



Assets | Engineering | Environment | Noise | Spatial | Waste

Environmental Assessment and Management Plan

Cockburn Resource Recovery Park



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1 Introduction

The City of Cockburn (the City) is in the process of developing a new modern, fully integrated Community Recycling Centre (CRC) within the existing Cockburn Resource Recovery Park (CRRP), previously known as the Henderson Waste Recovery Park (HWRP). The CRC is located within the Site comprising Lot 235 on Plan 226117, Lot 2 on Diagram 17998 and Lot 202 on Plan 60443.

The development of this facility will require a Works Approval in accordance with Part V, Division 3 of the Environmental Protection Act 1986. To support the application for the works approval, Talis Consultants (Talis) has been engaged to prepare an Environmental Assessment and Management Plan (EAMP) to outline the planning and environmental aspects of the project that require consideration and management.

1.1 Background

In 2015, Talis was engaged by the City to undertake a high level review of the development strategy for the Henderson Waste Recovery Park (HWRP), in light of the current regulatory, political and market conditions affecting the waste management industry in Perth. The study found that there is a number of waste management facilities that could be viable if provided at the HWRP, which therefore warranted further detailed investigations.

In January 2016, the *HWRP Future Strategy* was adopted by the Council and provided a Site concept design for the proposed CRRP and the directions the City could adopt for waste management in the coming decades.

Proposed objectives for the CRRP include:

- Replacement and/or relocation of existing waste management related facilities operated by the City in the form of the new CRC;
- Provision and lease of serviced land to operators of waste management facilities, including a Resource Recovery Facility for processing waste that is currently received at the landfill facility; and
- Provision of a capacity to create waste feedstock for Energy from Waste facilities that are planned to be constructed in the Kwinana and Rockingham areas.

The site is uniquely located close to the Kwinana industrial strip providing valuable landfill capacity and a potential waste processing capability to service properties and businesses in the area. The development strategy for the CRRP aims to ensure that the Site remains a major piece of waste infrastructure for Perth's southern region in the context of future changes to the waste industry.

The CRC is the first stage in the development of the CRRP and has been designed to complement the current and future waste activities within the Site. The City is therefore progressing with seeking all relevant environmental planning approvals for the final conceptual design of the CRC. One of the key environmental approvals for the project is a Works Approval for the construction of the CRC sought from the Department of Water and Environmental Regulation (DWER). To assist the DWER in its assessment of the project, an EAMP is required to detail the current environmental attributes of the site and surrounds, the proposed design, assess potential impacts and outline management measures.

1.2 Purpose of the Report

The objectives of this EAMP are to:

- Describe the current conditions on and surrounding the site;



- Describe in detail the proposed development, including design, operations and its benefits;
- Identify any potential impacts to environmental aspects associated with the site; and
- Develop environmental engineering and management measures to ensure that all potential impacts are managed to appropriate standards.

To achieve the objectives of the report, this EAMP consists of:

- Section 2: Site Information;
- Section 3: Environmental and Social Attributes;
- Section 4: Conceptual Description of Proposed Site Activities;
- Section 5: Benefits;
- Section 6: Environmental Aspects;
- Section 7: Environmental Management Measures; and
- Section 8: Conclusion.

Talis is of the belief that the information provided, within this report will satisfy the environmental data requirements of the DWER and the City of Cockburn.

2 Site Information

2.1 Location and Description

The CRC is located within the Site comprising Lot 235 on Plan 226117, Lot 2 on Diagram 17998 and Lot 202 on Plan 60443. The majority of the CRC will be located within Lot 235 on Plan 226117 and Lot 2 on Diagram 17998 (see Figure 1). An aerial view of the site is shown in Figure 1 and identifies the planned rail corridor that will pass through the eastern section of the site. The Site is located close to the Kwinana industrial strip and in close proximity to the two proposed Energy from Waste facilities in Kwinana and East Rockingham.

2.2 Current Site Activities

The Site is owned and managed by the City and contains the City's waste management operations workshop, household hazardous waste shed, a machinery compound, inert materials stockpile and a greenwaste processing area. A majority of the City's current waste activities are located to the north of Lot 235, on Lot 2 on Diagram 17998 and Lot 202 on Plan 60443. These northern lots currently house the City's site office and administration building, weighbridge/gatehouse, landfill facility and the current domestic waste transfer station and recycling drop off facility.

2.3 Proposed Community Recycling Centre Development

It is proposed that the CRC will comprise the following:

- Double weighbridges and gate house;
- Drop off areas for recyclables, greenwaste and household waste;
- Offices;
- Education facility;
- Reuse shop;
- Car parking; and
- Associated access roads and services.

The proposed CRC development is shown in Appendix A.

The establishment of the CRC will result in an upgrade and relocation of the current infrastructure on Lot 202 on Plan 60443 and a significant improvement to current practices for community recycling and waste acceptance. The CRC will also improve community health and safety aspects of the Site through controlled access and separation from the active landfill operations.

2.4 Current Waste Volumes

A range of materials is currently accepted at the Site from the community, commercial operators and the City's operations. The waste types accepted include Municipal Solid Waste (trailer waste and other City waste), Commercial and Industrial (C&I), Construction and Demolition (C&D) and green wastes and scrap metals. The waste types and volumes accepted at the Site during the 2018/19 financial year are outlined in Table 2-1.

Table 2-1: Current Waste Volumes

Waste Type	Tonnes
Community Waste	
Trailer Passes (excl. greenwaste)	10,952

Waste Type	Tonnes
Non-resident Trailer Waste	3,272
Greenwaste (bulk verge)	1,972
Non-resident Greenwaste	1,091
Commercial and City's Operational Waste	
Greenwaste (kerbside bin system)	4,882
City's Operations Waste (Roads, Parks, Enviro, Waste)	10,215
City's Collected 240litre bin C&I	4,810
Commercial C&I and C&D	27,746
Total	64,940

As shown above, the total volume of waste received in the 2018/19 financial year was approximately 64,940 tonnes. Of these materials approximately 17,287 tonnes will, following its development pass through the CRC and the remaining 47,653 tonnes will bypass the community drop off area and go over the weighbridge to the commercial area of the CRRP and/or the landfill facility.

2.5 Licensing

The site falls under Schedule 1 - Prescribed Premises of Part V of the Environmental Protection Regulations 1987 (as amended) as an 'industrial premise with the potential to cause emissions and discharges to air, land or water'. As it is not a new site, it has a current approved licence (L9159/2018/1) for the following categories over the Lot 202 on Plan 60443, Lot 2 on Diagram 17998 and Lot 235 on Plan 226117 (see Appendix B::

Table 2-2: Current Prescribed Premises Categories of the Site

Category No.	Category Description	Category production or design capacity	Approved Premises production or design capacity
61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewage waste) is stored, reprocessed, treated or irrigated.	100 tonnes or more per year	120 tonnes per annual period
62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use	500 tonnes or more per year	50,000 tonnes per annual period
63	Class I inert landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial.	500 tonnes or more per year	15,000 tonnes per annual period

Category No.	Category Description	Category production or design capacity	Approved Premises production or design capacity
64	Class II or III putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled “Landfill Waste Classification and Waste Definitions 1996” published by the Chief Executive Officer and as amended from time to time) is accepted for burial.	20 tonnes or more	200,000 tonnes per annual period

The current licence would require amendment to include the proposed activities for the CRRP and it is anticipated that this would require the following categories:

Table 2-3: Additional Categories of Prescribed Premises

Category No.	Category Description	Category production or design capacity	Approved Premises production or design capacity
57	Used tyre storage (general): premises (other than premises within category 56) on which used tyres are stored	100 tyres or more	

2.6 Site Zoning

Under the City of Cockburn Town Planning Scheme (TPS) No. 3 (2002) (Updated to include AMD 128 GG 26/02/2019), the Site is located within a zone subject to the “Hope Valley – Wattleup Redevelopment – Act 2000” (the Act). The Act was established by the Authority (DevelopmentWA) with the functions to plan, undertake, promote and coordinate the development and redevelopment of land in the redevelopment area. Under the Act a Master Plan was required to be developed. It provided the procedures for establishing statutory documents including structure plans, planning policies and design guidelines, along with the requirements for planning approvals in order to control land use and development.

