



*Swan and Canning Rivers Management Act 2006*

**PART 5**

**DETERMINATION OF DEVELOPMENT APPLICATION**

FILE NUMBER	:	2020/2067
APPLICANT	:	Town of Bassendean
LANDOWNER	:	Town of Bassendean (Lot 51 and Lot 52) and Vested to Town of Bassendean (Lot 15525)
LAND DESCRIPTION	:	Sandy Beach Reserve – Lot 51 on Diagram 10690 (201), Lot 52 on Diagram 10690 (203) and Lot 15525 on Plan 40483 (Crown Reserve 18092), Bassendean
DEVELOPMENT	:	Construction of a nature-based playground and replacement of an existing ablution facility
VALID FORM 1 RECEIVED	:	2 September 2020
DETERMINATION	:	<b>APPROVAL WITH CONDITIONS</b>

The application to commence development in accordance with the information received on 2 September 2020 is APPROVED subject to the following conditions:

1. Approval to implement this decision is valid for two (2) years from the date of the approval. If substantial on-site works have not commenced within this period, a new approval will be required before commencing or completing the development.

**Prior to the commencement of works**

2. The applicant shall notify the Department of Biodiversity, Conservation and Attractions in writing not less than seven (7) days prior to the commencement of works (**Advice Note 1**).
3. Prior to the commencement of works, a Construction Environmental Management Plan shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Note 3**).
4. Prior to the commencement of works, final design plans/drawings, including details of the external colours, finishes and materials for the nature-based playground and ablution facility, shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Notes 4 and 5**).
5. Prior to the commencement of works, an amended Landscape Plan shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Notes 6 and 7**).

6. Prior to the commencement of works, a Stormwater Management Plan shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Note 8**).

#### **During works**

7. All works shall be implemented in accordance with the plans approved under **Conditions 3, 4, 5 and 6**.
8. The applicant must ensure that the fill products used are geotechnically suitable and otherwise fit for their purpose and that they do not cause environmental harm, pollution, unreasonable emissions or unauthorised discharges.
9. The applicant shall ensure that no damage to the foreshore, riverbank, or waterway (including vegetation and infrastructure) occurs beyond the scope of the approved works. If any inadvertent damage occurs, the applicant is required to notify the Department of Biodiversity, Conservation and Attractions within 48 hours of the damage occurring and rectify the damage at its expense (**Advice Note 9**).
10. Prior to its use, the ablution facility shall be connected to reticulated sewer.
11. All septic sewer systems including all tanks and pipes and associated drainage systems (soak wells or leach drains) are to be decommissioned, in accordance with the Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974, removed, filled with clean sand and compacted.
12. The development, including the demolition, construction, access and drainage, shall not result in the clearing or disturbance of existing native vegetation within Bush Forever site 214.
13. No construction materials, earth spoil or other debris shall be disposed of within Bush Forever site 214.

#### **On completion of works**

14. Upon completion of the works, all waste materials, equipment and machinery shall be removed, and the site cleaned up to the satisfaction of the Department of Biodiversity, Conservation and Attractions.

#### **ADVICE TO APPLICANT**

1. Notification of commencement of work and plans can be emailed to [rivers.planning@dbca.wa.gov.au](mailto:rivers.planning@dbca.wa.gov.au).
2. To allow sufficient time for the Department of Biodiversity, Conservation and Attractions to consider and approve the plans required under this approval, information should be submitted no later than 42 days prior to the expected commencement date.
3. The Construction Environmental Management Plan required under **Condition 3** shall describe how the proposed works will be managed to minimise potential environmental impacts and shall address, but not be limited to:
  - scope of works, including demolition and construction methodology;
  - site access and management, including fencing requirements;
  - management of machinery and equipment, including a refuelling procedure and spill response;
  - the location of any temporary structures;

- on-site storage and bunding of materials (sediment control), equipment, chemicals and fuel;
  - details of any excavation works and management of acid sulfate soils (if required);
  - protection of the river (and nearby stormwater drains) from inputs of debris, rubbish or other deleterious material;
  - waste and material disposal;
  - protection of vegetation, including use of tree protection zones;
  - noise and vibration controls;
  - air and dust management;
  - traffic management, including parking arrangements for work contractors;
  - site security;
  - public access and safety;
  - dewatering management (if required);
  - hours of operation and schedule of works; and
  - complaints and incidents.
4. Regarding **Condition 4**, the selection of colours, finishes and materials of the proposed nature-based playground and ablution facility should complement the character and landscape setting of the Swan River. The design and finishes should be high quality and improve the visual amenity of the nature-based playground and ablution facility when viewed from the foreshore and river.
5. Regarding **Condition 4**, any safety balustrading is to be open-view and complementary to the playground design. Ideally, the inclined rock wall and two gabion walls should be no higher than 1 metre to remove the need for safety balustrading. However, it is acknowledged that in certain places this may be unavoidable due to the levels required to facilitate the play equipment.
6. Regarding **Condition 5**, the applicant is advised that the provided Landscape Plan proposes the use of several non-local native plant species. The Landscape Plan should be amended to ensure only locally native species are planted. The Department of Biodiversity, Conservation and Attractions can assist with species selection suitable to the location.
7. Regarding **Condition 5**, the amended Landscape Plan shall include, unless otherwise agreed in writing:
- the location, number and type of proposed plants, including size and planting density;
  - demonstrate the softening of the visual impact of the nature-based playground's boulder retaining wall edge; and
  - intended maintenance regime.
8. Regarding **Condition 6**, the applicant is advised the stormwater management system should be designed sensitive to the riverine environment. Stormwater from the proposed development should be managed in accordance with the Department of Biodiversity, Conservation and Attractions' Policy 49: *Planning for Stormwater Management Affecting the Swan Canning Development Control Area*, the Department of Water and Environmental Regulation's *Stormwater Management Manual for Western Australia* and *Decision Process for Stormwater Management in WA*, and water sensitive urban design principles.
9. Regarding **Condition 9**, in case of damage or pollution events, the Department of Biodiversity, Conservation and Attractions can be contacted on 9278 0981 (Riverpark Duty Officer) or 9480 9924 (Marine Pollution Response).

10. Acid sulfate soils (ASS) risk mapping indicates that the site is located within an area identified as representing a moderate to high risk of ASS occurring within 3 metres of the natural soil surface. Please refer to Department of Water and Environmental Regulation's acid sulfate soil guidelines for information to assist with the management of ground disturbing works. <https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/69-acidsulfatesoils-guidelines>.
11. The applicant is advised that the proposal has the potential to be affected by the 1 per cent annual exceedance probability flood level and potential sea level rise. The onus is on the applicant to undertake a risk assessment and exercise its own judgment in determining the level of risk it is prepared to accept.



Hon Stephen Dawson MLC  
**MINISTER FOR ENVIRONMENT**

Date: 21/1/21

**DEPARTMENT OF BIODIVERSITY, CONSERVATION AND ATTRACTIONS REPORT**

- PROPOSAL : Construction of a nature-based playground and replacement of an existing ablution facility
- LOCATION : Sandy Beach Reserve – Lot 51 on Diagram 10690 (201), Lot 52 on Diagram 10690 (203) and Lot 15525 on Plan 40483 (Crown Reserve 18092), Bassendean
- COST : \$1,600,000
- APPLICANT : Town of Bassendean
- LANDOWNER : Town of Bassendean (Lot 51 and Lot 52) and Vested to Town of Bassendean (Lot 15525)
- LOCAL GOVERNMENT : Town of Bassendean
- MRS CLASSIFICATION : Parks and Recreation
- DECISION TYPE : Part 5, *Swan and Canning Rivers Management Act 2006*, Ministerial Determination
- ATTACHMENTS : 1. Location map (1 page)  
2. External referral responses –  
a. Town of Bassendean comments (1 page)  
b. Department of Water and Environmental Regulation comments (2 pages)  
c. Department of Planning, Lands and Heritage comments (1 page)  
3. Proposed site plans (15 pages)  
4. Flood Impact Assessment (14 pages)
- RECOMMENDATION : **APPROVAL WITH CONDITIONS**
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**REPORT**

**1.0 INTRODUCTION**

- 1.1 The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application from the Town of Bassendean (the Town) proposing to construct a nature-based playground and replace an existing ablution facility at Lot 51 on Diagram 10690 (201), Lot 52 on Diagram 10690 (203) and Lot 15525 on Plan 40483 (Crown Reserve 18092) West Road, Sandy Beach Reserve, Bassendean (**Attachment 1**). The subject land is reserved for Parks and Recreation under the Metropolitan Region Scheme.

- 1.2 The proposed development is to occur on land entirely within the Swan Canning Development Control Area (DCA) and therefore requires an approval from the Minister for Environment in accordance with Part 5 of the *Swan and Canning Rivers Management Act 2006* (SCRM Act).
- 1.3 The Director General of DBCA has prepared this report in accordance with section 76 of the SCRM Act.

## 2.0 CONSULTATION

### Town of Bassendean

- 2.1 The Town advises that it has no objections to the proposal.
- 2.2 The Town's full comments are provided in **Attachment 2a**.

### Department of Water and Environmental Regulation

- 2.3 The Department of Water and Environmental Regulation (DWER) has assessed the application with respect to floodplain and acid sulfate soils (ASS) management.
- 2.4 DWER notes that the current 1 in 100 (1 per cent) Annual Exceedance Probability (AEP) flood level for the general area is estimated to be 3.8 metres AHD and that land in the vicinity of Sandy Beach Reserve is therefore likely to be subject to flood depths of around 1.8 metres in a 1 per cent AEP flood event. The proposed development may therefore be damaged during major flows.
- 2.5 In regard to floodplain management, DWER has no objection to the proposal, noting the following:
  - the proposed development has significant regional benefit to the community;
  - the proposed development is not expected to significantly impact the flooding regime of the general area; and
  - it is the responsibility of the local government to select the level of risk and flood protection.
- 2.6 The subject site is located within an area identified as having a moderate to high risk of ASS occurring within 3 metres of the natural soil surface. DWER has therefore recommended an advice note to address this matter.
- 2.7 DWER's full comments are provided in **Attachment 2b**. DWER's recommended advice note has been incorporated into the approval.

### Department of Planning, Lands and Heritage (Bush Forever)

- 2.8 The Department of Planning, Lands and Heritage (DPLH) advises that the proposed toilet facilities are located within Bush Forever site 214.
- 2.9 DPLH has no objections to the proposal and has recommended conditions to protect the Bush Forever site.
- 2.10 DPLH's full comments are provided in **Attachment 2c**. DPLH's recommended conditions have been incorporated into the conditions of this approval.

### **3.0 PUBLIC CONSULTATION – SUBMISSIONS ON DRAFT REPORT**

3.1 In accordance with the requirements of Part 5 of the SCRM Act, a copy of the draft report and proposed recommendation was provided to the applicant and the relevant stakeholders being DWER and the Department of Planning, Lands and Heritage. A copy was also published on the DBCA website for a period of two (2) weeks between 16 and 30 December 2020 with an invitation for public submissions.

3.2 No submissions were received.

### **4.0 RELEVANT POLICIES AND PLANS**

- ◆ State Planning Policy 2.10 – *Swan-Canning River System* (SPP 2.10)
- ◆ Corporate Policy Statement No. 42 – *Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area* (Policy 42)
- ◆ Corporate Policy Statement No. 45 – *Planning for Miscellaneous Structures and Facilities in the Swan Canning Development Control Area* (Policy 45)
- ◆ Corporate Policy Statement No. 49 – *Planning for Stormwater Management Affecting the Swan Canning Development Control Area* (Policy 49)
- ◆ Corporate Policy Statement No. 51 – *Planning for Wastewater Management Affecting the Swan Canning Development Control Area* (Policy 51)

### **5.0 ENVIRONMENTAL AND PLANNING CONSIDERATIONS**

- ◆ Recreation opportunities and public access
- ◆ Ecological health
- ◆ Landscape protection
- ◆ Flood prone land
- ◆ Acid sulfate soils
- ◆ Stormwater management
- ◆ Wastewater management
- ◆ Use of fill

### **6.0 BACKGROUND**

6.1 The proposed development will be located within Sandy Beach Reserve, which is situated along the Swan River foreshore, Bassendean. Sandy Beach Reserve consists of car parking, a basketball court, BBQ facilities, a jetty, a small playground, public toilets and a large grassed area consisting of numerous large trees.

6.2 The nature-based playground was originally proposed at Lot 301 on Plan 40483, which is vested with the Western Australian Planning Commission and located to the west of the currently proposed location. However, it was relocated to the currently proposed site and reduced in scale to be less susceptible to potential damage by moving flood water and to avoid any conflicting land-uses as the original site is heavily used by dog walkers.

6.3 The proposed nature-based playground development (approximately 2.28 hectares) is a combination of manufactured equipment, custom-made equipment, nature play and landscaping. The nature-based playground will contain organic mulch,

compacted sawdust, concrete, rubber matting and sand. Key features of the nature-based playground consist of a boardwalk, lighting, a flying fox, swings, a tree tower, a slide, a water fountain, a water play trough, balance logs, a dual tight rope, a cubby, and a sand pit (**Attachment 3**).

- 6.4 The proposed development will result in the replacement of an existing ablution facility, relocating it approximately 30 metres north-west, closer to the proposed nature-based playground.
- 6.5 The proposed nature-based playground has been a long-envisioned idea for the area.

## **7.0 DISCUSSION**

### **Recreation opportunities and public access**

- 7.1 Policy 42 seeks to ensure that provisions are made for public access and enjoyment of the Swan Canning river system including its foreshores in a manner that is consistent with the multiple use of the DCA and the preservation of the values of the land itself. Tourism and recreation facilities should provide visitors to the Swan Canning river system with a choice of recreation activities and experiences. Furthermore, proposals should seek to ensure that the river foreshores are linked through the provision of walking and cycle trails that connect places of natural and cultural interest, as well as commercial and community facilities.
- 7.2 Policy 45 and SPP 2.10 require the proposed development to enhance the public's access to and enjoyment of the river.
- 7.3 The proposed development seeks to utilise the existing car parking facilities and public paths at Sandy Beach Reserve. Sandy Beach Reserve is accessed via West Road, a linear public path to the east, and a shared path to the west. The existing car parking facility contains three (3) bus bays, two (2) ACROD bays, six (6) motorcycle bays, one (1) food van reserved bay and 45 standard bays. Informal parking also takes place along West Road.
- 7.4 The existing car parking facility, public paths and road are considered adequate with regard to accommodating any increased usage of the area.
- 7.5 It is anticipated that the proposed development will provide a local and regional community attraction, facilitating the public's use of the Swan River foreshore. The proposed development will provide space for both active and passive recreation.
- 7.6 SPP 2.10 states that public access to the river and foreshore should be maintained while protecting the river. It is important that developments near the river do not impede or restrict public access.
- 7.7 Whilst there are no paths in close enough proximity to the development to be impacted, the foreshore area that abuts the waters of the Swan River is regularly used by the community. To ensure works do not adversely impact public access and safety along the foreshore, it is recommended these issues be addressed as part of a conditioned Construction Environmental Management Plan (CEMP).



