ROCKINGHAM INDUSTRY ZONE

TEC RE-ESTABLISHMENT TRIAL IMPLEMENTATION PLAN

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1 INTRODUCTION

1.1 Background

The Rockingham Industry Zone (RIZ) is undergoing development in accordance with the East Rockingham Industrial Park IP14 Structure Plan, the requirements under the Commonwealth Notice of Approval EPBC 2010/5337 (Appendix 1) and the requirements under State environmental approval Ministerial Statement 863.

The Rockingham Industry Zone (RIZ) (also known as the Improvement Plan 14 (IP14) Area) is located about 40km south of the Perth Central Business District and approximately 2km northeast of Rockingham (Figure 1). The site is planned as an extension of the Kwinana Industrial Area to the north. The RIZ extends from the coast just north of the CBH Grain Terminal to the east to the Leda Nature Reserve and is generally bounded by Office Road to the north and Dixon Road to the south. The western-most portion of the RIZ is adjacent to Kwinana Beach (Cockburn Sound).

1.2 Commonwealth Environmental Approval

The areas of the RIZ that were deemed to potentially have significant environmental features were referred to the Department of the Environment (DoE) (then Department of Sustainability, Environment, Water, Population and Communities – SEWPaC) under the *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) as referral number EPBC 2010/5337. The project was deemed a Controlled Action as the project would significantly impact on a federally listed Threatened Ecological Community (TEC) Floristic Community Type (FCT) 19 – *Sedgelands in Holocene Dune Swales* (hereafter referred to as TEC 19) and the Endangered Carnaby's Black Cockatoos.

The project was approved in 2011 subject to a number of conditions of which Condition 14 outlined the requirement for on-site and off-site offsets to mitigate the clearing of the TEC in the developed area (Appendix 1). Condition 14 was updated in 2014 (Appendix 2) to the current condition which states:

> *To protect the threatened ecological community Sedgelands in Holocene dune swales of the Southern Swan coastal Plain (TEC) the person taking the action must prepare and submit an Offsets Management Plan (OMP) for the **Minister's** approval. The person taking the action must not **commence construction** unless the **Minister** has approved the OMP. The OMP must be prepared in consultation with DPaW.*
>
> *The OMP must include:*
>
> *(a) The rehabilitation of a minimum of 18ha of the threatened ecological community Sedgelands in Holocene dune swales of the Southern Swan coastal Plain that requires active management in land managed by DPaW at other priority sites (as agreed by DPaW and the **Department**) in the Rockingham region. The rehabilitation must commence within 6 months of the commencement of **construction**.*
>
> *(b) A research trial for the re-establishment of TEC in the onsite **TEC re-establishment lot** outlined in Attachment B, in accordance with the following requirements:*

i. *The method and deliverables of the research trial must be prepared in consultation with DPaW;*
ii. *The research trial must consider the existing TEC within the Conservation Area*
iii. *The research trial must commence within 12 months of the commencement of **construction** and must be undertaken for no less than five years;*
iv. *The research trial must include an annual program for the monitoring and reporting.*
v. *Within 12 months of completing the research trial a report documenting the results of the trial must be submitted to DPaW and the **Department**; and*

*If the **Minister** approves the OMP then the approved OMP must be implemented.*

The annual report referred to in condition 9 detailing performance against the plan must include the following information;

i. *Areas of the Rockingham Industry Zone cleared for development and revegetation;*
ii. *Areas of TEC cleared and areas of TEC recreated/rehabilitated and their protection arrangements; and*
iii. *Areas of the TEC rehabilitated at other occurrences of the TEC in the Rockingham region.*

The Offsets outlined in the updated condition were designed to provide better long term protection of TEC 19 and to enhance the knowledge of the TEC ecosystem. An Offsets Management Plan (OMP) was prepared in accordance with the condition. The plan was prepared in consultation with the Department of Parks and Wildlife (DPaW) and was endorsed by DPaW in May 2014 (Appendix 3) and approved by the Commonwealth Minister on 18 June 2014 (Appendix 4) prior to construction commencing on 14 July 2014.

1.3 Purpose and Scope

The TEC Re-establishment Trial Implementation Plan (hereafter referred to as 'the Plan') has been prepared to further guide the implementation of Part B of Condition 14. The Plan outlines the management of construction, planting, monitoring, completion criteria and contingencies.

2 TEC FCT 19A AND 19B

2.1 TEC Description

The TEC is associated with swales that are long shallow linear depressions within low dunes closest to the coast. Occurrences of TEC 19 are also classified as wetlands due to their proximity to groundwater. TEC 19 has two sub-types, FCT Swan Coastal Plain (SCP) 19a and FCT SCP 19b, although these aren't recognised as separate on the EPBC threatened communities list.

SCP 19a is described as *Sedgelands in Holocene Dune Swales.* Typical and common native shrub species are Summer-scented Wattle (*Acacia rostellifera*), Orange Wattle (*Acacia saligna*) and Grass tree (*Xanthorrhoea preissii*). Typical sedges include the Bare Twigrush (*Baumea juncea*), Knotted Club Rush (*Ficinia nodosa*) and Coast Sword-Sedge (*Lepidosperma gladiatum*). The native grass *Poa porphyroclados* is also common in the community.

SCP 19b is described as *Woodlands over Sedgelands in Holocene Dune Swales*. This sub-type has the species present in SCP19a with the addition of a woodland overstorey typically characterised by Swamp Paperbark (*Melaleuca rhaphiophylla*) and Swamp Banksia (*Banksia littoralis*). This is the sub-type of the TEC that is located on the RIZ.

The vegetation composition of the wetlands and whether the sub-type is 19a or 19b is considered likely to be related to both the age of the swales and proximity to the watertable (DEC, 2011).

2.2 Hydrology

Groundwater occurs at a shallow depth under the RIZ and has a general movement westwards towards the coast. The average depth to the maximum groundwater level was 1.51m for bores in the TEC swales in September 2005 (Table 1). No surface water occurred in the wetlands at any time.

Table 1: Wetlands Watertable Level 27 September 2005

Bore	Natural Surface Level (mAHD)	Water Level 27 September 2005 (mAHD)	Water Level depth below Natural Surface (m)
ERGM7d	2.90	1.79	1.11
ERGM9d	3.67	1.76	1.91
ERGM10d	3.44	1.81	1.63
ERGM12d	3.26	1.83	1.43
ERGM13d	3.62	1.81	1.81
ERGM15d	2.98	1.82	1.16
Average			**1.51**

The depth to groundwater at the replacement Trial site is currently being determined with the installation of a bore in the central part of the site. The Trial will investigate the relationship of the TEC vegetation with the depth to the watertable.

2.3 Flora Species

Typical native species occurring in TEC 19 on the RIZ are shown in Table 2. Other species also occur in TEC 19 areas on the RIZ but are less common. The species are generally associated with specific landform features of the TEC as outlined in Table 2.