The project is now known as Latitude 32 (covering 1,400 ha) and forms part of the planning for the Western Trade Zone (WTZ) featuring high quality transport access and infrastructure with road, rail, sea and air links connecting the area to local, national and international markets. The WTZ is planned to become an integrated commercial and industrial region incorporating the Australian Marine Complex, and the Rockingham and Kwinana Industrial Areas.

It is intended that the relocation of the entrance into the Site will be through Dalison Avenue. Latitude 32 has a development contribution plan (DCP) component which requires a contribution for development costs such as distribution roads in the area. Previous advice from Landcorp suggests that Dalison Avenue is not a distribution road and will not be affected by the DCP, therefore the road upgrade can proceed independently of Latitude 32.

2.7 Surrounding Land Uses

The following land uses surround the Cockburn CRC site:

- Directly north of the site is the Henderson landfill facility, with Cockburn Cement located further north of this facility;
- Eastern side of the Site consists of a horticultural area. Currently, a railroad line separates the Site from this area. A new rail corridor has been proposed that will cut through the eastern section of the Site and border the CRRP;
- West of the Site is agricultural land, with the Beeliar Regional Park further west of this area;
- South of the Site is currently an urban residential area but is subject to the Hope Valley – Wattleup Redevelopment Act 2000, which will see this land developed into an industrial area.

2.8 Separation Distances

The Environmental Protection Authorities (EPA's) Guidance Statement No. 3 – Separation Distances between Industrial and Sensitive Land Uses (2005) contains the recommended minimum separation distances between industrial activities, including waste management facilities, and sensitive land uses. Sensitive land uses are defined as those that are sensitive to industrial emissions and include residential developments, schools, hospitals, shopping centres and other public areas and buildings. The recommended minimum separation distances between sensitive land uses and the Prescribed Premises categories required for the site are shown in Table 2-4.

Table 2-4: Recommended Separation Distances between Industrial and Sensitive Land Uses

Category No.	Industry	Impacts					Recommended Separation Distance (m)
		Gaseous	Noise	Dust	Odour	Risk	
62	Solid waste depot		✓	✓	✓		200

The Site is located in an industrial area away from any residential development and within a site licensed for waste storage and activities, however, there are 9 sensitive receptors within 300m of the Site (Figure 6). These are occupied by residences and could be a source of complaints following the implementation of the development plan.

A nominal separation distance for a waste depot to a sensitive receptor is 200 metres. Given the intention for the bushland area off Dalison Avenue to remain there is space on the Site to manage the CRC to comply with these nominal distances.

2.9 Site Access

The Site will require a new entrance off Dalison Avenue. It is proposed that a grade separated crossing will be constructed over the proposed new rail corridor as part of the Latitude 32 development. This means that the access to the Site from Dalison Avenue will need to be located near its western boundary. Access to the CRC and to the remainder of the CRRP for all traffic will be from this entry point.



3 Environmental Attributes

The following sections outline the current environmental attributes of the Site.

3.1.1 Vegetation

The Site has been historically cleared of vegetation for limestone quarry activities in the early 1970s. However, there is a stand of trees that have regrown to a depth of approximately 75 metres across the southern boundary of the Site adjoining Dalison Avenue. The design ensures that these trees are largely retained.

3.1.2 Topography

Landgate is the Statutory Authority that maintains the States' official register of land ownership and survey information. Utilising topographical contour geospatial data sourced from Landgate, it was observed that the elevation ranges from 4m Australian Height Datum (AHD) to 26mAHD. The topographical data for the site is shown in Appendix A - CRC Site Plans. Soil that will be progressively used for cover material in the landfill is stockpiled within Lot 235. This will need to be relocated to facilitate the development of the CRC and associated resource recovery facilities. It is proposed that this material will be stockpiled within the eastern part of the Lot 235 in the land affected by the future rail corridor.

3.1.3 Geology and Soils

The Department of Mines, Industry Regulation and Safety (DMIRS) Geological Survey of Western Australia (GSWA) 1:50,000 map series for the area classifies one possible surface geology profile occurring across the Site. This profile is described as being within the Tamala Limestone group and further described as "pale yellowish brown, fine to coarse-grained, sub-angular to well rounded, quartz, trace of feldspar, shell debris, variably lithified, surface kankar, of eolian origin".

As noted in Section 3.1.2 the Site has a stockpile of soil materials and will require relocating to facilitate development of the Site.

3.1.4 Groundwater

The static groundwater levels and groundwater quality have been recorded and monitored at the CRRP in accordance with Licence L6965/1997/14. The current monitoring network of the CRRP consists of eight sets of nested (three level) groundwater monitoring wells (24 in total); four production bores; and four sump leachate locations. Table 3-1 provides the standing water levels (SWL) in the wells that lie closest to the CRC Site (MW6 and MW7), and Figure 4 shows their locations.



Table 3-1: Ground Water Elevation Results: October 2016

Bore ID	Easting	Northing	Date	TOC Elevation (m AHD)	SWL (m BTOC)	LNAPL / DNAPL	Total Well Depth (m BTOC)	RWL Elevation (m AHD)
MW6S	48166	239607	6/10/2016	7.94	7.116	Nil	7.39	0.824
MW6I	48165	239602	6/10/2016	7.93	7.265	Nil	10.75	0.6650
MW6D	48166	239600	6/10/2016	8.11	7.454	Nil	15.93	0.656
MW7S	48173	239450	5/10/2016	10.38	9.74	Nil	11.13	0.64
MW7I	48173	239451	5/10/2016	10.48	9.816	Nil	17.33	0.664
MW7D	48174	239452	5/10/2016	10.53	9.869	Nil	28.05	0.661

Over the whole of the Site, relative standing water levels varied between 0.607m AHD to 0.824m AHD. Based on the relative standing water levels observed in October 2016, local groundwater flow direction is inferred to be in a generally north westerly direction.



4 Project Description and Design

The following section provides a description of the CRC and key design elements including a description of the entrance, parking and roads, reuse area, recycling area, multi-tier drop off facility and recycling drop off facility. The conceptual design incorporates the following key components:

- Entrance;
- Parking and access roads;
- Administration and education centre
- Reuse shed;
- Recycling drop off area;
- Household hazardous waste shed
- Multi-Tiered household waste drop-off facility; and
- Service Area.

The proposed location and conceptual layout of the CRC within the Site can be seen in Appendix A. The proposed layout of the facility considered a range of aspects to ensure the efficient operation, use of available space and alignment with the Waste Hierarchy i.e. Reuse, Recycle, Recover and Disposal.

4.1 Entrance

Entrance to the CRC will occur via a proposed access road from Dalison Avenue.

Traffic accessing the CRC will mostly comprise domestic traffic and will be separated from the heavy vehicles accessing the resource recovery facilities and the landfill a short distance into the Site. The CRC traffic will turn off the main access road that leads to the CRC where coloured line-marking and signage will be incorporated into the facility to guide domestic traffic to the drop-off areas relevant to the type of waste they are delivering. Commercial vehicles will pass over a weighbridge and gatehouse where they will be inspected and weighed before dropping off waste for reprocessing or disposal.

An existing internal access road that runs along the eastern section of the Site will provide access between the CRC and associated resource recovery facilities and the landfill facility.

4.2 Parking and Roads

Sealed roads and car parking areas will be established within the CRC. The road has been designed to allow a continuous flow through the CRC to reduce traffic impacts, dust and promote easy use of the facility. Parking bays are located next to the Reuse Shop, Administration and Education Centre, Recycling Area and Multi-tier Drop off Facility for the loading and unloading of materials. The Reuse Area carpark provides bays for 54 cars and 22 car and trailers. The Recycling Area for bulk waste provides 11 bays and the Multi-Tier Facility provides 22 bays for cars and trailers.

4.3 Reuse Area

4.3.1 Reuse Shop

A Reuse Shop will be established at the front of the site to allow drop-off of materials for reuse/resale in accordance with the Waste Management Hierarchy. The Reuse Shop will consist of a 50m x 24m enclosed building and workshop for the collection, repair and sale of used goods back to the community.



