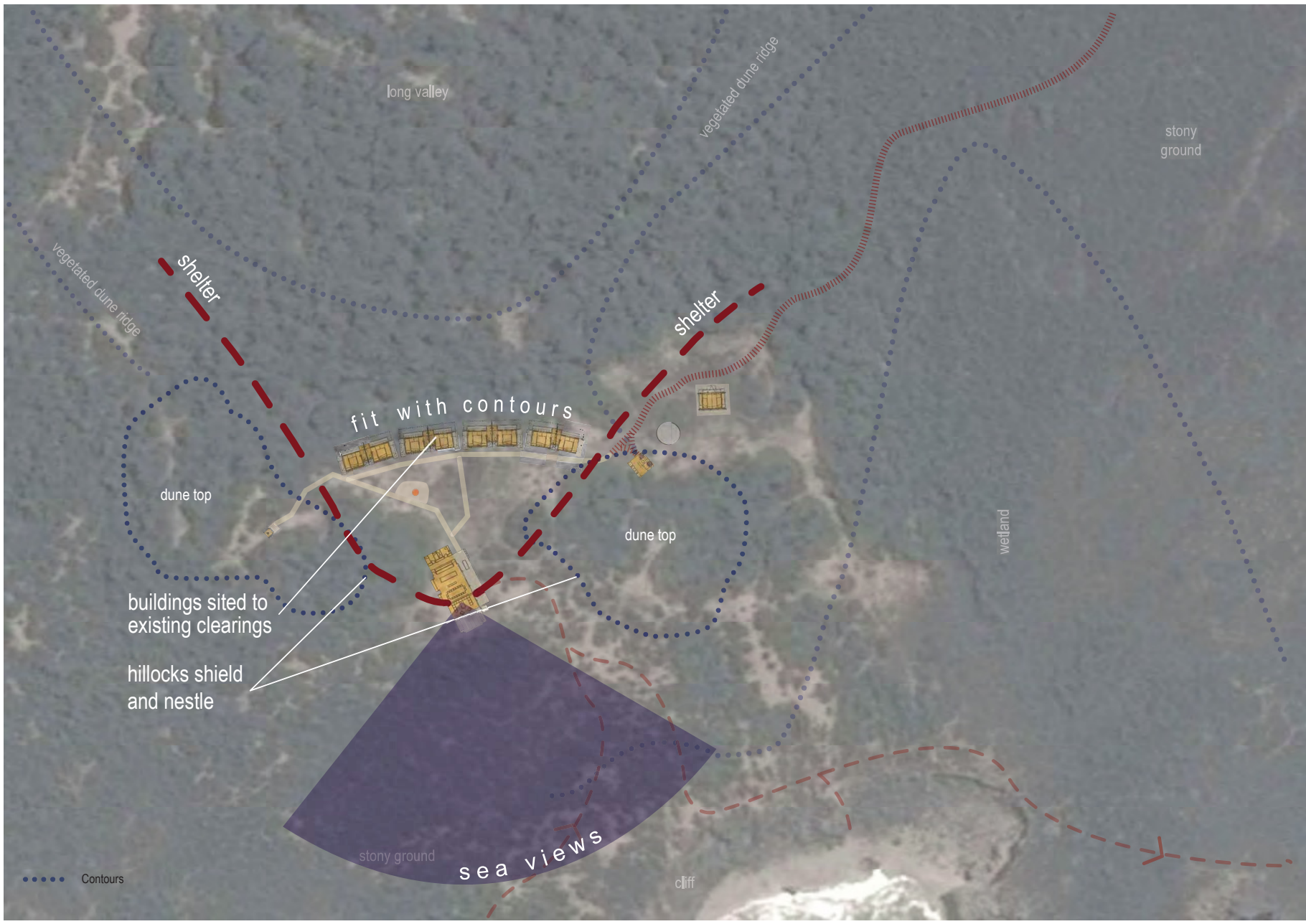
- Staging post
- Standing camp
- ▬ Vehicular service track (thick vegetation)
- ▬ Proposed guest access trail
- ▬ Vehicular service track (low lying scrub/ existing track)
- ▬ Sanderson fire track
- ▬ Edge of thick vegetation
- ▬ Kangaroo Island Wilderness Trail



**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: SITE SELECTION DETAIL**

15 FEB 2019 (Rev. 2)





**KANGAROO ISLAND WALK SANDERSON BAY**  
**TOPOGRAPHY: SITING PARAMETERS**

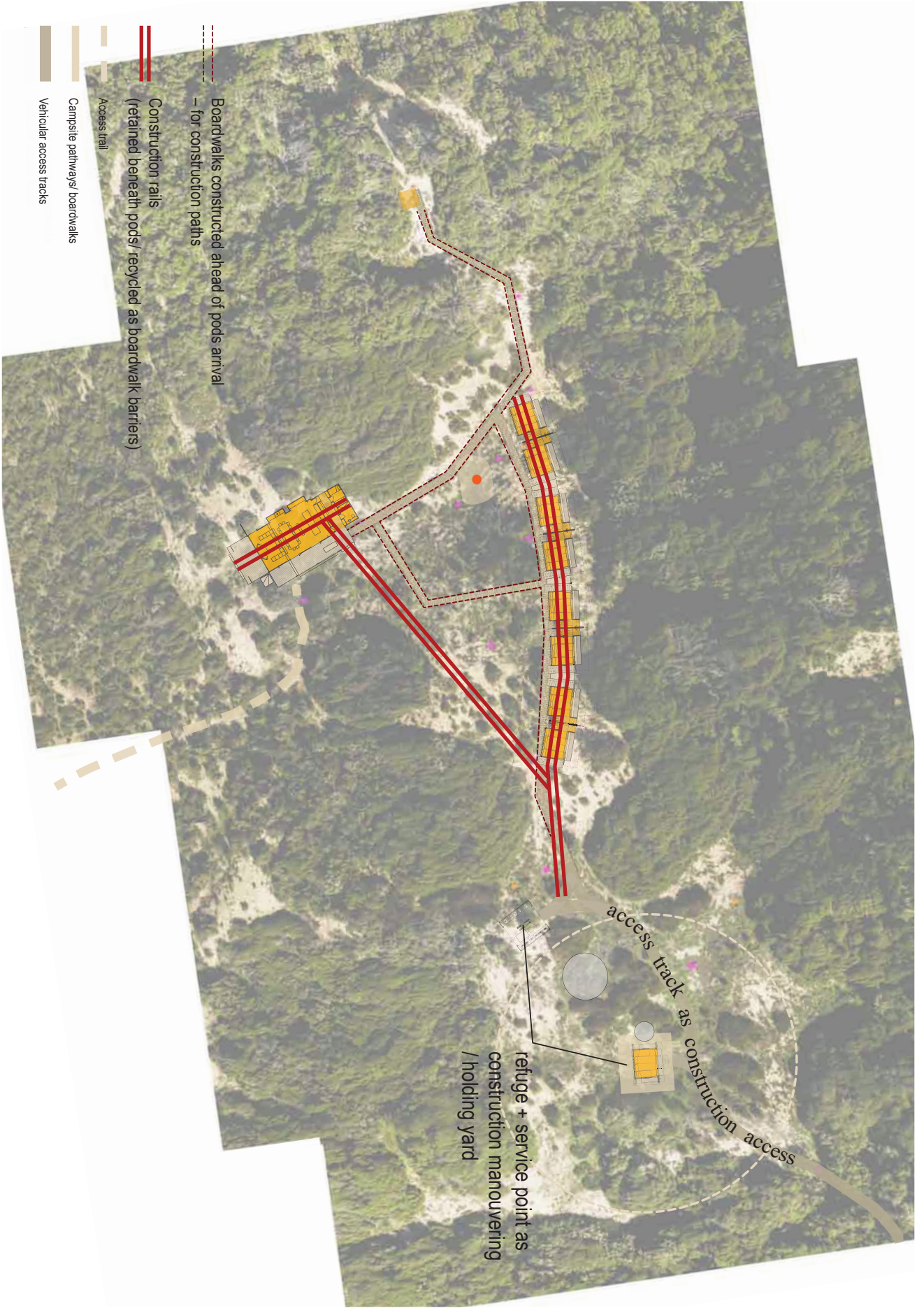
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- Boardwalks constructed ahead of pods arrival  
— for construction paths
- Construction rails  
(retained beneath pods/ recycled as boardwalk barriers)
- Access trail
- Campsite pathways/ boardwalks
- Vehicular access tracks



refuge + service point as  
construction manoeuvring  
/ holding yard

access track as construction access

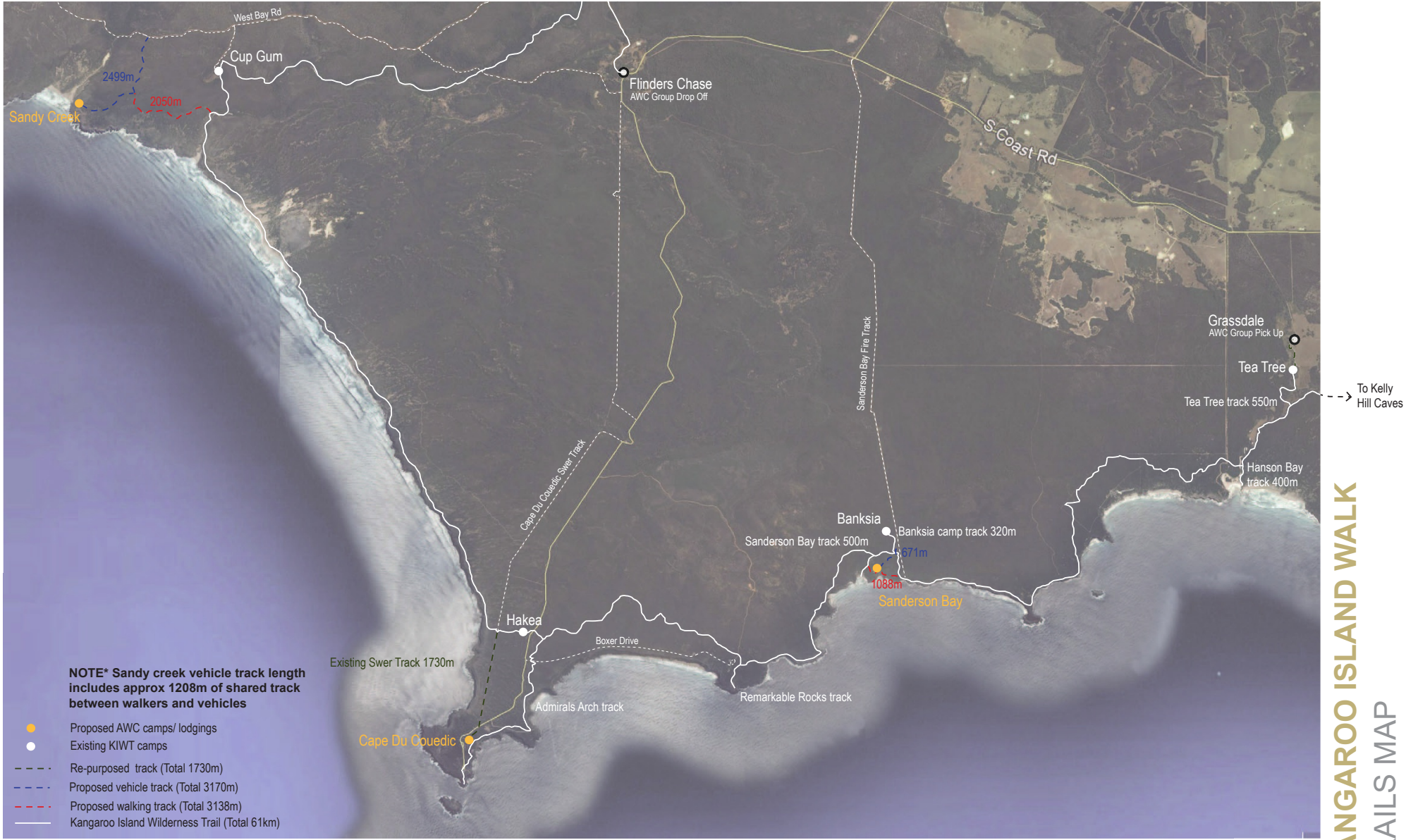


troppo

# KANGAROO ISLAND WALK SANDERSON BAY SITE PLAN: CONSTRUCTIONS DIAGRAM

15 FEB 2019 (Rev. 2)

**Part 3 – Trail areas at May 2019**



**KANGAROO ISLAND WALK TRAILS MAP**

28 MAY 2018



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**Attachment 4**

**AWC Ecologically Sustainable Design Criteria**



## **AWC Ecologically Sustainable Design Criteria**

### **ESD 1. PROTECT, PROMOTE + PRESERVE**

The design and operation of all walks must protect and preserve the sensitive locations that AWC is privileged to operate in. AWC's goal is to present the majesty of these wild places to the public in a manner that is enjoyable, educational, sustainable and conducive to repeat visitation. Any built interventions must enhance and complement, rather than compete with or compromise, the natural environment.

### **ESD 2. EDUCATE + ADVOCATE**

AWC through its walks aims to increase awareness of the intrinsic value of wild places, and build greater advocacy amongst its guests and the broader community for the conservation of National Parks, World Heritage Areas and other significant cultural and natural landscapes. AWC sees itself as a strong environmental advocate and its staff play an important role in promoting Environmental Stewardship and leadership through direct action and interpretation delivery.

### **ESD3. CAREFUL SITE SELECTION**

Careful and considered site selection is a fundamental element of AWC's business. Selecting the right site should provide guests with the opportunity to connect with nature in a safe, enjoyable and environmentally sustainable way. Choosing the right site is thus important to achieve the company's cultural, environmental, functional and aesthetic aims.

All site choices are to be determined with guidance from land, geotechnical and natural values surveys, advice from relevant agencies (ie local, state and federal) and in consultation with key stakeholders.

### **ESD4. APPROPRIATE DESIGN**

The AWC philosophy embraces fully the concepts of eco-sensitive and discretely beautiful design tucked into the natural landscape, off-grid and completely self-sufficient with best-practice systems and a tread lightly approach underpinned by a "pack-it-in-pack-it-out" methodology. Use of local knowledge, product and resources during design, construction and operation is vital in creating a product that is successfully integrated with its location. Key directives:

#### **1. essential + minimal**

All building envelopes must be designed efficiently and in keeping with sustainable design philosophies, to minimise their overall site footprint. Simplicity is a key design directive for our sustainable and remote operations

#### **2. climate**

Buildings must be designed to provide modest comfort within the climates in which they are located. Consideration for extreme weather events (snow, rain, storms, extremes of heat, cyclones etc, depending upon location) must be addressed in the design and construction of all of our facilities

#### **3. passive building design principles**

Buildings are to be sited to promote **natural daylighting** whilst providing **deep shade** and protection from harsh sunlight and prevailing weather conditions. Buildings must maximise **natural ventilation** via the use of louvres, operable walls and windows, using **insect screens** where required

#### **4. site preservation**

Floor levels to be elevated above the ground plane for **minimal site impact**, to mitigate erosion and to maintain **natural drainage** patterns. Duck-boards, rock steps and other trackworking is to be provided on access trails and between buildings to protect the vegetation and soils. Erosion will be mitigated through careful site planning and sensitive landscape works. AWC has also developed successful design strategies to minimise and mitigate its presence in the landscape, including reducing bird-strike, rodent activity and light spills.

#### **5. materials**

Materials are not only selected for their beauty and tactile qualities, but for their long-term **robustness**, **durability**, **sustainability** and **embodied energy** properties. Surface reflectance and material toxicity are also to be considered when selecting materials. Low-maintenance natural materials are favoured here.

#### **6. low-impact construction techniques**

Clever design and the use of **modular** and **prefabricated** construction techniques, prefabricated and **lightweight** componentry allows structures to be assembled efficiently, ensuring minimal site disturbance. Component materials are to be made off-site to reduce on-site construction waste. De-mountability and replaceability of component parts is also a key consideration in AWC's design process.

Contractors and on-site staff are briefed and trained in best-practice biosecurity management and Leave No Trace principles.

#### **7. local knowledge + resources**

AWC champion the use of local design and construction knowledge and skills (ie local architect and consultant team, local builder) where possible, and favour the use of local sustainable materials to provide sense of authenticity and connection to place. Ongoing use of local products provides greater connection to place and promotes locally specific crafts and traditions, whilst strengthening relationships with local businesses and supply-chains.

### **ESD 5. SUSTAINABLE OPERATIONS**

#### **LEAVE NO TRACE**

Environmental Stewardship is a focus of our business across all AWC operations.

AWC staff members are passionate advocates for wild places. AWC Guides encourage guests to actively care for their surroundings, and the company both promotes and practices Leave No Trace minimal impact bushwalking principles both on trail and at the camps. AWC Guides actively explain the building systems and operations to guests, and facilitate discussions regarding sustainability in a confident yet accessible manner.

AWC believes it has a responsibility to instill sustainability concepts not only with it's own staff but also its guests, by educating them and making them aware of how best to care for the 'bush' in a manner conducive to repeat visitation. Under Leave-No-Trace best-practice biosecurity measures are actioned on trail and at camp.

#### **ENERGY, WASTE AND WATER**

AWC's proposals are for eco-sensitive camps with best practice systems. Whether camp, hut or lodge, all buildings are to be fully self-sufficient and off-grid, with all systems being managed by the AWC, in accordance with local statutory requirements.

- 1. Energy - Power + Lighting, Heating + Cooking** – Energy sources are fully off-grid and solar powered, with low-energy fixtures, timers and sensor switches employed to maximize efficiency. LPG Gas to be used for hot-water, heating and cooking.
- 2. Waste** - All waste systems must be designed to provide suitable on-site treatment and/or provide a solution for total removal from site:
  - Organic waste** – fully enclosed composting system, product totally removed from site
  - Toilet waste** – using AWC's innovative fly-out pods system or similar approved other, as per its successful remote operations in Tasmania. All toilet waste to be totally removed from each site for treatment at approved local wastewater facility.
  - Garbage + recycling** – collection, classification, separation and short-term storage at each site in secure vermin-proof containers, to be removed by AWC staff, and deposited at local waste/recycling facility
  - Greywater** – on site greywater treatment and dispersion system, in accordance with statutory requirements
- 3. Water** - All water for drinking, dish-washing and showering to be rainwater captured via roofs and stored in tanks that are close coupled to their respective use structures.

### **ESD 6. DIVERSITY + CHOICE**

AWC supports considered and limited development within National Parks and reserves. The company supports government initiatives to increase choice and diversity of experience for public and private visitors, where best-practice environmental outcomes can be proven and upheld. People naturally become better and more vocal advocates for wild places through direct experience. The AWC team believe that if sufficiently regulated (by government), and sensitively designed and operated, a range of activities and budgets can be provided through restricted development within National Parks, to the benefit of all.

### **ESD 7. CULTURAL RESPECT**

All AWC walks incorporate aspects of social and cultural interpretation and engagement, and the company is committed to sharing and celebrating cultural diversity with sensitivity and respect. AWC endeavours to provide meaningful engagement opportunities for local and Indigenous people across all of its products, and enthusiastically provides in-kind assistance and support to Traditional Owners in developing complementary eco-tourism products where suitable opportunities arise.

### **ESD 8. STAKEHOLDER + COMMUNITY ENGAGEMENT**

AWC is committed to transparent and consultative process, engaging directly with stakeholders and community. AWC is privileged to develop its walks exclusively within protected public lands, and as such public accountability is a key driver for each development and subsequent ongoing operations.

### **ESD 9. COMMERCIAL SUSTAINABILITY**

In order for its walks to be commercially viable AWC believes it must first ensure that the protection of the natural environment is championed. We conduct regular research to ensure our products appeal to our market and provide the desired economic benefits to our business and the community. All walk proposals are considered individually on their merits, and must meet the commercial sustainability targets. Independently demand assessments are to be carried out prior to committing to any future development.

### **ESD 10. CELEBRATE**

AWC celebrates diversity of culture, place and experience, the uniqueness of each individual guest and its role in providing memorable and safe forays into nature, to celebrate sense of place and self.

**Attachment 5**

**Geotechnical Report extracts**

## **Geotechnical report extracts** provided by WGA

The following extracts are provided from DRAFT Geotechnical Report June 2018 prepared by WGA.

As the report is currently in DRAFT format, extracts can only be tendered at this time:

### **“Excavations**

*It is understood that due to the high eco-sensitivity of this project, that no significant excavations (deeper than about 0.5 m) are planned. The minor excavations (<0.5 m depth) that are understood to be required, are for minor levelling of site and levelling of the ground beneath the Micro pile bearing plates.*

*Where these minor excavations are required in sand soils, they are expected to be easily and quickly undertaken with hand tools. Where limestone is present, a handheld jackhammer is expected to be suitable. Production rates will vary depending upon the strength of the limestone. Table 1 can be used as a guideline to estimate production rates at different sites. A massive of strongly cemented limestone may not be able to be economically excavated with hand tools.”*

### **“Trafficability**

*Where exposed the limestone surface may be rough and uneven, which could be problematic for rubber tyred vehicles.*

*Trafficability across steep and/or sandy sites and access roads is expected to be very poor. As such, a bridging layer of imported quarry material (or crushed site-won limestone) is recommended to improve trafficability. The quarry material may be placed on a high strength geogrid or geofabric to enhance its effectiveness.*

*It is understood that there is specific concern around ecological damage which could potentially be caused by vehicular traffic to perched groundwater tables that may be within or below limestone outcrops in the low-lying Melaleuca forests inland from the Sanderson Bay site. The route of this proposed track has not been assessed as part of this investigation. It is not possible to judge the thickness, strength and hence stability of the limestone outcrops based on a site walk-over. An extensive and environmentally disruptive investigation (which would likely involve drilling holes in the limestone to check its thickness) would be required to reliably address these issues. Even if such an investigation was undertaken, the risk of a limestone cavity collapse, while maybe reduced, would still exist because of the expected natural variability of limestone, and the limited locations of the boreholes.*

*A risk based management approach is suggested during construction which includes a careful selection of the proposed route of the access track. Where possible the access track should avoid low lying limestone outcrops in Melaleuca forests. Where this is not possible, the following risk mitigation strategies could be employed:*

- *Bog mats and/or a gravel bridging layer should be used to spread and reduce vehicular wheel-loadings. Increasing the thickness of the bridging layer will reduce the load on the subgrade;*
- *Axle loadings and frequencies should be minimised as far as practical;*
- *Regular inspections of the track condition should be made. If damage has occurred, the contractor should be prepared to stop trafficking the damaged area and re-asses the route and/or thickness of the bridging layer; &*
- *Contractor remediates any damaged areas.*

*It is important to note that the Sand Dune sites are also expected be easily damaged by regular trafficking of personnel. This is especially so where steep slopes are present, and/or the existing vegetation is sparse. It is highly recommended that bog mats and/or the proposed permanent decking between structures are utilised on site for the trafficking of personnel from the very beginning of the construction works. Paths should be delineated by flagging and signage to ensure personnel stay on the allocated paths.*

**Australian Walking Company**

Wilderness Trail Accommodation – Sanderson Bay

**Flinders Chase National Park – CR 6716/336**

520/L008/18

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Montage showing aerial image of Sanderson Bay development site with proposed buildings superimposed – Source Fyfe

**OVERVIEW**

<b>Application No</b>	520/L008/18
<b>Unique ID/KNET ID</b>	2018/22409/01 ID 3699
<b>Applicant</b>	Australian Walking Company C/- Fyfe
<b>Proposal</b>	Wilderness Trail Accommodation – Sanderson Bay
<b>Subject Land</b>	Flinders Chase National Park – CR 6716/336
<b>Zone/Policy Area</b>	Conservation Zone
<b>Relevant Authority</b>	SCAP – Development Regulations. Sch 10, 18 – Kangaroo Island
<b>Lodgement Date</b>	19/11/2018
<b>Council</b>	Kangaroo Island Council
<b>Development Plan</b>	Kangaroo Island Council Consolidated – 17 September 2015
<b>Type of Development</b>	Merit
<b>Public Notification</b>	Category 1
<b>Representations</b>	N/A
<b>Referral Agencies</b>	CPB, KI NRMB, CFS, NVC
<b>Report Author</b>	Jeremy Wood
<b>RECOMMENDATION</b>	Development Plan Consent subject to conditions

**EXECUTIVE SUMMARY**

This application is one of three development applications lodged for tourist accommodation within the Flinders Chase National Park, in association with the Kangaroo Island Wilderness Trail (KIWT).

The applicant, Australian Walking Company (AWC), seeks development plan consent for tourist accommodation comprising eight accommodation pods, a communal longhouse, a lookout, a staging post and services building and ancillary water tanks and walking trails. This will provide accommodation for the third night of the walking experience.

The cottages are currently utilised for tourist accommodation and have been for several decades. The upgraded cottages will provide the second nights' accommodation for walkers taking part in a three day guided tour through the National Park, with the AWC's vision being to provide 3 nights and 3 distinct memories, in which architecture and site-planning marries with Place.

The South Australian Tourism Commission (SATC) has identified a multi-day walking trail as critical for the development of the tourism industry on Kangaroo Island and to compete with nature-based destinations worldwide. The 61 kilometre Kangaroo Island Wilderness Trail (KIWT) has since been developed and to complement and gain leverage from this initiative, the SATC, the Department of Environment and Water (DEW) and National Parks SA are seeking to improve the range of accommodation options and guided walking experiences along the trail.

The applicant has advised that to facilitate this, "an opportunity was presented to the private sector by DEW and SATC to develop exclusive, eco-sensitive accommodation and tours to tourists and an expression of interest process occurred. At the conclusion of this process, the AWC was selected as the preferred commercial tour operator."

The application is a merit, Category 1 form of development and was subject to referrals to Heritage SA, the Coast Protection Board, the Country Fire Service, the Kangaroo Island Natural Resource Management Board, and the Kangaroo Island Council.

The proposal has been assessed and is considered worthy of development plan consent, subject to conditions.

## **ASSESSMENT REPORT**

### **1. BACKGROUND**

#### **1.1 Strategic Context**

In 2014 considerable work was undertaken strategically by the Department of Planning, Transport and Infrastructure, including drafting an Addendum to be read in conjunction with the Kangaroo Island Plan, January 2011. The addendum specifically replaced certain strategic land use directions to better align with priorities of the Kangaroo Island Futures Authority (KIFA) to provide an overarching framework for economic sustainability. The changes were informed by extensive consultation and significant research commissioned by the KIFA.

The Kangaroo Island Structure Plan provides the detail to inform future development opportunities on Kangaroo Island. It also summarises the situation and trends for the Island at 2013. The Structure Plan identifies opportunities for economic development, specifically in relation to tourism and agricultural diversification and value adding. It provides the framework for a sustainable economic future where future development activities retain economic benefits on the Island, balanced with the protection of the Island's natural resources.

A Sustainable Futures Development Plan Amendment (DPA) was prepared concurrently to help implement the changes at the local level, through zoning and policies that guide new development and infrastructure proposals. The DPA was endorsed and consolidated into the Development Plan for Kangaroo Island 20 February 2014. This land use policy position remains current.

Together, the changes identified in these three documents provide the land use framework to facilitate improved community resilience and economic longevity of Kangaroo Island.

#### **1.2 Kangaroo Island Wilderness Trail**

The 61 kilometre Kangaroo Island Wilderness Trail (KIWT) has been developed and to complement and gain leverage from this initiative, the SATC, the Department of Environment and Water (DEW) and National Parks SA are seeking to improve the range of accommodation options and guided walking experiences along the trail.

People wishing to walk the KIWT currently have several options available to them:  
a self-guided walk using the campgrounds provided (carrying own equipment)  
a self-guided walk using the campgrounds provided and a commercial operator to transport personal equipment from one campground to the next  
engage a commercial tourism operator and either use the campgrounds provided or stay in private accommodation off the trail (see Figure 1)

A booking system regulates the number of walkers departing each day. This is to avoid overcrowding, to preserve the wilderness experience for everyone, to reduce environmental impact and to ensure sustainable management of the track and campground facilities.



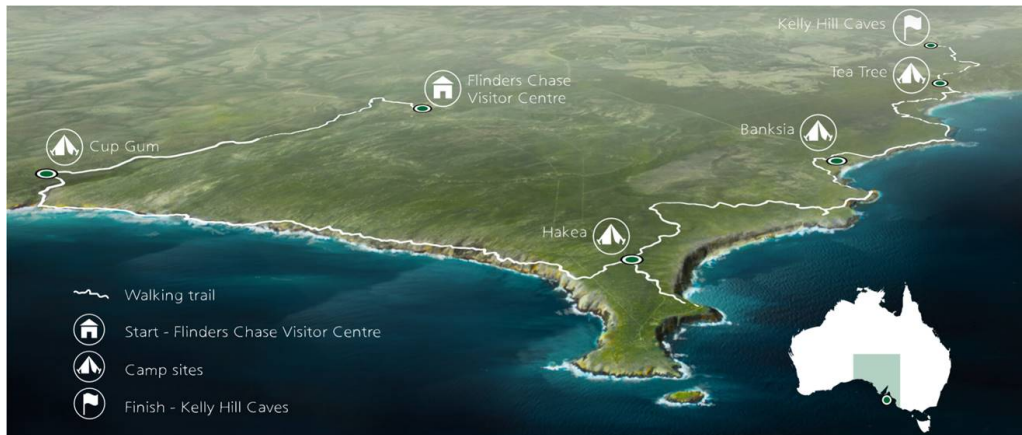


Figure 1 - KIWT Route & Current Accommodation (campsites)

### **1.3 National Parks Management Plan**

The subject site is located within a National Park and as such any decision to develop within the Park requires the consent of the custodian of the land, DEW. Key guidance for development within National Parks is often provided by way of Management Plans.

An amendment to the Flinders Chase National Park, Kelly Hill Conservation Park, Ravine des Casoars Wilderness Protection Area and Cape Bouguer Wilderness Protection Area Management Plan (Management Plan) was adopted in 2017 to provide for small scale, ecologically sensitive accommodation within minor development zones and lists the KIWT as a development zone. The location of small scale, low-impact eco huts (or similar) is not restricted to the existing camping nodes within development zones but can be placed anywhere along the trail.

### **1.4 DEW letter of support**

The applicant has provided as part of the application package a letter from the Chief Executive of DEW the proposal aligns with the intent of the Park Management Plan which facilitates the development of small scale ecologically sensitive accommodation for trail walkers.

## **2. DESCRIPTION OF PROPOSAL**

Application details are contained in ATTACHMENT 1 & 3.

This application is for tourist accommodation comprising eight accommodation pods, a communal longhouse, a lookout, a staging post, services building and ancillary water tanks and walking trails.

The accommodation forms part of a four day and three night fully guided small group bushwalking tour for fourteen guests. Each group will be greeted by the guides in Kingscote where they will be transported via private bus to a drop-off point at the beginning of the walking trail. The walks will typically operate all year round, and when in full operation, will run daily.

The applicant advises that the premise for the site organisation is based entirely on retention of site landscape values.

Site interventions are positioned to achieve shelter, finding subtle folds in the landscape, whilst connecting with views and engaging with the heart of the site.

Details related to the overall operation are contained in full in ATTACHMENT 3.

## 2.1 Construction

The applicant advises that a whole of process approach has been taken to the planning of the development including the construction phase. Construction will use the same service access track and paths as for operation.

The Staging Post will be constructed first to create a construction base (with existing road access). The proposed access track, Service Point, and site paths become the next elements to facilitate creation of the camps, whilst minimising site construction impact.

An overall approach is to minimise site construction time through a mix of flatpack and portables construction, with portables being employed for wet area/high fitout components.

Footings will be concrete free and comprise 'anchors' that are unobtrusive and which can be installed with very limited impact on the ground.

## 2.2 Physical Elements

### Longhouse

This the communal space, and, for walkers, the site's arrival and departure point. It is designed to accommodate 14 guests and 2 guides for dining and socialising. It features the kitchen, bathroom and open dining and lounging area.

It measures some 9.1 metres by 18.9 metres including decks along the northern, eastern and southern facades and includes pergolas or shade awnings along all four facades.

Windows will extend for the majority of the length of the northern, eastern and southern building surfaces.

### Sleeping Pods

Sleeping pods are designed to accommodate 2 guests in either twin or double arrangement. Each has a small bathroom with toilet, shower and basin. They measure approximately 3.5 metres by 4.5 metres.

The Sleeping Pods are conjoined to minimise site footprint in the soft dune country – but also to create a sense of 'lodge'.

### Guide Pod

The Guide Pod accommodates 2 guides, and is sized and detailed to operate as a site fire refuge.

### Lookout

This platform, a short walk from the Longhouse and Sleeping Pods is set on the vegetated dune high point, with a particular view down to Sanderson Bay and the sunset. It will settle beneath the vegetation level, with seats and approach boardwalks.

### Connecting Paths

Timbered boardwalks and mats will connect sleeping, communal spaces and natural site features.

### Service Point and Access Track

Site vehicular access is only by a light vehicle – such as a quad – enabling reduced road width and lighter road engineering – for reduced environmental impact. The Service Point marks the end of the vehicular access track and, in addition to being a quad park, accommodates gas bottles, waste management and site maintenance stores. It also provides for charging of backup batteries for each site element's autonomous power supply.

It is sited beyond the guest experience. Water storage tanks are accommodated here.

### Staging Post

A Staging Post will be positioned adjacent Sanderson Fire Access Track where food and luggage can be delivered by support staff by vehicle before being transported to the accommodation or longhouse by a light vehicle (such as a quad bike). Similarly, waste and waste water will be stored and collected from the Staging Post and will be transported off-site by vehicle.

The quad and trailers, used for diverse purposes, are stored here between the camp's use.

## **2.3 Architecture and fitout**

The architect, Troppo, describes the proposed architectural experience to like opening an oyster: raw and crusted by the environment externally, polished luxury within.

In both Longhouse and Sleeping and Guide Pods, roofs shade wall lines below, turning away from the north and west (the direction of the beach). Longhouse verandahs are devised to effectively sunshade in summer, incorporating blinds for low angle sun.

Wall-lines widely open to join to views and outdoor areas.

## **2.4 Materials**

All structures are lightweight framed, and clad in natural materials, to soften in time, generally without applied finish.

Timber decking, steps, seats, verandah framing and soffit linings/ battens are the structure's leading edges.

Wall-lines are trimmed by timber joinery to broad-opening doors, shutters and windows.

Only steel is painted – to a metallic rusted tone.

At Sanderson Bay colour tones will engage with the yellow warmth of sand and the deep greens of the melaleuca landscape to the north.

A full suite of materials and colours for each structure or element is detailed on the plans contained within ATTACHMENT 3.

## 2.5 Bushfire

The facility is a supervised site with 2 (minimum) trained guides, operations protocols, and 24/7 communications.

A compliant bushfire response strategy is outlined in the report accompanying the application, prepared by Bushfire Solutions. The Guide Pod is proposed to be constructed to meet the specified BAL assessment, with alternative egress to the nearby beach and sheltering cliffs.

Other refinements will be included following detailed feedback from the Country Fire Service.

Other assets are proposed not to be protected.

## 2.6 Servicing

The approach to servicing responds to AWC proposed method of site operations (within the greater context of operating all of AWC's Walk sites), and guests required levels of utility and comfort.

Solutions are devised from pragmatic, durable and ethical standpoints. Site logistics hardware is to be provided for guests baggage, food and linen supply, waste removal, fire and emergency access/ evacuation.

### Power

Solar power systems are used for all site elements. Each site element stands alone, but back-up batteries are stored for change-over when necessary.

### Gas

Gas will be reticulated to the Longhouse from bottles at the service point. Gas bottles for hot water service will be located at each pair of Sleeping Pods.

### Water

A centralised harvesting, storage and reticulation system will be based at the Service Point. 90,000 litres storage, with detailed water conservation techniques is proposed.

At the Camp site, water is to be harvested from the Longhouse roof only. Roofs fall to trafficable gutters at the wall-line, rather than falling to the ground from roof perimeters. Downpipes connect to buffer/ storage tanks beneath the Longhouse floor, and then to the primary Service Point storage tanks.

Sleeping Pod roofs will use interconnected eaves gutters and downpipes to connect sub-floor to the Service Point storage tank.

Roof water run-off and system overflows take advantage of the sandy ground conditions. Guide Pods roofs fall to drainage swales/shallow soakage pits at the up-hill line of pod benchings, finished with erosion matting.

Buffer and storage tank overflows are also to be directed to approx. 2m x 1m erosion mat of the same detail.

Staging Post roof water is collected and directed by downpipe to a back-up rainwater tank for Camp use. Storage tank overflow is to a 1m x1m x 1m soakage pit, geotextile fabric lined, filled and finished with select local site stone.

### Waste

A closed waste system is proposed, utilising natural site falls. Individual bathrooms and the Longhouse kitchen will drain to a 4,000 litre in-ground waste treatment tank. Waste will be broken down by worms to minimise waste output to a 3,200 litre in-ground holding tank for pump-out. The pump-out waste water, though 'clean', will be removed by trailer to a waste storage tank at the Staging Post.

Pump-out cycles are proposed to be: monthly at the site, and annually at the Staging Post.

### Rubbish and recyclables

A separated waste management system will integrate into the Longhouse kitchen, Service Point and Staging Post.

## **2.7 Changes as a result of feedback through agency referral**

Following from the agency referral process the applicant made changes to the application details.

The changes are limited to the relocation of one 'pod' (the guide pod/refuge building) 20 metres downhill to the north east away from elevated fuel loads, the installation of a 22,000 litre tank for firefighting purposes and a Vegetation Management Zone established around the guide pods only.

The applicant advises these changes are a result of recommendations made by SA Bushfire Solutions and the SA CFS.

No changes have been made to the access however, evacuation options and risk mitigation measures are being developed to ensure the safety of guests and staff.

AWC are seeking to minimise vegetation clearance and are not seeking to protect the proposed accommodation pods or longhouse in the event of a bushfire. However, one building (the guide pod) will be protected as a refuge if guests and staff cannot be safely evacuated.

With respect to the matters raised by the Coast protection Board, AWC accept that there is the potential for sand drift hazard and will monitor, manage and mitigate sand drift where possible.

In relation to the impact on native flora and fauna, AWC have engaged Botanical Enigmerase and RMP Environmental Pty Ltd to prepare the clearance application and ensure impact on flora and fauna is minimised. The clearance application has been lodged with the NVC and is being assessed concurrently to the development application process.

In summary, Fyfe on behalf of the applicant, is of the opinion that the proposed development has been designed in a matter that has sought to balance the competing interests of bushfire safety and minimising impact on the existing flora and fauna whilst delivering the priorities identified by the South Australian Tourism Commission's Regional Visitor Strategy and Nature Based Tourism Strategy. In our opinion, the proposed development has suitably balanced these expectations and will provide a much needed exclusive bushwalking and accommodation draw card that will showcase the pristine natural and coastal environment of Kangaroo Island.

### **3. SITE AND LOCALITY**

#### **3.1 Site Description**

The accommodation is to be located within the Flinders Chase National Park. The site of the development is situated approximately 450m west of the Sanderson Fire Access Track.

The land undulates and the proposed development is within a small depression sited some 50 metres below the height of the peak to the west and approximately 10 metres below the land to the east. The land falls down towards the coast. Sanderson Bay is directly to the south of the development site with the beach to the west of the site.

Access is gained by foot from a trail that leads in from the Staging Post off Sanderson Fire Access Track. The applicant has identified that native vegetation extends over most of the site.

The subject land is formally described as follows:

<b>Lot No</b>	<b>Plan</b>	<b>Street</b>	<b>Suburb</b>	<b>Title Ref.</b>
Piece 55	DP 38340	Off Sanderson Bay Fire Track	Flinders Chase	CR 6176/336

#### **3.2 Locality**

The locality is typical of a wilderness area with immense areas of untouched vegetation, interrupted only by recreational walking trails, fire access tracks and the rugged coast line.

Yacca Flat Track is more than 2 kilometres to the west and is an unsealed road.

The closest built form is the Banksia Campsite approximately 500 metres to the north east. No other built form is obvious within 2 kilometres of the development site.

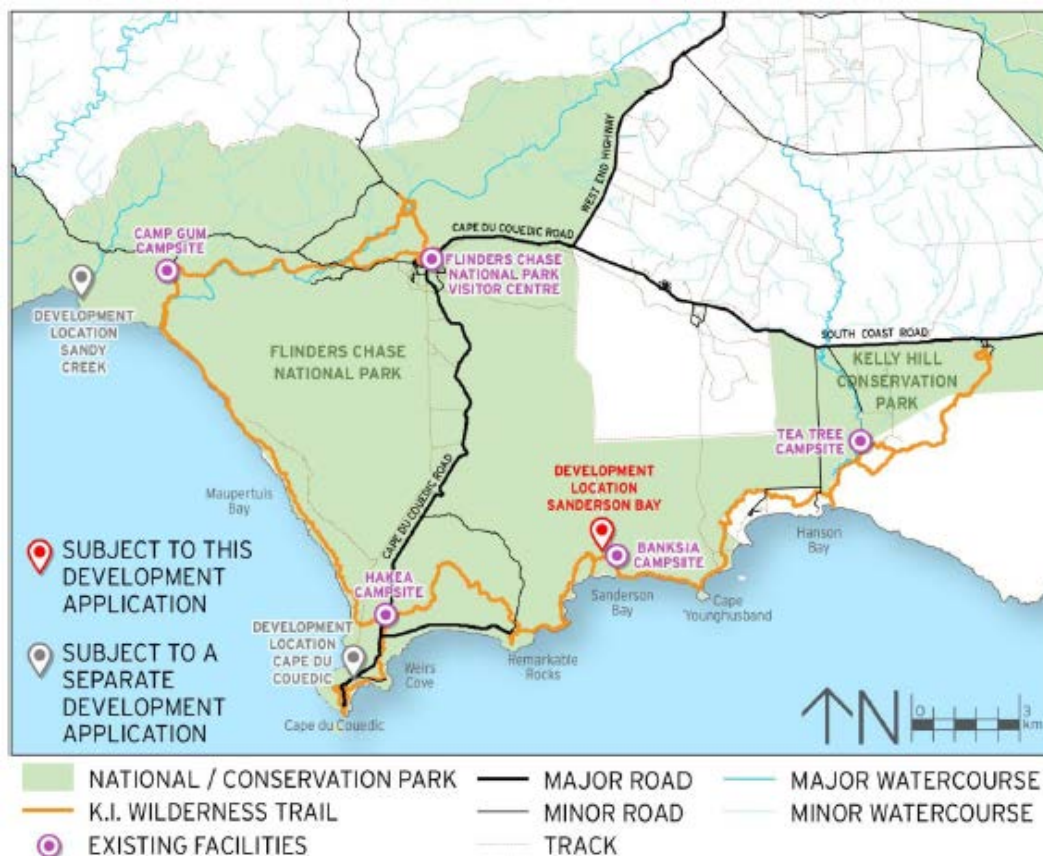


Figure 2 – Site and Location Map – Flinders Chase National Park - Source Fyfe

#### 4. COUNCIL COMMENTS or TECHNICAL ADVICE

##### 4.1 Kangaroo Island Council

Council has reviewed the application detail against relevant provisions of the Kangaroo Island Development Plan (consolidated 17 September 2015) and consider the proposed development to be in reasonable accord with the Plans intent, including the zone objectives, desired character and envisaged forms of development for the Conservation zone.

Council has considered the development location within the Conservation zone at Sanderson Bay, affording direct and uninterrupted coastal views and being situated in remote, but consolidated coastal areas which should not present a high risk of coastal or inland erosive processes upon the landscape and development site.

The development maintains a low-scale across the site with the individual and small accommodation pods. The tourist accommodation types do not appear to exceed the 6.5metres height and remain unobtrusive within the landscape, which is considered essential in this environment.

The accommodation types are considered to have a high level of aesthetic merit which offer a unique tourist experience.

In addition to the accommodation on the site, the development also offers experiences within the surrounding wilderness in close proximity to the proposed accommodation and communal hosting buildings.

In summary, Council advises the proposal represents an exciting opportunity for tourism growth and diversity on Kangaroo Island. The development's unique tourist accommodation and experience is well aligned with the Kangaroo Island Development Plans intent to encourage tourism / tourist accommodation development within the Conservation zone.

Council accordingly advises that it has no objection to the proposal and supports the approval of the proposed development.

## 5. REFERRAL BODY COMMENTS

Referral responses are contained in ATTACHMENT 4.

### 5.1 Coast Protection Board (statutory referral)

#### **Coast Protection Board Policy 1.6:**

*The Coast Protection Board may support development, including tourist accommodation or that which has a significant public or environmental benefit, in coastal areas outside of urban areas provided:*

- *It is sited and designed in a manner that is subservient to important natural values within the coastal environment;*
- *It is not subject to unaddressed coastal hazards;*
- *Adverse impacts on natural features, landscapes, habitats, threatened species and cultural assets are avoided or minimised; and*
- *It will not significantly impact on the amenity of scenic coastal vistas.*

The Coast Protection Board understands that DEW, as custodian of the National Park, will ensure impacts on coastal biodiversity are minimised, review the adequacy of the pending flora and fauna assessment; determine if there are any site and design implications; and guide the preparation of any associated environmental management plans. Accordingly, the Board will not request further information nor comment on coastal biodiversity impacts associated with this application.

Specific comments by the CPB include:

- The development site is more than 100 metres from the mean high water mark and sufficiently elevated. The proposed development is not at risk of coastal flooding or erosion.
- The proposed development is likely to be subject to sand drift hazard risk, given the proposed development is situated in a dune system. This risk is likely to be exacerbated during construction and by the nature of the development which will increase pedestrian access into this sensitive ecosystem.
- Whilst the accommodation pods and communal buildings at Sanderson Bay development are minimalist, with a relatively small built footprint, the proposal will nonetheless involve disturbance and clearance of native vegetation to accommodate the proposed buildings, associated infrastructure and vehicle access and walking tracks. Country Fire Service (CFS) requirements are likely to exacerbate the level of clearance required.
- The proposed development is set back approximately 200 metres from the coastline, set within a vegetated dune system, and will, to an extent, blend with the



landscape via appropriate design, materials and colour selections. The application information suggests the development will be out of view from the public walking the KIWT (FYFE, p.21). The taller vegetation at this location will help screen the development.

- Based on the information provided, it appears that the proposed development is unlikely to have an unacceptable impact on visual scenic amenity.

The Coast Protection Board understands that DEW, as custodian of the National Park, will ensure impacts on coastal biodiversity are minimised, review the adequacy of the pending flora and fauna assessment; determine if there are any site and design implications; and guide the preparation of any associated environmental management plans. Accordingly, the Board will not request further information nor comment on coastal biodiversity impacts associated with this application.

The Coast Protection Board advises it has no objections to the proposed development and should the application be approved, Conditions and Notes should be applied to any planning approval.

### **5.2 Kangaroo Island Natural Resource Management (NRM) Board (non statutory referral)**

The Board, in providing comment on the proposed development, took into consideration both the objectives of the Natural Resources Management Act 2004 and the Kangaroo Island Natural Resources Management Plan 2017-2027 objectives and strategies.

The Board is of the view that the proposed development is not in the spirit of the original eco-sensitive accommodation concepts that were envisaged when the Kangaroo Island Wilderness Trail was first proposed in 2011. The concept was for the 'fixed' accommodation to be located in the vicinity of the camp sites but separate enough for the experience to be apart and unique.

The Board believes the proposed footprint of the accommodation pods, associated buildings, and additional walking and access trails, at both Sanderson Bay (520/L006/18) and Sanderson Bay (520/L007/18), and the increased human traffic, will have a negative impact on the fragile coastal habitat of both sites. The Board believes the proposed developments should be located closer to the existing walking trail and camp sites. That would reduce the need for extensive new trails and access tracks to support the development, which would cause more fragmentation of the natural systems in Flinders Chase National Park.

The Board also wants to convey the opposition to the proposals from Friends of Parks Kangaroo Island Western Districts, Friends of Dudley Peninsula Parks, and Eco-Action, all local conservation groups.

### **5.3 South Australian Country Fire Service (SA CFS) (statutory referral)**

The proposed development is located within an area that is categorised as a HIGH Bushfire Protection Area in the Council Development Plan and therefore required a referral to the SA CFS.

Chronology of events:

- Referral to SA CFS – November 2018
- SA CFS referral response received – January 2019 (Refer ATTACHMENT 4)
- Applicant (Fyfe) response to issues raised – March 2019 (Refer ATTACHMENT 6)
- SA CFS second referral response received – April 2019 (Refer ATTACHMENT 4)

The applicant has provided a response to the initial SA CFS referral response dated 17 January 2019, in which a number of concerns were raised. SA CFS has reviewed the applicants second submission (March 2019) and is satisfied that the information provided has addressed the concerns raised in January.

The SA CFS has provided the following advice:

- Response rates in this area may be extended in excess of 45 mins once mobile.
- There is a lack of reticulated water in the area, and reliable communication networks to facilitate early warning and evacuation of participants on the trail and in residence within the proposed accommodation.
- Kangaroo Island and in particular Flinders Chase National Park has a history of large, and depending on the weather and environmental conditions, uncontrollable bush fires.
- Specific commentary has been provided in relation to the potential impacts associated with siting, access, water supply and vegetation.
- The siting proposed for tourist accommodation, presents an extreme risk, due to the proximity to nearby safer places, lack of safe access and hazardous vegetation.
- The SA CFS acknowledges the application has amended the siting 20 metres to the north east, away from existing elevated fuel structures. However the overall risk remains and will require mitigation measures to be put in place.
- A widened access with reduced fuel loads on either side will provide greater protection during evacuation before and after the fire front.
- The SA CFS understands the importance of development of the tourism industry on Kangaroo Island and finding balance between ecotourism and meeting the bushfire provisions. Consideration must be given to the essential bushfire provisions in order to protect the life of potential occupants, and firefighting personnel in the event of a bushfire.

A summary of outcomes negotiated and proposed by AWC are accepted by SA CFS as follows:

- Siting away from existing elevated fuel structures.
- A dedicated fire fighting water supply, pumping system, pipe-work and fire-fighting hose(s) in accordance with Minister's Specification SA78.
- A vegetation management zone (VMZ) shall be established and maintained within 20 metres of the refuge building.
- Design and Construction of the proposed refuge building in accordance with Community Bushfire Refuges 2014, as published by ABCB and the Fire Services Commissioner Victoria (see Appendix A); and the NCC Part 3.7 "FIRE SAFETY" Australian Standard TM3959 (AS3959) "Construction of Buildings in Bushfire Prone Areas".
- The applicant & operators shall formulate, practice and maintain an Emergency Response Plan that addresses the extreme risk associated this remote location presents, incorporating the following:

- o Emergency communication
- o Evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced
- o Emergency response training & regular drills
- o Operating hours and restrictions on days of extreme weather or bushfire events

These outcomes have been adopted as proposed conditions of planning consent to ensure compliance with meeting the bushfire provisions.

#### 5.4 Native Vegetation Council

Although there is no statutory referral required, the application was referred to the NVC to assist in appreciating the potential impact of the proposal on flora and fauna.

Chronology of events:

- Referral to NVB – November 2018
- NVB referral response received – January 2019 (Refer ATTACHMENT 4)
- Applicant (Fyfe) response to issues raised – March 2019 (Refer ATTACHMENT 6)
- NVC considered NV Clearance application – May 2019 (on going)

Based on departmental mapping a number of vegetation communities may be impacted by the proposal.

The total footprint of the development at Sanderson Bay is approximately 0.2 hectare. It is noted that the site selected for locating buildings appears to support sparser native vegetation.

The Native Vegetation Council (NVC) is not generally supportive of proposals that fragment undisturbed remnant vegetation, as this proposal appears to. However if approved under the Development Act 1993 there are pathways to approval under Native Vegetation Regulations 2017 that may accommodate the proposal, namely regulation 12(33) - New dwelling or building. It is recognised that the applicant has attempted to minimise impacts on vegetation however the NVB remains concerned that the proposal does not fully demonstrate how this has been addressed or that other options may be available that would result in less impact.

NVC have the following areas of concern with the proposal:

- The distance the site is from KIWT and existing vehicle access and the resultant amount of track development required to connect site to KIWT and proposed staging post. It is believed overall clearance could be reduced if sited closer to KIWT and existing vehicle access tracks.
- Although the building footprint is defined, the total construction footprint is not defined.
- Clearance that may be required for construction vehicle movement, within and to and from the site is not clear.
- While proposed clearance for fire protection is limited to one building, possible additional vegetation clearance for bushfire protection may be necessary as CFS bushfire requirements are yet to be determined.
- Destabilisation and erosion of the site may increase with the removal of vegetation.
- Changes in surface water flow due to altered surfaces and rain water overflow that may impact (beneficially or negatively) surrounding native vegetation.
- Contingency to manage waste water (grey and black) leakage/spills so as to avoid or minimise site impacts.

- Incorporate *Phytophthora cinnamomi* (Dieback) and weed management including hygiene procedures into construction and operational plans.

The applicant subsequently lodged an application in November to clear Native Vegetation, with the matter considered by the Native Vegetation Council on 1 May 2019. Further justification and supporting information has been requested from the applicant before the NV Council can arrive at a decision. The next available meeting is scheduled for July 2019.

## 6. PUBLIC NOTIFICATION

The application is a Category 1 development pursuant to the Kangaroo Island Development Plan.

The Procedural Matters contained within the Zone advise that the following forms of development (except where the development is non-complying) are designated as Category 1:

*Tourist accommodation setback a minimum of 100 metres from land within an adjoining allotment used for farming or horticulture.*

This has been achieved with the subject site located well within the National Park, and located over 1.0 km from land zoned for primary production. Accordingly no statutory public notification was required.

## 7. POLICY OVERVIEW

The subject site is within the Conservation Zone as described within the Kangaroo Island Development Plan, consolidated 17 September 2015.

The Development Plan provides guidance with respect to the importance of Kangaroo Island within the State Strategic Setting as follows:

### ***Kangaroo Island Planning and Development Area***

*Kangaroo Island is one of Australia's largest off-shore islands. Due to its relative isolation from the rest of the State it faces unique economic, environmental and social circumstances, challenges and opportunities.*

### ***Economic Activity***

*Traditionally, the Island's economy has been based on the production of wool, cereals and some beef cattle, while industries that are growing in importance are tourism, aquaculture and forestry. The creation of economic initiatives and employment opportunities, combined with appropriate land use allocation, is sought to establish a robust and sustainable economic climate that contributes to the wellbeing of the local community.*

### ***Tourism***

*Tourism has shown growth over recent years and it is anticipated that tourism numbers will increase in the future. It is of extreme importance that Kangaroo Island Tourism is managed in a manner that ensures that the experiences of visitors continue to match their Kangaroo Island expectations and perceptions.*

*Tourism to Kangaroo Island has historically been largely dependent on the natural resources of the Island and people's perception of the quality of these resources. The concept of a 'clean and green' image for the Island is a fundamental component of tourism and other industries, and its continuing success will be dependent on a well-managed natural environment.*

*A range of sustainable tourism facilities, accommodation and products must be developed to suit a range of visitor budgets and experiences. However, tourism development must also consider the impact of increasing numbers on the natural environment so as not to diminish the very reason that attracts so many visitors to the Island in the first instance.*

*With the international growth in the nature-based tourism market, Kangaroo Island is well placed and has the potential to be one of Australia's leading eco-tourism destinations.*

*It is expected that the Island will continue to develop as a pre-eminent sustainable, nature-based tourism destination, but there is also a need to provide opportunities in other tourism markets around the themes of outdoor adventure and leisure activities, the coast, niche food and wine products, heritage and culture. These markets should add depth to the Island's appeal as a visitor destination and encourage longer stays.*

#### **Environment and Resources**

*The environment of Kangaroo Island is characterised by extensive areas of National Park and Conservation Parks, accounting for nearly 30 per cent of the Island. Kangaroo Island has:*

- *spectacular coastal features*
- *clean beaches*
- *freshwater streams*
- *unspoilt natural settings*
- *a small resident population*
- *a diversity of native fauna and flora (including rare and endangered species)*
- *a rare seal colony*
- *no rabbits or foxes; and is relatively pollution free with contamination free conditions.*

*The Island has a visually appealing landscape with a mix of farm pasture and natural vegetation.*

*Kangaroo Island offers an unspoilt Australian nature, wildlife and rural experience with the distinctive difference of an island setting. Opportunities to see Australian wildlife (including rare species) in natural habitats, the spectacular coastlines, bush landscapes and the mystique of the Island's isolation, small population and heritage, make Kangaroo Island a compelling travel destination for local, national and international visitors.*

*The ongoing management of the environment is required to ensure the protection of the Island's unique natural qualities and to maintain its reputation as a specialist tourist destination of national and world wide significance.*

Relevant planning policies (Zone and Council Wide) are contained in the ATTACHMENTS , and are summarised below.

#### **7.1 Conservation Zone**

The Conservation Zone contains areas of National, Conservation and Marine Parks and Wilderness Protection Areas, to provide representative samples of the countryside and shoreline with the objective of conserving and enhancing the natural environment and natural ecological processes for their historic, scientific, landscape, faunal habitat, biodiversity and cultural values.

The primary Objectives for the Zone advise:

*Conservation Zone Objective 1: The conservation and enhancement of the natural environment and natural ecological processes for their historic, scientific, landscape, faunal habitat, biodiversity and cultural values.*

*Conservation Zone Objective 2: Provision of opportunities for the public to experience and appreciate the significance of the native vegetation and original remnant natural habitat of the area through low impact recreational activities and interpretive facilities.*

The Desired Character stated for the Conservation Zone envisages facilities for the use of visitors including picnic areas, shelters, huts / bothies, camp sites, toilets, and similar public amenities as well as various forms of low-key, **short stay tourist accommodation such as semi-permanent tents and lodges are anticipated provided they are appropriately sited and designed in a manner that is subservient to the natural and coastal environment and adverse impact on natural features, landscapes, habitats and cultural assets is minimised** (the author's emphasis).

Opportunities for the public to experience and appreciate the significance of the native vegetation and original remnant natural habitat of the area through low-impact recreational activities and interpretive facilities are provided.

The siting of tourism development, including any associated access driveways and ancillary structures, on cleared or degraded areas is preferred. Development should be located away from fragile coastal environments and significant habitat or breeding grounds.

There is some land on Kangaroo Island where the flora and fauna have developed naturally and are still not noticeably affected by human intervention. These areas will be kept free of artificial improvements so that visitors may experience a completely natural environment. Such areas will remain as wilderness areas in order to preserve their special character.

Conservation Zone PDC 1: Specific to this application, the following forms of development are envisaged in the zone:

- directional, identification and/or interpretive advertisements and/or advertising hoardings for conservation management and tourist information purposes
- facilities associated with the interpretation and appreciation of natural and cultural heritage such as public amenities, camping grounds, remote shelters, huts / bothies
- tourist accommodation.

## 7.2 Council Wide

Relevant Council Wide policy provides guidance regarding appropriate land use, design and built form, environmental, waste, access and safety, conservation, native vegetation, and bushfire considerations among others.

New buildings should have access to natural light, provide energy efficiencies and minimise visual bulk through architectural composition and judicious use of materials. They should also be designed to reduce the impact of bushfire risk through design and critical siting. Emphasis is placed on minimising impacts of new development on the loss and disturbance of native flora and fauna and the developments compatibility with the environment in which it sits and preservation of high landscape and amenity value.

## 8. PLANNING ASSESSMENT

The application has been assessed against the relevant provisions of the Kangaroo Island Council Development Plan – Consolidated 17 September 2015.

No assessment has been made against the Management Plan as that document is administered by the DEW and whilst important for the management of the Park, is not recognised for the purposes of determining land use suitability under the *Development Act, 1993*. Similarly, whilst attention is directed to the matter of impact on native vegetation a separate and independent assessment process will be undertaken under the *Native Vegetation Act 1991*.

### 8.1 Context

Development should continue to be limited in natural coastal, marine and estuarine areas in areas of high conservation landscape or environmental, significance to ensure that the environmental values of the island are preserved and enhanced.

However, to meet an increasing international demand for special tourism experiences that KI is well placed to provide, there needs to be a recognition that in limited circumstances tourism development should be allowed if it meets environmental, social and amenity criteria and is consistent with the strategic intent of the key state and federal tourism policies and plans.

To meet a range of accommodation and tourism experience needs, land use and development policy requires well designed accommodation for tourism that does not detract from scenic and landscape value of a location. In addition, it envisages a limited number of accommodation styles in scenic and landscape areas, located and designed such that scale, height, design and siting is respectful of and does not detract from views of the rural, natural or wilderness landscape, of the ocean and coastline, or important elements of the natural landscape eg native vegetation cover, coastal features, animal habitat.

The development plan provides a basis for tourism accommodation of varying intensities to be considered in coastal and rural areas and areas of high conservation significance provided it meets criteria designed to minimise visual and amenity impact and interface issues with activities on adjacent land, and avoids environmental impacts. Matters such as vegetation clearance and coastal protection are still integral considerations to site suitability. Importantly the Development Plan has established a clear hierarchy of environmental areas to be protected from or used for such development.

#### The Proposal

To restate, a multi day walking trail was identified by SATC for the tourism industry on Kangaroo Island and as a result the 61 kilometre Kangaroo Wilderness Trail was developed. In support and ancillary to the trail exclusive eco-sensitive accommodation and tours to tourists was proposed. The Australian Walking Company (AWC) was the commercial operator chosen by DEW and SATC to develop the accommodation and bush walking experience. The focus being on the promotion of nature-based tourism opportunities in SA's National Parks to increase tourism and provide for a range of eco-sensitive accommodation styles.

### 8.2 Land Use and Character

In terms of land use, the application before the Panel is for one style of tourist accommodation, which will cater for a relatively broad spectrum of tourists. The accommodation proposed through this application are intended to improve the current 'offer' along the trail, at Sanderson Bay.

PDC 1 for the zone contemplates facilities associated with the interpretation and appreciation of natural and cultural heritage such as public amenities, camping grounds, remote shelters, huts / bothies. In addition, the zone separately identifies

tourist accommodation as an envisaged use. The zone is silent on what form of tourist accommodation is contemplated.

PDC 4 for the zone provides guidance with respect to form and character by stating development should be undertaken in a manner which minimises the effect on natural landscape features, flora and fauna and their habitat corridors, land adjoining water, scenic routes or scenically attractive areas.

The proposed accommodation is small in scale and comprises a series of eco 'pods' with access tracks to ensure that the development is passive to the natural and coastal environment.. This in turn assists to minimise or mitigate potential adverse impacts on the landscape and natural habitats. It is noted the site is located within a National Park but not within a Wilderness Protection Area.