Table 2: Species Typical to the TEC

Life Form	Species	Landform feature
Small Trees	*Banksia littoralis*	Bed
	Melaleuca huegelii	Bed and fringing areas
	Melaleuca rhaphiophylla	Bed
Shrubs	*Acacia rostellifera*	Fringing areas
	Spyridium globulosum	Fringing areas
	Hakea prostrata	Fringing areas
	Xanthorrhoea preissii	Edge of Bank and Bed
Sedges	*Gahnia trifida*	Bed
	Ficinia nodosa	Bed
	Lepidosperma longitudinale	Bed
	Baumea juncea	Bed
Climbers	*Clematis linearifolia*	Bed and fringing areas
	Muehlenbeckia adpressa	Bed and fringing areas
	Hardenbergia comptoniana	Bed and fringing areas
Groundcover	*Kennedia prostrata*	Fringing areas

3 TEC REPLACEMENT TRIAL

3.1 TEC Re-establishment Trial Objective

As TEC 19 is a natural wetland it is proposed to undertake a trial to re-establish an area of TEC 19 by creating swales with the appropriate depth to watertable and planting with flora species typical of TEC 19. TEC Re-establishment has not previously been attempted in Australia as a condition of approval under the EPBC Act. TEC 19 has been identified as being possibly able to be re-established due to the uniformity and ease of propagation of the species typical of the TEC and the ease of constructing the swale land formations that the TEC is associated with.

During investigations for the Strategic Environmental Assessment that was undertaken for approval under the Western Australia *Environmental Protection Act 1986* Umwelt proposed that the depth to groundwater was an integral part in determining the condition of the TEC wetlands. The TEC Re-establishment Trial has been designed to provide further information on the impact that the depth to groundwater has on the TEC vegetation.

The emphasis of the trial is scientifically designed experiment as endorsed by the Department of Parks and Wildlife (DPaW) and required according to the EPBC Act environmental approval of the Rockingham Industry Zone (RIZ) development. The aim of the experiment is to ascertain if vegetation that resembles a TEC can be established in drainage swales. This will not only enable the evaluation of the use of species to resemble a TEC in drainage basins but the possibility of re-creating a TEC, something which has not been attempted in Western Australia. An integral part of the design of the experiment is looking at groundwater depth to the swales and how that impacts on the species and composition within the TEC.

Furthermore the experiment will enhance our understanding of the ecology of the TEC. This will be invaluable for the management of the existing TEC within the Rockingham Lakes Regional Park as well as the RIZ Conservation Area. The experiment will expand the current scientific data available, particularly regarding the impact of groundwater hydrology on the swale TEC vegetation. Therefore it is imperative that the scientific design of the experiment is not compromised

The results of the trial may be used to re-establish areas of TEC 19 in other areas such as where drainage swales may be constructed in the future.

The methodology and deliverables of the trial have been endorsed by DPaW (Appendix 3).

3.2 TEC Re-establishment Trial Site Selection

3.2.1 Tenure and Zoning

The site identified for the TEC Re-establishment Trial (hereafter referred to as the 'Trial Site') is located in the western part of the RIZ as Reserves P47607 & P47268 – Lot 8007 and 65 Jecks Street, Rockingham (8.4953ha) (Figure 2). The Certificates of Title for these lots is in Appendix 5.

The lots identified to have the TEC Re-establishment Trial are owned by Department of Lands, and vested in the City of Rockingham as the primary interest owner. The lots are zoned 'Urban' under the

Metropolitan Region Scheme and as "Public Open Space' under the City of Rockingham Town Planning Scheme No. 2 (WAPC, 2004). The management order over these lots is currently Recreation.

These lots have been subject to discussion between LandCorp and the City of Rockingham in relation to the management and maintenance of the land. The use of the land in accordance with the Offsets Management Plan has been supported by the City of Rockingham (Appendix 6).

The location of the trial on a reserve provides protection to the trial, improves the condition of the vegetation in the trial site which is largely degraded, and adds an interesting landscape feature for the passive recreational users of the reserve.

3.2.2 Historic Land Use

Examination of historic aerial photographs shows that the TEC Re-establishment Trial Area was previously cleared of native vegetation for many decades prior to 2000 (Plate 1). The trees and shrubs that cover the site in 2013 appear to have grown since around 2000 either as part of a revegetation program or have revegetated naturally once the cattle or sheep grazing was removed (Plate 2).

Plate 1: TEC Re-establishment Trial Site 1985

Plate 2: TEC Re-establishment Trial Site 2001

The historic photos show the characteristic parallel dune pattern of the Rockingham-Becher Plain similar to the landform within the part of the RIZ assessed by the Commonwealth. The dunes are curvilinear.

3.2.3 Topography

Lots 8007 and 65 are very gently undulating with elevations around the 5-6m AHD throughout apart from a few areas at 7m AHD in the southern area.

3.2.4 Groundwater

The maximum groundwater level from the monitoring bore located in the centre of the site (Figure 2) is 0.94mAHD in July 2015 to 1.1mAHD in September 2015 (Appendix 7). The depth to groundwater under the natural contours of the site is 3-4m.

3.2.5 Existing Vegetation

The vegetation on the site was assessed by PGV Environmental for its suitability for a trial. The site largely contains native vegetation mostly in degraded condition with several aggressive weed species abundant in the understorey. The north-eastern end of the site has some areas that are nearly completely cleared.

Two native vegetation types occur on the site as follows:

- Tuart Woodland (*Eucalyptus gomphocephala*) over Native Peppermint (*Agonis flexuosa*); and
- *Acacia rostellifera* Scrub.

Five areas of Tuart trees have been mapped on the site (Figure 2). The Tuarts in all areas are young at around 8m tall and 30-40cm diameter at breast height (Plate 3). The relatively young age of the Tuarts matches the patterns shown in the historic aerial photographs in which no trees are evident on the site until around 1995. This gives an age of the Tuart trees around 20 years.

Plate 3: Tuarts on the TEC Re-establishment Trial Area

Some Native Peppermint trees occur in the Tuart woodlands. The Peppermint trees are likely to have been planted rather than being native to the site. Peppermint trees are not present on other areas of the RIZ.

The *Acacia rostellifera* Scrub has rapidly colonised the area since the 1990s (Plate 4). *Acacia rostellifera* is a very fast colonising native Wattle that rapidly takes over disturbed coastal areas in the City of Rockingham area and is common on other parts of the RIZ.

Plate 4: *Acacia rostellifera* Scrub and Cleared Grassland in the TEC Re-establishment Trial Area

None of the minor swales on the site contains wetland vegetation.

3.3 Trial Swale Design

Two trial swales are proposed to be excavated on the site for the purpose of replanting with TEC 19 vegetation. Appendix 8 shows the concept plan for the swale design. The location of the swales has been designed to avoid groves of Tuart trees and the dense areas of Wattle on the southern part of the site.

Swale 1 is a roughly triangular shaped area located on Lot 65. Swale 1 will consist of three trial sections with different depths to groundwater constructed around a central point (Appendix 8).

Swale 2 is a long linear swale in the north of the site in Lot 8007. The linear swale will be around 50m in width and 250m in length and will be split into three trial sections (Appendix 8).

The two different swale designs maximise the use of the site and provide for different research opportunities in terms of swale construction and TEC re-establishment.

The swales will consist of a sloping bank at a grade of 1:6 and a flat bed.

The average depth to maximum groundwater was monitored in 2005 on the RIZ and determined to be around 1.5m for TEC 19 (Table 2). To test the influence of groundwater depth on species performance and to provide further information on the ecology of the TEC the bed of the swales will vary in depth to the maximum groundwater from 1.0, 1.5 and 2.0m. Each of the two swales will have separate trial areas with the three depths to groundwater, giving a total of six trial compartments.

The average natural surface contour in the trial area is estimated to be around 4.6m AHD. The maximum water level under the trial site was measured to be 1.11mAHD in September 2015. The design levels for the trial swales and compartments are shown in Table 3.