## Ecological health

- 7.8 Policy 42 states that natural vegetation should be promoted, maintained and restored, and existing native vegetation should be retained as a means of protecting linkages and natural vegetation corridors. Proposals should avoid the removal or fragmentation of native vegetation, where possible.
- 7.9 The provided plans indicate that one (1) tree (*Eucalyptus gomphocephala* – Tuart) will be removed from the development area as it is located within the footprint of the proposed flying fox. However, the Town has advised that it is seeking to amend the plans to ensure the Tuart tree is not removed as a result of the development. This can be achieved through the placement of a condition and an associated advice note, requiring the Town to submit finalised plans.
- 7.10 The Landscape Plan for the development proposes the planting of 50 trees within the project site. The design of the proposed development is considered to be site responsive, which has allowed for seven (7) mature trees to be retained within the footprint of the nature-based playground, retaining environmental values and providing shade for the public.
- 7.11 The proposed development is located within an Estuary-Peripheral Conservation Category Wetland (CCW), within the Swan Complex, and as mentioned earlier in this report, is partially located within Bush Forever site 214. The Landscape Plan consists of ground covers, grasses, shrubs (low, medium and large), and trees. Of the 42 plant species proposed to be planted at the site, 14 are not locally native. A total of 2456 plants will be planted as part of the proposed development.
- 7.12 Due to the proximity to the Swan River, there is a risk for non-local native seed being transported downstream, creating ongoing maintenance issues, and potentially resulting in altered habitats. To ensure the development does not have an adverse impact on the ecology of the subject site or adjacent areas, an amended Landscape Plan that does not propose non-local native plant species should be required as a condition of approval.
- 7.13 To ensure that all potential environmental impacts are identified and managed appropriately, a CEMP should be required as a condition of approval and include details regarding management of machinery and equipment (including refuelling), storage of materials and equipment, waste management, protection of vegetation, noise and vibration controls, air and dust management, traffic management, public access and safety and hours of operation.

## Landscape protection

- 7.14 Policy 42 states that proposals should enhance and protect the character and landscape setting of the Swan Canning river system. Typically, proposals should protect tree lines and not dominate or overshadow public areas and views. Consideration should also be made, where appropriate, to enhance significant landmarks, views and vistas.
- 7.15 The nature-based playground will be contained within a mixture of limestone block edging, an inclined rock wall and two gabion walls. These structures have been proposed to elevate the ground level to facilitate a tree tower (with associated slide) and a concrete slide.

- 7.16 The inclined rock wall is located at the most north-east section of the proposed nature-based playground. The subject wall is approximately 37 metres long (with curvature) and is at a maximum height of 1.7 metres above the adjacent natural ground level (NGL). The inclined rock wall will result in an abrupt topographic change that if not visually softened may detract from the area's natural landscape and amenity. It is recommended that the conditioned amended Landscape Plan detail planting at the bottom of the inclined rock wall to provide natural visual screening. This can be added as an advice note.
- 7.17 The gabion walls are located to the north-west and central east areas of the nature-based playground. The north-west gabion wall is approximately 36.5 metres long (with curvature) and ranges in height from approximately 1.3 metres to 0.4 metres. The central eastern gabion wall is approximately 38 metres long (with curvature) and is at a maximum height of approximately 0.4 metres above the adjacent NGL.
- 7.18 The Town has advised that drops greater than 1 metre in height may require balustrading to ensure public safety. As the proposed inclined rock wall and a section of gabion wall will create a drop higher than 1 metre, safety balustrading at a minimum of 1 metre may be required, potentially bringing the structure height up to a minimum of 2 metres above the NGL. Ideally, vertical drops higher than 1 metre would be avoided, removing the need for safety balustrading. However, if unavoidable due to the levels required to facilitate the play equipment, it is recommended the Town is advised that should safety balustrading be required it is to be open-view and complementary to the playground design. This can be achieved through the placement of a condition and an associated advice note, requiring the Town to submit finalised plans.
- 7.19 The proposed design gives consideration to protecting the overall site characteristics and setting, ensuring that areas for passive recreational activities are maintained. The proposed development is considered complementary to the landscape of the subject Swan River foreshore area.
- 7.20 It is recommended that a condition of approval is included to ensure the final details of colours, building materials and finishes for the development are submitted and approved by DBCA before works commence in order to ensure that it harmonises with the amenity of the area.

### **Flood prone land**

- 7.21 Policy 48 requires any development that would likely be obstructive to major floods to be located outside the floodway. Policy 42 further supports this, stating that proposals should have due regard for the broader environmental and planning implications of development within the flood plain (made up of the floodway and flood fringe), which is an integral part of the Swan Canning river system. Minor development, such as small barbeques, pergolas or playground and exercise equipment, may be considered where the structure will not likely impede the flow of flood waters.
- 7.22 In November 2017, the Town commissioned a Flood Impact Assessment to identify the impact flood events would have on a nature-based playground. The site of the playground has changed slightly since the Flood Impact Assessment was undertaken, however the assessment included the broader area and current nature-based playground location (**Attachment 4**). The Flood Impact Assessment states that the nature-based playground at Sandy Beach Reserve is predicted to

have negligible impact on the peak flood level in the 1 per cent AEP event. It should also be noted the originally proposed nature-based playground had a larger footprint in comparison to the nature-based playground currently proposed.

- 7.23 Based on the Flood Impact Assessment and DWER's advice (**Attachment 2b**), it is noted that the proposed nature-based playground will not have an adverse impact on the flow of flood waters of the river system.
- 7.24 However, the playground will be subject to 1 in 20 (5 per cent) AEP flood events and greater and DWER has advised that it is up to the Town to select the level of flood risk it is willing to accept. The Town is aware of this advice. It is recommended that an advice note is applied to reiterate that the onus is on the Town to exercise its own judgment in accepting the level of flood risk.
- 7.25 Given that the proposed development is located within the floodway, it presents the risk of fill and/or topsoil or fertiliser being mobilised during flood events and entering the river. It is anticipated that by requiring the use of locally native species for planting the requirement for any fertiliser will be minimal.

#### **Acid sulfate soils**

- 7.26 The proposed works are to be undertaken within a high to moderate acid sulfate soils (ASS) disturbance risk area. The proposed works may require minor ground excavation during the construction of the nature-based playground and the demolition and reconstruction of the ablution facility.
- 7.27 The potential for disturbance of ASS during the construction works is considered to be minor and can be addressed through the conditioned CEMP and an advice note on the approval (as also recommended by DWER).

#### **Stormwater management**

- 7.28 Policy 49 generally requires stormwater runoff from constructed impervious surfaces generated by minor rainfall events (i.e. first 15mm) to be managed on site, or if the local government consents, connected to the local drainage system.
- 7.29 The Town has advised that all stormwater will be stored on site and that it is likely soak wells will be installed for the new ablution facility.
- 7.30 The nature-based playground consists of a variety of impervious surfaces (i.e. concrete and rubber matting). To ensure that stormwater is managed appropriately, it is recommended that a Stormwater Management Plan is conditioned as part of this approval.

#### **Wastewater management**

- 7.31 Policy 51 aims to ensure that the disposal of wastewater is appropriately managed for the protection of public health and to minimise contributions of high nutrient loads to the Swan and Canning rivers. Where a reticulated sewerage scheme is provided, all development in the vicinity of the river system should be connected to the reticulated sewerage system.
- 7.32 Whilst the provided plans indicate sewage generated from the proposed ablution facility will be managed via an on-site wastewater management system, the Town has advised that the ablutions will be connected to Water Corporation's reticulated

sewerage system. It is anticipated that this can be addressed through the placement of a condition requiring finalised plans to be provided.

- 7.33 It is also anticipated that the current on-site wastewater system will be decommissioned. This is a positive outcome for the environment and extension of the reticulated sewerage network to Sandy Beach Reserve may facilitate connection of currently unsewered residences along West Road.

#### **Use of fill**

- 7.34 Policy 42 requires, as a means of preventing possible contamination, any fill and/or topsoil being brought onto a development site in, or immediately adjacent to, the DCA to be certified clean, uncontaminated, and free from rubble, weeds and plant disease. Topsoil, runoff or other material should not enter the Swan Canning river system as a result of development.
- 7.35 The majority of the proposed fill is limited to the northern section of the nature-based playground area, with a 23m<sup>2</sup> area having the highest elevation point, requiring approximately 2.4 metres of fill. The majority of the fill proposed is located within the northern section of the nature-based playground to raise the height of the proposed tree tower (with associated slide) and concrete slide. However, the existing natural contours of the subject site are largely respected by the development, reducing the amount of additional fill proposed.
- 7.36 Due to the requirement for fill, it is recommended a condition is included to ensure that the fill is certified clean and geotechnically suitable and otherwise fit for purpose.

#### **8.0 SWAN RIVER TRUST**

- 8.1 In accordance with section 75(3A) of the SCRM Act, the Swan River Trust considered DBCA's draft report at its meeting of 8 December 2020 and resolved to advise the Director General of DBCA that it recommends the application be approved subject to the conditions outlined in DBCA's draft report.

#### **9.0 CONCLUSION**

- 9.1 The proposed nature-based playground and reconstruction of the ablution facility and associated landscaping is in keeping with the local setting of the site as a recreational park and foreshore reserve. The proposal seeks to complement and enhance the amenity of Sandy Beach Reserve.
- 9.2 It is anticipated that the nature-based playground will become an important regional facility that enhances patrons' experience along the subject section of the Swan River, providing improved social and environmental outcomes.
- 9.3 Potential environmental impacts from the works can be addressed through the preparation and approval of a CEMP, Stormwater Management Plan and connection of the site to reticulated sewer, all of which should be required as conditions of approval.
- 9.4 For these reasons, the proposal is recommended for approval, subject to conditions and advice.

## 10.0 RECOMMENDATION – APPROVAL WITH CONDITIONS

That the Director General of DBCA advises the Minister for Environment that the Town of Bassendean's proposal to construct a nature-based playground and replace an existing ablution facility, within Lot 51 on Diagram 10690 (201), Lot 52 on Diagram 10690 (203) and Lot 15525 on Plan 40483 (Crown Reserve 18092), Bassendean, as described in the application received on 2 September 2020 or otherwise amended through conditions, be approved subject to the following conditions:

### CONDITIONS

1. Approval to implement this decision is valid for two (2) years from the date of the approval. If substantial on-site works have not commenced within this period, a new approval will be required before commencing or completing the development.

#### Prior to the commencement of works

2. The applicant shall notify the Department of Biodiversity, Conservation and Attractions in writing not less than seven (7) days prior to the commencement of works (**Advice Note 1**).
3. Prior to the commencement of works, a Construction Environmental Management Plan shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Note 3**).
4. Prior to the commencement of works, final design plans/drawings, including details of the external colours, finishes and materials for the nature-based playground and ablution facility, shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Notes 4 and 5**).
5. Prior to the commencement of works, an amended Landscape Plan shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Notes 6 and 7**).
6. Prior to the commencement of works, a Stormwater Management Plan shall be submitted to and approved by the Department of Biodiversity, Conservation and Attractions (**Advice Note 8**).

#### During works

7. All works shall be implemented in accordance with the plans approved under **Conditions 3, 4, 5 and 6**.
8. The applicant must ensure that the fill products used are geotechnically suitable and otherwise fit for their purpose and that they do not cause environmental harm, pollution, unreasonable emissions or unauthorised discharges.
9. The applicant shall ensure that no damage to the foreshore, riverbank, or waterway (including vegetation and infrastructure) occurs beyond the scope of the approved works. If any inadvertent damage occurs, the applicant is required to notify the Department of Biodiversity, Conservation and Attractions within 48 hours of the damage occurring and rectify the damage at its expense (**Advice Note 9**).
10. Prior to its use, the ablution facility shall be connected to reticulated sewer.

11. All septic sewer systems including all tanks and pipes and associated drainage systems (soak wells or leach drains) are to be decommissioned, in accordance with the Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974, removed, filled with clean sand and compacted.
12. The development, including the demolition, construction, access and drainage, shall not result in the clearing or disturbance of existing native vegetation within Bush Forever site 214.
13. No construction materials, earth spoil or other debris shall be disposed of within Bush Forever site 214.

#### **On completion of works**

14. Upon completion of the works, all waste materials, equipment and machinery shall be removed, and the site cleaned up to the satisfaction of the Department of Biodiversity, Conservation and Attractions.

#### **ADVICE TO APPLICANT**

1. Notification of commencement of work and plans can be emailed to [rivers.planning@dbca.wa.gov.au](mailto:rivers.planning@dbca.wa.gov.au).
2. To allow sufficient time for the Department of Biodiversity, Conservation and Attractions to consider and approve the plans required under this approval, information should be submitted no later than 42 days prior to the expected commencement date.
3. The Construction Environmental Management Plan required under **Condition 3** shall describe how the proposed works will be managed to minimise potential environmental impacts and shall address, but not be limited to:
  - a. scope of works, including demolition and construction methodology;
  - b. site access and management, including fencing requirements;
  - c. management of machinery and equipment, including a refuelling procedure and spill response;
  - d. the location of any temporary structures;
  - e. on-site storage and bunding of materials (sediment control), equipment, chemicals and fuel;
  - f. details of any excavation works and management of acid sulfate soils (if required);
  - g. protection of the river (and nearby stormwater drains) from inputs of debris, rubbish or other deleterious material;
  - h. waste and material disposal;
  - i. protection of vegetation, including use of tree protection zones;
  - j. noise and vibration controls;
  - k. air and dust management;
  - l. traffic management, including parking arrangements for work contractors;
  - m. site security;
  - n. public access and safety;
  - o. dewatering management (if required);
  - p. hours of operation and schedule of works; and
  - q. complaints and incidents.
4. Regarding **Condition 4**, the selection of colours, finishes and materials of the proposed nature-based playground and ablution facility should complement the character and landscape setting of the Swan River. The design and finishes should be high quality and

- improve the visual amenity of the nature-based playground and ablution facility when viewed from the foreshore and river.
5. Regarding **Condition 4**, any safety balustrading is to be open-view and complementary to the playground design. Ideally, the inclined rock wall and two gabion walls should be no higher than 1 metre to remove the need for safety balustrading. However, it is acknowledged that in certain places this may be unavoidable due to the levels required to facilitate the play equipment.
  6. Regarding **Condition 5**, the applicant is advised that the provided Landscape Plan proposes the use of several non-local native plant species. The Landscape Plan should be amended to ensure only locally native species are planted. The Department of Biodiversity, Conservation and Attractions can assist with species selection suitable to the location.
  7. Regarding **Condition 5**, the amended Landscape Plan shall, unless otherwise agreed in writing:
    - a. include the location, number and type of proposed plants, including size and planting density;
    - b. demonstrate the softening of the visual impact of the nature-based playground's boulder retaining wall edge; and
    - c. include the intended maintenance regime.
  8. Regarding **Condition 6**, the applicant is advised the stormwater management system should be designed sensitive to the riverine environment. Stormwater from the proposed development should be managed in accordance with the Department of Biodiversity, Conservation and Attractions' Policy 49: *Planning for Stormwater Management Affecting the Swan Canning Development Control Area*, the Department of Water and Environmental Regulation's *Stormwater Management Manual for Western Australia* and *Decision Process for Stormwater Management in WA*, and water sensitive urban design principles.
  9. Regarding **Condition 9**, in case of damage or pollution events, the Department of Biodiversity, Conservation and Attractions can be contacted on 9278 0981 (Riverpark Duty Officer) or 9480 9924 (Marine Pollution Response).
  10. Acid sulfate soils (ASS) risk mapping indicates that the site is located within an area identified as representing a moderate to high risk of ASS occurring within 3 metres of the natural soil surface. Please refer to Department of Water and Environmental Regulation's acid sulfate soil guidelines for information to assist with the management of ground disturbing works. <https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/69-acidsulfatesoils-guidelines>.
  11. The applicant is advised that the proposal has the potential to be affected by the one per cent annual exceedance probability flood level and potential sea level rise. The onus is on the applicant to undertake a risk assessment and exercise its own judgment in determining the level of risk it is prepared to accept.

FINAL REPORT ENDORSED


Signed: Mark Webb Date: 18/1/2021  
Mark Webb  
Director General

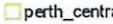
# Attachment 1: Location Map

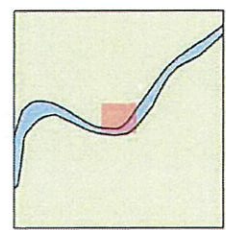
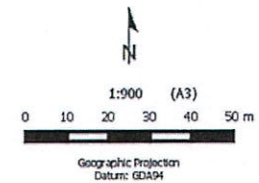


**Legend**

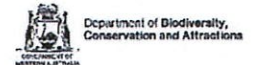
Swan Canning Development Control Area (DBCA-028)

 Cadastre

 perth\_central



Produced by MF,  
Department of Biodiversity,  
Conservation and Attractions



Job Ref: 20/2057  
Produced at 01:40 PM on November 17, 2020

The Department of Biodiversity, Conservation and Attractions does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequences which may arise from relying on any information depicted. Roads and tracks on land managed by DBCA may contain unmarked hazards and their surface condition is variable. Exercise caution and drive to conditions on all roads.