4.3.2 Container Deposit Scheme

The WA State Government, through the DWER, aims to introduce the Container Deposit Scheme (CDS) by 2 June 2020. Under the CDS, people will be able to return eligible, empty beverage containers to approved collection depots or reverse vending machines to receive 10 cents refund. Within the DWER's 'Minimum network standards: Refund point locations and hours of operation-Container deposit scheme (May 2019) the State Government has determined that a refund point will be required in metropolitan centres with large and dense populations therefore a CDS facility will be required in the City of Cockburn to service this local community.

A provisional space has therefore been allocated as part of the Reuse Shop for the development of suitable infrastructure for the CDS. The CRC is the obvious choice for the location of this facility which will provide recycling and waste services to the community. It is anticipated that the CDS program will be successful in the City of Cockburn and result in the diversion of significant quantities of container materials from landfill. The exact details of the CDS will ultimately be dependent on the final system employed by the State Government, which is still being developed. In addition, the specifications for the CDS infrastructure requirements are yet to be determined. However, the City has a strong desire to participate within the CDS and service the community accordingly and has allocated sufficient space within the CRC for this infrastructure. This includes initial acceptance of materials such as reverse vending machines or bag drop areas, as well as sorting, processing and loading areas.

4.4 Recycling Area

Designated drop off areas have been designed to cater for a range of recyclable materials to complement the kerbside recycling and kerbside greenwaste collections provided by the City as well a bulk waste drop off area. The Recycling Area will also allow customers to drop off Hazardous Household Waste (HHW).

4.4.1 Hazardous Household Waste

A Hazardous Household Waste (HHW) collection area will be established for the safe acceptance and storage of hazardous materials such as paint, batteries, fluorescent tubes and globes, aerosols, pesticides and household chemicals. The area will be fully enclosed with appropriate bunding to contain any leaks or spills as well as designated areas for each waste to ensure source separation and secure storage. This facility will provide a free and safe drop off facility for these problematic wastes. These wastes will then be transferred to the City's existing Household Hazardous Waste Store awaiting collection by the Western Australian Local Government Association (WALGA) preferred supplier

4.4.2 Recyclables

A 100m x 10m concrete hardstand area will be established to allow customers to drop off a range of recyclable materials including, cardboard and electronic waste. The items will be placed in the designated skip bins.

A drop-off lane will allow cars to park alongside these bins and drop-off materials for recycling. These roads used to drop-off materials will only be used by the public and be separated from the servicing area and roads used for removing and servicing the bins.

There will also be an enclosed area of approximately 20 metres x 20 metres to receive white goods and scrap metals.

4.5 Multi-Tier Drop-off Facility

Vehicles with mixed domestic waste will be directed to the Multi-Tier Drop-off Facility for safe disposal of their waste. The multi-tier drop off facility is a three sided structure with a saw tooth arrangement which contains twenty bays to deposit mixed waste, green waste and C&D waste. The Multi-Tier Drop-off Facility design is shown in Appendix A. The 30m³ hook lift bins are located flush with the floor of the facility and a safety wall will be installed to protect customers while depositing materials. Edge protection will also be installed to prohibit cars from reversing too far. This will result in a one metre walk way between the back of the car and the wall over which customers will place the materials.

The current conceptual design allows for the construction of the multi-tiered facility providing ten 30m³ bins. Each bin is accessible by the community via two elevated parking bays in which vehicles will reverse up to and unload waste into the hook lift bins below. While positioned against the multi-tiered facility the hook lift bins will be sealed (bar the opening at the top) to ensure that there is no leakage of liquids or materials.

There will also be an enclosed area of approximately 20 metres x 20 metres with a push up wall to receive mixed construction and demolition waste.

4.6 Education and Administration Centre

Waste education is a key element of a successful waste management system with the best performing waste management systems usually supported by strong waste education programs. The provision of waste education will help to support the waste services offered across the facility and the City as a whole. It will be used to explain why and how the community should interact with the various services offered by the City. Waste education usually focuses on initiatives at the top of the Waste Management Hierarchy (avoid, reduce reuse and recycle) as well as creating awareness of the particular services provided.

A new education centre is proposed as part of the CRC to assist with improving community awareness of sustainable waste management practices, as well as educating the community on the use of the facility. The education centre will be located adjacent to the administration centre. The education centre will include a modern classroom with displays, IT equipment for presentations and parking for visitors and school bus tours.

As part of the education centre, an administration area will be established as the front of house and key point of contact for all visitors to the facility. A car park will be provided in close proximity to the building for staff and a separate carpark for visitors. Staff will have direct access to the staff parking once entering the CRC, where as domestic users will need to use the roundabout that bypasses the drop-off/recycling areas to park their vehicles.

4.7 Commercial Area

4.7.1 Weighbridge and Gatehouse

All commercial vehicles and vehicles servicing the CRC will access the site via a weigh bridge, gatehouse and viewing platform that also includes a bypass lane. All vehicles transporting waste will be weighed on the weighbridge on entry and inspected to ensure the materials meet licence and acceptance requirements. CCTV will be installed at the gatehouse to monitor vehicle movements to and from the site. Any non-complying materials will be rejected and denied entry to the facility. On acceptance to the facility, the gatehouse attendant will direct the customer to the designated area to drop off materials. On exit all vehicles that have dropped off waste will be weighed.



4.8 CRC Service Areas

A sealed Service Area occupying 0.05ha (5000m²) is located along the southern side of the CRC which allows the Site staff to access and service each area of the CRC. The Service Area is shown in Appendix A:. The service area is to be separated from the public access areas.

4.9 Storm Water Management System

A stormwater management system has been incorporated for the design of the CRC to ensure surface water within the area is captured and controlled. As part of the plan for the site, a stormwater pond has been designated along the north-east section of the site and along the southern boundary of the site, which is the low point of the site. This stormwater pond will be fed from a perimeter drain along the boundary of the CRC. The CRC consists of a range of stormwater infrastructure.



5 Operations

The following sections outline the operational aspects of the CRC which include:

- Estimated waste volumes to be received;
- How waste will be accepted;
- Equipment and machinery;
- Transporting of materials;
- Staffing requirements; and
- Operational hours.

5.1 Estimated Material Quantities Received at the CRC

The Reuse Area, Recycling Area and Multi-Tier Drop-off Facility have been designed to adequately handle the above estimated throughputs with a manageable number of bin movements. The CDS area has been sized to allow for future inclusion of CDS infrastructure. Table 2 sets out the estimated material quantities for each of the proposed activities excluding CDS.

Table 2: Estimated Material Quantities

Site activities	Estimated Throughput (tonnes per annum)
Reuse Area	2,000*
Recycling Area	6,000
Multi-Tier Drop-off Facility	10,000

* Does not include CDS

5.2 Waste Acceptance and Management of Areas

5.2.1 Community Area

During operational hours of the facility the Site Staff will monitor incoming loads of refuse, scrap metal, green waste and C&D waste at the control access points within the community section of the CRC. Once inspected, customers will proceed through to the CRC. Customers can drop off materials at each area of the CRC via the flow through loop road. The first stop within the CRC is the Reuse Shop.

Customers can drop off items to the Reuse Shop for sale to the community. Items will be cleaned and/or repaired on site prior to sale. All electrical items suitable for sale will be tested and tagged to ensure the safety of consumers and to guarantee the item is in good working order. Any items received that are deemed not suitable for resale will be taken to the designated area for recycling.

The precise operational model for the Reuse Shop is yet to be determined by the City however it may be run by a non-profit organisation in partnership with the City. The facility operator will maintain control over the acceptance of items within the Reuse Shop and CDS acceptance area.

Following the Reuse Area is the Recycling Area whereby customers can drop off HHW, scrap metal, commingled recycling, cardboard and e waste. To drop off these material customers can pull in and park parallel to each area and place the materials in the designated receptacles by hand.

Customers can then leave the CRC via the roundabout or continue through a control point onto the Multi-Tier Drop Off Facility. At the multi tier drop off facility trailers and vehicles will reverse into the bays to drop off



materials such as refuse, greenwaste and C&D. Customers will then place waste into the bins by hand over the retaining wall. The Recycling Area and Multi-Tier Drop off Facility are likely to be managed by the City's Site Staff.