Table 3: Swale Depth

Levels	Swale 1.1 and 2.3	Swale 1.2 and 2.2	Swale 1.3 and 2.1
Bed level (mAHD)	3.1	2.6	2.1
Max GW Level (mAHD)	1.1	1.1	1.1
Depth to Max Groundwater (m)	2.0	1.5	1.0

A three metre wide crushed limestone trail to a depth of 150mm will be constructed around the perimeter of both swales, where they are not adjacent to the perimeter firebreak (Figure 2) to provide protection and access. The trail will act as a fire break and will provide a buffer between the planting trial and the existing Jecks St Road reserve. This will mitigate edge effects to the re-established vegetation and will provide protection in the event that Jecks St is constructed within the existing road reserve.

3.4 Implementation of TEC Trial

The broad steps required for the re-creation of TECs on the Trial Site are as follows:

- Clearing;
- Earthworks to construct the correct swale morphology and desired depths for the purpose of the trial;
- Soil preparation;
- Planting;
- Monitoring; and
- Maintenance.

The details of each step are outlined in subsequent sections in the Plan.

4 CLEARING

4.1 Clearing Permit

A clearing permit prior to constructing the swales is required. The clearing permit application will be submitted by Landcorp and will be assessed by the Department of Environment Regulation (DER) against the Ten Clearing Principles listed below:

- Principle 1: Vegetation should not be cleared if it comprises a high level of biological diversity.
- Principle 2: Vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.
- Principle 3: Vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.
- Principle 4: Vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
- Principle 5: Vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- Principle 6: Vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- Principle 7: Vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- Principle 8: Vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- Principle 9: Vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- Principle 10: Vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.

The vegetation in the areas that are proposed to have the swales constructed in them are Degraded and does not contain any Conservation Significant species. The proposed clearing of these areas and replanting with trial species is not likely to be considered at variance to these principles.

Management Actions

M1 Application for a Clearing Permit to be submitted and approved prior to clearing.

4.2 Surrounding Vegetation

The site to be re-established as TECs will initially have to be cleared of the existing vegetation. The design of the trial re-establishment area has been developed to retain all of the large Tuarts and areas of dryland vegetation between the swales.

The native vegetation in the areas surrounding the TEC Re-establishment Trial Site could be subject to the following impacts:

- Inadvertent clearing;

- Windborne dust from clearing and construction;
- Introduction and spread of weeds; and
- General site waste.

To protect the retained native vegetation within the Trial Site from clearing and construction activities these areas will be surveyed and pegged out. A temporary fence will be installed prior to the commencement of pre-construction activities. Signage will be provided to keep construction vehicles out of these areas.

Management Actions

M2 Survey and clearly mark the boundaries of the Trial Site with pegs and tape prior to clearing and construction commencing.

M3 Clearly identify the location and limit of clearing of vegetation within all work areas on appropriate plans.

M4 Supply all plans to contractors and personnel prior to clearing.

4.3 Access and Fencing

Vehicle access into the Trial Site areas for clearing, construction, planting and maintenance will be from Pedlar Circuit (Figure 2). The second trial site will be accessed by constructing a cleared track off the unconstructed Jecks Street which will be consolidated with crushed limestone to a depth of 150mm. The access points have been sited to ensure there is no additional clearing of native vegetation. Secondary access in case of fire will be to the north of the linear trial site (Figure 2). Keys to all access points will be provided to the City of Rockingham immediately after the gates are installed.

Restricted access will protect these areas from, as well as rabbits, accidental clearing, degradation due to unauthorised access by vehicles such as 4WDs and motorbikes and rubbish disposal and assist in weed management and dieback control. The fencing installed prior to construction will be temporary fencing or the rabbit proof fencing as discussed in Section 6.1. Dust cloths will be installed on whichever type of fencing prior to the commencement of clearing and earthworks.

Upon completion of the trial and prior to returning management to the City of Rockingham the rabbit proof fence will be removed and a permanent high tensile wire and post fence as used by the City of Rockingham will be installed around the perimeter of the lots outside the 6m walking trail and firebreak as shown in Appendix 8. Permanent access locations have been determined with the City of Rockingham and are shown in Figure 2.

Management Actions

M5 Demarcate access points and construct access tracks with crushed limestone to a depth of 150mm with minimal disturbance to native vegetation.

M6 Dust cloths will be installed on the fencing around the trial sites.

M7 Construct farm style gates at emergency access points shown in Figure 2 during construction of fencing.

M8 Provide the City of Rockingham with keys for all access gates.

M9 Replace temporary fencing with post and high tensile wire fencing with alignment and materials to be confirmed with the City of Rockingham once the trial is complete.

4.4 Firebreaks

The TEC Re-establishment Trial Area will require firebreaks which can be also utilised as recreational trails. These will be 6m wide, constructed with crushed limestone to a depth of 150mm and will follow the perimeter of the two lots. The two TEC re-establishment swales will have 3m firebreaks where they do not join with the perimeter fire breaks constructed with crushed limestone to a depth of 150mm (Figure 2).

Management Actions

M10 Construct 6m firebreaks around the perimeter and 3m firebreaks around the edges of the trial sites that do not join with the perimeter with crushed limestone to a depth of 150mm.

4.5 Site Induction

The Site Manager will require contractors and nominated subcontractors to adhere to the following on site procedures within the Trial Sites.

Management Actions

M11 All contract staff will be properly inducted by the Site Manager in a site walk-over which will include the identification of the areas to be cleared and those to be protected. The induction will explain procedures, clarify any queries and the scope of work, highlight areas of significance, discuss the methods to be employed and provide contact details for any further enquiries.

M12 Inform all site personnel of on-site management practices with regards to weed, waste and dieback management strategies.

M13 Inform all site personnel of fauna management actions to be adhered to during clearing works.

M14 Daily inspection of temporary fencing and marker tape will be conducted to ensure protective barriers are maintained.

M15 Include environmental matters within regular site meetings during site works.

4.6 Stockpile Practices

The native vegetation to be cleared is completely degraded and consists of predominately *Acacia rostellifera* and therefore is not suitable to be used as mulch on the Trial Site. The mulch from cleared vegetation may be utilised in landscaping areas in other cleared parts of the reserve. The mulched material will not be burnt. The topsoil on the Trial Site has a high weed burden and therefore is not

suitable for use in the trial. Therefore no stripping of topsoil will be required. All soil excavated to create the swales will be transferred to the RIZ development site unless the City of Rockingham has a use for it nearby.

Management Actions

M16 Mulched vegetative material is not to be used on the Trial Site.

M17 Burning of cleared vegetation will be prohibited during all stages of construction.

M18 All excavated soil will be removed from site and stockpiled elsewhere in the development area of the RIZ.

5 EARTHWORKS

5.1 Design

The creation of the swales will require the removal of the soil to create the correct swale morphology. The swales will have banks that do not exceed a 1 in 6 grade. The Landscape Master Plan shows the finished grades and planting zones (Appendix 9). The plan also shows the location of the 6m wide walking trail that will also serve as access for emergency vehicles around the perimeter of the lots and a 3m walking trail around the perimeter of the trial areas constructed with crushed limestone to a depth of 150mm.

The detailed engineering design will be submitted as a Development Application to the City of Rockingham prior to commencement of excavation.

Management Actions

M19 Install a monitoring bore in the centre of the site to accurately determine water levels.

M20 Lodge all earth-working plans as a Development Application to the City of Rockingham for approval prior to commencement.