# Attachment 2a

## Marshall Farrell

---

**From:** Donna Shaw <dshaw@bassendean.wa.gov.au>  
**Sent:** Thursday, 1 October 2020 9:11 AM  
**To:** Rivers Planning  
**Subject:** RE: IEM-17758020 - FW: DBCA Referral - Part 5 Development Application – Construction of a Nature-based Playground and Replacement of an Ablution Facility at Sandy Beach Reserve – Town of Bassendean

**Categories:** Filing

[External Email] This email was sent from outside the department – be cautious, particularly with links and attachments.

Good Morning

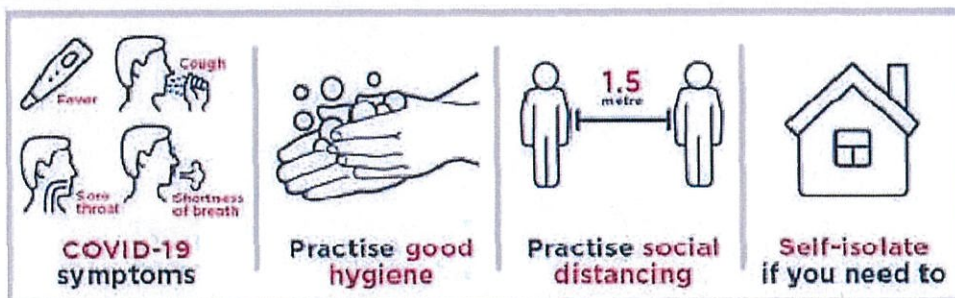
The Town has no objections to the proposal.

Should you require any further information, please do not hesitate to contact me.

Kind regards

**Donna Shaw**  
Manager Development & Place  
Town of Bassendean  
Phone: (08) 9377 8011  
Email: [dshaw@bassendean.wa.gov.au](mailto:dshaw@bassendean.wa.gov.au)  
Web: [www.bassendean.wa.gov.au](http://www.bassendean.wa.gov.au)

Please consider the environment before printing this email.



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---

**From:** Rivers Planning <rivers.planning@dbca.wa.gov.au>  
**Sent:** Wednesday, 30 September 2020 4:24 PM  
**To:** Mail <Mail@bassendean.wa.gov.au>  
**Cc:** Rivers Planning <rivers.planning@dbca.wa.gov.au>  
**Subject:** IEM-17758020 - FW: DBCA Referral - Part 5 Development Application – Construction of a Nature-based Playground and Replacement of an Ablution Facility at Sandy Beach Reserve – Town of Bassendean

Good afternoon,

## PART 5 – CONSTRUCTION OF A NATURE-BASED PLAYGROUND AND REPLACEMENT OF A TOILET BLOCK AT SANDY BEACH RESERVE – TOWN OF BASSENDEAN

The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application for the above mentioned development. The application can also be downloaded from our website here <https://www.dpaw.wa.gov.au/management/swan-canning-riverpark/planning-development-and-permits/applications/item/3774-part-5-sandy-beach-reserve-construction-of-a-nature-based-playground-and-replacement-of-a-ablution-facility>. Your department is invited to provide comments and recommendations considered relevant to this proposal.

Prior to the report being prepared, the application has been referred to relevant agencies for comments and advice. Accordingly, please provide a response to this office within **42 days** of receipt of this email. Should you not be able to respond within this time, please notify the department as soon as possible, outlining the reasons for the delay and a date when a response may be available.

In preparing your response, please be aware that it may be made available for viewing by the public, unless otherwise requested.

Please forward your response via email to [rivers.planning@dbca.wa.gov.au](mailto:rivers.planning@dbca.wa.gov.au). Should there be any queries regarding this matter, please contact Suzanna Chan, Environmental Officer, on 9278 0900. In all correspondence please quote the reference number 2020/2067

Yours sincerely

Administration Officer  
Rivers and Estuaries Branch  
Department of Biodiversity, Conservation and Attractions  
Phone: 08 9278 0921  
17 Dick Perry Avenue, Kensington WA 6151  
Email: [carolyn.pearce@dbca.wa.gov.au](mailto:carolyn.pearce@dbca.wa.gov.au) Web: [www.dbca.wa.gov.au](http://www.dbca.wa.gov.au)



Department of Biodiversity,  
Conservation and Attractions



*We're working for  
Western Australia.*



Your ref: 2020/2067  
Our ref: RF2719-02, PA 037405  
Enquiries: Diana Nussey, Ph 6250 8014  
Email: [diana.nussey@dwer.wa.gov.au](mailto:diana.nussey@dwer.wa.gov.au)

Suzanna Chan  
Rivers and Estuaries Branch  
Department of Water and Environmental Regulation  
Locked Bag 104  
Bentley Delivery Centre WA 6983

Via email – [rivers.planning@dbca.wa.gov.au](mailto:rivers.planning@dbca.wa.gov.au)

Dear Suzanna,

***2020/2067 – Part 5 – Construction of a Nature-Based Playground and Replacement of a Toilet Block at Sandy Beach Reserve – Town of Bassendean***

Thank you for providing the above referral for the Department of Water and Environmental Regulation (Department) to consider. The Department has identified that the proposed development has the potential to impact on environment and water values and management. Key issues and recommendations that should be addressed are provided below:

Floodplain Management Advice

The Department, in carrying out its role in floodplain management, provides advice and recommends guidelines for development on floodplains with the object of minimising flood risk and damage. The Department uses the following guiding principles to ensure proposed development in flood prone areas is acceptable with regard to major river flooding:

- Proposed development has adequate flood protection from a 1 in 100 (1%) Annual Exceedance Probability (1% AEP) flood.
- Proposed development does not detrimentally impact on the existing 1% AEP flood regime of the general area.

The Swan and Helena Rivers Flood Study (2018) shows that the general area is affected by major flooding with the design flood levels expected to be:

1 in 10 AEP	~2.1 m AHD
1 in 20 AEP	~2.6 m AHD
1 in 50 AEP	~3.2 m AHD
1 in 100 AEP	~3.8 m AHD

Based on our LiDAR natural surface contours (attachment 1), land in the vicinity of the Sandy Beach Reserve is likely to be subject to flood depths of around 1.8 m in a 1 in 100 (1%) AEP flood event.

The proposal is located within the floodway (attachment 1). When development is proposed within the floodway our department assesses each proposal based on its merits and the factors examined include depth of flooding, velocity of flow, its obstructive effects on flow, possible structural and potential flood damage, difficulty in evacuation during major floods and its regional benefit.

For this proposal, the Department provides the following comments:

- The proposal has significant regional benefit to the community.
- Based on the expected flood depths, and after the inspection of the design of the proposed playground, we do not expect there to be significant impact to the flooding regime of the general area.
- The playground will be subject to flooding and possible flood damage during major flows.

The Department has no objection to the proposed playground at Sandy Bay Reserve. Given the playground is a non-habitable structure, it is up to the local government to select the level of risk and flood protection, acknowledging that it does not need the same level of flood protection as habitable structures or other important infrastructure. In this sense, locating a playground in an area with reduced flood protection is considered acceptable.

Please note that this advice is related to major river flooding only and other planning issues, such as environmental and ecological considerations, may also need to be addressed.

#### Acid Sulfate Soils Advice

Acid sulfate soils (ASS) risk mapping shows that the site is located within an area identified as having a moderate to high risk of ASS occurring within 3 m of the natural soil surface. The Department advises that an ASS related condition is not considered necessary in this instance. However, the following advice is recommended to be applied to the relevant approval:

**Advice:** Acid sulfate soils (ASS) risk mapping indicates that the site is located within an area identified as representing a moderate to high risk of ASS occurring within 3 metres of the natural soil surface. Please refer to Department of Water and Environmental Regulation's (DWER) acid sulfate soil guidelines for information to assist with the management of ground disturbing works. <https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/69-acidsulfatesoils-guidelines>

If you would like more information regarding this matter, please contact Diana Nussey on 6250 8014 or [diana.nussey@dwer.wa.gov.au](mailto:diana.nussey@dwer.wa.gov.au).

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Bree Lyons', written in a cursive style.

**Bree Lyons**  
A/Senior Natural Resource Management Officer  
Planning Advice  
Swan Avon Region

29 October 2020



Department of Planning,  
Lands and Heritage

## Attachment 2c

Your ref: 2020/2067  
Our ref: 805/21/40P214  
Enquiries: Rachel Williams  
Telephone: (08) 6551 9095

7/10/2020

Suzanna Chan  
Rivers and Estuaries Division  
Department of Biodiversity, Conservation and Attractions  
Locked Bag 104  
Bentley Drive Centre WA 6983

Dear Suzanna

### **PART 5 – CONSTRUCTION OF A NATURE-BASED PLAYGROUND AND REPLACEMENT OF A TOILET BLOCK AT SANDY BEACH RESERVE**

Thank you for providing the above development application to the Land Use Planning Policy team for comment. It is understood the application proposes to construct a nature-based playground and to replace ablution facilities, with a connection to the main sewer within Lots 51, 51 and 15525 West Road, Bassendean. The current and proposed toilet facilities are within Bush Forever area 214.

From the site plans provided, it does not look like the proposed development will necessitate the clearing of any vegetation within Bush Forever area 214. As such, the Policy team has no objections to the proposal, but request the following conditions for any development approval:

- The development, including the demolition, construction, access and drainage, shall not result in the clearing or disturbance of existing native vegetation within Bush Forever area 214
- No construction materials, earth spoil or other debris shall be disposed of within Bush Forever area 214

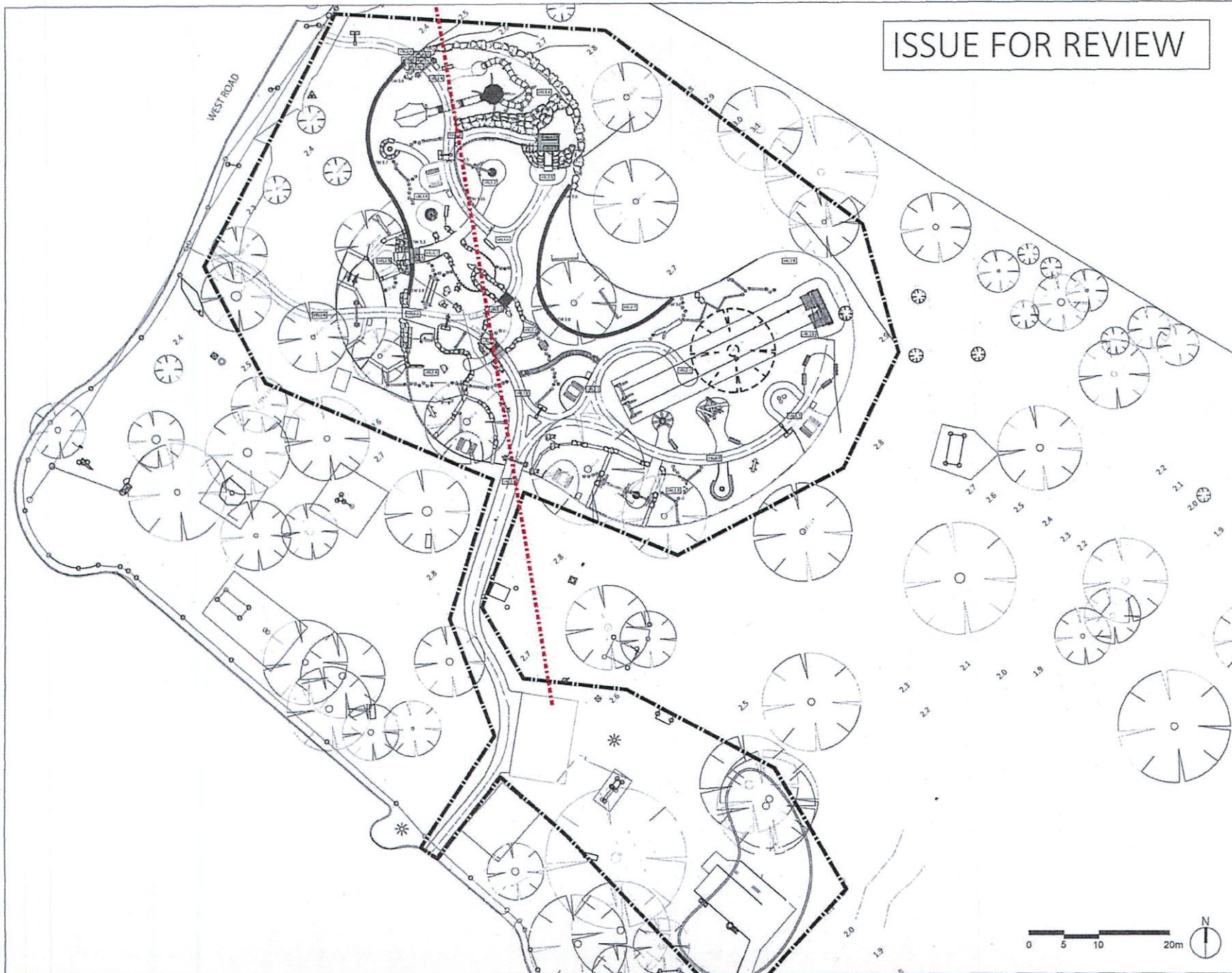
Please note this correspondence provides comment with respect to SPP 2.8 and Bush Forever only and does not collate comment from other branches within the Department of Planning, Lands and Heritage or provide a formal position on the proposal by the Western Australian Planning Commission, which may need to be consulted.

Should you require any additional information or clarification, please contact Rachel Williams on 6551 9095.

Yours sincerely,
















A handwritten signature in black ink, appearing to read 'Loretta van Gasselt'.