Council Wide provisions within the Development Plan call for environmentally sustainable and innovative tourism development (Objective 1), tourism development that protects areas of exceptional natural value, allows for appropriate levels of visitation, and demonstrates a high quality environmental analysis and design response which enhances environmental values (Objective 4), increased opportunities for visitors to stay overnight (Objective 7) and tourism development having a functional or locational link with its natural, cultural or historical setting (PDC 1). The proposal under consideration demonstrates these qualities.

In assessing the land use and character elements, it is considered tourist accommodation is clearly sought within the zone and the proposed development will broadly provide a form of tourism development that is encouraged.

### 8.3 Tourism Development

The Development Plan seeks to ensure that tourist accommodation outside of townships cannot be readily converted into dwellings (Tourism Development PDC 12 & 13). It is considered that the proposed development is entirely consistent with this due to the remote location, relatively close grouping of the proposed accommodation units, shared facilities and limited internal space of each units, which is not conducive to permanent residency.

### 8.4 Design and Appearance

The site does not have a direct road frontage and therefore setback and siting is less relevant in that respect. However the important aspect is potential for visual impact. The applicant maintains the *...design of the accommodation seeks not to draw attention but rather to blend into the landscape to maintain privacy of guests, out of view from the public walking the Kangaroo Island Wilderness Trail.*

PDC 5 for the zone goes further by detailing measures to avoid impacting detrimentally on the natural environment, processes and/or conservation qualities of land in the zone. This includes earthworks, vehicle access, vegetation removal, siting and materiality.

The proposal before the Panel has been designed by Troppo Architects, who have an enviable reputation for their sustainable architecture practices and respect for the environment.

The design response sees, what Troppo describe as 'site interventions' being positioned to *achieve shelter, finding subtle folds in the landscape, whilst connecting with views and engaging with the essence of the site.* To arrive a point where the architects believe they have identified the optimum site from perspective of only having a 'light touch' on the land has taken considerable ground truthing.



This process has included using contour and height datum, view-shed exercises, analysis of ground conditions, topography, climatic cues and imagining/creating the walker experience at the site.

There are necessary areas within the development site that functionally require a larger footprint, such as the service point and staging post. The management of those areas with respect to their impact on the environment, particularly removal of vegetation, will be subject to closer scrutiny by the Native Vegetation Council.

Traditional foundation systems have been replaced by an anchoring style system, negating the need to excavate.

Paths/boardwalks follow site levels for minimum cut, connecting sleeping, communal spaces and natural site features. Site vehicular access is only by a light vehicle such as a quad bike, aiding road/access widths to be lessened and requiring less intrusive construction and therefore environmental impact.

The materiality and colour palette at Sanderson Bay is drawn from the natural elements and tones will engage with the yellow warmth of sand and the deep greens of the melaleuca landscape to the north.

All structures are lightweight framed, and clad in natural materials, to age and soften in time, generally without applied finish. Only steel is painted to a metallic rusted tone.

In considering the design and appearance elements it is considered the proposal has sufficiently :

- (a) minimised the extent of earthworks
- (b) minimised the extent of vehicle access servicing the development
- (c) indicted an intent to minimise the extent of local indigenous vegetation removal, subject to separate assessment by NVC
- (d) been sited in an unobtrusive manner below hilltops or prominent ridgelines
- (e) negated the need to screen the visual impact by planting locally indigenous species
- (f) incorporated external low reflective materials and finishes that will minimise glare and blend in with the features of the landscape.

Design and Appearance Objective 1 will be met with the development being of a high architectural standard that responds to and reinforces positive aspects of the local environment.

Additionally the external walls and roofs of the buildings do not incorporate highly reflective materials, which will avoid glare, thereby achieving Design and Appearance PDC 7.

## 8.5 Environmental

The proposed development is not located in proximity to a watercourse.

The proposed development will not vary a watercourse in accordance with Natural Resources PDC 17. The proposed development also exceeds the 20 metre and 50 metre separation distances identified in Natural Resources PDCs 21 and 25 respectively.

The CPB indicate a freshwater lens may be in the locality which may require further investigation.

Waste water will be stored and treated off-site ensuring that this does not impact Sanderson Bay.

## 8.6 Bushfire

The proposed site is located approximately 500 metres from the nearest existing fire track, and proposes a narrow track not accessible to motor vehicles to the site. The existing fire track named 'Sanderson Fire Track' is a dead end road, heavily wooded, single entry/exit no thru road that is approximately 9km in length to the nearest public road.

SA CFS advise a widened access with reduced fuel loads on either side will provide greater protection during evacuation before and after the fire front. Clearance of native vegetation would be significant however, and constructing an all-weather surface will be problematic; therefore given the specific risk associated with the site access and proximity to nearby roads for effective evacuation the applicant and operators shall formulate, practice and maintain an Emergency Response Plan that clearly identifies evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced. The applicant welcomes this approach.

The applicant advises that this is supervised site with 2 (minimum) trained guides, operations protocols, and 24/7 communications. Further, a compliant bushfire response strategy is outlined in Bushfire Solutions report. The Guide Pod is proposed to be constructed to meet the specified BAL assessment, with alternative egress to the nearby beach and sheltering cliffs.

Other assets are proposed not to be protected.

The proposal seeks to limit vegetation removal to building footprints, access trails and hazardous vegetation will be reduced around the guide pod for bushfire safety, comprising 2 metres of clearance and ensuring that areas within 20 metres of the refuge have no more than 50% vegetation cover - subject to NVC approval.

The following summary of outcomes negotiated and proposed by AWC are accepted by SA CFS as follows:

- A dedicated fire fighting water supply, pumping system, pipe-work and fire-fighting hose(s) in accordance with Ministers Specification SA78.
  - A vegetation management zone (VMZ) shall be established and maintained within 20 metres of the building.
  - The applicant & operators shall formulate, practice and maintain an Emergency Response Plan that addresses the extreme risk associated this remote location presents, incorporating the following:
    - Emergency Communication
    - Evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced
    - Emergency response training & regular drills
    - Operating hours and restrictions on days of extreme weather or bushfire events
- Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.4.1 prescribes the mandatory provision of a dedicated and accessible water supply to be made available at all times for fire-fighting.

Accordingly it is considered that Development Plan Objectives and Principles of Development Control for Hazards (Bushfire) will be met:

Objectives: 1, 2, 3, and 8

Principles of Development Control: 1 (a), 1 (b), 2, 6, 7, 8 (a-e), 9 (a-c), and 11.

### 8.7 Access and Safety

The proposed development is distinctive in that guest access will be via walking trails. No public vehicle access is needed to the site.

The applicant advises that vehicle access will be limited to one vehicle to the Staging Post adjacent Sanderson Bay Fire Track with a light vehicle (quad) track extending from the Staging Post to the Service Point and guide accommodation.

One car park is proposed at the Staging Post for this vehicle with the light vehicle being stored and parked within either the Staging Post or Service Point buildings.

Construction activity will use the same service access track and paths as for operation.

The distinct nature of this proposal reduces the usual emphasis on transportation and access requirements. The assessment of access identifies that the development will not have direct access from an all weather public road. Transportation and Access PDC 21 is therefore not achieved. This is not considered fatal to the application as an alternative form of pre-arranged access/transportation is provided and controlled by the Operator.

The proposals limited need for vehicular traffic does however avoid impacts on adjoining roads and will not create traffic of any noticeable volume. Transportation and Access PDC 22 is satisfied.

Transportation and Access PDC 27 gives guidance over the design and construction of driveways, access tracks and parking areas. Access tracks have been designed to follow the contours of the land will be in an unobtrusive location as envisaged by Tourism Development PDC 20 and Sloping Land PDC 1.

### 8.8 Coastal/Scenic Amenity

Appreciably coastal scenic amenity is key to the 'brand' of Kangaroo Island. The desire for increased nature based tourism experiences must be balanced with protection of coastal environments of high scenic value, and ensuring that development does not detract from the aesthetic appearance of the coast.

Part of the intelligence gathered when assessing this application has come from the teachings of the Coast Protection Board, who arguably are the preeminent body capable of making independent assessments of this nature. Of note, the Board has clear Policy in this regard and the following two Policies are useful in assisting an assessment of visual impact, particularly on coastal scenic amenity.

*Coast Protection Board Policy 1.4(e):*

*"The Board will seek to ensure that the siting and design of development on the coast minimises its impact on the environment, heritage and visual amenity of the coast."*

*Coast Protection Board Policy 5.2 (a):*

*The Board opposes development that has significant visual impact on coastlines with significant landscape value [in doing so the Board will have regard to both the visual impact from the land and from the sea].*

Feedback from the Coast Protection Board confirms the subject land is considered to have significant landscape value, "...being a dramatic stretch of coastline free of development in Flinders Chase National Park. This value underpins the tourism economy and attraction to Flinders Chase National Park.

A report produced for the Coastal Protection Branch of DEH, 'Coastal Viewscapes of South Australia' by Dr Andrew Lothian in 2005, measured and mapped the scenic quality of the South Australian coastline. This project intended to assist in the development of planning policy and the assessment of development applications, and it identified this area as having high scenic quality, with a value of 7.0 to 7.9 (range between low 3.0 to 3.9 and high 8.0 to 8.9)."

The referral response provides an insightful and balanced perspective, that the proposed development is "...set back approximately 200 metres from the coastline, set within a vegetated dune system, and will, to an extent, blend with the landscape via appropriate design, materials and colour selections.

Based on the information provided, it appears that the proposed development is unlikely to have an unacceptable impact on visual scenic amenity."

Coastal Areas PDC 1 is achieved in that the development is compatible with the coastal environment in terms of built-form, appearance and landscaping including the use of walls and low pitched roofs of non-reflective texture and natural earth colours.

Siting and Visibility PDC 5 is also achieved with the nature of external surface materials of buildings being such that they will blend and not detract from the visual character and amenity of the landscape.

## **8.9 Access and Parking**

Given the nature of the proposal, there will not be general public access to the accommodation pods. Patrons will arrive typically on foot as part of an organised experience.

The proposal is considered to broadly satisfy the relevant provisions of the Development Plan with respect to access and parking, particularly Transport and Access Objective 2 and PDCs 21 and 27.

## **8.10 Environmental Factors**

### **8.10.1 Waste Management**

Effluent disposal systems should be designed to minimise impact to this surrounding environment and any systems incorporating septic tanks, soakage trenches or similar must be located not less than 100 metres to the mean high water mark.

A closed waste water system is proposed, utilising natural site falls. Individual bathrooms and the Longhouse kitchen will drain to a 4,000 litre in-ground waste treatment tank. Waste will be broken down by worms to minimise waste output to a 3,200 litre in-ground holding tank for pump-out. The pump-out waste water, though 'clean', will be removed by trailer to a waste storage tank at the Staging Post. Pump-out cycles are proposed to be monthly at the site, and annually at the Staging Post.

A waste water application will be lodged with the Kangaroo Island Council for approval. The detailed design of the system will become apparent at that stage.

Rubbish and recyclables will be accommodated via a separated waste management system integrated into the Longhouse kitchen, Service Point and Staging Post.

It is considered the development includes sufficient mechanisms and processes to address the treatment and management of solid and liquid waste, to prevent undesired impacts on the environment.

Waste Objectives: 1 and 2 are satisfied in this regard as are Principles of Development Control: 1, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15 and 16

#### **8.10.2 Energy Efficiency**

Electricity is to be made available via solar panels installed on the proposed buildings with back-up batteries stored on site if needed.

Efficient solar access to buildings and open space can be gained all year around, the buildings are sited and designed to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings, and the designs minimise consumption of non-renewable energy; as called for by Energy Efficiency Principles of Development Control: 1, 3, 4 and 5.

Tourism Development PDC 18 calls for tourism development, particularly in remote areas to be designed to minimise energy and water demands and incorporate alternative, sustainable technologies that use renewable energy sources and/or treat and reuse stormwater and wastewater to minimise reliance on mains services. The proposal will achieve the intent of this provision.

#### **8.10.3 Stormwater**

A centralised harvesting, storage and reticulation system is proposed to be based at the Service Point. The system will comprise 90,000 litres storage, with detailed water conservation techniques. The applicant advises water will be harvested from the Longhouse building only.

Stormwater from the Sleeping and Guide Pods roofs will fall to drainage swales or shallow soakage pits adjacent the pods. Buffer and storage tank overflows are directed to soakage pits lined with geotextile fabric and filled with stone to absorb water impact.

It is considered that this is an appropriate response in the within the setting to manage disposal and potential erosion or scouring.

#### **8.10.4 Hazards**

The development plan identifies guidance for considering the tension between land use and risk minimisation from natural hazards.

Appreciably one way to protect or maintain the natural environment and systems is by limiting development in areas susceptible to natural hazard risk. The Flinders Chase National Park by its very nature is a high risk area for bushfire, combined with a rugged coastal environment.

The development plan suggests one way to minimise risk is to have development located away from areas that are vulnerable to the risk of natural hazards. To ease that tension development should be adequately and effectively protected from the risk. Hazards Objectives 1 & 2 speak to this tension and balance.

Bushfire presents as a key hazard risk and like in other parts of the state designated 'high bushfire risk', suitable plans and strategies to deal with that risk can be developed (as detailed within 8.7).

Accordingly, it is considered that Objectives: 1, 2, and 3 and Principles of Development Control: 1, 2, 6, 7, 8, 9 and 11 are pertinent in this assessment, with sufficient detail provided by the applicant to confirm compliance.

The Coast Protection Board in its referral response advised it will seek to minimise the exposure of new development to risk of damage from coastal sand drift hazard risks (Board Policy 1.4 b). The Board identified that in its opinion the proposed development is likely to be at risk of sand drift hazard, particularly accommodation pod number 7 to the north.

CPB has recommended that the applicant engage a suitably experienced expert to assess the sand drift hazard, to ensure they fully understand the likely risk and potential impact of sand drift in this location and to provide mitigation measures that could be implemented to minimise the risk and specify rehabilitation measures that could be undertaken should instability of the sand dune occur.

*In response the applicant has advised..."The CPB note that the proposed development site is not at risk of coastal flooding or erosion but that the site may be susceptible to sand drift hazard, particular at pod 7 to the north. No further sand drift hazard assessment has been undertaken. However, the design and placement of the buildings has sought to minimise cut and fill buy using lightweight structures that will be placed on the land and will not require extensive amounts of earthworks or benching. In addition, clearance of vegetation has been avoided where possible with all areas other than walking trails, building footprints and the clearance area surrounding the guide pod being revegetated to minimise the opportunity for sand drift hazard. Notwithstanding this, AWC accept that there is the potential for sand drift hazard and will monitor, manage and mitigate sand drift where possible."*

## 9. CONCLUSION

To meet a range of accommodation and tourism experience needs, land use and development policy has been established for Kangaroo Island that seeks well designed accommodation for tourists that does not detract from scenic and landscape value of a location.

In addition, the Conservation Zone provides for and encourages tourist accommodation of varying styles in scenic and landscape areas, located and designed such that scale, height, design and siting is respectful of and does not detract from views of the rural, natural or wilderness landscape, of the ocean and coastline, or the elements of the natural landscape eg native vegetation cover, coastal features, animal habitat.

The applicant has given due regard to refining their proposal to mitigate risk from bushfire hazards, to the satisfaction of the SA CFS, with the SA CFS advising that it has no objection to the proposal subject to conditions. The clearance of native vegetation is being considered through a separate application to the NVC. Kangaroo Island Council is supportive of the application, describing it as 'an exciting opportunity for tourism growth and diversity on Kangaroo Island'.

On balance it is considered that the proposed development warrants planning consent as it has been sensitively designed, will provide a wider range of tourist accommodation options on the Island, and is generally consistent with the relevant provisions of the Kangaroo Island Development Plan.

## 10. RECOMMENDATION

It is recommended that the State Commission Assessment Panel:

- 1) RESOLVE that the proposed development is NOT seriously at variance with the policies in the Development Plan.
- 2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal generally accords with the related Objectives and Principles of Development Control of the Kangaroo Island Development Plan.
- 3) RESOLVE to grant Development Plan Consent to the proposal by Australian Walking Company for tourist accommodation at Sanderson Bay subject to the following conditions of consent.

### PLANNING CONDITIONS

1. The development granted Development Plan Consent shall be undertaken and completed in accordance with the stamped plans and documentation, except where varied by conditions below (if any).

*Reason: to ensure the development is undertaken with its approved plans.*

2. All trade waste and other rubbish shall be stored in covered containers prior to removal and shall be kept screened from public view.

*Reason: To avoid impact on the surrounding natural environment.*

3. All external finishes shall have surfaces which are of a low light reflective nature and be of muted natural colours.

*Reason: To avoid impact on the surrounding natural environment.*

### Coast Protection Board (recommended conditions)

4. The applicant shall also ensure that the ongoing management of the site and visitor control measures minimise disturbance to the surrounding area to retain a high cover of vegetation and reduce the risk of sand drift.

5. The proposed development shall not result in any scouring, erosion or marine sedimentation impacts.

6. Effluent disposal systems shall be designed to minimise impact to the surrounding environment.

*Reason: to ensure appropriate safety requirements and hazard reduction practices are adopted during the construction and operational phases of the development.*

### SA CFS (directed conditions)

7. The applicant & operators shall develop an Operational Management Plan which will ensure that staff and guests alike are not placed at any unnecessary risk through restricting operations and evacuating from the site prior to elevated fire conditions.

8. Design and Construction of the proposed refuge building shall be in accordance with Community Bushfire Refuges 2014, as published by ABCB and the Fire Services

Commissioner Victoria (see Appendix A); and the NCC Part 3.7 "FIRE SAFETY" Australian Standard TM3959 (AS3959) "Construction of Buildings in Bushfire Prone Areas".

9. Siting (of structures) shall be away from existing elevated fuel structures.
10. Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.4.1 prescribes the mandatory provision of a dedicated and accessible water supply to be made available at all times for fire-fighting.

Ministers Specification SA78 provides the technical details of the dedicated water supply for bushfire fighting for the bushfire zone. The dedicated bushfire fighting water supply shall also incorporate the installation of a pumping system, pipe-work and fire-fighting hose(s) in accordance with Minister's Specification SA78 as follows:

- A minimum supply of 22,000 litres of water shall be available at all times for bushfire fighting purposes.
  - The water storage facility (and any support structure) shall be constructed of non-combustible material.
  - The dedicated fire-fighting water supply shall be pressurised by a pump that has –
    - i. A minimum inlet diameter of 38mm, AND
    - ii. Is powered by a petrol or diesel engine with a power rating of at least 3.7kW (5hp), OR
    - iii. A pumping system that operates independently of mains electricity and is capable of pressurising the water for fire-fighting purposes.
  - The dedicated fire-fighting water supply pump shall be located at or adjacent to the habitable building to ensure occupants safety when operating the pump during a bushfire. An 'Operations Instruction Procedure' shall be located with the pump control panel.
  - The fire-fighting pump and any flexible connections to the water supply shall be protected by a non-combustible cover that allows adequate air ventilation for efficient pump operation.
  - All bushfire fighting water pipes and connections between the water storage facility and a pump shall be no smaller in diameter than the diameter of the pump inlet.
  - All non-metal water supply pipes for bushfire fighting purposes (other than flexible connections and hoses for fire-fighting) shall be buried below ground to a minimum depth of 300mm with no non-metal parts above ground level.
  - A fire-fighting hose (or hoses) shall be located so that all parts of the building are within reach of the nozzle end of the hose and if more than one hose is required they should be positioned to provide maximum coverage of the building and surrounds (i.e. at opposite ends of the habitable building).
  - All fire-fighting hoses shall be capable of withstanding the pressures of the supplied water.
  - All fire-fighting hoses shall be of reinforced construction manufactured in accordance with AS 2620 or AS 1221.
  - All fire-fighting hoses shall have a minimum nominal internal diameter of 18mm and a maximum length of 36 metres.
  - All fire-fighting hoses shall have an adjustable metal nozzle, or an adjustable PVC nozzle manufactured in accordance with AS 1221..
11. Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.5 mandates that landscaping shall include Bushfire Protection features that will prevent or inhibit the spread of bushfire and minimise the risk to life and/or damage to buildings and property.
    - A vegetation management zone (VMZ) shall be established and maintained within 20 metres of the refuge building as follows:



- The number of trees and understorey plants existing and to be established within the VMZ shall be reduced and maintained such that when considered overall a maximum coverage of 50% is attained, and so that the leaf area of shrubs is not continuous. Careful selection of the vegetation will permit the 'clumping' of shrubs where desirable, for diversity, and privacy and yet achieve the 'overall maximum coverage of 50%'.
  - No understorey vegetation within 2 metre of the habitable building (understorey is defined as plants and bushes up to 2 metres in height).
  - The VMZ shall be maintained to be free of accumulated dead vegetation.
12. The applicant & operators shall formulate, practice and maintain an Emergency Response Plan that addresses the extreme risk associated this remote location presents, incorporating the following:
- Emergency Communication
  - Evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced
  - Emergency response training & regular drills
  - Operating hours and restrictions on days of extreme weather or bushfire events

*Reason: to ensure appropriate safety requirements and hazard reduction practices are adopted during the construction and operational phases of the development.*

#### **ADVISORY NOTES**

- a. This Development Plan Consent will expire after 12 months from the date of this Notification, unless final Development Approval from Council has been received within that period or this Consent has been extended by the State Commission Assessment Panel.
- b. The applicant is also advised that any act or work authorised or required by this Notification must be substantially commenced within 1 year of the final Development Approval issued by Council and substantially completed within 3 years of the date of final Development Approval issued by Council, unless that Development Approval is extended by the Council.
- c. The applicant has a right of appeal against the conditions which have been imposed on this Development Plan Consent. Such an appeal must be lodged at the Environment, Resources and Development Court within two months from the day of receiving this notice or such longer time as the Court may allow. The applicant is asked to contact the Court if wishing to appeal. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide, (telephone number 8204 0289).
- d. The applicant is advised of the following requirements of the Heritage Places Act 1993.
  - (a) If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity shall cease and the SA Heritage Council shall be notified.
  - (b) Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works. For further information, contact the Department for Environment and Water.
- e. The applicant is advised of the following requirements of the Aboriginal Heritage Act 1988.
  - (a) If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) should be notified under Section 20 of the Aboriginal Heritage Act 1988.

- f. The applicant is advised that any native vegetation on the site is protected under the Native Vegetation Act 1991 and Native Vegetation Regulations 2017. Prior to any clearance being undertaken (e.g. for trail networks and “look out” platforms), the applicant should seek Native Vegetation Council approval to do so.
- g. Compliance with the fire protection requirements is not a guarantee the habitable building will not burn, but its intent is to provide a ‘measure of protection’ from the approach, impact and passing of a bushfire.
- h. The proposed development may be subject to sand drift hazard risk, particularly accommodation pod number 7 to the north. It is recommended that the applicant engage a suitably experienced expert to undertake a site specific sand drift hazard assessment and identify any mitigation measures that should be undertaken.
- i. This site has the potential to contain a freshwater lens, which if broken (eg. during construction) may detrimentally affect the surrounding vegetation. The applicant should determine if further investigation into this feature is required.



Jeremy Wood  
**TEAM LEADER, DEVELOPMENT ASSESSMENT  
DEVELOPMENT DIVISION  
DEPARTMENT OF PLANNING, TRANSPORT and INFRASTRUCTURE**

DRAWING	DATE	CURRENT ISSUE
DRAWING SCHEDULE	07.03.19	Rev 3
LOCALITY PLAN	05.11.18	
SITE PLAN MAP L	15.02.19	Rev 2
SITE PLAN MAP M	15.02.19	Rev 2
VEHICULAR ACCESS TRACK	15.02.19	Rev 2
SITE PLAN MAP S	15.02.19	Rev 2
TOPOGRAPHY	15.02.19	Rev 2
SUND, WIND + VIEWS	15.02.19	Rev 2
HYDRAULICS: SUPPLY	15.02.19	Rev 2
HYDRAULICS: WASTE	15.02.19	Rev 2
SITE PLAN	13.02.19	Rev 2
SITE PLAN: SURVEY	13.02.19	Rev 2
SITE PLAN: NATIVE VEGETATION CLEARANCE	13.02.19	Rev 2
AERIAL VIEW	13.02.19	Rev 2
AERIAL VIEW 2	13.02.19	Rev 2
AERIAL VIEW 3	05.11.18	
LONGHOUSE: PLAN + SECTIONS	05.11.18	
LONGHOUSE: EXTERIOR VIEWS	05.11.18	
LONGHOUSE: INTERIOR VIEWS	05.11.18	
SLEEPING PODS: PLANS + SECTION	05.11.18	
SLEEPING PODS: EXTERIOR VIEWS	07.03.19	Rev 3
SLEEPING PODS: VIGNETTES	07.03.19	Rev 3
GUIDE POD (REFUGE)	05.11.18	
SERVICE POINT	05.11.18	
LOOKOUT	05.11.18	
STAGING POST	05.11.18	
PATHS AND TRACKS: EARTHEN	05.11.18	
PATHS AND TRACKS: BOARDWALKS	05.11.18	
SITE PHOTOS	05.11.18	
ARCHITECTURAL TEXTURES + VIBES	05.11.18	
INTERNAL FINISHES + LITTLE THINGS: LONGHOUSE	05.11.18	
INTERNAL FINISHES + LITTLE THINGS: SLEEPING PODS	05.11.18	



**KANGAROO ISLAND WALK SANDERSON BAY**  
**DRAWING SCHEDULE**

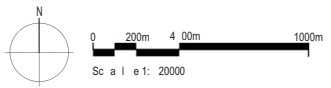
07 MAR 2019 (Rev. 3)



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— Sanderson Bay track  
— Kangaroo Island Wilderness Trail

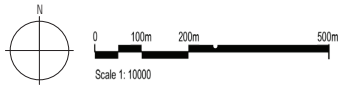


**KANGAROO ISLAND WALK SANDERSON BAY**  
**LOCALITY PLAN**

05 NOV 2018



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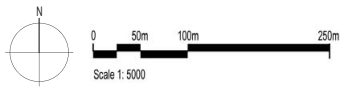
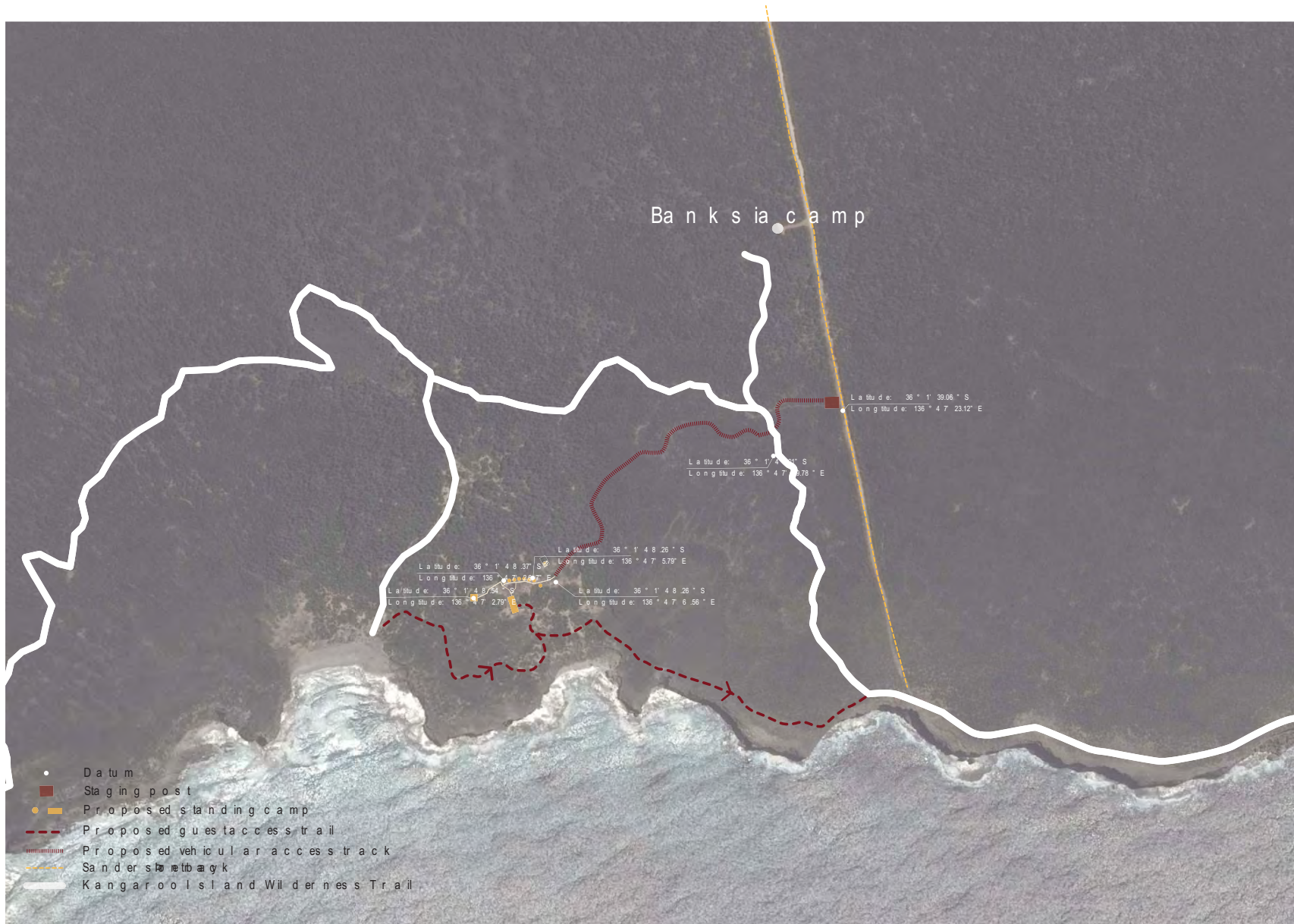


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAP L**

15 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAP M**

15 FEB 2019 (Rev. 2)



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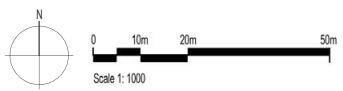


**KANGAROO ISLAND WALK SANDERSON BAY  
(VEHICULAR) ACCESS TRACK**

15 FEB 2019 (Rev. 2)



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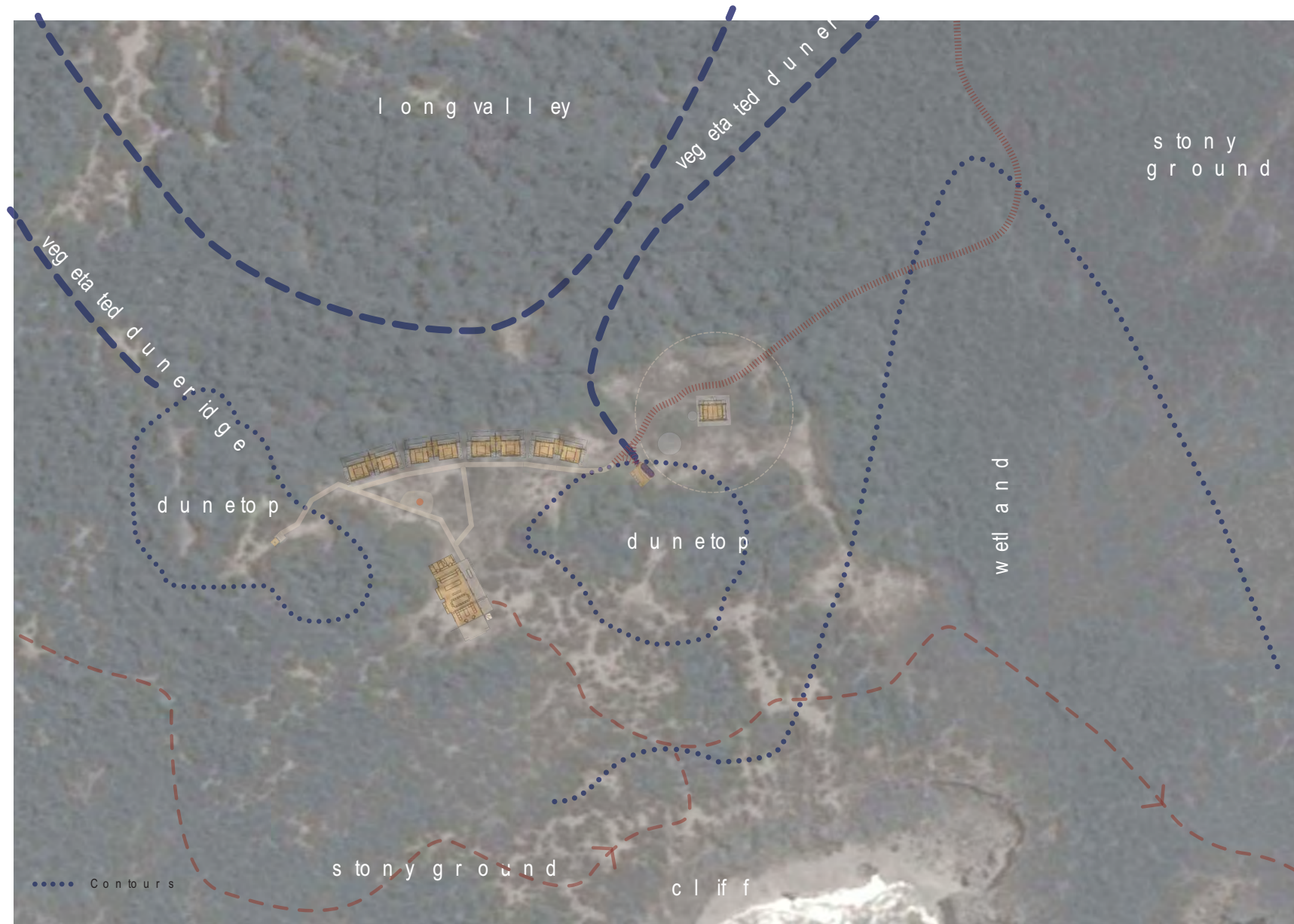
**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAP S**

15 FEB 2019 (Rev. 2)



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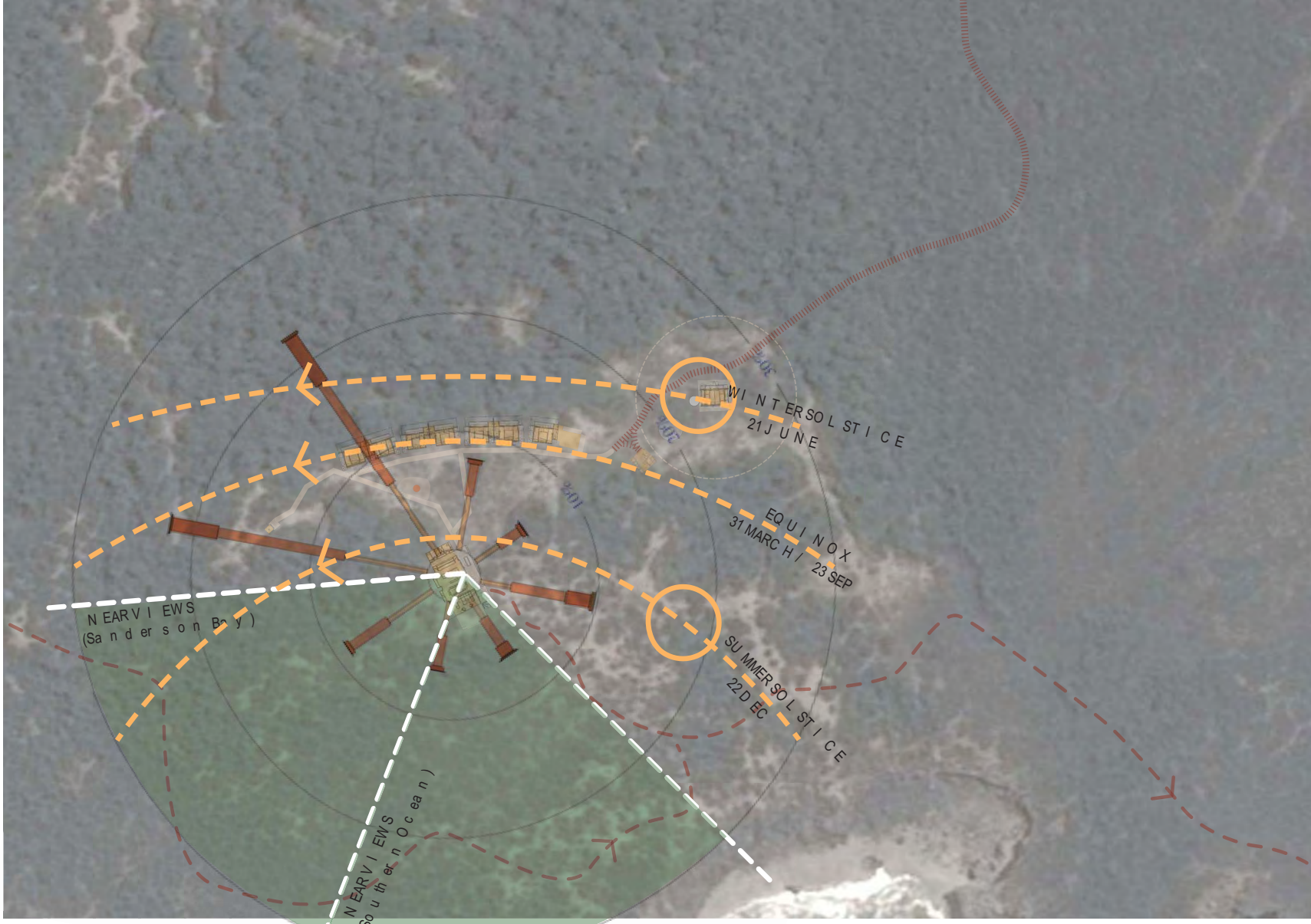


**KANGAROO ISLAND WALK SANDERSON BAY**  
**TOPOGRAPHY**

15 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY**  
**SUN, WIND & VIEWS**

13 FEB 2019 (Rev. 2)



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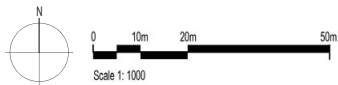
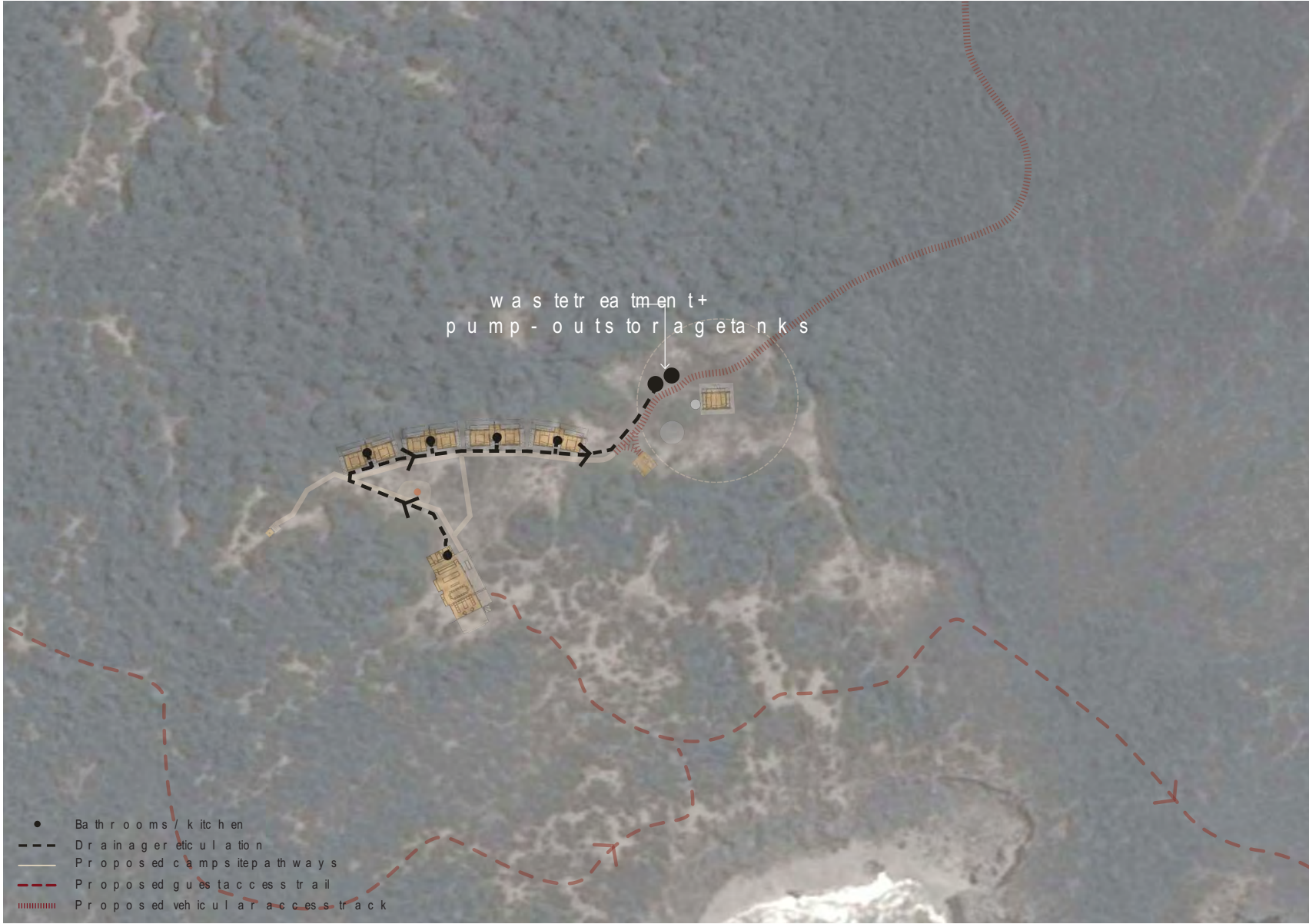


**KANGAROO ISLAND WALK SANDERSON BAY  
HYDRAULICS: SUPPLY**

15 FEB 2019 (Rev. 2)



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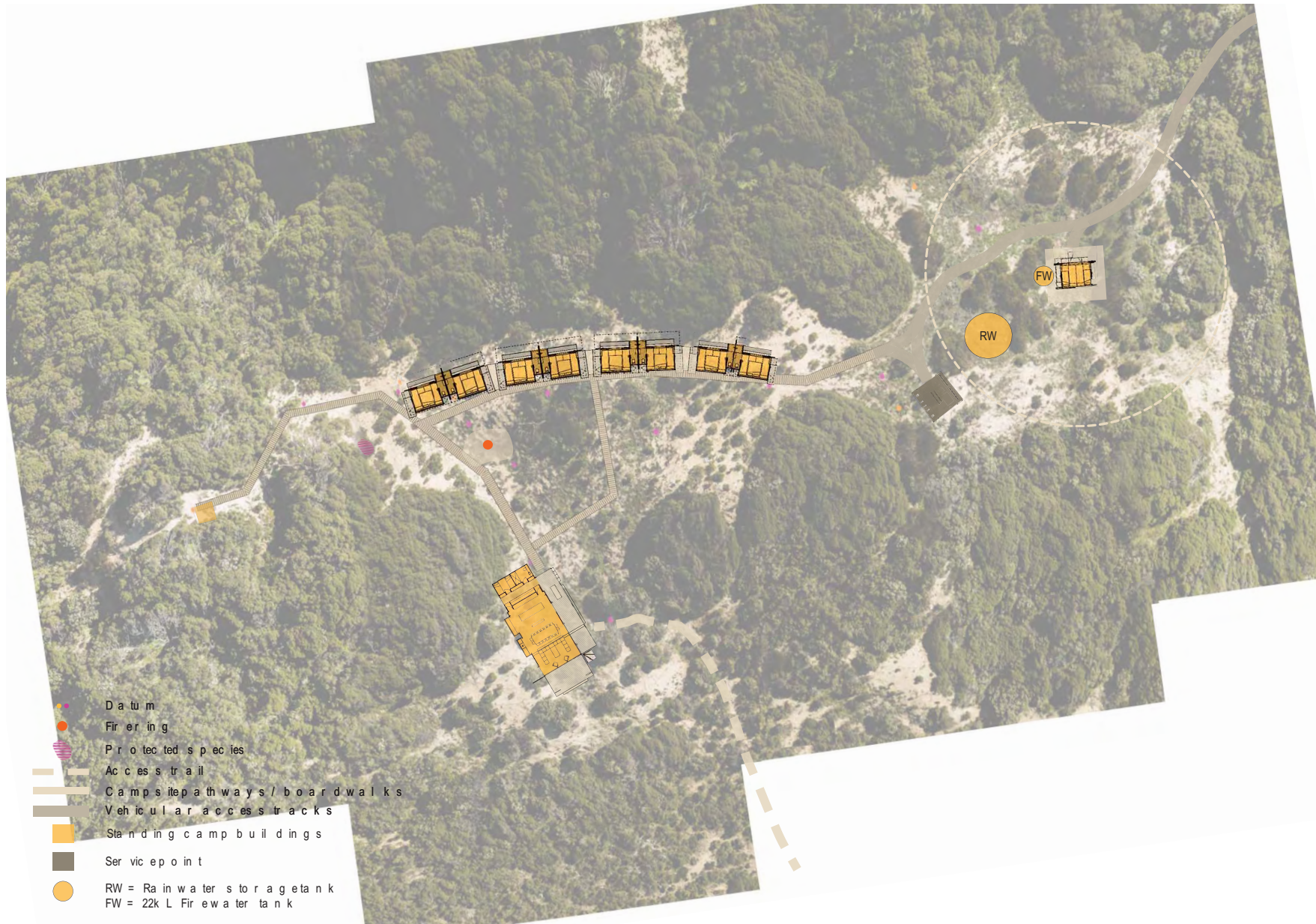


**KANGAROO ISLAND WALK SANDERSON BAY**  
**HYDRAULICS: WASTE**

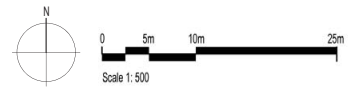
15 FEB 2019 (Rev. 2)



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- Datum
- Firing
- Protected species
- Access trail
- Campsite pathways / boardwalks
- Vehicular access tracks
- Standing camp buildings
- Service point
- RW = Rainwater storage tank
- FW = 22kL Firewater tank

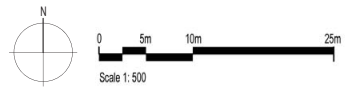
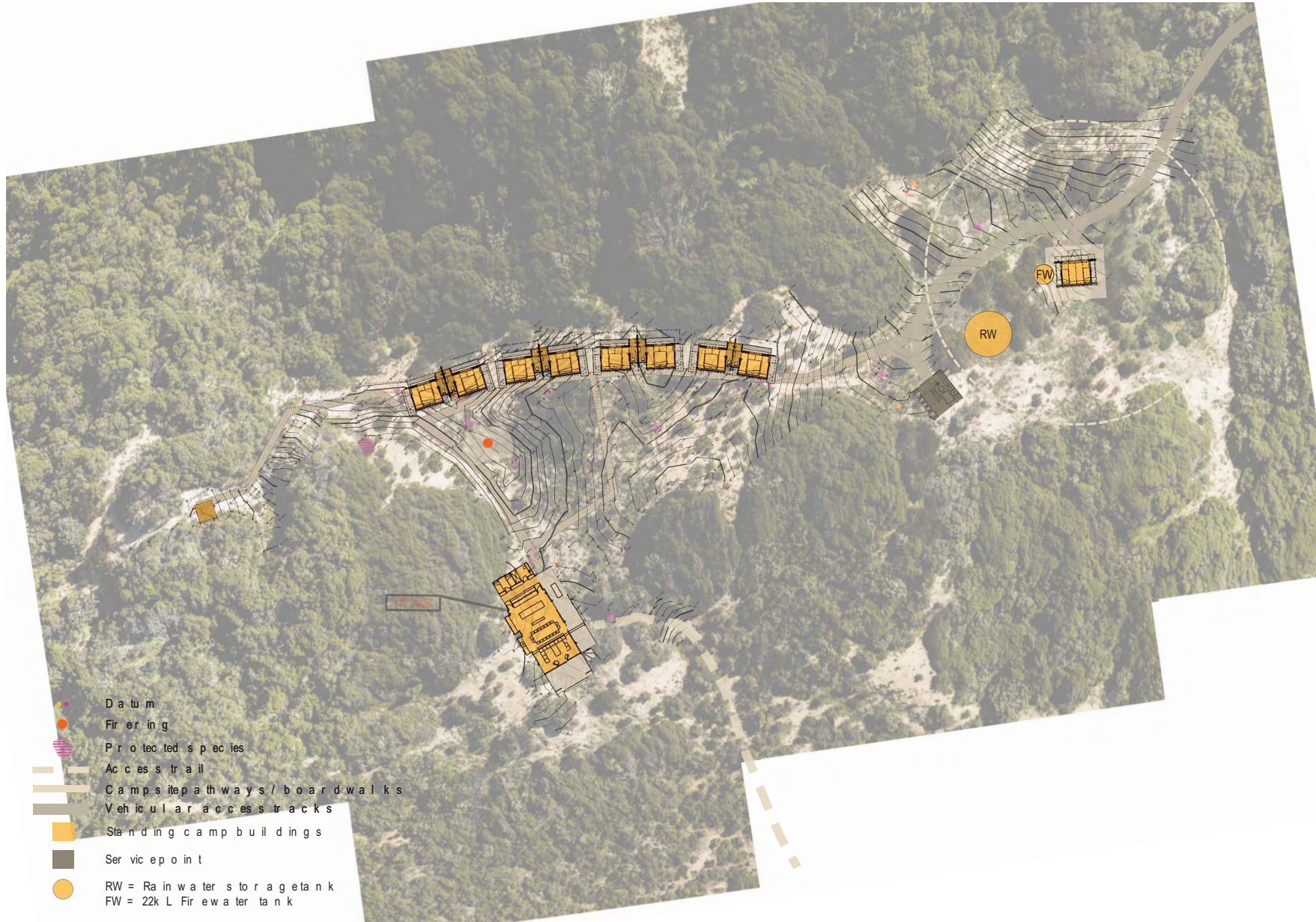


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN**

13 FEB 2019 (Rev. 2)



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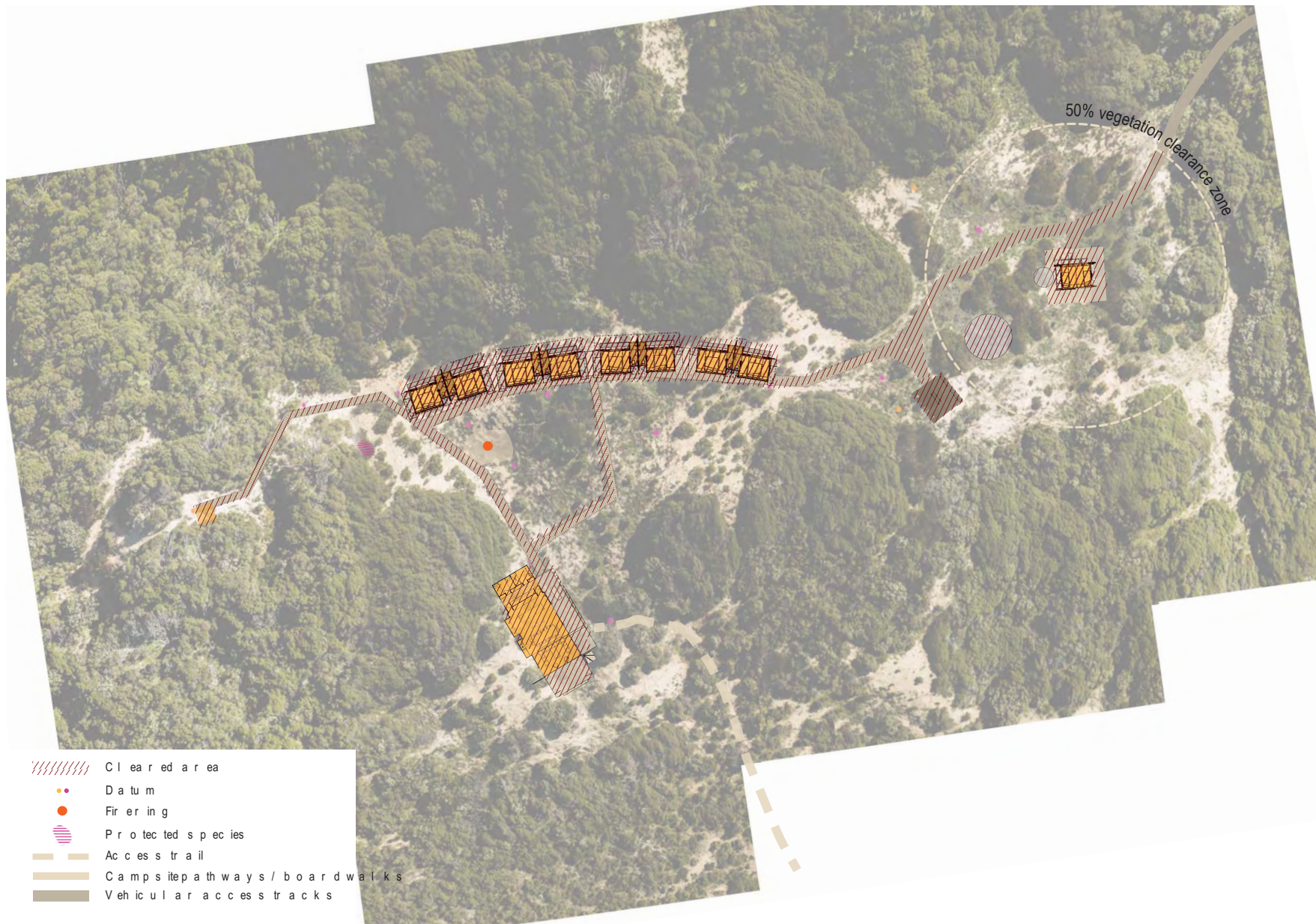









**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: SURVEY**

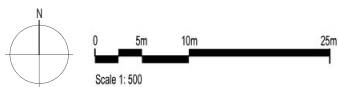
13 FEB 2019 (Rev. 2)



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-  Cleared area
-  Datum
-  Fire ring
-  Protected species
-  Access trail
-  Campsite pathways / boardwalks
-  Vehicular access tracks



**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: VEGETATION CLEARANCE**

13 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY**  
**AERIAL VIEW 1**

13 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY**  
**AERIAL VIEW 2**

13 FEB 2019 (Rev. 2)



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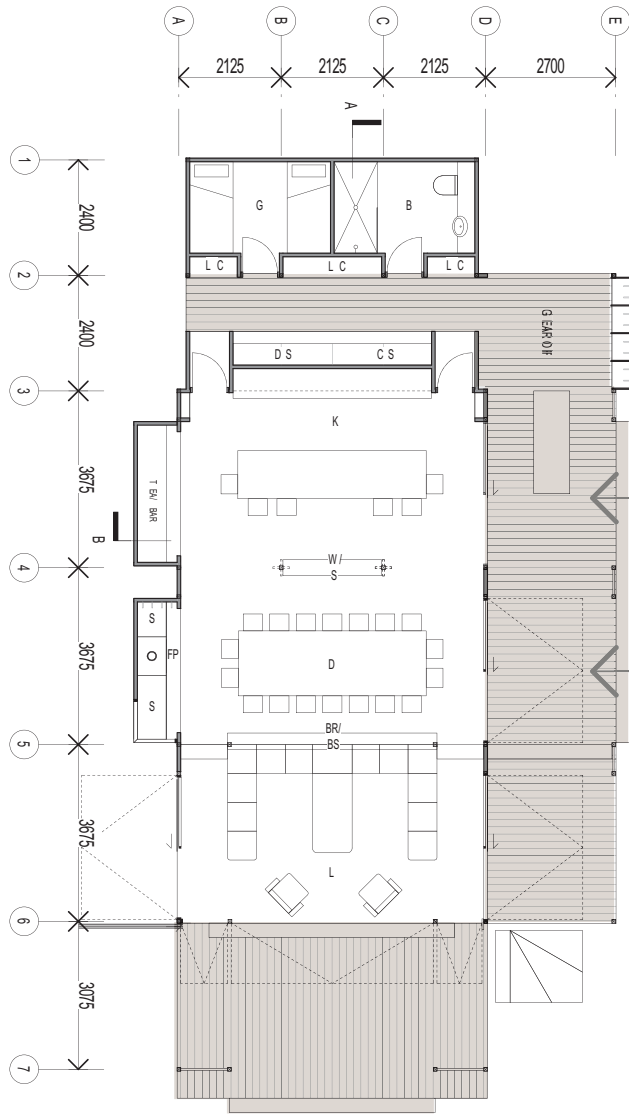


**KANGAROO ISLAND WALK SANDERSON BAY**  
**AERIAL VIEW 3**

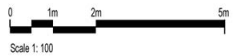
05 NOV 2018



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GROUND FLOOR PLAN



**MATERIAL SCHEDULE**

**EXPOSED FRAMING:**  
 Australian hardwood / cypress pine, natural  
 Steel, painted to dark tones  
 L-ten weathered (raw)s teel

**WALLS: EXTLININGS:**  
 Compressed sheet/eco-ply, natural / stained to  
 L-ten weathered (raw)s teel  
 Weather textured naturally greyed  
 Jasper colorbond / customorb

**ROOFING:**  
 L-ten weathered (raw)s teel  
 Jasper colorbond / customorb  
 Ampelite Wonderglab rG01, a g el, - ic e cal t e d r  
 Bush timber battens from road clearing, natural

**SCREENS/ SOFFITS:**  
 L-ten weathered (raw)s teel  
 Jasper colorbond / customorb  
 Ampelite Wonderglab rG01, a g el, - ic e cal t e d r  
 Laser-cut ply wood, dark stain  
 Bush timber battens from road clearing, natural

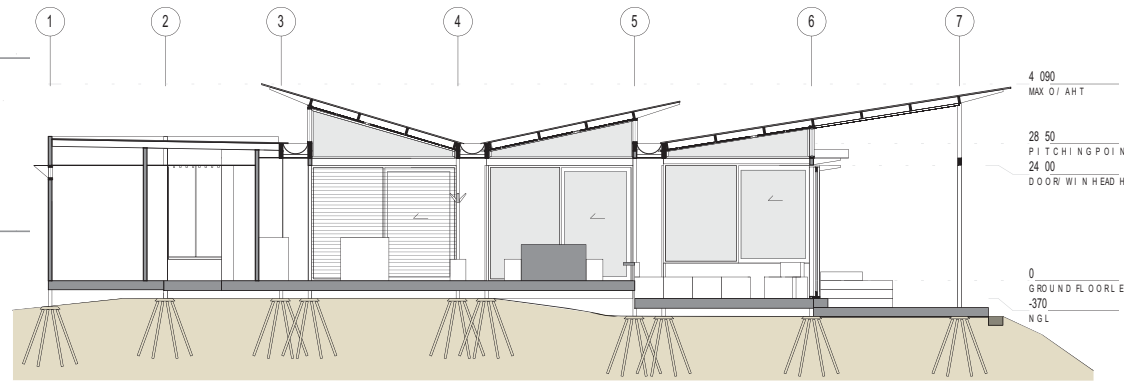
**WINDOWS/ DOORS:**  
 Select Australian hardwood frames, clear oil  
 Performance glass / Ampelite Wogldarsgl, ais e @ C  
 Polished Australian hardwood / bush timber doors

**FLOORS:**  
 Cygnus coded sif ted stone/ gravel s / st a i n g f o o m s i t e w o r k s i n c l u d i n g p r o  
 tracks, paths  
 Select tiles to eedges, erosion controls wherever required

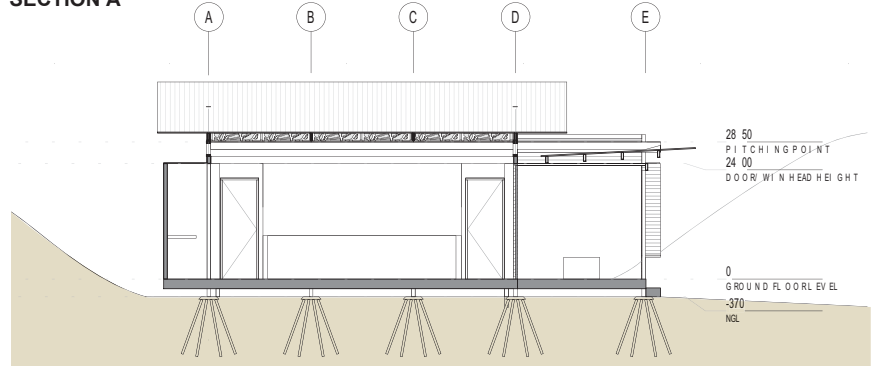
**DECORATING, SEAT S, STEP S, BOARD WALK S, INC FRAMING:**  
 Australian hardwood / cypress pine, naturally greyed  
 FRP mesh, black

**PLAN KEY**

B	BATH ROOM
BRV, BS	BACK REST LEDGE/ BOOKSHELF UNDER
CS	CLEANING STORE
D	DINING
DS	DRY STORE
FP	FR RE PLACE
G	GUIDEBED
GR	GRASS
L	LOUNGE
LC	LINEN CUPBOARD
W	WOOD STORE UNDER/ COAT HOOKS
W	WINE REEF STORE/ SEAT + COAT HOOK POLES