5.2 Soil Preparation

Following excavation to the correct depth soil will be placed on the bed of the swale. The subdivision area at the RIZ is very weedy and the seed bank in the topsoil is likely to be mostly weeds. Therefore the topsoil will not be suitable for use in the swales to be revegetated.

Any soil required to be replaced on the bed of the swale to improve seedling establishment will be sourced from deeper levels of soil from the site and topsoil from approved soil suppliers. Soil will be prepared with environmentally friendly wetting agent where appropriate.

Management Actions

M21 Stripped topsoil from the Trial site is not to be used on the Trial Site.

M22 Cleared areas will be temporarily stabilised with water, hydro-mulch or other stabilising material when required.

M23 Replacement topsoil to be sourced from approved suppliers.

5.3 Dieback Management

Dieback is a group of soil-borne pathogens that infect the roots of susceptible plant species. It limits the roots ability to take up water and nutrients, thereby weakening or killing the host plant. The spores of Phytophthora Dieback are transported by water and in soil (DPaW, 2015).

The site has calcareous sands and therefore is not likely to be infected with Jarrah Dieback (*Phytophthora cinnamomi*), however Tuart Dieback (*Phytophthora multivora)* could potentially infect these soils in the future. Typical signs of infection are a decline in canopy health in the crown of the tree. There is no evidence that the Tuarts on the site are infected.

Management of dieback aims to minimise the risk of increasing the occurrence of the disease through spreading and also impacts on existing infestations. Soil and vegetative material that are from infested areas will not be used within areas where infestation has not been recorded.

Hygiene protocols upon entry to the site will be followed. No vehicles or shoes that are visibly covered in soil will be permitted onto the site and all tools that come in contact with soil will be washed prior to entering the site. No soil will be transported onto the site from other sites unless proven to be dieback free.

If any symptoms of dieback are detected in the revegetated areas tests will be undertaken to confirm the presence of the pathogen. If tests are positive infected seedlings/trees will be treated with phosphite.

Precautionary measures to prevent the potential spread of dieback within the subdivision area include the following:

Management Actions

M24 Replacement topsoil will be obtained from a dieback free source.

M25 All machinery and vehicles will be cleaned down to remove potentially infected soil prior to arrival and prior to leaving the Trial Site.

M26 If symptoms are evident and testing indicates that the surrounding trees are infected they will be treated with Phosphite.

6 PLANTING

6.1 Rabbit Proof Fencing

Once the Trial Site has been excavated to final levels (or prior to the commencement of construction), and prior to planting, rabbit proof fencing will be installed around the perimeter of the trial sites which will be 40mm mesh dug in to a depth of 30cm and at least 1m above ground.

Management Actions

M27 Install Rabbit proof fencing around trial sites prior to planting if not installed prior to construction.

6.2 Seed/Tubestock Collection

The collection of local seed material for the use in the re-establishment of TEC in the swales and for general landscaping will be carried out prior to clearing works. Seed collection will target the following species:

- *Banksia littoralis;*
- *Melaleuca rhaphiophylla;*
- *Acacia rostellifera;*
- *Hakea prostrata;*
- *Clematis linearifolia;*
- *Melaleuca huegelii;*
- *Muehlenbeckia adpressa*;
- *Kennedia prostrata*; and
- *Hardenbergia comptoniana*.

The seed stock will be harvested, processed and stored by an appropriate seed collection company until being passed to an accredited nursery to raise tubestock to be used in the revegetation on the site.

Grasstrees (*Xanthorrhoea preissii*) will be sourced from the future development areas in the RIZ.

Sedge species are easily established by creating tubestock from harvesting the rhizomes. Areas of TEC that are to be cleared in the development area of the RIZ will be harvested prior to clearing to develop tubestock for the TEC Re-establishment Trial. As much as possible this will be the methodology to collect the tubestock required for the TEC Re-establishment Trial. Specifically sedge species to be targeted for harvest for tubestock include:

- *Gahnia trifida*;
- *Lepidosperma gladiatum*;
- *Lepidosperma longitudinale*;
- *Ficinia nodosa*; and
- *Baumea juncea*.

Management Actions

M28 Seed for use in the trial, where possible, will be collected locally prior to vegetation clearing.

6.3 Planting

The typical species found in TEC 19 are shown in Table 4 with minimum densities to which each species will be planted in the swales.

Table 4: TEC Species and Densities

Life Form	Species	Location	Planting Density
Small Trees	*Banksia littoralis*	Bed and Lower Bank	1 per 30m^2
	Melaleuca huegelii	Bed and Lower Bank	
	Melaleuca rhaphiophylla	Bed and Lower Bank	
Shrubs	**Acacia rostellifera*	Bank	1 per 20m^2
	Spyridium globulosum	Bank	1 per 10m^2
	Hakea prostrata	Bank	1 per 10m^2
	Xanthorrhoea preissii	Edge of Bank and Bed	1 per 5m^2
Sedges	*Gahnia trifida*	Bed	1 per 4m^2
	Ficinia nodosa	Bed	2 per 1m^2
	Lepidosperma longitudinale	Bed	
	Baumea juncea	Bed	
Climbers	*Clematis linearifolia*	Bed and Lower Bank	1 per 60m^2
	Muehlenbeckia adpressa	Bed and Lower Bank	
	Hardenbergia comptoniana	Bed and Lower Bank	
Groundcover	*Kennedia prostrata*	Bank	1 per 10m^2

*Not to be planted in the first year

These will be planted in accordance with the TEC Re-establishment Trial Concept Plan as shown in Appendix 9. The overall swales were designed by PGV Environmental based on the pattern observed within natural TEC 19 vegetation in the RIZ.

The sedges will be planted at the base of the swale (*Gahnia trifida*, *Lepidosperma gladiatum* and *Baumea juncea*). The tree species *Banksia littoralis, Melaleuca rhaphiophylla* and *Melaleuca huegelii* will be planted mostly on the lower banks of the swales and edges of the bed but also occasionally in the middle of the bed of the swale. *Xanthorrhoea preissii* shrubs will be planted at the bottom of the bank of the swale.

The shrubs, *Hakea prostrata* and *Spyridium globulosum*, as well as the groundcover species (*Kennedia prostrata)* will be planted on the banks of the swale.

Acacia rostellifera is a species that has proliferated in the Rockingham area and is prevalent in the surrounding vegetation near the Trial Site. Due to the invasive nature of this species compared with the other two species of shrub it is not proposed to plant any of this species in the first year. If the shrub hasn't emerged on the banks of the swale tubestock will be planted to the densities outlined in Table 4. The Landscape Plan is to be finalised and the notation that *Acacia rostellifera* is not to be planted on the site in the first year will be added to the plan.

The climbers (*Muehlenbeckia adpressa, Clematis linearifolia* and *Hardenbergia comptoniana*) will be associated with the trees and planted in the bed and lower bank areas.

The different depths to groundwater in the swale compartments will result in a variable depth to groundwater for each species as outlined in Table 5.