Loretta van Gasselt  
Manager Policy



ISSUE FOR REVIEW

**LEGEND**

-  PROPOSED SERVICE LINE
-  EXTENT OF WORKS
-  -2.8- EXISTING CONTOURS
-  PROPOSED CONTOURS
-  TREE TO BE REMOVED
-  PATH CENTERLINE
-  PROPOSED SPOT HEIGHTS
-  EXISTING SPOT HEIGHTS
-  TOP OF WALL
-  ROCKS / BOULDERS
-  LOGS
-  TIMBER SLEEPERS
-  STEPPERS
-  BUSH POLES
-  EXISTING TREES TO BE RETAINED

REV	DATE	BY	DESCRIPTION

PROJECT: SANDY BLANCH PLAY AREA - BUCK POINT RAISONNEAU

SITE ADDRESS: SANDY BLANCH PLAY AREA - BUCK POINT RAISONNEAU

ELEMENT: TOWN OF BUCK POINT

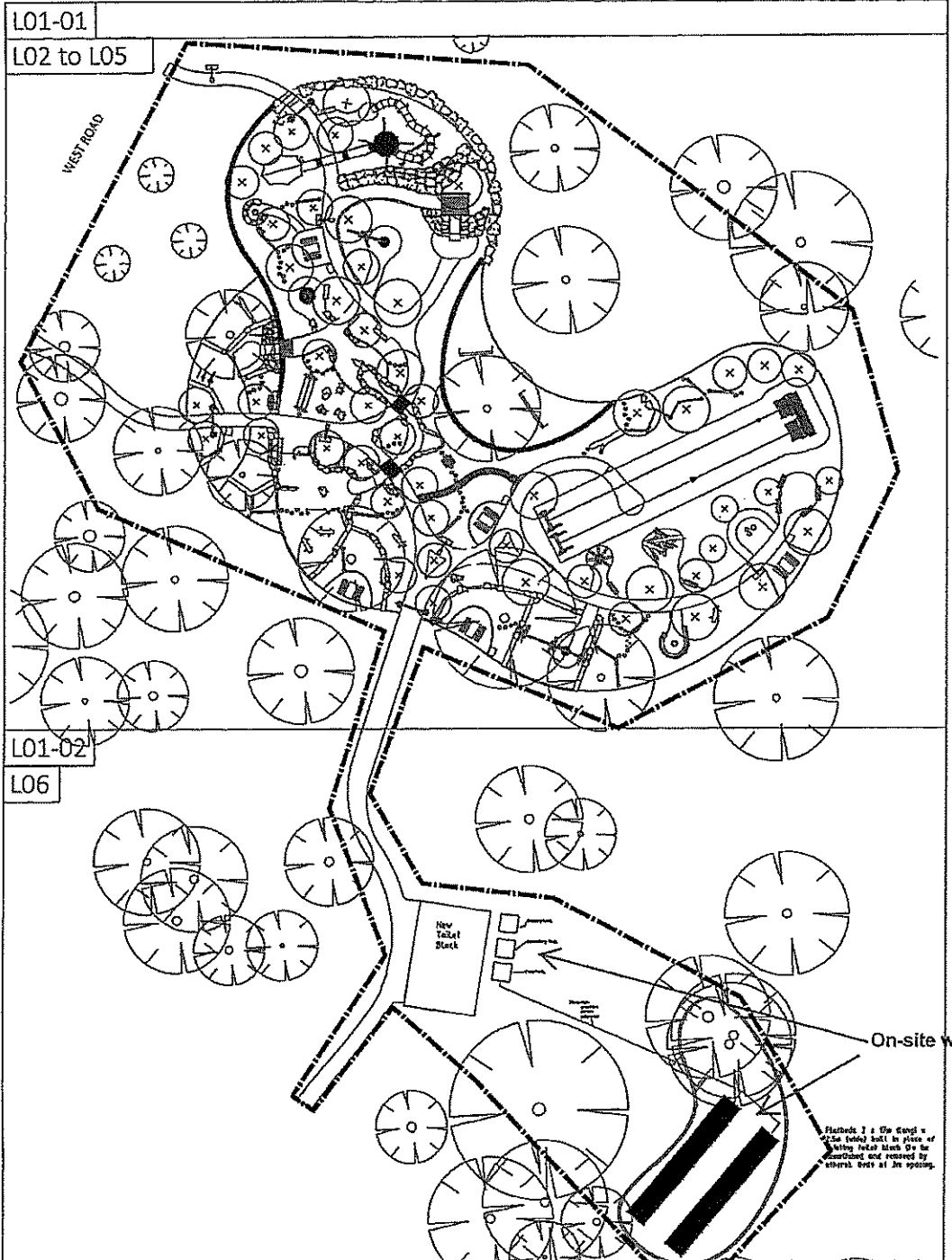
TITLE: CR PLAN

SCALE AT ALL	DATE	DESIGN	CHECKED
1:250	08/29/25		

PROJECT NO.	DRAWING NO.	REVISION

**NATURE PLAY SOLUTIONS**  
 8 Burchell Way  
 Newdale 6105, WA  
 (08) 9361 1355  
 play@natureplaysolutions.com.au





ISSUE FOR REVIEW

# SANDY BEACH

## BASSENIDEAN REGIONAL PLAYSPACE

### LANDSCAPE ARCHITECTURAL DRAWINGS

#### DRAWING SCHEDULE

L00	COVER PAGE	NTS
L01-01	MASTER 1	1:150
L01-02	MASTER 2	1:150
L02	GRADING	1:250
L03	HARDWORKS	1:250
L04	EQUIPMENT	1:250
L05	PLANTING	1:150
L06	PLANTING	1:150
D01	DETAILS 1	AS SHOWN
D02	DETAILS 2	AS SHOWN
D03	DETAILS 3	AS SHOWN
D04	DETAILS 4	AS SHOWN
D05	DETAILS 5	AS SHOWN
D06	DETAILS 6	AS SHOWN

NO.	DATE	BY	REVISION
1	02/25/23	JD	FOR ISSUE
2	04/10/23	JD	FOR REVIEW
REV	DATE	BY	REASON/COMMENT

PROJECT: SANDY BEACH REGIONAL PLAYSPACE  
 SITE ADDRESS: 1000 SANDY BEACH RD, SANDY BEACH, WA 6102  
 CLIENT: BASSENIDEAN REGIONAL COUNCIL  
 TITLE: LANDSCAPE ARCHITECTURAL DRAWINGS

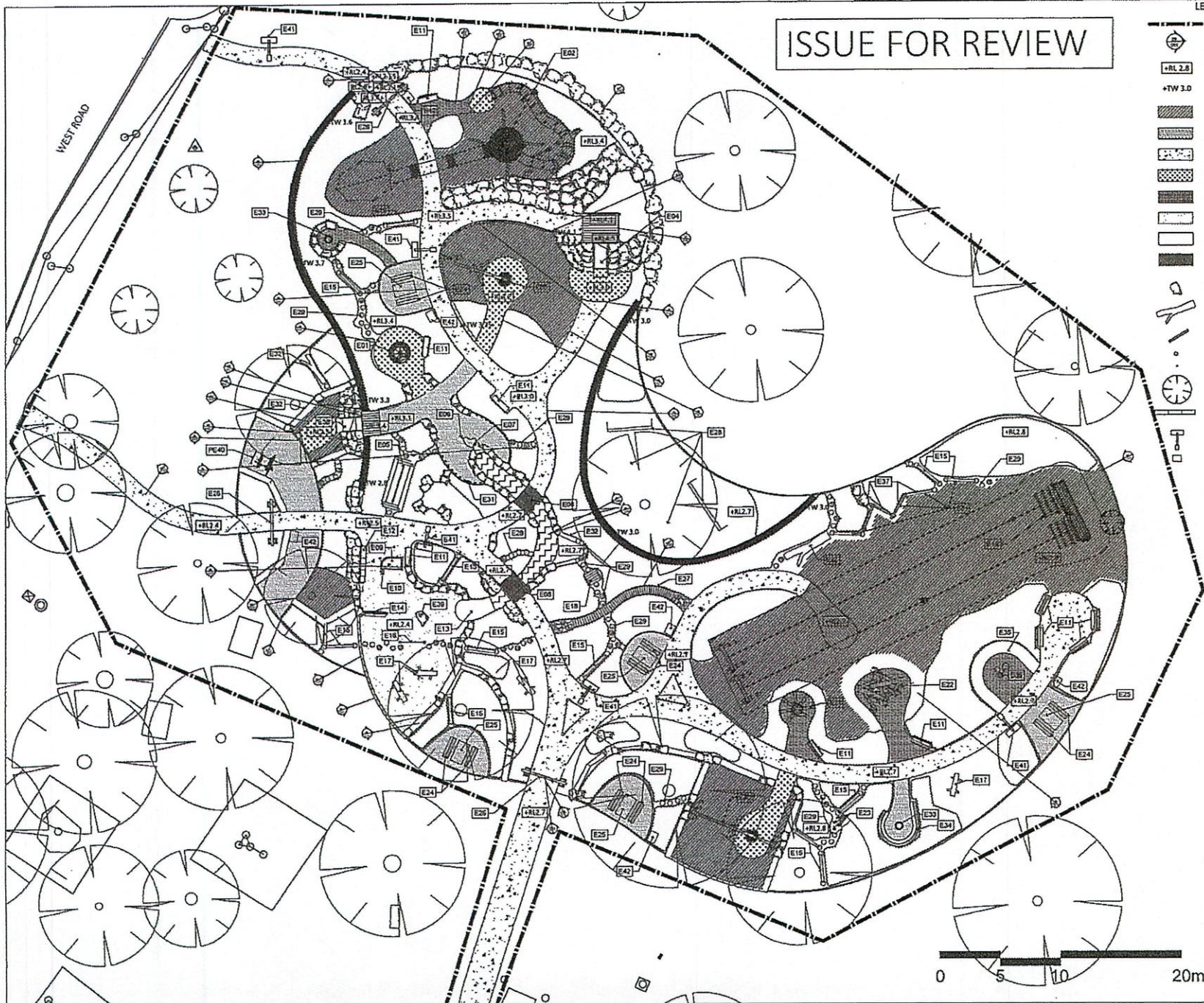
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DATE: 02/25/23  
 PROJECT NO: 1000  
 SHEET NO: 01

MATURE PLAY SOLUTIONS  
 8 Burchell Way  
 Mandurah 6102, WA  
 (08) 9361 1355  
 play@matureplaysolutions.com.au



# ISSUE FOR REVIEW



## LEGEND

- EXTENT OF WORKS
- CALL OUTS
- EXISTING LEVELS
- TOP OF WALL LEVEL
- ORGANIC GAS MULCH
- COMPACTED SANDWAST
- CONCRETE
- RUBBER TIS
- STABILIZED COMPACTED GRAVEL
- PLAY SAND
- PLANTING
- GADGIN RETAINING WALL
- ROCKS/BOULDERS
- LOGS
- TIMBER SLEEPER
- TIMBER STEPPERS
- BUSH POLES
- EXISTING TREES TO BE RETAINED
- SPHERICAL RETAINING WALL
- LIGHT POLES
- BINS

## EQUIPMENT

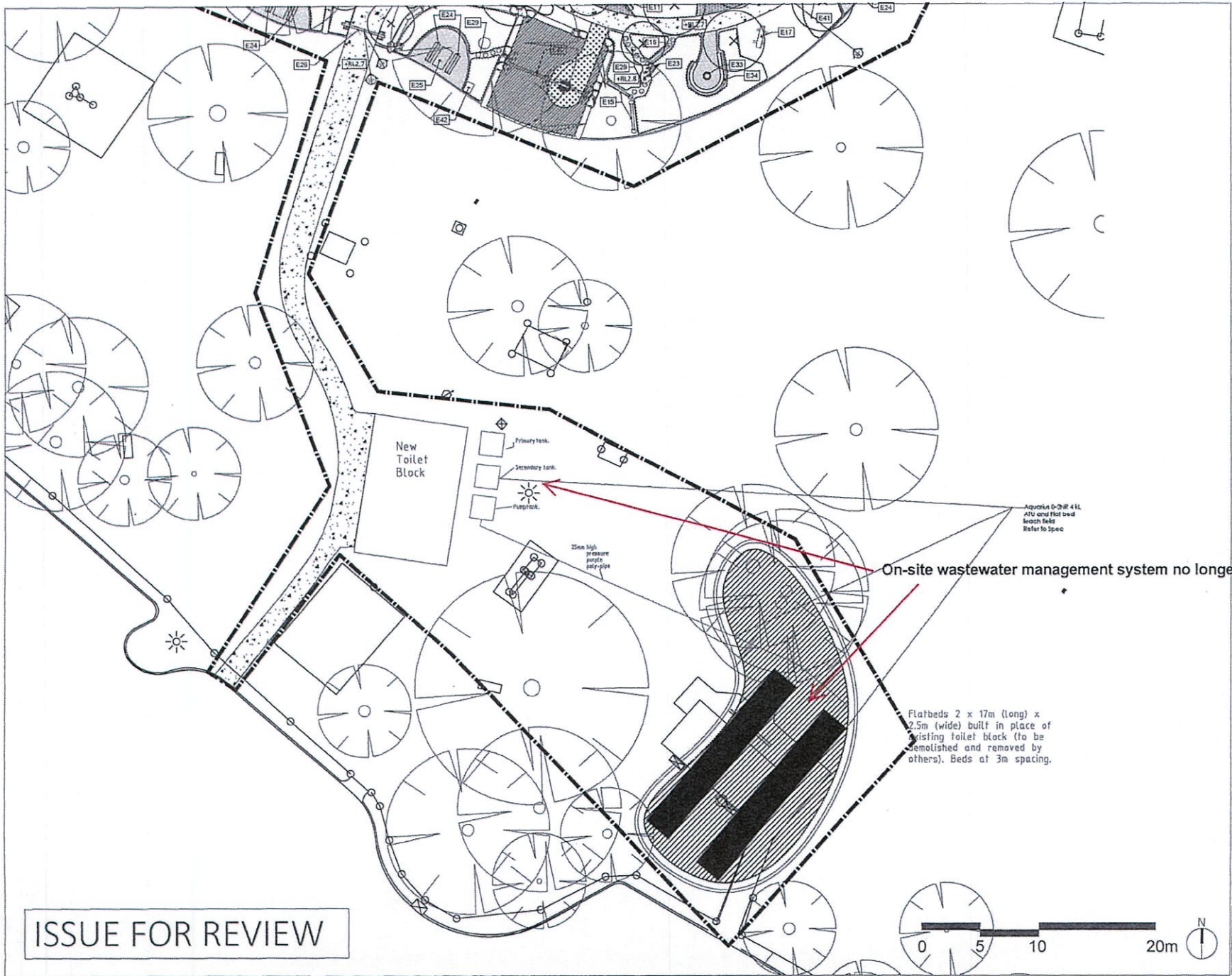
- CONCORD
- TREE TOWER
- BASKET SWING PENDULUM
- CONCRETE SLIDE 1500
- ROPEWALK
- WATER FOUNTAIN
- ORGANIC WATER PLAY TROUGH
- BRIDGE 1500
- SANDY PLAY TABLE
- SAND PULLEY
- BENCH SEAT WITH BACKREST
- TRANSITIONAL BENCH
- DARNING PANEL
- SHOP FRONT
- BALANCE SLEEPER
- DUAL TIGHT ROPE
- CANELED CREATURE
- FRODY HOLE
- FLYING FOK WITH TIMBER PLATFORM
- A FRAME TRIPLE SWING WITH BASKET
- ACCESSIBLE TEE PET
- HIVE CLIMBY
- STILTS
- CRUNKY BENCH
- PICNIC TABLE
- ENTRYWAY SHAGHAGE
- BOARDWALK
- HANGOUT WALES
- TIMBER STEPPERS
- BUSH POLES
- TIMBER SLEEPER SCREENING
- LOGS
- CAMPFIRE
- CAMPFIRE SEATING WALL
- GRIMMID NEST
- SITTING EGGS
- BALANCE LOGS
- CONCRETE SLIDE 900
- GRINDING STORE
- BIKE RACKS
- LIGHT POLES
- BINS
- BALUSTRADE

NO.	DATE	BY	DESCRIPTION
1	10/12/20	...	...
2	11/12/20	...	...
3	01/01/21	...	...

PROJECT: NATURE PLAY SOLUTIONS - HUNTERS HILL  
 SITE ADDRESS: 1000-1000 HUNTERS HILL WEST HILLS WISSEMAN  
 CLIENT: CITY OF HUNTERS HILL  
 TITLE: MAJ01-02

SCALE AT	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
1:100	10/12/20	...	...	...

**NATURE PLAY SOLUTIONS**  
 8 Burchell Way  
 Kentdale 6105, WA  
 (08) 9361 1355  
 play@natureplaysolutions.com.au



- LEGEND**
- EXTENT OF WORKS
  - EXISTING TREES TO BE RETAINED
  - PLANTING
  - CONCRETE
  - KERBING

On-site wastewater management system no longer proposed

Flatbeds 2 x 17m (long) x 2.5m (wide) built in place of existing toilet block (to be demolished and removed by others). Beds at 3m spacing.

