

Swan and Canning Rivers Management Act 2006

PART 5

DETERMINATION OF DEVELOPMENT APPLICATION

FILE NUMBER : SRT6154
APPLICANT : Pindan Pty Ltd
Jordan Ennis – Project Manager
APPLICANT'S ADDRESS : PO Box 93
Belmont WA 6104
OWNER : City of Swan
DESCRIPTION : Lot 10472 on Diagram 29725 (Reserve 25845) and Lot
14255 on Diagram 78972 (Reserve 46619) – Max Hunt
Reserve
DEVELOPMENT : Stormwater Drainage and Landscaping Works – River's
Edge Estate Foreshore Management Plan
VALID FORM 1 RECEIVED : 5 November 2014
DETERMINATION : **APPROVAL WITH CONDITIONS**

The application to commence development in accordance with plans received by the Trust on 22 January 2015, subject to the following conditions:

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

Prior to commencement of works

2. The applicant shall notify the Swan River Trust in writing not less than thirty (30) days prior to the commencement of works.
3. Unless otherwise agreed in writing by the Swan River Trust, no development in the Trust Development Control Area shall commence until all plans requiring approval by the General Manager have been submitted and approved.
4. At least 30 days prior to the commencement of works, a construction environmental management plan shall be submitted to, and approved by the Swan River Trust on advice from the City of Swan (see *Advice Note 2*).

During works

5. All works shall be carried out in accordance with the approved Foreshore Management Plan (January 2015).
6. The approved construction environmental management plan required under **Condition 4** shall be implemented.
7. The swale shall be constructed with a concrete mowing border to protect swale plants from accidental mowing and to prevent weeds from entering the swale. The concrete mowing border shall be a minimum size of 200mm x 200mm.

8. All fill and landscaping materials shall be clean, uncontaminated, and dieback disease free in accordance with the definition of 'clean fill' outlined in the Department of Environment and Conservation's *Landfill Waste Classification and Waste Definitions 1996*.
9. The applicant shall ensure that no debris, litter, fill, rubbish or any other deleterious matter shall enter the river.
10. No refuelling of machinery shall take place within the Swan River Trust Development Control Area.

On completion of works

11. All waste materials from the development shall be completely removed from the site upon completion of the development. Final clean-up shall be to the satisfaction of the Swan River Trust.

Ongoing

12. The swale shall be maintained for a period of five (5) years following completion of works, prior to handover to the City of Swan.

ADVICE TO APPLICANT

1. The construction environmental management plan required under *Condition 4* should detail how the proposed works will be managed to minimise environmental impacts and should address, but not be limited to:
 - site access;
 - on-site storage and bunding of materials and equipment;
 - machinery and refuelling;
 - identification and protection of established vegetation;
 - excavation and any stockpiling of soil;
 - waste management;
 - dust management;
 - protection of the river from inputs of deleterious material;
 - sediment management during construction;
 - erosion control and contingencies;
 - public access and safety;
 - parking for contractors; and,
 - complaints and incidents.

Where relevant, the plan should also include timeframes and responsibilities for tasks identified.

2. The applicant is advised that it is an offence under the Swan and Canning Rivers Management Regulations 2007 to destroy, pull up, cut back or injure any tree, shrub or perennial plant that is on land within the Swan River Trust Management Area, except with the approval of the Trust or unless otherwise exempt by the Regulations. Should any clearing be required a clearing permit application would also need to be lodged with the Department of Environment Regulation.


Albert Jacob, MLA
MINISTER FOR ENVIRONMENT; HERITAGE

Date: 24/3/2015

FILE No. : SRT6154

TRUST MEETING : 10 February 2015

SWAN RIVER TRUST REPORT

PROPOSAL : Stormwater Drainage and Landscaping Works – River’s Edge Estate Foreshore Management Plan

COST : \$50,000

LOCATION : Lot 10472 on Diagram 39725 (Reserve 25845) and Lot 14255 on Diagram 78972 (Reserve 46619) – Max Hunt Reserve

APPLICANT : Pindan Pty Ltd
Jordan Ennis – Project Manager

LANDOWNER : City of Swan

LOCAL GOVERNMENT : City of Swan

MRS CLASSIFICATION : Parks and Recreation

LG CLASSIFICATION : Parks and Recreation

DECISION TYPE : Part 5, *Swan and Canning Rivers Management Act 2006* – Ministerial Determination

RECEIVED : Application form and original plans: 5 November 2014
Amended plans: 22 January 2015

ATTACHMENTS : 1: Location map and DCA
2: Aerial photograph
3: Landscape Master Plan for Max Hunt Reserve
4: Swale design
5: Swale cross-section
6: Site photos

RECOMMENDATION : **APPROVAL WITH CONDITIONS**

REPORT

1.0 INTRODUCTION

- 1.1 The Swan River Trust (the Trust) has received an application from Pindan Pty Ltd for a Foreshore Management Plan (FMP), which provides detailed information to support the proposed installation of stormwater infrastructure and landscaping works within the Parks and Recreation (P&R) reserve abutting the Swan River at South Guildford (**Attachment 1**). The proponent plans to utilise the foreshore area to convey treated stormwater to the Swan River from an approved residential development (River’s Edge Estate) on neighbouring Lots 14, 9000 and 9001 Great Eastern Highway, South Guildford (**Attachment 2**).

1.2 The proposal involves:

- the construction of a vegetated swale (5.6m wide and approximately 50m long) through the foreshore which will convey treated water from the development to the Swan River,
- a 2.5m wide concrete shared pathway through the foreshore to connect to existing pathways in the area,
- a concrete culvert crossing to allow the pathway to cross the swale, and
- two concrete access paths (2m wide) to connect the River's Edge Estate development to the new foreshore pathway on either side of the swale.

1.3 The proposed development is to occur on land within the Swan River Trust Development Control Area and therefore the proposed works require an approval under Part 5 of the *Swan and Canning Rivers Management Act 2006*.

1.4 A Foreshore Management Plan has been developed by Emerge Associates to provide the necessary information required for assessment of the Part 5 application. The proposed Landscape Master Plan for the reserve is at **Attachment 3**.

2.0 CONSULTATIONS

City of Swan

2.1 The applicant engaged the City of Swan (the City) in discussions regarding the Foreshore Management Plan prior to it being submitted to the Trust. Therefore a number of the City's requirements have already been taken into account and included in the Foreshore Management Plan. The pathways are to be constructed from concrete at the City's request. Also, the City suggested some alterations to the design of the swale which have been incorporated into the final plans. These include the use of amended soils throughout the length of the swale and the use of more sedge species in place of ornamental landscaping species. These measures will improve the water quality improvement properties of the swale.

2.2 The City therefore advises that it supports the latest revision of the Foreshore Management Plan dated January 2015 on the understanding that Pindan will maintain the drainage swale for a minimum of five years prior to handover to the City.

2.3 The City requests a condition of approval requiring mowing kerbs to have a minimum dimension of 200mm x 200mm.

Department of Water (DoW) – Swan Avon Region

2.4 The Department of Water advises it has no comments regarding the application.

Western Australian Planning Commission

2.5 The Western Australian Planning Commission advises no objections to the proposed Foreshore Management Plan.

3.0 PUBLIC CONSULTATIONS

3.1 In accordance with the requirements of Part 5 of the *Swan and Canning Rivers Management Act 2006* a copy of the draft report and proposed recommendation has been provided to the applicant, the local government and other consultant

agencies. A copy was also published on the Trust website for a period of 3 weeks between 16 February 2015 and 9 March 2015 calling for public submissions.