Table 5: Planting Detail Compared to Depth to Groundwater

Swale Number	Swale 1.1 and 2.3		Swale 1.2 and 2.2		Swale 1.3 and 2.1	
Planting Unit	**Level (mAHD)**	**Depth to max GW Level (m)**	**Level (mAHD)**	**Depth to max GW Level (m)**	**Level (mAHD)**	**Depth to max GW Level (m)**
Acacia rostellifera, Spyridium globulosum, Hakea prostrata	4.0-6.0	2.5-4.5	3.5-6.0	2.0-4.5	3.0-6.0	1.5-4.5
Xanthorrhoea preissii	3.5-4.0	2.0-2.5	3.0-3.5	1.5-2.0	2.5-3.0	1.0-1.5
Banksia littoralis, Melaleuca huegelii, Melaleuca rhaphiophylla, Kennedia prostrata, Hardenbergia comptoniana, Muehlenbeckia adpressa	3.5-5.0	2.0-3.5	3.0-5.0	1.5-3.5	2.5-5.0	1.0-3.5
Gahnia trifida, Lepidosperma gladiatum, Baumea juncea	3.5	2.0	3.0	1.5	2.5	1.0

Tubestock will be planted in a semi-random fashion to ensure the final vegetation appears as natural as possible. Tubestock will be used in all cases except for sedges and mature *Xanthorrhoea preissii* which will be sourced from the areas to be cleared in the RIZ.

Weed-free mulch from chipped vegetation cleared from the RIZ development area will be laid down on bare sandy areas between the planted tubestock to suppress weeds and reduce dust.

Seed for tubestock planting will be sourced from the RIZ development area wherever possible. Where this is not possible tubestock will be sourced from specialist nurseries that collect local provenance seed and raise tubestock. Where possible, sedges (*Gahnia trifida*, *Lepidosperma longitudinale, Ficinia nodosa* and *Baumea juncea*) and Grass Trees (*Xanthorrhoea preissii*) will be transplanted from TECs to be cleared in the RIZ.

No watering of the trial site is proposed except during the establishment of Grasstrees.

Management Actions

M29 Tubestock will be planted randomly.

M30 Species to be used will be as per the species list and density table.

M31 *Acacia rostellifera* will not be planted on the site in the first year which will be noted on the final Landscape Master Plan.

M32 *Acacia rostellifera* will not be planted in the second year if natural recruitment occurs.

M33 The Trial Site will be planted with tubestock in Autumn 2016 following the first 100mL of rainfall.

M34 Any areas of accidental disturbance to native vegetation outside of the Trial Sites during construction will be rehabilitated.

M35 If the monitoring determines that the first year criteria are unlikely to be achieved then additional planting of tubestock will be undertaken.

6.4 Feral Abatement

The City of Rockingham has advised that the density of rabbits in the area of the Trial site was 'medium' in 2013. The requirement for protection of the planted and seeded area from rabbits is imperative as the results of the proposed experimental design will not be representative if the site is damaged by rabbits.

No tree guards will be needed around individual planted tubestock as the trial areas will be fenced with rabbit proof fencing prior to planting. At the completion of the trial the vegetation in some of the swales may not establish successfully. Any areas that have not reached the required coverage and are to be replanted will have tree guards installed.

Due to the proximity of surrounding development in this case baiting is not recommended. Warrens in the surrounding area (within 20m of the trial site) will be fumigated. Fumigation can be carried out at any time of year but it has the best long-term effect if done shortly before the start of the rabbit breeding season. The fumigation should be undertaken in late Summer or early Autumn. All fumigation will be undertaken using phosphine generating tablets. No Liquid Petroleum Gas (LPG) is to be used for fumigation. Warrens will be ripped outside of this period.

Foxes have also been recorded near the site and if any dens are present within 20m of the trial site these too will be fumigated and ripped.

All pest control to be undertaken by a suitably qualified contractor.

Management Actions

M36 Tree guards will be installed around any tubestock planted at the end of the trial to achieve the completion criteria prior to handover of the management of the site.

M37 Rabbit warrens nearby will be fumigated with phosphine generating tablets and ripped.

M38 Any fox dens nearby will be fumigated and ripped.

M39 All pest control to be undertaken by a suitably qualified contractor.

7 MONITORING

7.1 Weed and Pest Monitoring

Weeds may establish in the constructed swales and will need to be controlled on a regular basis. Weed density will be assessed twice per year in autumn and late spring after the swales are constructed for the duration of the trial. Necessary weed control will be determined during the weed inspections. Each separate area will be assessed individually for the presence and severity of weed re-establishment. Weed species will be treated with herbicide as required based on observations during site inspections.

The main aim of the weed control program is to prevent weed seed set; therefore the site weed inspection schedule will be continually audited to determine whether an increase or decrease in the frequency of inspections is necessary in order to achieve this aim.

Management Actions

M40 Assess weed density each autumn and spring.

M41 Weed control to be undertaken on an as needed basis.

7.2 Vegetation Monitoring

Four permanent 10m wide transects will be established across each of the six sections of the trial swales. The transects will start at the top of the bank of the swale and continue down to the middle of the bed. The transects will be fixed in place by pegging the four corners and each metre interval down the transect on both sides. The surface level of the transect will be accurately surveyed for each 1m interval down the centre of the transect.

The vegetation in the transects will be assessed in spring (between September and October) each year. For monitoring purposes the transect will be divided into sub-sections 10m long (along the contour) by 3m wide (across the contour) ensuring that the sub-sections finish exactly at the bottom of the bank on the edge of the bed.

The following will be recorded in the sub-sections:

- Native species canopy cover using the adapted Braun-Blanquet measurement of coverage (DPaW Pers Comm, 2013);
- Coverage of each weed species;
- Percentage bare earth;
- Species frequency (numbers of individuals of each species present);
- Health of each individual (alive, dead, unhealthy)
- Any other observations regarding plant health and evidence of pest species.

Photo points allow a visual comparison of changes in vegetation structure and composition over time which will aid in monitoring revegetation success as well as the rate of natural regeneration. Photo-points will be established prior to undertaking any works onsite so that a true baseline condition picture can be recorded.

Twelve photo-points (two for each of the six trial sections) will be marked with steel surveying pegs which are flagged with tape and labelled on the side from which the photograph is taken. GPS coordinates and compass bearings will be recorded for each photo-point. Photo-points will be visited on an annual basis in spring. Photos should be taken from behind the photo-point, from as far back as necessary to include peg in the centre and bottom 20% of the photo. Photos will be taken from a standing position, with the camera held in front of the photographer's face, without zooming. The location of the area monitored will be recorded and each monitoring period will be undertaken in the same area each year.

The TEC Re-establishment Trial will be monitored annually for five years after the tubestock are planted. Photos will be compared to previous years and included in the annual monitoring report.

All results of the monitoring will be logged into the LandCorp MYOSH software database. The information will be collated, analysed, and assessed in the annual report. Key actions will be decided upon for the following year, such as infill planting the follow year's maintenance schedule utilising these results.

Monitoring will cease after five years and the results of all of the monitoring undertaken on the site will be included in the research report.

Management Actions

M42 Four permanent 10m wide transects will be established across each of the six sections of the trial swales to be assessed annually in Spring

M43 Twelve photo-points (two for each of the six trial sections) to be monitored annually in Spring

7.3 Groundwater Monitoring

Depth to groundwater variation in the TEC Re-establishment Trial will be an integral part to understanding the ability to successfully re-establish areas of TEC 19. Initially to determine the depth to groundwater on the site a bore has been established and is currently being monitored.

The Re-establishment Trial Site will have monitoring bores installed in each of the swales of different depths. A total of six bores will be installed following completion of the construction of the swales.

All monitoring bores in the TEC Re-establishment Trial Area will be co-located as close as possible with monitoring transects for vegetation.

All bores will be monitored as follows:

- Monthly groundwater level measurements; and
- Quarterly groundwater quality analysis.