SECTION A



SECTION B

**KANGAROO ISLAND WALK SANDERSON BAY**  
**LONGHOUSE: PLAN + SECTIONS**

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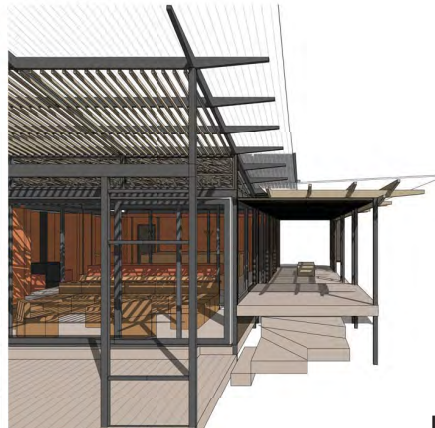
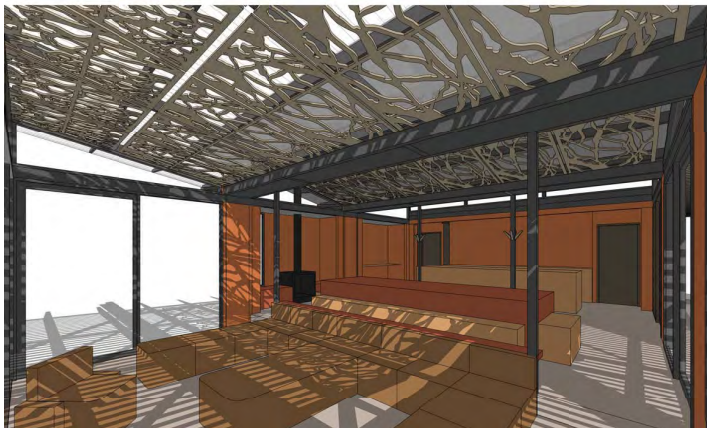
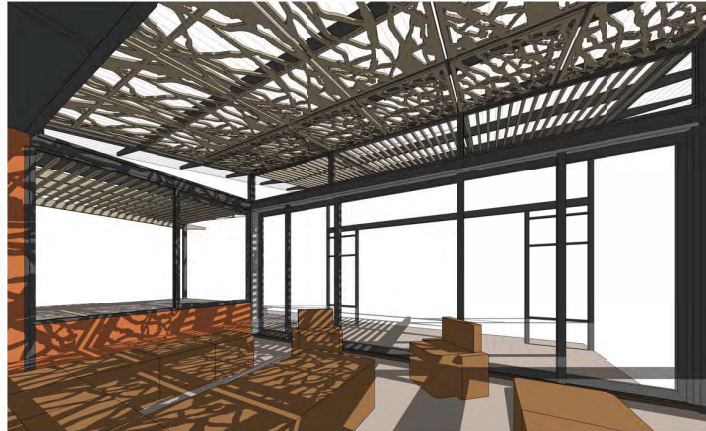
ELEVATIONS/ VIEWS

**KANGAROO ISLAND WALK SANDERSON BAY**  
**LONGHOUSE: EXTERIOR VIEWS**

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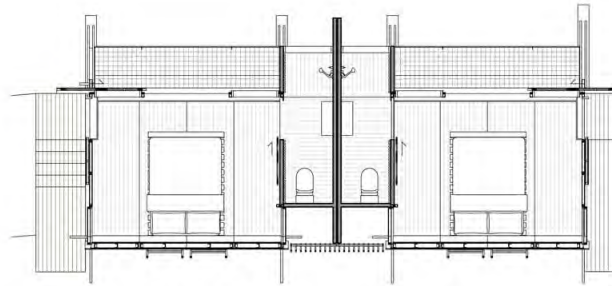


INTERIOR VIEWS / VIGNETTES

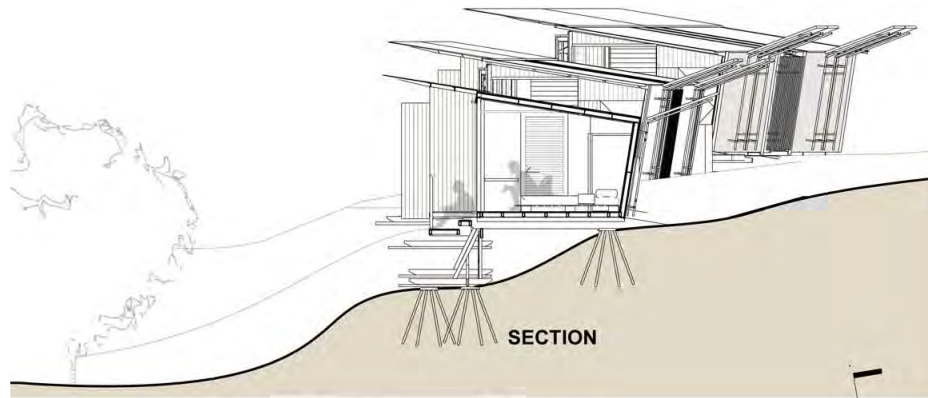
KANGAROO ISLAND WALK SANDERSON BAY  
LONGHOUSE: INTERIOR VIEWS  
05 NOV 2018



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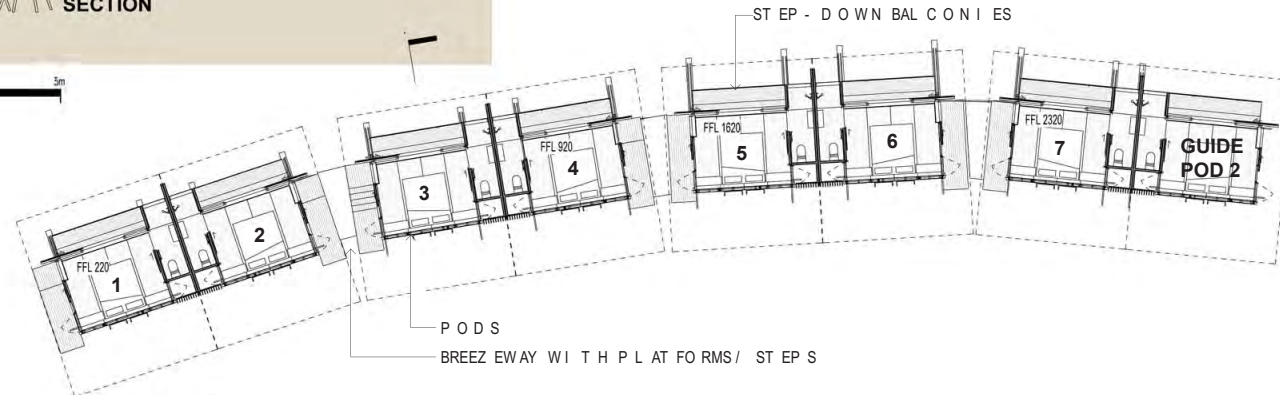
FLOOR PLAN - POD PAIR



SECTION



Scale 1:100



PODS

BREEZEWAY WITH PLATFORMS / STEPS

PRECINCT PLAN



Scale 1:200



**MATERIAL SCHEDULE**

**EXPOSED FRAMING:**

Australian hardwood / cypress pine, naturally greyed  
 Steel, painted to dark tones  
 Liten weathered (raw) steel

**WALLS: EXTLININGS:**

Compressed sheaf eco-ply, natural / stained to dark tones  
 Liten weathered (raw) steel  
 Weather tex Natu is a J n a naturally greyed  
 Jasper colorbond / customorb

**ROOFING:**

Liten weathered (raw) steel  
 Jasper colorbond / customorb  
 Ampelite' Wonder glass rGel, ic eal tedar  
 Bush timber battens from road clearing, naturally greyed

**PATHS:**

Compacted sifted stone / gravel / sand from site works including  
 prior for tracks, paths  
 Select sites to eed ges, erosion controls where equir ed

**SCREENS/ SOFFITS:**

Liten weathered (raw) steel  
 Jasper colorbond / customorb  
 Ampelite' Wonder glass rGel, ic eal tedar  
 Laser-cut plywood, dark stain  
 Bush timber battens from road clearing, naturally greyed

**WINDOWS/ DOORS:**

Select Australian hardwood frames, clear oil  
 Performance glass / Ampelite' Wonder glass rGel, ic eal tedar  
 Polished Australian hardwood / bush timber door furniture

**DECKING, SEATS, STEPS, BOARD WALKS, INCFRAMING:**

Australian hardwood / cypress pine, naturally greyed  
 FRP mesh, black

STEP-DOWN BALCONIES

KANGAROO ISLAND WALK SANDERSON BAY  
 SLEEPING PODS

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PODS FROM WEST



PODS FROM LONGHOUSE

KANGAROO ISLAND WALK SANDERSON BAY  
SLEEPING PODS

15 FEB 2019



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VIGNETTES / BREEZEWAY VIEW



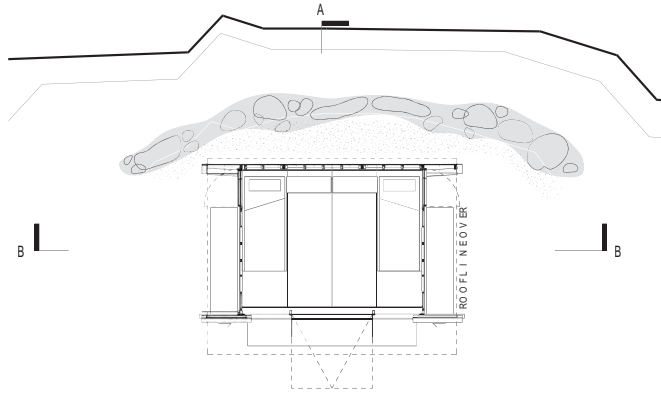
**KANGAROO ISLAND WALK SANDERSON BAY**  
**SLEEPING PODS: VIGNETTES**

07 MAR 2019 (REV. 3)

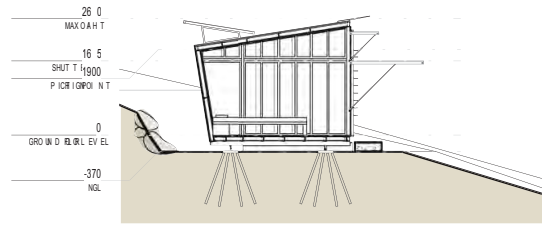


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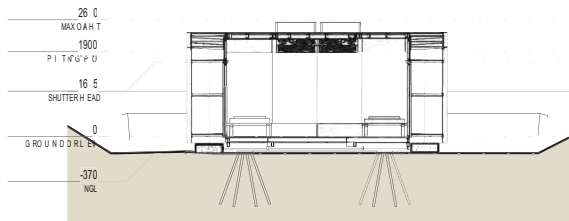




GROUND FLOOR PLAN



SECTION A



SECTION B

**MATERIAL SCHEDULE**

**EXPOSED FRAMING:**

Australian hardwood / cypress  
Steel, painted to dark tones  
Liten weathered (raw)s teel

**WALLS: EXTLININGS:**

Compressed sheet, natural / stained to dark tones  
Liten weathered (raw)s teel  
Jasper colorbond / custom b

**ROOFING:**

Liten weathered (raw)s teel  
Jasper colorbond / custom b

**SCREENS:**

Liten weathered (raw)s teel  
Jasper colorbond / custom b

**WINDOWS/ DOORS:**

Aluminium, Australian hardwood frames, clear oil  
Liten weathered (raw)s teel

**PERFORMANCE GLASS**

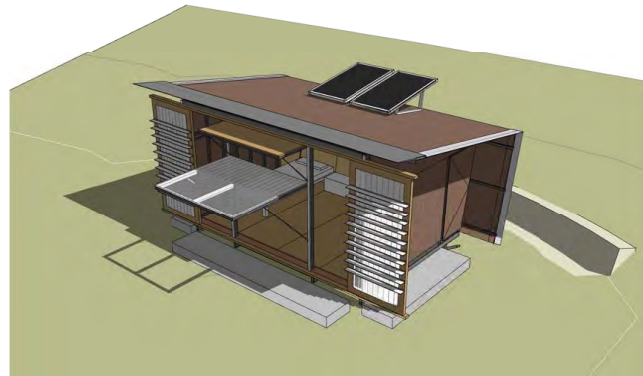
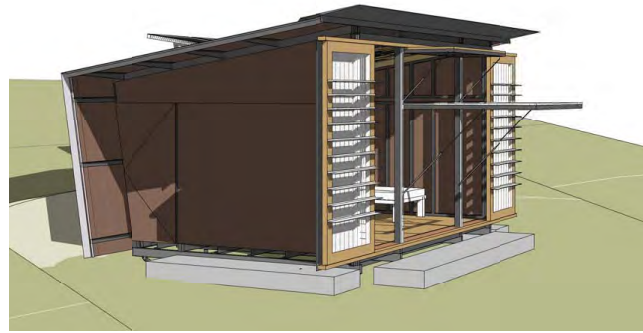
Crimsafe black stainless steel screens  
Polished Australian hardwood / bush timber door furniture

**STEPS:**

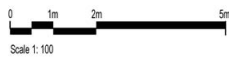
Australian hardwood / cypress pine, naturally greyed  
FRP mesh, black

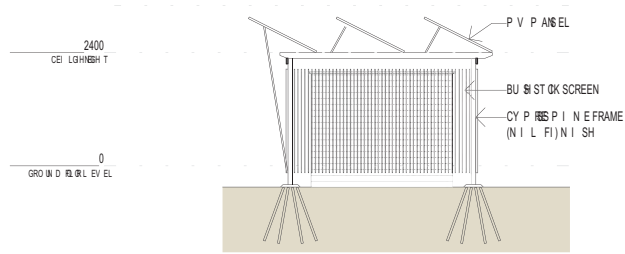
**PATHS:**

Compacted silted stone/ gravel/ sand from site works including  
paving for tracks, paths  
Select sites to need gages, erosion controls where required

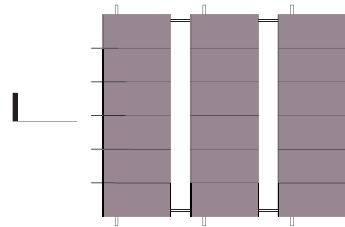


EXTERNAL ELEVATIONS/ VIEWS

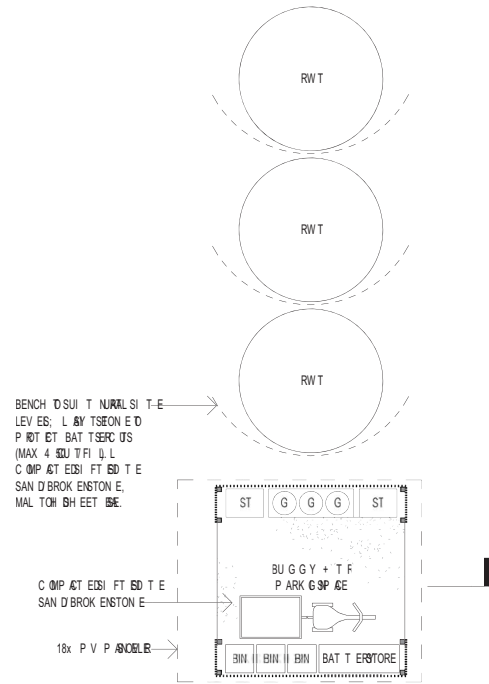




**SECTION**



**ROOF PLAN**



**FLOOR PLAN**

**PLAN KEY**

- G GAS
- RWT RAIN WATER TANK
- ST STEMAINTAIN STORES

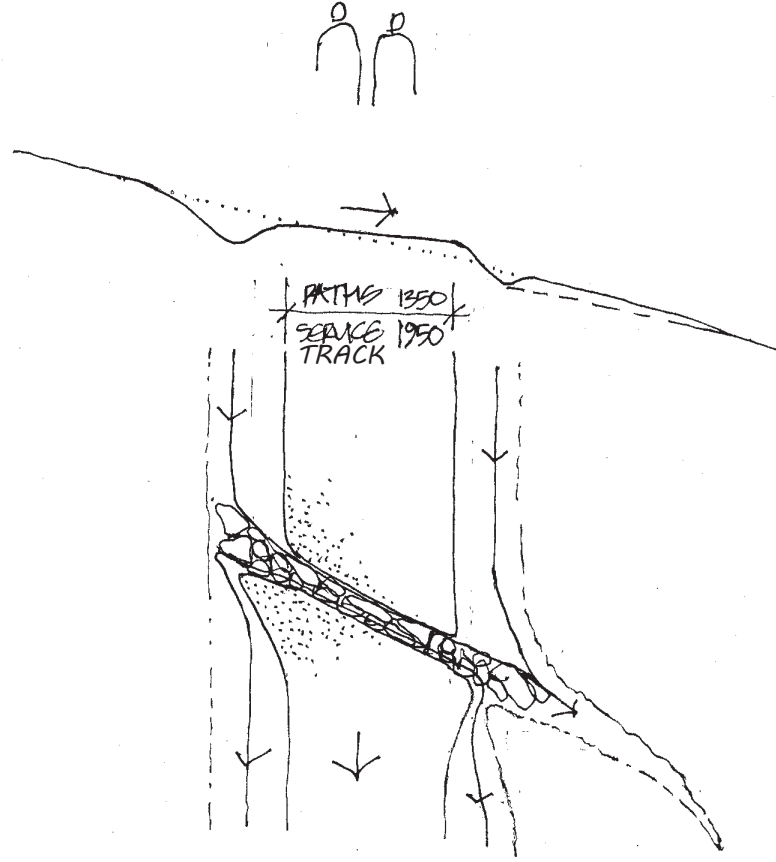


**KANGAROO ISLAND WALK SANDERSON BAY  
LONGHOUSES: STAGING POST**

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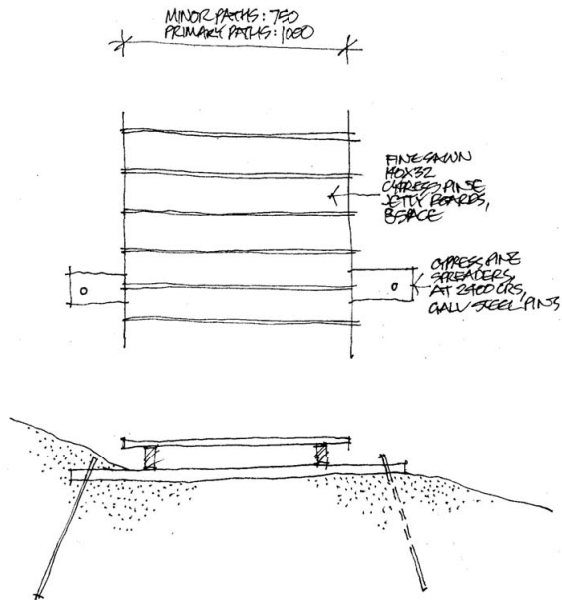


**KANGAROO ISLAND WALK PATHS AND TRACKS**  
**EARTHEN**

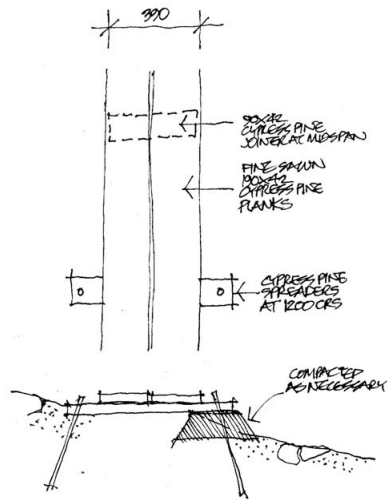
05 NOV 2018



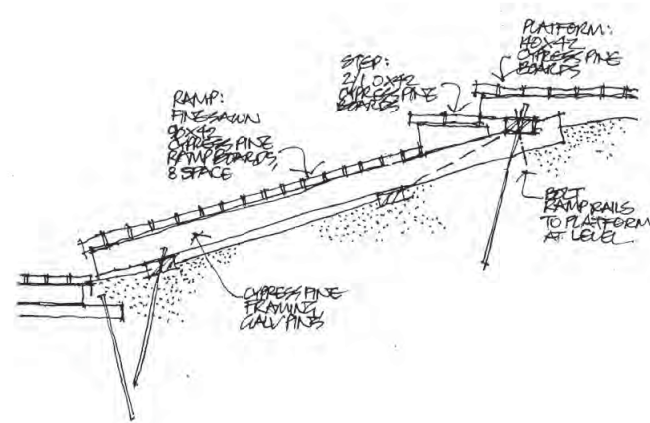
troppo



BOARDWALK TYPE A



BOARDWALK TYPE B  
MINOR PATHS ALTERNATIVE



BOARDWALK RAMPS AND STEPS

KANGAROO ISLAND WALK PATHS AND TRACKS  
BOARDWALKS

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Views from Longhouse



Views from Longhouse



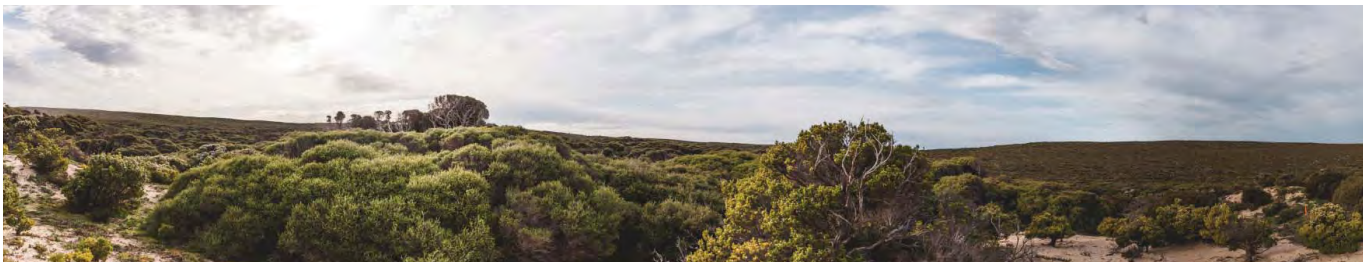
Longhousesite



Views from Sleeping Pods - 7m from west end



Views from Sleeping Pod - 21m from west end



Views from Sleeping Pod - 49m from west end

KANGAROO ISLAND WALK SANDERSON BAY  
SITE PHOTOS

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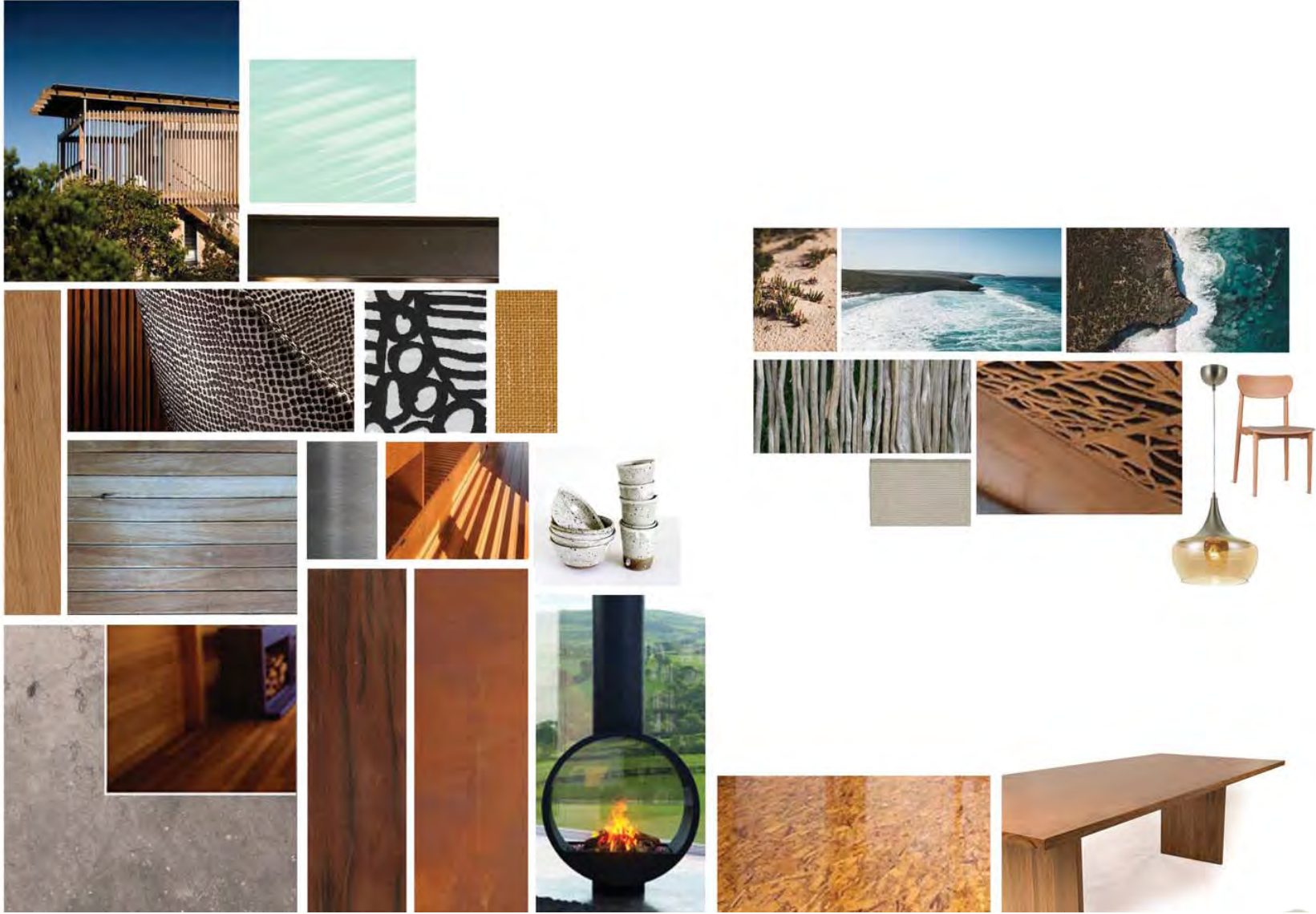


**KANGAROO ISLAND WALK SANDERSON BAY**  
**ARCHITECTURAL TEXTURES & VIBES**

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**KANGAROO ISLAND WALK LONGHOUSES**  
**INTERNAL FINISHES & LITTLE THINGS**

05 NOV 2018



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KANGAROO ISLAND WALK SLEEPING PODS  
INTERNAL FINISHES & LITTLE THINGS

05 NOV 2018



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# DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

**COUNCIL:** Kangaroo Island Council  
**APPLICANT:** Australian Walking Company C/- Fyfe  
 Postal Address: GPO Box 2450  
Adelaide, SA, 5001

**Owner:** DEW as custodian for the Crown  
 Postal Address: GPO Box 1047  
Adelaide, SA, 5001

**BUILDER:** TBA  
 \_\_\_\_\_  
 Postal Address: TBA  
 \_\_\_\_\_  
 \_\_\_\_\_ Licence No: TBA

**CONTACT PERSON FOR FURTHER INFORMATION**

Name: Michael Osborn  
 Telephone: 0408 808 143 [work] 8407 9448 [Ah]  
 Fax: \_\_\_\_\_ [work] \_\_\_\_\_ [Ah]  
**EXISTING USE:** Vacant

<b>FOR OFFICE USE</b>	
Development No: _____	
Previous Development No: _____	
Assessment No: _____	

<input type="checkbox"/> Complying <input type="checkbox"/> Non Complying <input type="checkbox"/> Notification Cat 2 <input type="checkbox"/> Notification Cat 3 <input type="checkbox"/> Referrals/Concurrences <input type="checkbox"/> DA Commission	Application forwarded to DA Commission/Council on _____ / _____ / _____ Decision: _____ Type: _____ Date: _____ / _____ / _____
---	--

	Decision required	Fees	Receipt No	Date
Planning:	_____	_____	_____	_____
Building:	_____	_____	_____	_____
Land Division:	_____	_____	_____	_____
Additional:	_____	_____	_____	_____
<b>Development Approval</b>				

**DESCRIPTION OF PROPOSED DEVELOPMENT:** Tourist accommodation comprising eight accommodation pods, a longhouse, a lookout, a staging post, services building and ancillary water tanks and walking trails

**LOCATION OF PROPOSED DEVELOPMENT:** Sanderson Bay, Flinders Chase National Park, Kangaroo Island

House No: \_\_\_\_\_ Lot No: \_\_\_\_\_ Street: Cape Du Couedic Road Town/Suburb: Flinders Chase  
 Section No [full/part] Piece 55 Hundred: OH (Kingscore) Volume: 6176 Folio: 336  
 Section No [full/part] \_\_\_\_\_ Hundred: \_\_\_\_\_ Volume: \_\_\_\_\_ Folio: \_\_\_\_\_

**LAND DIVISION:**  
 Site Area [m<sup>2</sup>] \_\_\_\_\_ Reserve Area [m<sup>2</sup>] \_\_\_\_\_ No of existing allotments \_\_\_\_\_  
 Number of additional allotments [excluding road and reserve]: \_\_\_\_\_ Lease: YES  NO

**BUILDING RULES CLASSIFICATION SOUGHT:** 1b and 10 Present classification: -

If Class 5,6,7,8 or 9 classification is sought, state the proposed number of employees: Male: - Female: -

If Class 9a classification is sought, state the number o persons for whom accommodation is provided: -

If Class 9b classification is sought, state the proposed number of occupants of the various spaces at the premises: -

**DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT REGULATIONS 2008 APPLY?** YES  NO   
**HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT 2008 LEVY BEEN PAID?** YES  NO

**DEVELOPMENT COST** [do not include any fit-out costs]: \$ 1,100,000.00

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 2008.

**SIGNATURE:** \_\_\_\_\_ Dated: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

This Crown Record Register Search is a true and correct extract of the Register of Crown Records maintained by the Registrar-General. Crown Land is administered pursuant to the Crown Land Management Act 2009 by the Department of Environment, Water and Natural Resources.

## Crown Record - Volume 6176 Folio 336

Parent Title(s)	CR 5778/21			
Creating Dealing(s)	TG 12509743			
Title Issued	24/06/2016	Edition 1	Edition Issued	24/06/2016

### Estate Type

CROWN LAND (ALIENATED)

### Owner

THE CROWN

### Custodian

MINISTER FOR SUSTAINABILITY, ENVIRONMENT AND CONSERVATION  
OF ADELAIDE SA 5000

### Description of Land

SECTION 18  
HUNDRED OF BORDA  
IN THE AREA NAMED CAPE BORDA

SECTIONS 950 AND 951  
HUNDRED OF CASUARINA ISLETS

SECTIONS 42, 43, 44 AND 45  
HUNDRED OF GOSSE  
IN THE AREA NAMED GOSSE

SECTION 21  
HUNDRED OF MCDONALD  
IN THE AREA NAMED GOSSE

SECTION 42  
HUNDRED OF RITCHIE  
IN THE AREA NAMED KARATTA

SECTIONS 43, 44 AND 45  
HUNDRED OF RITCHIE  
IN THE AREA NAMED GOSSE

ALLOTMENTS 1, 2 AND 3 DEPOSITED PLAN 27908  
IN THE AREA NAMED FLINDERS CHASE  
OUT OF HUNDREDS (KINGSCOTE) AND HUNDRED OF MCDONALD

ALLOTMENT 51 DEPOSITED PLAN 38340  
IN THE AREA NAMED FLINDERS CHASE  
OUT OF HUNDREDS (KINGSCOTE) AND HUNDRED OF MCDONALD

ALLOTMENT COMPRISING PIECES 53, 54 AND 55 DEPOSITED PLAN 38340  
IN THE AREA NAMED FLINDERS CHASE  
OUT OF HUNDREDS (KINGSCOTE) AND HUNDRED OF MCDONALD

ALLOTMENT 1 FILED PLAN 31869  
IN THE AREA NAMED FLINDERS CHASE  
HUNDRED OF MCDONALD

TOTAL AREA: 330KM<sup>2</sup> (APPROXIMATE)

## Easements

SUBJECT TO EASEMENT(S) OVER PORTION OF ALLOTMENT 1 IN D27908 AND PORTIONS OF PIECE 55 IN D38340 MARKED A ON F53662 (TG 12509743)

SUBJECT TO EASEMENT(S) OVER PORTION OF PIECE 55 IN D38340 MARKED B ON F53662 (TG 12509743)

## Schedule of Dealings

Dealing Number	Description
12540084	NATIONAL PARK PURSUANT TO NATIONAL PARKS AND WILDLIFE ACT 1972

## Schedule of Interests

Licence Number	Description
NL000173	ANNUAL LICENCE TO BUREAU OF METEOROLOGY - SCIENCE DEPT FOR INFRASTRUCTURE PURPOSES COMMENCING ON 01/07/2000 AND EXPIRING ON 30/06/2020
PK000151	ANNUAL LICENCE TO AUSTRALIAN MARITIME SAFETY AUTHORITY FOR INFRASTRUCTURE PURPOSES COMMENCING ON 08/12/1993 AND EXPIRING ON 07/12/2092
PK000263	ANNUAL LICENCE TO THE UNIVERSITY OF ADELAIDE FOR INFRASTRUCTURE PURPOSES COMMENCING ON 14/04/2003 AND EXPIRING ON 13/04/2028
PK000282	ANNUAL LICENCE TO R A & J R COWIN FAMILY TRUST AND J R & L M TIPPETT FAMILY TRUST FOR COMMERCIAL OR INDUSTRIAL PURPOSES COMMENCING ON 01/01/2005 AND EXPIRING ON 31/12/2019

## Notations

**Dealings Affecting Title** NIL

**Priority Notices** NIL

### Registrar-General's Notes

APPROVED FX43750  
APPROVED FX53662

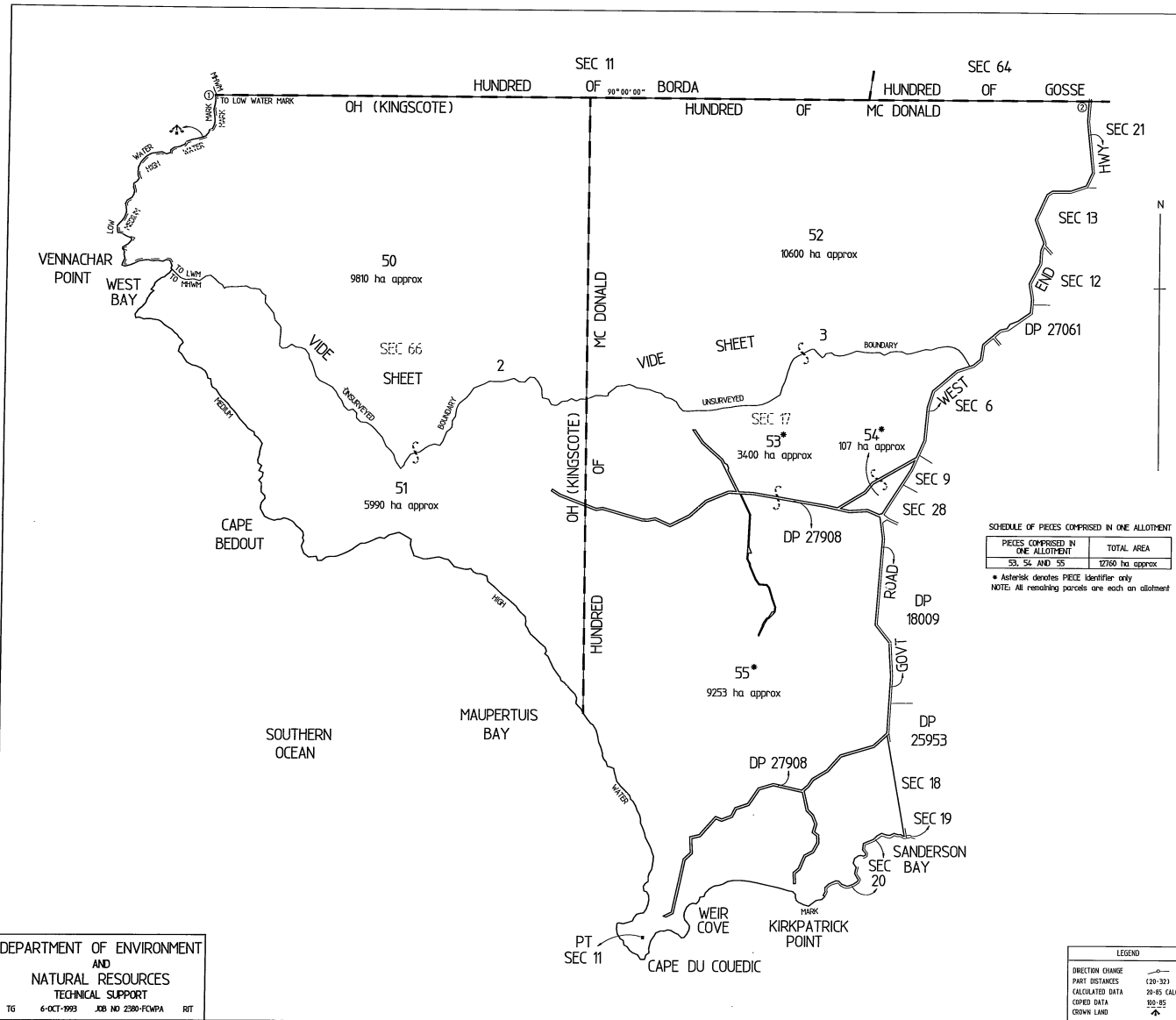
### Administrative Interests

CONFIRMED IN SA HERITAGE REGISTER 08/11/1984  
CONFIRMED IN SA HERITAGE REGISTER 12/01/1984  
CONFIRMED IN SA HERITAGE REGISTER 24/07/1980  
CONFIRMED IN SA HERITAGE REGISTER 14/12/1995  
SIGNIFICANT ENVIRONMENTAL BENEFIT 2009\_3077  
SIGNIFICANT ENVIRONMENTAL BENEFIT 2012\_3122  
COMMONWEALTH HERITAGE PLACE 22/06/2004

D38340



D38340



PLAN NUMBER  
**DP 38340**

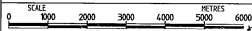
THIS IS SHEET 1 OF 3 SHEET

DEPOSITED 14/10/93  
ACCEPTED FOR FILING 14/10/93  
MAP REF 6226-II & III DEV No  
TITLE SYSTEM CROWN  
TITLE REFERENCE N/A  
D B / LAST PLAN REF TOTAL AREA  
DOCKET No SD 1022  
FIELD BOOK No N/A

PLAN EXAMINED  
PLAN APPROVED  
12-10-93

IRRIGATION AREA: DIVISION  
HUNDRED MC DONALD AND OH (KINGSCOTE)  
TOWNSHIP AREA  
COUNCIL DISTRICT COUNCIL OF KINGSCOTE

PLAN OF DIVISION OF SECTION 17 AND UNALLOTTED CROWN LAND, HUNDRED OF MC DONALD AND SECTION 66, OUT OF HUNDREDS (KINGSCOTE), PURSUANT TO THE CROWN LANDS ACT.



STATEMENTS CONCERNING EASEMENTS ANNOTATIONS AND EMBLEMMENTS  
BOUNDARIES AND APPROXIMATE LOCATION OF MEDIUM HIGH WATER MARK HAS BEEN DIGITISED FROM MAPS 6226-II & III

APPROXIMATE LOCATION OF LOW WATER MARK HAS BEEN ESTIMATED FROM AERIAL PHOTO SURVEY 4000 PHOTO 7

DP 27908 AND PT SEC 11 DO NOT FORM PART OF THIS DIVISION

LOTS 50 AND 52 TO BE PROCLAIMED AS WILDERNESS PROTECTION AREA

ALL DISTANCES ARE GROUND DISTANCES

BEARING DATUM: ①-②, 90°00'00" SCALED  
DERIVED FROM 6226-II

SCHEDULE OF PIECES COMPRISED IN ONE ALLOTMENT

PIECES COMPRISED IN ONE ALLOTMENT	TOTAL AREA
53, 54 AND 55	12760 ha approx

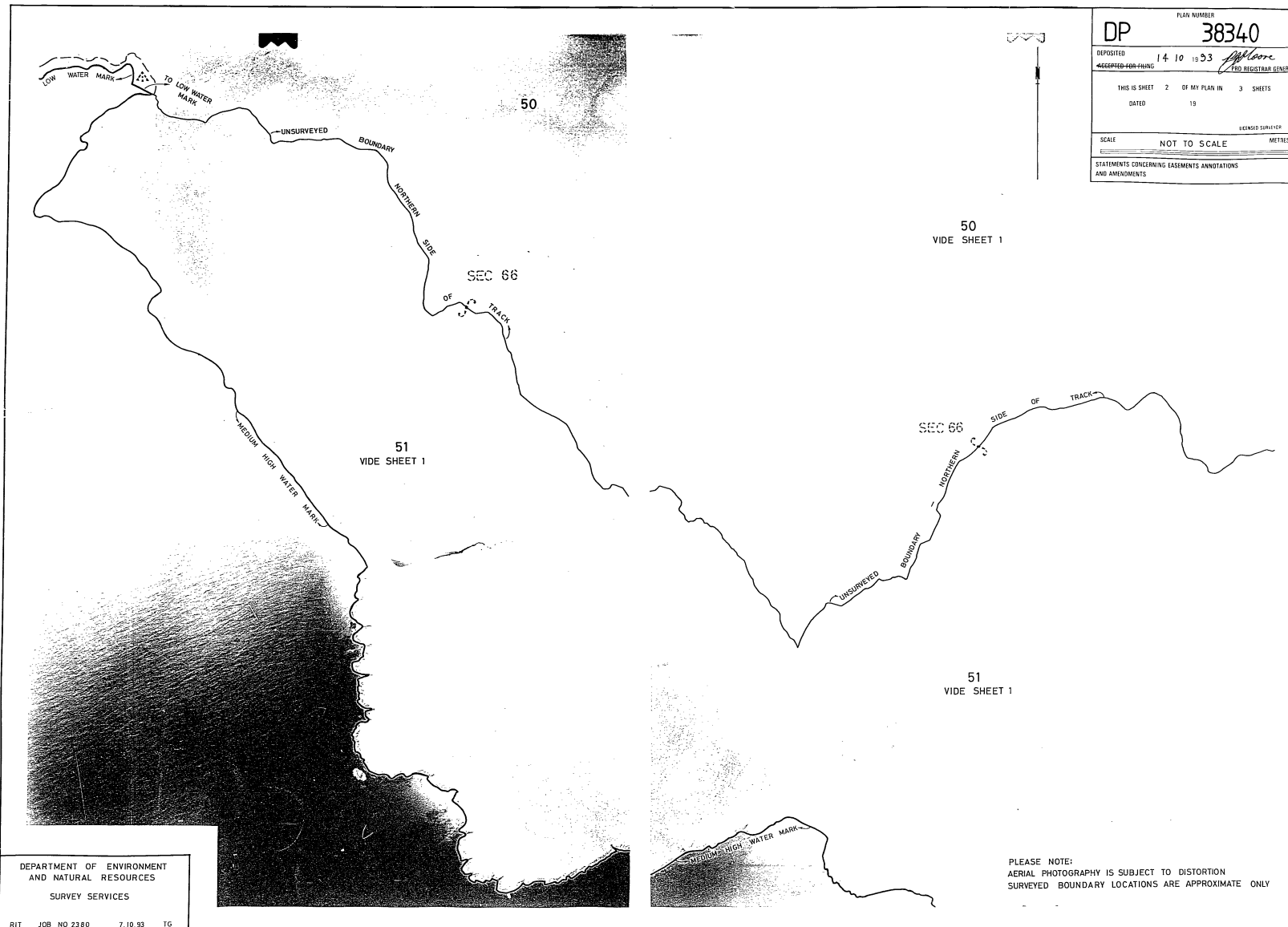
\* Asterisk denotes PIECE identifier only  
NOTE: All remaining parcels are each an allotment

LEGEND

DIRECTION CHANGE	↔
PART DISTANCES	(10-30)
CALCULATED DATA	90-85 CALC
COPIED DATA	90-85
CROWN LAND	↑

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
TECHNICAL SUPPORT  
TG 6-OCT-1993 JDD NO 2380-FCWPA RTT

MICROFILMED  
18. 10. 93



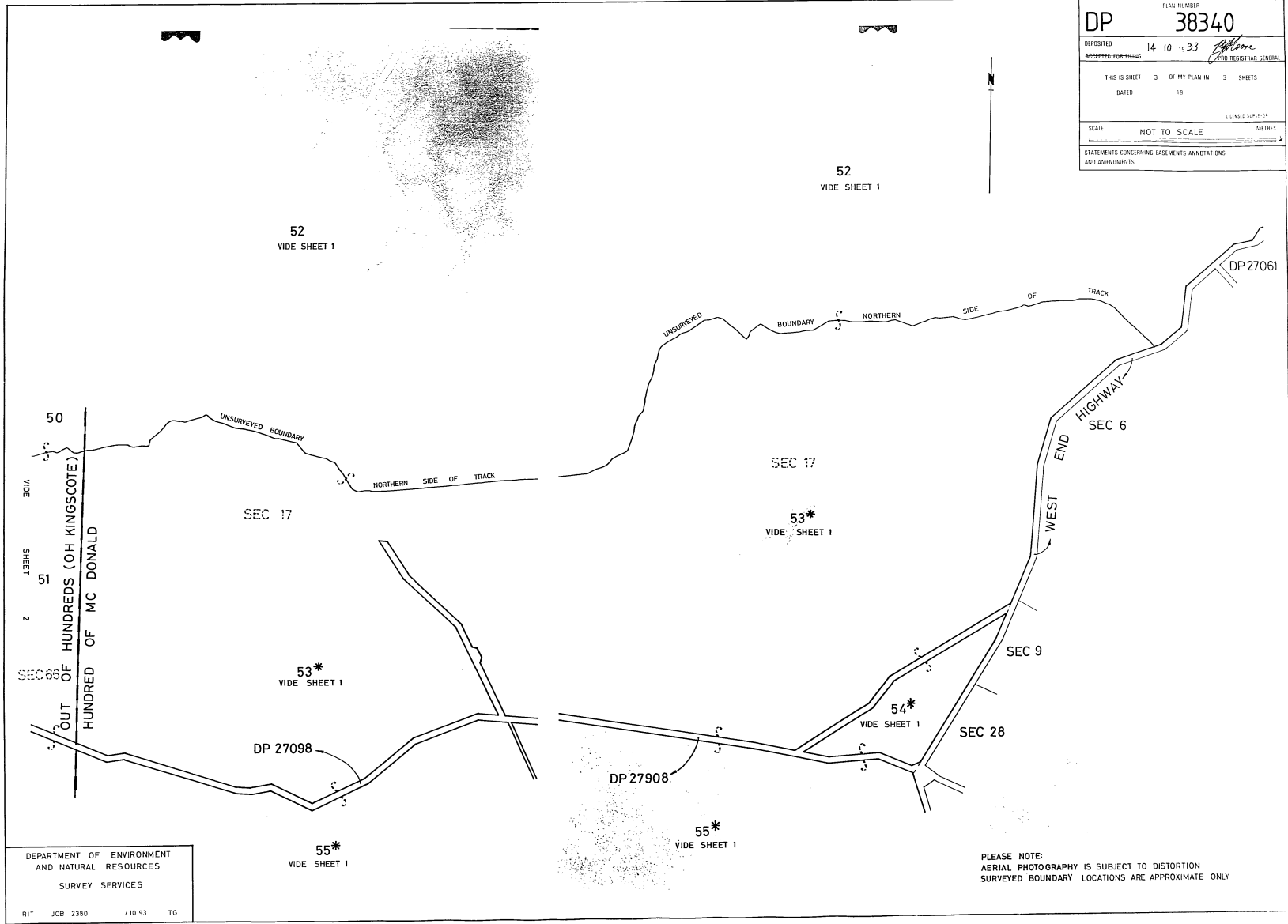
PLAN NUMBER	38340		
DEPOSITED	14 10 19 53	<i>John Moore</i>	
ACCEPTED FOR FILING	PRO REGISTRAR GENERAL		
THIS IS SHEET	2	OF MY PLAN IN	3 SHEETS
DATED	19		
LICENSED SURVEYOR			
SCALE	NOT TO SCALE		METRES
STATEMENTS CONCERNING EASEMENTS ANNOTATIONS AND AMENDMENTS			

DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES  
SURVEY SERVICES  
RIT JOB NO 2380 7.10.93 TG

PLEASE NOTE:  
AERIAL PHOTOGRAPHY IS SUBJECT TO DISTORTION  
SURVEYED BOUNDARY LOCATIONS ARE APPROXIMATE ONLY

MICROFILMED  
18. 10. 93

DP	PLAN NUMBER	38340
DEPOSITED	14 10 19 93	<i>William</i>
ACCEPTED FOR FILING	THE REGISTRAR GENERAL	
THIS IS SHEET	3	OF MY PLAN IN 3 SHEETS
DATED	19	
SCALE	NOT TO SCALE	METRES
STATEMENTS CONCERNING EASEMENTS ANNOTATIONS AND AMENDMENTS		



DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES  
SURVEY SERVICES  
RIT JOB 2380 7 10 93 TG

PLEASE NOTE:  
AERIAL PHOTOGRAPHY IS SUBJECT TO DISTORTION  
SURVEYED BOUNDARY LOCATIONS ARE APPROXIMATE ONLY

MICROFILMED



**KANGAROO ISLAND WILDERNESS TRAIL ACCOMMODATION**  
**PLANNING STATEMENT**  
SANDERSON BAY, FLINDERS CHASE NATIONAL PARK

**PREPARED FOR** | Australian Walking Company

**PREPARED BY** | Fyfe Pty Ltd

**ABN** | 57 008 116 130

**ADDRESS** | L1, 124 South Terrace, Adelaide SA 5000

**CONTACT** | Michael Osborn

**TELEPHONE** | office 61 8 8201 9600

**FACSIMILE** | 61 8 8201 9650

**EMAIL** | Michael.osborn@fyfe.com.au

**DATE** | 5/11/2018

**REFERENCE** | 65248-3 V3 Report

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**Proprietary Information Statement**

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**Revision History**

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## APPENDICES

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Appendix D	Letter of Support from Chief Executive of DEW
Appendix E	Performance Based Solution report prepared by SA Bushfire Solutions
Appendix F	Indicative Bushfire Attack Level (BAL) Assessment Report prepared by SA Bushfire Solutions
Appendix G	Draft TWC Emergency Response Management Plan
Appendix H	bushfire evacuation policy for the three capes lodge walk
Appendix I	Draft guide field manual for the three capes lodge walk



## 1. INTRODUCTION

This planning statement has been prepared in relation to a development application for the Australian Walking Company (AWC) to develop tourist accommodation along the Kangaroo Island Wilderness Trail (KIWT) in Flinders Chase National Park.

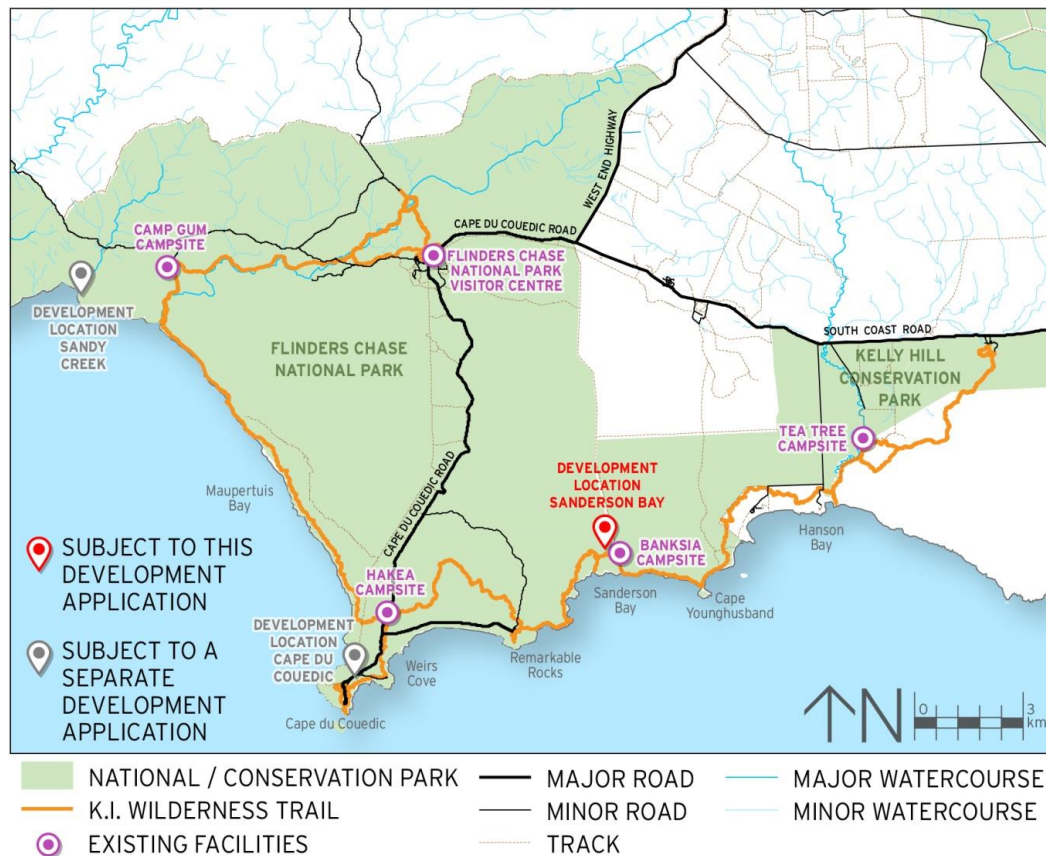
In 2013, the development of a multi-day walking trail was identified by the South Australian Tourism Commission (SATC) as a critical need for the development of the tourism industry on Kangaroo Island and to compete with nature-based destinations worldwide. Five years later, the 61 kilometre Kangaroo Island Wilderness Trail (KIWT) has been developed and the next priority of the SATC, the Department of Environment and Water (DEW) and National Parks SA was to improve the diversity of accommodation and guided walking experiences along the multi-million dollar trail.

To facilitate this, an opportunity was presented to the private sector by DEW and SATC to develop exclusive, eco-sensitive accommodation and tours to tourists and an expression of interest process occurred. At the conclusion of this process, the AWC was selected as the preferred commercial tour operator.

The AWC, as well as the partnered Tasmanian Walking Company (TWC), specialise in providing fully guided, small group bushwalking experiences, with innovative, ecologically-sensitive accommodation and ecologically-sustainable operating principles. The unique experience that AWC and TWC offer includes exclusive overnight accommodation that is not usually associated with camping and bushwalking by providing their guests access to a shower, bed and a prepared meal. Examples of experiences and accommodation offered by the AWC and TWC include the Twelve Apostles Lodge Walk (<https://twelveapostleslodgewalk.com.au/>) and the Three Capes Lodge Walk (<https://www.taswalkingco.com.au/three-capes-lodge-walk/>).

The AWC, in conjunction with DEW, propose to offer this experience along the KIWT in a 4 day, 3 night fully guided small group bushwalking tour for 14 people, staying two nights in high end 'standing camp' accommodation and one night in the existing State Heritage Cape du Couedic Lighthouse Keepers' Cottages. Figure 1.1 illustrates the extent of the trail and the location of overnight accommodation.

Given the dispersed spatial location of the accommodation nodes, three separate development applications are proposed in order to secure the relevant approvals under the *Development Act 1993*.



**Figure 1.1 Proposed Australian Walking Company Tour and Accommodation**

This development application is for the accommodation for the third night of the experience and is located at Sanderson Bay in Flinders Chase National Park. The subject land is identified as Piece 55 on Crown Record Volume 6176 and Folio 336. The site of the development is situated to the west of the Sanderson Fire Access Track.

The proposed development is for tourist accommodation comprising eight accommodation pods, a communal longhouse, a lookout, a staging post and a services building and ancillary water tanks and walking trails.

The subject land is situated within the Conservation Zone, as identified by Zone Map KI/17 in the Kangaroo Island Council Development Plan (consolidated 17 September 2015).

The proposed development is neither a complying or non-complying form of development in the Conservation Zone, and must therefore be assessed on its merit.



In preparing this report we have reviewed the following plans and documents which form part of the application and are appended to this report:

- Crown Record (Appendix A);
- Concept Design Report prepared by Troppo Architects (Appendix B);
- Proposal Plans (including the stormwater and wastewater layout) prepared by Troppo Architects (Appendix C);
- Letter of support from John Schutz, Chief Executive of DEW (Appendix D);
- A report prepared by SA Bushfire Solutions documenting the proposed Performance Based Solution (Appendix E); and
- Indicative Bushfire Attack Level (BAL) Assessment Report prepared by SA Bushfire Solutions (Appendix F).

We also note that the following assessments are also being undertaken:

- Bushland Assessment by Botanical Enigmerase that will assess flora and fauna in the vicinity of the development and will inform the management techniques for the site and the final walking trail locations; and
- An Aboriginal Heritage Register Search to ensure that important sites and objects are not impacted by the proposed development.

A copy of these assessments will be provided once complete.

In addition to the documents referred to above, the following documents have also been considered and are appended to this report as an example of the emergency and evacuation procedures being developed by the AWC and TWC:

- Draft TWC Emergency Response Management Plan (Appendix G);
- Bushfire Evacuation Policy for the Three Capes Lodge Walk (Appendix H); and
- Draft Guide Field Manual for the Three Capes Lodge Walk (Appendix I).

Following our review of the application documents and our assessment of the relevant provisions of the Development Plan, we have formed the opinion that the proposed development warrants Development Plan Consent subject to obtaining any relevant Native Vegetation Clearance approvals. We note that such clearance approvals are generally outside of the scope of the *Development Act 1993* and in our opinion, will need to be assessed concurrently with the development application.



## 2. THE SUBJECT LAND AND LOCALITY

The subject land is identified as Piece 55 on Crown Record Volume 6176 and Folio 336. A copy of this Crown Record is attached as Appendix A. Figure 2.1 below identifies the location of the land.

The site of the development is situated approximately 450 metres west of the Sanderson Fire Access Track and is situated in the Flinders Chase National Park, identified as a National Park on Location Map KI/17 within the Development Plan. The entire subject land itself is more than 9000 hectares in size and as a result, this description of the subject land is focused on the Sanderson Bay development site.

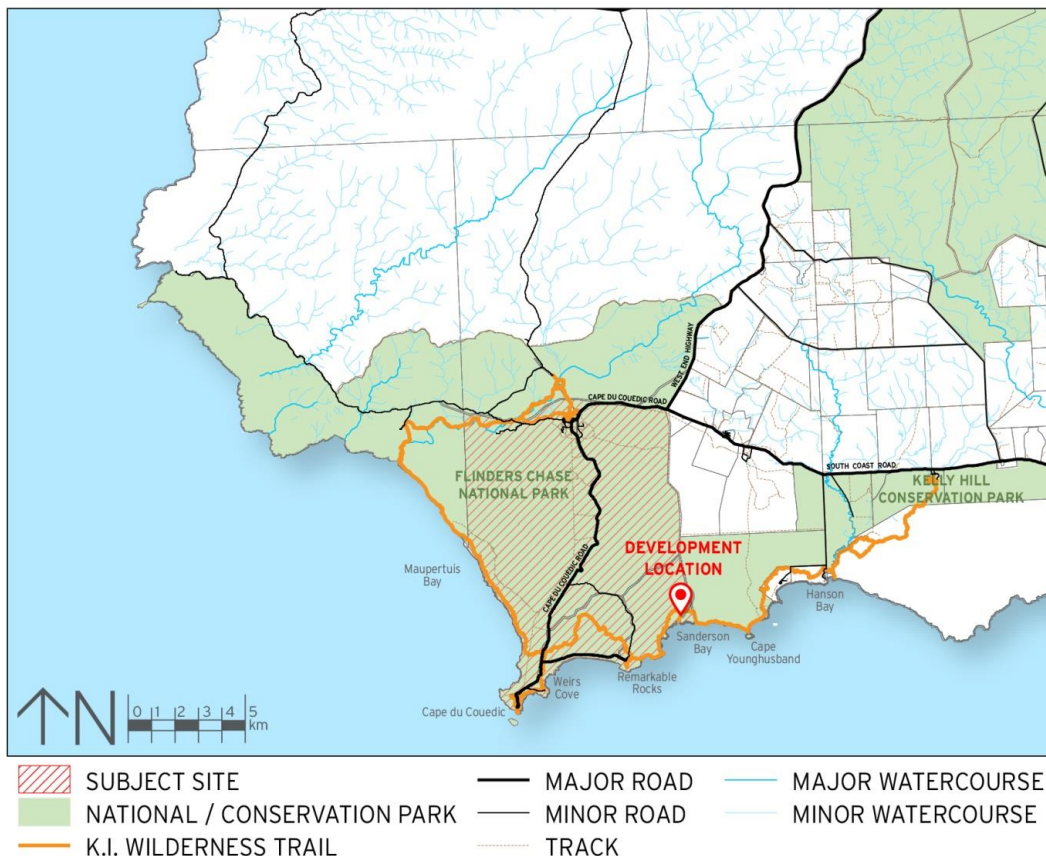


Figure 2.1 Location of Sanderson Bay

The land is undulating and the proposed development is within a small depression sited some 50 metres below the height of the peak to the west and approximately 10 metres below the land to the east. The land falls down towards the coast.

Sanderson Bay is directly to the south of the development site with the beach to the west of the site. Native vegetation extends over most of the site and features Melaleuca 'shrubland' with mid Mallee woodland further from the coast (as identified by the National Vegetation Information System).

The extent of native vegetation is evident in Figure 2.2 below which shows an aerial view of the site, with Sanderson Bay on the right and a montage of the proposed buildings within the existing degraded area of vegetation (an enlarged copy of this image is included in Appendix C).



**Figure 2.2** Montage showing aerial image of Sanderson Bay development site with proposed buildings superimposed

The locality resembles that of a National Park with vast areas of untouched vegetation, recreational walking trails, fire access tracks and the coast line. There are limited public roads and the site itself does not have a conventional road frontage. The Sanderson Fire Access Track is situated approximately 370 metres to the east of the proposed development and Yacca Flat Track is more than 2 kilometres to the west. Both roads are unsealed local roads.

The closest built form is the Banksia Campsite some 500 metres to the north east. No other built form is evident within 2 kilometres of the development site.



### 3. DESCRIPTION OF THE PROPOSAL

The proposed development is for tourist accommodation comprising eight accommodation pods, a communal longhouse, a lookout, a staging post and a services building and ancillary water tanks and walking trails.

The accommodation forms part of a four day and three night fully guided small group bushwalking tour for fourteen guests. Each group will be greeted by the guides in Kingscote where they will be transported via private bus to a drop-off point at the beginning of the walking trail. The walks will typically operate all year round, and when in full operation, will run daily.

The guests are fully supported for the duration of the trip by two experienced guides, who guide the group along the trail during the day and manage all aspects of the accommodation in the evenings/mornings with the assistance of one additional support guide (with vehicle access). The accommodation is fully serviced and managed by the guides and support staff including cooking, cleaning and in-accommodation services. The daily operations of each camp is summarised below:

- Morning:
  - Guides up at 6.30am to prepare a shared breakfast and all lunches for the day
  - Breakfast is shared
  - Guides and guests pay a day pack and leave their luggage to be collected by Support Staff for transport to the next accommodation location
  - One guide leaves with the group around 9.00 am to begin the days walking
  - The second guide stays behind for an hour to assist Support Staff to perform all remaining cleaning duties and effectively turn over the accommodation and close down the buildings ready for the following group to arrive
  - Support staff member performs shut-down procedure (gas off, lighting off etc.) before leaving and transfers all baggage to next overnight node
- Afternoon:
  - One guide leaves the group and goes ahead to open the accommodation 1 hour before the group arrives including turning on gas and hot water and preparing afternoon tea
  - Guests arrive in the afternoon and receive hut briefing on operational and safety matters
  - Guides prepare dinner and perform wine and food service
  - Guests have some time to themselves to shower, rest and/or socialise
  - Dinner is shared
  - Guides complete clean-up and basic overnight shut-down procedures.