- 3.2 One (1) submission was received from the Department of Water advising no comments regarding the draft report.

4.0 RELEVANT POLICIES AND PLANS

- ◆ *State Planning Policy 2.10 Swan-Canning River System*
- ◆ *SRT/EA1 – Conservation, Land Use and Landscape Preservation*
- ◆ *SRT/D2 – Access Pathways and Cycle Access*
- ◆ *SRT/D4 – Stormwater Management*
- ◆ *SRT/EA3 – Flood Prone Land*

5.0 ENVIRONMENTAL AND PLANNING CONSIDERATIONS

- ◆ Stormwater Management
- ◆ Flood Prone land
- ◆ Protection of vegetation
- ◆ Public Access
- ◆ Implementation and Management

6.0 BACKGROUND

- 6.1 In accordance with *Better Urban Water Management* (DoW, 2008), a Local Water Management Strategy (LWMS) was prepared for the River's Edge Estate development and was approved by the Department of Water and the Trust in June 2014. Subsequently a more detailed Urban Water Management Plan (UWMP) was prepared to support the subdivision application for the development, and was approved by the Department of Water and the Trust in September 2014.
- 6.2 As part of the assessment of the LWMS, the Trust agreed to consider allowing the adjoining foreshore area to be used for the conveyance of treated stormwater, providing it could be demonstrated that water quality entering the Swan River would be improved and an overall benefit provided to the community in accordance with Trust policy *Stormwater Management* (SRT/D4).
- 6.3 SRT/D4 states that the Trust will only support applications for the use of land in the Trust Development Control Area for stormwater management from new or existing residential, commercial or industrial developments if (among other things):
- the proposal will improve the ecological value of the foreshore reserve and waterway and will result in a demonstrable community benefit,
 - the subject site is in close proximity to the urban development that is the source of the stormwater,
 - the reasons that stormwater cannot be managed on the development site are provided and the need to locate the stormwater management system in the Trust Development Control Area is justified to the Trust's satisfaction,
 - the proposal includes a demonstrable commitment to improve the quality of water entering the river system from the development site, and
 - the use of the foreshore reserve for stormwater management has been rationalised in an urban water management plan.

7.0 DISCUSSION

Stormwater Management

- 7.1 The stormwater management strategy for the residential development site involves the use of subsurface storage to infiltrate and store the 1 year, 1 hour annual recurrence interval (ARI) event. Larger events will be discharged to the river via the vegetated swale proposed. Due to the limited space on the development site, the Trust and the Department of Water agreed to allow a small portion of the roof run-off from a 1 year, 1 hour ARI event to be discharged directly to the swale as it is considered to be relatively clean water and the clay conditions of the site limit infiltration. The case for the negotiated outcome was outlined and justified in both the LWMS and the UWMP for the site.
- 7.2 As the swale will be conveying a portion of the 1 year, 1 hour ARI event from roof areas within the development, and overflows from subsurface storage in the residential development should be across vegetated surfaces, the City requested the swale be designed and constructed as a biofilter; utilising amended soils and plant species known for their nutrient stripping and water quality improvement properties. These requirements have been incorporated into the design of the swale (**Attachment 4**), a cross section of which can be seen at **Attachment 5**.
- 7.3 Pre-development peak flows for each ARI event have been calculated and will be maintained through the design of the swale. The swale has therefore been designed to accommodate the peak flow of a 1 in 100 year ARI event (calculated at 1.17m³/s), which necessitates a maximum depth of 300mm, side slopes of 1:6 and a minimum width of 4.5m (**Attachments 4 and 5**).
- 7.4 It is expected that the swale will improve the quality of stormwater entering the Swan River at the location while also enhancing the existing environmental values through the planting of native vegetation.

Flood Prone Land

- 7.5 Almost all of the subject foreshore area is mapped as being part of the Swan River floodway. However, the swale and pathways are not expected to impede the flow of water during flood events, and therefore there are no concerns with the proposal with regard to flooding.

Protection of Vegetation

- 7.6 Swan River Trust policy *Conservation, Land Use and Landscape Preservation* (SRT/EA1) states that the Trust will promote the maintenance and restoration of natural vegetation and actively encourage the retention and reinforcement of existing native vegetation.
- 7.7 The subject land has been extensively cleared of native vegetation since prior to 1953. The majority of the site is covered with grass, with the only native vegetation remaining being fringing vegetation along the Swan River with little to no native understore species.
- 7.8 No vegetation is proposed to be removed as part of the works, other than the turf in the immediate location of the swale and pathways.
- 7.9 The proposal involves the planting of sedge species known for their water quality improvement properties and include:
 - *Baumea articulate*
 - *Baumea juncea*

- *Juncus pallidus*
 - *Juncus kraussii*
 - *Schoenoplectus validus*
- 7.10 Emerge Associates have advised that planting will be carried out in early Spring or Autumn. All sedges will be planted throughout the swale at a density of six plants per m² and will be mixed in a natural arrangement. The swale will also incorporate the planting of four semi-mature *Eucalyptus rudis* in 100L tubs, and laterite boulders will be randomly placed throughout the swale (200-600mm) to create a natural look, and provide some erosion protection at the edges of meanders and at the outlet to the river.
- 7.11 The swale will have a concrete mowing border to protect swale plants from accidental mowing and to prevent weeds from entering the swale. The City requested a condition of approval requiring the mowing border be a minimum size of 200mm x 200mm. This has been included in conditions.
- 7.12 The Trust considers the planting methods, densities and edging proposed are appropriate and sufficient for improving the amenity of the site, without creating an excessive amount of maintenance work for the City into the future.

Public Access

- 7.13 Trust policy *Access Pathways and Cycle Access* (SRT/D2) states that the Trust will ensure that pathways are located, designed and constructed with due regard for environmental and community values, public safety, community enjoyment, landscape conservation and regional planning.
- 7.14 The applicant proposes to construct a 2.5m wide public access pathway through the foreshore to link up with an existing pathway to the south of the site, and connect with Riverside Drive to the north east. The pathway will be constructed of coloured red concrete in accordance with the City's guidelines, and incorporates a concrete culvert crossing over the swale. The pathway and culvert have been designed to accommodate service vehicles as per the City's request.
- 7.15 The final layout and alignment of the pathways have been carefully considered by the applicant, the City of Swan and the Swan River Trust. An earlier plan showed a concrete path through the foreshore with an additional crushed limestone pathway providing access along the boundary with the River's Edge Estate for future residents of the riverfront lots. The City was not supportive of the crushed limestone pathway because it can create maintenance problems, particularly in boggy areas or on floodway land and does not comply with the City's *Landscape Guidelines: Streetscapes and Public Open Space* (September 2011).
- 7.16 Subsequently, Pindan provided amended plans showing the foreshore pathway connected to the private development via two additional concrete sections of pathway located on either side of the swale. The amended Landscape Master Plan (**Attachment 3**) now satisfies the requirements of all parties and is considered consistent with the objectives outlined in SRT/D2.
- 7.17 As part of the works, the applicant has also agreed to remove an old pathway which leads from the river to the edge, across the foreshore to the subdivision land. Turf will be reinstated in the affected area (shown on **Attachment 6**).
- 7.18 The proposed pathways are considered to provide a demonstrable benefit to the local community in line with the objectives of Trust policy SRT/D4.