5.2.2 Commercial and Servicing Area

During operational hours the Site Staff will monitor incoming commercial loads of refuse, scrap metal, green waste and C&D waste at the weighbridge. Once inspected at the weighbridge, commercial customers will proceed through to the commercial section of the site where they will have access to the CRRP landfill, the City's greenwaste processing facility and any future waste activities that are developed on the Site.

External contractors servicing the waste will enter and exit the site at this point. All service areas will be blocked from community access to separate commercial and residential users of the facility. Site staff will monitor the collection and storage of waste within these service areas.

5.3 Equipment and Machinery

The equipment that will be utilised at the CRC includes a front-end loader and hook lift bin trucks. External Waste Contractors will access the Site to remove the green waste, C&D waste, and bulky recyclables for offsite processing as required.

5.4 Materials Transport

Reuse items will be transported offsite following purchase by customers. HHW will be removed from Site by a qualified contractor for appropriate treatment and disposal. Cardboard, commingled recycling, scrap metal and C&D will be removed from Site by a contractor for recycling. Green waste will be stockpiled and processed onsite by the City. Refuse will be taken to the CRRP landfill for disposal. It is proposed that the design adequately separates service vehicle movements from domestic traffic. Therefore the loading and movements of the waste is to be undertaken during normal operational hours.

All materials leaving the site, or going to the landfill for disposal will be weighed over the weighbridge. An access road is to be provided around the CRC to facilitate the required vehicle movements to achieve this outcome.

5.5 Staffing

Staffing numbers required for the CRC will be determined by the City and operator of the Reuse Shop. It is anticipated that a minimum of three staff members will be required to operate the facility excluding the Reuse Area. The anticipated management structure for the CRC is shown below:

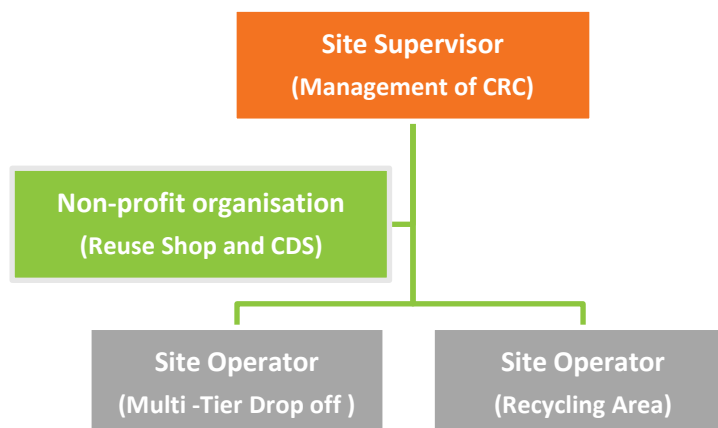




Diagram 1: Management Structure and Responsibilities

All staff will be suitably qualified and/or trained to undertake their relevant roles. Onsite training will include health and safety and environment management.

5.6 Operational Hours

The proposed hours of CRC operation will be a continuation of the existing operating hours, which is shown below:

- Monday to Sunday 8.00am to 4.30pm (excluding re-use shop);
- Friday, Saturday and Sunday 8.00am to 4.00pm (re-use shop only); and
- Closed on Christmas Day, New Year's Day and Good Friday.

The propose hours of the commercial area of the Site will also be a continuation of the existing operating hours, which is shown below:

- Monday to Saturday 7.00am to 4.00pm;
- Sunday 8.00am to 4.00pm; and
- Closed on Christmas Day, New Year's Day and Good Friday.

6 Benefits

There are several benefits associated the CRRP which include the diversion of waste from landfill, improved operational efficiency, provision of additional services, supporting development of local resource recovery activities and minimising traffic impacts. Each of these benefits are discussed further in the following subsections.

6.1 Waste diversion from landfill

Current consumption patterns, particularly within the developed world, are generating high volumes of materials, which have traditionally been regarded as waste and disposed of to landfill. Landfilling waste results in a loss of materials and energy from the supply chain and putrescible landfills can generate methane, a harmful greenhouse gas. It is therefore recognised that traditional waste management practices are wasteful.

The Waste Authority released the new Waste Avoidance and Resources Recovery Strategy 2030 (WARR Strategy) 10th of February 2019. The WARR strategy has set new targets for the recovery of waste which are shown in Table 6-1.

Table 6-1: WARR Strategy Targets

Objectives	Community	Government	Industry
AVOID	2025 – Reduction in MSW generation per capita by 5% 2030 – Reduction in MSW generation per capita by 10%	Reduction in C&D waste generation per capita by 15% by 2025, 30% by 2030 Reduction in C&I waste generation per capita by 5% by 2025, 10% by 2030	2030 – All waste is managed and/ or disposed using better practice approaches
RECOVER	2020 – Increase MSW material recovery to 65% in the Perth and Peel regions, 50% in major regional centres 2025 – Increase MSW recovery to 67% in the Perth and Peel regions, 55% in major regional centres 2030 – Increase MSW material recovery to 70% in the Perth and Peel regions, 60% in major regional centres	C&I sector – Increase material recovery to 70% by 2020, 75% by 2025, 80% by 2030 C&D sector – Increase material recovery to 75% by 2020, 77% by 2025, 80% by 2030	2030 – All waste facilities adopt resource recovery better practice
PROTECT	2030 – Move towards zero illegal dumping 2030 – Move towards zero littering	2030 – Move towards zero illegal dumping	2030 – No more than 15% of Perth and Peel regions' residual waste is disposed to landfill 2030 – All waste facilities adopt environmental protection better practice

Recognising these targets, there is a collective and positive national shift towards diverting more materials from landfill and aligning waste management practices with the Waste Hierarchy. The recovery of materials through



the operation of the CRC will help the City to move towards achieving the set targets and go beyond the expectations of the WARR Strategy.

The WARR strategy outlines three guiding concepts namely; 'Waste hierarchy', 'Circular economy' and 'Behaviour change – knowledge, enabling infrastructure, incentives'. The project aligns with these guiding concepts through its proposed design and operation.

The options within the Waste Hierarchy that are addressed through the project are *reuse, reprocessing, recycling and recovery*. These will be achieved through the acceptance of reusable materials and recyclable materials at the Reuse and Recycling Area. Reusable materials will be recovered and reused by the community. Recyclable materials will be recovered and either reprocessed or recycled.

The project also supports the idea of a circular economy through the recovery of materials by implementing waste management options high up the Waste Hierarchy. The management and recovery of materials will also occur within the area in which it is generated thereby reducing transport costs and providing local employment opportunities.

Behaviour change will be achieved through the construction of enabling infrastructure required for the Reuse Area and Recycling Area. The CRC will provide a critical service and access to a facility that will support the recovery of reusable and recyclable materials. The CRC will encourage the community to separate waste, divert materials from landfill, and view these materials as a resource rather than waste.

The project also supports two key principles within the WARR Strategy; 'Better practice' and 'Waste as a resource.' Better practice is defined in the WARR Strategy as "practices and approaches that are considered by the Waste Authority to be outcomes-focussed, effective and high performing, which have been identified based on evidence and benchmarking against comparable jurisdictions." Reuse sheds and tips shops have been successfully implemented across a number of Local Governments Areas within WA and are recognised as a better practice waste management option that supports the Waste Hierarchy. In addition, the Multi-Tier Drop Off Facility is recognised as a best practice method for the acceptance of waste from the community including environmental, health and safety requirements.

6.2 Alignment with the Waste Hierarchy

The CRC layout has been designed with consideration of the Waste Hierarchy, which is an internationally recognised concept incorporating principles which underpin all modern sustainable waste management strategies. It provides a structure for prioritising waste management practices in relation to their environmental impacts, with the most preferred or most sustainable (top of the hierarchy) to the least preferred or least sustainable (bottom of the hierarchy). The CRC has been designed in alignment with the Waste Hierarchy with reuse and recycling services promoted ahead of waste disposal. This in turn will maximise the separation of materials into clean waste streams for diversion from landfill.