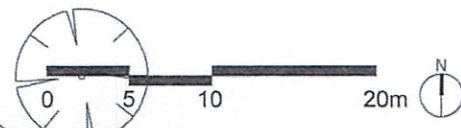
Aquarium 0.2m x 4.1L  
 41L and flat bed  
 leach field  
 Refer to Spec

25mm high  
 pressure  
 concrete  
 pipe/pipe

Primary tank  
 Secondary tank  
 Pump tank

New Toilet Block

ISSUE FOR REVIEW



REV	DATE	BY	DESCRIPTION
A	10/05/20	SI	ISSUE FOR REVIEW
B	10/05/20	SI	ISSUE FOR REVIEW

PROJECT:  
 SANDY BEACH RECREATION PARK (P10000)  
 SITE ADDRESS:  
 SANDY BEACH RECREATION - WEST BIAL, BASSENDEN  
 CLIENT:  
 TOWN OF BASSENDEN  
 SITE:  
 MULTIRUG

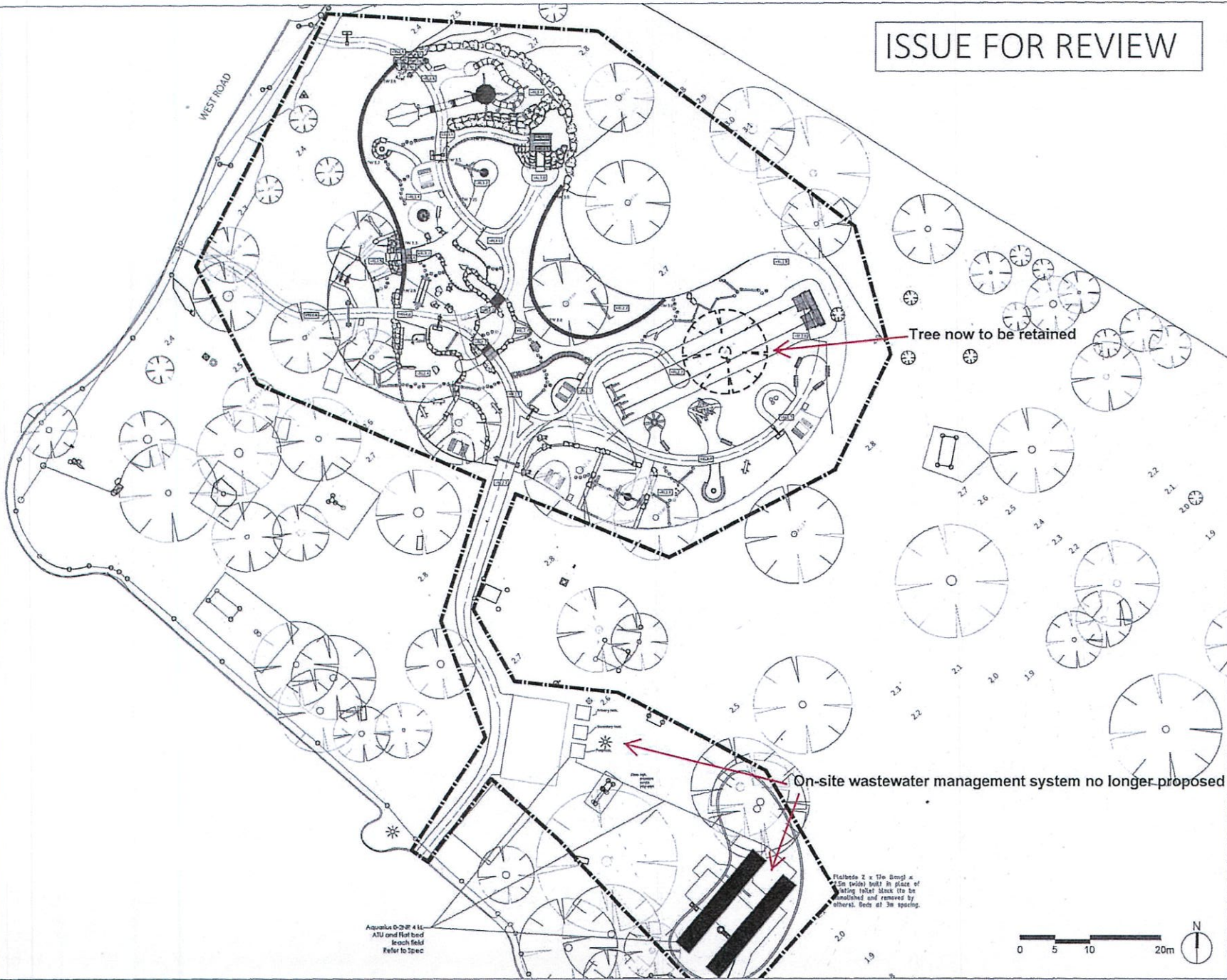
SCALE AT ALL	DATE	DESIGN	DRAWN	CHECKED
1:100	10/05/20	SI	SI	SI

PROJECT NO: 2206  
 DRAWING NO: 1071-12  
 REVISION: 8

**nature PLAY SOLUTIONS**  
 8 Burchell Way  
 Kewdale 6105, WA  
 (08) 9361 1355  
 play@natureplaysolutions.com.au

# ISSUE FOR REVIEW

LEGEND	
	EXTENT OF WORKS
	-2.8- EXISTING CONTOURS
	PROPOSED CONTOURS
	TREE TO BE REMOVED
	PATH CENTERLINE
	+RL 2.8 PROPOSED SPOT HEIGHTS
	+EX 2.5' EXISTING SPOT HEIGHTS
	+TW 3.0 TOP OF WALL
	ROCKS / BOULDERS
	LOGS
	TIMBER SLEEPERS
	STEPPERS
	BUSH POLES
	EXISTING TREES TO BE RETAINED



Tree now to be retained

On-site wastewater management system no longer proposed

Aqualis 0-200' 4 1/2"  
All and flat bed  
Refer to Spec

Flabbed 2 x 12m 800g x  
2m (twice) built in place of  
existing timber blocks (to be  
removed and removed by  
others). Beds of 3m spacing.

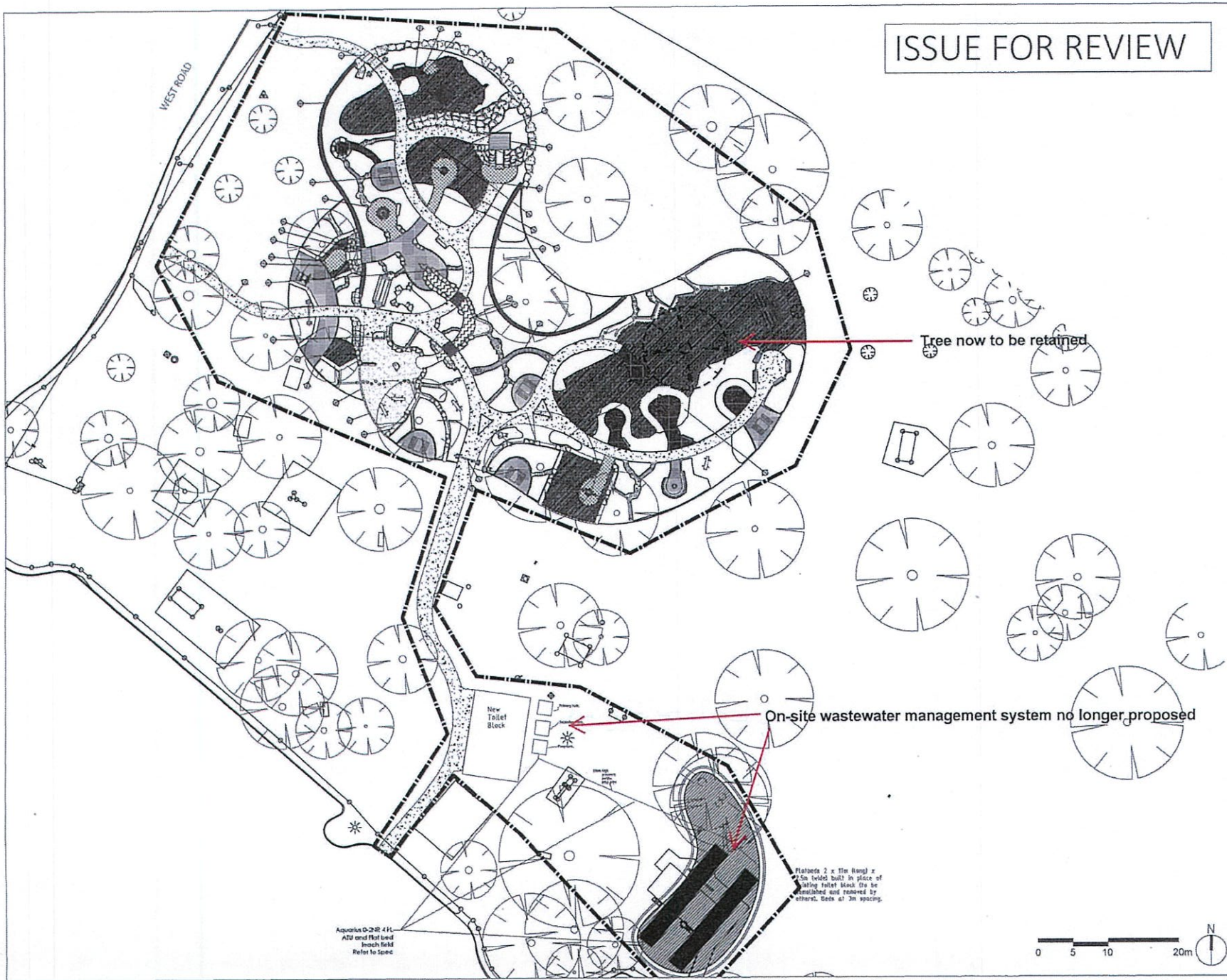
REV	DATE	BY	DESCRIPTION
1	15/10/20	SS	ISSUE FOR REVIEW
2	15/10/20	SS	ISSUE FOR REVIEW
3	15/10/20	SS	ISSUE FOR REVIEW

PROJECT:	TRUCK BEACH RESERVE PLAYPARK
SITE ADDRESS:	SANDY BEACH RESERVE - WEST POINT, BASSENDEN
CLIENT:	TOWNSHIP OF BASSENDEN
TITLE:	STADIUM

SCALE AT ALL:	DATE:	DESIGN:	DRAWING:	CHECKED:
PROJECT NO.:	DRAWING NO.:	REVISION:		



NATURE PLAY SOLUTIONS  
8 Burchell Way  
Kewdale 6105, WA  
(08) 9361 1355  
nply@natureplaysolutions.com.au



ISSUE FOR REVIEW

LEGEND

- EXTENT OF WORKS
- CONCRETE WATER CREEK
- ORGANIC GAS MULCH
- STABILIZED COMPACTED GRAVEL
- CONCRETE
- RUBBER M/S
- COMPACTED SAWDUST
- PLAY SAND
- FLANKING
- GABION RETAINING WALL
- ROCKS / BOULDERS
- LOGS
- TIMBER SLEEPERS
- STEPPERS
- BUSH PEELS
- EXISTING TREES TO BE RETAINED
- PROPOSED TREES
- LIMESTONE RETAINING WALL
- CALL OUTS
- EXISTING TREES TO BE REMOVED
- KERBING

REV	DATE	BY	DESCRIPTION
1	15/03/20	JK	ISSUE FOR REVIEW
2	15/03/20	JK	ISSUE FOR REVIEW

PROJECT			
SANDY BEACH PRESERVE PLAYSPACE			
SITE ADDRESS			
SANDY BEACH PRESERVE WEST ROAD SANDY BEACH			
CLIENT			
TOWN OF BUNGERAY			
TITLE			
NATURE PLAY			
SCALE BY ALL	DATE	DESIGNER	CHECKED
1:500	15/03/20	JK	JK
PROJECT NO.	DRAWING NO.	REVISION	
2250	102	A	

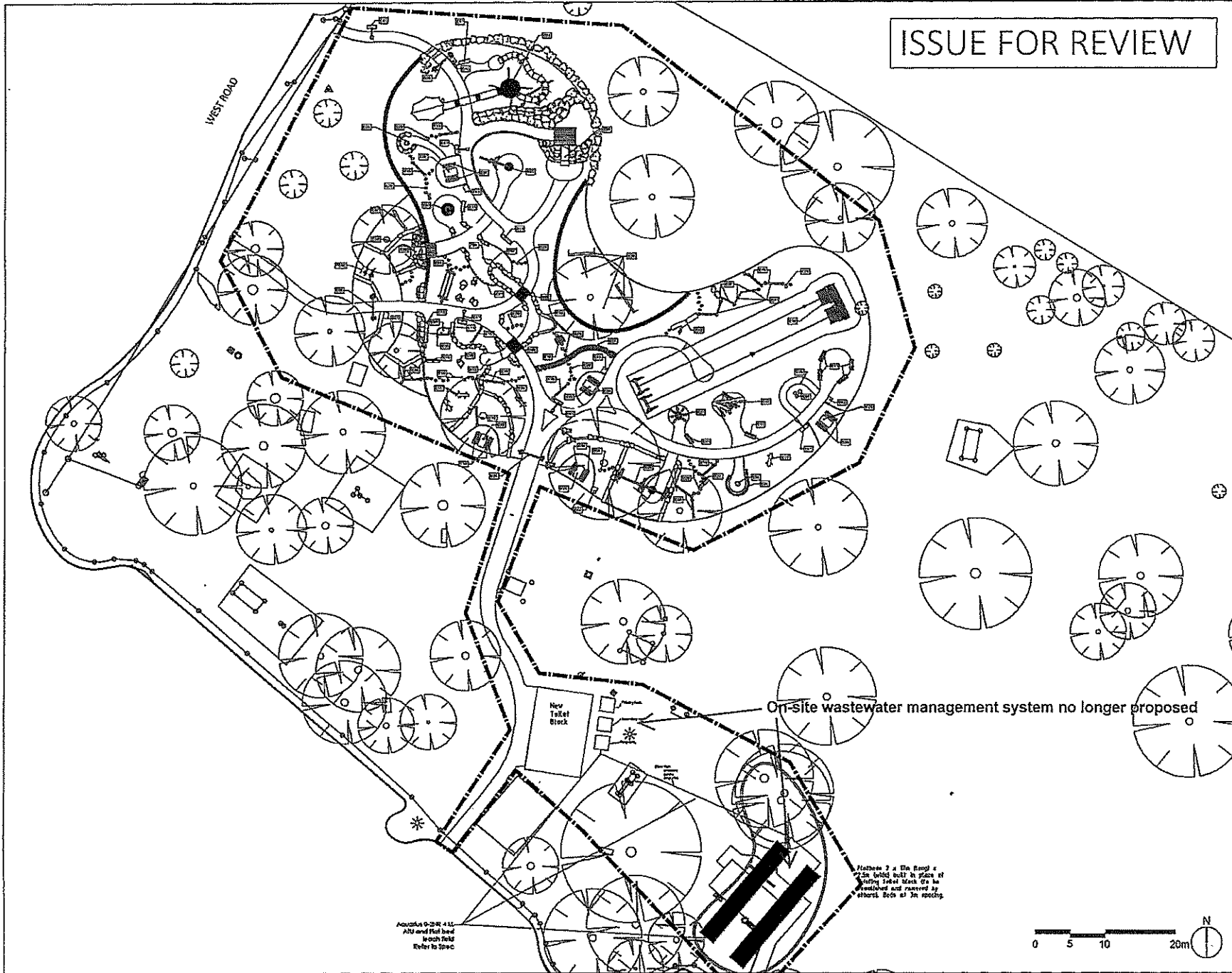
**NATURE PLAY SOLUTIONS**  
 8 Burchell Way  
 Kewdale 6105, WA  
 (08) 9361 1355  
 play@natureplaysolutions.com.au



Aquarius D-2RB 4 HL  
 All and Flat level  
 bench field  
 Refer to Spec

Flatbeds 2 x 11m (long) x  
 4m (wide) built in place of  
 existing toilet block to be  
 demolished and removed by  
 others. Gate at 3m spacing.