A Staging Post (described below) will be positioned adjacent Sanderson Fire Access Track where food and luggage can be delivered by support staff by vehicle before being transported to the accommodation or longhouse by a light vehicle (such as a quad bike). Similarly, waste and waste water will be stored and collected from the Staging Post and will be transported off-site by vehicle.

The proposed built form incorporates a series of small scale structures which are summarised below:

- The Longhouse is a communal building and features the kitchen, bathroom and open dining and lounging area. It measures some 9.1 metres by 18.9 metres including decks along the northern, eastern and southern facades and features pergolas or shade awnings along all four facades. Windows will extend for the majority of the length of the northern, eastern and southern building surfaces.
- The accommodation or sleeping pods each contain a bedroom for two guests (either double or twin share) and small bathroom with toilet, shower and basin. They measure approximately 3.5 metres by 4.5 metres. Small balconies are attached to the northern façade of each pod. Seven of the pods are clustered together.
- The eighth accommodation pod is for the two guides and is similar in size however, does not include a bathroom.
- One lookout is proposed in the form of a platform on a vegetated dune to the west of the camp is proposed. They nestle beneath the vegetation level, with seats and approach boardwalks.
- The Service Point marks the end of the vehicular access track and, in addition to being a park for the site's quad bike, accommodates gas bottles, waste management and site maintenance stores. It also delivers charging of back-up batteries for each site element's autonomous power supply.
- Commercial access for suppliers and maintenance by usual vehicles is at a 'Staging Post' adjacent the Sanderson Fire Access Track. The Staging Post affords stores for food, back-up supply for gas and batteries, cleaning and cyclical maintenance, as well the back-up water supply. It is also a staging point for transfer of guest bags from the site quad to a van for shifting to the next site; and for waste management.

All structures are lightweight and elevated to minimise the need for earthworks. All buildings feature neutral colours and finishes for the external cladding.

Site vehicular access is only by a light vehicle, such as a quad bike, enabling reduced road width and less invasive road engineering for reduced environmental impact. Standard passenger vehicle access is limited to the existing road network and will connect to the site via the Staging Post described above. Other infrastructure required to service the Longhouse and pods is proposed as follows:

- Power: Solar power systems are proposed for each structure. Each system stands alone, but back-up batteries are stored for change-over when necessary.



- Gas: Gas will be reticulated to the Longhouse from bottles at the service point. Gas bottles for hot water service will be located at each pair of Sleeping Pods.
- Water: A centralised harvesting, storage and reticulation system will be based at the Service Point. 90,000 litres storage, with detailed water conservation techniques is proposed.
- Stormwater: Stormwater will be collected from the Longhouse and Sleeping Pods and stored in rainwater tanks for reuse onsite. Water from the guide pod will fall to a drainage swales or shallow soakage pit that is finished with an oversized triple-layer (approx. 200mm deep) stick erosion mat woven from the access track cuttings, laid to geotextile fabric beneath. Overflow from the tanks will be directed to approx. 2m x 1m erosion mat of the same detail.
- Waste: A closed waste water system is proposed, utilising natural site falls. Individual bathrooms and the Longhouse kitchen will drain to a 4,000 litre in-ground waste treatment tank. Waste will be broken down by worms to minimise waste output to a 3,200 litre in-ground holding tank for pump-out. The pump-out waste water will be removed by trailer to a waste storage tank at the Staging Post. Pump-out cycles are proposed to be monthly at the site, and annually at the Staging Post. A waste water application will be lodged with the Kangaroo Island Council for approval; and
- Rubbish and recyclables: A separated waste management system will integrate into the Longhouse kitchen, Service Point and Staging Post.

A concept design report and the proposal plans are provided in Appendix B and Appendix C.



## 4. ACHIEVING STRATEGIC PRIORITIES ON KANGAROO ISLAND

Within Flinders Chase National Park, tourist accommodation options are limited to campgrounds and pre-existing converted heritage buildings (such as the Cape Borda Lightstation). Along the Kangaroo Island Wilderness Trail itself, there are four campgrounds accommodating 24 tent platforms each and visitors are limited to a maximum of one night at each campground.

Currently, over 40% of domestic visitors go bushwalking during their stay on Kangaroo Island and 45% visit National Parks<sup>1</sup>. With the majority of the National Parks, bushwalking trails and wilderness protection areas situated on the western coast of Kangaroo Island, the concentration of accommodation on the eastern coast some 70 kilometres from these parks does not efficiently support these activities, especially for visitors that do not want to camp. The proposed AWC walking experience and accommodation will start to address this gap and increase the opportunities for visitors to stay within a national park and go bushwalking without the need to camp or carry their own supplies.

The Kangaroo Island Development Plan State Strategic Setting (on page 11) identifies the need to address such gaps and highlights that *'a range of sustainable tourism facilities, accommodation and products must be developed to suit a range of visitor budgets and experiences'*.

Building on this, the Development Plan adds:

*'It is expected that the Island will continue to develop as a pre-eminent sustainable, nature-based tourism destination, but there is also a need to provide opportunities in other tourism markets around the themes of outdoor adventure and leisure activities, the coast, niche food and wine products, heritage and culture. These markets should add depth to the Island's appeal as a visitor destination and encourage longer stays.'*

The proposed four day and three night experience will reinforce the tourism market around these themes whilst supporting the image of Kangaroo Island as a pristine, nature-based tourism destination.

Within the SATC's Regional Visitor Strategy, the following priorities are identified for Kangaroo Island:

- Foster the development of at least 120 new rooms and upgrading of at least 30 rooms (from 3 to 4-star) by 2020.
- Activate Kangaroo Island Wilderness Trail as a hero experience to foster other experience development and drive low season visitation.
- Work with government, other agencies and operators to encourage investment in experiences around coastal, health, wellbeing and the arts.

<sup>1</sup> Based on the Kangaroo Island Tourism Profile prepared by the South Australian Tourism Commission for the year ending Dec 2017



- Promote Kangaroo Island’s brand essence of immersive nature and wildlife encounters and seasonal natural occurrences

The proposed development will contribute to achieving these priorities developing some 14 new rooms in Sandy Creek and Sanderson Bay whilst balancing the desire for only small scale accommodation within the Conservation Zone. The development will also further activate the KIWT by increasing the range of accommodation offered and will provide an immersive nature and wildlife experience. It is also the result of collaboration between government and the private sector, improving investment along the coast.

As part of the South Australian Tourism Commission’s (SATC) Nature Based Tourism Strategy, the recent development of the Kangaroo Island Wilderness Trail *‘is predicted to directly contribute \$1.8 million in total visitor expenditure by 2020’*. One of the key opportunities identified within this strategy to achieve this target is the development of accommodation and guided tours along this wilderness trail. The proposed development directly responds to this strategy forming part of a holistic guided walking tour and exclusive accommodation experience not currently offered along the KIWT.

In our opinion, the proposed AWC experience will provide a much needed exclusive bushwalking and accommodation draw-card that will showcase the pristine natural and coastal environment of Kangaroo Island and will diversify the offerings for tourists. As a result, this accommodation delivers on a number of the strategic priorities developed by the South Australian Tourism Commission and within the Kangaroo Island Council Development Plan.

#### **4.1 Relationship to Park Management Plan**

The development is sited within the Flinders Chase National Park which is a reserve declared under the *National Parks and Wildlife Act 1972*. This Act requires that a management plan be prepared for such reserves which sets out the strategies intended to meet the objectives set out in the Act. The *Flinders Chase National Park, Kelly Hill Conservation Park, Ravine des Casoars Wilderness Protection Area and Cape Bouguer Wilderness Protection Area Management Plan (1999)* is this plan.

Section 10 of this Plan outlines the strategies for visitor management and infrastructure development within Flinders Chase National Park and details three zones which have been established to exclude areas of high conservation value from inappropriate development. These three zones are the;

- the Major Development Zone, for major visitor facilities;
- Minor Development Zones for small scale visitor facilities (camping site, toilets, car parks, etc) and *‘small scale, ecologically sensitive accommodations’*; and,
- Limited Access Zone where development should not occur.



Following the development of the KIWT, the Management Plan was amended and sought to secure the KIWT as a Minor Development Zone to facilitate the development of small scale ecologically sensitive accommodation along the KIWT. It states the following:

*'The Kangaroo Island Wilderness Trail will cater for campers, however research shows that many people prefer a higher standard of accommodation. Providing ecologically sensitive overnight accommodation options has the potential to make the walk an even more appealing experience. As such, the development of small scale, ecologically sensitive accommodation at several designated sites within Flinders Chase National Park is a key component of future plans.*

*Flinders Chase National Park, Kelly Hill Conservation Park, Ravine des Casoars Wilderness Protection Area and Cape Bouguer Wilderness Protection Area Management Plans provided for the development of camping sites, toilets, water tanks, picnic areas, trail heads and interpretive sites at minor development zones along the trail. This plan did not make provision for the development of small scale, ecologically sensitive accommodation along the trail. This amendment enables the development of small scale, ecologically sensitive accommodation for trail walkers within minor development zones. It also provides an explanation of strategies to ensure that the trail and its use are compatible with objectives for the management of the parks.'*

The proposed development aligns with the intent of the recent amendment and will see the development of small scale ecologically sensitive accommodation along the KIWT.



## 5. PROCEDURAL MATTERS

### 5.1 Nature of Development

The proposed tourist accommodation constitutes a change in use and building work and in turn, development under the section 4 of the *Development Act 1993*.

Whilst the proposed development is being initiated and facilitated by the Department of Environment and Water (DEW), AWC is the proponent, with the application therefore to be processed as a private development. Notwithstanding, given the clear role of DEW, we note that if DEW was nominated as the applicant, then Section 49 of the *Development Act 1993* would apply.

Section 49(3) states:

*'No application for approval is required (either under this section or any other provision of this Act), and no notice to a council is required under subsection (4a), if the development is of a kind excluded from the provisions of this section by regulation.'*

Schedule 14 of the *Development Regulations 2008* outlines the forms of development that are excluded from the provisions of section 49 of the Act and therefore do not require approval. It states:

1 (1) *The following forms of development, other than in relation to a State heritage place or within the Adelaide Park Lands, are excluded from the provisions of section 49 of the Act:*

*b) if the work is certified by a private certifier, or by some person nominated by the Minister for the purposes of this provision, as complying with the Building Rules (or the Building Rules to the extent that is appropriate in the circumstances after taking into account the requirements of the Building Rules and, insofar as may be relevant, the matters prescribed under regulation 70 for the purposes of section 49 of the Act)—*

*(iv) the development of land dedicated under the National Parks and Wildlife Act 1972;*

The proposed development is on land dedicated under the *National Parks and Wildlife Act 1972*.

Consequently, if DEW was the applicant, the development could proceed without application for approval pursuant to section 49(3) of the Act.

However, both DEW and AWC wish for the proposal to be subject of a formal assessment process.

Accordingly, AWC has been nominated as the applicant, which means that planning consent will be sought and required for the development.



## 5.2 Relevant Planning Authority

Even without considering section 49 as discussed above, the *Development Regulations 2008* identify the State Commission Assessment Panel as the relevant authority (at clause 18, Schedule 10) of the following:

*'Development for the purposes of tourism in those parts of the area of the Kangaroo Island Council defined in the relevant Development Plan as Coastal Conservation Zone or Conservation Zone.'*

The proposed development is for the purposes of tourism and the subject land is situated within the Conservation Zone, identified with the Kangaroo Island Council Development Plan (consolidated 17 September 2015).

Accordingly, the State Commission Assessment Panel is the relevant authority pursuant to section 34(1)(b)(i) and (ii) of the *Development Act 1993* (supported by regulation 38(1) of the *Development Regulations 2008*).

## 5.3 Public Notification

Having regard to the procedural matters for the Conservation Zone, the following is identified as a Category 1 form of development:

*'Tourist accommodation setback a minimum of 100 metres from land within an adjoining allotment used for farming or horticulture.'*

The nature of the proposed development is tourist accommodation and the proposed Sanderson Bay site is more than 100 metres from land used farming and horticulture and the adjoining allotment (Section 20 on Crown Record 5765/365).

Therefore, no public consultation is required pursuant to section 38(2) of the *Development Act 1993*.

## 5.4 Referrals

Pursuant to Schedule 8 of the *Development Regulations 2008*, a referral to Country Fire Service (CFS) is required as part of this application (pursuant to clause 18 of Schedule 8).

In addition to the above, the Applicant is liaising with the Coastal Protection Board (CPB) and will apply for any necessary Native Vegetation Clearance approvals separate to this application. Notwithstanding this, no mandatory referrals are required to the CPB or Native Vegetation Council (NVC) pursuant to Schedule 8 of the *Development Regulations 2008* due to the following:

- The site is not on coastal land or rural land (referred to in the definition of coastal land); and
- The Kangaroo Island Council Development Plan does not contain a map showing an area of substantially intact native vegetation affecting the subject land.



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As the proposed development is a DEW initiative and will be developed on a National Park, there will be an ongoing relationship and consultation with DEW during and after the development application process. In recognition of this, a letter from the Chief Executive of DEW, John Schutz is attached confirming DEW's support for the proposed development (Appendix D).



## 6. DEVELOPMENT ASSESSMENT

### 6.1 Relevant Policies

The Kangaroo Island Council Development Plan, consolidated on 17 September 2015, is the relevant planning instrument.

The subject land is located within Conservation Zone and is not within any Policy or Precinct Areas as shown in Figure 6.1 below.

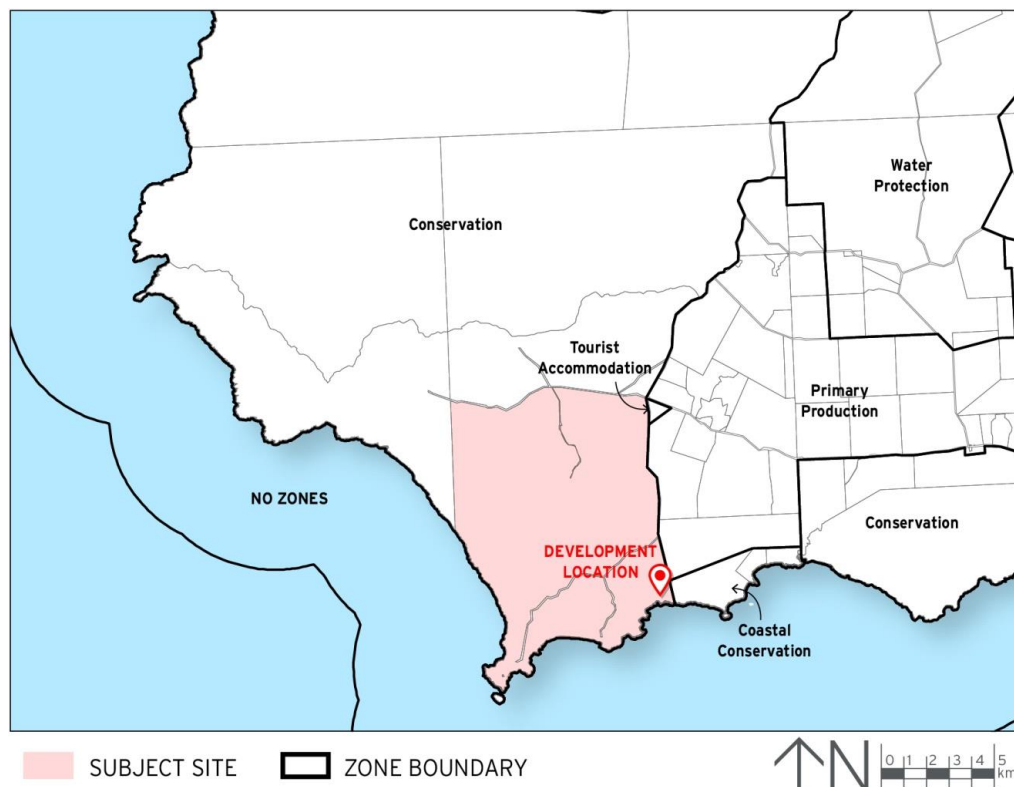


Figure 6.1 Zone Boundaries

The following provisions of the Kangaroo Island Council Development Plan are in our opinion, considered most relevant to an assessment of the proposed development.



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## **Zone Section**

### ***Conservation Zone***

Objectives: 1, 2 and 4

Principles of Development Control: 1, 3, 4, 5 and 6

### **General/Council Wide Section**

#### ***Coastal Areas***

Objectives: 1, 3, 5, 6 and 7

Principles of Development Control: 1, 2, 3, 4, 5, 6, 8, 16, 17, 20 and 22

#### ***Design and Appearance***

Objectives: 1 and 2

Principles of Development Control: 1, 3, 7 and 17

#### ***Energy Efficiency***

Objective: 1

Principles of Development Control: 1, 2, 3, 4 and 5

#### ***Hazards***

Objectives: 1, 2, 3 and 4

Principles for Development Control: 1, 2, 6, 7, 8, 9 and 11

#### ***Heritage Places***

Objectives: 1, 2 and 3

Principles of Development Control: 2, 3 and 4

#### ***Natural Resources***

Objectives: 1, 2, 5, 6, 7, 8, 9, 10 and 13

Principles of Development Control: 1, 2, 3, 3, 4, 5, 6, 7, 8, 11, 12, 13, 17, 21, 25, 27, 28, 29, 30, 31, 32, 33 and 34

#### ***Open Space and Recreation***

Objectives: 3

Principles of Development Control: 2 and 15

#### ***Siting and Visibility***

Objective: 1

Principles of Development Control: 1, 4, 5 and 7

#### ***Sloping Land***

Objective: 1

Principles of Development Control: 1, 2, 3, 5, 6 and 7



### **Tourism Development**

Objectives: 1, 2, 3, 4, 6, 7 and 8

Principles of Development Control: 1, 2, 3, 4, 5, 9, 11, 12, 13, 15, 18, 19 and 20

### **Transportation and Access**

Objective: 2

Principles of Development Control: 21, 22, 23, 27, 28 and 29

### **Waste**

Objectives: 1 and 2

Principles of Development Control: 1, 2, 3, 4, 5, 12, 13, 14, 15 and 16

The assessment below considers the matters most relevant to the proposed development.

## **6.2 Land Use and Zoning**

The proposed development is situated within the Conservation Zone which prioritises the preservation of natural environment and habitat. The following Objectives and Principles of Development Control (PDCs) are the most relevant for the purposes of assessing the land use:

*Conservation Zone Objective 1: The conservation and enhancement of the natural environment and natural ecological processes for their historic, scientific, landscape, faunal habitat, biodiversity and cultural values.*

*Conservation Zone Objective 2: Provision of opportunities for the public to experience and appreciate the significance of the native vegetation and original remnant natural habitat of the area through low-impact recreational activities and interpretive facilities.*

*Desired Character: Conservation areas, including National, Conservation and Marine Parks and Wilderness Protection Areas, will continue to provide representative samples of the countryside and shoreline.*

*Facilities for the use of visitors including picnic areas, shelters, huts / bothies, camp sites, toilets, and similar public amenities as well as various forms of low-key, short stay tourist accommodation such as semi-permanent tents and lodges are anticipated provided they are appropriately sited and designed in a manner that is subservient to the natural and coastal environment and adverse impact on natural features, landscapes, habitats and cultural assets is minimised.*

*The siting of tourism development, including any associated access driveways and ancillary structures, on cleared or degraded areas is preferred. Development should be located away from fragile coastal environments and significant habitat or breeding grounds.*

*There is some land on Kangaroo Island where the flora and fauna have developed naturally and are still not noticeably affected by human intervention. These areas will be kept free of artificial*



*improvements so that visitors may experience a completely natural environment. Such areas will remain as wilderness areas in order to preserve their special character.*

*There is a need to preserve the natural character of land bordering rivers and at river mouths.*

*Conservation Zone PDC 1: The following forms of development are envisaged in the zone:*

- *directional, identification and/or interpretative advertisements and/or advertising hoardings for conservation management and tourist information purposes*
- *facilities associated with the interpretation and appreciation of natural and cultural heritage such as public amenities, camping grounds, remote shelters, huts / bothies*
- *tourist accommodation.*

*(Underlining my emphasis)*

Tourist accommodation is an envisaged form of development within the Conservation Zone (see Zone PDC 1 above) and the proposed accommodation will provide opportunities for the public to experience and appreciate the significance of the native vegetation and natural habitat, consistent with Zone Objective 2. The proposed development seeks to retain and blend with the natural environment noting that this environment is one of the key attractions for guests using the accommodation, in line with Zone Objective 1.

The proposed accommodation is small in scale and utilises a series of 'pods' with designated access tracks to ensure that the development is subservient to the natural and coastal environment and to minimise adverse impacts on the landscape and natural habitats. The site is located within a National Park but not within a Wilderness Protection Area as identified in Location Map Ki/17, ensuring that these wilderness areas are kept free from artificial improvements. Accordingly, the proposed development is considered to be an appropriate land use within the Conservation Zone.

It is acknowledged that some vegetation clearance will result from the development and the proposed design seeks to minimise the extent that this will occur. However, it will not affect natural processes or impact on any known breeding grounds and some clearance is incidental to developing land for the small-scale tourist accommodation and recreational walking trails in the Zone.

### **6.2.1 Tourism Development**

Council's Development Plan also includes general Objectives and PDCs for tourism development. The most relevant policies to the tourism development being assessed are detailed below:

*Tourism Development Objective 1: Environmentally sustainable and innovative tourism development.*

*Tourism Development Objective 2: Tourism development that assists in the conservation, interpretation and public appreciation of significant natural and cultural features including State or local heritage places.*



*Tourism Development Objective 4: Tourism development that protects areas of exceptional natural value, allows for appropriate levels of visitation, and demonstrates a high quality environmental analysis and design response which enhances environmental values.*

*Tourism Development Objective 7: Increased opportunities for visitors to stay overnight.*

*Tourism Development PDC 1: Tourism development should have a functional or locational link with its natural, cultural or historical setting.*

*Tourism Development PDC 2: Tourism development and any associated activities should not damage or degrade any significant natural and cultural features.*

*Tourism Development PDC 3: Tourism development should ensure that its scale, form and location will not overwhelm, over commercialise or detract from the intrinsic natural values of the land on which it is sited or the character of its locality.*

*Tourism Development PDC 4: Tourism development should, where appropriate, add to the range of services and accommodation types available in an area.*

*Tourism Development PDC 9: Tourist developments located within areas of high conservation value, high indigenous cultural value, high landscape quality or significant scenic beauty should demonstrate excellence in design to minimise potential impacts or intrusion.*

*Tourism Development PDC 11: Buildings and structures to accommodate tourists and associated activities should:*

- a) not exceed a building height of 6.5 metres (from natural ground level)*
- b) have a minimum setback of 100 metres from any of the following:*
  - i. public roads or be no closer to a public road than existing buildings on the subject land, whichever is the lesser*
  - ii. adjoining allotment boundaries*
  - iii. the high water mark*
  - iv. cliff faces...*

*Tourism Development PDC 12: Development providing accommodation for tourists should be designed to minimise the potential for buildings to be converted into or used as a dwelling(s) where:*

- a) if the development comprises multiple tourist accommodation units – by ensuring that facilities, access driveways, parking areas, amenities and the like are shared*
- b) if the development involves a single accommodation unit on a site or allotment in the Coastal Conservation Zone, Conservation Zone or Water Protection Zone, one or more of the following characteristics is evident:*



- i. *the structure provides basic shelter and limited internal space (eg cabin, hikers-hut)*
- ii. *one or more of the functional areas typically found in a dwelling (eg, laundry, kitchen) is absent*
- iii. *the structure is of a temporary or semi-permanent nature.*

*Tourism Development PDC 13: Development comprising multiple tourist accommodation units (including any facilities and activities for use by guests and visitors, including conference facilities) should:*

- a) *ensure buildings and structures are clustered on the same allotment*
- b) *for larger scale developments (ie those proposing or resulting in more than 25 accommodation units), have direct or convenient access to a sealed public road.*

*Tourism Development PDC 18: Tourism development, particularly in remote areas should be designed to minimise energy and water demands and incorporate alternative, sustainable technologies that use renewable energy sources and/or treat and reuse stormwater and wastewater to minimise reliance on mains services.*

*Tourism Development PDC 19: Natural features, signs and walkways should be used to manage and minimise potential risks of visitors damaging areas of cultural or natural significance, fragile areas, and areas of highest environmental value.*

*Tourism Development PDC 20: The visual and ambient impact of vehicles should be minimised by placing roadways and parking areas in unobtrusive locations.*

*(Underlining my emphasis)*

The proposed accommodation is 'off the grid' and will largely be self-sufficient in terms of electricity and water supply offering an environmentally sustainable and innovative design in accordance with Objective 1 and PDC 18. It will also provide guests an appreciation of the significant landscape, habitat and vegetation that they will be experiencing, limits visitation to small groups and provides increased opportunities for visitors to stay overnight in Flinders Chase National Park consistent with Tourism Development Objectives 2, 4 and 7.

The accommodation will be ancillary to the Kangaroo Island Walking Trail and facilitates a 4 day and 3 night bushwalking experience. Accordingly, the proposed development will have both a functional and locational link to the natural setting of the National Park. It also seeks to limit activities to the buildings or designated walking trails to ensure that the impact on the flora and fauna is minimised to the walking trails in line with both Tourism Development PDCs 1 and 2 above.

The small scale of each of the structures, the natural finishes and clustered yet linear site layout prevents the development from over commercialising or detracting from the natural character of the land whilst still



providing an alternative form of accommodation not currently offered in the Flinders Chase National Park. This achieves the intent of both Tourism Development PDCs 3 and 4. Similarly, the articulated facades of each of the buildings, incorporating shade structures and openings coupled with their lightweight and elevated design are considered to minimise the potential impacts or intrusion on the landscape satisfying Tourism Development PDC 9.

The proposed development will not exceed the maximum building height, will be clustered on the same allotment and will be setback more than 100 metres from public roads, allotment boundaries, the mean high water mark and the cliff face in accordance with Tourism Development PDCs 11 and 13. The design also inherently limits the ability for the accommodation to be converted into or used as a permanent dwelling due to the communal design of essential facilities, the lack of laundry facilities and each structure has limited internal space aligned with PDC 12.

The tracks and walkways are clear and guests will be guided in and out of the camp by trained guides to minimise the potential risks of visitors damaging areas outside of the standing camp and walkways to satisfy PDC 19.

Therefore, the proposed land use is considered to be appropriate within the Conservation Zone and achieves the general policies relating to this use.

### 6.3 Design and Visibility

The policies below are considered to be the most relevant for assessing the design and appearance of tourist accommodation in the Conservation Zone.

In relation to siting and visibility, it is noted that the site does not have a direct road frontage and so many policies relating to setbacks and siting are not relevant to this application. Furthermore, the design of the accommodation seeks not to draw attention but rather to blend into the landscape to maintain privacy of guests, out of view from the public walking the Kangaroo Island Wilderness Trail.

*Coastal Areas PDC 1: Development should be compatible with the coastal environment in terms of built-form, appearance and landscaping including the use of walls and low pitched roofs of non-reflective texture and natural earth colours.*

*Design and Appearance Objective 1: Development of a high architectural standard that responds to and reinforces positive aspects of the local environment and built form.*

*Design and Appearance PDC 7: The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare.*

*Siting and Visibility PDC 5: The nature of external surface materials of buildings should not detract from the visual character and amenity of the landscape.*



*Conservation Zone PDC 5: Development should use the following measures to avoid impacting detrimentally on the natural environment, processes and/or conservation qualities of land in the zone:*

- a) minimising the extent of earthworks*
- b) minimising the extent of vehicle access servicing that development*
- c) minimising the extent of local indigenous vegetation removal*
- d) being sited in an unobtrusive manner preferably below hilltops or prominent ridgelines*
- e) screening the visual impact by planting locally indigenous species having due regard to bushfire risk*
- f) utilising external low reflective materials and finishes that will minimise glare and blend in with the features of the landscape.*

*(Underlining my emphasis)*

The proposed development comprises a series of small scale buildings that by their nature, do not present any bulk or scale concerns. Notwithstanding this, a variety of building materials and finishes have been utilised to better blend the buildings with the surrounding landscape and create the high architectural quality associated with exclusive tourist accommodation satisfying Design and Appearance Objective 1 and Siting and Visibility PDC 5.

The design of the buildings has taken cues from the surrounding colour tones utilising natural materials without applied finish ensuring that they are compatible with the coastal environment in terms of built form and appearance. They also have low pitched roofs and avoid the use of highly reflective materials achieving Coastal Areas PDC 1 and Design and Appearance PDC 7.

The extent of earthworks has been minimised through the use of lightweight, elevated structures and similarly, the access tracks have been limited to one for a lightweight vehicle with walking trails between pods, the longhouse and the Kangaroo Island Wilderness Trail beyond. Vegetation removal will be limited to the building footprints, access trails and hazardous vegetation will be reduced around the guide pod for bushfire safety. This is considered to be consistent with the intent of Conservation Zone PDC 5 a, b and c.

In relation to visibility, the proposed development is unlikely to be visible from Sanderson Bay as shown by the aerial views included in Appendix C. This is due to the undulating nature of the land and the substantial setback of the proposed development from the Bay. Most importantly, this proposed development is sited below the ridgeline to the east and will blend with the landscape and existing vegetation below as envisaged by Conservation Zone PDC 5e.





To further assess the visual impact, the following policies are considered to provide the most guidance:

*Siting and Visibility PDC 1: Development should be sited and designed to minimise its visual impact on:*

- a) the natural, rural or heritage character of the area*
- b) areas of high visual or scenic value, particularly rural and coastal areas*
- c) views from the coast, near-shore waters, public reserves, tourist routes and walking trails*
- d) the amenity of public beaches.*

*Siting and Visibility PDC 4: Buildings and structures should be designed to minimise their visual impact in the landscape, in particular:*

- a) the profile of buildings should be low and the rooflines should complement the natural form of the land*
- b) the mass of buildings should be minimised by variations in wall and roof lines and by floor plans which complement the contours of the land*
- c) large eaves, verandas and pergolas should be incorporated into designs so as to create shadowed areas that reduce the bulky appearance of buildings.*

*Tourism Development Objective 3: Tourism development that sustains or enhances the local character, visual amenity and appeal of the area.*

*(Underlining my emphasis)*

The proposed buildings are low in profile with shallow roof pitches. They are sited in a linear manner along the contours of the land and large eaves and pergolas are situated on the northern and southern façade of each of the building to create shadowed areas that reduce the appearance of the already small scale buildings in accordance with Siting and Visibility PDC 4. The siting of the development more than 150 metres from the coast and existing walking trails and well below the ridgeline is considered to further minimise the development's visibility. Figure 6.2 below superimposes the proposed buildings on the landscape to illustrate the limited visibility of the proposed buildings from Sanderson Bay. It should be noted that this image is taken from an elevated vantage point and not from eye level of the public on Sanderson Bay. Due to the slope of the land, the extent of native vegetation and the substantial setback, it is unlikely the proposed development will be visible from Sanderson Bay.



**Figure 6.2** Image of Sanderson Bay with images of structures superimposed (below arrow) to illustrate visibility

It is also worth noting that visibility from the Remarkable Rocks, a key tourist attraction along the south-west coast, was considered. The selected development site is over 3 kilometres from the Remarkable Rocks. In addition, the sightlines towards Sanderson Bay from the Remarkable Rocks are largely impeded by the rise of the land to the east of the Rocks. This generally limits views directly to the north-east and Sanderson Bay with views of Cape Younghusband and Cape Bouguer more evident to the east.

#### **6.4 Access and Car Parking**

The proposed development is unique in that all guest access will be via walking trails and no public vehicle access will be required to the site. Vehicle access will be limited to one vehicle to the Staging Post adjacent the Sanderson Fire Access Track with a light vehicle track extending from the Staging Post to the Service Point and guide accommodation. In total, this access will be approximately 550 metres long. Accordingly, one car park is proposed at the Staging Post for this vehicle with the light vehicle being stored and parked within either the Staging Post or Service Point buildings.



The following policies are considered most relevant for assessing the access for the proposed development:

*Transportation and Access PDC 21: Development should have direct access from an all weather public road.*

*Transportation and Access PDC 22: Development should be provided with safe and convenient access which:*

- a) avoids unreasonable interference with the flow of traffic on adjoining roads*
- b) accommodates the type and volume of traffic likely to be generated by the development or land use*
- c) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.*

*Transportation and Access PDC 27: Driveways, access tracks and parking areas should be designed and constructed to:*

- a) follow the natural contours of the land*
- b) minimise excavation and/or fill*
- c) minimise the potential for erosion from run-off*
- d) avoid the removal of existing vegetation*
- e) be consistent with Australian Standard AS 2890 Parking facilities.*

*Tourism Development PDC 20: The visual and ambient impact of vehicles should be minimised by placing roadways and parking areas in unobtrusive locations.*

*Siting and Visibility PDC 7: Driveways and access tracks should be designed and constructed to blend sympathetically with the landscape and to minimise interference with natural vegetation and landforms.*

*Sloping Land PDC 1: Development and associated driveways and access tracks should be sited and designed to integrate with the natural topography of the land and minimise the need for earthworks.*

*(Underlining my emphasis)*

Due to the nature of the development, it does not have direct access to an all weather public road contrary to Transportation and Access PDC 21. One vehicle will access the site and may be required to do so up to twice a day, generating a maximum of four vehicle movements. This minor increase in traffic is not considered to detrimentally impact the Sanderson Fire Access Track therefore satisfying Transportation and Access PDC 22.

The access tracks seek to follow the natural contours of the land curving around the peak to the west and will be in an unobtrusive location as envisaged by Tourism Development PDC 20 and Sloping Land PDC 1. It will be designed to minimise excavation and/or fill following the topographical folds and enabling easy control of surface water flow to minimise erosion in accordance with Transportation and Access PDC 27 a, b and c and Siting and Visibility PDC 7.



Therefore, whilst the access arrangement is unique it is still considered to reasonably align with the Development Plan.

## 6.5 Hazard Risk Minimisation

### 6.5.1 Bushfire Protection Area

The development site is situated within a High Bushfire Protection Area and a referral is required to the Country Fire Service (CFS).

The proposed Performance Based Solution (Appendix E) and an Indicative Bushfire Attack Level (BAL) Assessment Report (Appendix F) have been prepared by SA Bushfire Solutions and are attached to this report.

SA Bushfire Solutions have identified that:

*'In review of the following documents;*

- *Ministers Code Undertaking development in Bushfire Protection Areas;*
- *Minister's Specification SA 78 Additional requirements in designated bushfire prone area; and*
- *Attached BAL reports*

*It has been identified that the proposed development would potentially have some environmental and aesthetic impacts (via some native vegetation clearance) to achieve the required;*

- *site access; and,*
- *setback distances (from classified vegetation) requirements*

*Therefore, AWC have requested consideration to vary the Ministers Code and Specifications by providing alternative solutions based on the proposed new procedures by Department for Environment and Water (DEW) and in line with the performance criteria of Australian Building Codes Board (ABCB) Design and Construction of Community Bushfire Refuges.'*

Based on the above, a Performance Based Solution (PBS) is proposed as an alternative to complying with the *Ministers Code Undertaking Development in Bushfire Protection Areas*. This PBS is detailed within Appendix E and is summarised below:

- All structures, with the exception of the guide accommodation, will be constructed to general bushfire risk standards acknowledging that these structures will burn in a bushfire;
- The guide accommodation will be the refuge building which will have the capacity to support 17 people (14 guests, 2 guides and 1 support staff) based on the floor area requirement of 0.75 square metres per person and 1.2 cubic metres per person (enough air for 60 minutes). The construction materials won't negatively affect interior air toxicity and ventilation will be provided;



- The refuge (guide accommodation) will be in lower fuel areas with selective clearing of inner and outer protection zones applied (subject to native vegetation clearance approval);
- The last resort location will be the nearby beach which is within a 2 minute walk, can accommodate 17 people whilst preventing flame contact, material ignition and radiant heat levels of 2kW per square metre; and
- Water tanks with a capacity of up to 90,000 litres will be onsite albeit will not be dedicated for fire-fighting purposes.

Having regard to the proposed solutions above, SA Bushfire Solutions have concluded that:

*'The implementation of the solutions highlighted above will provide a safe operating environment for clients and staff enjoying the KIWT and using the AWC facilities.'*

It is also worth noting that during the fire danger season (1 November to 30 April), on days declared 'catastrophic' by the CFS, the trail will be closed and National Parks SA outline that 'walkers will not be permitted to start and those on the Trail will be evacuated'. In addition to evacuating on catastrophic fire danger days, the AWC and TWC develop emergency and evacuation procedures for each of their sites. The following examples of these plans are appended to this report:

- Draft TWC Emergency Response Management Plan (Appendix G);
- Bushfire Evacuation Policy for the Three Capes Lodge Walk (Appendix H); and
- Draft Guide Field Manual for the Three Capes Lodge Walk (Appendix I).

Such plans identify the procedures for communication and actions to be undertaken in the event of a bushfire, injury or other natural disaster and are an example of the AWC's ability to plan for such events. Similar plans and procedures are being developed for Kangaroo Island and will address the following:

- Risk assessment
- Communications Plan
- Identification of roles and responsibilities
- Evacuation Plan
- Training
- Equipment check
- Annual audit
- Monitoring and review



These plans will complement the built form strategies outlined in the Performance Based Solution (Appendix E) to ensure the safety of AWC's clients, staff and CFS personnel in the event of a bushfire.

It is acknowledged that the proposed development does not achieve the provisions detailed in the *Ministers Code Undertaking Development in Bushfire Protection Areas* namely due to restricted vehicle access and the extent of native vegetation. This will need to be assessed by the CFS.

### 6.5.2 Coastal Areas and Erosion Buffers

The proposed development is not situated on *coastal land* within the definition of Schedule 8 of the *Development Regulations 2008* and the development site is more than 100 metres from the mean high water mark. In relation to sea level rise, the development site is elevated at least than 5 metres above the beach and water level to the west and is protected by cliffs to the south. Given this vertical and lateral separation from the coast, no further assessment against the coastal areas or erosion buffers have been included in this assessment.

## 6.6 Native Vegetation

The Sanderson Bay development site features native vegetation that will require some clearance to accommodate the proposed development.

Botanical Enigmerase have been engaged to undertake an assessment of the proposed clearance, impact on flora and fauna and consider revegetation options and management regime. This assessment is still being undertaken and will inform any approvals required pursuant to the *Native Vegetation Act 1991*.

It is noted that numerous policies in the Development Plan seek to conserve and improve native vegetation in the first instance. However, the majority of the Conservation Zone is affected by native vegetation and the reality is that accommodation established in this Zone will require some removal of native vegetation.

In order to minimise the extent of native vegetation clearance, an alternative solution to the clearance and access requirements outlined in the *Ministers Code Undertaking Development in a Bushfire Protection Area* has been sought as described above. This will minimise the amount of clearance required for Asset Protection Zones (limited to one pod) and reduces the width of clearance proposed for the main access track.

The proposed siting of the development has also sought 'broken stony' ground, with movement paths following the flow of shallow folds to obviate cutting and avoiding vegetation where possible.

The following provisions are considered most relevant in assessing the removal of native vegetation:

*Conservation Zone PDC 4: Development should be undertaken in a manner which minimises the effect on natural landscape features, flora and fauna and their habitat corridors, land adjoining water, scenic routes or scenically attractive areas.*



*Conservation Zone PDC 6: Where public access is necessary in the zone, the construction of recreational trails and appropriate fencing such as post and wire should be provided to control the movement of the public whilst minimising the impact on biodiversity.*

*Natural Resources PDC 30: Native vegetation should not be cleared if such clearing is likely to lead to, cause or exacerbate any of the following:*

- a) erosion or sediment within water catchments*
- b) decreased soil stability*
- c) soil or land slip*
- d) deterioration in the quality of water in a watercourse or surface water runoff*
- e) a local or regional salinity problem*
- f) the occurrence or intensity of local or regional flooding.*

*Natural Resources PDC 31: Development that proposes the clearance of native vegetation should address or consider the implications that removing the native vegetation will have on the following:*

- a) provision for linkages and wildlife corridors between significant areas of native vegetation*
- b) erosion along watercourses and the filtering of suspended solids and nutrients from runoff*
- c) the amenity of the locality*
- d) bushfire safety*
- e) the net loss of native vegetation and other biodiversity.*

*Natural Resources PDC 32: Where native vegetation is to be removed, it should be replaced in a suitable location on the site with locally indigenous vegetation to ensure that there is not a net loss of native vegetation and biodiversity.*



*Natural Resources PDC 33: Development should be located and occur in a manner which:*

- a) does not increase the potential for, or result in, the spread of pest plants, or the spread of any non-indigenous plants into areas of native vegetation or a conservation zone*
- b) avoids the degradation of remnant native vegetation by any other means including as a result of spray drift, compaction of soil, modification of surface water flows, pollution to groundwater or surface water or change to groundwater levels*
- c) incorporates a separation distance and/or buffer area to protect wildlife habitats and other features of nature conservation significance.*

*(Underlining my emphasis)*

The proposed clearance of vegetation is limited to the following:

- The footprint of all proposed buildings;
- An area around the guide accommodation to establish an Asset Protection Zone;
- The length of the guest access trail (to a width of 1.3 metres) and the length of the proposed vehicular access track (up to 2 metres) both shown on Site Plan Map L (Appendix C);
- The length of the proposed campsite pathways and beach access at widths varying from 0.4 metres to 1.3 metres;
- A parking and manoeuvring area adjacent the Staging Post;
- The area for the waste treatment and pump-out storage tanks adjacent the south-west of the Service Point; and
- Clearance required to connect services, some of which will be able to consolidated into one common service trench and contained within or under access tracks, including;
  - Water supply from tanks at the service point to all accommodation pods and the longhouse;
  - Waste water from longhouse and accommodation pods to the waste treatment and pump-out storage tanks to the north; and
  - Reticulating the gas from the service point to the longhouse.

Notwithstanding this, the following has been considered to inform this development application:

- The proposed development has been positioned in an area of degraded native vegetation affected by kangaroos.





- The narrow width and use of sifted soil/ gravels/ stone from the site to form pathways familiar to wildlife is considered to minimise the likelihood that the proposed pathways will result in segregation of areas of native vegetation and will be suitable for fauna to traverse;
- There are no known watercourses within the vicinity of the site and therefore the clearance will not contribute to the erosion or silting of a watercourse;
- The clearance will mostly be limited to building footprints and narrow pathways and will not result in large expanses of cleared land that would impact the amenity of the locality; and
- Bushfire safety has been optimised for the refuge building (guide pod) whilst clearance has been minimised around the remaining proposed buildings.

The above considerations are considered to accord with Natural Resources PDC 31.

## 6.7 Infrastructure

The proposed development includes electricity, gas and water supply along with stormwater, waste water and solid waste management. There are limited provisions within the Development Plan relating to provision of electricity other than the desire to create energy efficient outcomes. In this regard, electricity will be supplied via solar panels installed on the proposed buildings with back-up batteries stored on site if needed.

Similarly, the Development Plan provides limited guidance relating to gas and water supply (other than for firefighting purposes considered above).

Accordingly, no further assessment of electricity, water or gas supply has occurred. The infrastructure assessment will centre on stormwater, waste water and solid waste management.

### 6.7.1 Stormwater Management

Stormwater will be collected from the Longhouse, sleeping pods and staging post and will be directed to water storage tanks for reuse onsite as described in Appendix B. Overflow from these tanks will be directed to a 2 metre by 1 metre (200mm deep) erosion mat woven from access track cuttings and laid onto geotextile fabric.

Water from the guide pods will fall to a soakage pit finished with an oversized triple-layer (approx. 200mm deep) stick erosion mat also woven from the access track cuttings and laid onto geotextile fabric.

The policies relevant to the management of stormwater are detailed below:

*Natural Resources Objective 5: Development consistent with the principles of water sensitive design.*

*Natural Resources Objective 7: Storage and use of stormwater which avoids adverse impact on public health and safety.*



*Natural Resources PDC 5: Development should be designed to maximise conservation, minimise consumption and encourage re-use of water resources.*

*Natural Resources PDC 7: Development should be sited and designed to:*

- a) capture and re-use stormwater, where practical*
- b) minimise surface water runoff*
- c) prevent soil erosion and water pollution*
- d) protect and enhance natural water flows*
- e) protect water quality by providing adequate separation distances from watercourses and other water bodies*
- f) not contribute to an increase in salinity levels*
- g) avoid the water logging of soil or the release of toxic elements*
- h) maintain natural hydrological systems and not adversely affect:
  - i. the quantity and quality of groundwater*
  - ii. the depth and directional flow of groundwater*
  - iii. the quality and function of natural springs.**

*Natural Resources PDC 14: Stormwater management systems should:*

- a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source*
- b) utilise, but not be limited to, one or more of the following harvesting methods:
  - i. the collection of roof water in tanks*
  - ii. the discharge to open space, landscaping or garden areas, including strips adjacent to car parks*
  - iii. the incorporation of detention and retention facilities*
  - iv. aquifer recharge.**

*Sloping Land PDC 5: Development on steep land should include site drainage systems to minimise erosion and avoid adverse impacts on slope stability.*



The proposed development seeks to conserve and reuse stormwater consistent with the principles of water urban design and Natural Resources Objective 5 and PDC 5 above. It will also ensure that the water that is harvested is used onsite in accordance with Natural Resources PDC 14. The use of stone lined swales and soakage pits will also minimise erosion satisfying Natural Resources PDC 7 and Sloping Land PDC 5.

### 6.7.2 Waste Management

Waste and recycling will be collected at the Longhouse, stored at the Service Point and removed from the site via the Staging Post. The following polices are considered to be the most relevant in relation to waste management:

*Waste PDC 2: The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.*

*Waste PDC 3: Development should avoid or minimise as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).*

*Waste PDC 5: Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.*

*Waste PDC 6: Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:*

- a) screened and separated from adjoining areas*
- b) located to avoid impacting on adjoining sensitive environments or land uses*
- c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system*
- d) located on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water*
- e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours*
- f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.*



The proposed development will store and manage waste within closed receptacles (bins with lids) enabling the separation of waste and recyclables and to ensure that it is disposed of off-site in a manner that no waste is released into the environment. This satisfies PDCs 2, 3 and 5 above. Furthermore, the waste storage area will also align with PDC 6 by achieving the following:

- it will be screened out of view from walking tracks within the Service Post;
- it will not contaminate stormwater or enter the nearby watercourse as it will be in covered receptacles protected from wind and water; and
- waste will be stored in a manner that ensures it will be contained within the site until collected from the Staging Post by support staff for disposal off-site.

### 6.7.3 Waste Water Management

A closed waste water system is proposed, utilising natural site falls. Individual bathrooms and the Longhouse kitchen will drain to a 4,000 litre in-ground waste treatment tank. Waste will be broken down by worms to minimise waste output to a 3,200 litre in-ground holding tank for pump-out. The pump-out waste water, though 'clean', will be removed by trailer to a waste storage tank at the Staging Post. Pump-out cycles are proposed to be monthly at the site, and annually at the Staging Post. A waste water application will be lodged with the Kangaroo Island Council for approval and will be subject to more detailed design by a qualified plumber.

The following policies are considered to be the most relevant from a planning perspective in relation to waste management:

*Sloping Land PDC 6: Steep sloping sites in unsewered areas should not be developed unless the physical characteristics of the allotments enable the proper siting and operation of an effluent drainage field suitable for the development intended.*

*Coastal Areas PDC 5: Development should be designed so that solid/fluid wastes and stormwater runoff is disposed of in a manner that will not cause pollution or other detrimental impacts on the marine and on-shore environment of coastal areas.*

*Waste PDC 12: Development that produces any effluent should be connected to an approved waste treatment system which may include sewage, community wastewater management systems, or on-site wastewater treatment and disposal methods.*



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*Waste PDC 13: The methods for, and siting of, effluent and waste storage, treatment and disposal systems should minimise the potential for environmental harm and adverse impacts on:*

- a) the quality of surface and groundwater resources*
- b) public health*
- c) the amenity of a locality*
- d) sensitive land uses.*

*Waste PDC 15: Any domestic waste treatment system or effluent drainage field should be located within the allotment of the development that it will service.*

*Waste PDC 16: A dedicated on-site effluent disposal area should not include any areas to be used for, or could be reasonably foreseen to be used for, private outdoor open space, driveways, car parking or outbuildings.*

The proposed system will not require a drainage or soakage area onsite and therefore, the slope of the site will not inhibit the proposed system in line with Sloping Land PDC 6. The proposed system will be designed to meet the requirements of the *Public Health Act 2011* and obtain the relevant approval from Kangaroo Island Council. Therefore, it will ensure that it will not have adverse impacts on the environment or public health in accordance with Waste PDC 12 and 13 and Coastal Areas PDC 5.

The waste system will be located within the allotment and not within areas that will be used for private outdoor open space, driveways, car parking and buildings satisfying Waste PDC 15 and 16.



## 7. CONCLUSION

The proposed tourist accommodation is envisaged and consistent with the intent of the Conservation Zone. This is primarily due to its small scale and its inherent link to the recreational trails throughout the Flinders Chase National Park. This association with the trails is likely to foster the guests' appreciation for the native flora and fauna protected by the Conservation Zone.

The development has been sensitively designed to prevent views of the proposed buildings from Sanderson Bay and the Remarkable Rocks beyond. An alternative approach to achieving bushfire safety is proposed by aligning with the draft procedures for buildings on land owned by the DEW which, subject to the support of the CFS, will substantially reduce the extent of native vegetation clearance. The management of the site is also considered to limit the impact of waste, waste water and stormwater on the environment with the removal of waste and waste water from the site.

We note that any relevant Native Vegetation Clearance approvals are yet to be obtained. Given such approvals are generally independent to the *Development Act 1993*, in our opinion, should in principle support be forthcoming from DEW, we are of the opinion that Development Plan Consent could be issued with the clearance attached as a reserve matter.

Based on the assessment above, the proposed development is considered on balance to be consistent with the Development Plan and therefore warrants Development Plan Consent subject to the resolution of any Native Vegetation Clearance application.

## **Character**

The overall approach to the AWC guided walk is to deliver 3 nights and 3 distinct memories, in which architecture and site-planning marries with Place.

Site development is *wholly* based on retention of site landscape values.

Site interventions are positioned to achieve shelter, finding subtle folds in the landscape, whilst connecting with views and engaging with the essence of the site.

The selected site nestles at high points in vegetated dune that rises from a rugged coastline. A small cliff-fringed promontory yields to the power of the sea to form Sanderson Bay to the west and a cove to the east. Beyond these indents the rather grand coastline runs westward (from whence the day's walk has come) and eastward (and where it will continue).

The site's dune folds views over a long view over a broad northward valley of melaleuca – a deep green cumulus cloud bank.

Kangaroos abound.

### ***Site elements***

#### ***Longhouse***

This the communal space, and, for walkers, the site's arrival and departure point. It is designed to accommodate 14 guests and 2 guides for dining and socialising. It is fringed by verandahs with sitting spaces that enable people to be together or apart. The fireplace is a focal element. They include linen store and an optional guide/ staff sleeping place.

It is sited for views over the westward and eastward coastlines, with the cove surf break offering a compelling foreground meditation.

#### ***Sleeping Pods***

Sleeping pods are designed to accommodate 2 guests in either twin or double arrangement. At Sanderson Bay, whilst still broadly connecting with the environment, the more minimal fitout at Sandy Creek yields to higher comfort level, with stepped balcony to reach into the northern view.

At Sanderson Bay the Sleeping Pods are conjoined to minimise site footprint in the soft dune country – but also to create a sense of 'lodge'. Shelter is deeper here. 'Community' is stronger here: a sense of 'we have grown together through our walk'.

#### ***Guide Pod***

The Guide Pods accommodates 2 guides, and is sized and detailed to operate as a site fire refuge.

#### ***Lookout***

This platform, a short walk from the Longhouse and Sleeping Pods is set on the vegetated dune high point, with a particular view down to Sanderson Bay and the sunset. It nestles beneath the vegetation level, with seats and approach boardwalks. It includes for stowable wind screens.

#### ***Connecting paths***

Timbered boardwalks and mats will connect sleeping, communal spaces and natural site features.

#### ***Service Point and Access Track***

Site vehicular access is only by a light vehicle – such as a quad – enabling reduced road width and lighter road engineering – for reduced environmental impact.

The Service Point marks the end of the vehicular access track and, in addition to being a quad park, accommodates gas bottles, waste management and site maintenance stores. It also delivers charging of back-up batteries for each site element's autonomous power supply.

Water storage tanks are sited here.

It is sited beyond the guest experience.

#### *Staging Post*

Commercial access for suppliers and maintenance by usual vehicles is at a 'Staging Post' adjacent Sanderson Bay Fire Track. The site affords stores for food, back-up supply for gas and batteries, cleaning and cyclical maintenance, as well back-up water supply is held. It is also a staging point for transfer of guest bags from the site quad to a van for shifting to the next site; and for waste management.

The site quad and trailers for diverse purposes are stored here between the camp's use.

#### **Site planning** takes care to:

- Have no visibility of service access on site approach or use, including to...
- Integrate service access with sleeping pods access, so no additional (from walkers' perspective, superfluous) track lies in view
- Use topography to provide shelter from prevailing winds, and to:
  - nestle pods into the site, creating a sense of refuge/ retreat/ cosiness, whilst still affording prospect
  - create presence/ prominence (and instagrammability) for the Longhouse
- Orient site elements for winter solar access, and specifically for sunset and sunrise opportunity
- Consider arrival and departure sequences

#### *Arrival sequence:* is devised around 'wow':

1. A hint of a roof, high up in a vegetated dune is spotted from the cliff-edge approach after Sanderson Bay
2. ...but this is lost in the rise up the dune between 3m height vegetation
3. Wending to the west at the summit, down a narrow path a timbered porch is framed
4. We're home!
5. Flopping decks/ verandahs yield extensive views sunlit from afternoon sun
6. The sound of the sea
7. Behind us lies a natural sandy amphitheatre, completed a fractured, textured 'wall' to the north
8. We're led through this to our 'room'
9. ...beyond a totally different, gloriously soft wide valley of undulating green

#### *Departure sequences:*

1. Move on from the Longhouses (not past sleeping pods)
2. ...With the Longhouses sunlit in farewell (a last pic)
3. And then move into the yjew of the day's (clearly long) journey
4. A little stop at 'our' cove on the way

#### **Architecture and fitout**

The proposed architectural experience is like opening an oyster: raw and crusted by the environment externally, polished luxury within.

In both Longhouse and Sleeping and Guide Pods, roofs shade wall lines below, turning away from the north and west (the direction of the beach). Longhouse verandahs are devised to effectively sunshade in summer, incorporating blinds for low angle sun.

Wall-lines widely open to join to views and outdoor areas.



### *Materials*

All structures are lightweight framed, and clad in natural materials, to age gracefully, to soften in time, generally without applied finish.

Timber decking, steps, seats, verandah framing and soffit linings/ battens are the structure's leading edges. Wall-lines are trimmed by timber joinery to broad-opening doors, shutters and windows.

Only steel is painted – to a metallic rusted tone.

At Sanderson Bay colour tones will engage with the yellow warmth of sand and the deep greens of the melaleuca landscape to the north.

### *Little things*

Window seats, door pulls fashioned from local timber, ceilings and soffits are to be patterned to interpret the site. Furniture, upholstery and other finishing touches are also proposed to characterise detail at Sanderson.

## **Bushfire**

All AWC sites are supervised, with 2 (minimum) trained guides, operations protocols, and 24/7 communications.

A compliant bushfire response strategy is outlined in Bushfire Solutions report. The Guide Pod is proposed to be constructed to meet the specified BAL assessment, with alternative egress to the nearby beach and sheltering cliffs.

Other assets are proposed not to be protected.

## **Servicing**

Operations, levels of utility servicing and levels of comfort are inter-related.

Servicing systems are devised from both pragmatic and ethical standpoints.

Within the greater context of operating all sites, at each site operations servicing is considered and site logistics hardware provided for:

- guests baggage
- food and linen supply
- waste removal
- fire and emergency access/ evacuation

### *Power*

Solar power systems are used for all site elements. Each site element stands alone, but back-up batteries are stored for change-over when necessary.

### *Gas*

Gas will be reticulated to the Longhouse and Sleeping Pods (for hot water service) from bottles at the service point.

### *Water*

A centralised harvesting, storage and reticulation system will be based at the Service Point. 90,000 litres storage, with detailed water conservation techniques is proposed.

At the Camp site, water is to be harvested from the Longhouse roof and connected Sleeping Pods only.

Longhouse roofs fall to trafficable gutters at the wall-line, rather than falling to the ground from roof perimeters. Downpipes connect to buffer/ storage tanks beneath the Longhouse floor, and thence to the primary Service Point storage tanks.

Sleeping Pod roofs will use interconnected eaves gutters and downpipes to connect sub-floor to the Service Point storage tank.

Roofwater run-off and system overflows take advantage of the very sand ground condition:

- The Guide Pod roof will fall to a drainage swales/ shallow soakage pit at the up-slope line of the pod benching, finished with an oversized triple-layer (approx. 200mm deep) stick erosion mat woven from the access track cuttings, laid to geotextile fabric beneath.
- Buffer and storage tank overflows are also to be directed to approx. 2m x 1m erosion mat of the same detail.

Staging Post roofwater is collected and directed by downpipe to a back-up rainwater tank for Camp use. Storage tank overflow is to a 1m x1m x 1m soakage pit, geotextile fabric lined, filled and finished with select local site stone.

#### *Waste*

A closed waste system is proposed, utilising natural site falls. Individual bathrooms and the Longhouse kitchen will drain to a 4,000 litre in-ground waste treatment tank. Waste will be broken down by worms to minimise waste output to a 3,200 litre in-ground holding tank for pump-out. The pump-out waste water, though 'clean', will be removed by trailer to a waste storage tank at the Staging Post.

Pump-out cycles are proposed to be: monthly at the site, and annually at the Staging Post.

#### *Rubbish and recyclables*

A separated waste management system will integrate into the Longhouse kitchen, Service Point and Staging Post.

### **Construction methodology**

Construction will use the same service access track and paths as for operation.

The Staging Post will be constructed first to create a construction base (with existing road access). The proposed access track, Service Point, and site paths become the next elements to facilitate creation of the camps, whilst minimising site construction impact.

An overall approach is to minimise site construction time through a mix of flatpack and portables construction, with portables being employed for wet area/ high fitout components.

Footings will be concrete free.

To meet timelines, it is anticipated that this site and Sandy Creek site will be turned out parallel, rather than in turn.



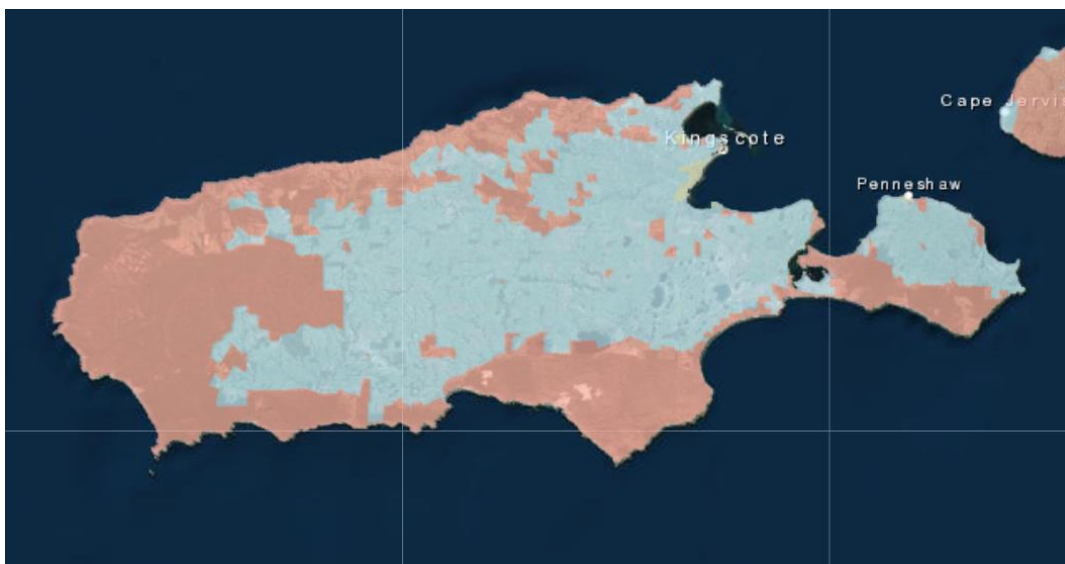
### **Australian Walking Company KI Development Application.**

The proposed tourism development on Kangaroo Island by the Australian Walking Company (AWC) involves the building of multiple dwellings (for overnight stays) and additional support structures (storage sheds, kitchens and shared space) for tourist comfort and enjoyment whilst walking sections of the Kangaroo Island Wilderness Trail (KIWT).

The proposal includes structures to be built within Flinders Chase National Park at the following sites

- Sanderson Bay
- Cape Du Couedic
- Sandy Creek

Large portions of Kangaroo Island (including the proposed sites within Flinders Chase National Park) have been declared as High Bushfire risk (refer Map1) and require certain considerations for development within High Bushfire risk areas.



Map 1 – Bushfire Protection areas of Kangaroo Island

- Pink - High
- Blue – Medium



## Development Application Requirements

Applications for Development Plan Consent are assessed against the planning policies contained in the Kangaroo Island Council Development Plan.

Proposals for new dwellings within High Bushfire Protection areas have a mandatory referral to the Country Fire Service (CFS) for advice on the degree of difficulty in protecting the building from a bushfire and assessed against the provisions of the Ministers Code: *Undertaking development in Bushfire Protection Areas*.

All new dwellings or tourist accommodation will be assessed for compliance against the following criteria:

- must have a dedicated firefighting water supply of at least 22,000 litres
- ensure that gaps between the dwelling floor and the ground are enclosed to prevent burning debris from entering
- be set back 20 metres from flammable or combustible vegetation
- be located and designed to minimise risk from bushfires
- have access roads and tracks that are appropriately designed and built for entry and exit of vehicles, including fire fighting vehicles during a fire.

In addition, new buildings will be assessed against the provisions of the building rules to ensure they are designed and constructed to provide an appropriate level of protection ranging from just sparks and embers up to direct flame contact.

The Building Code of Australia Volumes 1 and 2 (BCA) and the *Minister's Specification SA 78 Additional requirements in designated bushfire prone areas* outline the construction requirements for the level of Bushfire risk.