6.3 Resource Recovery

The CRC will help facilitate the recovery of valuable resources thereby increasing recycling rates and diversion of 'waste' from landfill. The majority of the materials to be accepted will be taken offsite for recycling to produce raw materials or manufacture new products. The key benefits of recycling are making better use of materials already in the supply chain, minimise the negative impacts of landfill, preventing or delaying the extraction of natural resources, protection of ecosystems by reducing the need to extract resources, reduction in the environmental impacts of obtaining natural resources, reduction in energy usage and lower carbon emissions.



6.4 Reducing Environmental Impacts

Landfilling waste can result in environmental impacts through the clearing of vegetation, generation of leachate and landfill gas, attraction of vermin and feral animals as well as amenity issues including dust, odours and visual impacts. Capturing materials for reuse, recycling and recovery through the CRC will help to reduce these impacts at the Site. Diversion from landfill will also conserve valuable void space remaining at the Site which is required to provide essential services for the City and commercial communities for the coming years.

6.5 Additional Services to the Community

The CRC will provide the community with three upgraded key service areas. Firstly a Reuse Shop, which may be run wholly or in part by community groups, to provide a space for the sale of reusable materials. Secondly, a designated Recycling Area, which will allow the community to drop off scrap metal, cardboard and e waste. Thirdly, a Multi-Tier Drop Off Facility to drop off greenwaste, C&D waste and refuse. These additional services will help encourage recycling through a well organised, easy to access best practice facility.

6.6 Useability, Operational Efficiency and Safety

The new layout will improve useability and operational efficiency of the CRC through its organised design, logical configuration and flow through the various key components in line with the Waste Hierarchy. Users of the facility will move throughout the CRC through a loop road, dropping off materials in the designated and clearly signed areas. Coloured line marking will be used to guide customers to and through different sections of the facility. These will be complimented with clear signage.

The design ensures that the handling of materials by both customers and Site Staff will be minimised, as far as reasonably practicable. The one way system will encourage customers to flow freely through the component areas smoothly, separated from service vehicle movements by design. Conversely, the operator can service the drop off areas, from the back of house, unhindered by customer movements. This also creates a clear separation of the community from the servicing operations thereby improving safety by avoiding interaction with commercial vehicles and landfill operations.

6.7 Employment Opportunities

Jobs will be created both directly and indirectly through the construction and operation of the CRC. Skills and services required will include civil contracting, material handling, administration, accounting, equipment and earthworks suppliers and operators. New and existing suppliers in the area will have the opportunity to tender for contracts to assist with the construction as well the operation and maintenance aspects of the facility.



7 Environmental Aspects

Based on similar experiences with waste facilities, it is anticipated that key environmental aspects that may be associated with the operation of the CRC include:

- Odour
- Noise
- Dust
- Stormwater
- Leachate
- Litter
- Traffic
- Vermin

The source and potential impacts associated with these aspects are described in the following sections.

7.1 Odour

The City recognises that odour emissions are potentially the most sensitive environmental aspect associated with waste management activities. However, most of the proposed activities at the CRC will not generate odour as they do not involve putrescible waste. These activities are those associated with the Reuse Shop, CDS Shed, HHW Shed and dry recyclables drop off area. The key odour emission sources will be generated from the natural decomposition of organic material such as green waste in the Recycling Area and from the putrescible refuse accepted at the Multi-Tier Drop Off Facility. These materials will be removed from the drop off facilities as soon as practicable, and not later than within 48 hours of receipt and taken either to the existing landfill or to a separately licensed processing facility. Also, the CRC is proposed to be partially enclosed which will contribute to minimising the spread of odour from the CRC. Given this, it is not anticipated that odours generated from green waste and refuse accepted at the CRC will be generated to the degree that they will impact on the closest sensitive receptor. The Site also meets the recommended separations distances for the proposed facilities. The proposed measures to manage odour is outlined in Section 8.2.

7.2 Noise

The City recognises that noise emissions associated with the proposed activities have the potential to generate noise impacts. Noise emissions will be generated from the operation of equipment and from road and engine noise generated from vehicles entering and exiting the site. The Environmental Protection (Noise) Regulations 1997 (Noise Regulations) contain the allowable assigned noise levels at premises receiving such emissions, as shown in Table 7-1. Under the Noise Regulations, noise sensitive premises include residences, education facilities and hospitals.

Table 7-1: Baseline Assigned Noise Levels

Premises receiving noise	Time of Day	Assigned Level (dB)		
		<i>L_{A10}</i>	<i>L_{A1}</i>	<i>L_{Amax}</i>
Noise sensitive premises: highly sensitive area ¹	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	65 + influencing factor

Premises receiving noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Commercial	All hours	60	75	80
Industrial	All hours	65	80	90

¹highly sensitive area means that area (if any) of noise sensitive premises comprising:

- (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
- (b) any other part of the premises within 15 metres of that building that part of the building.

As outlined in Section 2.7, the land immediately surrounding the site is currently complimentary to the proposed activities which includes unused land, railway activities and quarrying activity. At present the noise emissions from landfilling activities have not caused impacts or concerns within the community. Therefore, the additional activities proposed as part of the CRRP are not anticipated to significantly increase noise emissions. Further management measures that can be utilised to control noise emissions at the site are described in Section 8.3.

7.3 Dust

The site has the potential to generate dust during construction and operational activities, including:

- Temporary impacts associated with construction of the building associated with the redevelopment of the site; and
- Material handling (loading and unloading, etc.) associated with the commodity aggregation activities prior to transporting off site.

The CRC will be comprised of hard-standing surfaces and has sealed access roads, which should limit the amount of dust generated. The management measures that will be implemented to ensure that potential dust impacts are adequately managed on site are outlined in Section 8.4.

7.4 Stormwater

Surface water, or stormwater, will be generated as a result of precipitation falling onto the site. Surface water may cause flooding and damage to infrastructure. There is also the potential for this stormwater to come into contact with the waste. If this was to occur the water would be classified as leachate which may contain elevated nutrients and contaminants. If it was released into the environment, it may have a detrimental impact to nearby receptors. The generation of leachate is discussed further in Section 7.5.

Uncontaminated stormwater will be diverted away from waste storage areas and released in a controlled manner through a separate drainage system to ensure that it does not come into contact with the leachate collection systems. The measures to manage surface water on site are outlined in Section 8.5.



7.5 Leachate

When stormwater comes into contact with the waste it is classified as leachate which has the potential to contaminate soils, ground and surface water bodies if released into the environment. Therefore, all water that comes into contact with waste or its designated area on the site will be collected and contained appropriately to ensure that there are no contamination issues.

To safeguard against future impacts to groundwater bodies on or surrounding the facility, the City will incorporate a drainage system to ensure that any contaminated runoff that is generated is captured and managed appropriately. The collection system will include drainage channels and a connection to the lined evaporation pond located onsite. The management measures that will be adopted to ensure that leachate is managed appropriately is set out in Section 8.6.

7.6 Litter

Litter may be generated as a result of handling waste, particularly during windy conditions. As well as reducing visual amenity, litter can attract vermin to the site which may affect surrounding land uses if these vermin migrate offsite. The CRC is proposed to be partially enclosed which will contribute to minimising the generation of litter from the CRC. The management measures that will be utilised to control the generation of litter are described in Section 8.7.

7.7 Traffic

The proposed operations will result in continued traffic movements to and from the site and on the surrounding road network. Onsite traffic movements have the potential to generate noise, dust and create an occupational health and safety risk to staff.

The following traffic movements are anticipated to occur onsite:

- 15 to 26 tonne vehicles associated with commodities for both drop-off and removal;
- community vehicle traffic coming to site to utilise the offered services;
- external contractor vehicles arriving to site for green waste processing; and
- a small number of traffic movements will be associated with staff, which will be confined to the front car parks to ensure car and truck interactions are minimised.

The flow through of traffic has been considered during the development of the CRC design to ensure traffic impacts are minimised as much as practicable. The management measures that will be adopted to ensure that any impacts results from traffic movements are appropriately managed are described in Section 8.8.