# ISSUE FOR REVIEW



## LEGEND

- EQUIPMENT**
- PE01 CONCORD
  - PE02 FRET TOOPER
  - PE03 BASKET SWING PENDULUM
  - PE04 CONCRETE SLIDE 1500
  - PE05 POPPOWALK
  - PE06 WATER FOUNTAIN
  - PE07 ORGANIC WATER PLAY TROUGH
  - PE08 BRIDGE
  - PE09 SANDY PLAY TABLE
  - PE10 SAND PILE
  - PE11 BENCH SEAT WITH BACKREST
  - PE12 TRANSITIONAL BENCH
  - PE13 GARDENING PANEL
  - PE14 SHOP FRONT
  - PE15 BALANCE SLEEPER
  - PE16 CHALK BOARD
  - PE17 CARVED CREATURE
  - PE18 HIDEY HOLE
  - PE19 PERCH FOR WITH TRIMMER PLATFORM
  - PE20 A FRAME TRIPLE SWING WITH BASKET
  - PE21 ACCESSIBLE TEE PEE
  - PE22 LOVE COUCH
  - PE23 STRUT
  - PE24 CHAIR BENCH
  - PE25 PICNIC TABLE
  - PE26 ENTRYWAY SHROUDE
  - PE27 BOARDWALK
  - PE28 TIMBER STEPPERS
  - PE29 BUSH PILES
  - PE30 TRUNK SLEEPER
  - PE31 LOGS
  - PE32 CAMPFIRE
  - PE33 CAMPFIRE SEATING WALL
  - PE34 GROUND NEST
  - PE35 SITTING EGGS
  - PE36 BALANCE LOGS
  - PE37 CONCRETE SLIDE 300
  - PE38 GARDENING STONE
  - PE39 BIKE RACKS
  - PE40 LIGHT POLES
  - PE41 BIRDS
  - PE42 BALLUSTRADE

On-site wastewater management system no longer proposed

Aquas 0-200 415 All and that band touch field Refer to topic

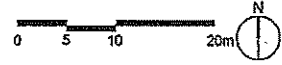
Mats 2 of the Road & 2 of the Toilet Block to be removed and moved to other lots in the site.

NO	DATE	BY	DESCRIPTION
1	10/10/22	DL	REVISED
2	10/10/22	DL	REVISED
3	10/10/22	DL	REVISED

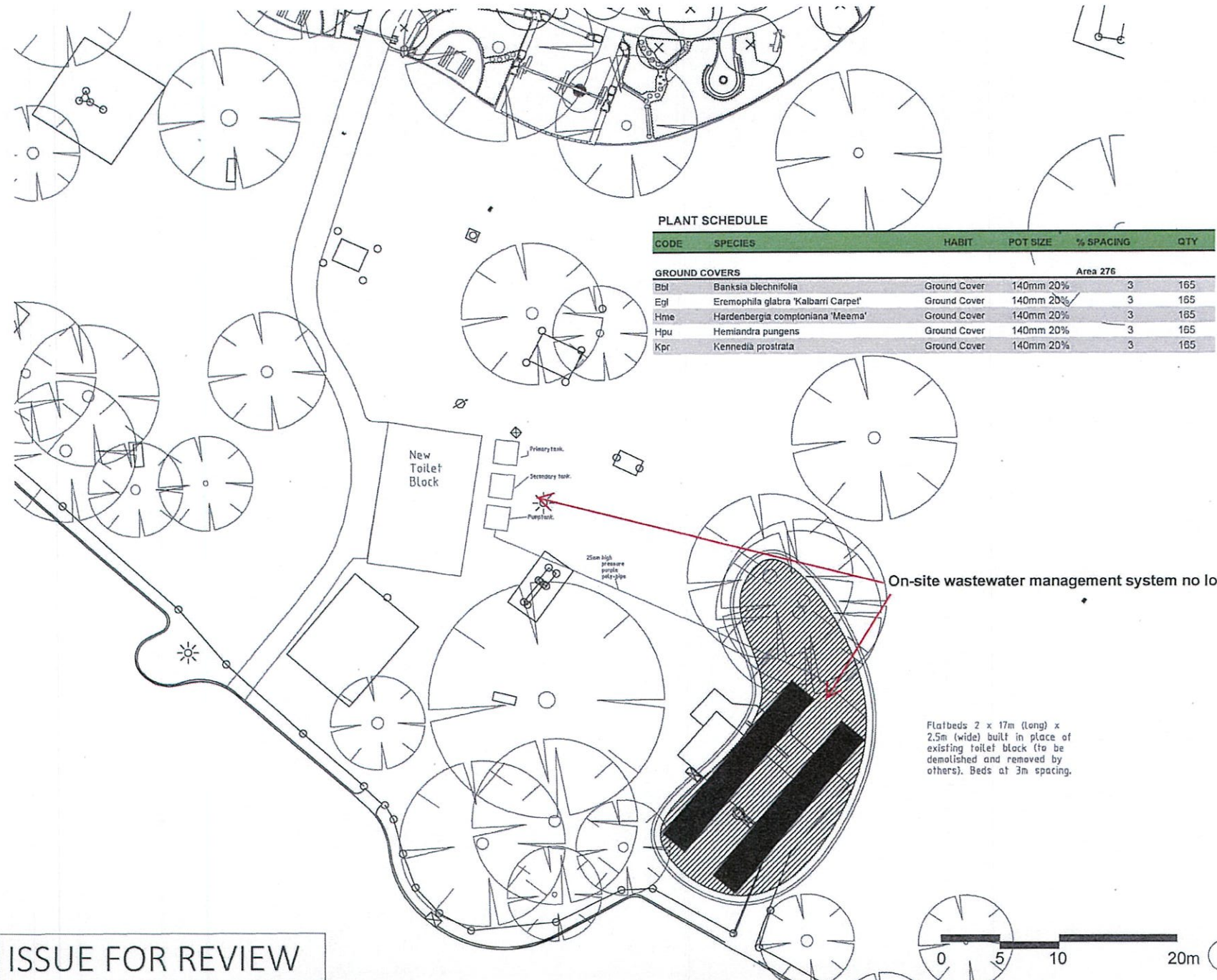
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 SITE ADDRESS: [REDACTED]  
 CLIENT: [REDACTED]  
 DATE: [REDACTED]

SCALE AT A4	DATE	DESIGNED	CHECKED	APPROVED	CREATED
1:100	10/10/22	DL	DL	DL	DL

**NATURE PLAY SOLUTIONS**  
 & Burchard Way  
 Kardale 6105, WA  
 (08) 9361 1355  
 play@natureplaysolutions.com.au







**PLANT SCHEDULE**

CODE	SPECIES	HABIT	POT SIZE	% SPACING	QTY
<b>GROUND COVERS</b>					
<b>Area 276</b>					
Bbl	Banksia blechnifolia	Ground Cover	140mm 20%	3	165
Egl	Eremophila glabra 'Kalbarri Carpet'	Ground Cover	140mm 20%	3	165
Hme	Hardenbergia comptoniana 'Meema'	Ground Cover	140mm 20%	3	165
Hpu	Hemlandra pungens	Ground Cover	140mm 20%	3	165
Kpr	Kennedia prostrata	Ground Cover	140mm 20%	3	165

**LEGEND**

- EXTENT OF WORKS
- EXISTING TREES TO BE RETAINED
- PLANTING
- CONCRETE
- KERBING
- GROUND COVERS

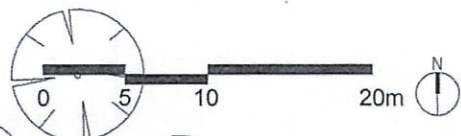
NO.	DATE	BY	DESCRIPTION
1	20/11/20	AS	ISSUE FOR REVIEW
2	22/11/20	AS	ISSUE FOR REVIEW
3	22/11/20	AS	ISSUE FOR REVIEW

PROJECT: SANDY BEACH AT GLEN PLAYERS ALLIANCE  
 SITE ADDRESS: SANDY BEACH ALLIANCE, 44117 RT40, BRUCEMANS  
 CLIENT: TOWN OF BRUCEMANS  
 TITLE: PLANTING

SCALE AT 1:100	DATE: 20/11/20	DESIGN: AS	DRAWN: AS	CHECKED: AS
PROJECT NO: 2276	DRAWING NO: 100	REVISION: 1		

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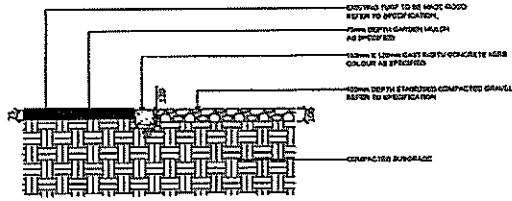
ISSUE FOR REVIEW



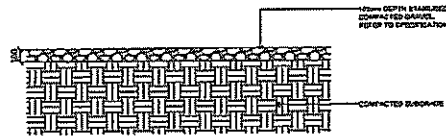




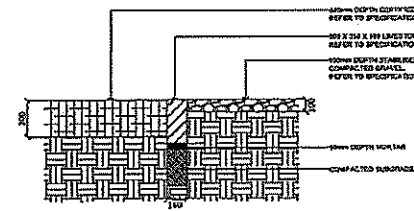




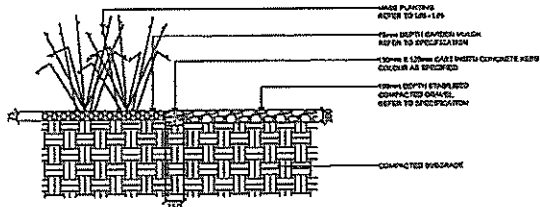
**D1** STABILISED COMPACTED GRAVEL TO EXISTING TURF  
D01 SECTION SCALE 1:10



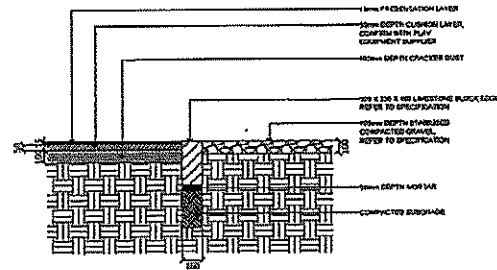
**D2** STABILISED COMPACTED GRAVEL  
D02 SECTION SCALE 1:10



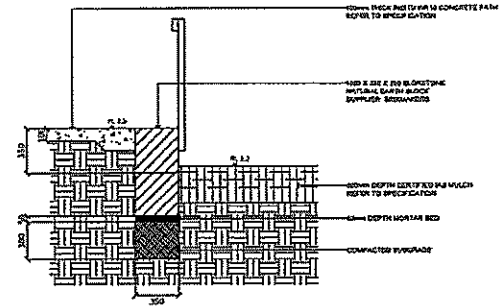
**D3** STABILISED COMPACTED GRAVEL TO CERTIFIED IAS MULCH  
D03 SECTION SCALE 1:10



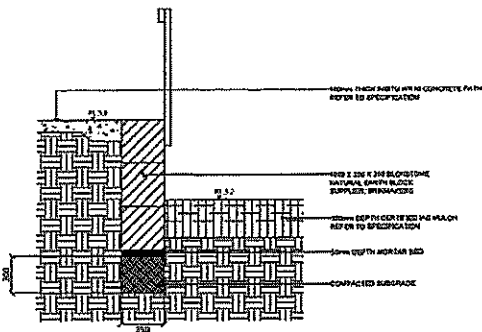
**D4** STABILISED COMPACTED GRAVEL TO MASS PLANTING BED  
D04 SECTION SCALE 1:10



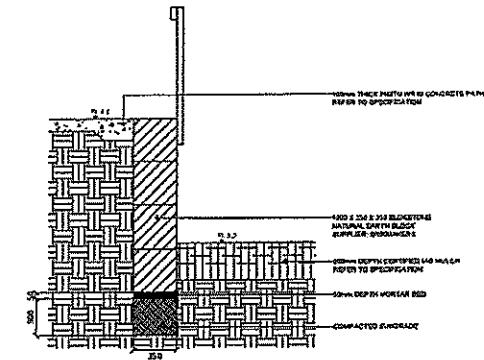
**D5** STABILISED COMPACTED GRAVEL TO IAS RUBBER  
D05 SECTION SCALE 1:10



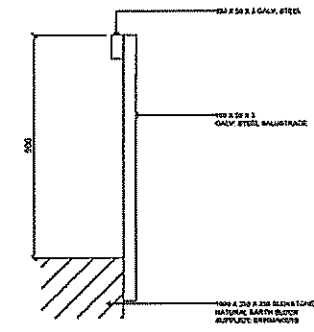
**D6** PATHWAY RETAINING WALL - STONE BLOCK  
D06 SECTION SCALE 1:10



**D7** PATHWAY DOUBLE RETAINING WALL - STONE BLOCK  
D07 SECTION SCALE 1:10



**D8** PATHWAY TRIPLE RETAINING WALL - STONE BLOCK  
D08 SECTION SCALE 1:10



**D9** PATHWAY HANDRAIL  
D09 SECTION SCALE 1:10

NOTES

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

PROJECT: NATURE PLAY SOLUTIONS PLAYSPACE  
 SITE ADDRESS: 8 Burchell Way, Queensland 6105, WA  
 CLIENT: NATURE PLAY SOLUTIONS  
 DESIGNER: NATURE PLAY SOLUTIONS  
 DRAWING NO: D01  
 SCALE: 1:10  
 DATE: 2024

**NATURE PLAY SOLUTIONS**  
 8 Burchell Way  
 Queensland 6105, WA  
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 Fax: + 61 7 3832 3627

24 November 2017

ABN 54 010 830 421

[www.bmtwbm.com.au](http://www.bmtwbm.com.au)

Town of Bassendean  
 PO Box 87  
 Bassendean  
 WA 6934

Attention: Graeme Haggart

## RE: Flood Impact Assessment – Nature-Based Playground proposed for Sandy Beach Reserve

This letter report outlines the background, methodology and results of the flood impact assessment for the proposed nature-based playground development at Sandy Beach Reserve, Bassendean. The objective of the assessment is to quantify the impact of the proposed development on peak flood levels for the 1% AEP Swan River flood event.

## 1 Introduction

---

### 1.1 Background

Town of Bassendean is proposing to construct a nature-based playground within the Sandy Beach Reserve. The approximate location of the proposed playground within this area is shown in Figure 1-1, herein referred to as the Site. The Site is within the 1% AEP flood extent and as such it is important to ensure that the proposed playground does not exacerbate flooding in surrounding properties.

The modelling undertaken in this assessment is based on the existing Swan and Helena Rivers Flood Study (SHRFS) model. The draft report<sup>1</sup> for this modelling was delivered to the Eastern Metropolitan Regional Council in September 2017 by BMT WBM. The SHRFS hydraulic model utilises a two-dimensional (2D) fixed 20m grid cell size to represent the model topography. The proposed design case was characterised through refining the existing model by integrating the new (proposed) playground topography; and by modifying the model roughness values at the Site. The regional TUFLOW model was used to simulate the 1% Annual Exceedance Probability (AEP) design flood events under current climate conditions. In total, two model scenarios were tested; simulated pre- and post-development models for the 1% AEP design flood event as estimated in the SHRHS model. The local stormwater flooding was not assessed as part of this assessment.

### 1.2 Site Description

The Site is located towards the end of the West Road. Locally, the area is known as the Sandy Beach Reserve. To the South of the Site is relatively a flat land area, which is then bounded by the Swan River.

#### 1.2.1 Proposed Playground

The proposed playground is approximately 6,000m<sup>2</sup> in size. The playground design proposes to alter the existing topography through filling. The general location of the Site and a contoured layer of the altered

<sup>1</sup> Draft R.B22428.003.00.Hydraulic\_Modelling\_Report.pdf, BMT WBM, September 2017. Final version of this report to be released in October 2017, following the delivery of this flood impact assessment.

topography, which represents the proposed development, is illustrated in Figure 1-1. The concept plan and an example concept photo are shown in Figure 1-1 and Figure 2-1 respectively. These images were provided by Graeme Haggart from Town of Bassendean on 17 July 2017.



Figure 1-1 Concept Plan (provided by Graeme Haggart, ToB)

## 2 Flood Modelling

---

### 2.1 Base Case Model

The SHRFS TUFLOW model used in the flood impact assessment was adopted as the base case scenario. The original (unrefined) SHRFS model was able to sufficiently capture the topography at this location through using a 2m resolution LiDAR data set. The hydraulic roughness applied broadly across this area in the existing model is a Manning's n-value of 0.8; which coincides with a medium vegetated region.