This requires a site assessment in accordance with *AS 3959 – Construction of buildings in bushfire prone areas* to identify the expected level of bushfire attack (BAL). This assessment is submitted to the council or private certifier as part of the application for building rules consent.



## Proposed AWC Development Application

The proposed development application will include multiple overnight accommodation tents “sleeping pods” (approximately 7 at Sandy Creek and Sanderson Bay) and support structures including shared space facilities “Longhouse” for kitchen and dining rooms for all three sites.

The development will also include some additional walking trails for enjoyment of the spectacular scenery of the Kangaroo Island Wilderness and coastline and access tracks to built assets.

AWC acknowledge that the proposed development is within remote areas of Kangaroo Island and within a High Bushfire Protection area.

In review of the following documents;

- Ministers Code *Undertaking development in Bushfire Protection Areas* and
- *Minister’s Specification SA 78 Additional requirements in designated bushfire prone area*
- Attached BAL reports

It has been identified that the proposed development would potentially have some environmental and aesthetic impacts (via some native vegetation clearance) to achieve the required;

- site access and
- setback distances (from classified vegetation) requirements

Therefore, AWC have requested consideration to vary the Ministers Code and Specifications by providing alternative solutions based on the proposed new procedures by Department for Environment and Water (DEW) and in line with the performance criteria of Australian Building Codes Board (ABCB) Design and Construction of Community Bushfire Refuges.



## Draft Building Requirements Procedure

Department for Environment and Water (DEW) have developed a **Draft procedure for Building requirements** on land under the care and control of the *Minister for Sustainability, Environment and Conservation*, under the *National Parks and Wildlife Act 1972*, the *Wilderness Protection Act 1992* or the *Crown land Management Act 2009*.

The draft procedures have been designed to ensure the safety of employees, visitors, contractors and lessees located in bushfire prone areas and assist with mitigating bushfire risks and minimize the possible impacts in the workplace.

The objective of the procedure is to provide guidance on;

- managing the safety of people working, visiting or participating in events
- guidance on when a workplace should be closed or modify operations during heightened fire danger or during a bushfire event
- determining if workplace suitable as place of last resort
- assisting worksite managers implement Government policy

The procedure also considers risk mitigation strategies that determine if the existing or future proposed building locations can be considered a safe place to remain during a bushfire event.

The procedure follows the principles, general guidelines and performance criteria of the following documents;

- Risk Management Standards AS/NZS ISO 31000:2009
- Australian Building Codes Board (ABCB)
  - Design and Construction of Community Bushfire Refuges
  - Private Bushfire Shelters



## Performance Based Solutions

Performance based solutions consider the site-specific risks and allow businesses to provide an alternative option whilst still meeting the performance criteria of the *ABCB Design and Construction of Community Bushfire Refuges*.

AWC propose the solutions below to support the Development Application. These proposed solutions have considered the following issues;

- All sleeping pods, guide huts and lookouts constructed to general bushfire risk standards
- AWC accept that buildings constructed to general bushfire risk will burn during a bushfire
- Each site has a refuge building with capacity to support 17 people (14 Tourists, 2 Guides, 1 support staff)
- Refuge building to be constructed to determined BAL
- Cape Du Couedic is the only site with suitable access for fire vehicles
- Fuels adjacent to each site will have fast moving fires with short residence time

### *Refuge*

- Option 1 – Guide Pod built as the “refuge” area
- Option 2 – Additional refuge shelter built
- Built to identified BAL ratings
- Construction Materials won’t negatively affect interior air toxicity
- Ventilation provided
- Floor area minimum 0.75 sq/m per person
- Volume minimum 1.2 cubic metre per person (enough air for 60 minutes)
- 10m minimum separation between refuge and adjacent dwellings

### *Refuge Location*

- The refuge “Guide Pod or additional structure” will be in lower fuel areas with selective clearing of inner and outer protection zones applied (subject to native vegetation clearance approval)
- Consideration DEW A and B zones in Flinders Chase Fire Management Plan



### *Last Resort*

- “Open Space”
  - Options include the cliff sheltered areas and beaches at Sanderson Bay and beaches at Sandy Creek
  - Within 2-minute walk
  - Large enough for 17 people
  - Prevent flame contact, material ignition and radiant heat levels of 2kW/sq/m
  - Additional track requirements must be considered.

### *Access and Egress*

- Remote access and locations of sites not suitable for fire trucks (except Cape Du Couedic)
- Limited public access (on High fire danger days due to DEW park Closure Policy)
- Restricted access on Sanderson Track (Public Land)
- Unlikely conflicts with Emergency vehicles
- Public Roads support Cape Du Couedic and Sandy Creek
- AWC to implement support tracks that will support smaller ATV to assist with evacuation (if required) to Public Roads
- Good access via pedestrian paths (minimum clear width of 1m) from “Sleeping Pods” to refuge

### *Water Supply and storage*

- Adequate supply and storage available at each site for pre-suppression and mop up
- Tanks of fire resistant material
- Fittings and hose reels provide adequate reach and coverage around refuge structures
- Consideration for sprinkler system on refuge
- No access for fire trucks

### *Utilities*

- No electricity (except existing infrastructure at Cape Du Couedic)
- Gas cylinders directed away from combustible material





### *Bushfire Site Management Plan*

- Develop a comprehensive plan for each site that includes
  - Risk assessment
  - Communications Plan
  - Identify roles and responsibilities
  - Evacuation Plan
  - Training
  - Equipment check
  - Annual audit
  - Monitor and review

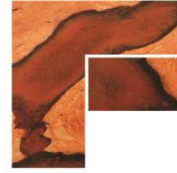
The implementation of the solutions highlighted above will provide a safe operating environment for clients and staff enjoying the KIWT and using the AWC facilities.

### **Disclaimer**

It is acknowledged that the risk to life and property from a bushfire event is significant and Australia has experienced this on many occasions over recent decades.

It must be noted that extreme fire weather conditions may create unpredictable fire behaviour and therefore it is not possible to remove all potential impacts from bushfires or guarantee that occupation of a refuge built in accordance with DEW procedures and in accordance with the ABCB handbooks will guarantee that a building will survive or eliminate the risk of serious injury or fatality.

The ABCB acknowledges that content of their handbooks may not meet the specific needs of people with a disability, respiratory or cardiovascular illnesses, children or the aged and strongly recommends that people in these categories are appropriately evacuated to safer places.



**FYFE**

## **APPENDIX F**

# **INDICATIVE BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT REPORT PREPARED BY SA BUSHFIRE SOLUTIONS**



**AS 3959  
“INDICATIVE” BUSHFIRE ATTACK LEVEL (BAL)  
ASSESSMENT REPORT**

**“Sanderson Bay”**

<b>Customer Details</b>	
Applicants Name	Troppo Architects
Email	ryan.horsnell@troppo.com.au
Phone	82329696

<b>Property Details</b>	
Address	Flinders Chase National Park Sanderson Bay
Lot Number	D38340Q55
Municipality	Kangaroo Island
Bushfire Protection Area	High

<b>Report Details</b>	
Report / Job Number	BAL 012
Report Version	1.0
Assessment Date	28/8/2018
Report Date	5/9/2018
Assessors Name	Brett Stephens
Assessor Phone	0427604253

<b>BAL Summary</b>				
<b>Plot</b>	<b>Vegetation Classification</b>	<b>Effective Slope</b>	<b>Separation Distance (m)</b>	<b>BAL</b>
1	Class D Scrub	Level	5m	FZ
2	Class C Shrubland	Level	5m	FZ

**Determined Bushfire Attack Level (BAL)**

The determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009.

<b>Determined BAL</b>	<b>BAL- FZ</b>
-----------------------	----------------



## **BAL Assessment Report**

The BAL assessment has been completed following an onsite visit and Fuel Hazard assessments on the property as per AS 3959-2009 Construction of Buildings in Bushfire Prone Areas.

All vegetation within 100m of the site / proposed developments was classified in accordance with Clause 2.2.3 of AS 3959-2009. Vegetation classification was also made with consideration for future growth and revegetation and based on worst case scenarios.

The AS 3959-2009 provides a relevant fire danger index (FDI) in accordance with agency determined agreements, in SA this is FDI 80 (Table 2.1).

### **Comments:**

This is an indicative BAL assessment for the multiple proposed structures at Sanderson Bay. As the exact build location has not been agreed or approved (although we don't expect significant change from the attached maps), we completed the inspection with a view to providing the client an opportunity to consider potential Bushfire risk on the proposed infrastructure and an opportunity to review and decide on options that may assist reduce the risk prior to submitting the development application.

This report does not refer to matters specifically referred to in the Ministers Code "Undertaking development in Bushfire Protection Areas" as these considerations will be addressed in the development application following inspection from Country Fire Service (CFS).



**Disclaimer Statement:**

It must be noted that extreme fire weather conditions may create unpredictable fire behaviour and therefore it is impossible to remove all potential impacts from bushfires and guarantee that a building will survive any bushfire event.

The current fuel loads and vegetation management cannot be guaranteed not to change in the future.

I have taken all reasonable steps to ensure that the information provided in this assessment is accurate and reflects the conditions on and around the site and allotment on the date of this assessment. I cannot guarantee the bushfire risks will not change on neighboring properties in the future.

Signed:

A handwritten signature in blue ink, appearing to read "BASKER L", is displayed on a light green rectangular background.

11 September 2018



# 1 Proposed Site Location Plan "Sanderson Bay"



KANGAROO ISLAND WALK  
SITES MAP  
AUG 2018



tropo

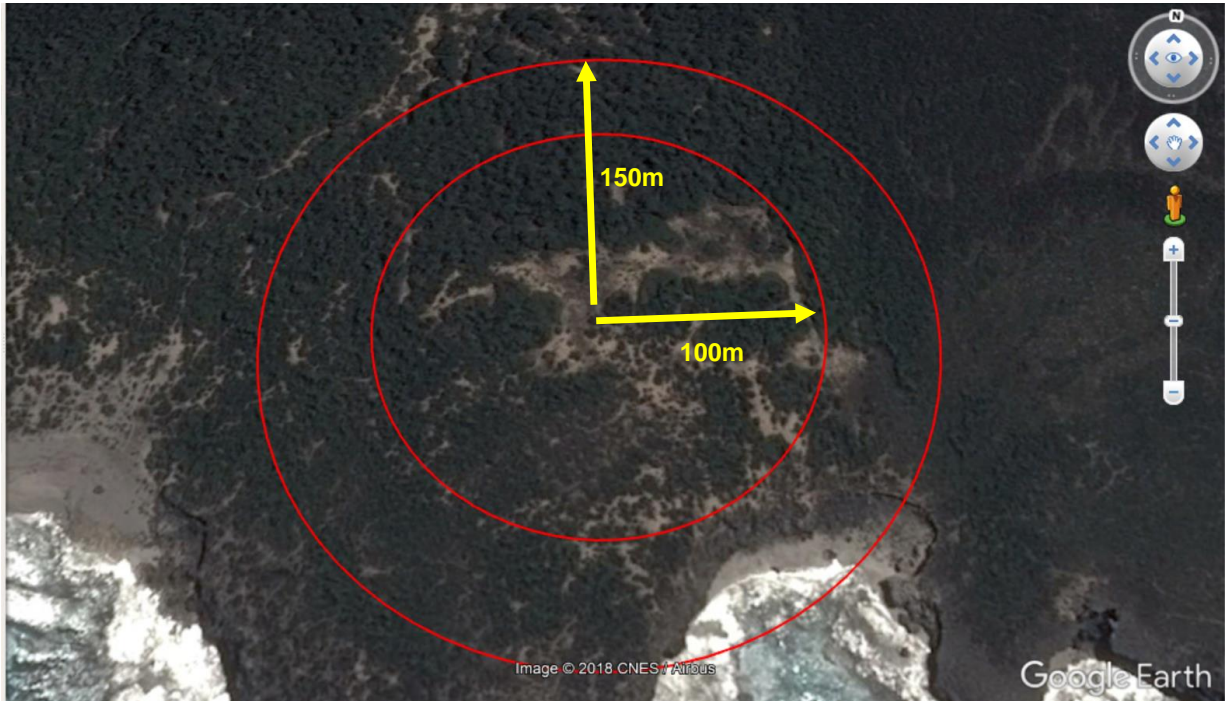


1.1 Proposed Construction Site Location Plan "Sanderson Bay"





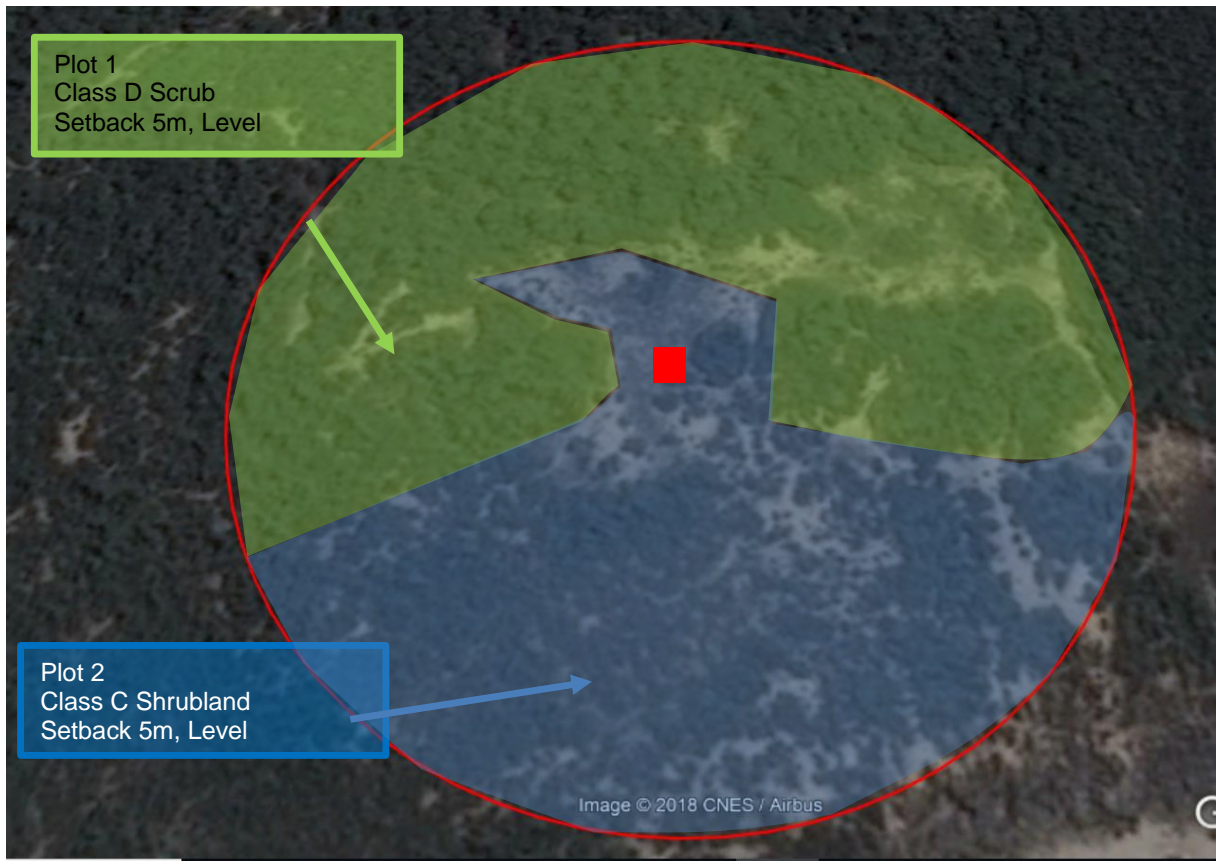
**2 Site Assessment showing the vegetation within 100m and 150m radius.**







**3 Classified vegetation plots within the 100m radius of the proposed dwelling (Centered for proposed Longhouse).**





**4 Assessment of the vegetation within 100m in all directions.**

Vegetation classification (see Table 2.3)	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5
Group A Forest					
Group B Woodland					
Group C Shrub-land		✓			
Group D Scrub	✓				
Group E Mallee/Mulga					
Group F Rainforest					
Group G Grassland					
Exclusions (where applicable)	Circle relevant paragraph descriptor from clause 2.2.3.2.				
	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)
<b>Distance of the site from classified vegetation (see clause 2.2.4)</b>					
Distance to classified vegetation	Show distances in meters				
	5m	5m			
<b>Determine the effective slope of land under the classified vegetation</b>					
Effective slope	Upslope				
	Upslope/0°	Upslope/0°	Upslope/0°	Upslope/0°	Upslope/0°
Slope under the classified vegetation	Downslope				
	>0 to 5 ✓	>0 to 5 ✓	>0 to 5	>0 to 5	>0 to 5
	>5 to 10	>5 to 10	>5 to 10	>5 to 10	>5 to 10
	>10 to 15	>10 to 15	>10 to 15	>10 to 15	
	>15 to 20	>15 to 20	>15 to 20	>15 to 20	>10 to 15
	>20	>20	>30	>20	>15 to 20
BAL value for each side of the site	FZ	FZ			

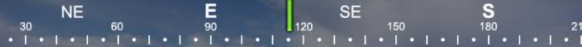






5 Photos of Classified Vegetation

Plot	1	Classification or Exclusion Clause	Class D Scrub
<p>LAT: -36.030025 LON: 136.784729 ±5m ▲ 30m</p> <p>28 Aug 2018, 11:48</p>		<p>LAT: -36.030025 LON: 136.784729 ±5m ▲ 30m</p> <p>28 Aug 2018, 11:48</p>	
<i>Photo ID: 1</i>		<i>Photo ID: 2</i>	

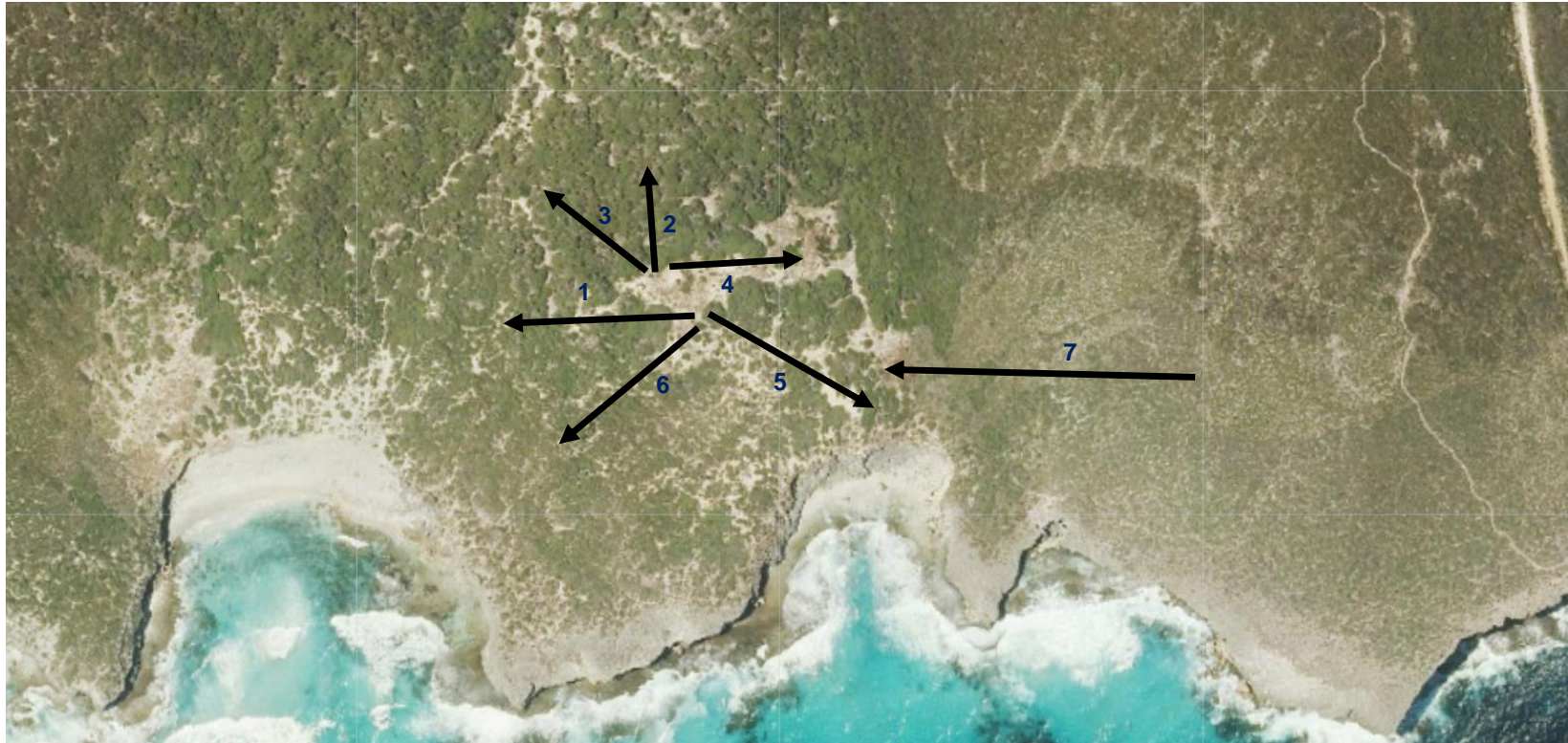
Plot	1	Classification or Exclusion Clause	Class D Scrub
<p>LAT: -36.030079 LON: 136.784424 ±5m ▲ 17m</p> <p>28 Aug 2018, 11:58</p>		<p>LAT: -36.030113 LON: 136.784393 ±5m ▲ 19m</p> <p>28 Aug 2018, 11:59</p>	
<i>Photo ID: 3</i>		<i>Photo ID: 4</i>	



Plot	2	Classification or Exclusion Clause	Class C Shrubland
 <p>LAT: -36.030361 LON: 136.784744 ±5m ▲ 25m</p>		 <p>LAT: -36.030392 LON: 136.784775 ±5m ▲ 24m</p>	
 <p>28 Aug 2018, 11:55</p>		 <p>28 Aug 2018, 11:55</p>	
		<p style="text-align: center;"><i>Photo ID: 5</i></p> <p style="text-align: center;"><i>Photo ID: 6</i></p>	
Plot	2	Classification or Exclusion Clause	Class C Shrubland
			
		<p style="text-align: center;"><i>Photo ID: 7</i></p>	



**6 Location Map of photos**





## 7 Reducing BAL Options

The indicative BAL rating for the proposed development (based on specified location) is BAL FZ, noting that this was from the plot 1 vegetation based on a minimal setback of 5m.

Options to reduce the BAL include

- Increasing the setback distance between the construction and the vegetation.
- Undertake Actual Fuel Hazard sampling for the site

Table B2 *Vegetation Classification and Fuel Loads* of the AS3959-2009 provides indicative Surface and Overall loads in Tonnes per hectare (t/ha). We found these to be over exaggerated and not representative of the actual (and potential) fuel loads at the site.

We completed fuel hazard assessments of the representative vegetation in and adjacent to the proposed development and determined appropriate fuel loads (refer table 1).

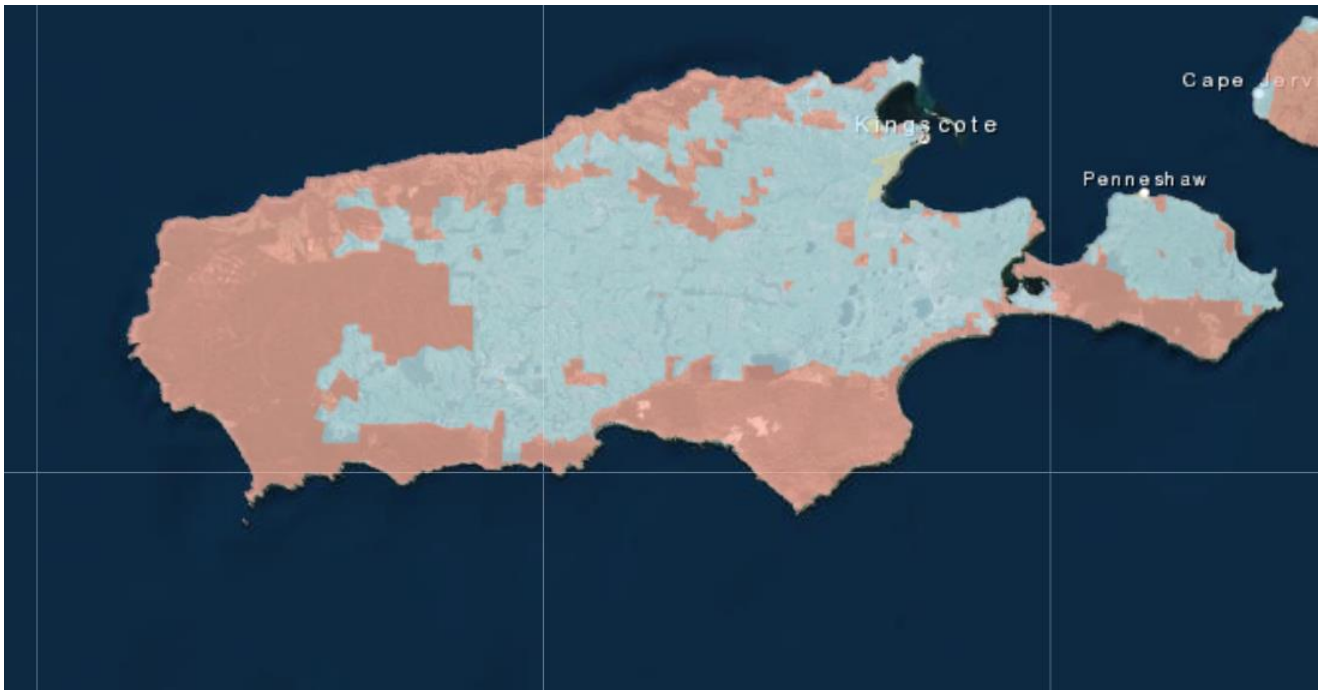
Our calculations below (refer Table 1) are based on the onsite fuel hazard assessments with an FDI of 120 and the potential BAL ratings can be compared with increased setback distances for consideration.

Table 1

Vegetation classification (see clause 2.2.3)	AS3959-2009 Surface Fuel load (t/ha)	AS3959-2009 Overall Fuel load (t/ha)	Setback distance	Current BAL	Adjusted Surface Fuel load (t/ha)	Adjusted Overall Fuel load (t/ha)	Setback Distance	Revised BAL
Scrub	25	25	5	FZ	2	8	7	40
					2	8	8	29
					2	8	12	19
					2	8	18	12.5
Shrubland	15	15	5	FZ	2	8	6	40
					2	8	7	29
					2	8	11	19
					2	8	15	12.5



**Appendix 1 Property Location and highlighted High bushfire risk areas (pink) adjacent to Medium Bushfire risk areas (blue)**





Date: 3/October 2018

**Chief Executive**

Level 10  
81-95 Waymouth Street  
Adelaide SA 5000

GPO Box 1047  
Adelaide SA 5001  
Australia

Ph: +61 8 8204 9323

[www.environment.sa.gov.au](http://www.environment.sa.gov.au)

To Whom It May Concern

The Department for Environment and Water (DEW) would like to advise of their full support to three development applications by the Australian Walking Company Pty Ltd (AWC) for the development of tourist accommodation along the Kangaroo Island Wilderness Trail (KIWT) in Flinders Chase National Park.

The development of a multi-day walking trail was identified by the South Australian Tourism Commission (SATC) as a critical need for the development of the tourism industry on Kangaroo Island and to compete with nature-based destinations worldwide. In 2018, a 64 kilometre trail through Flinders Chase National Park and the Kelly Hill Conservation Park was opened to the public.

To improve the diversity of accommodation and guided walking experiences along the trail an opportunity was presented to the private sector, through an expression of interest process, for the development of eco-sensitive accommodation and tours. The AWC was selected as the preferred applicant due to their national and international reputation for delivering ecologically sustainable construction and operation of tourism accommodation that complements walking trail experiences.

AWC's development proposals encompass small-scale tourism development within the Flinders Chase National Park which is administered by DEW. I can confirm the proposals align with the intent of the recent amendments to the Park Management Plan that facilitate the development of small scale ecologically sensitive accommodation for trail walkers.

The proponents have consulted closely with the Department over the last 18 months to develop the proposals and they are considered to be consistent with the State Government Eco-Tourism policy objectives. The AWC proposals have the Department's full support.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'John Schutz', written over a light blue circular stamp or watermark.

John Schutz

**CHIEF EXECUTIVE**



**DEVELOPMENT ASSESSMENT SERVICE**

Your Ref: 520/L008/18  
Our Ref: Kangaroo Island DA  
Please refer to: 20190416-02lb

16 April 2019

State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

**ATTN: J WOOD**

Dear Jeremy,

**RE: DEVELOPMENT APPLICATION (PLANNING ASSESSMENT) –  
AUSTRALIAN WALKING COMPANY – SANDERSON FIRE TRACK, SANDERSON BAY FLINDERS CHASE**

Scope:

Construction of tourism accommodation (comprising 8 accommodation pods, a longhouse, two lookouts, a services building and water tanks) in association with the Kangaroo Island Wilderness Trail.

Pursuant to Development Regulations 2008 (clause 18 of Schedule 8), a referral to SA Country Fire Service (SA CFS) is required, for direction on dwellings, tourist accommodation and other habitable buildings.

Relevant Supporting Documentation:

- Kangaroo Island Wilderness Trail Accommodation Planning Statement; Sanderson Bay, Flinders Chase National Park. Prepared by FYFE Pty Ltd dated 6/11/2018.
- Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) as published under Regulation 106 of the *Development Regulations 2008* applies.
- Design and Construction of Community Bushfire Refuges 2014, as published by ABCB and the Fire Services Commissioner Victoria (See Appendix A).
- Kangaroo Island Council Development Plan (Consolidated 17 September 2015), Objectives and Principles of Development Control for Hazards (Bushfire):
  - Objectives: 1, 2, 3, and 8
  - Principles of Development Control: 1 (a), 1 (b), 2, 6, 7, 8 (a-e), 9 (a-c), and 11
- Response to referrals – DA 520/L008/18 Tourist Accommodation at Sanderson Bay. Prepared by FYFE Pty Ltd dated 7/03/2019; incorporating:
  - Appendix B – Report prepared by SA Bushfire Solutions

The proposed development is located within an area that is categorised as a **HIGH** Bushfire Protection Area in the council development plan.

Thank you for giving SA CFS the opportunity to provide you with feedback on your response to our referral response. SA CFS has reviewed your response and is satisfied that the information provided has addressed the concerns raised in our referral response dated 17 January 2019 and has revised our original response as follows:



### Locality/Background:

Kangaroo Island and in particular Flinders Chase National Park has a history of large, and depending on the weather and environmental conditions, uncontrollable bush fires.

The site will be serviced by the Western Districts and Parndana fire stations, these stations are staffed by volunteers and any response is subject to volunteer availability at any given time, and dependent upon other fire events occurring in the area as well as safe access to the site. Due to the location of these stations, response times to fires in this area may be extended in excess of 45 minutes once mobile.

There is a lack of reticulated water in the area. Static fire water tanks for both bush fire and building fires will be required to assist in effective Fire Service intervention.

There is a lack of reliable communication networks to facilitate the early warning and evacuation of participants on the trail and in residence at proposed accommodation.

The vegetation and landscape varies greatly across the Flinders Chase National Park, as it does the across the proposed areas for development in this proposal including:

Coastal heath, coastal mallee woodland, open Eucalypt forest, karst landscapes, ephemeral lakes and swamps.

### SITING

Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.2 describes the requirements for buildings to be sited away from areas that pose an unacceptable bushfire risk. This includes areas with rugged terrain or hazardous vegetation.

**The siting proposed for tourist accommodation, presents an extreme risk, due to the proximity to nearby safer places, lack of safe access and hazardous vegetation.**

**SA CFS acknowledges the application has amended the siting 20 metres to the north east, away from existing elevated fuel structures. However the overall risk remains and will require mitigation measures to be put in place.**

**The applicant & operators shall develop an Operational Management Plan which will ensure that staff and guests alike are not placed at any unnecessary risk through restricting operations and evacuating from the site prior to elevated fire conditions. In addition, the applicant & operators shall formulate, practice and maintain an Emergency Response Plan that addresses the risk posed if staff and guests are not removed from the site prior to a bushfire event, given the extreme risks that this remote location presents. Please refer to conclusion for more information.**

### ACCESS

The proposed site is located approximately 500 metres from the nearest existing fire track, and proposes a narrow track not accessible to motor vehicles to the site. The existing fire track named 'Sanderson Fire Track' is a dead end road, heavily wooded, single entry/exit no thru road that is approximately 9km in length to the nearest public road.

**The path of proposed travel presents varying vegetation types such as coastal shrub and scrub with fuel loads in excess of 25 t/ha. This vegetation during and after the fire front will have a much greater residence times than that of a wider track with reduced fuel loads; and the impact of radiant heat will be in excess of 40kW/m<sup>2</sup> and even flame contact on a walking path (It is suggested that radiant heat >2.5kW/m<sup>2</sup> will cause pain to humans after short periods of time).**

**A widened access with reduced fuel loads on either side will provide greater protection during evacuation before and after the fire front.**

**Given the specific risk associated with the site access and proximity to nearby roads for effective evacuation the applicant and operators shall formulate, practice and maintain an Emergency Response Plan that clearly identifies evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced.**

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### *CFS Mission*

*To protect life, property and the environment from fire and other emergencies whilst protecting and supporting our personnel and continuously improving.*

## WATER SUPPLY

The proposal includes a 22,000 litre dedicated fire fighting water tank adjacent the refuge; located within the fuel reduced zone.

**A dedicated fire fighting water supply, pumping system, pipe-work and fire-fighting hose(s) will allow greater opportunity for the refuge building to withstand the fire front, by providing pre wetting, extinguishment of embers spotting forward of the fire front and residual burning after the fire front; or in prevention of a fire spreading from the site as a result of the development and human activities.**

**Whilst pump systems can be operated automatically and fire hose reels relatively easy to operate, SA CFS recommends a maintenance and training regime be included in bushfire survival and emergency response plans.**

**SA CFS further recommends a fit for purpose, automatic internal fire sprinkler system for the purposes of providing added protection to the building and spread of fire to the surrounding areas as a result of the development and human activities.**

SA CFS provides the following as conditions of consent for the development:

Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.4.1 prescribes the mandatory provision of a dedicated and accessible water supply to be made available at all times for fire-fighting.

Ministers Specification SA78 provides the technical details of the dedicated water supply for bushfire fighting for the bushfire zone. The dedicated bushfire fighting water supply shall also incorporate the installation of a pumping system, pipe-work and fire-fighting hose(s) in accordance with Minister's Specification SA78 as follows:

- A minimum supply of 22,000 litres of water shall be available at all times for bushfire fighting purposes.
- The water storage facility (and any support structure) shall be constructed of non-combustible material.
- The dedicated fire-fighting water supply shall be pressurised by a pump that has –
  - i. A minimum inlet diameter of 38mm, AND
  - ii. Is powered by a petrol or diesel engine with a power rating of at least 3.7kW (5hp), OR
  - iii. A pumping system that operates independently of mains electricity and is capable of pressurising the water for fire-fighting purposes.
- The dedicated fire-fighting water supply pump shall be located at or adjacent to the habitable building to ensure occupants safety when operating the pump during a bushfire. An 'Operations Instruction Procedure' shall be located with the pump control panel.
- The fire-fighting pump and any flexible connections to the water supply shall be protected by a non-combustible cover that allows adequate air ventilation for efficient pump operation.
- All bushfire fighting water pipes and connections between the water storage facility and a pump shall be no smaller in diameter than the diameter of the pump inlet.
- All non-metal water supply pipes for bushfire fighting purposes (other than flexible connections and hoses for fire-fighting) shall be buried below ground to a minimum depth of 300mm with no non-metal parts above ground level.
- A fire-fighting hose (or hoses) shall be located so that all parts of the building are within reach of the nozzle end of the hose and if more than one hose is required they should be positioned to provide maximum coverage of the building and surrounds (i.e. at opposite ends of the habitable building).
- All fire-fighting hoses shall be capable of withstanding the pressures of the supplied water.
- All fire-fighting hoses shall be of reinforced construction manufactured in accordance with AS 2620 or AS 1221.
- All fire-fighting hoses shall have a minimum nominal internal diameter of 18mm and a maximum length of 36 metres.
- All fire-fighting hoses shall have an adjustable metal nozzle, or an adjustable PVC nozzle manufactured in accordance with AS 1221.

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### *CFS Mission*

*To protect life, property and the environment from fire and other emergencies whilst protecting and supporting our personnel and continuously improving.*

## VEGETATION

The proposal seeks to limit vegetation removal to building footprints, access trails and hazardous vegetation will be reduced around the guide pod for bushfire safety, comprising 2 metres of clearance and ensuring that areas within 20 metres of the refuge have no more than 50% vegetation cover.

Botanical Enigmerase have been engaged to undertake an assessment of the proposed clearance, impact on flora and fauna and consider revegetation options and management regime.

**This report is report is yet to be provided to SA CFS and has not been included in this development application. Pending review of the proposed clearance and maintenance regime, will determine the outcome of the resulting Bushfire Attack Level for construction detail.**

**An adequate vegetation management zone, will address the relevant PDCs, the bushfire building standards for refuge buildings and Ministers Code for developing in bushfire prone areas. It will also provide valuable protection for the building, reducing the impact of flame contact and provide an environment outside the refuge, that may improve tenability to the occupants to proceed to evacuation.**

Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012) Part 2.3.5 mandates that landscaping shall include Bushfire Protection features that will prevent or inhibit the spread of bushfire and minimise the risk to life and/or damage to buildings and property.

- A vegetation management zone (VMZ) shall be established and maintained within 20 metres of the refuge building as follows:
  - o The number of trees and understorey plants existing and to be established within the VMZ shall be reduced and maintained such that when considered overall a maximum coverage of 50% is attained, and so that the leaf area of shrubs is not continuous. Careful selection of the vegetation will permit the 'clumping' of shrubs where desirable, for diversity, and privacy and yet achieve the 'overall maximum coverage of 50%'.
  - o No understorey vegetation within 2 metre of the habitable building (understorey is defined as plants and bushes up to 2 metres in height).
  - o The VMZ shall be maintained to be free of accumulated dead vegetation.

## CONCLUSION

SA CFS understands the importance of development of the tourism industry on Kangaroo Island and finding balance between ecotourism and meeting the bushfire provisions can be problematic. However consideration must be given to the essential bushfire provisions in order to protect the life of potential occupants, and fire fighting personnel in the event of a bushfire.

Summary of outcomes negotiated and proposed by AWC are accepted by SA CFS as follows:

- Siting away from existing elevated fuel structures.
- A dedicated fire fighting water supply, pumping system, pipe-work and fire-fighting hose(s) in accordance with Ministers Specification SA78.
- A vegetation management zone (VMZ) shall be established and maintained within 20 metres of the refuge building.
- Design and Construction of the proposed refuge building in accordance with Community Bushfire Refuges 2014, as published by ABCB and the Fire Services Commissioner Victoria (See Appendix A); and the NCC Part 3.7 "FIRE SAFETY" Australian Standard <sup>TM</sup>3959 (AS3959) "Construction of Buildings in Bushfire Prone Areas".
- The applicant & operators shall formulate, practice and maintain an Emergency Response Plan that addresses the extreme risk associated this remote location presents, incorporating the following:
  - o Emergency Communication

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### *CFS Mission*

*To protect life, property and the environment from fire and other emergencies whilst protecting and supporting our personnel and continuously improving.*

- Evacuation options and risk mitigation measures as a result of the reduced access proposed and the increased evacuation times that may be experienced
- Emergency response training & regular drills
- Operating hours and restrictions on days of extreme weather or bushfire events

*Compliance with the fire protection requirements is not a guarantee the habitable building will not burn, but its intent is to provide a 'measure of protection' from the approach, impact and passing of a bushfire.*

*Should there be any need for further information, please contact the undersigned at the Development Assessment Service on (08) 8115 3372.*

Yours sincerely,



**LEAH BERTHOLINI**

***BUSHFIRE SAFETY OFFICER***

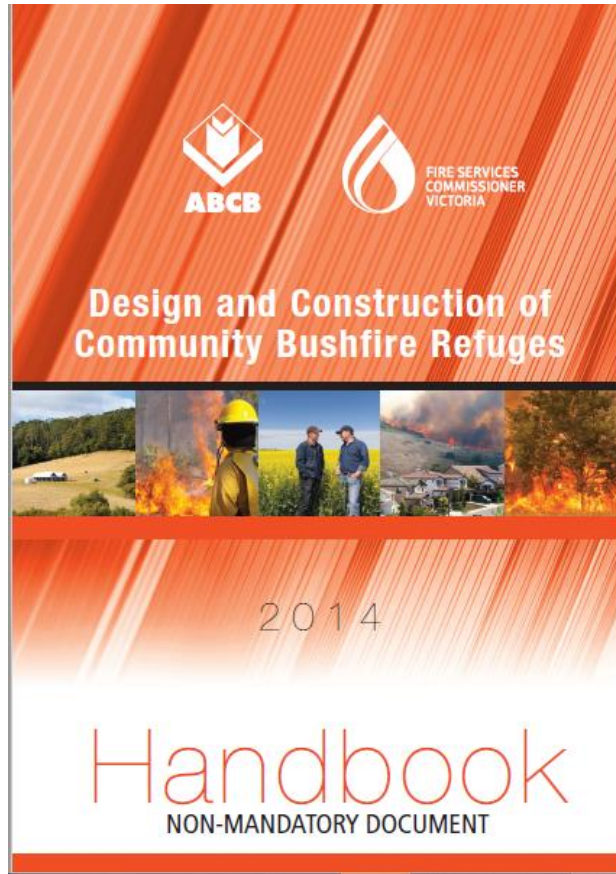
**DEVELOPMENT ASSESSMENT SERVICE**

cc: Fyfe Pty Ltd, Michael Osborn  
Australian Walking Company; and  
Dept. Environment & Water, John O'Malley

APPEXDIX A:

Design and Construction of Community Bushfire Refuges 2014,  
as published by ABCB and the Fire Services Commissioner Victoria.

<https://www.abcb.gov.au/-/media/Files/Resources/Education-Training/Handbook-Community-Bushfire-Refuges-2014.pdf>



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*CFS Mission*

*To protect life, property and the environment from fire and other emergencies whilst protecting and supporting our personnel and continuously improving.*



Government of South Australia

Coast Protection Board

Ref: CPB/139/18  
15 January 2019

State Commission Assessment Panel  
Att: Simon Neldner

BY EMAIL

Dear Simon

L4, 81-91 Waymouth Street  
Adelaide SA 5000  
GPO Box 1047  
Adelaide SA 5001  
Australia

Contact Officer: Arron Broom  
Ph: 8124 4929  
Email: [arron.broom@sa.gov.au](mailto:arron.broom@sa.gov.au)

COAST PROTECTION BOARD  
Development Applications Email:  
DEWNR.CoastProtectionBoardDevelopmentApplications@sa.gov.au

[www.environment.sa.gov.au](http://www.environment.sa.gov.au)

<b>Development Application No</b>	520/L006/18
<b>Applicant</b>	Australian Walking Company
<b>Description</b>	Tourist accommodation comprising eight accommodation pods, a communal longhouse, two lookouts, a services building and ancillary water tanks and walking trails
<b>Location</b>	Sanderson Bay, Flinders Chase National Park, Kangaroo Island
<b>Development Plan Zones</b>	Conservation
<b>Council</b>	Kangaroo Island Council

I refer to the above development application forwarded to the Coast Protection Board (the Board) in accordance with Section 37 of the Development Act 1993. The planning authority is required to have regard to this response prior to making a decision on the proposal.

In accord with part 43 of the Development Regulations, a copy of the decision notification must be forwarded to the Board at the above address.

The following response is provided under delegated authority for the Board, in compliance with the policies within its Policy Document 2012 at:

[http://www.environment.sa.gov.au/about-us/boards-and-committees/Coast\\_Protection\\_Board/Policies\\_strategic\\_plans](http://www.environment.sa.gov.au/about-us/boards-and-committees/Coast_Protection_Board/Policies_strategic_plans)

More information on coastal development assessment and planning policy is contained in the Coastal Planning Information Package at:

<http://www.environment.sa.gov.au/our-places/coasts>

## Background

One of the State Government Election Commitment priorities is to deliver on Ecologically Sensitive Development in National Parks. A focus has been on the promotion of nature-based tourism opportunities in SA's National Parks to increase tourism and provide for a range of eco-sensitive accommodation styles.

The Australian Walking Company (AWC) was selected as the Department for Environment and Water's (DEW) preferred commercial operator to develop eco-sensitive tourism accommodation and associated guided tours along the Kangaroo Island Wildernesses Trail (KIWT).

AWC engaged Troppo Architects to design the tourism accommodation and FYFE Consultants to facilitate the development approval process. This has resulted in three development applications for tourism accommodation (and associated infrastructure), prepared in consultation with relevant DEW staff, at Cape Du Couedic, Sanderson Bay and Sandy Creek, all within Flinders Chase National Park (NP).

## Proposal

This application is for tourist accommodation at Sanderson Bay comprising eight accommodation pods, a communal longhouse, two lookouts, a services building and ancillary water tanks and walking trails.

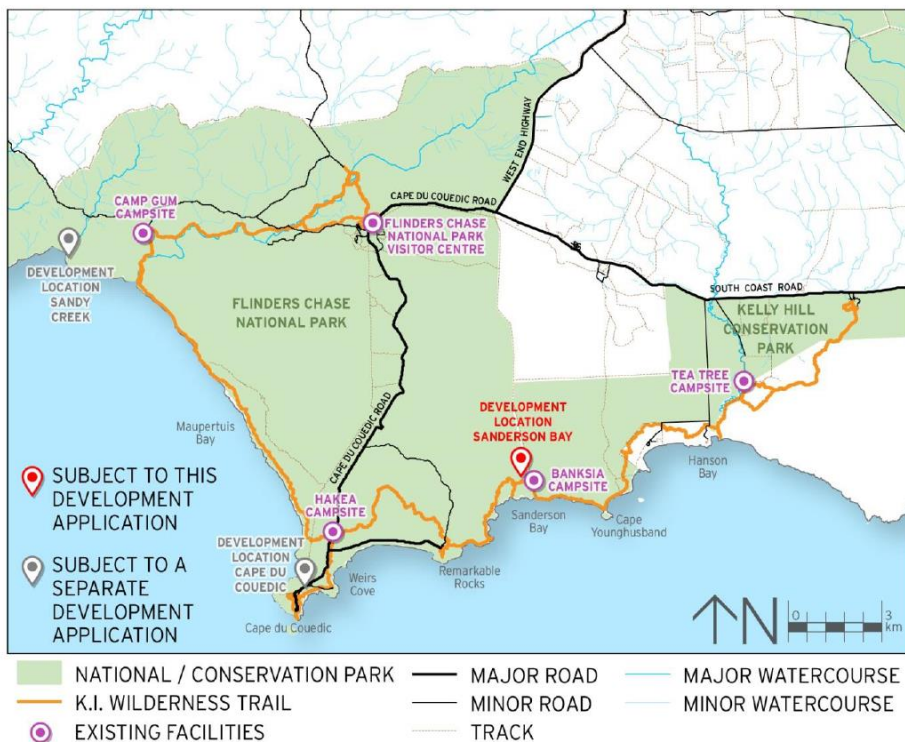


Figure 1 Location of Sanderson Bay Development Site

## Comments

### Coast Protection Board Policy

As per the Coast Protection Board's Policy Document 2002, the Board seeks to:

- retain coastal open space
- minimise impacts of development on the coast
- maintain compact coastal settlements and restrain development 'sprawl' along the coastline
- protect scenic amenity
- protect coastal biodiversity
- minimise or stop development in areas subject to coastal hazards
- minimise future environmental protection costs



- minimise future protection costs by ensuring new development satisfies the Board's flooding and erosion policies
- conserve developed coastal areas for land uses that require a coastal location.

The Board's policies are generally reflected in Council's Development Plan.

#### Orderly development

Coast Protection Board Policy 1.5:

*The Coast Protection Board opposes:*

*(a) Linear or scattered coastal development, with the exception of tourist accommodation development or that which has a significant public or environmental benefit, as per Policy 1.6. The Board prefers development to be concentrated within existing developed areas or appropriately chosen nodes*

Coast Protection Board Policy 1.6:

*The Coast Protection Board may support development, including tourist accommodation or that which has a significant public or environmental benefit, in coastal areas outside of urban areas provided:*

- *It is sited and designed in a manner that is subservient to important natural values within the coastal environment;*
- *It is not subject to unaddressed coastal hazards;*
- *Adverse impacts on natural features, landscapes, habitats, threatened species and cultural assets are avoided or minimised; and*
- *It will not significantly impact on the amenity of scenic coastal vistas.*

*[Guidelines for proposed coastal development outside of urban areas are contained in Appendix 3 of the Policy Document].*

The Board has no in-principle objection to appropriate tourism accommodation within Flinders Chase National Park. The following sections address the proposal at Sanderson Bay more specifically.

#### Coastal flooding and erosion

The Board's flooding and erosion policies are reflected in the Council Wide "Coastal Areas" section of Council's Development Plan.

The development site is more than 100 metres from the mean high water mark and sufficiently elevated. The proposed development is not at risk of coastal flooding or erosion.

#### Sand drift hazard

The Board will seek to minimise the exposure of new development to risk of damage from coastal sand drift hazard risks (Board Policy 1.4 b). The proposed development is likely to be subject to sand drift hazard risk, given the proposed development is situated in a dune system.

This risk is likely to be exacerbated during construction and by the nature of the development which will increase pedestrian access into this sensitive ecosystem.

It is recommended that the applicant engage a suitably experienced expert to assess the sand drift hazard, to ensure they fully understand the likely risk and potential impact of sand drift in this location and to provide mitigation measures that could be implemented to minimise the risk and specify rehabilitation measures that could be undertaken should instability of the sand dune occur.

If the applicant does not undertake a specific sand drift hazard assessment, they should ensure that the design and construction methodology minimises cut and fill and limits disturbance to the coastal landform and vegetation. The applicant should also ensure that the ongoing management of the site and visitor control minimises disturbance to the surrounding area to retain a high cover of vegetation and reduce the risk of sand drift. Should the surrounding dune become unstable and start to drift this is likely to impact on the adjacent vegetation and habitat as well as the proposed infrastructure, therefore it is important that the instability is managed as soon as possible.

The applicant should be made aware of and accept any potential sand drift hazard risk and associated ongoing management and mitigation measures required.

#### Coastal biodiversity

A key policy objective for the Board is to “protect coastal biodiversity”. The protection of the coastal environment, while important to protect coastal flora and fauna and maintain sustainable coastal ecosystems, also reduces coastal hazard risks to property (e.g. preventing sand drift, erosion and flooding hazard risks etc.).

Board policy (1.4 (e)) also states: *“The Board will seek to ensure that the siting and design of development on the coast minimises its impact on the environment, heritage and visual amenity of the coast.”*

Whilst the accommodation pods and communal buildings at Sanderson Bay development are minimalist, with a relatively small built footprint, the proposal will nonetheless involve disturbance and clearance of native vegetation to accommodate the proposed buildings, associated infrastructure and vehicle access and walking tracks (refer to Figure 2). Country Fire Service (CFS) requirements are likely to exacerbate the level of clearance required.

The application information (Fyfe Report, p. 3 and 29) indicates that Botanical Enigmerase will consider flora and fauna impacts in the vicinity of the development which “will inform the management techniques for the site and the final walking trail locations”. It is expected that this baseline information would inform the final site location and design for all proposed buildings, associated infrastructure and access tracks.

In such an environmentally sensitive coastal area, the Board would ordinarily require a flora and fauna assessment to determine specific coastal biodiversity impacts prior to assessing the development; this includes impacts on any threatened flora or fauna species. The Board would also normally require a management plan that specifies the measures that will be implemented during and post construction to ensure impacts to the coastal biodiversity and landscape are minimised. However, in this case, DEW, as custodian of the National Park, has the relevant expertise to review the adequacy of the pending flora and fauna assessment; determine if there are any site and design implications; and guide the preparation of any associated environmental management plans.

A further consideration at this site is the potential for a freshwater lens, which may account for the lush growth of Melaleuca. It is expected that any flora and fauna assessment or associated environmental management plan would investigate the presence of a freshwater lens and ensure it is not disturbed by construction, to avoid leakage and subsequent impacts on the Melaleucas (and associated ecosystem).

Based on the above, the Board is satisfied that DEW can facilitate development in Flinders Chase National Park to ensure impacts on coastal biodiversity are minimised. Accordingly, the Board will not request further information nor comment on coastal biodiversity impacts associated with this application.

Further to the above, the clearance of native vegetation requires Native Vegetation Council (NVC) consent.



Figure 2 Proposed Site Plan including access tracks - Source FYFE

### Coastal scenic amenity

The Board has a duty to protect coastal environments of high scenic value and in doing so ensures that development does not detract from the aesthetic appearance of the coast.

Coast Protection Board Policy 1.4(e):

*“The Board will seek to ensure that the siting and design of development on the coast minimises its impact on the environment, heritage and visual amenity of the coast.”*

Coast Protection Board Policy 5.2 (a):

*The Board opposes development that has significant visual impact on coastlines with significant landscape value [in doing so the Board will have regard to both the visual impact from the land and from the sea].*

The coastline at this location is considered to have significant landscape value, being a dramatic stretch of coastline free of development in Flinders Chase National Park. This value underpins the tourism economy and attraction to Flinders Chase National Park.

A report produced for the Coastal Protection Branch of DEH, 'Coastal Viewscapes of South Australia' by Dr Andrew Lothian in 2005, measured and mapped the scenic quality of the South Australian coastline. This project intended to assist in the development of planning policy and the assessment of development applications, and it identified the coastline as having high scenic quality, with a value of 7.0 to 7.9 (range between low 3.0 to 3.9 and high 8.0 to 8.9).

The proposed development is set back approximately 200 metres from the coastline, set within a vegetated dune system, and will, to an extent, blend with the landscape via appropriate design, materials and colour selections. The application information suggests the development will be out of view from the public walking the KIWT (FYFE, p.21). The taller vegetation at this location will help screen the development.

Based on the information provided, it appears that the proposed development is unlikely to have an unacceptable impact on visual scenic amenity.

#### Stormwater and wastewater

The Board seeks to minimise the impact of stormwater discharge to the coast. The proposed development should not result in scouring, erosion or marine sedimentation impacts.

Stormwater from the longhouse and accommodation pods will be collected and directed to water storage tanks for reuse on the site. Overflow will be directed to a 2m x 1m (200mm) deep erosion mat woven from access track cuttings and laid onto geotextile fabric. Runoff from the guide accommodation pod will fall to a soakage pit finished with an oversized similarly designed erosion mat.

Effluent disposal systems should be designed to minimise the impact to the surrounding environment.

A closed waste water system is proposed, utilising natural site falls. Individual bathrooms and the Longhouse kitchen will drain to a 4,000 litre in-ground waste treatment tank. Waste will be broken down by worms to minimise waste output to a 3,200 litre in-ground holding tank for pump-out. The pump-out waste water, though 'clean', will be removed by trailer to a waste storage tank at the Staging Post. Pump-out cycles are proposed to be monthly at the site, and annually at the Staging Post.

A waste water application will be lodged with the Kangaroo Island Council and will be subject to more detailed design.

#### Coastal Heritage

Board Policy (5.3) states:

*"The Board recognises the rights and needs of Aboriginal peoples and will encourage Aboriginal input into decisions which affect sites of Aboriginal significance and native title".*

It is understood that DEW as custodian of the National Park will liaise with the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet and any relevant Aboriginal Committees.

The applicant proposes to conduct a search of the Aboriginal Heritage Register to ensure that important sites, objects or remains are not impacted by the proposed development.

Under section 20 of the *Aboriginal Heritage Act 1988* (the Act), an owner or occupier of private land, or an employee or agent of such an owner or occupier, must report the discovery on the land of any Aboriginal sites, objects and remains to the Minister responsible for the administration of the Act, as soon as practicable, giving the particulars of the nature and location of the Aboriginal sites, objects or remains.

### **Coast Protection Board Response**

The Coast Protection Board understands that DEW, as custodian of the National Park, will ensure impacts on coastal biodiversity are minimised, review the adequacy of the pending flora and fauna assessment; determine if there are any site and design implications; and guide the preparation of any associated environmental management plans. Accordingly, the Board will not request further information nor comment on coastal biodiversity impacts associated with this application.

The Coast Protection Board advises it has no objections to the proposed development. The following Conditions and Notes should be applied to any planning approval:

#### Conditions

- The proposed development is likely to be subject to sand drift hazard risk. In the absence of a sand drift hazard assessment, the design and construction methodology shall minimise cut and fill and limit disturbance to the coastal landform and vegetation. The applicant shall also ensure that the ongoing management of the site and visitor control measures minimise disturbance to the surrounding area to retain a high cover of vegetation and reduce the risk of sand drift. Should the surrounding dune become unstable and start to drift this is likely to impact on the adjacent vegetation and habitat as well as the proposed infrastructure, therefore it is important that the instability is managed as soon as possible.
- The applicant shall accept all responsibility for any sand drift hazard risk and associated ongoing management and mitigation measures required.
- The proposed development shall not result in any scouring, erosion or marine sedimentation impacts.
- Effluent disposal systems should be designed to minimise the impact to the surrounding environment.

#### Notes

- It is recommended that the applicant engage a suitably experienced expert to assess the sand drift hazard, to ensure the risk and potential impact of sand drift in this location is understood and to provide mitigation measures and specify rehabilitation measures that could be undertaken should instability of the sand dune occur.

- The applicant is advised that any native vegetation on the site is protected under the *Native Vegetation Act 1991* and *Native Vegetation Regulations 2017*. Prior to any clearance being undertaken, the applicant should seek Native Vegetation Council approval to do so.
- Under section 20 of the Aboriginal Heritage Act 1988 (the Act), an owner or occupier of private land, or an employee or agent of such an owner or occupier, must report the discovery on the land of any Aboriginal sites, objects and remains to the Minister responsible for the administration of the Act, as soon as practicable, giving the particulars of the nature and location of the Aboriginal sites, objects or remains.
- This site has the potential to contain a freshwater lens, which if broken (eg. during construction) may detrimentally affect the surrounding vegetation. The applicant should determine if further investigation into this feature is required.

Yours sincerely



**Murray Townsend**  
Manager, Coastal Management Branch  
Department for Environment and Water  
Delegate for the Coast Protection Board



**Government of South Australia**  
Kangaroo Island Natural Resources  
Management Board

**Natural Resources Centre**

37 Dauncey Street  
PO Box 39  
Kingscote SA 5223  
T 08 8553 4444  
E kinrc@sa.gov.au  
**ABN 86 052 151 451**

Date: 17/12/2018

Simon Neldner  
Planning Officer  
Development Division  
Department of Planning, Transport and Infrastructure

Dear Simon

**Re: Development Application 3697 – 520/L006/18 – Construction of tourism accommodation (Sandy Creek);  
Development Application 3698 – 520/L007/18 – Internal alterations to an existing State Heritage building (Cape du Couedic); and  
Development Application 3699 – 520/L008/18 – Construction of tourism accommodation (Sanderson Bay).**

The Kangaroo Island Natural Resources Management Board (the Board) thanks you for considering its comments on the above Development Applications under S29 of the *Natural Resources Management Act 2004*. The Board discussed the applications at its general meeting held on Friday 14 December.

The Board, in providing comment on the proposed development, took into consideration both the objectives of the *Natural Resources Management Act 2004* and the *Kangaroo Island Natural Resources Management Plan 2017-2027* objectives and strategies.

The Board is of the view that the proposed development is not in the spirit of the original eco-sensitive accommodation concepts that were envisaged when the Kangaroo Island Wilderness Trail was first proposed in 2011. The concept was for the 'fixed' accommodation to be located in the vicinity of the camp sites but separate enough for the experience to be apart and unique.

The Board believes the proposed footprint of the accommodation pods, associated buildings, and additional walking and access trails, at both Sandy Creek (520/L006/18) and Sanderson Bay (520/L007/18), and the increased human traffic, will have a negative impact on the fragile coastal habitat of both sites. The Board believes the proposed developments should be located closer to the existing walking trail and camp sites. That would reduce the need for extensive new trails and access tracks to support the development, which would cause more fragmentation of the natural systems in Flinders Chase National Park.

The Board also wants to convey the opposition to the proposals from Friends of Parks Kangaroo Island Western Districts, Friends of Dudley Peninsula Parks, and Eco-Action, all local conservation groups.

The Board has no comment in regard to Development Application 520/L007/18 Cape du Couedic Cottages.

Should you require further information regarding this matter, please contact Richard Trethewey, Presiding Member on 0427 594 208 or email [restk@westnet.com.au](mailto:restk@westnet.com.au).

Yours sincerely,

A handwritten signature in black ink, appearing to read "Richard Trethewey". The signature is written in a cursive style with a large, sweeping initial 'R'.

Richard Trethewey  
**PRESIDING MEMBER**  
Kangaroo Island Natural Resources Management Board



# Native Vegetation Council

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**TO:** Jeremy Wood, DPTI - Planning

**FROM:** Peter Farmer, Native Vegetation Branch DEW

**SUBJECT:** Application number 520/L008/18

**Construction of tourism accommodation  
Kangaroo Island Wilderness Trail**

**DATE:** 09/01/2019

Level 4  
81-95 Waymouth St  
ADELAIDE SA 5000

GPO Box 1047  
ADELAIDE SA 5001

Ph | 08 8303 9777

[nvc@sa.gov.au](mailto:nvc@sa.gov.au)

## Background

The proposed development comprises eight accommodation pods, communal longhouse, lookout, staging post, service building and ancillary water tanks. A series of walking and service trails are proposed to connect the tourist accommodation at Sanderson Bay, Flinders Chase National Park, Kangaroo Island.

*The Flinders Chase National Park, Kelly Hill Conservation Park, Ravine des Casoars Wilderness Protection Area and Cape Bouguer Wilderness Protection Area Management Plan (1999)* facilitates the development of (commercial upmarket) small scale ecologically sensitive accommodation along the Kangaroo Island Wilderness Trail (KIWT).

The proposal is additional to existing camping nodes provided along the KIWT. The Banksia campground nearby services the section of the trail inland from Sanderson Bay.