The results of the monitoring will be included in the research report for the Re-establishment Trial of the TEC.

The variation of the depth to groundwater and the confirmation of the depth from the base of the swale will be used to analyse the data from the monitoring of the vegetation in the re-established TEC.

At the conclusion of the trial bores will be capped and may be used for further studies of the trial in the future.

Management Actions

M44 Six bore to be installed and monitored for monthly groundwater level measurements and quarterly groundwater quality analysis

M45 Cap groundwater bores at the conclusion of the trial.

8 COMPLETION

8.1 Trial Criteria

The following criteria for the Trial Re-Creation of the TEC have been determined:

- Re-establishment works initially (after 1 year) achieve a minimum species richness of 80% of the species list that has been determined to be typical of the TEC FCT19 (Table 7);
- If seedling/plant survival for swale configurations is less than 20% after one year additional planting for that species will occur in the following year; and
- The density of weeds not to exceed 5% coverage within the five year monitoring period.

No infill planting will occur in the trial site after the second year to maintain the integrity of the trial results. After five years of monitoring the project will be complete and the research report will be submitted to DPaW and DoE. After six years or once the end of trial criteria are met the management of the site will be handed to the City of Rockingham.

8.2 Public Amenity

At the conclusion of the trial, basins that have less than 40% coverage will be planted out to have a minimum of five species to be determined with the City of Rockingham at the conclusion of the trial.

The potential is for the area to provide Nature Based Recreation facilities in keeping with the Public Open Space zoning of the site under the City of Rockingham Town Planning Scheme No. 2. Within the central area of the triangular Re-established TEC an amenity node linked by a boardwalk feature can be constructed to highlight the features of the replanted. Interpretative signage outlining the purpose of the Trials and the methods can be placed along the tracks and boardwalk. The investment by LandCorp on the site and consequently the added amenity features will provide an area within the RIZ that will provide Nature Based Recreation opportunities in the future.

LandCorp will work with a Landscape Architect to design works for a boardwalk or other infrastructure that may be installed onto the site at the conclusion of the trial including design of short boardwalks, paths and public access points. The area and type of fencing to be used will also be determined at this time.

The five year trial is designed to determine if a TEC of this nature can be re-established and, if so, what are the optimal conditions under which it can be established. If the replacement TEC in any of the swales is not successful and there is less than 40% coverage after the five year trail period LandCorp will plant at least five appropriate species in the swale in consultation with the City of Rockingham at the opening rains in the following year prior to handing over management to the City once planting is complete.

Management Actions

M46 Liaise with the City of Rockingham to design and install potential infrastructure at the conclusion of the trial.

M47 Fencing of the trial site is to be determined at the conclusion of the trial in consultation with the City of Rockingham.

M48 If replacement TEC coverage on the trial sites is greater than 40% management to be handed over to the City of Rockingham at the conclusion of the trial.

M49 Upon completion of the trial if any swale has less than 40% coverage it will be planted with at least appropriate species as determined in consultation with the City of Rockingham.

M50 Management of the swales will be handed over after infill planting is complete.

8.3 Long Term Tenure

The TEC Re-establishment Trial Area is vested in the City of Rockingham. The location of the trial on a reserve is to provide protection for the established vegetation in the long term. While it is not a condition of the EPBC approval that the trial is held 'in perpetuity', the City of Rockingham has formally agreed to the use of the land for this purpose and to the long term management of the site (Appendix 6).

The trial site is bisected by the Jecks Street Road Reserve. If the street is to be constructed to the rail loop fencing will be placed along Jecks St Reserve prior to the construction of the road if the construction is to occur before 2025.

M51 If Jecks Street is to be constructed prior to 2025 fencing will be installed along the road reserve prior to the construction of the road.

9 REPORTING

9.1 Compliance Reporting

All activities associated with the implementation of the TEC Trial are required to be reported to the Department of the Environment (DoE). All annual reports for the TEC Re-establishment Trial include the results of the monitoring, the necessary actions for the following years, observations of the trial outcomes and a discussion on the results to date. The Annual report will include recommended actions for any additional mitigation measures that will need to be undertaken in the following year. The Annual report will be forwarded to the City of Rockingham.

Mxx Forward the annual report to the DoE to the City of Rockingham.

9.2 TEC Re-establishment Trial Research Report

The results of the trial, differences between the vegetation establishment in the different swale morphologies and depths to groundwater and the success of the tubestock planting will be presented in a report to be submitted to DPaW and DoE no more than six years after planting. The report will address the focus of the research trial which is:

> *to determine how the depth to groundwater of a constructed swale impacts on individual plant species typical of TEC 19 so that the results of the trial can be used to re-establish areas of TEC 19 in other areas such as where drainage swales may be constructed in the future.*

The report will be in the format of a scientific report that will be written by the same people that collect and collate all the data. The report will present the aim, methodology, results and discussion of results of the TEC Re-establishment Trials in the context of:

- The methodology used to construct the swales and any outcomes that developed changes or development in the methodology that can be utilised in the future for the establishment of vegetation that is designed to represent TEC 19;
- The success of the planting in comparison to the target survival rates;
- The comparison of the potential vegetation structure established compared to the naturally occurring TEC in the RIZ Conservation Area;
- Results of investigations into root morphology in TEC species;
- Trends in the groundwater levels and impacts that may have had on the vegetation condition in both of the areas;
- Further research into the ecology of naturally occurring TECs; and
- Application of the results.

The research report will address the On-site Offsets in two parts:

- The Re-establishment trial, and
- The research into the existing TEC in the RIZ in the Conservation Area and in the Development Area.

An indicative structure for the Research Report is as follows:

1. Context, Trial/ Research setup;
2. Implementation;
3. Methodology;
4. Data collection methodologies;
5. Results (Monitoring results);
6. Annual report and amendments made for actioning;
7. Analysis;
8. Lessons learnt;
9. Application to environmental agencies and development industry;
10. Recommendations; and
11. Conclusion;

Once the draft report is prepared stakeholder consultation will be undertaken to discuss the outcomes of the trial. This will include the ability to re-establish the TEC, the amenity that the trial provides, the impact of the depth to groundwater and any additional items that arise during the course of the trial. Stakeholders will include but not be limited to:

- LandCorp;
- DPaW;
- City of Rockingham; and
- DoE.

The outcomes from the stakeholder consultation will be incorporated into the final research report. The research report will be made available to the public and published on the LandCorp website. The report will also be circulated to all stakeholders included in the consultation at the conclusion of the trial. If the opportunity arises that report may also be presented at an appropriate forum for the landscaping and/or environmental industries.

9.3 Review of the Implementation Plan

The Implementation Plan has been prepared to cover the TEC Re-establishment Trial for five years. Once the tasks are complete as outlined in the plan the plan will no longer be required. Therefore no review of the plan is proposed.

9.4 Responsibility

Landcorp has sole responsibility for the implementation of this plan.

10 SCHEDULE OF WORKS

The broad schedule of Works is outlined in Table 7.