### 2.2 Developed Case Model

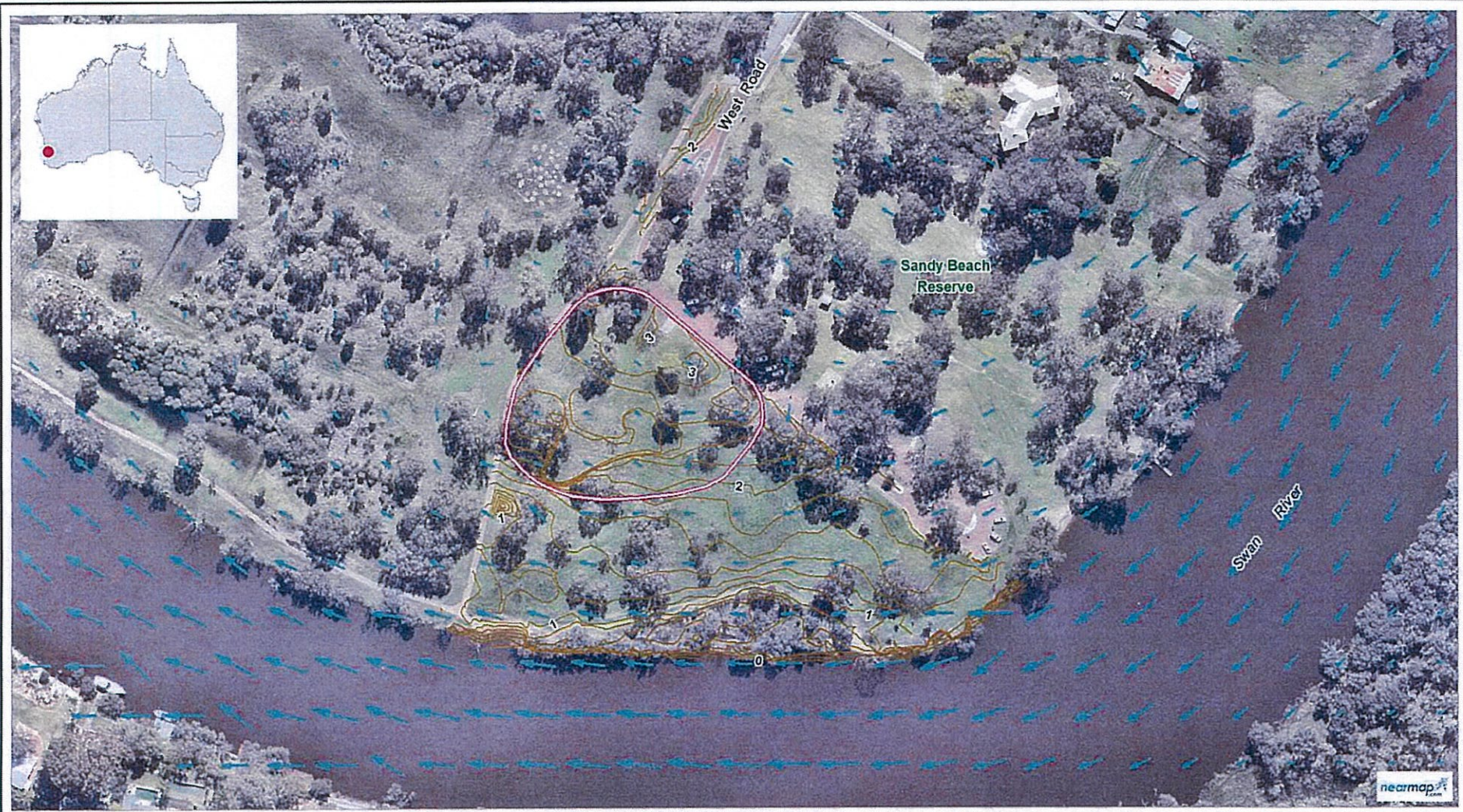
The base case flood model was used as a basis for producing the developed case scenario. The proposed playground was represented in the model by altering the topography and Manning's roughness values. A DEM was created based on the contours provided by Chris Lawrence of Nature Play Solutions on 21 August 2017. These contours represent the change in ground elevations proposed as part of the playground development. A '2d Z Shape' layer was added into the model for areas where further modification in elevations are required.

The hydraulic roughness is the measure of the amount of frictional resistance water experiences when passing over land and channel features. The hydraulic roughness across the proposed playground location was increased to a Manning's n-value of 0.12 to represent the playground hydraulic roughness. This value was selected in consideration of the spacing of the vertical features of the playground (such as piles and trees, as per the example concept photo shown in Figure 2-1) in addition to the potential for debris to be trapped across these features. A Mannings n value of 0.12 is a conservative estimate of roughness for this proposal.






Figure 2-1 Concept Image of part of the Proposed Playground (courtesy Nature Play Solutions via Graeme Haggart)





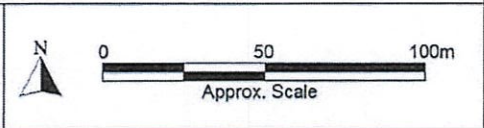
**LEGEND**

-  Approximate Site Boundary
-  Contour Lines (0.2m Interval)
-  Velocity Vector

Title:  
**Vector Velocities at the Site - Development Case**

Figure: <b>2-2</b>	Rev: <b>A</b>
-----------------------	------------------

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Filepath: I:\B22818\_I\_GML\_SandyBeach\_CLB\DRG\FLD\_002\_171017\_Velocity Vectors\_001.WOR

## 2.3 Design Flood Event

The base case and the proposed developed case options were simulated for the 1% AEP event. The 1% AEP fluvial event combined with Highest Astronomical Tidal condition was identified as the dominant event in the fluvial zone. This event gives the highest conveyance of flow in the area; hence, this event was considered as being the critical 1% AEP flood event in this flood impact assessment.

## 2.4 Flood Model Results

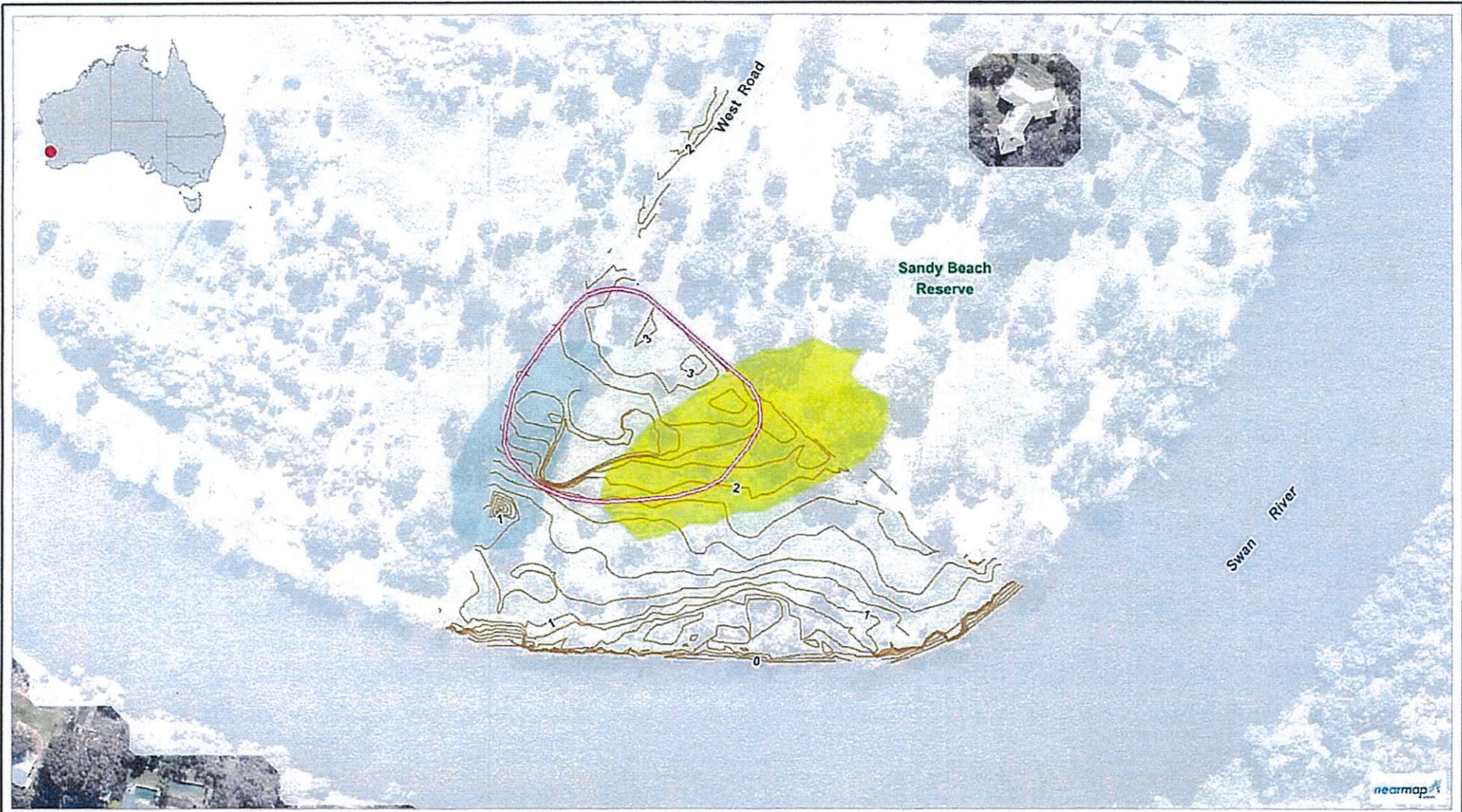
The peak water level, velocity and hazard (depth x velocity) results are shown in Figure A 1 to Figure A 6 for both base case and developed case scenarios. The vector velocities at the Site for the developed scenario suggest that water has entered the Site from the low lying Eastern boundary (refer to Figure 2-2). The 1% AEP flood level at the Site is predicted to be between 3.4m and 3.6m AHD; which indicates a water depth of about 0.8m above ground elevation.

### 3 Flood Impacts

---

As shown in Figure 3-1, the proposed development has minimal impact on the peak 1% AEP flood levels at, and around, the Site. As shown, peak flood levels are predicted to decrease across the Western portion of the Site by between 0.01m and 0.025m. An increase in flood peak levels of between 0.01m and 0.025m is predicted to the South and South-East of the Site. Any other increases and decreases in peak flood levels are negligible (within  $\pm 0.01\text{m}$ ) across the remainder of the Site, Sandy Beach Reserve and neighbouring properties.

Figure A 3 and Figure A 4 shows a decrease in the velocity from base case (0.4-0.6 m/s) to developed case (0.2m/s-0.4m/s) in the Western and Southern regions of the Site. The flow velocity is strongly dependant on the resistance to flow. As expected, an increase in Manning's n value has decreased the velocity of water flowing across the ground surface. Likewise, the hydraulic hazard at the Site for the developed scenario has decreased as the hydraulic hazard output is a product of velocity and flood depth (refer to Figure A 6).



<p><b>LEGEND</b></p> <p> Approximate Site Boundary</p> <p> Contour Lines (0.2m interval)</p> <p><b>Difference in Peak Flood Levels (m)</b></p> <table border="0"> <tr> <td></td> <td>&lt; -0.025</td> <td></td> <td>0.010 to 0.025</td> </tr> <tr> <td></td> <td>-0.025 to -0.010</td> <td></td> <td>&gt; 0.025</td> </tr> <tr> <td></td> <td>-0.010 to 0.010</td> <td></td> <td></td> </tr> </table>		< -0.025		0.010 to 0.025		-0.025 to -0.010		> 0.025		-0.010 to 0.010			<p>Title:</p> <p><b>1% AEP Peak Flood Level Impacts due to Proposed Playground</b></p> <p>BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.</p> <div style="text-align: center;"> <p>Approx. Scale</p> </div> <p>Filepath: I:\B22818_I_GML_SandyBeach_CLB\DRG\FLD_003_171017_Flood Impacts_001.WOR</p>	<table border="1"> <tr> <td>Figure:</td> <td>Rev:</td> </tr> <tr> <td><b>3-1</b></td> <td><b>A</b></td> </tr> </table> <div style="text-align: center;"> <p><b>BMT WBM</b> www.bmtwbm.com.au</p> </div>	Figure:	Rev:	<b>3-1</b>	<b>A</b>
	< -0.025		0.010 to 0.025															
	-0.025 to -0.010		> 0.025															
	-0.010 to 0.010																	
Figure:	Rev:																	
<b>3-1</b>	<b>A</b>																	

## 4 Conclusion

---

The proposed playground at Sandy Beach Reserve in Bassendean is predicted to have negligible impact on the peak flood level in the 1% AEP event. The maximum increase in peak flood levels is predicted to be less than 0.025m, which is confined to the Sandy Beach Reserve.

Should you wish to discuss any contents of the letter, please do not hesitate to contact me on (07) 3831 6744.

Yours Faithfully



Cathie Barton

BMT WBM



**LEGEND**

- Approximate Site Boundary
- Contour Lines (0.2m interval)

**Peak Flood Levels (m AHD)**

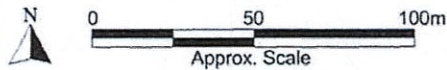
- |            |            |
|------------|------------|
| 3.4 to 3.5 | 3.6 to 3.7 |
| 3.5 to 3.6 | 3.7 to 3.8 |

Title:  
**1% AEP Peak Flood Levels - Base Case**

Figure:  
**A-1**

Rev:  
**A**



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Filepath: I:\B22818\_I\_GML\_SandyBeach\_CLB\DRG\FLD\_004\_171017\_Water Level Base Case\_001.WOR



**LEGEND**

-  Approximate Site Boundary
-  Contour Lines (0.2m interval)

**Peak Flood Levels (m AHD)**

- |  |  |
|--|--|
|  3.4 to 3.5 |  3.6 to 3.7 |
|  3.5 to 3.6 |  3.7 to 3.8 |

Title:  
**1% AEP Peak Flood Levels - Developed Case**

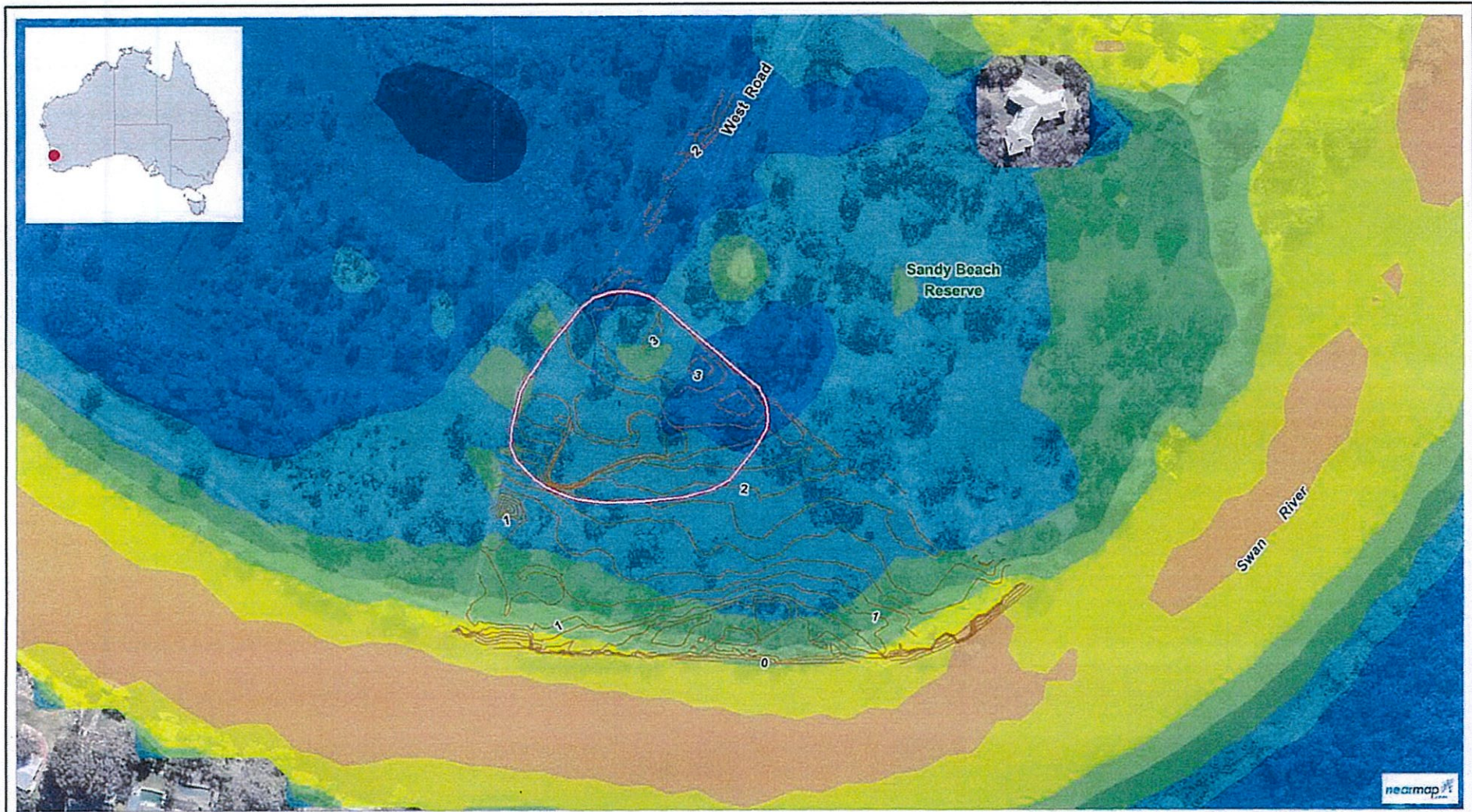
Figure:  
**A-2**

Rev:  
**A**

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Filepath: I:\B22818\_I\_GML\_SandyBeach\_CLB\DRG\FLD\_005\_171017\_Water Level Developed Case\_001.WOR