Foreshore protection

- 7.19 Emerge Associates advises that the works are expected to be constructed and implemented in the space of a few weeks; commencing soon after approval is obtained.
- 7.20 Although the scale of the project is considered relatively minor, the proximity of the works to the river calls for careful management of potential environmental impacts. The applicant proposes to prepare a construction management plan to identify potential impacts from the works and outline management measures to prevent such impacts. This is supported and can be ensured through a condition of approval.

Ongoing management and monitoring

- 7.21 Pindan has agreed to maintain the swale for a period of five years prior to handover to the City for ongoing maintenance. The City is supportive of this and has requested a condition of approval to ensure this occurs (see **Condition 11**).
- 7.22 Maintenance will include monthly inspections and maintenance tasks, including infill planting, weed control, pruning and repairs to the swale if and when required. A maintenance record will be maintained and provided to the City of Swan at handover.
- 7.23 The UWMP prepared for the site also outlines maintenance requirements such as:
- leaf tissue analysis to determine nutrient requirements
 - fertilising if required
 - removal and disposal of gross pollutants

Conclusion

- 7.24 The proposed works will improve public access and management of the reserve and improve the quality of stormwater entering the Swan River.
- 7.25 The proposal is consistent with the objectives and requirements of Trust policies such as SRT/D2 and SRT/D4, and it is therefore recommended that the proposal be approved, subject to appropriate conditions and advice.

8.0 RECOMMENDATION – APPROVAL WITH CONDITIONS

That the Trust advises the Minister for Environment that it recommends approval for the installation of stormwater infrastructure and landscaping works at Lots 10472 (Reserve 25845) and 14255 (Reserve 46619), Max Hunt Reserve, South Guildford as described in plans received by the Trust on 22 January 2015, subject to the following conditions:

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

Prior to commencement of works

2. The applicant shall notify the Swan River Trust in writing not less than thirty (30) days prior to the commencement of works.
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10. No refuelling of machinery shall take place within the Swan River Trust Development Control Area.

On completion of works

11. All waste materials from the development shall be completely removed from the site upon completion of the development. Final clean-up shall be to the satisfaction of the Swan River Trust.

Ongoing

12. The swale shall be maintained for a period of five (5) years following completion of works, prior to handover to the City of Swan.

ADVICE TO APPLICANT

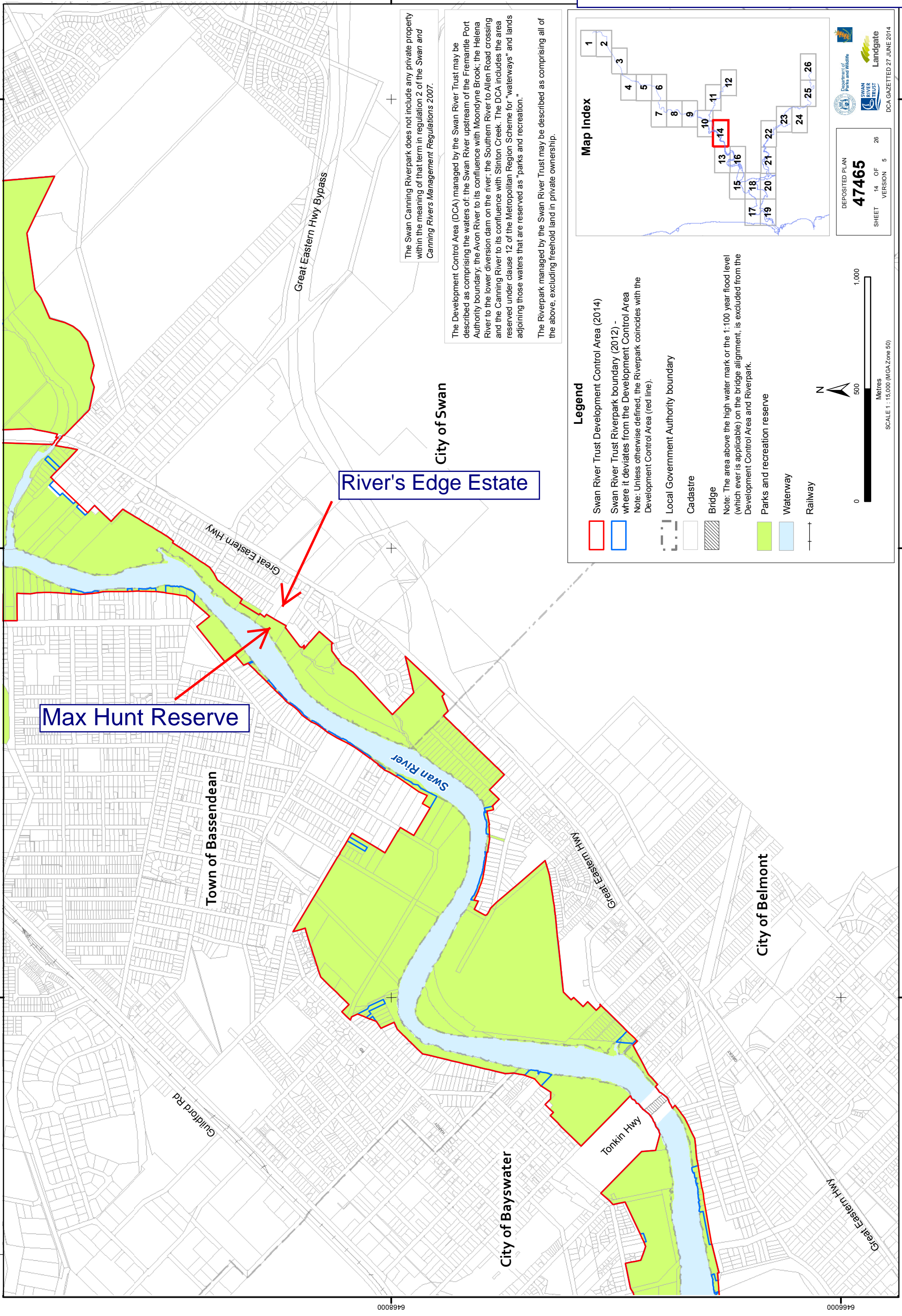
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FINAL REPORT ENDORSED

Signed:  Date: 20/3/2015
Rod Hughes
General Manager, Swan River Trust



The Swan Canning Riverpark does not include any private property within the meaning of that term in regulation 2 of the *Swan and Canning Rivers Management Regulations 2007*.

The Development Control Area (DCA) managed by the Swan River Trust may be described as comprising the waters of: the Swan River upstream of the Fremantle Port Authority boundary; the Avon River to its confluence with Moondyne Brook; the Helena River to the lower diversion dam on the river; the Southern River to Allen Road crossing and the Canning River to its confluence with Stinton Creek. The DCA includes the area reserved under clause 12 of the Metropolitan Region Scheme for "waterways" and lands adjoining those waters that are reserved as "parks and recreation."

The Riverpark managed by the Swan River Trust may be described as comprising all of the above, excluding freehold land in private ownership.