Table 7: Summary of Project Phases

Step	Project Phase	Timing
1	Approvals - Clearing Permit	Early 2016
2	Approvals – Development Application	Early 2016
3	Construct Temporary fencing and gates	Early 2016
4	Clearing	Early 2016
5	Installation of firebreaks – external and internal	Early 2016
6	Earthworks to construct the correct swale morphology and desired depths for the purpose of the trial	Autumn 2016
7	Soil preparation	Autumn 2016
8	Construct Rabbit Proof fencing and gates	Autumn 2016
9	Planting	Late Autumn 2016 (2017 and 2022 if required)
10	Monitoring	2016-2021 Quarterly and Spring
11	Maintenance	2016-2021
12	Wire Fence installation and gates	2021

Table 8 outlines the summary of management actions. Landcorp is responsible for these actions

Table 8: Summary of Management Actions

Management Action	Management Measures	Timing
M1	Application for a Clearing Permit to be submitted and approved prior to clearing.	Nov-15
M2	Survey and clearly mark the boundaries of the Trial Site with pegs and tape prior to clearing and construction commencing.	Oct-15
M3	Clearly identify the location and limit of clearing of vegetation within all work areas on appropriate plans.	Prior to clearing

Management Action	Management Measures	Timing
M4	Supply all plans to contractors and personnel prior to clearing.	Prior to clearing
M5	Demarcate access points and construct access tracks with crushed limestone to a depth of 150mm with minimal disturbance to native vegetation.	Prior to clearing
M6	Dust cloths will be installed on the fencing around the trial sites.	Prior to clearing
M7	Construct farm style gates at emergency access points shown in Figure 2 during construction of fencing.	Prior to clearing
M8	Provide the City of Rockingham with keys for all access gates.	Immediately after gates are installed
M9	Replace temporary fencing with post and high tensile wire fencing with alignment and materials to be confirmed with the City of Rockingham once the trial is complete.	At completion
M10	Construct 6m firebreaks around the perimeter and 3m firebreaks around the edges of the trial sites that do not join with the perimeter with crushed limestone to a depth of 150mm.	Oct-16
M11	All contract staff will be properly inducted by the Site Manager in a site walk-over which will include the identification of the areas to be cleared and those to be protected. The induction will explain procedures, clarify any queries and the scope of work, highlight areas of significance, discuss the methods to be employed and provide contact details for any further enquiries.	Prior to clearing
M12	Inform all site personnel of on-site management practices with regards to weed, waste and dieback management strategies.	Prior to clearing
M13	Inform all site personnel of fauna management actions to be adhered to during clearing works.	Prior to clearing
M14	Daily inspection of temporary fencing and marker tape will be conducted to ensure protective barriers are maintained.	Prior to clearing
M15	Include environmental matters within regular site meetings during site works.	Prior to clearing
M16	Mulched vegetative material is not to be used on the Trial Site.	Ongoing
M17	Burning of cleared vegetation will be prohibited during all stages of construction.	Ongoing
M18	All excavated soil will be removed from site and stockpiled elsewhere in the development area of the RIZ.	Ongoing
M19	Install a monitoring bore in the centre of the site to accurately determine water levels.	Ongoing
M20	Lodge all earth-working plans as a Development Application to the City of Rockingham for approval prior to commencement.	Nov-15
M21	Stripped topsoil from the Trial site is not to be used on the Trial Site.	During construction

Management Action	Management Measures	Timing
M22	Cleared areas will be temporarily stabilised with water, hydro-mulch or other stabilising material when required.	Ongoing
M23	Replacement topsoil to be sourced from approved suppliers.	Prior to construction
M24	Replacement topsoil will be obtained from a dieback free source.	Prior to construction
M25	All machinery and vehicles will be cleaned down to remove potentially infected soil prior to arrival and prior to leaving the Trial Site.	Ongoing
M26	If symptoms are evident and testing indicates that the surrounding trees are infected they will be treated with Phosphite.	Ongoing
M27	Install Rabbit proof fencing around trial sites prior to planting if not installed prior to construction.	If required
M28	Seed for use in rehabilitation works, where possible, will be collected locally prior to vegetation clearing.	Nov-15
M29	Tubestock will be planted randomly.	During planting and infill planting if required
M30	Species to be used will be as per the species list and density table.	May-July 2016
M31	*Acacia rostellifera* will not be planted on the site in the first year which will be noted on the final Landscape Master Plan.	Ongoing
M32	*Acacia rostellifera* will not be planted in the second year if natural recruitment occurs.	2016
M33	The Trial Site will be planted with tubestock in Autumn 2016 following the first 100mL of rainfall.	2017 if required
M34	Any areas of accidental disturbance to native vegetation outside of the Trial Sites during construction will be rehabilitated.	Autumn 2016
M35	If the monitoring determines that the first year criteria are unlikely to be achieved then additional planting of tubestock will be undertaken.	Following planting season if required
M36	Tree guards will be installed around any tubestock planted at the end of the trial to achieve the completion criteria prior to handover of the management of the site.	2021
M37	Rabbit warrens nearby will be fumigated with phosphine generating tablets and ripped.	Prior to clearing
M38	Any fox dens nearby will be fumigated and ripped.	Prior to clearing
M39	All pest control to be undertaken by a suitably qualified contractor.	Ongoing

Management Action	Management Measures	Timing
M40	Assess weed density each autumn and spring.	Ongoing
M41	Weed control to be undertaken on an as needed basis.	Ongoing
M42	Four permanent 10m wide transects will be established across each of the six sections of the trial swales to be assessed annually in Spring	Six monthly
M43	Twelve photo-points (two for each of the six trial sections) to be monitored annually in Spring	During planting and infill planting if required
M44	Six bore to be installed and monitored for monthly groundwater level measurements and quarterly groundwater quality analysis	Late summer annually
M45	Cap groundwater bores at the conclusion of the trial.	Late summer annually
M46	Liaise with the City of Rockingham to design and install potential infrastructure at the conclusion of the trial.	2021
M47	Fencing of the trial site is to be determined at the conclusion of the trial in consultation with the City of Rockingham.	2021
M48	If replacement TEC coverage on the trial sites is greater than 40% management to be handed over to the City of Rockingham at the conclusion of the trial.	2021
M49	Upon completion of the trial if any swale has less than 40% coverage it will be planted with at least appropriate species as determined in consultation with the City of Rockingham.	2022
M50	Management of the swales will be handed over after infill planting is complete.	2022
M51	If Jecks Street is to be constructed prior to 2025 fencing will be installed along the road reserve prior to the construction of the road.	Prior to 2025