**LEGEND**

Approximate Site Boundary

Contour Lines (0.2m interval)

**Velocity (m/s)**

	0.0 to 0.2		0.6 to 0.8		1.5 to 2.0
	0.2 to 0.4		0.8 to 1.0		
	0.4 to 0.6		1.0 to 1.5		

Title:  
**1% AEP Velocity - Base Case**

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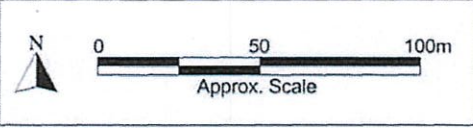


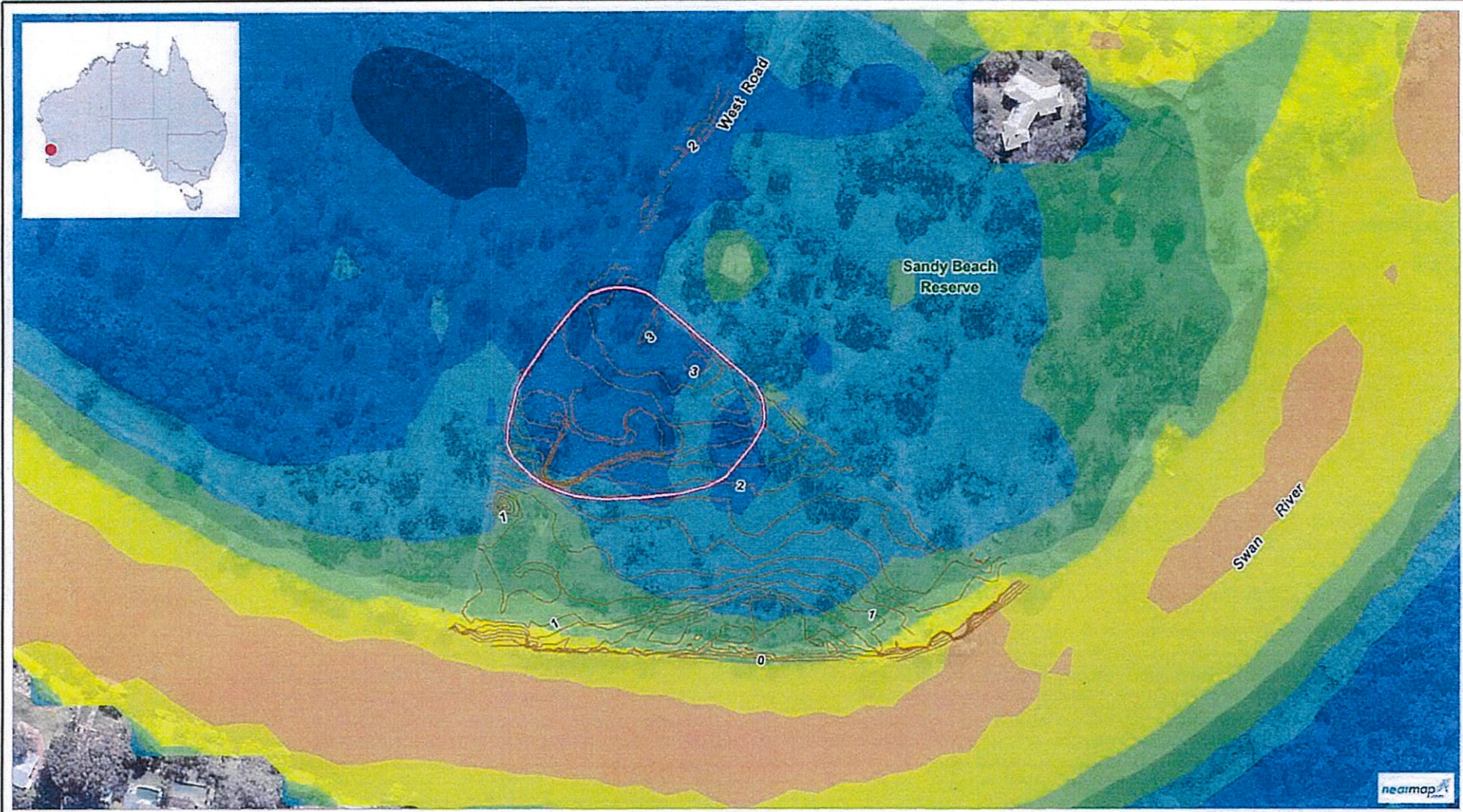
Figure:  
**A-3**

Rev:  
**A**

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Filepath: I:\B22818 | GML\_SandyBeach\_CLB\DRG\FLD\_008\_171018\_Velocity Base Case\_001.WOR





**LEGEND**

Approximate Site Boundary

Contour Lines (0.2m interval)

**Velocity (m/s)**

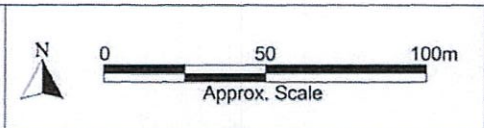
	0.0 to 0.2		0.6 to 0.8		1.5 to 2.0
	0.2 to 0.4		0.8 to 1.0		
	0.4 to 0.6		1.0 to 1.5		

Title:  
**1% AEP Velocity - Developed Case**

Figure:  
**A-4**

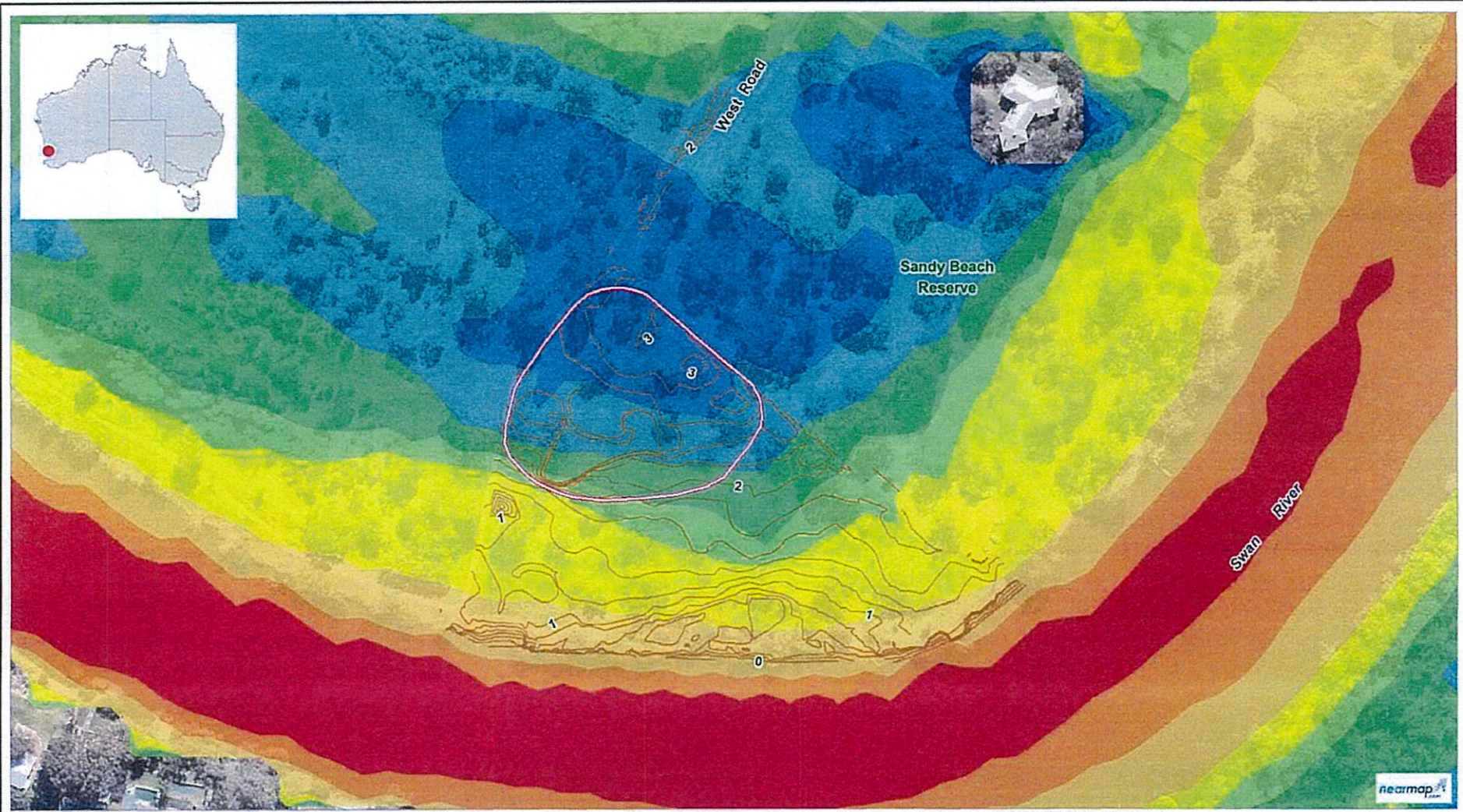
Rev:  
**A**

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**LEGEND**

Approximate Site Boundary

Contour Lines (0.2m interval)

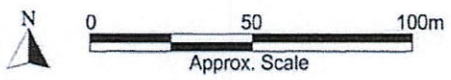
**Hazard (m<sup>2</sup>/s)**

	0.0 to 0.2		0.6 to 0.8		2.0 to 6.0
	0.2 to 0.4		0.8 to 1.0		6.0 to 10.0
	0.4 to 0.6		1.0 to 2.0		> 10.0

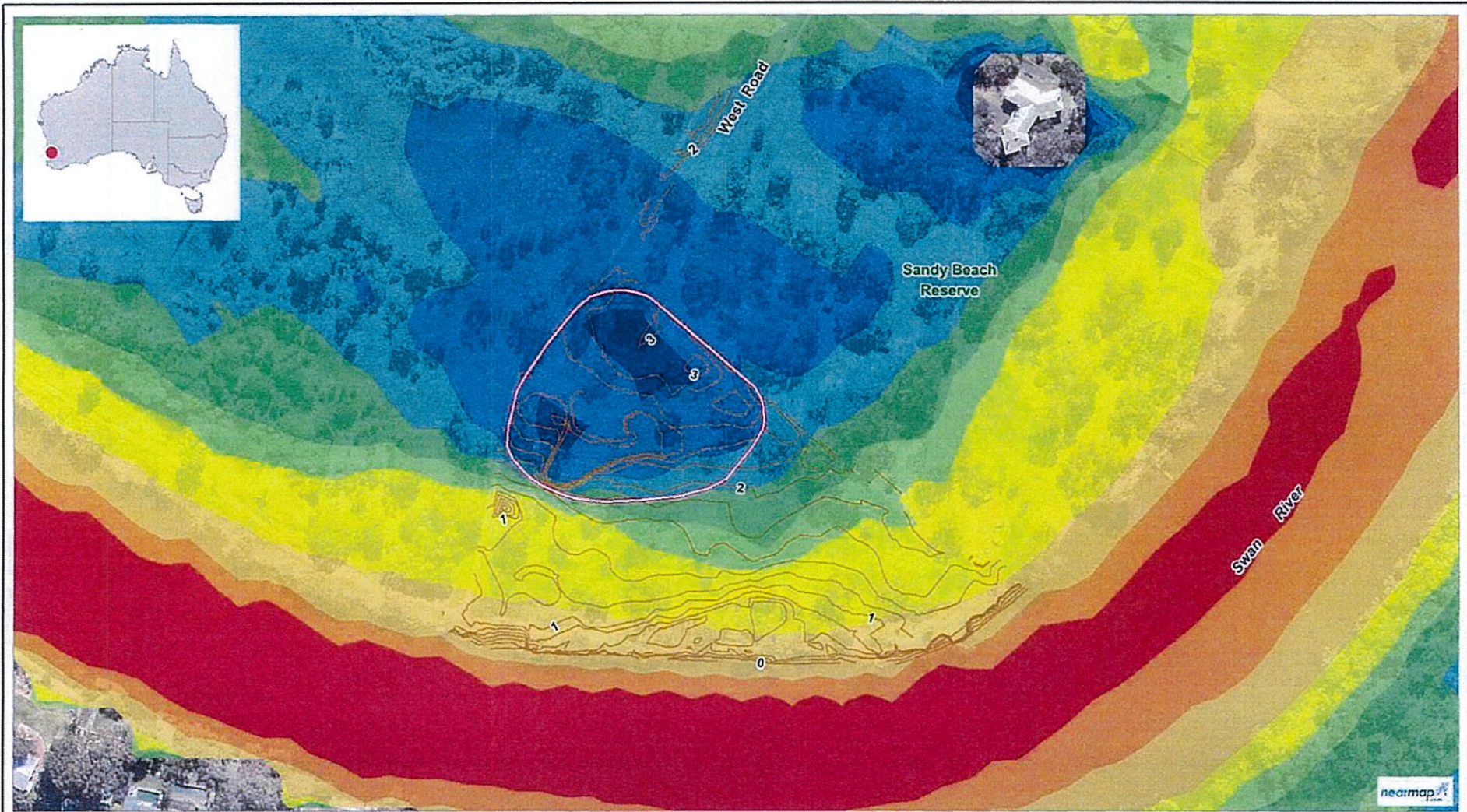
Title:  
**1% AEP Hazard - Base Case**

Figure: **A-5**      Rev: **A**



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

Filepath: I:\B22818\_I\_GML\_SandyBeach\_CLB\DRG\FLD\_006\_171017\_Depth Velocity Product Base Case\_001.WOR



**LEGEND**

-  Approximate Site Boundary
-  Contour Lines (0.2m interval)

**Hazard (m<sup>2</sup>/s)**

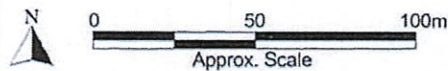
 0.0 to 0.2	 0.6 to 0.8	 2.0 to 6.0
 0.2 to 0.4	 0.8 to 1.0	 6.0 to 10.0
 0.4 to 0.6	 1.0 to 2.0	 > 10.0

Title:  
**1% AEP Hazard - Developed Case**

Figure:  
**A-6**

Rev:  
**A**

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Filepath: I:\B22818\_I\_GML\_SandyBeach\_CLB\DRG\FLD\_007\_171017\_Depth Velocity Product Developed Case\_001.WOR