Based on departmental mapping the vegetation communities that may be impacted by the proposal are broadly described as:

- *Melaleuca lanceolata*, +/- *Eucalyptus diversifolia* ssp. *diversifolia* mid open shrubland, and
- *Eucalyptus diversifolia* ssp. *diversifolia*, +/- *Eucalyptus albopurpurea*, *Eucalyptus rugosa* mid mallee woodland

The total footprint of the development at Sanderson Bay is approximately 0.2 hectare. It is noted that the site selected for locating buildings appears to support sparser native vegetation. The localised variation in native vegetation is likely due to natural processes such as wind erosion, soils, topography and possible preferential use by kangaroos, the latter as highlighted in the planning statement.

The Native Vegetation Branch (NVB) received an application to clear native vegetation on the 23<sup>rd</sup> November 2018 associated with the above proposal and other sites along the KIWT to be developed by the proponent, subject to legislative approvals. The application is yet to be processed as additional information has been requested from the applicant.

## Discussion

The Native Vegetation Council (NVC) is not generally supportive of proposals that fragment undisturbed remnant vegetation, as this proposal does. However if approved under the *Development Act 1993* there are pathways to approval under *Native Vegetation Regulations*

2017 that may accommodate the proposal, namely regulation 12(33) - *New dwelling or building*. It is recognised that the applicant has attempted to minimise impacts on vegetation however the NVB remains concerned that the proposal does not fully demonstrate how this has been addressed or that other options may be available that would result in less impact.

Areas of concern with the proposal are:

- The distance the site is from KIWT and existing vehicle access and the resultant amount of track development required to connect site to KIWT and proposed staging post. It is believed overall clearance could be reduced if sited closer to KIWT and existing vehicle access tracks.
- Although the building footprint is defined, the total construction footprint is not defined.
- Clearance that may be required for construction vehicle movement, within and to and from the site is not clear.
- While proposed clearance for fire protection is limited to one building, possible additional vegetation clearance for bushfire protection may be necessary as CFS bushfire requirements are yet to be determined.
- Destabilisation and erosion of the site may increase with the removal of vegetation..
- Changes in surface water flow due to altered surfaces and rain water overflow that may impact (beneficially or negatively) surrounding native vegetation.
- Contingency to manage waste water (grey and black) leakage/spills so as to avoid or minimise site impacts.
- Incorporate *Phytophthora cinnamomi* (Dieback) and weed management including hygiene procedures into construction and operational plans.

The above points if not addressed, should be and where relevant incorporated into conditions and associated management plans of development approval.

#### Application under Native Vegetation Regulations

As required under the *Native Vegetation Regulations 2017*, the proposal will need to account for the total proposed clearance of native vegetation required for the development. This includes:

- building and associated structure footprint,
- construction footprint,
- clearance within 10 metres of a building for maintenance,
- walking tracks,
- vehicle tracks
- additional clearance for bushfire protection.

The proponent must apply for any native vegetation clearance required for the development and meet the requirements of Native Vegetation Regulations; 12(33) - *New dwelling or building* and other regulations that may be relevant. To gain NVC approval for vegetation clearance under the relevant regulation requires that clearance has been minimised and there are no alternatives that would result in less impact. As part of conditions of NVC approval of an appropriate Significant Environmental Benefit (SEB) offset, delivered either on ground or payment to the Native Vegetation Fund will need to be provided by the proponent. Land already dedicated for conservation, including parks under the *National Parks and Wildlife Act 1972* will generally not be considered suitable for SEB offset areas.

Russell Seaman  
On behalf of the Native Vegetation Council  
**Native Vegetation Branch**  
**Department for Environment and Water**

[russell.seaman@sa.gov.au](mailto:russell.seaman@sa.gov.au) 0429 678 741



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**abn** 93 741 277 391

Ref File No: 010/L065/18  
010/L067/18  
010/L068/18

State Commission Assessment Panel  
Attn: Jeremy Wood  
GPO Box 1815  
Adelaide SA 5001

22 January 2019

**RE: Referral Response(s) - Australian Walking Company – Development Applications:**  
**010/L065/18 - Tourism / Tourist Accommodation Development (Sandy Creek) - Piece Q55 DP38340 <NO HUNDRED>**  
**010/L067/18 - Alterations & Additions to Tourist Accommodation (Cape duCouedic) - Piece Q55 DP38340 <NO HUNDRED>**  
**010/L068/18 - Tourism / Tourist Accommodation Development (Sanderson Bay) - Lot 51 DP38340 <NO HUNDRED>**

Dear Sir / Madam

Thank you for the opportunity to comment on the abovementioned development proposal by the Australian Walking Company c/- Fyfe planning consultants, proposing tourism / tourist accommodation development comprising a number of accommodation pods, communal hosting buildings at Sandy Creek and Sanderson Bay, and new communal building and internal alteration of the existing light keepers cottages at Cape duCouedic, as additions to the existing Kangaroo Island Wilderness Trail and camps established therewith.

Council acknowledges that the application is to be assessed by the State Commission Assessment Panel as a prescribed class of development listed in Schedule 10 of the Regulations.

Council has reviewed the application detail against relevant provisions of the Kangaroo Island Development Plan (consolidated 17 September 2015) and consider the proposed development to be in reasonable accord with the Plans intent, including the zone objectives, desired character and envisaged forms of development for the Conservation zone.

Council has considered the development(s) locations within the Conservation zone at Sanderson Bay and Sandy Creek, both affording direct and uninterrupted coastal views and being situated in remote, but consolidated coastal areas which should not present a high risk of coastal or inland erosive processes upon the landscape and development site.

The development(s) maintain a low-scale across these sites with the individual and small accommodation pods. The tourist accommodation types do not appear to exceed the 6.5metres height and remain unobtrusive within the landscape, which is considered essential in this environment.



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**abn** 93 741 277 391

The accommodation types are considered to have a high level of aesthetic merit which offer a unique tourist experience. In addition to the accommodation on the site, the development also offers experiences within the surrounding wilderness in close proximity to the proposed accommodation and communal hosting buildings.

Development in the Cape duCouedic precinct comprises internal alteration to the three light keeper's cottages, which appears to be unobjectionable to Council. The addition of the communal hosting building situated between the existing Parndana and Karatta lodges in fundamentally unobjectionable, however we feel that its design could be more sympathetic to the heritage value of the lodges themselves rather than being boldly modern by design in stark contrast to the heritage listed lodges.

In summary, the proposal represents an exciting opportunity for tourism growth and diversity on Kangaroo Island. The development's unique tourist accommodation and experience is well aligned with the Kangaroo Island Development Plans intent to encourage tourism / tourist accommodation development within the Conservation zone.

Council accordingly advises that it has no objection to the proposal and supports the approval of the proposed development.

Council would appreciate being kept informed on the processing of the application and any variation that may occur as part of the processing. Additionally, clarification of the requirements for approval of the Waste treatment and disposal system and Building Rules Consent to be obtained in due course should be confirmed or conditioned at approval stage.

Should you wish to further discuss any matters associated with this proposal, please do not hesitate to contact me on 8553 4500.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Aaron Wilksch', is written over a light blue circular stamp.

Aaron Wilksch  
**Manager, Development & Environmental Services**



65248-3-003

7 March 2019

Mr Jeremy Wood  
Acting Team Leader- State Coordinator-General and Public Housing  
Department of Planning, Transport and Infrastructure  
By Email: [Jeremy.Wood@sa.gov.au](mailto:Jeremy.Wood@sa.gov.au)

Dear Jeremy,

**RESPONSE TO REFERRALS – DA 520/L008/18 – TOURIST ACCOMMODATION AT SANDERSON BAY**

On behalf of the Australian Walking Company, we write in response to the agency referral comments received for DA 520/L008/18 for tourist accommodation comprising eight accommodation pods, a communal longhouse, two lookouts, a services building and water tanks at Sanderson Bay on Kangaroo Island.

The following agencies were consulted by the State Commission Assessment Panel (SCAP):

- Kangaroo Island Council (Council);
- Country Fire Service (CFS);
- Coastal Protection Board (CPB);
- Native Vegetation Council (NVC); and
- Kangaroo Island Natural Resources Management Board (NRMB).

In order to respond to the CFS and NVC referral responses, the following documents are also attached:

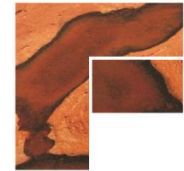
- Amended Proposal Plans prepared by Troppo Architects (Appendix A);
- Report prepared by SA Bushfire Solutions (Appendix B);
- Response prepared by RMP Environmental Pty Ltd (Appendix C); and
- Excerpt from the Guide's Field Manual for the Three Capes Lodge Walk (Appendix D).

The following key changes have been made to the application:

- Repositioning the guide pod 20 metres north-east;
- Including a 22,000 litre dedicated water tank; and
- Creating a Vegetation Management Zone (VMZ).

These are discussed further within the response to the CFS referral below and are detailed on the attached site plan (Appendix A).

Responses to each agency's referral are provided below.



**FYFE**

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### **Kangaroo Island Council**

We agree with the Council comment that the development aligns with the intent of the Conservation Zone and that the design of the proposed buildings ensures that they remain unobtrusive within the coastal environment.

The proposed changes to the siting of the refuge building will further reduce its appearance from the coast, ensuring that the development remains unobtrusive, despite a larger VMZ.

### **Country Fire Service**

The CFS raised concerns and required more information in order to finalise their assessment. Subsequent meetings were held onsite with CFS, AWC and Brett Stephens from SA Bushfire Solutions in attendance. From these meetings, recommendations were made in relation to the siting, water supply and vegetation clearance onsite. These recommendations are detailed within the report prepared by SA Bushfire Solutions (Appendix B) and include:

- Repositioning the refuge building (guide pod) 20 metres down-hill (north-east) away from elevated fuel structures;
- Including a 22,000 litre dedicated water tank adjacent the refuge (to comply with the relevant Australian standards); and
- Creating a Vegetation Management Zone around the refuge comprising 2 metres of clearance and ensuring that areas within 20 metres of the refuge have no more than 50% vegetation cover.

All of the above recommendations have been incorporated into the amended site plan (Appendix A).

The report prepared by SA Bushfire Solutions addresses each of the concerns raised by the CFS in detail. These responses are summarised below:

- Siting: The siting has been revised as described above, to an area with a reduced fuel load;
- Access: No changes have been made to the access however, evacuation options and risk mitigation measures are being developed to ensure the safety of guests and staff. Examples of similar procedures developed for AWC's other sites are attached with the primary response being evacuation;
- Water Supply: A 22,000 litre water tank dedicated for firefighting purposes is proposed adjacent the refuge building and will be installed in accordance with the relevant Australian Standards;
- Vegetation: The relevant fuel load assessment is included in Appendix B and a Vegetation Management Zone has been proposed around the refuge building to reduce the overall fuel load.



In addition to the above, the CFS requested consideration of the relevant Principles of Development Control (PDCs) contained within the Kangaroo Island Council Development Plan. From a bushfire perspective, the following PDCs are considered most relevant to the assessment:

- PDC 7: Development in a Bushfire Protection Area should be in accordance with those provisions of the Minister's Code: Undertaking development in Bushfire Protection Areas that are designated as mandatory for Development Plan Consent purposes.*
- PDC 8: Buildings and structures should be located away from areas that pose an unacceptable bushfire risk as a result of one or more of the following:*
- a) vegetation cover comprising trees and/or shrubs*
  - b) poor access*
  - c) rugged terrain*
  - d) inability to provide an adequate building protection zone*
  - e) inability to provide an adequate supply of water for fire-fighting purposes.*
- PDC 9: Residential, tourist accommodation and other habitable buildings should:*
- a) be sited on the flatter portion of allotments and avoid steep slopes, especially upper slopes, narrow ridge crests and the tops of narrow gullies, and slopes with a northerly or westerly aspect*
  - b) be sited in areas with low bushfire hazard vegetation and set back at least 20 metres from existing hazardous vegetation*
  - c) have a dedicated and accessible water supply available at all times for fire fighting.*
- PDC 11: Buildings and structures should be designed and configured to reduce the impact of bushfire through using simple designs that reduce the potential for trapping burning debris against the building or structure, or between the ground and building floor level in the case of transportable buildings.*

As discussed within the SA Bushfire Solutions report, in order to minimise the extent of vegetation clearance the proposed development seeks an alternative approach to the *Ministers Code Undertaking Development in a Bushfire Protection Area* in a manner which will not compromise the safety of guests and staff. Instead, the proposed development has aligned with the Australian Building Codes Board (ABCB) *Design and Construction of Community Bushfire Refuges* and the Department of Environment and Water (DEW) *Draft Procedure for Building Requirements*.

AWC are seeking to minimise vegetation clearance and are not seeking to protect the proposed accommodation pods or longhouse in the event of a bushfire. However, one building (the guide pod) will be protected as a refuge if guests and staff cannot be safely evacuated. The proposed refuge has been assessed by SA Bushfire Solutions and is not considered to pose an unacceptable bushfire risk in line with PDC 8 for the following reasons:

- A Vegetation Management Zone will be established around the refuge based on the outcomes of a fuel load assessment;
- The building location has been revised having regard to terrain and the location of elevated fuel loads; and
- A dedicated 22,000 litre water tank for fire-fighting purposes has been proposed.





The proposed refuge building will also satisfy PDC 9 due to the following:

- Be sited in a location recommended by SA Bushfire Solutions;
- Be sited within a Vegetation Management Zone; and
- Will have a dedicated water supply available at all times for firefighting.

The building will be required to meet the relevant Australian Standards and the National Building Code which seek to reduce the potential for burning debris to be trapped against the building in line with PDC 11.

#### **Coastal Protection Board**

The CPB note that the proposed development site is not at risk of coastal flooding or erosion but that the site may be susceptible to sand drift hazard. No further sand drift hazard assessment has been undertaken. However, the design and placement of the buildings has sought to minimise cut and fill buy using lightweight structures that will be placed on the land and will not require extensive amounts of earthworks or benching. In addition, clearance of vegetation has been avoided where possible with all areas other than walking trails, building footprints and the clearance area surrounding the guide pod being revegetated to minimise the opportunity for sand drift hazard.

Notwithstanding this, AWC accept that there is the potential for sand drift hazard and will monitor, manage and mitigate sand drift where possible.

The proposed waste water system will also be more than 100 metres from the mean high water mark.

In relation to the impact on native flora and fauna, AWC have engaged Botanical Enigmerase and RMP Environmental Pty Ltd to prepare the clearance application and ensure impact on flora and fauna is minimised. The clearance application has been lodged and is being assessed concurrently to the development application process. The NVC have requested additional information which is being prepared and once this is provided to the NVC, the clearance application will undergo a public consultation process.

#### **Native Vegetation Council**

The Native Vegetation Council raised a number of concerns, including that the proposed development did not fully demonstrate how impacts on native vegetation have been addressed.

Since the development application and vegetation clearance application have been lodged, RMP Environmental Pty Ltd has also been engaged to prepare the final report and assessment, supporting the data collected by Botanical Enigmerase. An excerpt of the report that is being finalised for the clearance application is attached (Appendix C) and addresses the concerns raised in the native vegetation referral response.

In terms of timing, the clearance application is expected to be subject to public consultation for 28 days over March and following this, we expect that the application will be presented to the NVC Panel on 1 May for a decision. In our opinion, it is reasonable and appropriate to progress an assessment of the development application subject to a reserve matter relating to the clearance application. This approach is supported by RMP Environmental Pty Ltd.





### **Kangaroo Island Natural Resources Management Board**

The KI NRMB has raised concerns with the location of the proposed accommodation and the distance from the Kangaroo Island Wilderness Trail (KIWT). Various locations were considered for the development site in consultation with DEW and National Parks SA having regard to the multiple objectives of the development, including minimising and avoiding clearance balanced with the operational and guest expectations. Details of the various sites for selecting or disregarding each site are detailed in Appendix C.

As discussed above, the proposed development is subject to a native vegetation clearance application which is required to demonstrate how the impact on the existing flora and fauna is minimised. Whilst the application has been lodged, additional information is being prepared by EBS Ecology and RMP Environmental Pty Ltd to demonstrate how the development addresses the mitigation hierarchy and minimises the impact on the surrounding environment. Furthermore, EBS Ecology has been engaged to assess existing fauna and habitats and determine if a further referral is required to the Federal Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999*.

AWC provide nature-based eco-tourism opportunities in multiple locations across Australia and their guides are trained to protect the environment. The flora and fauna at each of AWC and TWC's walks are the key attraction for their guests who are similarly inducted to ensure that they also understand the importance of staying on the trail and cross-contamination is minimised. To demonstrate this, an excerpt from the Guide's Field Manual for the Three Cape Lodge Walk in Tasmania is attached and reinforces the 'take only photos and leave only footprints' philosophy of AWC and TWC.

In summary, the proposed development has been designed in a matter that has sought to balance the competing interests of bushfire safety and minimising impact on the existing flora and fauna whilst delivering the priorities identified by the South Australian Tourism Commission's Regional Visitor Strategy and Nature Based Tourism Strategy. In our opinion, the proposed development has suitably balanced these expectations and will provide a much needed exclusive bushwalking and accommodation draw card that will showcase the pristine natural and coastal environment of Kangaroo Island.

Should you have any further queries regarding this proposal, please do not hesitate to contact me on 0408 808 143.

Yours sincerely

Michael Osborn  
National Planning Manager

CC: Leah Bertholini, [Leah.Bertholini@sa.gov.au](mailto:Leah.Bertholini@sa.gov.au)

Enc: A - Amended Site Plan prepared by Troppo Architects  
B - Report prepared by SA Bushfire Solutions  
C - Response prepared by RMP Environmental Pty Ltd  
D - Excerpt from the Guide's Field Manual for the Three Capes Lodge Walk

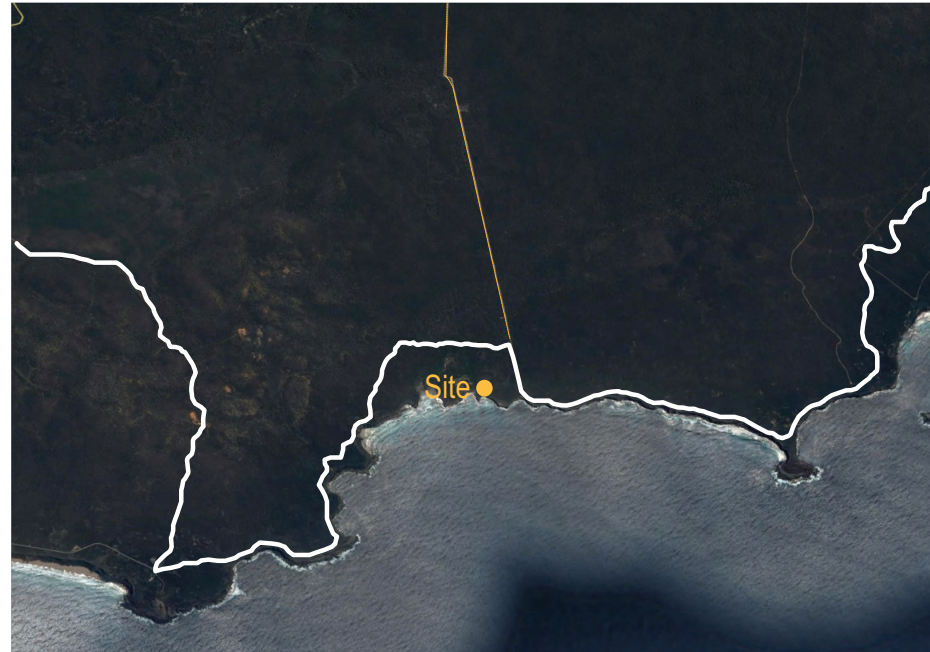




**APPENDIX A**

**AMENDED PROPOSAL PLANS  
PREPARED BY TROPPO ARCHITECTS**

DRAWING	DATE	CURRENT ISSUE
DRAWING SCHEDULE	07.03.19	Rev 3
LOCALITY PLAN	05.11.18	
SITE PLAN MAP L	15.02.19	Rev 2
SITE PLAN MAP M	15.02.19	Rev 2
VEHICULAR ACCESS TRACK	15.02.19	Rev 2
SITE PLAN MAP S	15.02.19	Rev 2
TOPOGRAPHY	15.02.19	Rev 2
SUND, WIND + VIEWS	15.02.19	Rev 2
HYDRAULICS: SUPPLY	15.02.19	Rev 2
HYDRAULICS: WASTE	15.02.19	Rev 2
SITE PLAN	13.02.19	Rev 2
SITE PLAN: SURVEY	13.02.19	Rev 2
SITE PLAN: NATIVE VEGETATION CLEARANCE	13.02.19	Rev 2
AERIAL VIEW	13.02.19	Rev 2
AERIAL VIEW 2	13.02.19	Rev 2
AERIAL VIEW 3	05.11.18	
LONGHOUSE: PLAN + SECTIONS	05.11.18	
LONGHOUSE: EXTERIOR VIEWS	05.11.18	
LONGHOUSE: INTERIOR VIEWS	05.11.18	
SLEEPING PODS: PLANS + SECTION	05.11.18	
SLEEPING PODS: EXTERIOR VIEWS	07.03.19	Rev 3
SLEEPING PODS: VIGNETTES	07.03.19	Rev 3
GUIDE POD (REFUGE)	05.11.18	
SERVICE POINT	05.11.18	
LOOKOUT	05.11.18	
STAGING POST	05.11.18	
PATHS AND TRACKS: EARTHEN	05.11.18	
PATHS AND TRACKS: BOARDWALKS	05.11.18	
SITE PHOTOS	05.11.18	
ARCHITECTURAL TEXTURES + VIBES	05.11.18	
INTERNAL FINISHES + LITTLE THINGS: LONGHOUSE	05.11.18	
INTERNAL FINISHES + LITTLE THINGS: SLEEPING PODS	05.11.18	



**KANGAROO ISLAND WALK SANDERSON BAY**  
**DRAWING SCHEDULE**

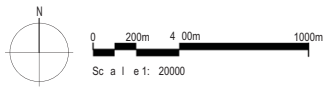
07 MAR 2019 (Rev. 3)



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— Sanderson Bay track  
— Kangaroo Island Wilderness Trail



**KANGAROO ISLAND WALK SANDERSON BAY**  
**LOCALITY PLAN**

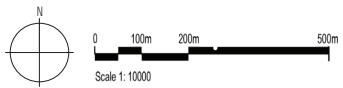
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- — Proposed site location
- - - Kangaroo Island Walk trail
- - - Access track
- - - Carnarvon Bay Wilderness Trail

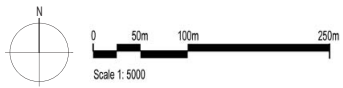
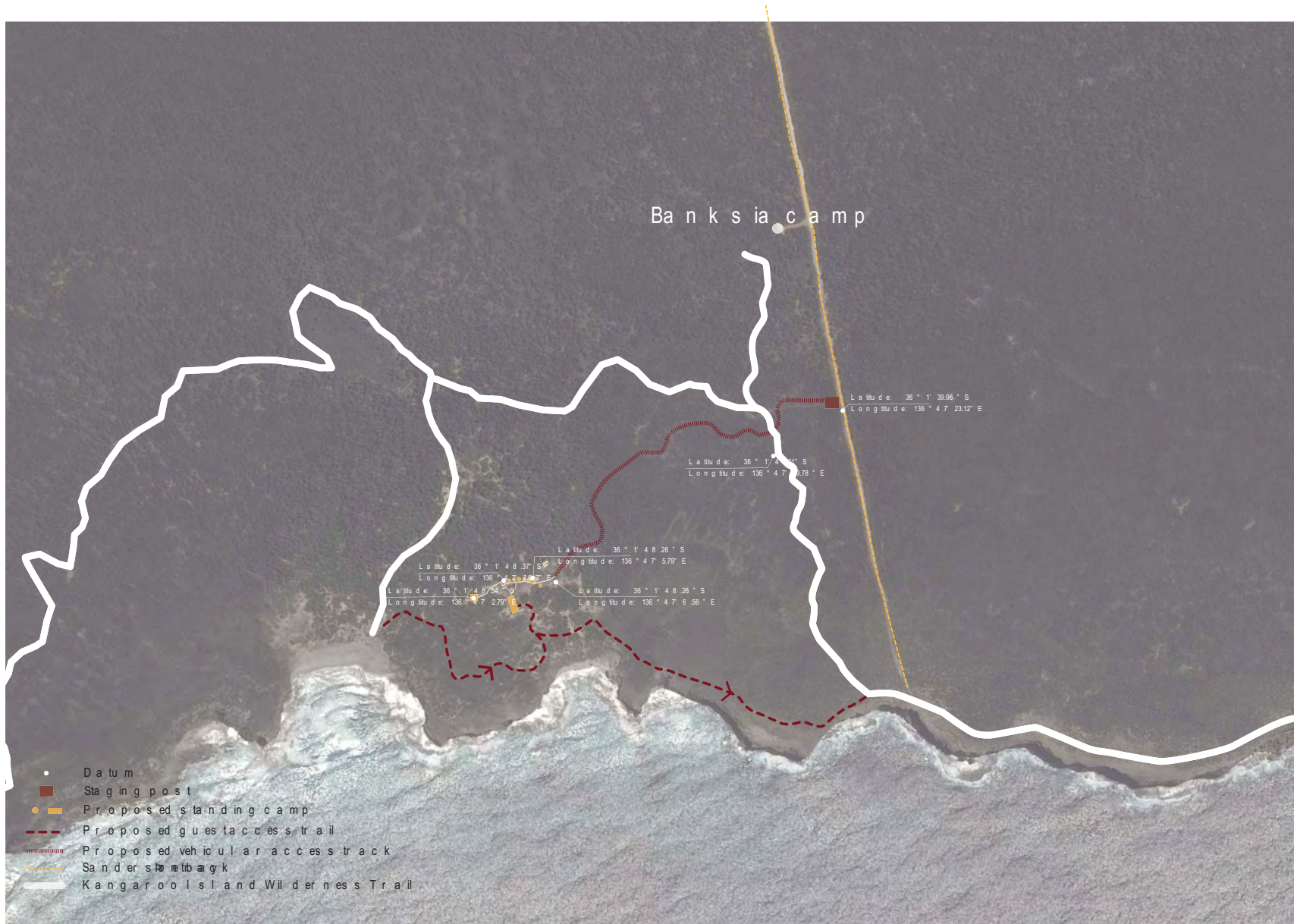


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAP L**

15 FEB 2019 (Rev. 2)



**tropo**



**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAP M**

15 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY  
(VEHICULAR) ACCESS TRACK**

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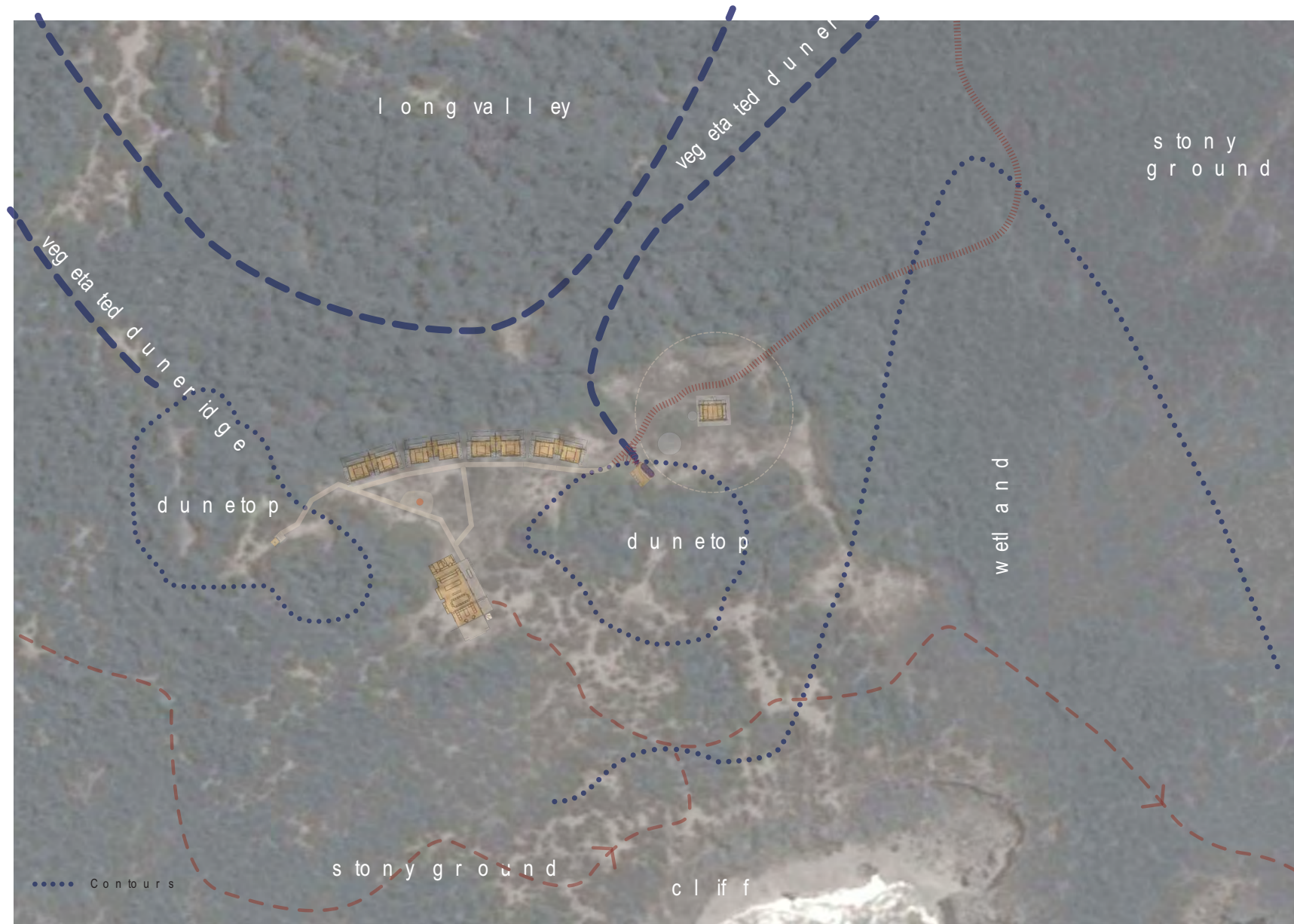


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAPS**

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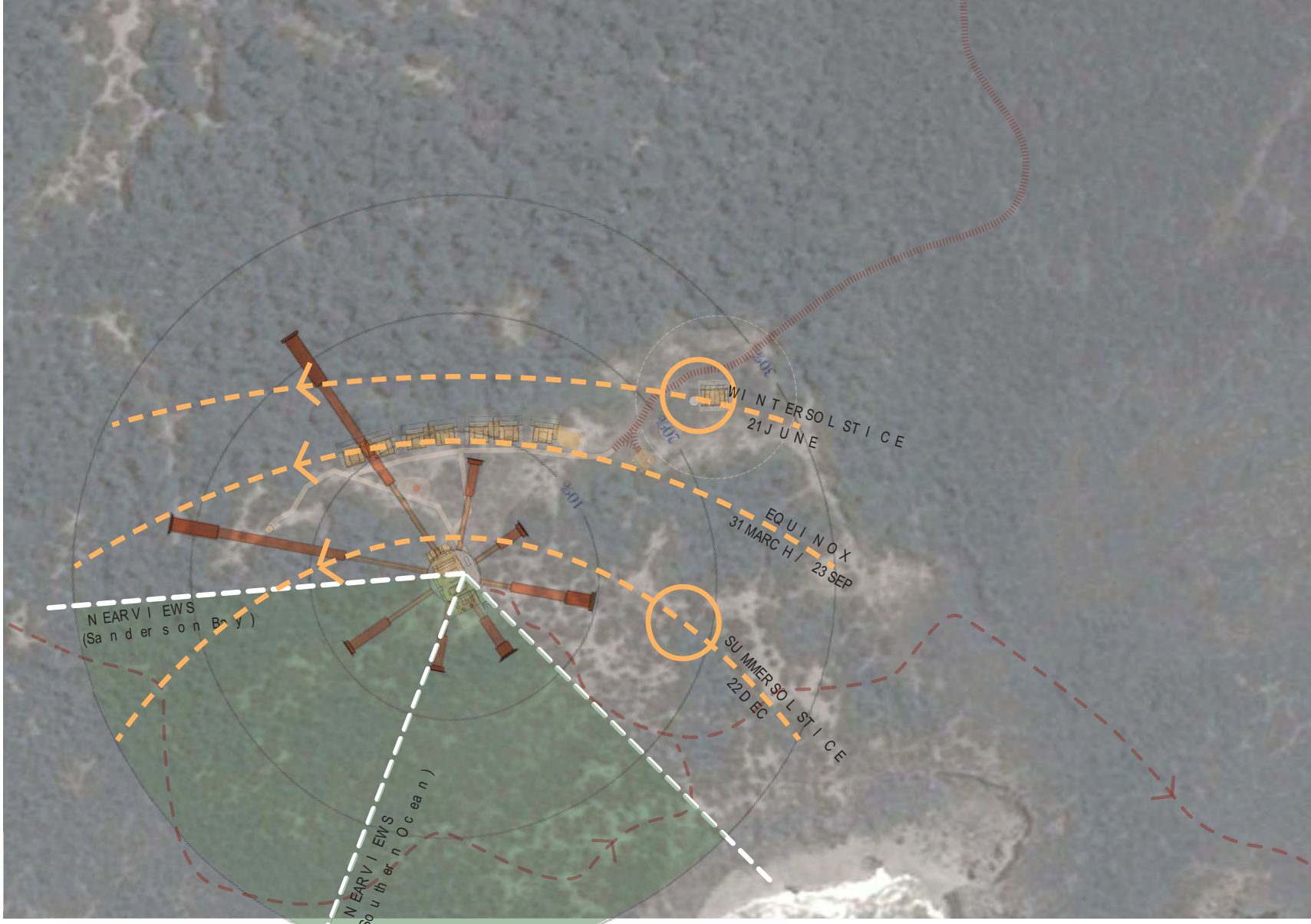


**KANGAROO ISLAND WALK SANDERSON BAY**  
**TOPOGRAPHY**

15 FEB 2019 (Rev. 2)



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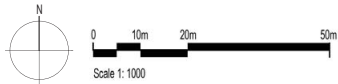


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SUN, WIND & VIEWS**

13 FEB 2019 (Rev. 2)



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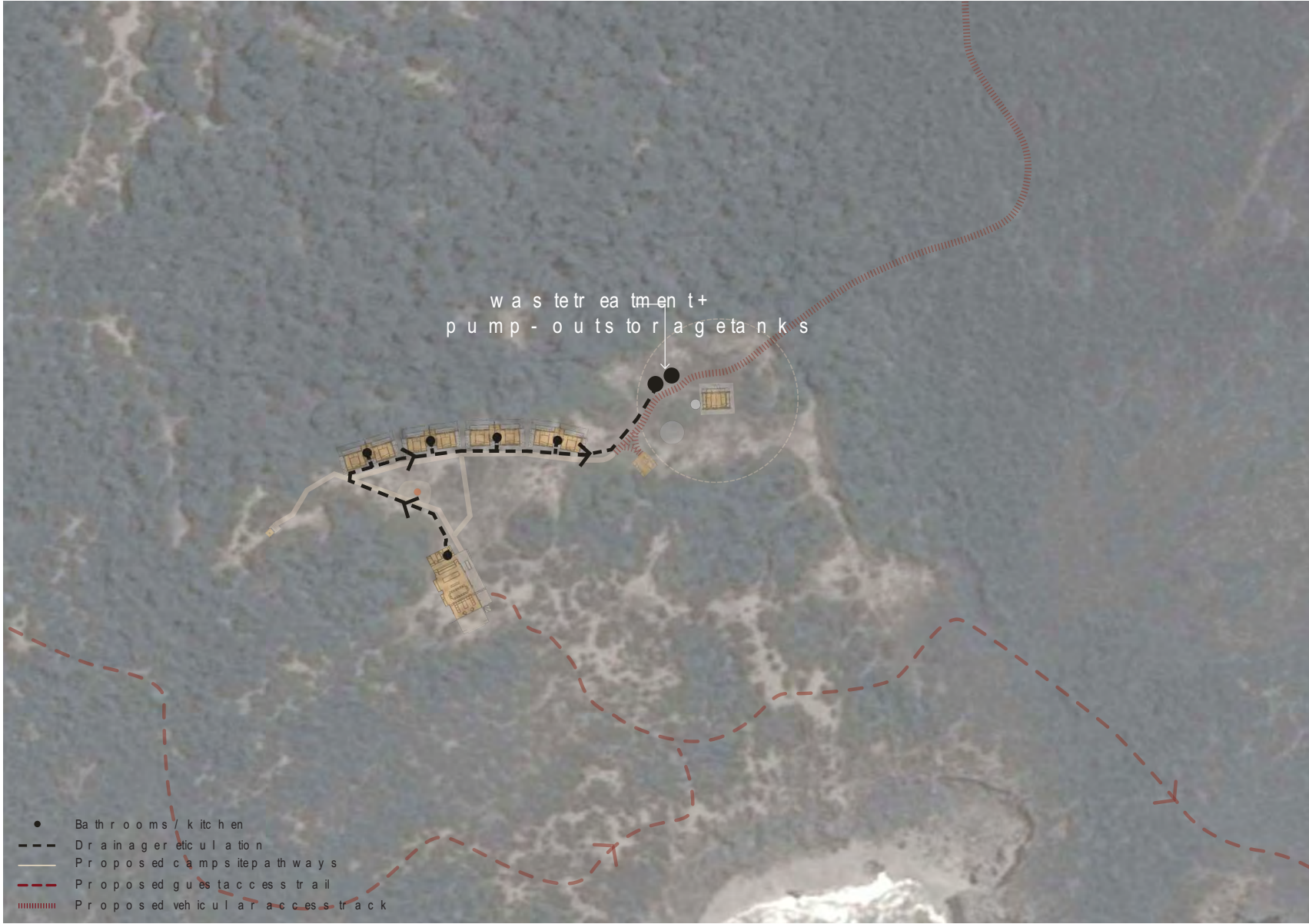


**KANGAROO ISLAND WALK SANDERSON BAY  
HYDRAULICS: SUPPLY**

15 FEB 2019 (Rev. 2)



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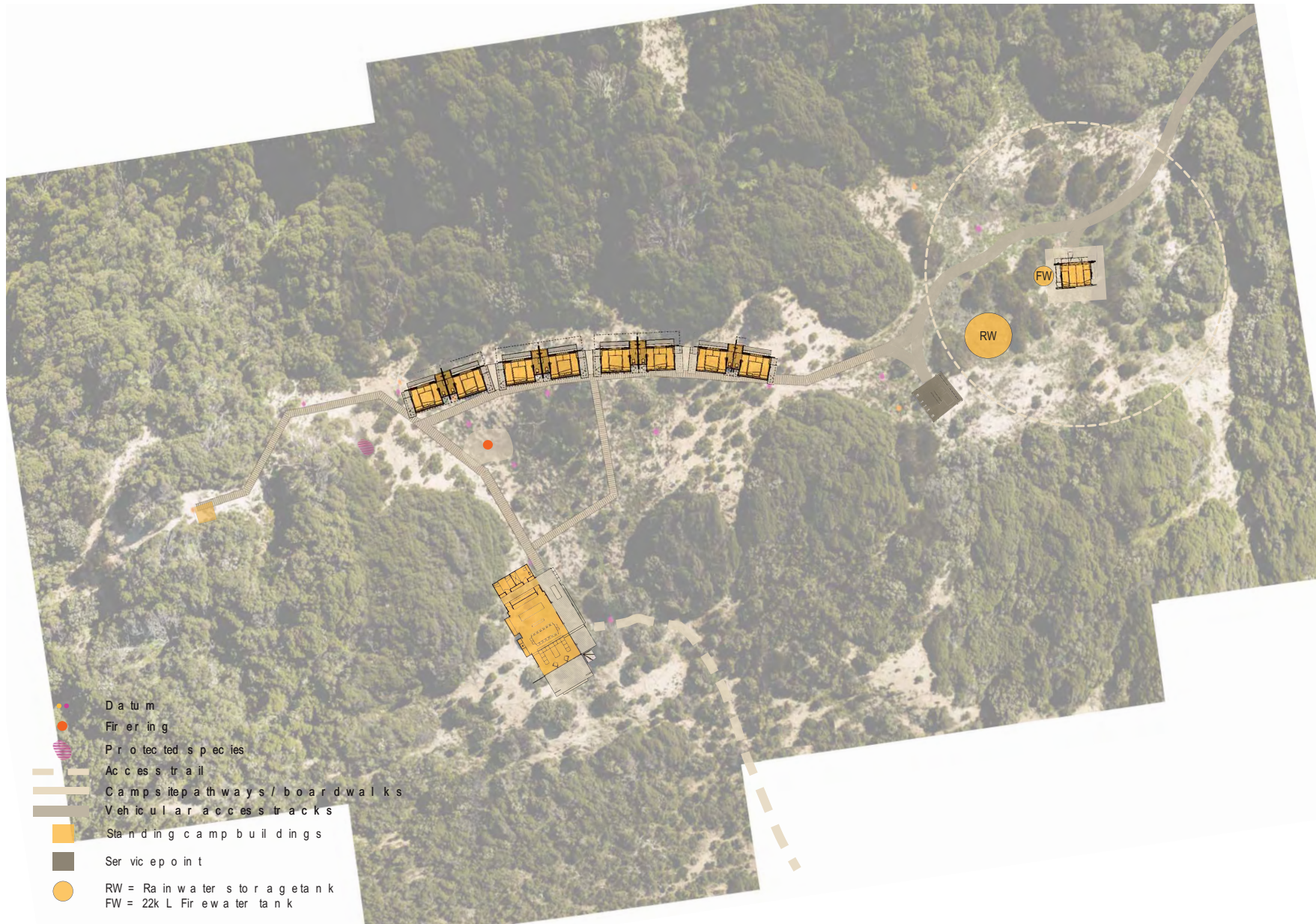


**KANGAROO ISLAND WALK SANDERSON BAY**  
**HYDRAULICS: WASTE**

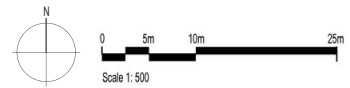
15 FEB 2019 (Rev. 2)



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- Datum
- Firing
- Protected species
- Access trail
- Campsite pathways / boardwalks
- Vehicular access tracks
- Standing camp buildings
- Service point
- RW = Rainwater storage tank
- FW = 22kL Firewater tank

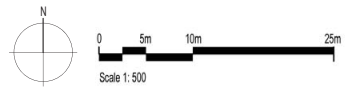
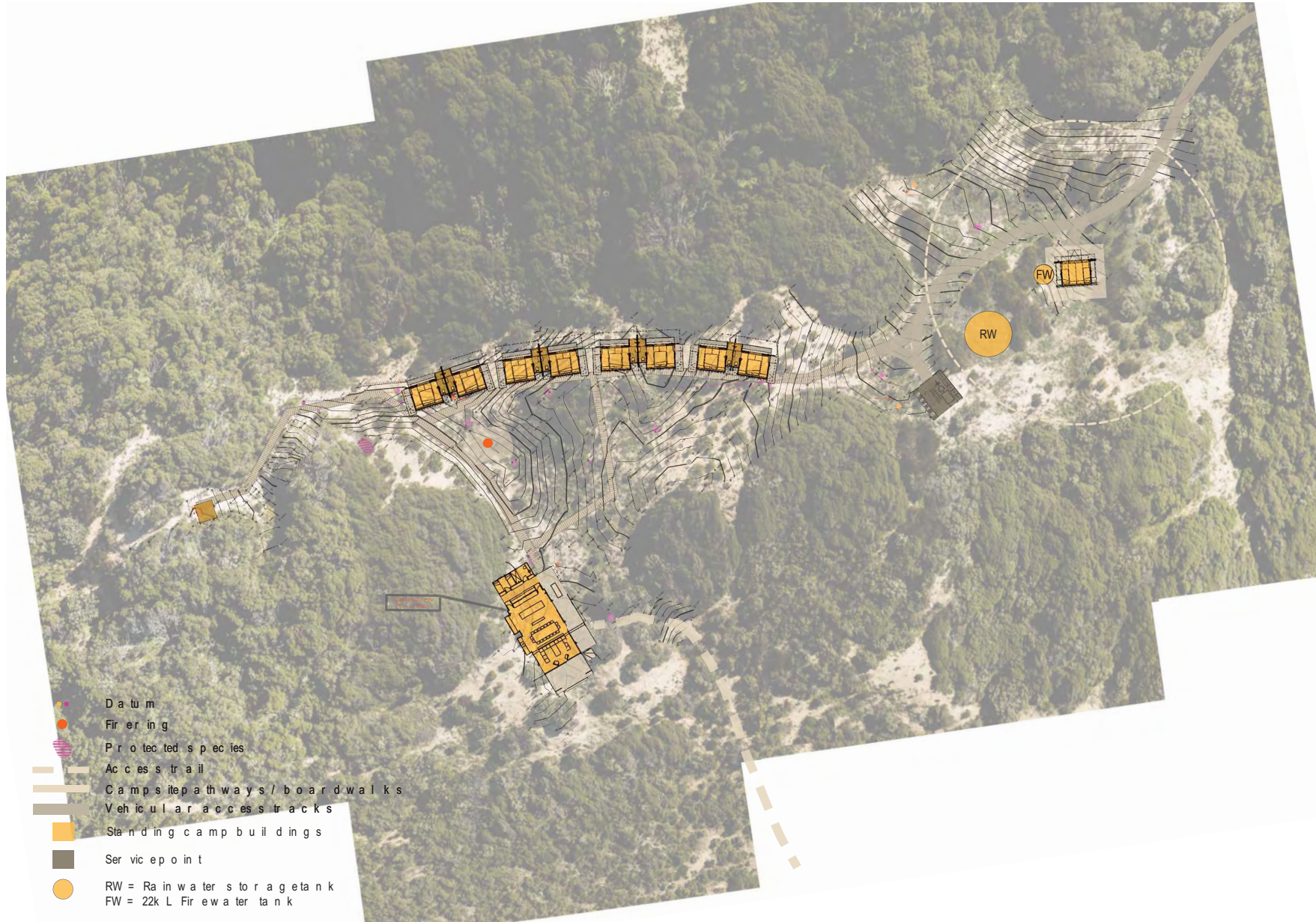


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN**

13 FEB 2019 (Rev. 2)



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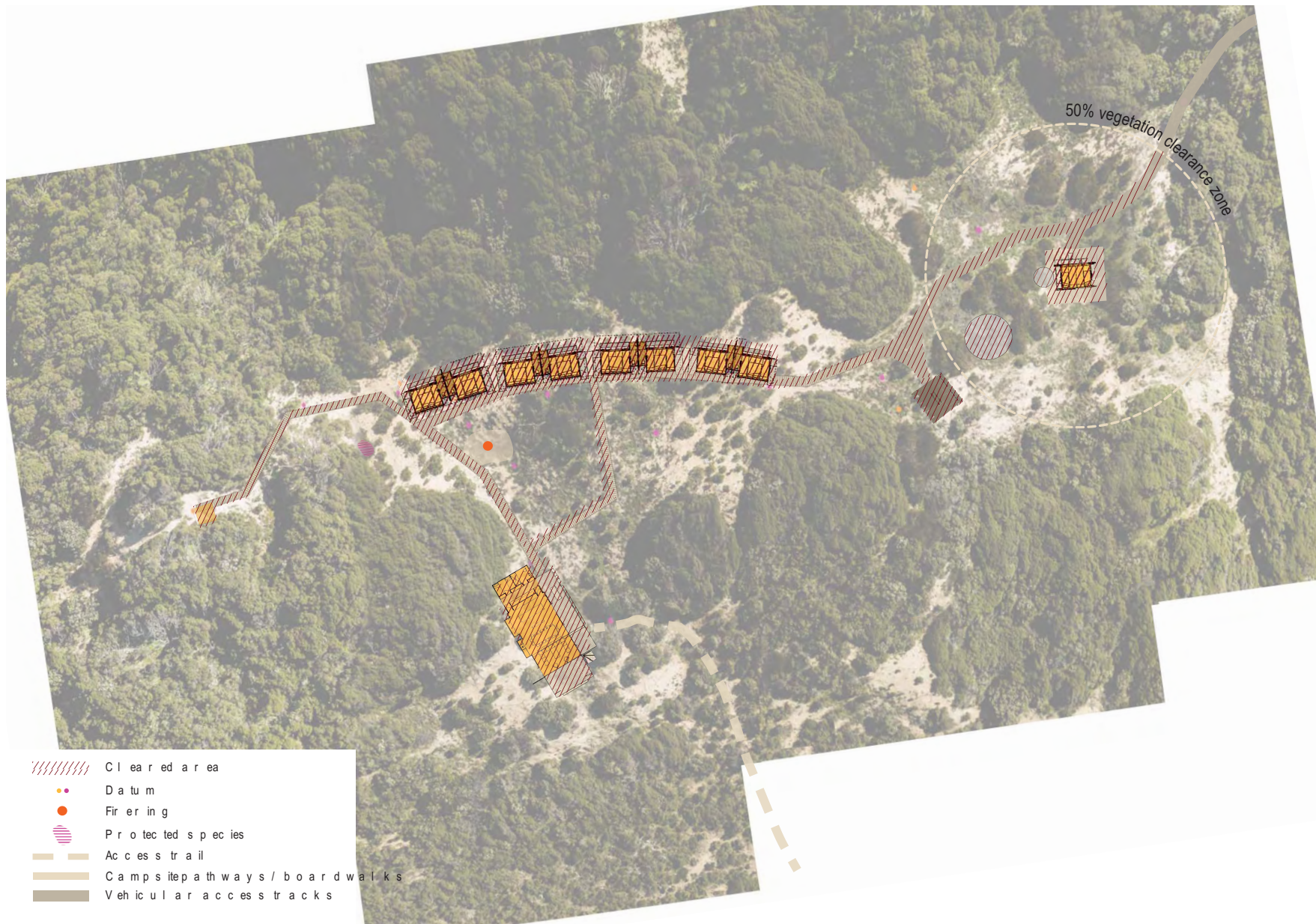









**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: SURVEY**

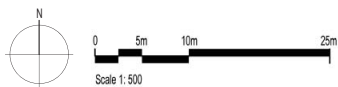
13 FEB 2019 (Rev. 2)



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-  Cleared area
-  Datum
-  Firing
-  Protected species
-  Access trail
-  Campsite pathways / boardwalks
-  Vehicular access tracks



**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: VEGETATION CLEARANCE**

13 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY**  
**AERIAL VIEW 1**

13 FEB 2019 (Rev. 2)



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**KANGAROO ISLAND WALK SANDERSON BAY**  
**AERIAL VIEW 2**

13 FEB 2019 (Rev. 2)



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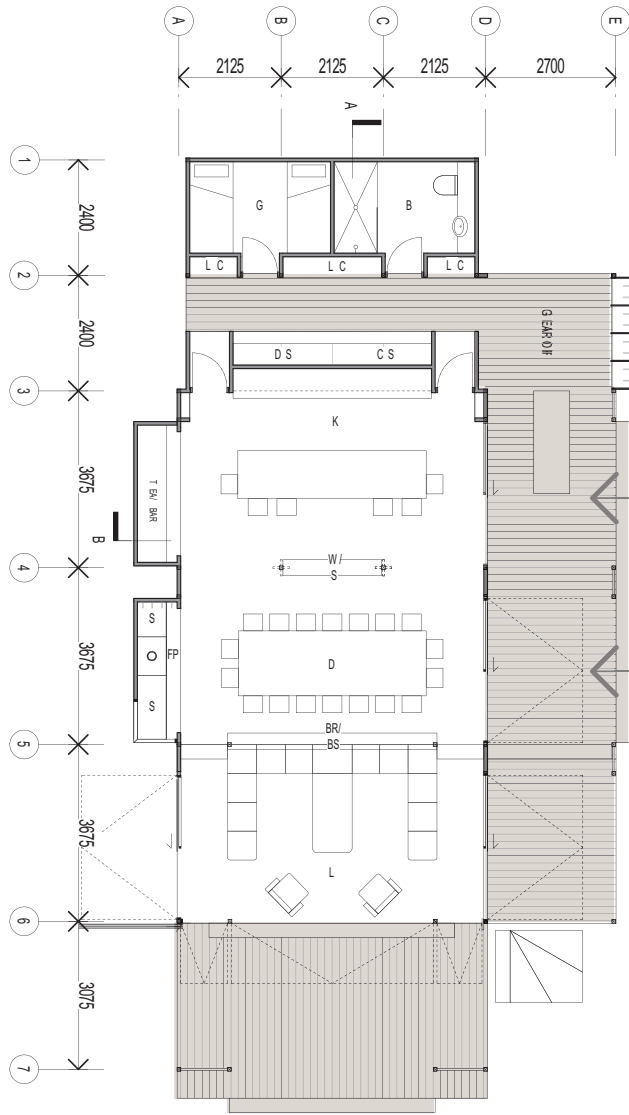


**KANGAROO ISLAND WALK SANDERSON BAY**  
**AERIAL VIEW 3**

05 N O V 2018



troppo



GROUND FLOOR PLAN

**MATERIAL SCHEDULE**

**EXPOSED FRAMING:**  
 Australian hardwood / cypress pine, natural  
 Steel, painted to dark tones  
 L-ten weathered (raw)s teel

**WALLS: EXTLININGS:**  
 Compressed sheet/ eco-ply, natural / stained to  
 L-ten weathered (raw)s teel  
 Weather textured naturally greyed  
 Jasper colorbond / customorb

**ROOFING:**  
 L-ten weathered (raw)s teel  
 Jasper colorbond / customorb  
 Ampelite Wonderglab rG01, a g el, - ic e cal t e d r  
 Bush timber battens from road clearing, natural

**SCREENS/ SOFFITS:**  
 L-ten weathered (raw)s teel  
 Jasper colorbond / customorb  
 Ampelite Wonderglab rG01, a g el, - ic e cal t e d r  
 Laser-cutplywood, dark stain  
 Bush timber battens from road clearing, natural

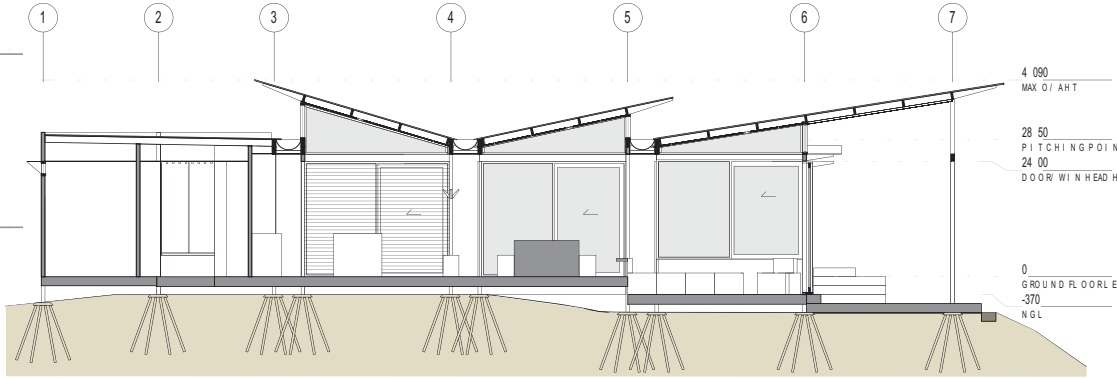
**WINDOWS/ DOORS:**  
 Select Australian hardwood frames, clear oil  
 Performance glass / Ampelite Woodargal, aise @ C  
 Polished Australian hardwood / bush timber doors

**FLOORS:**  
 Cygnus coded sif ted stone/ gravel s / st a i n g f l o o r s i t e w o r k s i n c l u d i n g p r o  
 tracks, paths  
 Select tiles to eedges, erosion controls wherever required

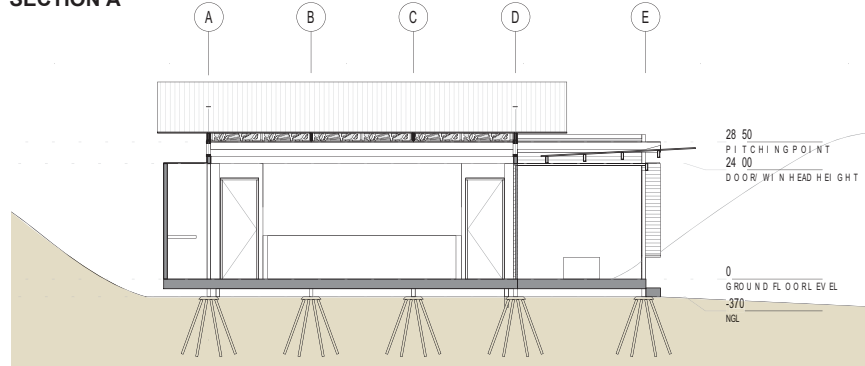
**DECORATING, SEAT S, STEP S, BOARD WALK S, INC FRAMING:**  
 Australian hardwood / cypress pine, naturally greyed  
 FRP mesh, black

**PLAN KEY**

B	BATH ROOM
BR/BS	BACK REST LEDGE/ BOOKSHELF UNDER
CS	CLEANING STORE
D	DINING
DS	DRY STORE
FP	FR RE PLACE
G	GUIDEBED
GR	GRASS
L	LOUNGE
LC	LINEN CUPBOARD
W	WOOD STORE UNDER/ COAT HOOKS
W/S	WINDY STORE/ SEAT + COAT HOOK POLES



SECTION A



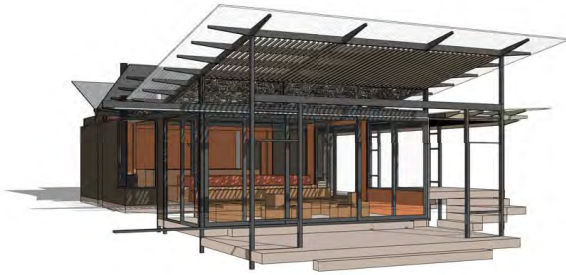
SECTION B

**KANGAROO ISLAND WALK SANDERSON BAY**  
**LONGHOUSE: PLAN + SECTIONS**

05 NOV 2018



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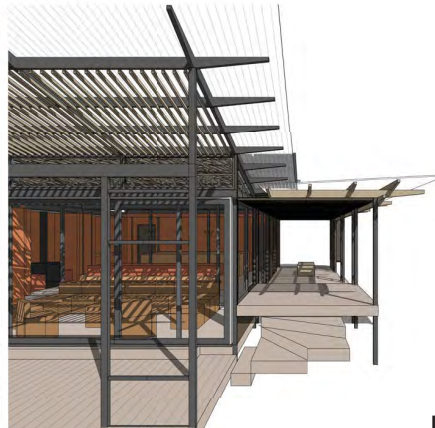
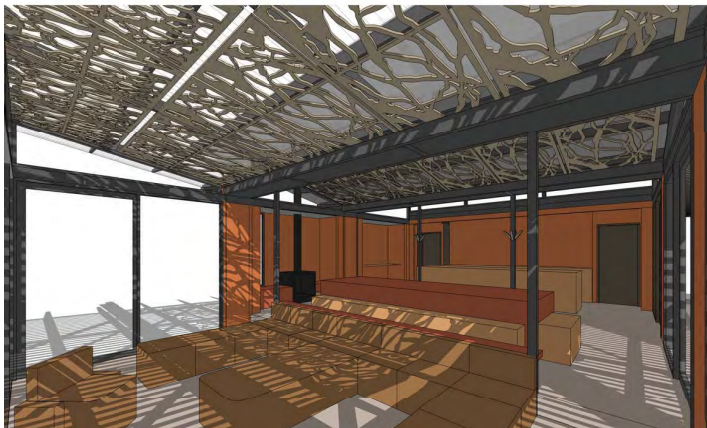
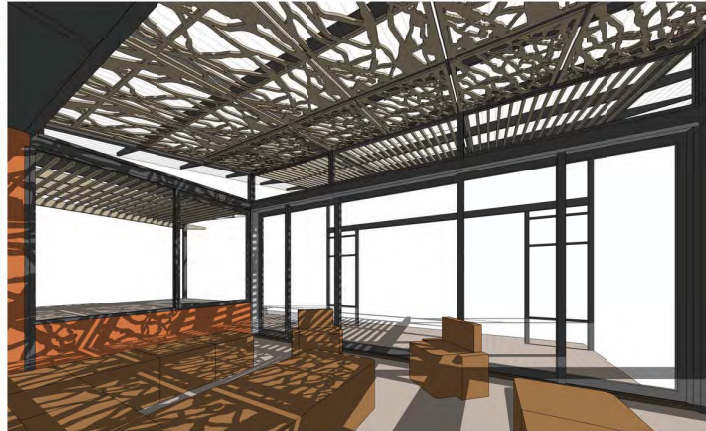


ELEVATIONS/ VIEWS

KANGAROO ISLAND WALK SANDERSON BAY  
LONGHOUSE: EXTERIOR VIEWS  
05 NOV 2018



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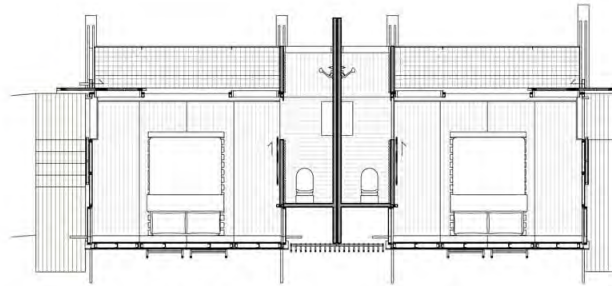
INTERIOR VIEWS / VIGNETTES