Map Index

DEPOSITED PLAN
47465

SHEET 14 OF 26
VERSION 5

Legend

- Swan River Trust Development Control Area (2014)
- Swan River Trust Riverpark boundary (2012) - where it deviates from the Development Control Area
- Note: Unless otherwise defined, the Riverpark coincides with the Development Control Area (red line).
- Local Government Authority boundary
- Cadastre
- Bridge
- Note: The area above the high water mark or the 1:100 year flood level (which ever is applicable) on the bridge alignment, is excluded from the Development Control Area and Riverpark.
- Parks and recreation reserve
- Waterway
- Railway

0 500 1,000
Metres

SCALE 1 : 15,000 (MGA Zone 50)

N

Department of
Parks and Wildlife

SWAN RIVER TRUST

Landgate

DCA GAZETTED 27 JUNE 2014

Max Hunt Reserve

River's Edge Estate

Town of Basendeau

City of Swan

City of Belmont

City of Bayswater

Guildford Rd

Great Eastern Hwy

Tonkin Hwy

Great Eastern Hwy

404000

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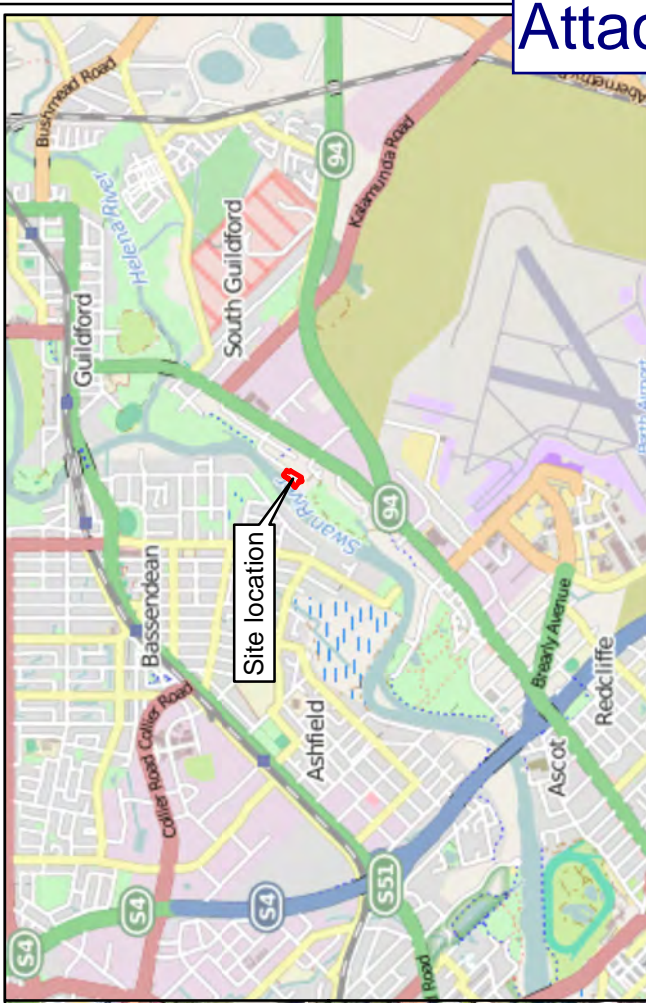
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Attachment 2: Aerial location plan



Plan Number: EP13-021(07)-F29a	
Drawn: ADB	Date: 16/12/14
Approved: CKK	Date: 16/12/14
Checked: ADB	Scale: 1:2,500@A4

- Legend**
- Site Boundary
 - Cadastral boundaries



Figure 1: Locality Plan
Project: Foreshore Management Plan
Client: Pindan Pty Ltd



Attachment 3: Landscape Master Plan

LEGEND

- PLANTING SEDGE MIX
- PLANTING SEA RUSH
- CONCRETE MOWING KERB
- COLOURED CONCRETE PATH
- COMPACTED & STABILISED LIMESTONE PATH
- EXISTING TREES TO REMAIN
- EDGE OF FLOODWAY
- PROPOSED TREE 1

STANDARD NOTES

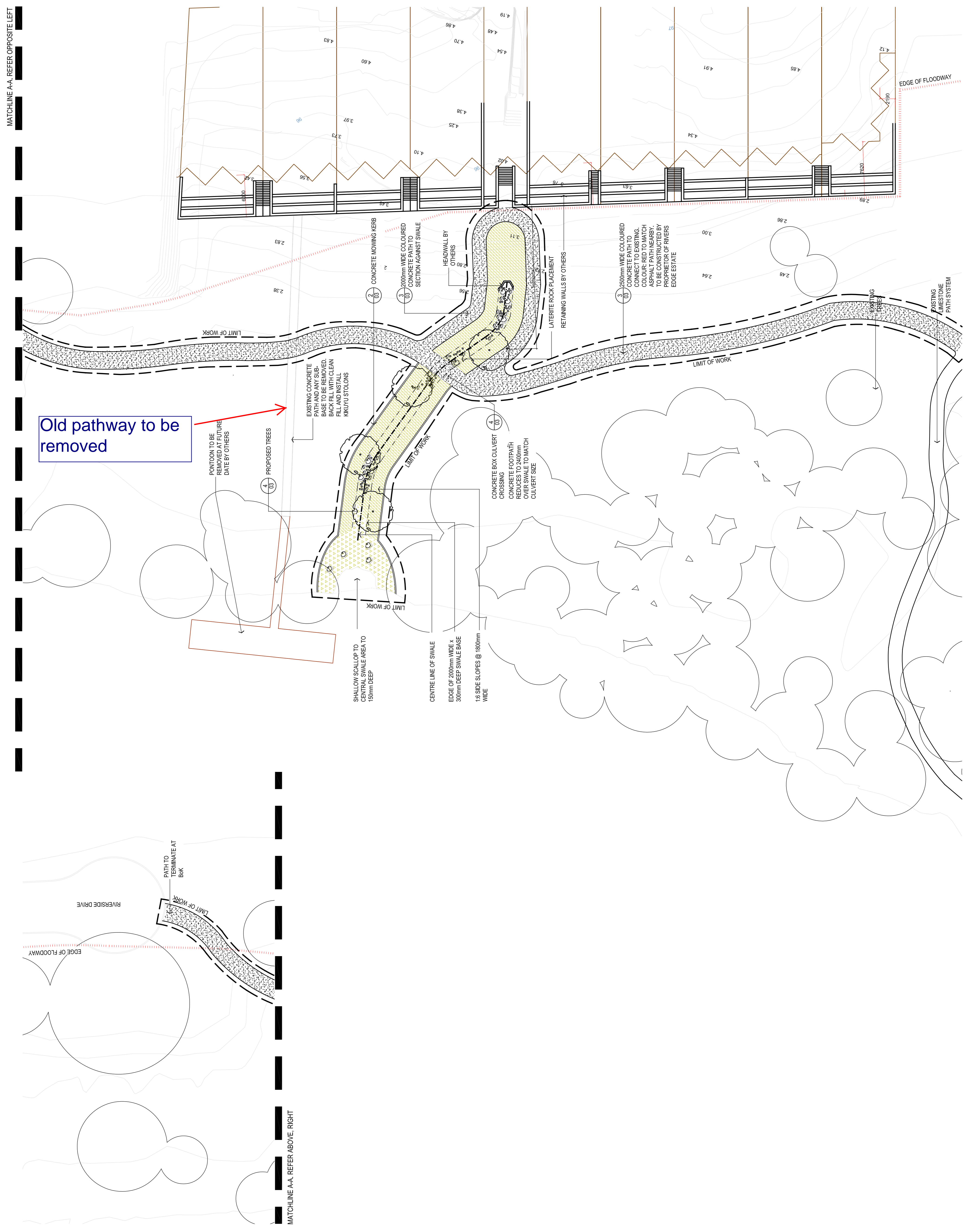
- SET OUT & DIMENSIONS:** THE CONTRACTOR SHALL SET OUT ALL WORKS WITH ALL DIMENSIONS AND ELEMENTS EITHER ON-CO SITE OR OFF-SITE PRIOR TO COMMENCEMENT OF WORK. DIMENSIONS SET OUT APPROXIMATELY TO INDICATE POSITIONS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER DIMENSIONS SHOWN ON DRAWINGS. CHECK ALL DIMENSIONS IN CONSULTATION WITH DIMENSIONS.
- SERVICES & SITE ASSETS:** THE CONTRACTOR SHALL IDENTIFY THE NATURE AND LOCATION OF ALL EXISTING SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND MARKING ALL SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL REFER TO ALL OF THE SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL REFER TO ALL OF THE SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED.
- DISCOVERIES:** NOTIFY THE SUPERVISOR OF ANY UNEXPECTED DISCOVERIES OR ERRORS PRIOR TO THE WORK BEING COMMENCED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED.
- RELEVANT STANDARDS:** THE CONTRACTOR SHALL FOLLOW ALL RELEVANT STANDARDS AND BEST PRACTICE AND ALL RELEVANT AUSTRALIAN STANDARDS TO COMPLETE WORKS ON SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS AND PERMITS PRIOR TO COMMENCEMENT OF WORK.
- SERVICE LOCATOR:** THE CONTRACTOR SHALL LOCATE ALL SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS AND PERMITS PRIOR TO COMMENCEMENT OF WORK.