7.8 Vermin

Vermin such as rats, mice, birds and insects may be attracted to waste management facilities particularly those with poor housekeeping practices. If uncontrolled, vermin can present a health risk to staff and surrounding land users. The management measures that will be implemented to control vermin are outlined in Section 8.9.



8 Environmental Management Measures

To ensure the potential environmental impacts identified in this EAMP will be appropriately managed and minimised, the City will implement a variety of engineering and management measures, which are described in the following sections.

8.1 Legislative Context

The environmental management measures that are summarised within this section have been prepared in accordance with all relevant legislative and guidance documents, including:

Legislative:

- Environmental Protection Regulations 1987;
- Environmental Protection (Controlled Waste) Regulations 2004;
- Environmental Protection (Noise) Regulations 1997; and
- Waste Avoidance and Resource Recovery Act 2007.

Guidance Documents:

- Sustainability Victoria (2009) Guide to Best Practice at Resource Recovery Centres; Melbourne, Victoria;
- Environmental Protection Authority Victoria (2015) Best Practice Environmental Management – Siting, Design, Operation and Rehabilitation of Landfills; and
- Waste Management Association Australia (2009) Guidelines for Management Workplace Health and Safety within the Waste Management and Recycling Industries in Western Australia.

8.2 Odour Management

The City recognises that there is potential for odour emissions to be generated at the site as part of the proposed activities. To ensure that the generation of odour at the site is appropriately minimised and managed, the following management measurements will be implemented:

- Operating hours will be limited to those specified within Section 5.6;
- All receptacles holding recyclables and waste will be serviced regularly;
- Greenwaste stockpiles will be removed from the drop off area to a separately licenced processing facility;
- Odorous waste received at the Site will be removed from the Multi-Tier Drop-off Facility As soon as practicable and not later than the end of the working day and sent to the landfill for disposal and processing respectively;
- Good House Keeping;
- A complaints register will be maintained by the City to ensure that members of the community can express their comments or concerns regarding the operations of the CRRP; and
- Odour levels will be continuously monitored by staff and action taken, if required.

It is anticipated that these odour management measures will enable the City to appropriately manage potential odour impacts at the site.



8.3 Noise Emission Management

Noise emissions will be produced during construction and operational activities. As mentioned previously, there are several sources of noise associated with the proposed activities including equipment and vehicle movements. To ensure that noise emissions are minimised, the following noise emission management measures will be implemented:

- All trucks and mobile equipment to be fitted with broadband noise reversing alarms to minimise the impact of vehicle reversing noise;
- Waste acceptance and the operation of equipment and machinery will be restricted to operational hours only;
- Vehicles will be restricted to a maximum speed of 10km per hour (km/hr) unless otherwise signed;
- Noise reducing workplace procedures will be adopted such as slow unloading of materials from the lowest height possible;
- All materials handling will be confined to the designated areas;
- All equipment and machinery will be maintained in good working condition; and
- Staff and visitors will be provided with appropriate personal protective clothing (PPE) to mitigate any noise impacts associated with the site activities.

The above noise mitigation measures are anticipated to manage noise emissions and ensure compliance with the Environmental Protection (Noise) Regulation 1997.

8.4 Dust Management

The generation of dust is anticipated due to construction efforts and the general operation of the CRC. To manage the generation of dust, the City will implement the following management measures:

- Appropriate dust management measures will be implemented during the construction works of the new infrastructure (i.e. use of water cart);
- Vehicles will be restricted to a maximum speed of 10km/hour, which will be signposted at appropriate locations including the entrance; and
- All waste loads are to be covered during transport;
- All areas of the CRC will be sealed and maintained.

It is anticipated that the implementation of the engineering and management measures listed above will be sufficient to manage dust at the site.

8.5 Stormwater Management

The City will ensure that stormwater will be managed through a variety of means to ensure appropriate treatment and discharge. To ensure that surface water onsite is appropriately managed, the following management measures will be adopted:

- Uncontaminated stormwater will be diverted away from waste storage areas and released in a controlled manner; and
- All stormwater engineering features at the site will be inspected regularly and maintenance works scheduled appropriately.



8.6 Leachate Management

To contain leachate all waste handling operations will be confined within their designated areas. The surface of most facilities onsite will be hard-stand, eliminating any potential ground contamination issues arising from the generation of leachate. To safeguard against future impacts to groundwater bodies on or surrounding the facility, the City will incorporate a drainage system to ensure that any contaminated runoff that is generated is captured and managed appropriately. The collection system will include drainage channels and a connection to the lined stormwater pond located onsite. The following management measures will be adopted to ensure that there are no environmental impacts regarding leachate associated with the proposed activities:

- All waste handling operations to be confined to their designated hard-standing area; and
- The City will develop a contaminated runoff collection system that will capture all runoff generated onsite and direct it towards the lined stormwater evaporation pond located onsite. The system will be designed by a suitably qualified and experienced engineer.

Through the adoption of the above management measures, it is anticipated that any potential impacts associated with the generation of leachate will be managed appropriately.

8.7 Litter Management

To ensure that the generation of litter is minimised and appropriately managed at the site, the following management measures will be implemented:

- All unloaded waste and recyclable materials will be confined to the designated drop-off areas;
- All source separated commodities will be stored in a designated area;
- All waste loads entering the site will be covered to prevent uncontrolled release of litter;
- A boundary fence will be installed to prevent any litter escaping;
- The boundary fence will be inspected regularly, and any maintenance works scheduled accordingly;
- Any litter generated around the site and along the fence lines will be collected on a regular basis as part of routine procedures; and
- Wind-blown litter will be collected immediately and taken back onsite.

These management measures will enable the City to appropriately manage litter on the site.

8.8 Traffic Management

To minimise any potential impacts of traffic movements at the site, the following management measures will be implemented:

- Signage providing directions, traffic control measures and safety instructions will be established and maintained at appropriate locations around the site;
- Vehicles will be restricted to a maximum speed limit of 10km/hour, which will be signposted at appropriate locations, including the entrance to the site;
- There will be adequate staff supervision to ensure staff safety around moving vehicles;
- Employees and contractors shall wear high visibility and reflective clothing when working in areas where vehicle movement occurs;
- All vehicles will be maintained in good working condition and drivers instructed to use conservative driving techniques; and
- All employees and contractors are inducted to the site Occupational Health and Safety (OHS) and traffic management procedures.



Through the adoption of these management measures all potential impacts associated with traffic movements on and surrounding the site will be controlled to appropriate standards.

8.9 Vermin Control

Accepting of wastes at the site may attract vermin which has the potential to impact local health of staff and nearby land users. To control potential vermin issues, the City proposes to adopt the following management measures:

- The generation of odour and litter will be minimised through the implementation of appropriate management measures (see Section 8.2 and 8.7);
- The City will undertake regular litter collections onsite;
- All waste loads are to be covered during transport;
- A perimeter fence will be installed, monitored and maintained on a regular basis;
- The City will have any suspected and/or known shelters or breeding grounds for vermin on the site eliminated; and
- Should any vermin issues be experienced, the City will utilise professional services to eradicate vermin at the site.

Through the adoption of the vermin management measures set out above, any potential impacts associated with the proposed operations are anticipated to be adequately managed.

8.10 Security and fire safety

A new security fence will be installed around the perimeter of the CRC. All access gates will be closed and locked outside of main operational hours. This will prevent unauthorised vehicles and persons from accessing the site, which may be a security and/or fire risk. To ensure the security of the site is not compromised, the following practices will be adhered to:

- A perimeter fence will be constructed around the CRC;
- The perimeter fence will be monitored and maintained on a regular basis; and
- All access gates will be locked securely outside of main operational hours.

In order to manage the risk of fire on the site, the following measures will be adopted:

- Fire extinguishers and hose reels will be located at strategic locations throughout the site; and
- The site's building design will comply with Department of Fire and Emergency Services (DEFS) guidance for Site Planning and Fire Appliance Specifications (DFES, 2015).

By utilising the above management measures the risk of security issues and fires associated with the site will be minimised.



8.11 Complaints Management

In the event that a complaint is received, the City will investigate the source of the complaint and determine whether it is due to routine activities or is an unusual event. If investigations indicate that the disturbance is part of routine activities and is likely to continue, additional management control measures will be implemented, where practicable.