KANGAROO ISLAND WALK SANDERSON BAY  
LONGHOUSE: INTERIOR VIEWS

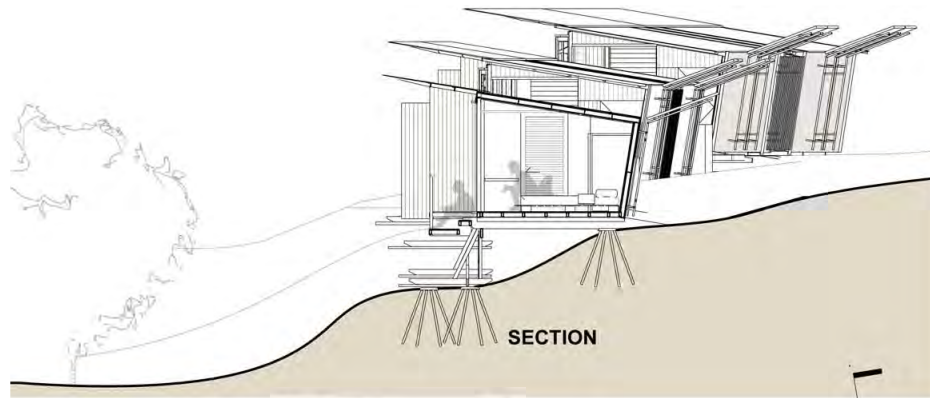
05 NOV 2018



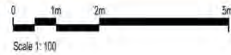
tropo



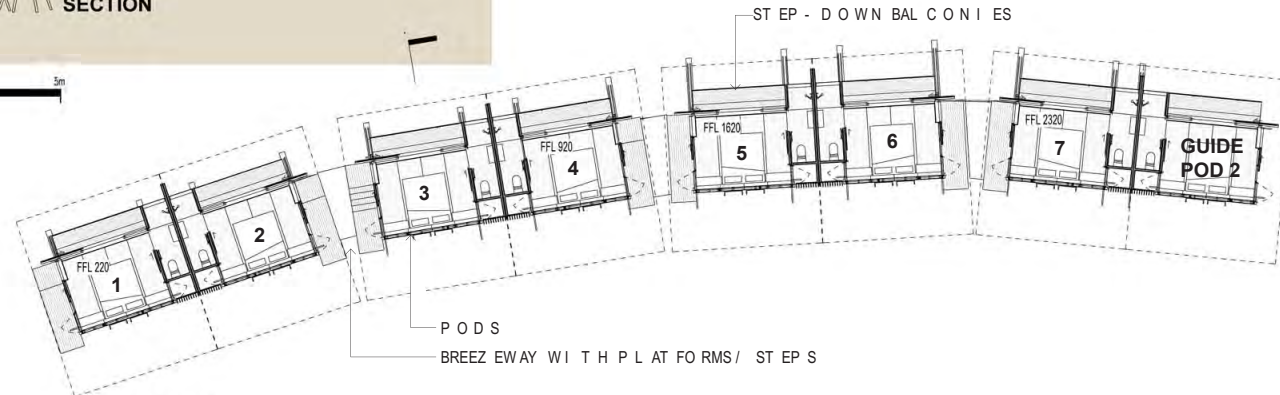
FLOOR PLAN - POD PAIR



SECTION



Scale 1:100



PODS

BREEZEWAY WITH PLATFORMS / STEPS

PRECINCT PLAN



Scale 1:200



**MATERIAL SCHEDULE**

**EXPOSED FRAMING:**

Australian hardwood / cypress pine, naturally greyed  
 Steel, painted to dark tones  
 Liten weathered (raw) steel

**WALLS: EXTLININGS:**

Compressed sheaf eco-ply, natural / stained to dark tones  
 Liten weathered (raw) steel  
 Weather tex Natu is a J n a naturally greyed  
 Jasper colorbond / customorb

**ROOFING:**

Liten weathered (raw) steel  
 Jasper colorbond / customorb  
 Ampelite' Wonder glass rGel, ic eal tedar  
 Bush timber battens from road clearing, naturally greyed

**PATHS:**

Compacted sifted stone / gravel / sand from site works including  
 prior for tracks, paths  
 Select sites to eed ges, erosion controls where equir ed

**SCREENS/ SOFFITS:**

Liten weathered (raw) steel  
 Jasper colorbond / customorb  
 Ampelite' Wonder glass rGel, ic eal tedar  
 Laser-cut plywood, dark stain  
 Bush timber battens from road clearing, naturally greyed

**WINDOWS/ DOORS:**

Select Australian hardwood frames, clear oil  
 Performance glass / Ampelite' Wonder glass rGel, ic eal tedar  
 Polished Australian hardwood / bush timber door furniture

**DECKING, SEATS, STEPS, BOARD WALKS, INCFRAMING:**

Australian hardwood / cypress pine, naturally greyed  
 FRP mesh, black

STEP-DOWN BALCONIES

KANGAROO ISLAND WALK SANDERSON BAY  
 SLEEPING PODS

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PODS FROM WEST



PODS FROM LONGHOUSE

KANGAROO ISLAND WALK SANDERSON BAY  
SLEEPING PODS

15 FEB 2019



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VIGNETTES / BREEZEWAY VIEW

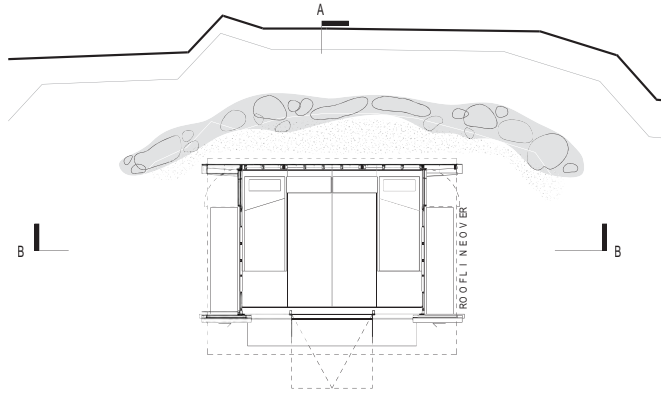


**KANGAROO ISLAND WALK SANDERSON BAY**  
**SLEEPING PODS: VIGNETTES**

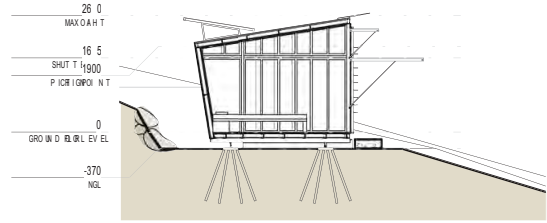
07 MAR 2019 (REV. 3)



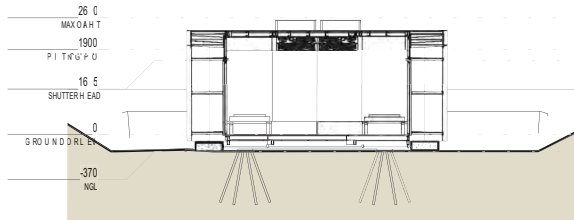
troppo



GROUND FLOOR PLAN



SECTION A



SECTION B

**MATERIAL SCHEDULE**

**EXPOSED FRAMING:**

Australian hardwood / cypress  
Steel, painted to dark tones  
Liten weathered (raw)s teel

**WALLS: EXTLININGS:**

Compressed sheet, natural / stained to dark tones  
Liten weathered (raw)s teel  
Jasper colorbond / custom b

**ROOFING:**

Liten weathered (raw)s teel  
Jasper colorbond / custom b

**SCREENS:**

Liten weathered (raw)s teel  
Jasper colorbond / custom b

**WINDOWS/ DOORS:**

Aluminum, Australian hardwood frames, clear oil  
Liten weathered (raw)s teel

**PERFORMAN CEG L ASS**

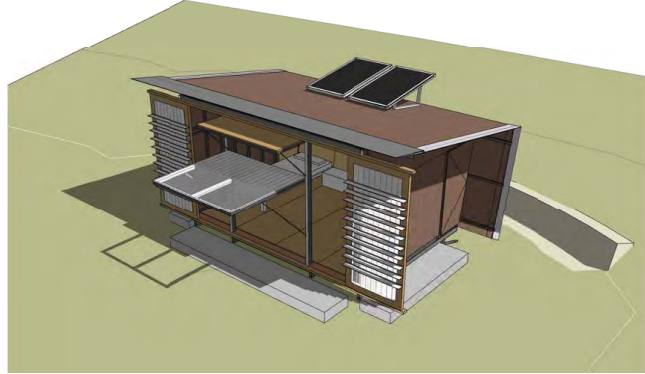
Crimsa fe black stainless steel screens  
Polished Australian hardwood / bush timber door furniture

**STEPS:**

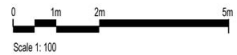
Australian hardwood / cypress pine, naturally greyed  
FRP mesh, black

**PATHS:**

Compacted sif ted stone/ gravel s/ sand from site works including  
paving for tracks, paths  
Select sites to need ges, erosion controls where required



EXTERNAL ELEVATIONS/ VIEWS

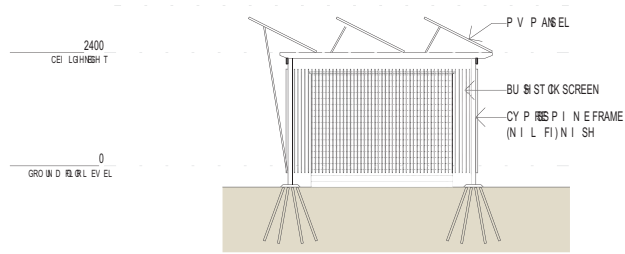


**KANGAROO ISLAND WALK SANDERSON BAY**  
**GUIDE POD (REFUGE)**

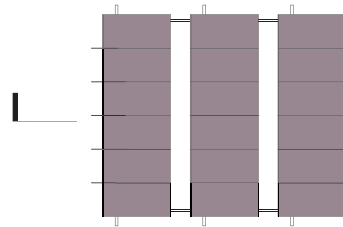
05 NOV 2018



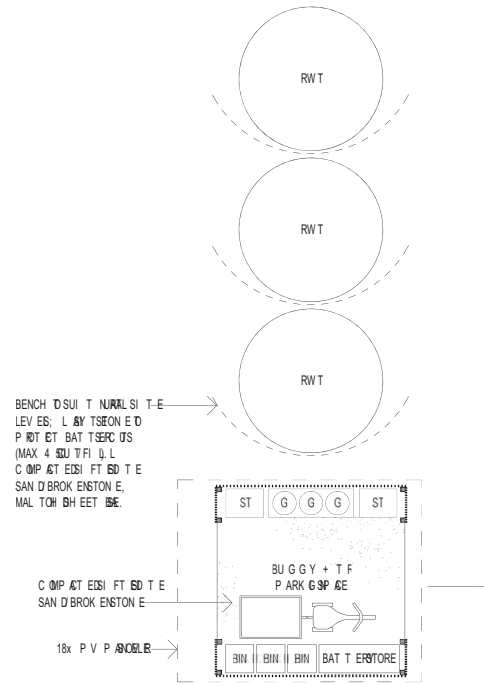
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**SECTION**



**ROOF PLAN**



**FLOOR PLAN**

**PLAN KEY**

- G GAS
- RWT RAIN WATER TANK
- ST STEMAINTAIN STORES

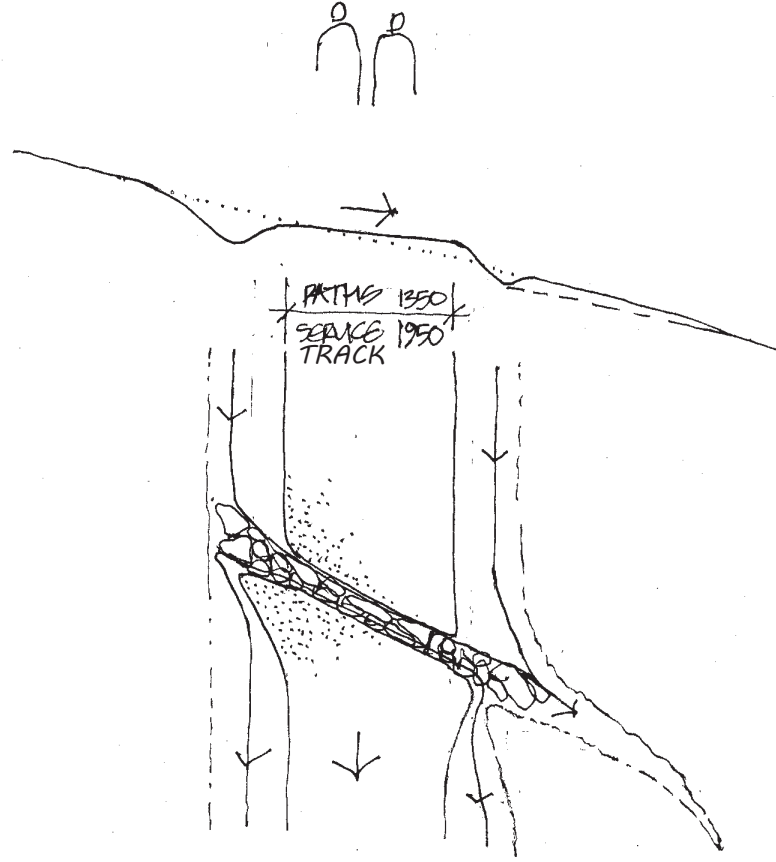


**KANGAROO ISLAND WALK SANDERSON BAY  
LONGHOUSES: STAGING POST**

05 NOV 2018



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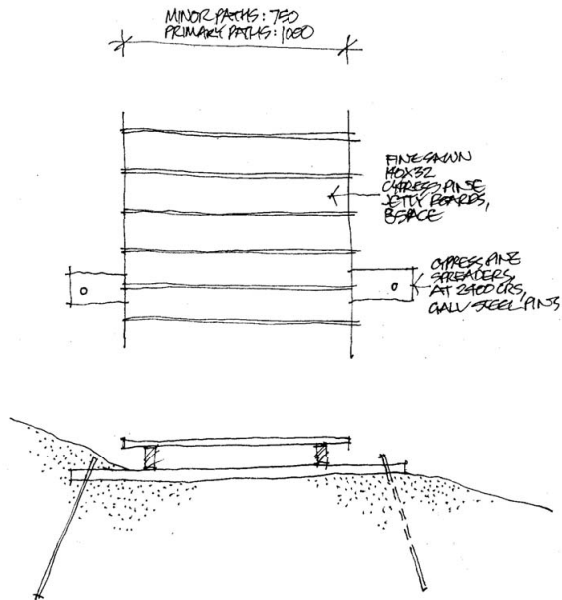


**KANGAROO ISLAND WALK PATHS AND TRACKS**  
**EARTHEN**

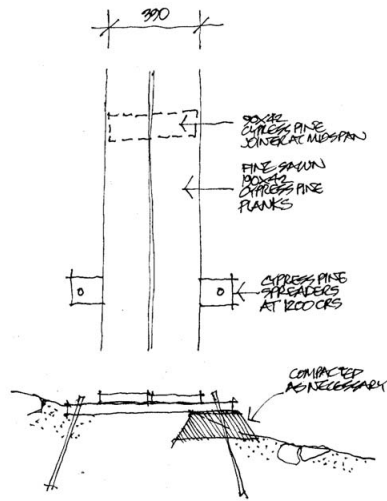
05 NOV 2018



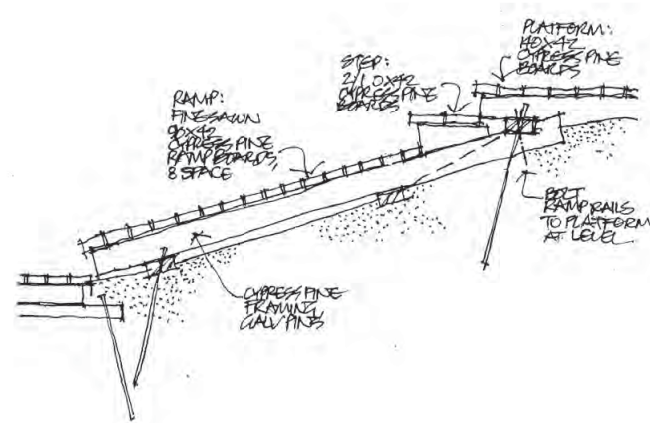
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BOARDWALK TYPE A



BOARDWALK TYPE B  
MINOR PATHS ALTERNATIVE



BOARDWALK RAMPS AND STEPS

KANGAROO ISLAND WALK PATHS AND TRACKS  
BOARDWALKS

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Views from Longhouse



Views from Longhouse



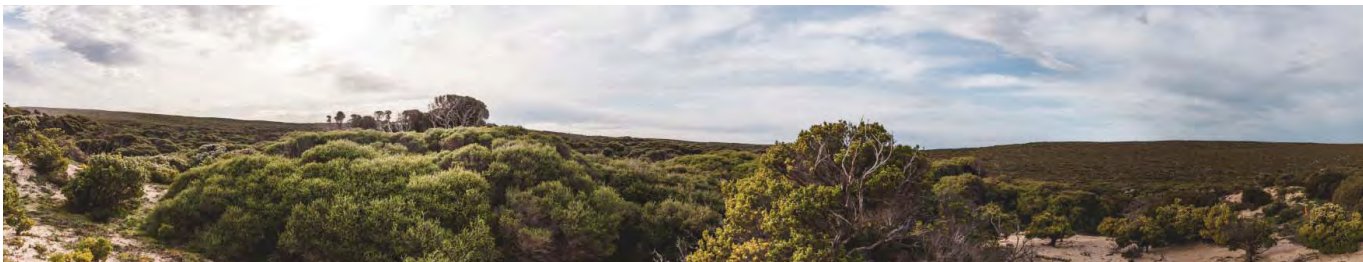
Longhousesite



Views from Sleeping Pods - 7m from west end



Views from Sleeping Pod - 21m from west end



Views from Sleeping Pod - 49m from west end

KANGAROO ISLAND WALK SANDERSON BAY  
SITE PHOTOS

05 NOV 2018



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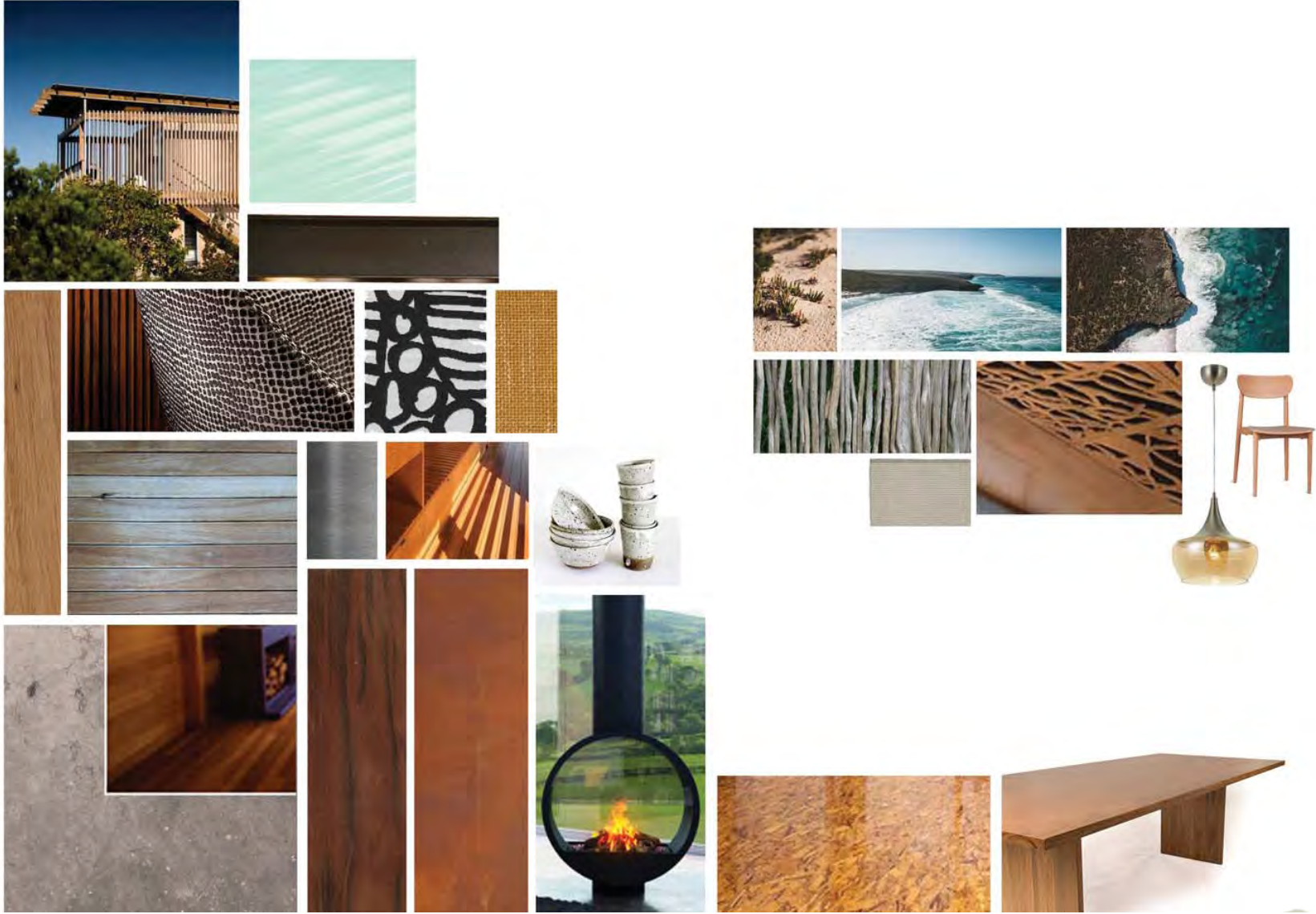


**KANGAROO ISLAND WALK SANDERSON BAY**  
**ARCHITECTURAL TEXTURES & VIBES**

05 NOV 2018



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**KANGAROO ISLAND WALK LONGHOUSES**  
**INTERNAL FINISHES & LITTLE THINGS**

05 NOV 2018



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**KANGAROO ISLAND WALK SLEEPING PODS**  
**INTERNAL FINISHES & LITTLE THINGS**

05 NOV 2018



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## **APPENDIX B**

**REPORT PREPARED BY SA BUSHFIRE SOLUTIONS**

**Development Assessment Service  
Country Fire Service  
Level 5, 60 Waymouth Street  
Adelaide SA 5000**

**Attention: Leah Bertholini**

16 February 2019

Dear Leah,

**RE: Additional Information Development Application (Planning Assessment) – AWC Flinders Chase**

- **Sanderson Fire Track**
- **Lot 50 South Coast Road (Sandy Creek)**
- **Cape Du Couedic**

Thank you for your correspondence dated January 17<sup>th</sup>, 2019 (*references 20190117-021b, 20190117-031b and 20190117-011b*) further to the verbal advice given during a meeting at CFS office on January 8<sup>th</sup>, 2019.

We note the main factors of concern from the CFS that required additional information included;

- Siting
- Access
- Water Supply
- Vegetation
- Alternative Options

Subsequently we revisited the sites on January 23<sup>rd</sup>, 2019 to undertake further assessments, my client appreciates the opportunity to provide this additional information and demonstrate how the risk mitigation measures counter the reduced compliance.

Further to this response please note the additional supporting documents provided including;

- Revised BAL reports for Sandy Creek and Sanderson Bay
- AS3959 (2009) Appendix B – Detailed Method 2 Calculations
- Fuel Load Calculations
- Examples of AWC Emergency Planning documents including;
  - Bushfire Emergency Plan Three Capes Track – Munro Lodge
  - Emergency Response Management Plan

Regards,

A handwritten signature in blue ink that reads "Brett Stephens".

Brett Stephens  
Director  
SA Bushfire Solutions

PO Box 1598, Renmark, SA  
PH: 0427604253

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ABN: 69 579 847 194

## Background

The proposed developments are at three separate sites within the Flinders Chase National Park (Sanderson Bay, Sandy Creek and Cape du Couedic).

The Australian Walking Company (AWC) and the South Australian Country Fire Service (SA CFS) acknowledge that the proposed developments in Flinders Chase National Park is in a High Bushfire risk area with limited vehicle access, no dedicated fire water for suppression operations, poor communication networks and significant response times from CFS volunteers due to distance and access.

With due considerations for all relevant principles of development control outlined in the Kangaroo Island Councils Development Plan, particularly in relation to the retention of native vegetation, alternative options have been proposed that balances the various challenges of the site.

For the SA CFS to consider the alternative options as part of the Development Application adequate detail must be provided that could demonstrate the proposed solution is *'equal or better in performance, to that of the original requirements'*.

The correspondence received from the SACFS was relatively consistent for the three sites relating to clarifying the risk mitigation measures and evacuation options. Considering the bushfire risk, mitigation strategies and evacuation options are also consistent, where the response to SACFS is not site specific it applies to all three sites.

It should be noted that AWC, SACFS and Department Environment and Water (DEW) have the following in principle agreements towards this project;

- Commitment to minimise extent of Native vegetation clearance;
- Proposed "guide pod" be designed and constructed as known Bushfire refuge;
  - All other structures excluded from AS3959 Construction standards and allowed to burn in bushfire
- Primary Bushfire Response Plan is to Evacuate early
- Secondary Bushfire Response Plan is to shelter in refuge
- Neighbouring beaches have been determined as inappropriate for Last resort option.
- Utilising existing CFS approved Bushfire Safer Places and Last resorts where appropriate and other safe locations as identified in relevant DEW Emergency response plans
- Use existing DEW Emergency Response plans and Evacuation plans where appropriate

## **Siting**

We have reviewed and made recommendations that the proposed siting of the guide pod “Bushfire refuge” at Sandy Creek and Sanderson Bay be moved further away from areas of higher Surface and Overall fuel hazards, (refer to attached BAL reports, AS3959 Method 2 Calculations, updated plans / maps and section on Vegetation Management zones)

### Sandy Creek

We recommend that the Guide pod at Sandy Creek is moved further up hill (min 10m) away from the higher elevated fuel structures of the coastal Mallee and in the lower shrubby vegetation that is more representative of the wider area. Please refer to revised plan drawings for exact locations.

We expect this small shift up hill will reduce the likelihood of direct flame contact and reduced radiant heat impacting the guide pod, it also presents greater efficiencies with vegetation management and maintenance and reduced vegetation clearance in the vegetation management zone.

### Sanderson Bay

We recommend that the Guide pod at Sanderson Bay is moved further North east downhill (min 20m) away from the higher elevated fuel structures of the coastal Mallee and Melaleuca and in the lower pig face vegetation. Please refer to revised plan drawings for exact locations.

We expect this small shift downhill will reduce the likelihood of direct flame contact and reduced radiant heat impacting the guide pod, it also presents greater efficiencies with vegetation management and maintenance and reduced vegetation clearance in the vegetation management zone.

## **Access**

No access is proposed for firefighting vehicles as per requirements in the Ministers code, only proposed access to site is a light vehicle track with a maximum width of 2m for the use ATV vehicles only to service the campsites. These tracks will be untrafficable during and for some time after a bushfire.

Given the specific risk associated with site access and proximity to nearby roads for effective evacuation the application for development consent is dependent on evacuation options and risk mitigation measures.

The risk mitigation and evacuation options will be addressed in the following documents;

- DEW Site Bushfire Plan;
- AWC Bushfire Emergency Plan
- AWC Emergency Response Management Plan

These documents have not been completed for the site yet, however we have attached other approved example documents from Tasmania for reference. Please refer to these documents that were originally submitted as part of the Development Application (refer Development Application Appendices) as supportive evidence to demonstrate the expected product that will mitigate the risks.

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PH: 0427604253**

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**ABN: 69 579 847 194**

## Water Supply

Each proposed site will have dedicated water supply (minimum 22,000L per site) for bushfire fighting as specified in the Ministers Code 2009 "Undertaking development in Bushfire Protection Areas" Part 2.3.4.1 (excluding reference to firefighting vehicles accessing the dedicated water supply).

This dedicated water supply (and associated plumbing and pumping fixtures) will provide guides an opportunity to undertake mitigation actions i.e. pre-wetting areas, extinguish embers (prior to the fire front) and suppression of structures (post fire front).

The designated fire water tanks will be in an area of minimal bushfire fuels within the vegetation management zone.

Provision will also be made at each site for a fire pump and firefighting hoses, located adjacent to the guide pod with hose length long enough to go around the perimeter of the refuge.

The refuge will also have a fit for purpose external sprinkler system to provide additional protection to the building from radiant heat, ember attack and direct flame contact. This external sprinkler system will compliment internal precautions (fire blanket and fire extinguishers) from human activities and assist prevent the spread of fire to the vegetated areas.

Please note there will be no cooking facilities in the Guide pod and that guests will not be permitted to use candles on site, instead guests will have headtorches included as part of their gear kit.

The dedicated water supply for firefighting, pump, pipe work and fire hose will be in accordance with the technical details as per Ministers Specification SA78, *excluding 2.5 (b)* that references access for fire fighting vehicles.

Operation and maintenance of the dedicated water supply, fixtures, fittings and operation will be captured in the site bushfire response plan with recommendations for annual maintenance and training.

## Vegetation

The proposal seeks to limit the amount of native vegetation clearance during the construction and operation of the proposed development.

### AS 3959 Method 2

In order to reduce the vegetation clearance our original report provided justification for a revised estimate of near surface and overall fuel hazards when undertaking the BAL calculations as per Method 2 AS3959 for Sanderson Bay and Sandy Creek.

CFS were concerned about the significant variation of fuel loads recommended in AS3959 and those used for calculations in the original report and determined that it was not unreasonable to accept the position of AS3959 and the fuel loads recommended for the vegetation classification.

Due to the variation of results and with the Surface and Overall fuel hazard assessments impacting so much of the bushfire risk and construction requirements we met onsite (at Sandy Creek and

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ABN: 69 579 847 194

Sanderson Bay) January 23<sup>rd</sup>, 2019 to undertake further fuel hazard assessments and define agreed Overall fuel Hazards to be used in the Method 2 AS3959 calculations.

The results of these agreed Overall fuel hazards and the changes they represent to the BAL ratings, and setback distances can be seen in tables below (extract from updated BAL reports). Note for both sites we have used the fuels representative of the highest surface and overall fuel hazards following the onsite assessments.

**Table 1.1 Sandy Creek**

Vegetation classification (see clause 2.2.3)	AS3959-2009 Surface Fuel load (t/ha)	AS3959-2009 Overall Fuel load (t/ha)	Setback distance	Current BAL	Adjusted Surface Fuel load (t/ha)	Adjusted Overall Fuel load (t/ha)	Setback Distance	Revised BAL
Shrubland	15	15	5	FZ	10	10	10	FZ
					10	10	11	40
					10	10	15	29
					10	10	22	19
					10	10	32	12.5

**Table 1.2 Sanderson Bay**

Vegetation classification (see clause 2.2.3)	AS3959-2009 Surface Fuel load (t/ha)	AS3959-2009 Overall Fuel load (t/ha)	Setback distance	Current BAL	Adjusted Surface Fuel load (t/ha)	Adjusted Overall Fuel load (t/ha)	Setback Distance	Revised BAL
Shrubland	15	15	5	FZ	5	15	11	FZ
					5	15	12	40
					5	15	16	29
					5	15	24	19
					5	15	33	12.5

#### AS 3959 Method 2 Calculation Inputs

To ensure we could satisfy CFS concerns regarding ensuring the alternative solution was ‘equal to or better than the original requirement’ we increased two variables in the method 2 calculations including the **Fire Danger Index (FDI)** and the **Flame Temperature (measured as kelvin)**.

The input values used in the AS3959 calculations can be found in *Table 2.4.1 Input Values and Modelling AS 3959 – 2009 Construction of Buildings in Bushfire Prone Areas*.

- Recommending Flame temperature 1090 k, we used **1200 kelvin**

Current input values for FDI in the AS 3959 can be found in *Table 2.1 Jurisdictional and Regional Values for FDI*;

- recommending FDI 80 for South Australia, we used an **FDI of 120**.

We believe using these higher input values we have calculated the potential bushfire impacts as greater than what is likely at the sites.

Further information can be found in the attached site BAL reports along with the Method 2 Calculations for both Sandy Creek and Sanderson Bay.

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ABN: 69 579 847 194

## **Vegetation Management Zone**

The Ministers Code *Part 2.3.5 'Existing and proposed trees and vegetation on and around the allotment'* requires buildings to be located away from vegetation that pose an unacceptable bushfire risk.

Based on the Fuel hazard assessments and BAL calculations (refer attached) we propose a fuel management zone of 20m around the Guide pod "refuge" at all sites. This is based on achieving the BAL rating of 19 for the refuge (refer table 1.1 and 1.2), BAL reports and Method 2 Calculations.

This setback distance and vegetation management zone of 20m is a compromise (noting that table 1.1 and 1.2 reference 22m and 24m respectively) to be reflective of the potential bushfire risk given our additional input values in the method 2 calculations.

The objective of the vegetation management zone is to have an area of reduced overall fuel hazard adjacent and nearby the refuge that will assist minimise the likelihood of ember ignition, decrease likelihood of flame contact and minimise forward rate of spread of bushfires.

The vegetation management zone also provides "safer" areas for staff and visitors to move into or through after the main bushfire front has passed and the refuge may continue to slowly burn. All proposed paths and walking trails to the refuge (within the vegetation management zone) will be a minimum width of 1m.

It is proposed the vegetation management zone is defined by two zones – Inner and Outer.

### Inner Vegetation Management Zone

The inner zone will be the area within 2m of the refuge and the proposed vegetation management is;

- all vegetation within 2m removed (litter, surface, near surface, elevated and bark hazard)
- any elevated fuels that may overhang to the roofed trimmed or removed
- no vegetation regeneration, mulching or combustible materials to be incorporated into this zone

### Outer Vegetation Management Zone

The outer zone will be the area from the inner zone out to the 20m radius from the refuge and the proposed vegetation management is;

- a maintained reduction of all elevated fuels to ensure a maximum coverage is not greater than of 50% in this zone
- careful selection of clearing to ensure areas of non-continuous vegetation and tree canopy
- no revegetation to be undertaken in this zone
- maintenance includes the removal of any dry / dead vegetation



## Alternative Options

The proposal requests alternative options as it is not possible to conform to the Ministers Code and specifications without vehicle access for fire vehicles and crew.

The proposed alternative options were based on the Department Environment and Water (DEW) *Draft* Procedure for Building Requirements and in line with the performance criteria of Australian Building Codes Board (ABCB) Design and Construction of Community Bushfire Refuges.

CFS identified the application was incomplete as the proposed alternative options did not fully align with the performance and acceptance criteria of Australian Building Codes Board (ABCB) Design and Construction of Community Bushfire refuges and therefore did not adequately demonstrate the alternative options *to be of equal or better in performance to that of the original requirement*.

Further advice is provided below to address the concerns of the proposed alternative options raised by CFS (reduced compliance with the Ministers Code and specifications) and demonstrate the risk mitigation measures to be implemented by AWC. Specific concerns raised by the CFS are reproduced in **bold** below with further responses:

### Performance Criteria

***Does not adequately meet the relevant performance criteria, specifically 2.3 (e,f,k & l)***

Performance Criteria	Description	Response to address the criteria
(e)	Intensity of potential Consequential fires	<ul style="list-style-type: none"> <li>Intensity of fires calculated in Method 2 Calculations.</li> <li>Assessed BAL is 19 and proposed construction will be BAL 29</li> </ul>
(f)	Safe access within the site to the refuge, (including carpark areas), as well as occupant egress after bushfire event	<ul style="list-style-type: none"> <li>Refer Vegetation management zone</li> </ul>
(k)	Provision of fire-fighting equipment and water supply to facilitate protection of refuge	<ul style="list-style-type: none"> <li>Refer water Supply, conform with Ministers Specification SA78, <i>excluding 2.5 (b)</i> that references access for fire fighting vehicles.</li> </ul>
(l)	Necessary degree of Communications and signage	Refer AWC Example <ul style="list-style-type: none"> <li>Bushfire Emergency Plans</li> <li>Tasmanian Walking Company Emergency Response Plans.</li> <li>Signs will be as per DEW and GAFLC standards.</li> </ul>

## Acceptance Criteria

### ***Does not adequately address the acceptance Criteria:-***

1. *Sufficient separation from primary fuel source to a maximum level of 10kW/m<sup>2</sup>*

Section 2.4 Acceptance Criteria Table 1 states the radiant heat flux on the refuge should not exceed 10kW/m<sup>2</sup>. The comment associated with the 10kW/m<sup>2</sup> references the following '*will enable firefighters wearing protective clothing to approach a refuge for a short period of time*'.

The acceptance criteria also provide the alternative option of *Exposed construction of a refuge to have a minimum FRL of 60/60/60 and any openings suitably protected*.

With consideration to the proposed development not providing access for firefighters combined with the fact that to achieve the 10kW/m<sup>2</sup> would require significant vegetation clearance we propose to build the refuge to the acceptance criteria of a minimum FRL of 60/60/60.

Also note that the BAL for the site is 19 and proposed construction of the refuge to be at a rating one level higher to BAL 29.

2. *Exceeds the maximum radiant heat flux on exposed building elements of 10kW/m<sup>2</sup>*

Refer previous response.

3. *Path of travel to a refuge should include minimum width of cleared vegetation and be accompanied by a vegetation management strategy to ensure vegetation adjacent the path does not become a hazard to travel.*

Refer to Section Vegetation Management Zone.

4. *Control of tenable conditions for interior air temperature, interior surface temperature, interior air toxicity, and ventilation.*

Proposed construction will comply with the BCA regulations and in line with the BAL rating.

5. *Firefighting equipment including, fire hose reels, from a water source in a non-combustible tank and connection to a pump*

Refer to section Water Supply

6. *Emergency power supply including a diesel generator and Fuel storage*

At this stage there is no proposal for additional power supply (via diesel generator) but provisions have been made for solar panels and additional battery back-up.

Design Considerations

**Does Not adequately address 'Design Considerations; -Appendix A.1 – A.14**

Design Consideration		Description	Response to address Considerations
A.1	Location of a community Bushfire refuge relative to the fire hazards	Location of refuge influences number if design and construction requirements.	Reviewed and Updated <ul style="list-style-type: none"> <li>• Overall Fuel Hazards</li> <li>• BAL site assessments</li> <li>• AS3959 Method 2 Calculations</li> <li>• Vegetation Management Zone</li> </ul>
A.2	Number of occupants	How many people will be likely to use refuge, how many likely to access, characteristics of occupants, composition	<ul style="list-style-type: none"> <li>• Refuge designed and suitable for maximum number of visitors (17)               <ul style="list-style-type: none"> <li>○ 17 on site during normal operation</li> <li>○ 14 Guests, 2 Guides and 1 host</li> </ul> </li> <li>• Refuge not accessible to general public</li> <li>• Refuge users to be directed and supervised by guide/host</li> </ul>
A.3	Duration of Occupancy	Expected duration of occupancy	<ul style="list-style-type: none"> <li>• Refuge constructed to FRL 60/60/60</li> <li>• Water supply for pre and post suppression</li> <li>• Guides to assess and determine safety to move out of refuge post fire front</li> <li>• Bushfire emergency response plan</li> <li>• Emergency Management plans</li> </ul>
A.4	Bushfire Intensity	Predict the potential radiant heat flux on exposed construction materials	<ul style="list-style-type: none"> <li>• AS3959 Method 2 Calculations</li> <li>• Vegetation management zone</li> </ul>
A.5	Bushfire-Resistance level	Refuge designed to protect occupants	<ul style="list-style-type: none"> <li>• BAL assessment to 19, recommended construction to BAL 29</li> <li>• Constructed to FRL 60/60/60</li> <li>• AS3959 Method 2 calculations</li> <li>• BAL site assessment reports</li> </ul>
A.6	Safe access and egress	Unobstructed and safe access to refuge	<ul style="list-style-type: none"> <li>• Vegetation management zone</li> </ul>
A.7	Tenable environment within a refuge	Provide tenable conditions to occupants during the Bushfire	<ul style="list-style-type: none"> <li>• Refuge constructed to BCA requirements for BAL 29</li> <li>• Minimum "floor area" provided for number of occupants .75m<sup>2</sup> per person</li> <li>• Minimum "Volume" air 1.2m<sup>3</sup> per person</li> </ul>

			<ul style="list-style-type: none"> <li>Interior mean modified discomfort index (MDI) for 60 minutes</li> <li>FRL 60/60/60</li> </ul>
A.8	Material and Construction	Potential bushfire impacts and construction materials	<ul style="list-style-type: none"> <li>Refuge constructed to BCA requirements for BAL 29</li> </ul>
A.9	Loads and actions	Structural design of a refuge should be in accordance with Section B of Volume One BCA	<ul style="list-style-type: none"> <li>Built in accordance with Section B of Volume One BCA</li> </ul>
A.10	Occupant awareness of the external environment	Occupants aware of external environment to observe the passing of the bushfire front	<ul style="list-style-type: none"> <li>Refuge constructed to BCA requirements for BAL 29</li> <li>Particular reference to window glazing</li> </ul>
A.11	Firefighting equipment	Provision for firefighting equipment	<ul style="list-style-type: none"> <li>Refer section on Water Supply</li> </ul>
A.12	Communications and signage	Provision for communications and directions during bushfire events	<p>Refer example</p> <ul style="list-style-type: none"> <li>Sample: Tasmanian Walking Company Three Capes Walk Bushfire Emergency Plans</li> <li>Sample: Tasmanian Walking Company Emergency Response Plans.</li> <li>Signs will be as per DEW and GAFLC standards.</li> <li>Guides will be leading and directing tourists</li> <li>AWC Guides have satellite communications (phone and Inreach comms device) with the group at all times.</li> <li>AWC staff not travelling immediately with the main group have satellite comms capacity also</li> </ul>
A.13	Sanitary Facilities	Provision for scope and number of sanitary facilities	<ul style="list-style-type: none"> <li>Sanitary facilities for primary use of the building comply with the BCA</li> </ul>
A.14	Essential Maintenance	Regular and comprehensive maintenance regime of refuge	<p>Refer example</p> <ul style="list-style-type: none"> <li>Bushfire Emergency Plans</li> <li>Tasmanian Walking Company Emergency Response Plans.</li> <li>Annual preparedness audits</li> <li>Staff training</li> <li>Vegetation management zone</li> <li>Monthly testing procedures during the Fire danger season</li> </ul>

Operation Considerations

**Does not adequately address 'Operation Considerations'; - Appendix B'**

Design Consideration		Description	Response
B.1	General	Refuge should be able to operate effectively without intervention from emergency services personnel	<ul style="list-style-type: none"> <li>• Bushfire Emergency Plans</li> <li>• Tasmanian Walking Company Emergency Response Plans.</li> <li>• Only accessible to Guides</li> <li>• Operated by AWC staff (Guides/Hosts) who will be trained to operate the refuge</li> </ul>
B.2	Operations Procedures Manual	Operations manual to be developed	<ul style="list-style-type: none"> <li>• Bushfire Emergency Plans</li> <li>• Tasmanian Walking Company Emergency Response Plans.</li> <li>• Operations Manuals including Guide Manuals to be developed by AWC</li> <li>• Staff training</li> <li>• Monthly testing records</li> </ul>
B.3	Systems approach to opening a refuge		<ul style="list-style-type: none"> <li>• Refuge to be opened by guide</li> </ul>
B.4	Key Safe		<ul style="list-style-type: none"> <li>• Guide to have keys</li> <li>• Possible option to have key safe on site at each location</li> </ul>
B.5	Safety equipment including first aid	Essential needs of occupants during bushfire event including first aid requirements	<ul style="list-style-type: none"> <li>• Bushfire Emergency Plans</li> <li>• Tasmanian Walking Company Emergency Response Plans.</li> <li>• Staff training</li> <li>• Bushfire kits in refuge</li> <li>• Annual preparedness audit</li> <li>• Monthly testing records</li> </ul>

Ancillary Information

**Appendix C 1.5 South Australia; A community bushfire refuge is building work, and hence development under the development act 1993 requiring development approval.**

South Australia has no legislation that specifically regulates the use of a community bushfire refuge.

The proposed development application in Flinders Chase National Park is submitted and assessable for both planning and building consents by the relevant agencies and Authorities.

Applications for building rules consent are assessed against relevant requirements for building rules including referenced codes, standards or ministers specifications.

Training

PO Box 1598, Renmark, SA  
PH: 0427604253

[info@sabushfiresolutions.com.au](mailto:info@sabushfiresolutions.com.au) [www.sabushfiresolutions.com.au](http://www.sabushfiresolutions.com.au)

ABN: 69 579 847 194



To further support the alternative solutions and demonstrate commitment to risk mitigation it is highly recommended that AWC ensure their guides have appropriate training and accreditation in understanding bushfire risk and response on KI.

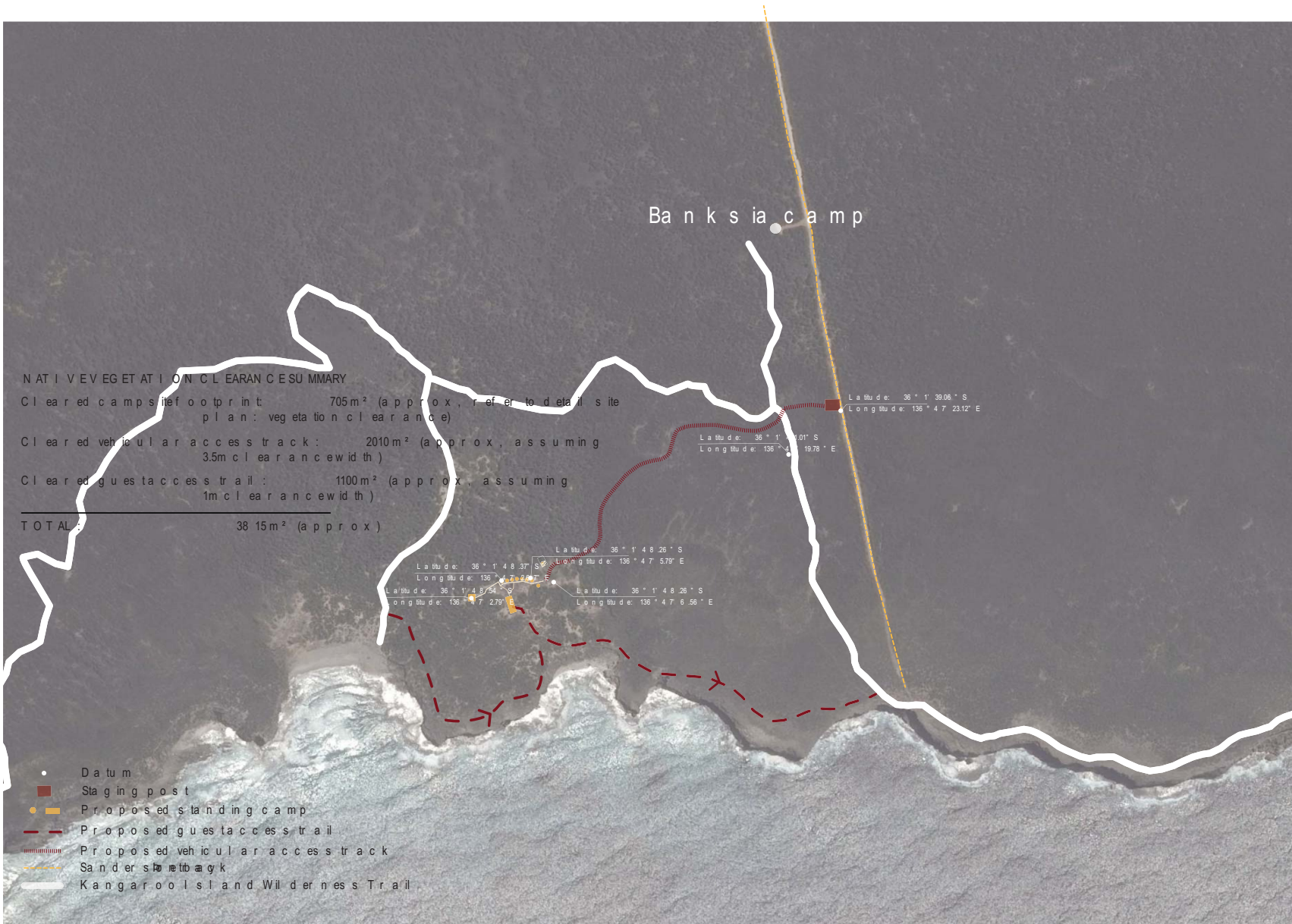
There are several Nationally accredited units that would be suitable and recommend that guides are accredited to a minimum level of Crew Leader.

In addition we would highly recommend annual refresher training to all guides including first aid, fire extinguisher and the use of hose reels during monthly testing.

PO Box 1598, Renmark, SA  
PH: 0427604253

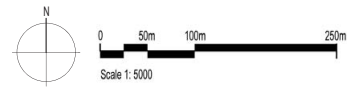
[info@sabushfiresolutions.com.au](mailto:info@sabushfiresolutions.com.au) [www.sabushfiresolutions.com.au](http://www.sabushfiresolutions.com.au)

ABN: 69 579 847 194



**KANGAROO ISLAND WALK SANDERSON BAY  
SITE PLAN MAP M**

13 FEB 2019 (Rev. 2)



tropo



**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN MAP S**

13 FEB 2019 (Rev. 2)

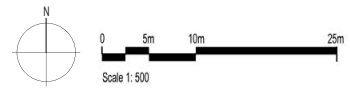


troppo





- Datum
- Firer in g
- P ro t ec t ed s p ec i es
- A c c e s s t r a i l
- C a m p s i t e p a t h w a y s / b o a r d w a l k s
- V e h i c u l a r a c c e s s t r a c k s



**KANGAROO ISLAND WALK SANDERSON BAY**  
**SITE PLAN: SURVEY**

13 FEB 2019 (Rev. 2)



**tropo**



**AS 3959  
“INDICATIVE” BUSHFIRE ATTACK LEVEL (BAL)  
ASSESSMENT REPORT**

**“Sanderson Bay”**

<b>Customer Details</b>	
Applicants Name	Troppo Architects
Email	ryan.horsnell@troppo.com.au
Phone	82329696

<b>Property Details</b>	
Address	Flinders Chase National Park Sanderson Bay
Lot Number	D38340Q55
Municipality	Kangaroo Island
Bushfire Protection Area	High

<b>Report Details</b>	
Report / Job Number	BAL 012
Report Version	1.1
Assessment Date	23/1/2019
Report Date	29/1/2019
Assessors Name	Brett Stephens
Assessor Phone	0427604253

<b>BAL Summary</b>				
<b>Plot</b>	<b>Vegetation Classification</b>	<b>Effective Slope</b>	<b>Separation Distance (m)</b>	<b>BAL</b>
1	Class D Scrub	Level	5m	FZ
2	Class C Shrubland	Level	5m	FZ

**Determined Bushfire Attack Level (BAL)**

The determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009.

<b>Determined BAL</b>	<b>BAL- FZ</b>
-----------------------	----------------



## **BAL Assessment Report**

The BAL assessment has been completed following an onsite visit and Fuel Hazard assessments on the property as per AS 3959-2009 Construction of Buildings in Bushfire Prone Areas.

All vegetation within 100m of the site / proposed developments was classified in accordance with Clause 2.2.3 of AS 3959-2009. Vegetation classification was also made with consideration for future growth and revegetation and based on worst case scenarios.

The AS 3959-2009 provides a relevant fire danger index (FDI) in accordance with agency determined agreements, in SA this is FDI 80 (Table 2.1).

### **Comments:**

The BAL report is specific to the proposed "refuge shelter" and referred to on the map as the "guide pod".

This is an indicative BAL assessment for the multiple proposed structures at Sanderson Bay. As the exact build location has not been agreed or approved, we completed the inspection with a view to providing the client an opportunity to consider potential Bushfire risk on the proposed infrastructure and an opportunity to review and decide on options that may assist reduce the risk prior to submitting the development application.

We recommend the "Guide pod" is moved to take advantage of some lower fuels that may assist the BAL rating (refer map 1.1).

This report does not refer to matters specifically referred to in the Ministers Code "Undertaking development in Bushfire Protection Areas" as these considerations will be addressed in the development application following inspection from Country Fire Service (CFS).



**Disclaimer Statement:**

It must be noted that extreme fire weather conditions may create unpredictable fire behaviour and therefore it is impossible to remove all potential impacts from bushfires and guarantee that a building will survive any bushfire event.

The current fuel loads and vegetation management cannot be guaranteed not to change in the future.

I have taken all reasonable steps to ensure that the information provided in this assessment is accurate and reflects the conditions on and around the site and allotment on the date of this assessment. I cannot guarantee the bushfire risks will not change on neighboring properties in the future.

Signed:

A handwritten signature in blue ink that reads "BASTEL".

29 January 2019

**1 Proposed Site Location Plan “Sanderson Bay”**



**KANGAROO ISLAND WALK  
SITES MAP**  
AUG 2018

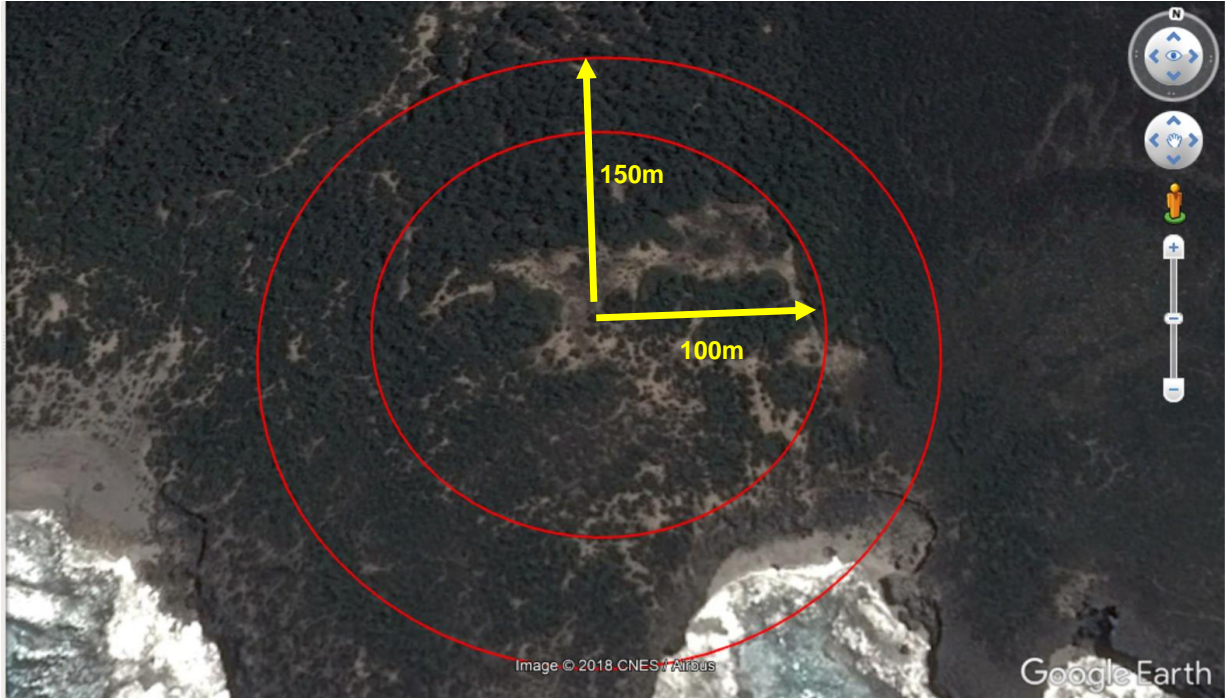


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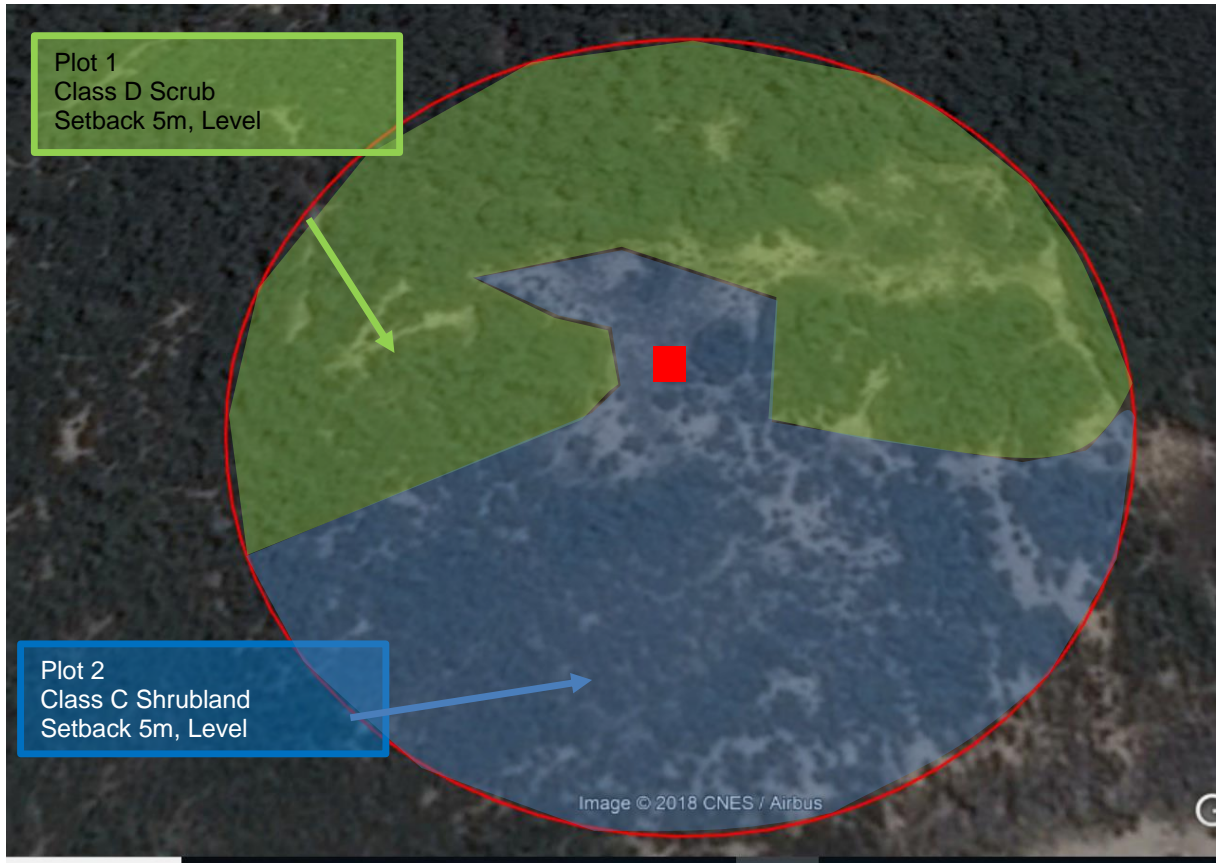
1.1 Proposed Construction Site Location Plan "Sanderson Bay"



2 Site Assessment showing the vegetation within 100m and 150m radius.



3 Classified vegetation plots within the 100m radius of the proposed dwelling (Centered for proposed Longhouse).





#### 4 Assessment of the vegetation within 100m in all directions.

Vegetation classification (see Table 2.3)	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5
Group A Forest					
Group B Woodland					
Group C Shrub-land		✓			
Group D Scrub	✓				
Group E Mallee/Mulga					
Group F Rainforest					
Group G Grassland					
Exclusions (where applicable)	Circle relevant paragraph descriptor from clause 2.2.3.2.				
	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)	(b) (c) (d) (e) (f)
<b>Distance of the site from classified vegetation (see clause 2.2.4)</b>					
Distance to classified vegetation	Show distances in meters				
	5m	5m			
<b>Determine the effective slope of land under the classified vegetation</b>					
Effective slope	Upslope				
	Upslope/0°	Upslope/0°	Upslope/0°	Upslope/0°	Upslope/0°
Slope under the classified vegetation	Downslope				
	>0 to 5 ✓	>0 to 5 ✓	>0 to 5	>0 to 5	>0 to 5
	>5 to 10	>5 to 10	>5 to 10	>5 to 10	>5 to 10
	>10 to 15	>10 to 15	>10 to 15	>10 to 15	
	>15 to 20	>15 to 20	>15 to 20	>15 to 20	>10 to 15
	>20	>20	>30	>20	>15 to 20
BAL value for each side of the site	FZ	FZ			

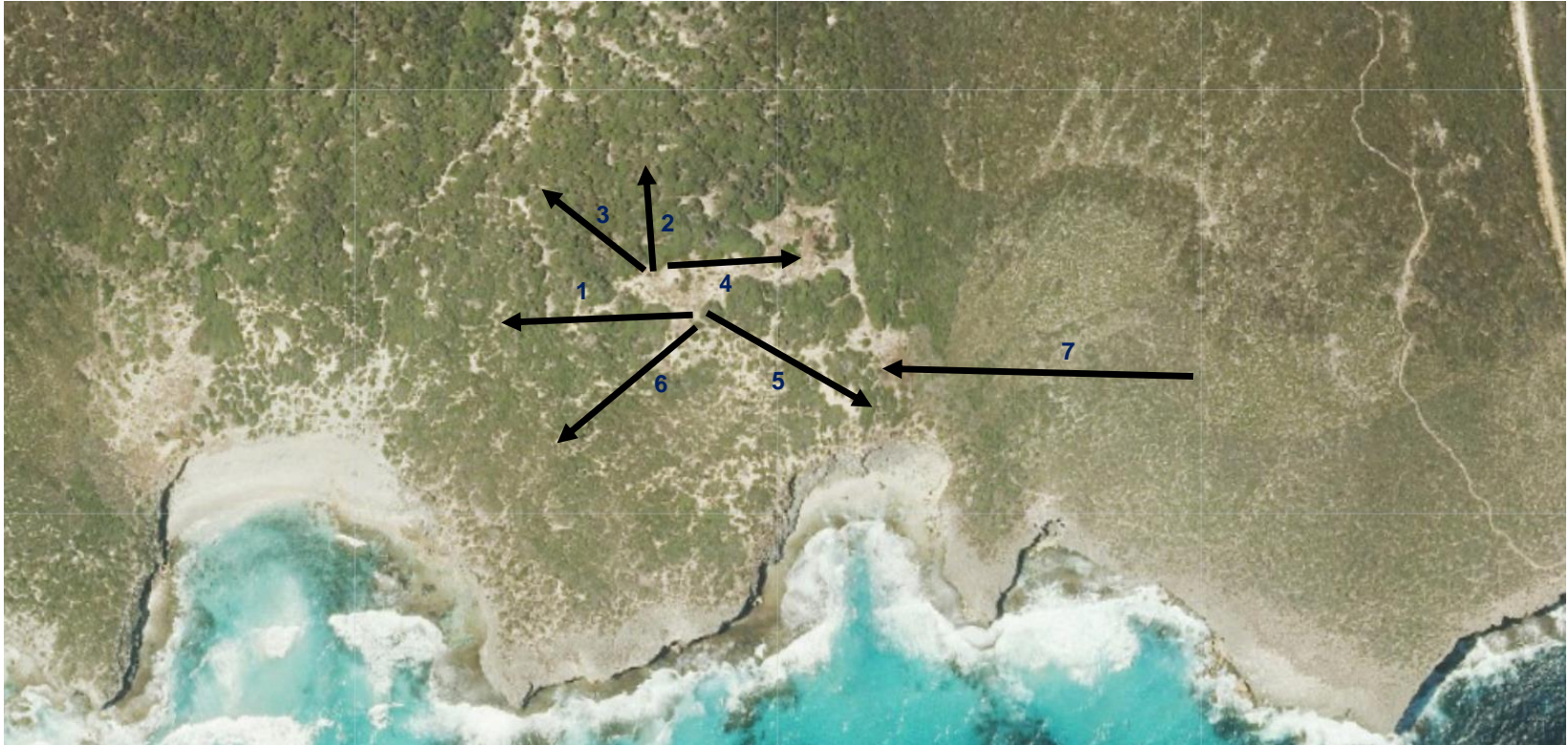
5 Photos of Classified Vegetation

Plot	1	Classification or Exclusion Clause	Class D Scrub
<i>Photo ID: 1</i>		<i>Photo ID: 2</i>	

Plot	1	Classification or Exclusion Clause	Class D Scrub
<i>Photo ID: 3</i>		<i>Photo ID: 4</i>	

<b>Plot</b>	<b>2</b>	<b>Classification or Exclusion Clause</b>	<b>Class C Shrubland</b>
<p>LAT: -36.030361 LON: 136.784744 ±5m ▲ 25m</p>		<p>LAT: -36.030392 LON: 136.784775 ±5m ▲ 24m</p>	
<p>28 Aug 2018, 11:55</p>		<p>28 Aug 2018, 11:55</p>	
<i>Photo ID: 5</i>		<i>Photo ID: 6</i>	
<b>Plot</b>	<b>2</b>	<b>Classification or Exclusion Clause</b>	<b>Class C Shrubland</b>
<i>Photo ID: 7</i>			

6 Location Map of photos



## 7 Reducing BAL Options

The indicative BAL rating for the proposed development (based on specified location) is BAL FZ, noting that this was from the plot 1 vegetation based on a minimal setback of 5m.