REV	DATE	BY	ISSUE OR AMENDMENT
A	07.09.14	JW	FOR COMMENT
B	15.09.14	JW	FOR APPROVAL
C	15.10.14	JW	COUNCIL AMENDMENTS
D	24.10.14	JW	PATH ALIGNMENT AMENDMENTS
E	06.12.14	JW	PATH ALIGNMENT AMENDMENTS
F	03.01.15	JW	FINAL ALIGNMENT AMENDMENTS

emerge ASSOCIATES
Integrated Science & Design
15th FLOOR, 100 MARGARET RIVER, MARGARET RIVER, SA 5015
PH: (08) 9380 4889 | FAX: (08) 9358 8159

PROJECT: RIVERS EDGE SOUTH GUILDFORD
CLIENT: PINDAN
DRAWING TITLE: LANDSCAPE MASTER PLAN

DESIGNED BY: JW | **PRELIM DESIGN REVIEWED BY:** JW
DRAWN BY: JW | **FINAL DESIGN REVIEWED BY:** JW
DATE INITIALLY DRAWN: 01.09.2014
SCALE: 1:250 AT A1
DRAWING NUMBER: OT03-01



Attachment 4: Swale design

LEGEND

- PLANTING: SEDGE MIX
- PLANTING: SEA RUSH
- CONCRETE MOWING KERB
- COMPACTED & STABILISED LIMESTONE PATH
- COMPACTED & STABILISED LIMESTONE PATH
- EXISTING TREES TO REMAIN
- EDGE OF FLOODWAY
- PROPOSED TREE 1

STANDARD NOTES

- SET OUT & DIMENSIONS:** THE CONTRACTOR SHALL SET OUT ALL WORKS AS SHOWN ON THIS DRAWING AND ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED. DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED. DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED. DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED.
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- REFERENCE:** THE CONTRACTOR SHALL REFER TO ALL CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS PRIOR TO AND DURING CONSTRUCTION.
- DISCREPANCIES:** IN THE EVENT OF ANY DISCREPANCY BETWEEN THIS DRAWING AND ANY OTHER DOCUMENT, THIS DRAWING SHALL TAKE PRECEDENCE.
- RELEVANT STANDARDS:** THE CONTRACTOR SHALL UNDERTAKE ALL WORKS IN ACCORDANCE WITH ALL RELEVANT AUSTRALIAN STANDARDS, BEST PRACTICE AND ALL RELEVANT AUSTRALIAN STANDARDS.
- SERVICE LOCATOR:** THE CONTRACTOR SHALL LOCATE ALL SERVICES AND SITE ASSETS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SERVICES AND SITE ASSETS.

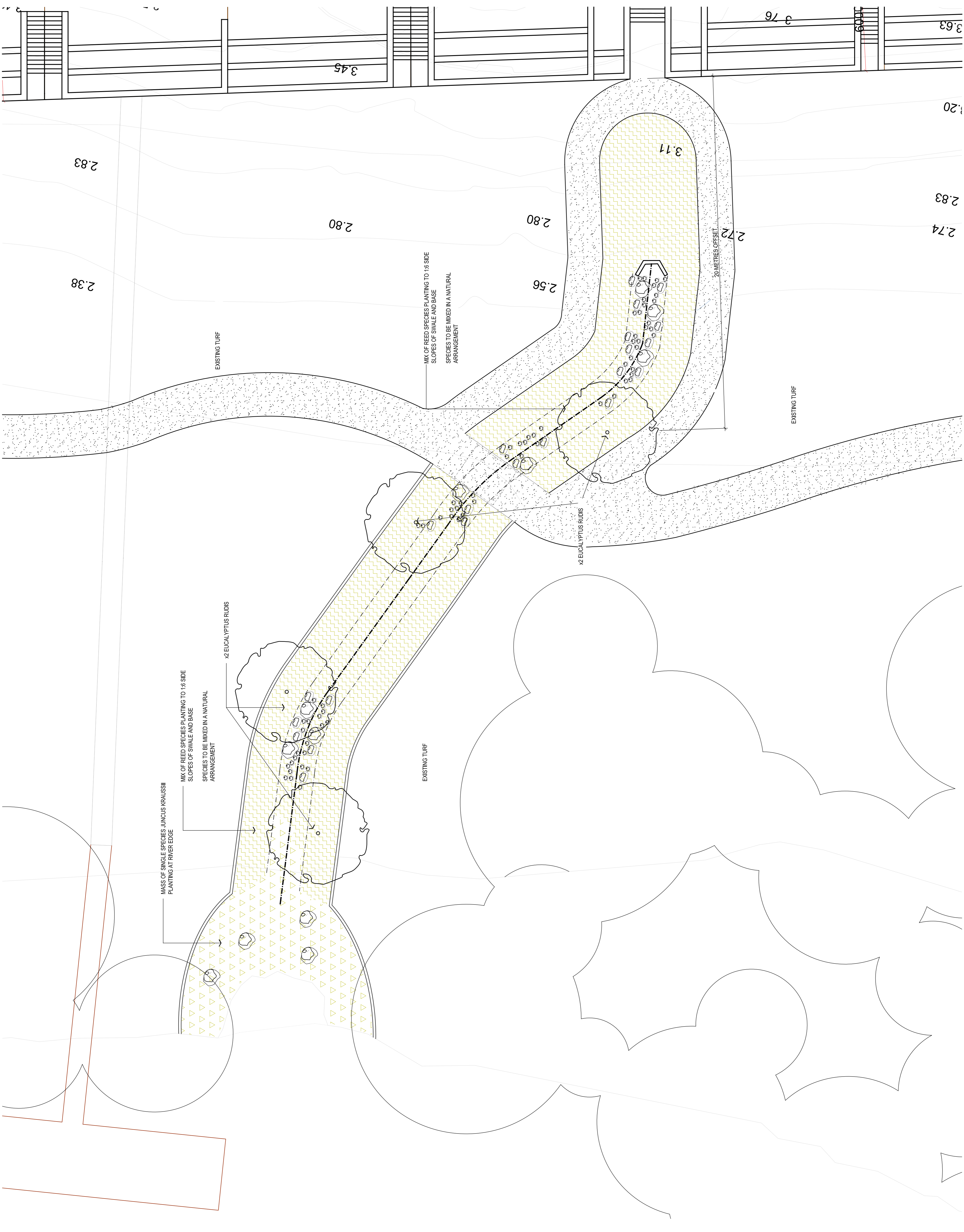
NO.	DATE	BY	FOR
F	16.01.14	JW	FINAL ALIGNMENT AMENDMENTS (PERT REVISION)
E	05.02.14	JW	FINAL ALIGNMENT AMENDMENTS
D	24.03.14	JW	COUNCIL AMENDMENTS
C	15.10.14	JW	COUNCIL AMENDMENTS
B	15.09.14	JW	FOR APPROVAL
A	07.09.14	JW	FOR COMMENT