The procedure to follow if complaints are made to working persons onsite is as follows:

- An appropriate senior staff member of the City is advised as soon as possible that a complaint has been made;
- The staff member will assess the nature, severity and potential consequences associated with the complaint;
- The staff member will discuss and assess the abovementioned issues associated with the complaint;
- The staff member will take immediate action if, and when, required;
- The details of the complaint will be recorded in a suitable format (e.g. a complaint form);
- The complaint form will be retained onsite by the City; and
- Following actions to address the complaint, the City will, where appropriate, provide a suitable response to the complainant.

The complaint form will include at a minimum:

- Record details of the complaint (date and time);
- Name of the City staff member who took the complaint;
- Name and address of complainant;
- Method by which the complaint was lodged;
- Identify the possible causes of the complaint and possible mitigation measures; and
- Name of the City staff member who completed the form.

If similar complaints are made more than three (3) times, a toolbox meeting will be held to reassess control measures and determine whether additional measures could be employed. If the management controls are revised, all site staff will be advised and these changes will be documented accordingly.

8.12 Summary of Proposed Management Measures

A summary of the proposed management measures to be implemented at the Site is shown in Table 7-1.

Table 8-1: Summary of Proposed Management Measures

Aspect	Management Measures
Odour	Operating hours will be limited to those specified within this EAMP.
	Refuse will be removed off site frequently for disposal at the landfill.
	A complaints register will be maintained by the City to ensure that the community has the opportunity to express their comments or concerns regarding the operations of the site.
	Odour levels will be continuously monitored by staff and action taken, if required.
Noise	All trucks and mobile equipment to be fitted with broadband noise reversing alarms to minimise the impact of vehicle reversing noise.
	Waste acceptance and the operation of equipment and machinery will be restricted to operational hours only.
	Vehicles will be restricted to a maximum speed of 10km/hour.
	Noise reducing workplace procedures will be adopted such as slow unloading of materials from the lowest height possible.
	All materials handling will be confined to the designated areas.
	All equipment and machinery will be maintained in good working condition.
	Staff will be provided with appropriate personal protective clothing (PPE) to mitigate any noise impacts associated with site activities.
Dust	Appropriate dust management measures will be implemented during the construction works of the new buildings.
	Vehicles will be restricted to a maximum speed of 10km/hour, which will be signposted at appropriate locations including the entrance to the site.
	All areas of the site will be sealed and maintained.
Stormwater Management	Contaminated runoff will be captured and managed.
	Uncontaminated stormwater will be diverted away from waste storage areas.
	All stormwater engineering features at the site will be inspected regularly and maintenance works scheduled appropriately.
Leachate Management	All waste handling operations to be confined to the designated hard-standing areas.
	The City will develop a contaminated runoff collection system that will capture all leachate generated and direct it to a lined stormwater pond. The system will be designed by a suitably qualified and experienced engineer.
Litter	All unloaded waste and recyclable materials will be confined to the designated drop-off areas.
	All source separated commodities will be stored in a designated area.
	All waste loads will be covered to prevent uncontrolled release of litter.
	The boundary fence will assist in preventing any litter escaping.
	The boundary fence will be inspected regularly and any maintenance works scheduled accordingly.
	Any litter generated around the site and along the fence lines will be collected on a regular basis as part of routine procedures.



Aspect	Management Measures
	Wind-blown litter will be collected immediately and taken back onsite.
Traffic	Signage providing directions, traffic control measures and safety instructions will be established and maintained at appropriate locations around the site.
	Vehicles will be restricted to a maximum speed limit of 10km/hour, which will be signposted at appropriate locations, including the entrance.
	There will be adequate staff supervision to ensure staff safety around moving vehicles.
	Employees and contractors shall wear high visibility and reflective clothing when working in areas where vehicle movement occurs.
	All vehicles will be maintained in good working condition and drivers instructed to use conservative driving techniques.
	All employees and contractors are inducted to the site Occupational Health and Safety (OHS) and traffic management procedures.
Vermin	The generation of odour and litter will be minimised through the implementation of appropriate management measures.
	The City will undertake regular litter collections onsite.
	All waste loads are to be covered during transport.
	The perimeter fence will be monitored and maintained on a regular basis.
	The City will have any suspected and/or known shelters or breeding grounds for vermin on the Site eliminated.
	Should any vermin issues be experienced, the City will utilise professional services to eradicate vermin at the site.
Security and fire safety	A perimeter fence will be installed around the CRRP.
	The perimeter fence will be monitored and maintained on a regular basis.
	All access gates will be locked securely outside of operational hours.
	Fire extinguishers and hose reels at strategic locations throughout the premises.
	The Site's building design will comply with DFES guidance for site Planning and Fire Appliance Specifications (DFES, 2015).
Security and fire safety	An appropriate senior site staff member is advised as soon as possible that a complaint has been made.
	The staff member will assess the nature, severity and potential consequences associated with the complaint.
	The staff member will discuss and assess the abovementioned issues associated with the complaint.
	The staff member will take immediate action if, and when, required.
	The details of the complaint will be recorded in a suitable format (e.g. a complaint form).
	The complaint form will be retained on-site by the City.



Aspect	Management Measures
	Following actions to address the complaint, the City will, where appropriate, provide a suitable response to the complainant.



9 Residual Risk Assessment

Each of the potential risks was assessed as per the DWER Guidance Statement: Risk Assessments –Part V, Division 3, Environmental Protection Act 1986 (February 2017) (Guidance Statement).

9.1 Objective

The objective of the Environmental Risk Assessment is to ensure the potential risks associated with the proposed activities are understood and managed appropriately to ensure that there is no unacceptable residual risk.

9.2 Potential Site Hazards

The proposed activities are detailed within the EAMP. The sources of hazards, pathways and receptors of these hazards are outlined in the following sections.

9.3 Sources of Hazards

For the purpose of this assessment, a source is defined as a primary risk with the potential to cause significant contamination or harm to the environment. With regards to the environment and public health, sources and its potential hazards which may arise from the various future activities have been identified and are shown in Table 9-1.

Table 9-1: List of Potential Hazards

Source	Description of Hazards
Odour	<ul style="list-style-type: none"> Certain components of waste are odorous (e.g. hydrogen sulfide, H₂S) which can cause amenity nuisance to staff and nearby sensitive receptors. Odour from leachate and waste can cause amenity issues.
Noise	<ul style="list-style-type: none"> High levels of occupational noise can impact personnel onsite. Noise can cause an amenity nuisance for surrounding sensitive receptors.
Litter	<ul style="list-style-type: none"> Windblown waste can reduce visual amenity. Litter may also be ingested by fauna.
Dust	<ul style="list-style-type: none"> Dust generated during construction works and activities onsite may be inhaled by workers potentially resulting in breathing difficulties and/or coughing and may exacerbate existing conditions.
Vermin	<ul style="list-style-type: none"> Exposed waste and surface water bodies can attract vermin which may impact nearby ecological values and present disease risks to humans and animals.
Fire	<ul style="list-style-type: none"> Potential for fires in offices/workshops and equipment onsite.
Security	<ul style="list-style-type: none"> Unauthorised personnel may access the site resulting in a security breach of the site facilities, plant and equipment. Any actions taken by unauthorised personnel onsite may impact the safety of site personnel.
Site Physical Aspects	<ul style="list-style-type: none"> Personnel onsite may be working on excavations and steep slopes presenting risks to human safety.
Stormwater	<ul style="list-style-type: none"> Excessive stormwater that is not properly managed can lead to flooding onsite.

Source	Description of Hazards
	<ul style="list-style-type: none"> An inappropriate system could lead to leachate generation and potential contamination of ground water.
Traffic	<ul style="list-style-type: none"> Possibility for vehicles to collide with site personnel, structures or other vehicles. Poor design of traffic flow and operations can lead to unpredictable traffic routes and create safety hazards for site personnel and CRC users.