Options to reduce the BAL include

- Increasing the setback distance between the construction and the vegetation.
- Undertake Actual Fuel Hazard sampling for the site
- Selective location with lower OFH

Table B2 *Vegetation Classification and Fuel Loads* of the AS3959-2009 provides indicative Surface and Overall loads in Tonnes per hectare (t/ha). We found these to be over exaggerated and not representative of the actual (and potential) fuel loads at the site.

We completed fuel hazard assessments of the representative vegetation in and adjacent to the proposed development and determined appropriate fuel loads (refer table 1).

Our calculations below (refer Table 1) are based on the onsite fuel hazard assessments with an FDI of 120 and Kelvin 1200 and the potential BAL ratings can be compared with increased setback distances for consideration.

Table 1

Vegetation classification (see clause 2.2.3)	AS3959-2009 Surface Fuel load (t/ha)	AS3959-2009 Overall Fuel load (t/ha)	Setback distance	Current BAL	Adjusted Surface Fuel load (t/ha)	Adjusted Overall Fuel load (t/ha)	Setback Distance	Revised BAL
Shrubland	15	15	5	FZ	5	15	11	FZ
					5	15	12	40
					5	15	16	29
					5	15	24	19
					5	15	33	12.5

**Appendix 1 Property Location and highlighted High bushfire risk areas (pink) adjacent to Medium Bushfire risk areas (blue)**





## NBC Bushfire Attack Assessment Report V3.0

AS3959 (2009) Appendix B - Detailed Method 2

Print Date: 31/01/2019

Assessment Date: 25/01/2019

**Site Street Address:** KI Sanderson Bay (melaluca Fuels), Sanderson Bay  
**Assessor:** Please Enter Your Name; Please Enter Your Company Name  
**Local Government Area:** SA **Alpine Area:** No

### Equations Used

Transmissivity: Fuss and Hammins, 2002  
Flame Length: RFS PBP, 2001/Vesta/Catchpole  
Rate of Fire Spread: Noble et al., 1980  
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005  
Peak Elevation of Receiver: Tan et al., 2005  
Peak Flame Angle: Tan et al., 2005

**Run Description:** Guide pods (ADJ FH, FDI 120, 1090 K)

### Vegetation Information

**Vegetation Type:** Shrubland/Short Heath **Vegetation Group:** Shrub & Heath  
**Vegetation Slope:** 8 Degrees **Vegetation Slope Type:** Downslope  
**Surface Fuel Load(t/ha):** 5 **Overall Fuel Load(t/ha):** 15  
**Vegetation Height(m):** 1.5 Only Applicable to Shrub/Scrub and Vesta

### Site Information

**Site Slope:** 8 Degrees **Site Slope Type:** Downslope  
**Elevation of Receiver(m):** Default **APZ/Separation(m):** 5

### Fire Inputs

**Veg./Flame Width(m):** 100 **Flame Temp(K)** 1090

### Calculation Parameters

**Flame Emissivity:** 95 **Relative Humidity(%):** 25  
**Heat of Combustion(kJ/kg)** 18600 **Ambient Temp(K):** 308  
**Moisture Factor:** 5 **FDI:** 120

### Program Outputs

**Category of Attack:** FLAME ZONE **Peak Elevation of Receiver(m):** 0.76  
**Level of Construction:** BAL FZ **Fire Intensity(kW/m):** 38569  
**Radiant Heat(kW/m2):** 65.98 **Flame Angle (degrees):** 17  
**Flame Length(m):** 9.98 **Maximum View Factor:** 0.96  
**Rate Of Spread (km/h):** 4.98 **Inner Protection Area(m):** 5  
**Transmissivity:** 0.904 **Outer Protection Area(m):** 0

---

**Run Description:** Guide pods (ADJ FH, FDI 120, 1090 K)

---

**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

---

**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	10

---

**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	3.22
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	31.24	<b>Flame Angle (degrees):</b>	68
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.472
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	10
<b>Transmissivity:</b>	0.871	<b>Outer Protection Area(m):</b>	0

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---

**Run Description:** Guide pods (ADJ FH, FDI 120, 1090 K)

---

**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

---

**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	11

---

**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	3.17
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	28.35	<b>Flame Angle (degrees):</b>	71
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.43
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	11
<b>Transmissivity:</b>	0.866	<b>Outer Protection Area(m):</b>	0

---



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**Run Description:** Guide pods (ADJ FH, FDI 120, 1090 K)

---

**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

---

**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	24

---

**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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---

**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	LOW	<b>Peak Elevation of Receiver(m):</b>	1.6
<b>Level of Construction:</b>	BAL 12.5	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	12.28	<b>Flame Angle (degrees):</b>	85
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.197
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	24
<b>Transmissivity:</b>	0.821	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (ADJ FH, FDI 120, 1090 K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	17

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	2.52
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	18	<b>Flame Angle (degrees):</b>	80
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.281
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	17
<b>Transmissivity:</b>	0.843	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5		Only Applicable to Shrub/Scrub and Vesta

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	33

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	LOW	<b>Peak Elevation of Receiver(m):</b>	0.35
<b>Level of Construction:</b>	BAL 12.5	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	12.42	<b>Flame Angle (degrees):</b>	88
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.138
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	33
<b>Transmissivity:</b>	0.808	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5		Only Applicable to Shrub/Scrub and Vesta

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	24

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	1.6
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	18.22	<b>Flame Angle (degrees):</b>	85
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.197
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	24
<b>Transmissivity:</b>	0.829	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	16

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	2.65
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	28.46	<b>Flame Angle (degrees):</b>	79
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.298
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	16
<b>Transmissivity:</b>	0.854	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	12

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	3.08
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	38.41	<b>Flame Angle (degrees):</b>	73
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.396
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	12
<b>Transmissivity:</b>	0.869	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	11

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	FLAME ZONE	<b>Peak Elevation of Receiver(m):</b>	3.17
<b>Level of Construction:</b>	BAL FZ	<b>Fire Intensity(kW/m):</b>	38569
<b>Radiant Heat(kW/m2):</b>	41.97	<b>Flame Angle (degrees):</b>	71
<b>Flame Length(m):</b>	9.98	<b>Maximum View Factor:</b>	0.43
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	11
<b>Transmissivity:</b>	0.873	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	6

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	3.21
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	36.03	<b>Flame Angle (degrees):</b>	52
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.534
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	6
<b>Transmissivity:</b>	0.887	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	5

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	FLAME ZONE	<b>Peak Elevation of Receiver(m):</b>	2.86
<b>Level of Construction:</b>	BAL FZ	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	43.66	<b>Flame Angle (degrees):</b>	46
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.644
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	5
<b>Transmissivity:</b>	0.892	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	16

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	LOW	<b>Peak Elevation of Receiver(m):</b>	5.09
<b>Level of Construction:</b>	BAL 12.5	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	12.37	<b>Flame Angle (degrees):</b>	71
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.192
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	16
<b>Transmissivity:</b>	0.846	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	11

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	4.29
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	18.72	<b>Flame Angle (degrees):</b>	66
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.285
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	11
<b>Transmissivity:</b>	0.865	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	8

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	3.72
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	26.45	<b>Flame Angle (degrees):</b>	60
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.397
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	8
<b>Transmissivity:</b>	0.877	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5		Only Applicable to Shrub/Scrub and Vesta

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	11

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	4.29
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	27.71	<b>Flame Angle (degrees):</b>	66
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.285
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	11
<b>Transmissivity:</b>	0.872	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5		Only Applicable to Shrub/Scrub and Vesta

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	7

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	FLAME ZONE	<b>Peak Elevation of Receiver(m):</b>	3.5
<b>Level of Construction:</b>	BAL FZ	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	45.18	<b>Flame Angle (degrees):</b>	57
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.456
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	7
<b>Transmissivity:</b>	0.888	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	8

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	3.72
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	39.13	<b>Flame Angle (degrees):</b>	60
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.397
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	8
<b>Transmissivity:</b>	0.884	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pods (upslope, ADJ FH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	5	<b>Overall Fuel Load(t/ha):</b>	15
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	16

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	5.09
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	12787
<b>Radiant Heat(kW/m2):</b>	18.34	<b>Flame Angle (degrees):</b>	71
<b>Flame Length(m):</b>	6	<b>Maximum View Factor:</b>	0.192
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	16
<b>Transmissivity:</b>	0.854	<b>Outer Protection Area(m):</b>	0

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<b>Run Description:</b> Guide pods (upslope, ADJ FH, FDI 120, 1200K)	
<b>Vegetation Information</b>	
<b>Vegetation Type:</b> Shrubland/Short Heath	<b>Vegetation Group:</b> Shrub & Heath
<b>Vegetation Slope:</b> 8 Degrees	<b>Vegetation Slope Type:</b> Upslope
<b>Surface Fuel Load(t/ha):</b> 5	<b>Overall Fuel Load(t/ha):</b> 15
<b>Vegetation Height(m):</b> 1.5	Only Applicable to Shrub/Scrub and Vesta
<b>Site Information</b>	
<b>Site Slope:</b> 8 Degrees	<b>Site Slope Type:</b> Upslope
<b>Elevation of Receiver(m):</b> Default	<b>APZ/Separation(m):</b> 23
<b>Fire Inputs</b>	
<b>Veg./Flame Width(m):</b> 100	<b>Flame Temp(K)</b> 1200
<b>Calculation Parameters</b>	
<b>Flame Emissivity:</b> 95	<b>Relative Humidity(%):</b> 25
<b>Heat of Combustion(kJ/kg)</b> 18600	<b>Ambient Temp(K):</b> 308
<b>Moisture Factor:</b> 5	<b>FDI:</b> 120
<b>Program Outputs</b>	
<b>Category of Attack:</b> LOW	<b>Peak Elevation of Receiver(m):</b> 6.12
<b>Level of Construction:</b> BAL 12.5	<b>Fire Intensity(kW/m):</b> 12787
<b>Radiant Heat(kW/m2):</b> 12.11	<b>Flame Angle (degrees):</b> 74
<b>Flame Length(m):</b> 6	<b>Maximum View Factor:</b> 0.13
<b>Rate Of Spread (km/h):</b> 1.65	<b>Inner Protection Area(m):</b> 23
<b>Transmissivity:</b> 0.833	<b>Outer Protection Area(m):</b> 0



# NBC Bushfire Attack Assessment Report V3.0

AS3959 (2009) Appendix B - Detailed Method 2

Print Date: 31/01/2019

Assessment Date: 25/01/2019

**Site Street Address:** KI AWC Sanderson Bay (Pig Face fuels), Sanderson Bay  
**Assessor:** Please Enter Your Name; Please Enter Your Company Name  
**Local Government Area:** SA **Alpine Area:** No

## Equations Used

Transmissivity: Fuss and Hammins, 2002  
Flame Length: RFS PBP, 2001/Vesta/Catchpole  
Rate of Fire Spread: Noble et al., 1980  
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005  
Peak Elevation of Receiver: Tan et al., 2005  
Peak Flame Angle: Tan et al., 2005

**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

## Vegetation Information

**Vegetation Type:** Shrubland/Short Heath **Vegetation Group:** Shrub & Heath  
**Vegetation Slope:** 8 Degrees **Vegetation Slope Type:** Upslope  
**Surface Fuel Load(t/ha):** 2 **Overall Fuel Load(t/ha):** 2  
**Vegetation Height(m):** 1.5 Only Applicable to Shrub/Scrub and Vesta

## Site Information

**Site Slope:** 8 Degrees **Site Slope Type:** Upslope  
**Elevation of Receiver(m):** Default **APZ/Separation(m):** 2

## Fire Inputs

**Veg./Flame Width(m):** 100 **Flame Temp(K)** 1090

## Calculation Parameters

**Flame Emissivity:** 95 **Relative Humidity(%):** 25  
**Heat of Combustion(kJ/kg)** 18600 **Ambient Temp(K):** 308  
**Moisture Factor:** 5 **FDI:** 120

## Program Outputs

**Category of Attack:** FLAME ZONE **Peak Elevation of Receiver(m):** 1.14  
**Level of Construction:** BAL FZ **Fire Intensity(kW/m):** 1705  
**Radiant Heat(kW/m2):** 43.57 **Flame Angle (degrees):** 46  
**Flame Length(m):** 2.38 **Maximum View Factor:** 0.637  
**Rate Of Spread (km/h):** 1.65 **Inner Protection Area(m):** 2  
**Transmissivity:** 0.9 **Outer Protection Area(m):** 0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	5

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	1.8
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	16.66	<b>Flame Angle (degrees):</b>	68
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.248
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	5
<b>Transmissivity:</b>	0.885	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	7

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	LOW	<b>Peak Elevation of Receiver(m):</b>	2.11
<b>Level of Construction:</b>	BAL 12.5	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	11.68	<b>Flame Angle (degrees):</b>	72
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.175
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	7
<b>Transmissivity:</b>	0.877	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5		Only Applicable to Shrub/Scrub and Vesta

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	3

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	FLAME ZONE	<b>Peak Elevation of Receiver(m):</b>	1.23
<b>Level of Construction:</b>	BAL FZ	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	41.98	<b>Flame Angle (degrees):</b>	57
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.616
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	3
<b>Transmissivity:</b>	0.896	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5		Only Applicable to Shrub/Scrub and Vesta

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	3

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	1.44
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	28.54	<b>Flame Angle (degrees):</b>	59
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.42
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	3
<b>Transmissivity:</b>	0.894	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	7

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	0.97
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	18.24	<b>Flame Angle (degrees):</b>	82
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.274
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	7
<b>Transmissivity:</b>	0.876	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	4

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	1.28
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	31.68	<b>Flame Angle (degrees):</b>	69
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.468
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	4
<b>Transmissivity:</b>	0.89	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	11

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	LOW	<b>Peak Elevation of Receiver(m):</b>	0.43
<b>Level of Construction:</b>	BAL 12.5	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	11.52	<b>Flame Angle (degrees):</b>	88
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.176
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	11
<b>Transmissivity:</b>	0.861	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1090K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	5

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1090
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	1.2
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	25.47	<b>Flame Angle (degrees):</b>	75
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.378
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	5
<b>Transmissivity:</b>	0.885	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	10

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	0.57
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	18.81	<b>Flame Angle (degrees):</b>	87
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.193
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	10
<b>Transmissivity:</b>	0.871	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	7

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	0.97
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	26.99	<b>Flame Angle (degrees):</b>	82
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.274
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	7
<b>Transmissivity:</b>	0.883	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Downslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

---

**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Downslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	5

---

**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	1.2
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	5143
<b>Radiant Heat(kW/m2):</b>	37.66	<b>Flame Angle (degrees):</b>	75
<b>Flame Length(m):</b>	3.95	<b>Maximum View Factor:</b>	0.378
<b>Rate Of Spread (km/h):</b>	4.98	<b>Inner Protection Area(m):</b>	5
<b>Transmissivity:</b>	0.891	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

---

**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	4

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	VERY HIGH	<b>Peak Elevation of Receiver(m):</b>	1.64
<b>Level of Construction:</b>	BAL 40	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	31.17	<b>Flame Angle (degrees):</b>	65
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.312
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	4
<b>Transmissivity:</b>	0.895	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	5

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	HIGH	<b>Peak Elevation of Receiver(m):</b>	1.8
<b>Level of Construction:</b>	BAL 29	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	24.64	<b>Flame Angle (degrees):</b>	68
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.248
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	5
<b>Transmissivity:</b>	0.891	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	7

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	MODERATE	<b>Peak Elevation of Receiver(m):</b>	2.11
<b>Level of Construction:</b>	BAL 19	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	17.28	<b>Flame Angle (degrees):</b>	72
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.175
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	7
<b>Transmissivity:</b>	0.883	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	10

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

---

**Program Outputs**

<b>Category of Attack:</b>	LOW	<b>Peak Elevation of Receiver(m):</b>	2.55
<b>Level of Construction:</b>	BAL 12.5	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	11.84	<b>Flame Angle (degrees):</b>	75
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.122
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	10
<b>Transmissivity:</b>	0.872	<b>Outer Protection Area(m):</b>	0

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**Run Description:** Guide pod (Adj OFH, FDI 120, 1200K)

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**Vegetation Information**

<b>Vegetation Type:</b>	Shrubland/Short Heath	<b>Vegetation Group:</b>	Shrub & Heath
<b>Vegetation Slope:</b>	8 Degrees	<b>Vegetation Slope Type:</b>	Upslope
<b>Surface Fuel Load(t/ha):</b>	2	<b>Overall Fuel Load(t/ha):</b>	2
<b>Vegetation Height(m):</b>	1.5	Only Applicable to Shrub/Scrub and Vesta	

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**Site Information**

<b>Site Slope:</b>	8 Degrees	<b>Site Slope Type:</b>	Upslope
<b>Elevation of Receiver(m):</b>	Default	<b>APZ/Separation(m):</b>	2

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**Fire Inputs**

<b>Veg./Flame Width(m):</b>	100	<b>Flame Temp(K)</b>	1200
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**Calculation Parameters**

<b>Flame Emissivity:</b>	95	<b>Relative Humidity(%):</b>	25
<b>Heat of Combustion(kJ/kg)</b>	18600	<b>Ambient Temp(K):</b>	308
<b>Moisture Factor:</b>	5	<b>FDI:</b>	120

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**Program Outputs**

<b>Category of Attack:</b>	FLAME ZONE	<b>Peak Elevation of Receiver(m):</b>	1.14
<b>Level of Construction:</b>	BAL FZ	<b>Fire Intensity(kW/m):</b>	1705
<b>Radiant Heat(kW/m2):</b>	64.39	<b>Flame Angle (degrees):</b>	46
<b>Flame Length(m):</b>	2.38	<b>Maximum View Factor:</b>	0.637
<b>Rate Of Spread (km/h):</b>	1.65	<b>Inner Protection Area(m):</b>	2
<b>Transmissivity:</b>	0.905	<b>Outer Protection Area(m):</b>	0

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## Sanderson Bay Fuel Hazard Assessments

**Fuel Hazard Assessment Data Sheet**

Site No. 1: *Pig Face* Reserve Name: *Australia*

Site No. 2: \_\_\_\_\_ Site No. 3: \_\_\_\_\_

**Surface Fuel Types (Classified Level 6 - 10m radius)**

Surface Fuel Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

**Near-surface Fuel Types (Classified Level 6 - 10m radius)**

Near-surface Fuel Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

**Bank Fuel Types (Classified Level 6 - 10m radius)**

Bank Fuel Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

**Ground Fuel Types (Classified Level 6 - 10m radius)**

Ground Fuel Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

**Comments:** Add any extra observations of the assessed area across the assessment timeline.

Overall Fuel Hazard record sheet



Sampling Surface Fuels (Pig Face)



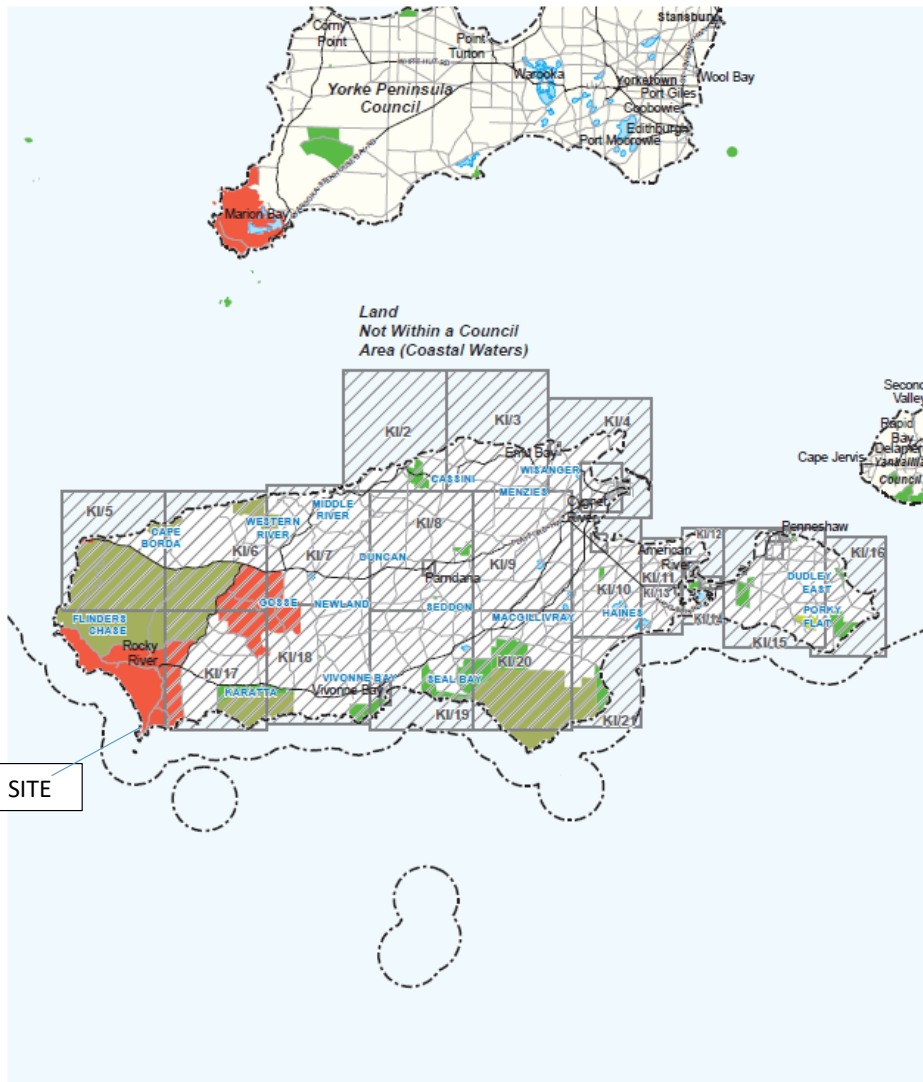
Sampling Surface Fuels (Melaleuca)



Representative Surface and Elevated Fuel Structure



Representative Elevated Fuel Hazard Structure (Melaleuca)

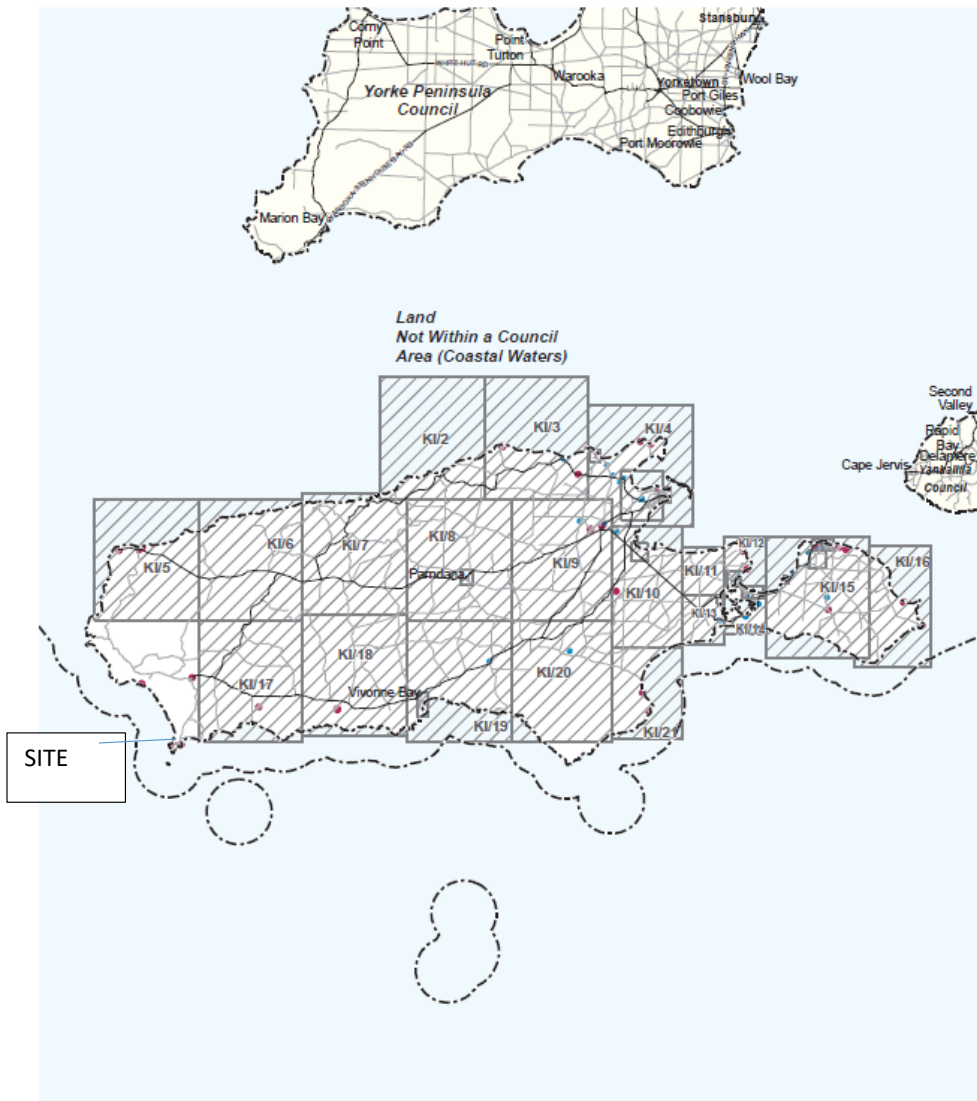


# Location Map KI/1

KANGAROO ISLAND COUNCIL  
Consolidated - 17 September 2015

Kangaroo Island Council  
Table Section  
Table KI/5 - State Heritage Places

Property Address	Description and/or Extent of Listed Place	Lot No. or Part Sec	Plan No.	Certificate of Title	Section 16 Criteria	SA Heritage Register ID
near EMU BAY VIA KINGSCOTE	Cape d'Estaing to Emu Bay (west) and Emu Bay (east) to Boxing Bay Coastline (designated place of palaeontological significance)	S415	H110800	CR 5765/375	b c d	14548
		S416	H110800	CR 5765/376		
		S423	H110800	CR 5765/377		
		S500	H110800	CR 5765/394		
		S429	H110800	CR 5744/569		
		S431	H110800	CR 5744/570		
		A98 A1000	T110802 D70632	CR 5862/290 CR 5967/728		
Maupertuis Bay FLINDERS CHASE VIA KINGSCOTE	David Kilpatrick's Grave, Flinders Chase National Park	A51	D38340	CR 5778/21	a	14746
FLINDERS CHASE VIA KINGSCOTE	Cape du Couedic Lighthouse, Flinders Chase National Park	A1	F31869	CR 5778/21		10398
FLINDERS CHASE VIA KINGSCOTE	Weirs Cove Jetty, Funnelway & Store Ruin, Flinders Chase National Park	Q55	D38340	CR 5778/21		10402
FLINDERS CHASE VIA KINGSCOTE	Cape du Couedic Lighthouse Keepers' Cottages, Stable & Store, Flinders Chase National Park	Q55	D38340	CR 5778/21		12351
FLINDERS CHASE VIA KINGSCOTE	Rocky River Homestead, Flinders Chase National Park	Q55	D38340	CR 5778/21		12588
Off South West River Road KARATTA VIA KINGSCOTE	Grassdale Homestead (also known as Edwards' Cottage) and Sealers' Sites, Kelly Hill Conservation Park	A152	D38341	CR 5685/175	c	14645
Cassini Road, near KINGSCOTE	Cassini Station Complex and Mulberry Tree	A2	F8523	CT 5495/488	a b c	14750
		A1	F8523	CT 5825/100		
Lot 140 Centenary Avenue KINGSCOTE	Dwelling ('Hope Cottage')	A140	D1691	CT 5498/954		10401
Off Cordes Road KINGSCOTE	'The Bluff' Cottage (Formerly 'Reeves' Cottage, 'Seaview Farm')	Q23	D75867	CT 6021/719		14406
6 Dauncey Street KINGSCOTE	Combined Shop/Dwelling (originally Barrett's Store)	A755	F180787	CT 5860/786		12374



Heritage points are Indicative only.  
 For further information on State and Local Heritage Places and Contributory  
 Items please refer to the relevant tables within this document.

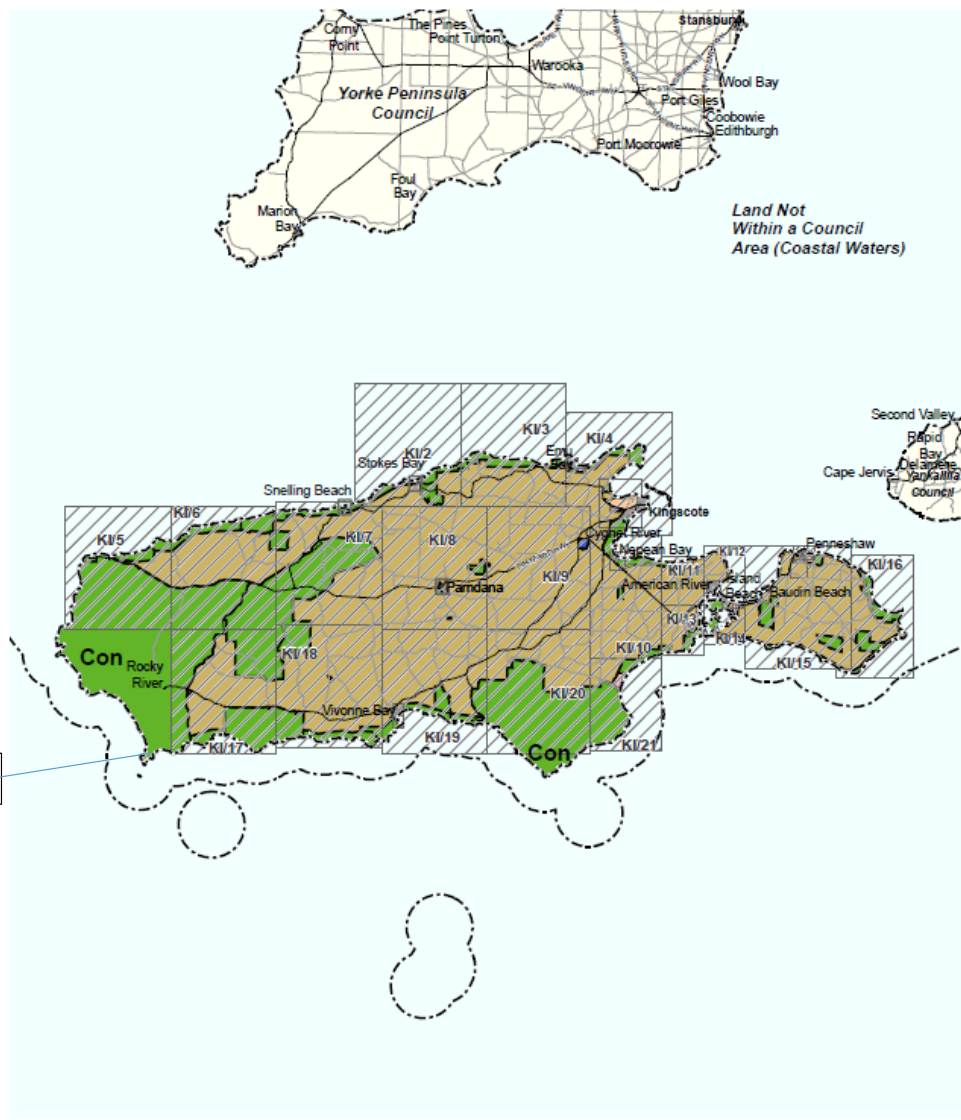


- State heritage place
- Local heritage place
- Historic Conservation Area
- Development Plan Boundary

# Overlay Map KI/1 HERITAGE

KANGAROO ISLAND COUNCIL  
 Consolidated - 17 September 2015





See enlargement map for accurate representation.



- Zones**
- Conservation
  - Zone Boundary
  - Development Plan Boundary

## Zone Map KI/1

KANGAROO ISLAND COUNCIL  
Consolidated - 17 September 2015

## **CONSERVATION ZONE**

### **OBJECTIVES**

- 1 The conservation and enhancement of the natural environment and natural ecological processes for their historic, scientific, landscape, faunal habitat, biodiversity and cultural values.
- 2 Provision of opportunities for the public to experience and appreciate the significance of the native vegetation and original remnant natural habitat of the area through low-impact recreational activities and interpretive facilities.
- 3 Development that contributes to the desired character of the zone.

### **DESIRED CHARACTER**

Conservation areas, including National, Conservation and Marine Parks and Wilderness Protection Areas, will continue to provide representative samples of the countryside and shoreline.

Facilities for the use of visitors including picnic areas, shelters, huts / bothies, camp sites, toilets, and similar public amenities as well as various forms of low-key, short stay tourist accommodation such as semi-permanent tents and lodges are anticipated provided they are appropriately sited and designed in a manner that is subservient to the natural and coastal environment and adverse impact on natural features, landscapes, habitats and cultural assets is minimised.

The siting of tourism development, including any associated access driveways and ancillary structures, on cleared or degraded areas is preferred. Development should be located away from fragile coastal environments and significant habitat or breeding grounds.

There is some land on Kangaroo Island where the flora and fauna have developed naturally and are still not noticeably affected by human intervention. These areas will be kept free of artificial improvements so that visitors may experience a completely natural environment. Such areas will remain as wilderness areas in order to preserve their special character.

There is a need to preserve the natural character of land bordering rivers and at river mouths.

Land division will not occur except to accommodate an existing, lawfully erected dwelling, or to realign boundaries and will be required to meet various criteria, including in relation to approved waste control systems and effluent disposal, direct access to a public road, land division requirements, public access to the waterfront, the creation of waterfront reserves for conservation purposes, and other environmental considerations.

Dwelling additions or replacement dwellings will be supported where they meet various criteria in order to assist environmental improvements, including the provision of approved waste control systems and effluent disposal, building set-backs and site coverage requirements, the raising of living areas above the level of hazard risk due to flooding or inundation or to reduce the level of hazard risk, and other environmental considerations.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **Land Use**

- 1 The following forms of development are envisaged in the zone:
  - directional, identification and/or interpretative advertisements and/or advertising hoardings for conservation management and tourist information purposes
  - facilities associated with the interpretation and appreciation of natural and cultural heritage such as public amenities, camping grounds, remote shelters, huts / bothies
  - scientific monitoring structures or facilities
  - structures for conservation management purposes
  - tourist accommodation.
- 2 Development listed as non-complying is generally inappropriate and not acceptable unless it can be demonstrated that it does not undermine the objectives and principles of the Development Plan.

### **Form and Character**

- 3 Development should not be undertaken unless it is consistent with the desired character for the zone.
- 4 Development should be undertaken in a manner which minimises the effect on natural landscape features, flora and fauna and their habitat corridors, land adjoining water, scenic routes or scenically attractive areas.
- 5 Development should use the following measures to avoid impacting detrimentally on the natural environment, processes and/or conservation qualities of land in the zone:
  - (a) minimising the extent of earthworks
  - (b) minimising the extent of vehicle access servicing that development
  - (c) minimising the extent of local indigenous vegetation removal
  - (d) being sited in an unobtrusive manner preferably below hilltops or prominent ridgelines
  - (e) screening the visual impact by planting locally indigenous species having due regard to bushfire risk
  - (f) utilising external low reflective materials and finishes that will minimise glare and blend in with the features of the landscape.
- 6 Where public access is necessary in the zone, the construction of recreational trails and appropriate fencing such as post and wire should be provided to control the movement of the public whilst minimising the impact on biodiversity.

### **Public Notification**

Categories of public notification are prescribed in Schedule 9 of the *Development Regulations 2008*.

Further, the following forms of development (except where the development is non-complying) are designated:

Category 1	Category 2
<p>Directional, identification and/or interpretative advertisements and/or advertising hoardings for conservation management and tourist information purposes.</p> <p>Facilities associated with the interpretation and appreciation of natural and cultural heritage and public amenities.</p> <p>Scientific monitoring structures or facilities.</p> <p>Shop</p> <p>Structures for conservation management purposes.</p> <p>Tourist accommodation setback a minimum of 100 metres from land within an adjoining allotment used for farming or horticulture.</p>	

## **GENERAL SECTION**

### **Coastal Areas**

#### **OBJECTIVES**

- 1 The protection and enhancement of the natural coastal environment, including environmentally important features of coastal areas such as mangroves, wetlands, sand dunes, cliff-tops, native vegetation, wildlife habitat, shore and estuarine areas.
- 2 Protection of the physical and economic resources of the coast from inappropriate development.
- 3 Preservation of areas of high landscape and amenity value including stands of vegetation, shores, exposed cliffs, headlands, islands and hill tops, and areas which form an attractive background to urban and tourist areas.
- 4 Development that maintains and/or enhances public access to coastal areas with minimal impact on the environment and amenity.
- 5 Development only undertaken on land which is not subject to or that can be protected from coastal hazards including inundation by storm tides or combined storm tides and stormwater, coastal erosion or sand drift, and probable sea level rise.
- 6 Development that can accommodate anticipated changes in sea level due to natural subsidence and probable climate change during the first 100 years of the development.
- 7 Development which will not require, now or in the future, public expenditure on protection of the development or the environment.

#### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should be compatible with the coastal environment in terms of built-form, appearance and landscaping including the use of walls and low pitched roofs of non-reflective texture and natural earth colours.

##### **Environmental Protection**

- 2 The coast should be protected from development that would adversely affect the marine and onshore coastal environment, whether by pollution, erosion, damage or depletion of physical or biological resources, interference with natural coastal processes or any other means.
- 3 Development should not be located in delicate or environmentally-sensitive coastal features such as sand dunes, cliff-tops, wetlands or substantially intact strata of native vegetation.
- 4 Development should not be undertaken where it will create or aggravate coastal erosion, or where it will require coast protection works which cause or aggravate coastal erosion.
- 5 Development should be designed so that solid/fluid wastes and stormwater runoff is disposed of in a manner that will not cause pollution or other detrimental impacts on the marine and on-shore environment of coastal areas.
- 6 Effluent disposal systems incorporating soakage trenches or similar should prevent effluent migration onto the inter-tidal zone and be sited at least 100 metres from whichever of the following requires the greater distance:

- (a) the mean high-water mark at spring tide, adjusted for any subsidence for the first 50 years of development plus a sea level rise to reflect probable climate change during the first 100 years of the development
  - (b) the mean high-water mark at spring tide, adjusted for any subsidence for the first 50 years of development plus a sea level rise of 1 metre
  - (c) the nearest boundary of any erosion buffer determined in accordance with the relevant provisions in this Development Plan.
- 7 Development should be designed and sited so that it does not prevent natural landform and ecological adjustment to changing climatic conditions and sea levels and should allow for the following:
- (a) the unrestricted landward migration of coastal wetlands
  - (b) new areas to be colonised by mangroves, samphire and wetland species
  - (c) sand dune drift
  - (d) where appropriate, the removal of embankments that interfere with the abovementioned processes.

## **Design and Appearance**

### **OBJECTIVES**

- 1 Development of a high architectural standard that responds to and reinforces positive aspects of the local environment and built form.
- 2 Roads, open spaces, buildings and land uses laid out and linked so that they are easy to understand and navigate.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 The design of a building may be of a contemporary nature and exhibit an innovative style provided the overall form is sympathetic to the scale of development in the locality and with the context of its setting with regard to shape, size, materials and colour.
- 2 Buildings should be designed and sited to avoid creating extensive areas of uninterrupted walling facing areas exposed to public view.
- 3 Buildings should be designed to reduce their visual bulk and provide visual interest through design elements such as:
  - (a) articulation
  - (b) colour and detailing
  - (c) small vertical and horizontal components
  - (d) design and placing of windows
  - (e) variations to facades.
- 4 Building form should not unreasonably restrict existing views available from neighbouring properties and public spaces.
- 5 Transportable buildings and buildings which are elevated on stumps, posts, piers, columns or the like, should have their suspended footings enclosed around the perimeter of the building with brickwork or timber, and the use of verandas, pergolas and other suitable architectural detailing to give the appearance of a permanent structure.
- 6 The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare.
- 7 The external materials and colours of a building should not result in a detrimental impact upon the existing character of the locality.

## **Energy Efficiency**

### **OBJECTIVES**

- 1 Development designed and sited to conserve energy and minimise waste.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should provide for efficient solar access to buildings and open space all year around.
- 2 Buildings should be sited and designed so that the open spaces associated with the main activity areas face north for exposure to winter sun.
- 3 Buildings should be sited and designed to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings.
- 4 Roof pitches should facilitate the efficient use of solar hot water services and photovoltaic cells.
- 5 Development should be designed to minimise consumption of non-renewable energy through designing the roof of buildings with a north facing slope to accommodate solar collectors.



## Hazards

### OBJECTIVES

- 1 Maintenance of the natural environment and systems by limiting development in areas susceptible to natural hazard risk.
- 2 Development located away from areas that are vulnerable to, and cannot be adequately and effectively protected from the risk of natural hazards.
- 3 Development located to minimise the threat and impact of bushfires on life and property.
- 4 Expansion of existing non-rural uses directed away from areas of high bushfire risk.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should:
  - (a) be excluded from areas that are vulnerable to, and cannot be adequately and effectively protected from, the risk of natural hazards
  - (b) be sited, designed and undertaken with appropriate precautions being taken against fire, flood, coastal flooding, storm surge, landslip, earthquake, toxic emissions or other hazards such as vermin
  - (c) not occur on land where the risk of flooding is likely to be harmful to safety or damage property.
- 2 There should not be any significant interference with natural processes in order to reduce the exposure of development to the risk of natural hazards.
- 3 The location of critical community facilities or key infrastructure in areas of high natural hazard risk should be avoided.

### Flooding

- 4 Development should not be undertaken in areas liable to inundation by tidal, drainage or flood waters unless the development can achieve all of the following:
  - (a) it is developed with a public stormwater system capable of catering for a 1 in 100 year average return interval flood event
  - (b) buildings are designed and constructed to prevent the entry of floodwaters in a 1 in 100 year average return interval flood event.

### Bushfire

- 5 The following bushfire protection principles of development control apply to development of land identified as General, Medium and High bushfire risk areas as shown on the *Bushfire Protection Area BPA Maps - Bushfire Risk*.
- 6 Development in a Bushfire Protection Area should be in accordance with those provisions of the *Minister's Code: Undertaking development in Bushfire Protection Areas* that are designated as mandatory for Development Plan Consent purposes.

- 7 Buildings and structures should be located away from areas that pose an unacceptable bushfire risk as a result of one or more of the following:
  - (a) vegetation cover comprising trees and/or shrubs
  - (b) poor access
  - (c) rugged terrain
  - (d) inability to provide an adequate building protection zone
  - (e) inability to provide an adequate supply of water for fire-fighting purposes.
- 8 Residential, tourist accommodation and other habitable buildings should:
  - (a) be sited on the flatter portion of allotments and avoid steep slopes, especially upper slopes, narrow ridge crests and the tops of narrow gullies, and slopes with a northerly or westerly aspect
  - (b) be sited in areas with low bushfire hazard vegetation and set back at least 20 metres from existing hazardous vegetation
  - (c) have a dedicated and accessible water supply available at all times for fire fighting.
- 9 Buildings and structures should be designed and configured to reduce the impact of bushfire through using simple designs that reduce the potential for trapping burning debris against the building or structure, or between the ground and building floor level in the case of transportable buildings.

## Natural Resources

### OBJECTIVES

- 1 Retention, protection and restoration of the natural resources and environment.
- 2 Protection of the quality and quantity of South Australia's surface waters, including inland, *marine and estuarine* and underground waters.
- 3 The ecologically sustainable use of natural resources including water resources, including *marine waters*, ground water, surface water and watercourses.
- 4 Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.
- 5 Development consistent with the principles of water sensitive design.
- 6 Development sited and designed to:
  - (a) protect natural ecological systems
  - (b) achieve the sustainable use of water
  - (c) protect water quality, including receiving waters
  - (d) reduce runoff and peak flows and prevent the risk of downstream flooding
  - (e) minimise demand on reticulated water supplies
  - (f) maximise the harvest and use of stormwater
  - (g) protect stormwater from pollution sources.
- 7 Storage and use of stormwater which avoids adverse impact on public health and safety.
- 8 Native flora, fauna and ecosystems protected, retained, conserved and restored.
- 9 Restoration, expansion and linking of existing native vegetation to facilitate habitat corridors for ease of movement of fauna.
- 10 Minimal disturbance and modification of the natural landform.
- 11 Protection of the scenic qualities of natural and rural landscapes.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.
- 2 Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.
- 3 Development should not significantly obstruct or adversely affect sensitive ecological areas such as creeks, wetlands, estuaries and significant seagrass and mangrove communities.
- 4 Development should be appropriate to land capability and the protection and conservation of water resources and biodiversity.

### **Water Sensitive Design**

- 5 Development should be designed to maximise conservation, minimise consumption and encourage re-use of water resources.
- 6 Development should not take place if it results in unsustainable use of surface or underground water resources.
- 7 Development should be sited and designed to:
  - (a) capture and re-use stormwater, where practical
  - (b) minimise surface water runoff
  - (c) prevent soil erosion and water pollution
  - (d) protect and enhance natural water flows
  - (e) protect water quality by providing adequate separation distances from watercourses and other water bodies
  - (f) not contribute to an increase in salinity levels
  - (g) avoid the water logging of soil or the release of toxic elements
  - (h) maintain natural hydrological systems and not adversely affect:
    - (i) the quantity and quality of groundwater
    - (ii) the depth and directional flow of groundwater
    - (iii) the quality and function of natural springs.
- 8 Water discharged from a development site should:
  - (a) be of a physical, chemical and biological condition equivalent to or better than its pre-developed state
  - (b) not exceed the rate of discharge from the site as it existed in pre-development conditions.
- 9 Development should include stormwater management systems to protect it from damage during a minimum of a 1-in-100 year average return interval flood.
- 10 Development should have adequate provision to control any stormwater over-flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.
- 11 Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.
- 12 Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.
- 13 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.

- 14 Stormwater management systems should:
- (a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source
  - (b) utilise, but not be limited to, one or more of the following harvesting methods:
    - (i) the collection of roof water in tanks
    - (ii) the discharge to open space, landscaping or garden areas, including strips adjacent to car parks
    - (iii) the incorporation of detention and retention facilities
    - (iv) aquifer recharge.
- 15 Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.

### **Water Catchment Areas**

- 16 Development should ensure watercourses and their beds, banks, wetlands and floodplains are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.
- 17 Development such as cropping, intensive animal keeping, residential, tourism, industry and horticulture, that increases the amount of surface run-off should include a strip of land at least 20 metres wide measured from the top of existing banks on each side of a watercourse that is:
- (a) fenced to exclude livestock
  - (b) kept free of development, including structures, formal roadways or access ways for machinery or any other activity causing soil compaction or significant modification of the natural surface of the land, **unless no other access is available**
  - (c) revegetated with locally indigenous vegetation comprising trees, shrubs and other groundcover plants to filter run-off so as to reduce the impacts on native aquatic ecosystems and to minimise soil loss eroding into the watercourse.
- 18 **Outside of zones provided for urban purposes, unsewered development with:**
- (a) **low pollution potential, such as dwellings, should be located at least 50 metres from any watercourse**
  - (b) **high pollution potential, including industry and intensive animal keeping, should be located at least:**
    - (i) **200 metres from a major watercourse (third order or higher stream)**
    - (ii) **100 metres from any other watercourse.**
- 19 Development should comply with the current *Environment Protection (Water Quality) Policy*.

**Biodiversity and Native Vegetation**

- 20 Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.
- 21 Development should be designed and sited to minimise the loss and disturbance of native flora and fauna, including marine animals and plants, and their breeding grounds and habitats.
- 22 Native vegetation should be conserved and its conservation value and function not compromised by development if the native vegetation does any of the following:
  - (a) provides an important habitat for wildlife or shade and shelter for livestock
  - (b) has a high plant species diversity or includes rare, vulnerable or endangered plant species or plant associations and communities
  - (c) provides an important seed bank for locally indigenous vegetation
  - (d) has high amenity value and/or significantly contributes to the landscape quality of an area, including the screening of buildings and unsightly views
  - (e) has high value as a remnant of vegetation associations characteristic of a district or region prior to extensive clearance for agriculture.
  - (f) is growing in, or is characteristically associated with a wetland environment.
- 23 Native vegetation should not be cleared if such clearing is likely to lead to, cause or exacerbate any of the following:
  - (a) erosion or sediment within water catchments
  - (b) decreased soil stability
  - (c) soil or land slip
  - (d) deterioration in the quality of water in a watercourse or surface water runoff
  - (e) a local or regional salinity problem
  - (f) the occurrence or intensity of local or regional flooding.
- 24 Development that proposes the clearance of native vegetation should address or consider the implications that removing the native vegetation will have on the following:
  - (a) provision for linkages and wildlife corridors between significant areas of native vegetation
  - (b) erosion along watercourses and the filtering of suspended solids and nutrients from run-off
  - (c) the amenity of the locality
  - (d) bushfire safety
  - (e) the net loss of native vegetation and other biodiversity.
- 25 Where native vegetation is to be removed, it should be replaced in a suitable location on the site with locally indigenous vegetation to ensure that there is not a net loss of native vegetation and biodiversity.

- 26 Development should be located and occur in a manner which:
- (a) does not increase the potential for, or result in, the spread of pest plants, or the spread of any non-indigenous plants into areas of native vegetation or a conservation zone
  - (b) avoids the degradation of remnant native vegetation by any other means including as a result of spray drift, compaction of soil, modification of surface water flows, pollution to groundwater or surface water or change to groundwater levels
  - (c) incorporates a separation distance and/or buffer area to protect wildlife habitats and other features of nature conservation significance.
- 27 Development should promote the long-term conservation of vegetation by:
- (a) avoiding substantial structures, excavations, and filling of land in close proximity to the trunk of trees and beneath their canopies
  - (b) minimising impervious surfaces beneath the canopies of trees
  - (c) taking other effective and reasonable precautions to protect both vegetation and the integrity of structures and essential services.

## **Open Space and Recreation**

### **OBJECTIVES**

28 A wide range of settings for active and passive recreational opportunities.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

29 Public open space and recreation areas should be of a size, dimension and location that:

- (a) facilitate a range of formal and informal recreation activities to meet the needs of the community
- (b) provide for the movement of pedestrians and cyclists
- (c) incorporate existing vegetation and natural features, watercourses, wildlife habitat and other sites of natural or cultural value
- (d) link habitats, wildlife corridors, public open spaces and existing recreation facilities
- (e) enable effective stormwater management
- (f) provides for the planting and retention of large trees and vegetation.

30 Recreation facilities development should be sited and designed to minimise negative impacts on the amenity of the locality.



## **Siting and Visibility**

### **OBJECTIVES**

- 1 Protection of scenically attractive areas, particularly natural, rural and coastal landscapes.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should be sited and designed to minimise its visual impact on:
  - (a) the natural, rural or heritage character of the area
  - (b) areas of high visual or scenic value, particularly rural and coastal areas
  - (c) views from the coast, near-shore waters, public reserves, tourist routes and walking trails
  - (d) the amenity of public beaches.
- 2 Buildings should be sited in unobtrusive locations and, in particular, should:
  - (a) be grouped together
  - (b) where possible be located in such a way as to be screened by existing vegetation when viewed from public roads.
- 3 Buildings outside of urban areas and in undulating landscapes should be sited in unobtrusive locations and in particular should be:
  - (a) sited below the ridgeline
  - (b) sited within valleys or behind spurs
  - (c) sited in such a way as to not be visible against the skyline when viewed from public roads
  - (d) set well back from public roads, particularly when the allotment is on the high side of the road.
- 4 Buildings and structures should be designed to minimise their visual impact in the landscape, in particular:
  - (a) the profile of buildings should be low and the rooflines should complement the natural form of the land
  - (b) the mass of buildings should be minimised by variations in wall and roof lines and by floor plans which complement the contours of the land
  - (c) large eaves, verandas and pergolas should be incorporated into designs so as to create shadowed areas that reduce the bulky appearance of buildings.
- 5 The nature of external surface materials of buildings should not detract from the visual character and amenity of the landscape.
- 6 The number of buildings and structures on land outside of urban areas should be limited to that necessary for the efficient management of the land.

## **Sloping Land**

### **OBJECTIVES**

- 1 Development on sloping land designed to minimise environmental and visual impacts and protect soil stability and water quality.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development and associated driveways and access tracks should be sited and designed to integrate with the natural topography of the land and minimise the need for earthworks.
- 2 Development and associated driveways and access tracks, including related earthworks, should be sited, designed and undertaken in a manner that:
  - (a) minimises their visual impact
  - (b) reduces the bulk of the buildings and structures
  - (c) minimises the extent of excavation and fill
  - (d) minimises the need for, and the height of, retaining walls
  - (e) does not cause or contribute to instability of any embankment or cutting
  - (f) avoids the silting of watercourses
  - (g) protects development and its surrounds from erosion caused by water run-off.
- 3 Driveways and access tracks across sloping land should be accessible and have a safe, all-weather trafficable surface.
- 4 Development sites should not be at risk of landslip.
- 5 Development on steep land should include site drainage systems to minimise erosion and avoid adverse impacts on slope stability.
- 6 Steep sloping sites in unsewered areas should not be developed unless the physical characteristics of the allotments enable the proper siting and operation of an effluent drainage field suitable for the development intended.
- 7 The excavation and/or filling of land outside townships and urban areas should:
  - (a) be kept to a minimum and be limited to a maximum depth or height no greater than 1.5 metres so as to preserve the natural form of the land and the native vegetation
  - (b) only be undertaken in order to reduce the visual impact of buildings, including structures, or in order to construct water storage facilities for use on the allotment
  - (c) only be undertaken if the resultant slope can be stabilised to prevent erosion
  - (d) result in stable scree slopes which are covered with top soil and landscaped so as to preserve and enhance the natural character or assist in the re-establishment of the natural character of the area.

## **Tourism Development**

### **OBJECTIVES**

- 1 Environmentally sustainable and innovative tourism development.
- 2 Tourism development that assists in the conservation, interpretation and public appreciation of significant natural and cultural features including State or local heritage places.
- 3 Tourism development that sustains or enhances the local character, visual amenity and appeal of the area.
- 4 Tourism development that protects areas of exceptional natural value, allows for appropriate levels of visitation, and demonstrates a high quality environmental analysis and design response which enhances environmental values.
- 5 Tourism development in rural areas that does not adversely affect the use of agricultural land for primary production.
- 6 Tourism development that contributes to local communities by adding vitality to neighbouring townships, regions and settlements.
- 7 Increased opportunities for visitors to stay overnight.
- 8 Ensure new development, together with associated bushfire management minimise the threat and impact of bushfires on life and property while protecting the environment.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Tourism development should have a functional or locational link with its natural, cultural or historical setting.
- 2 Tourism development and any associated activities should not damage or degrade any significant natural and cultural features.
- 3 Tourism development should ensure that its scale, form and location will not overwhelm, over commercialise or detract from the intrinsic natural values of the land on which it is sited or the character of its locality.
- 4 Tourism development should, where appropriate, add to the range of services and accommodation types available in an area.
- 5 Any upgrading of infrastructure to serve tourism development should be consistent with the landscape and the intrinsic natural values of the land and the basis of its appeal.

### **Tourism Development Outside Townships and Settlements**

- 6 Tourist developments located within areas of high conservation value, high indigenous cultural value, high landscape quality or significant scenic beauty should demonstrate excellence in design to minimise potential impacts or intrusion.

- 7 Buildings and structures to accommodate tourists and associated activities should:
- (a) not exceed a building height of 6.5 metres (from natural ground level)
  - (b) have a minimum setback of 100 metres from any of the following:
    - (i) public roads or be no closer to a public road than existing buildings on the subject land, whichever is the lesser
    - (ii) adjoining allotment boundaries
    - (iii) the high water mark
    - (iv) cliff facesunless it can be demonstrated that a lesser setback would achieve one or more of the following:
    - (v) will achieve a superior outcome in respect to the requirements of the relevant zone, policy area or precinct than if the minimum setback was applied
    - (vi) would assist in avoiding areas of high value remnant native vegetation
    - (vii) would provide a comparatively safer location in respect to exposure to bushfire hazard, including along access roadways
    - (viii) would not result in unacceptable exposure to coastal flood and erosion process or stormwater inundation.
- 8 Development providing accommodation for tourists should be designed to minimise the potential for buildings to be converted into or used as a dwelling(s) where:
- (a) if the development comprises multiple tourist accommodation units – by ensuring that facilities, access driveways, parking areas, amenities and the like are shared
  - (b) if the development involves a single accommodation unit on a site or allotment in the **Coastal Conservation Zone, Conservation Zone or Water Protection Zone**, one or more of the following characteristics is evident:
    - (i) the structure provides basic shelter and limited internal space (eg cabin, hikers-hut)
    - (ii) one or more of the functional areas typically found in a dwelling (eg, laundry, kitchen) is absent
    - (iii) the structure is of a temporary or semi-permanent nature.
- 9 Development comprising multiple tourist accommodation units (including any facilities and activities for use by guests and visitors, including conference facilities ) should:
- (a) ensure buildings and structures are clustered on the same allotment
  - (b) for larger scale developments (ie those proposing or resulting in more than 25 accommodation units), have direct or convenient access to a sealed public road.
- 10 Where appropriate, tourism developments in areas outside townships and settlements should:
- (a) adapt and upgrade existing buildings of heritage value
  - (b) seek to improve conditions in disturbed or degraded areas on the site.

- 11 Tourism development, particularly in remote areas should be designed to minimise energy and water demands and incorporate alternative, sustainable technologies that use renewable energy sources and/or treat and reuse stormwater and wastewater to minimise reliance on mains services.
- 12 Natural features, signs and walkways should be used to manage and minimise potential risks of visitors damaging areas of cultural or natural significance, fragile areas, and areas of highest environmental value.
- 13 The visual and ambient impact of vehicles should be minimised by placing roadways and parking areas in unobtrusive locations.

## Transportation and Access

### OBJECTIVES

- 14 Development that:
- (a) provides safe and efficient movement for all motorised and non-motorised transport modes
  - (b) ensures access for vehicles including emergency services, public infrastructure maintenance and commercial vehicles
  - (c) provides off street parking
  - (d) is appropriately located so that it supports and makes best use of existing transport facilities and networks.

### PRINCIPLES OF DEVELOPMENT CONTROL

#### Access

- 15 Development should have direct access from an all weather public road.
- 16 Development should be provided with safe and convenient access which:
- (a) avoids unreasonable interference with the flow of traffic on adjoining roads
  - (b) accommodates the type and volume of traffic likely to be generated by the development or land use
  - (c) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.
- 17 Development should not restrict access to publicly owned land.
- 18 Driveways, access tracks and parking areas should be designed and constructed to:
- (a) follow the natural contours of the land
  - (b) minimise excavation and/or fill
  - (c) minimise the potential for erosion from run-off
  - (d) avoid the removal of existing vegetation
  - (e) be consistent with *Australian Standard AS 2890 Parking facilities*.

#### Access for People with Disabilities

- 19 Development should be sited and designed to provide convenient access for people with a disability.
- 20 Where appropriate and practical, development should provide for safe and convenient access to the coast and beaches for disabled persons.

## **Waste**

### **OBJECTIVES**

- 1 Development that, in order of priority, avoids the production of waste, minimises the production of waste, reuses waste, recycles waste for reuse, treats waste and disposes of waste in an environmentally sound manner.
- 2 Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should be sited and designed to prevent or minimise the generation of waste (including wastewater) by applying the following waste management hierarchy in the order of priority as shown below:
  - (a) avoiding the production of waste
  - (b) minimising waste production
  - (c) reusing waste
  - (d) recycling waste
  - (e) recovering part of the waste for re-use
  - (f) treating waste to reduce the potentially degrading impacts
  - (g) disposing of waste in an environmentally sound manner.
- 2 The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.
- 3 Development should avoid or minimise as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).
- 4 Untreated waste should not be discharged to the environment, and in particular to any water body.
- 5 Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.

### **Waste Treatment Systems**

- 6 Development that produces any effluent should be connected to an approved waste treatment system which may include sewage, community wastewater management systems, or on-site wastewater treatment and disposal methods.

- 7 The methods for, and siting of, effluent and waste storage, treatment and disposal systems should minimise the potential for environmental harm and adverse impacts on:
  - (a) the quality of surface and groundwater resources
  - (b) public health
  - (c) the amenity of a locality
  - (d) sensitive land uses.
- 8 Waste treatment should only occur where the capacity of the treatment facility is sufficient to accommodate likely maximum daily demands including a contingency for unexpected high flows and breakdowns.
- 9 Any domestic waste treatment system or effluent drainage field should be located within the allotment of the development that it will service.
- 10 A dedicated on-site effluent disposal area should not include any areas to be used for, or could be reasonably foreseen to be used for, private outdoor open space, driveways, car parking or outbuildings.



## **DEVELOPMENT PLAN PROVISIONS**