emerge ASSOCIATES
Integrated Science & Design
PERTH (08) 9380 4889 • MARGARET RIVER (08) 9738 8159

PROJECT: RIVERS EDGE SOUTH GUILDFORD
CLIENT: FOFESHORE SWALE DESIGN
DRAWING TITLE: PLANTING PLAN

DESIGNED BY: JW | PRELIM DESIGN REVIEWED BY: JW
DRAWN BY: JW | PRELIM DESIGN REVIEWED BY: JW
DATE INITIALLY DRAWN: 01.09.2014
SCALE: 1:100 AT A1

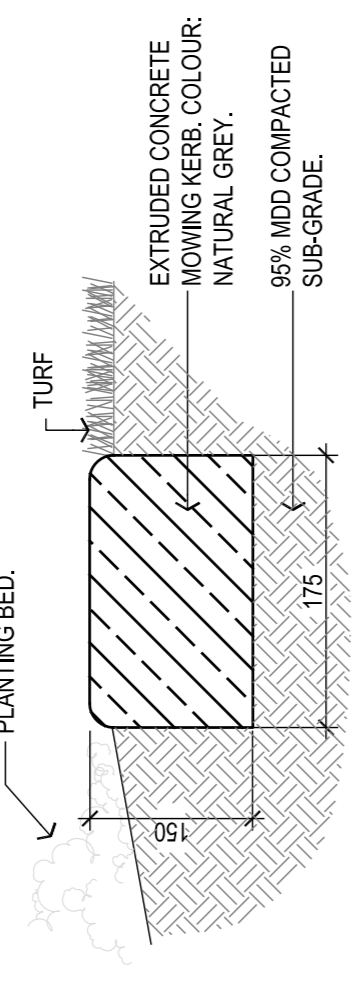
DRAWING NUMBER: OT03-02



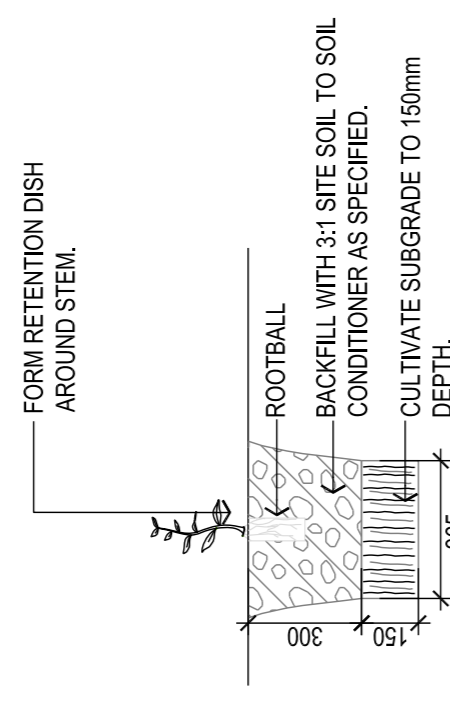
PLANT SCHEDULE					
RIVER'S EDGE DRAINAGE SWALE SPECIES					
BOTANIC NAME	COMMON NAME	SIZE	No.	SPACING	NOTES
TREES Eucalyptus rudis	Flooded Gum	100 litre	4	As Shown	
SEDGES Baumea articulata Baumea juncea Juncus pallidus Juncus kraussii Schoenoplectus validus	Jointed Twig Rush Bare Twig Rush Basket Grass Sea Rush Lake Club Rush	tubestock ↓ ↓ ↓ ↓	754 382 382 382 382	6/sqm 6/sqm 6/sqm 6/sqm 6/sqm	All plants to be installed in early spring or autumn
TOTAL AREA: 347m²					TOTAL PLANTS: 2,282

NOTE: 1) FINAL SPECIES TO BE NOMINATED IN CONSULTATION WITH COUNCIL. LA AND SUBJECT TO AVAILABILITY
 2) ALL PLANTS ARE TO BE PLANTED IN A RANDOM ARRANGEMENT WITHIN THEIR RESPECTIVE ZONES TO APPEAR NATURAL UPON ESTABLISHMENT
 3) PLANTING TO BE UNDERTAKEN ONLY IN EARLY SPRING OR AUTUMN AT A TIME WHEN RAINFALL IS LIKELY TO FOLLOW INSTALLATION
 4) SWALE EXTENT TO BE EXCAVATED TO 500mm DEPTH AND BACKFILLED WITH 200mm CLEAN SAND THEN 300mm AMAZON ECOMEDIA

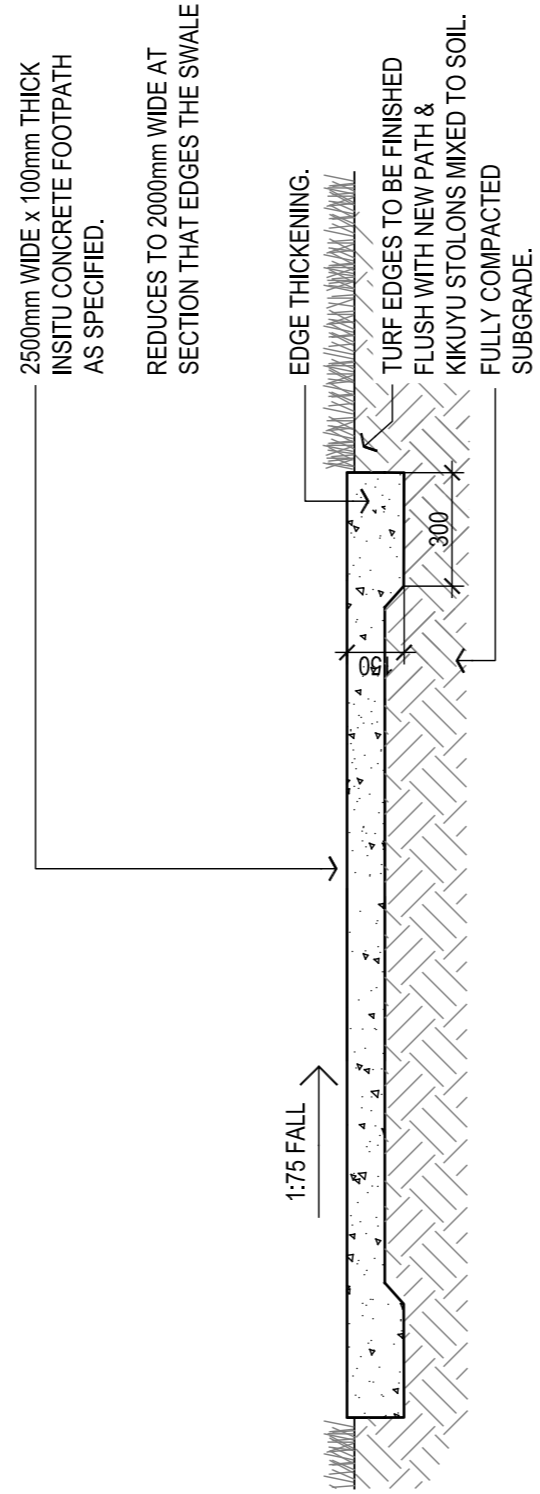
NOTES:
 1. ALL CONCRETE TO BE 32MPa MIN. 20mm AGGREGATE & A MAX SLUMP OF 65mm.