11 REFERENCES

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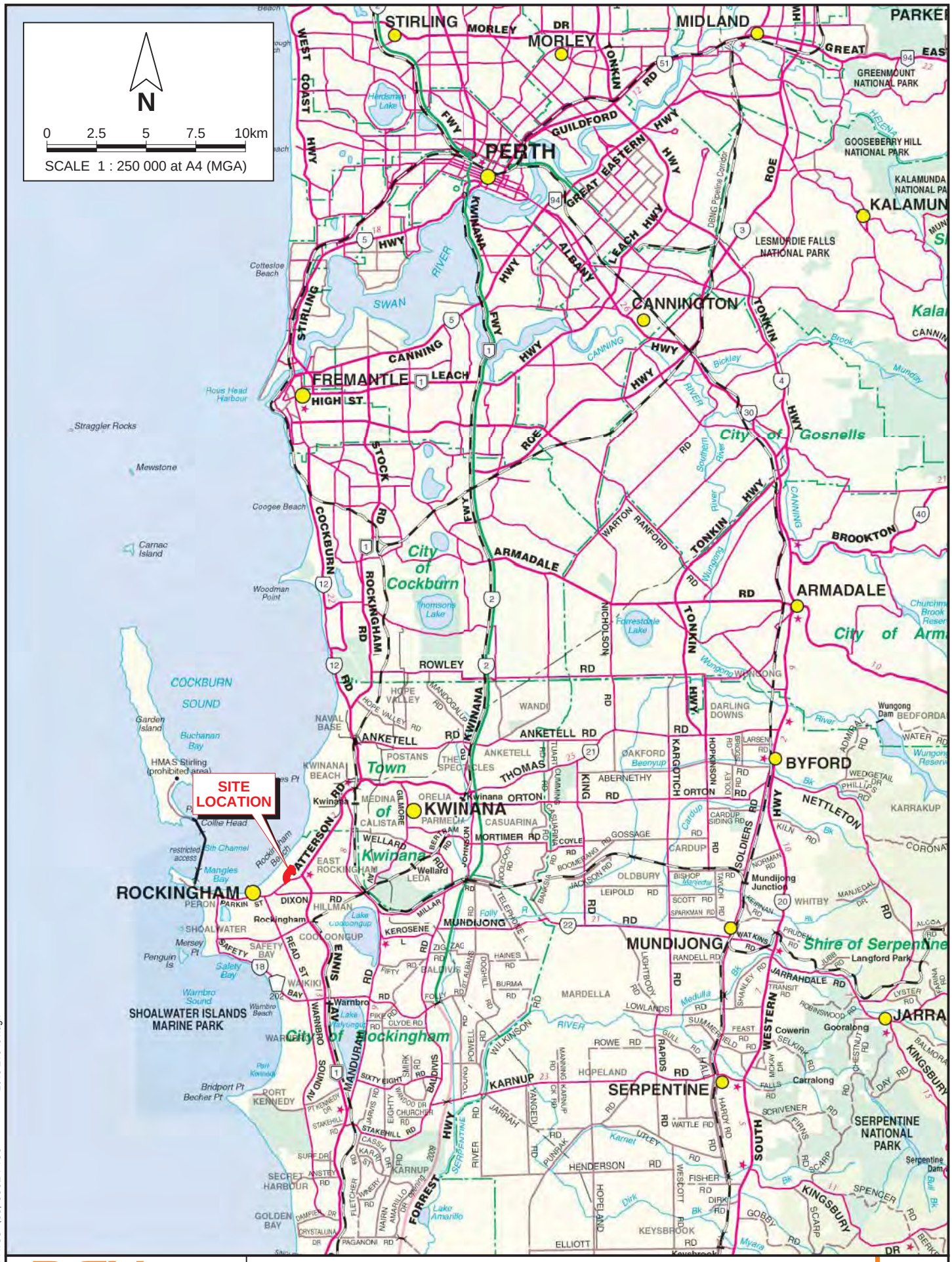
FIGURES



PINPOINT CARTOGRAPHICS (08) 9562 7136 2015-213-f01.dgn

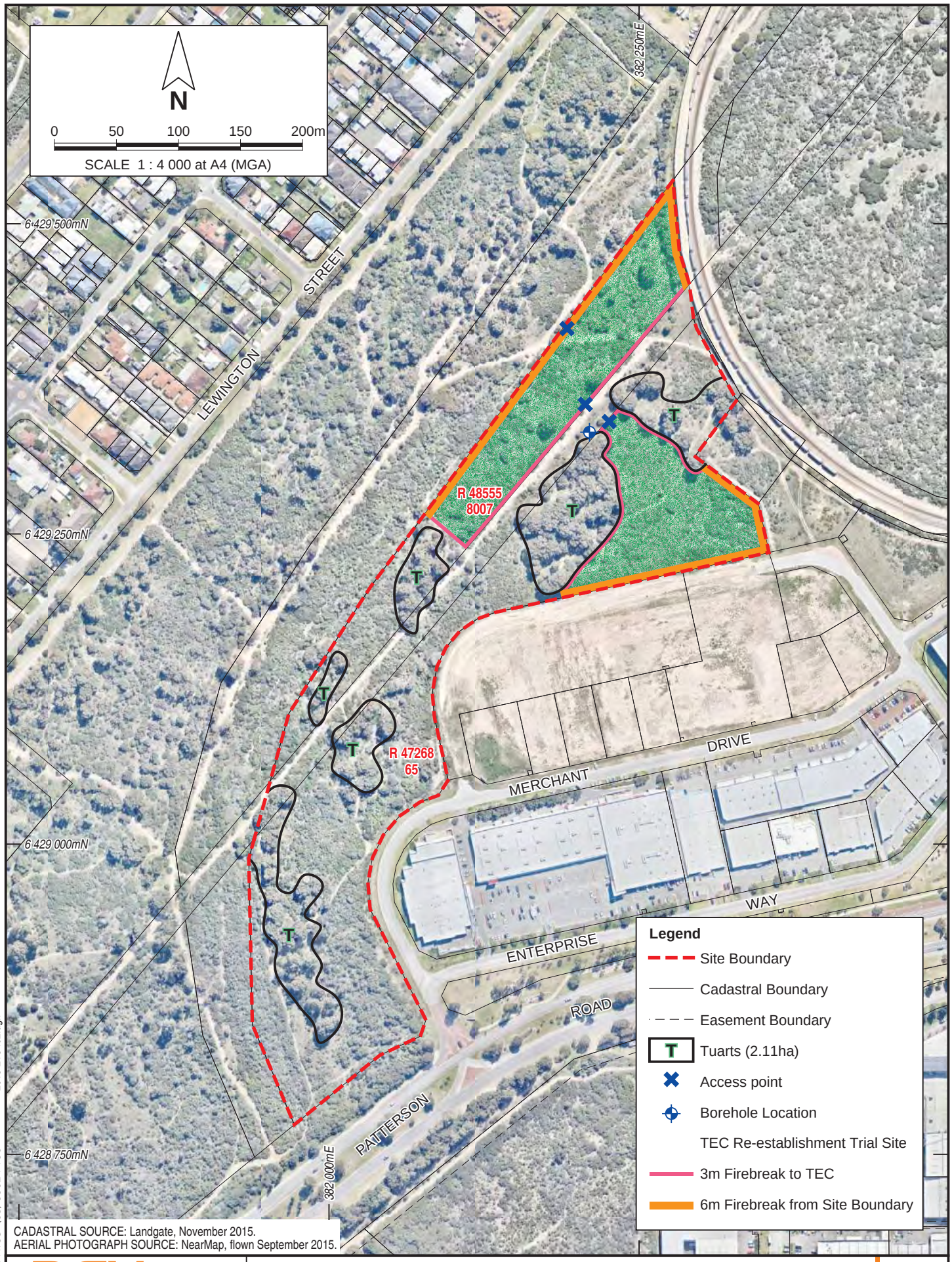
pgv ENVIRONMENTAL

LandCorp
TEC RE-ESTABLISHMENT TRIAL IMPLEMENTATION PLAN
ROCKINGHAM INDUSTRY ZONE

Drawn: J. Cabot	Date: 16 Nov 2015
Job: 10010N Rpt: 2015-213	Revision: A

SITE LOCATION

Figure 1



CADASTRAL SOURCE: Landgate, November 2015.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown September 2015.

PINPOINT CARTOGRAPHICS (08) 9562 7136 2015-213-f02.dgn

pgv ENVIRONMENTAL

LandCorp
TEC RE-ESTABLISHMENT TRIAL IMPLEMENTATION PLAN
ROCKINGHAM INDUSTRY ZONE

Drawn: J. Cabot	Date: 24 Nov 2015
Job: 10010N Rpt: 2015-213	Revision: A

IMPLEMENTATION PLAN

Figure 2