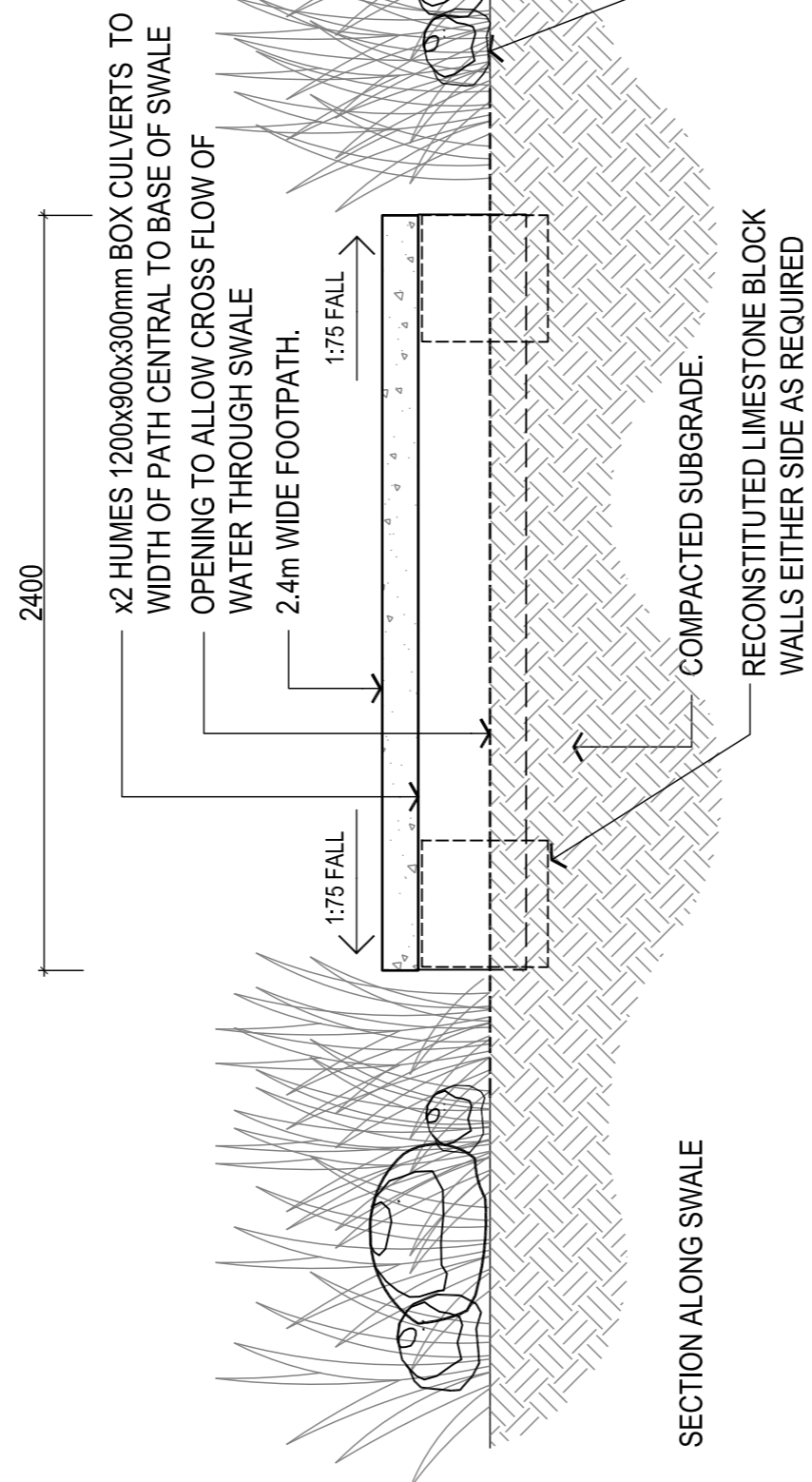
2 CONCRETE MOWING KERB
 03 1:10 SECTION



1 TUBESTOCK PLANTING
 03 1:20 SECTION



3 INSITU CONCRETE FOOTPATH
 03 1:20 SECTION



4 BOX CULVERT TO SWALE CROSSING
 03 1:25 SECTION & ELEVATION

STANDARD NOTES

- SET OUT & DIMENSIONS:** THE CONTRACTOR SHALL SET OUT ALL WORKS IN ACCORDANCE WITH THE DIMENSIONS AND ELEMENTS EITHER ON OR OFF SITE WITHIN THE WORKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS AND PERMITS PRIOR TO COMMENCING WORKS. ALL DIMENSIONS SHALL BE TO UNLESS OTHERWISE SPECIFIED. CHECK ALL DRAWINGS SCALES IN CONSULTATION WITH DRAWING SIZE.
- SERVICES & SITE ASSETS:** THE CONTRACTOR SHALL IDENTIFY THE NATURE AND LOCATION OF ALL EXISTING SERVICES AND RETAIN THEM UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS AND PERMITS PRIOR TO COMMENCING WORKS. ALL DIMENSIONS SHALL BE TO UNLESS OTHERWISE SPECIFIED. CHECK ALL DRAWINGS SCALES IN CONSULTATION WITH DRAWING SIZE.
- REFERENCE:** THE CONTRACTOR SHALL REFER TO ALL CONTRACT DOCUMENTS, THE SPECIFICATION AND DRAWINGS PRIOR TO AND DURING CONSTRUCTION.
- RISER NOTES:** NOTIFY THE SUPERVISOR OF ANY SERVICES TO BE EXCAVATED PRIOR TO COMMENCING WORKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS AND PERMITS PRIOR TO COMMENCING WORKS. ALL DIMENSIONS SHALL BE TO UNLESS OTHERWISE SPECIFIED. CHECK ALL DRAWINGS SCALES IN CONSULTATION WITH DRAWING SIZE.
- RELEVANT STANDARDS:** THE CONTRACTOR SHALL UNDERTAKE ALL WORKS IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS, BEST PRACTICE AND ALL RELEVANT AUSTRALIAN STANDARDS.
- SERVICE LOCATOR:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS AND PERMITS PRIOR TO COMMENCING WORKS. ALL DIMENSIONS SHALL BE TO UNLESS OTHERWISE SPECIFIED. CHECK ALL DRAWINGS SCALES IN CONSULTATION WITH DRAWING SIZE.

REV	DATE	BY	ISSUE OR AMENDMENT
A	07.09.14	JW	FOR COMMENT
B	15.09.14	JW	FOR APPROVAL
C	15.10.14	JW	COUNCIL AMENDMENTS
D	24.10.14	JW	COUNCIL AMENDMENTS
E	28.10.14	JW	FINAL ALIGNMENT AMENDMENTS
F	16.01.15	JW	FINAL ALIGNMENT AMENDMENTS

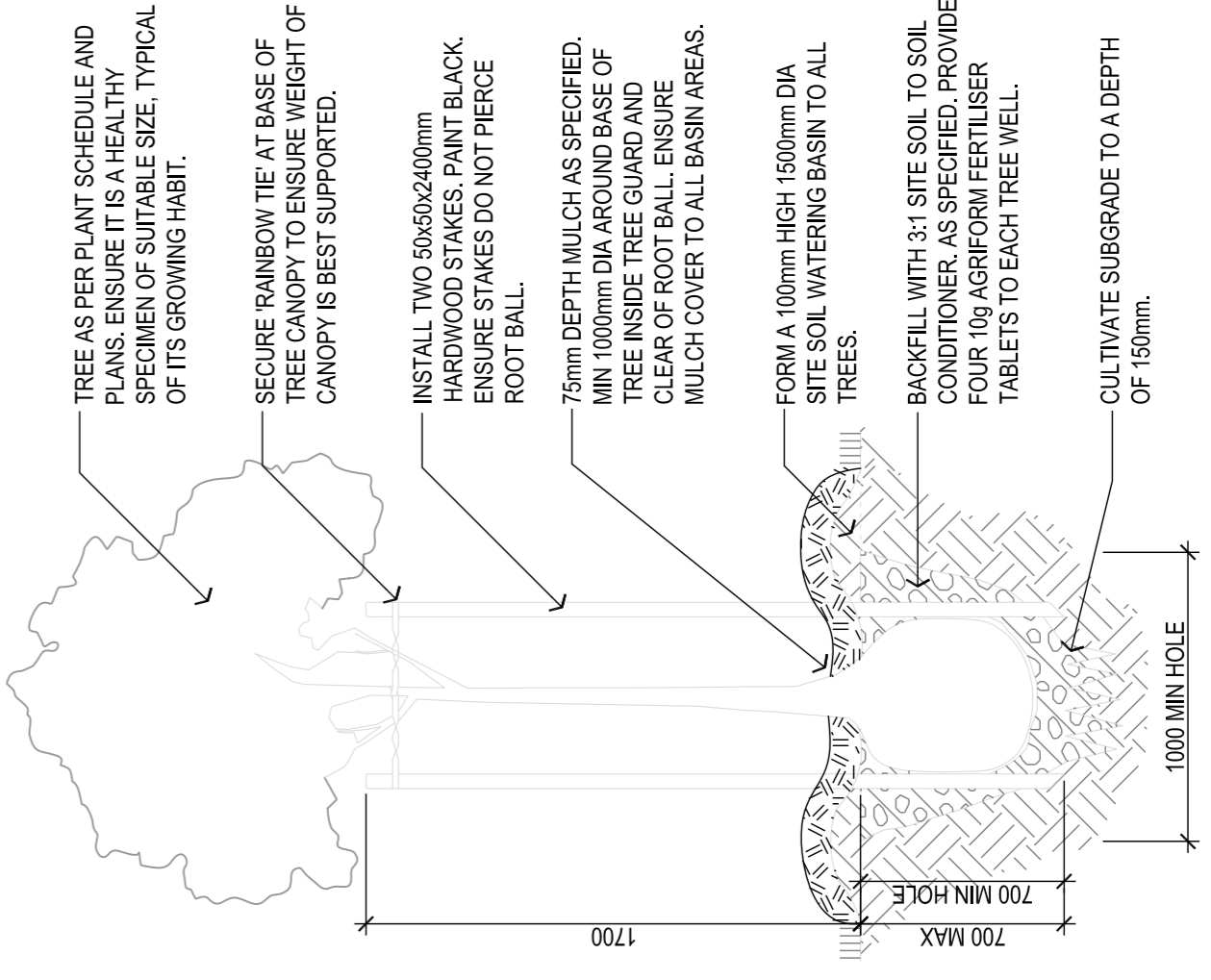
emerge ASSOCIATES
 Integrated Science & Design
 PERTH (08) 9380 4888 • MARGARET RIVER (08) 9758 6159

PROJECT: RIVERS EDGE
 LOCATION: RIVERS EDGE
 DRAWING TITLE: FORESHORE SWALE DESIGN
 CLIENT: FINIAN

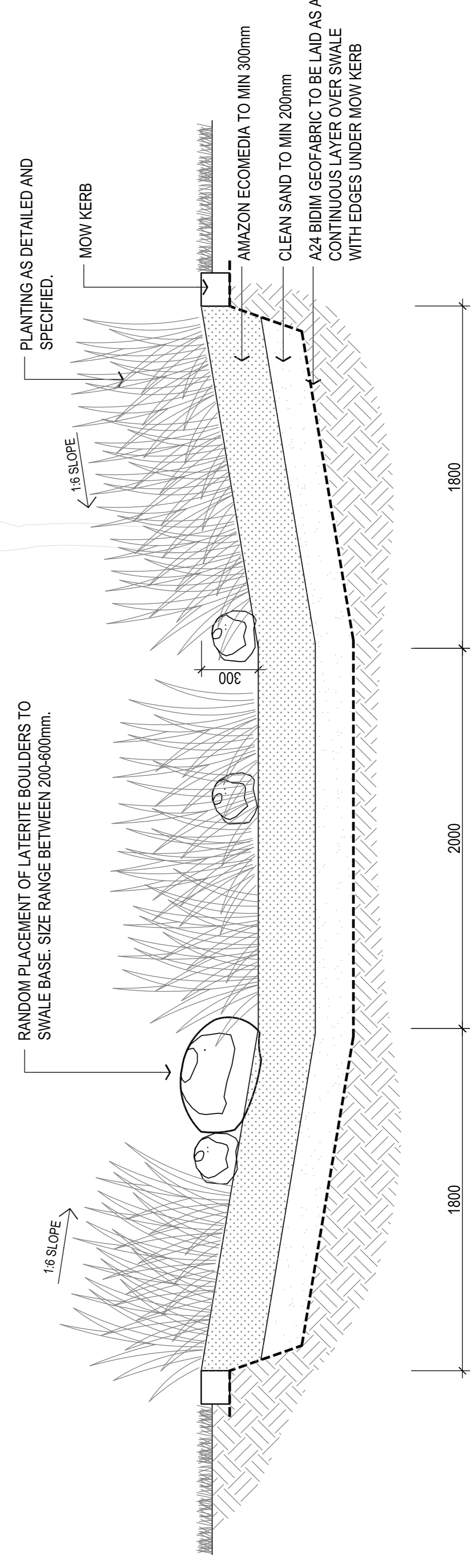
DESIGNED BY: JW | PRELIM DESIGN REVIEWED BY: JW
 DRAWN BY: JW | PRELIM DESIGN REVIEWED BY: JW
 DATE INITIALLY DRAWN: 01.09.2014
 SCALE: VARIES AT A1

DRAWING NUMBER: OT03-03

NOTE: PATH CONSTRUCTION TO ALIGN TO CITY OF SWAN WESTERN AUSTRALIA SPECIFICATION 271 MINOR CONCRETE WORKS



5 TYPICAL 100 & 200 LITRE TREE PLANTING
 03 1:25 SECTION



6 DRAINAGE SWALE SECTION
 03 1:25 SECTION

Attachment 6: Site photos