9.4 Pathways for Hazards

For the purpose of this assessment, a pathway for a hazard is defined as the route by which potential contamination or harm can migrate. The key migration pathways at a CRC generally include the following:

- Air through which lightweight materials, such as dust, litter and odour, can travel;
- Surface along which the sources of contamination or harm can travel or be present at (e.g. surface water runoff, litter, persons walking or working over the surface);
- Sub-surface whereby the underlying soils, bedrock, aquifers and infrastructure permit leachate migration towards the receptors through lateral and vertical migration of leachate within or towards the groundwater.

9.5 Receptors of Hazards

For the purpose of this assessment, a receptor is defined as the location where the impact of the contamination or harm is registered. The possible generic receptors of the contamination or harm cause by the identified hazards are summarised in Table 9-2 and discussed further in Section 9.6.

Table 9-2: Generic receptors that may be impacted by potential contamination or harm

Receptor	Description of the Receptor
Surrounding land users	<ul style="list-style-type: none"> People who work or live beyond the boundary of the facility. Some of these are referred to as sensitive receptors
Site Users	<ul style="list-style-type: none"> Persons authorised to traverse across the site, including: <ul style="list-style-type: none"> Operational staff Contractors carrying out maintenance or monitoring Visitors inspecting the site
Site Infrastructure	<ul style="list-style-type: none"> Buildings that are semi-permanently or permanently occupied and used for work or residential purposes Site management systems (i.e. stormwater, leachate, landfill gas)
Surrounding infrastructure	<ul style="list-style-type: none"> The infrastructure such as road corridors, power lines and pipeline and drainage easements in the close proximity to the facility
Vegetation and flora	<ul style="list-style-type: none"> Offsite vegetation and flora species
Fauna	<ul style="list-style-type: none"> Fauna species whose habitat is within or surrounding the facility
Groundwater	<ul style="list-style-type: none"> Groundwater that exists beneath the site either as a local perched system or as a regional aquifer from which a water supply may be extracted for industrial or potable purposes

9.6 Risk Analysis and Management

As outlined previously, this Risk Assessment has been undertaken to identify and evaluate the potential environmental and health risks associated with the proposed activities and to determine the risk rating following redevelopment of the site. The risk assessment methodology analyses potential 'Source-Pathway-Receptor' scenarios to determine what level of risk may exist following the development works.

Where there is no complete linkage between source, pathway and receptor, there is no definitive risk of an impact occurring. Where there is a potential linkage then a risk of impact may arise. In the absence of detailed investigations to support the Risk Assessment a risk level can only be subjectively assessed and potential risks flagged.

9.7 Risk Rating Matrix

To assess the various risks, the potential hazards identified in Table 9-1 were classified according to the DWER's Guidance Statement shown in Table 9-3.

Table 9-3: Risk Rating Matrix

		Consequence				
		Slight	Minor	Moderate	Major	Catastrophic
Probability	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	Medium	High	Extreme
	Unlikely	Low	Medium	Medium	Medium	High
	Rare	Low	Low	Medium	Medium	High

9.8 Risk Profile

Risk management measures refers to the key management strategies that will be adopted onsite to ensure that all hazards and potential risks identified are controlled to an appropriate level, and that strategies are in place to react to any potential incidents or accidents. In most cases these risk management measures decrease the probability and/or consequence of identified hazards and therefore lower the risk rating.

The current risk rating and revised probability and consequence for each identified hazard following the implementation of defined management measures are shown in Table 9-4.



Table 9-4: Residual Risk Profile of CRRP Community Recycling Centre

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
Dust	Site Users	Air	Visibility may be impaired and inhalation of dust may occur during site activities	Possible	Minor	Medium	<ul style="list-style-type: none"> Limit vehicle speed to 10km/h All roads within the site will be sealed; Wash down vehicles which use unsealed landfill roads Cover loads and bins 	Unlikely	Slight	Low
	Surrounding land users	Air	During dry and/or windy weather conditions dust has the potential to travel offsite causing amenity issues for nearby sensitive receptors	Unlikely	Minor	Medium		Rare	Slight	Low
Erosion	Site Users	Surface	Erosion can create unstable conditions and falling hazards	Possible	Minor	Medium	<ul style="list-style-type: none"> Monitor site conditions, especially after heavy rainfall events Maintain proper slopes across site to reduce erosion conditions Maintain surface water management system 	Unlikely	Slight	Low
	Site Infrastructure	Surface	Erosion can cause stress on existing infrastructure. Significant financial investment may be required if infrastructure is negatively impacted	Unlikely	Minor	Medium		Rare	Slight	Low
Fire	Site Users	Surface	Risk of fires on and offsite (i.e. bush fires) create safety hazards for Site Users	Unlikely	Major	Medium	<ul style="list-style-type: none"> Fires are not to be lit on site and any fire detected is to be extinguished as quickly as possible. Fire extinguishers will be provided in all areas of possible fire irks and on all heavy equipment. Access to the site will be restricted to the main entrances to minimise the risk of fires from intruders and vandals. 	Rare	Minor	Low
	Site Infrastructure	Surface	There is a risk of fires on and offsite (i.e. bush fires). Significant financial investment may be required if infrastructure is damaged by fire	Unlikely	Major	Medium		Rare	Minor	Low
	Vegetation/Flora	Surface	There is a risk of fires on and offsite (i.e. bush fires). Vegetation/flora can suffer significant damage from fire	Unlikely	Major	Medium		Rare	Minor	Low
Litter	Surrounding land users	Air	Windblown litter reducing amenity of surrounding land	Unlikely	Minor	Medium	<ul style="list-style-type: none"> Sufficient separation distances from sensitive receptors Regular collection of any windblown litter Fencing installed around the site to prevent off-site migration 	Rare	Slight	Low
	Fauna	Air	Potential for fauna to ingest waste	Unlikely	Minor	Medium	<ul style="list-style-type: none"> Fencing installed around the site to limit fauna access Regularly collect any windblown litter Regularly conduct integrity inspections of the security fence to limit access by fauna Site closed during high wind and storm events 	Rare	Minor	Low
Noise	Site Users	Air	Noise impacts from activities onsite	Possible	Moderate	Medium	<ul style="list-style-type: none"> Implement safe working practices and use appropriate PPE 	Possible	Slight	Low
	Surrounding land users	Air	Noise impacts from activities onsite	Unlikely	Minor	Medium	<ul style="list-style-type: none"> Where any machine or operation is unable to be conducted within the prescribed noise limits, the activity shall cease or the offending machine be stood down until noise attenuating modifications are made. All trucks and mobile equipment to be fitted with broadband noise reversing alarms 	Rare	Slight	Low

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
							<ul style="list-style-type: none"> Work only within operation hours All machines and activities shall comply with the Environmental Protection (Noise) Regulations 1997 and with the Australian Design Rule ADR 80/00 			
Odour	Site Users	Air	Certain waste streams that are accepted onsite (i.e. residual waste) can produce strong odours	Likely	Minor	Low	<ul style="list-style-type: none"> Putrescible waste is regularly removed from storage areas for disposal and covered to best practice standards 	Unlikely	Slight	Low
	Surrounding land users	Air	Certain waste streams that are accepted onsite (i.e. residual waste) can produce strong odours	Unlikely	Minor	Low	<ul style="list-style-type: none"> Vehicles carrying the certain waste streams (i.e. residual waste) to site are required to cover the waste Covering of waste according to Best Practice Landfill Standards 	Rare	Slight	Low
Security	Site Infrastructure	Surface	Unauthorised personnel may access the site resulting in a security breach of the site facilities, plant and equipment. There is a security fence surrounding the whole site	Unlikely	Minor	Medium	<ul style="list-style-type: none"> Maintain and perform regular inspections of current fencing around site boundary. No unauthorised access All buildings are locked outside of operational hours 	Unlikely	Slight	Low
Site Physical Aspects	Site Users	Surface	Construction works and earthworks are planned for the site presenting risks of falls, trips etc	Possible	Minor	Medium	<ul style="list-style-type: none"> Utilise barriers where necessary Demarcation Operator training 	Rare	Slight	Low
Stormwater	Site Infrastructure	Surface	Excessive stormwater that is not properly managed can lead to flooding onsite resulting in damage	Unlikely	Minor	Medium	<ul style="list-style-type: none"> Surface water management system 	Rare	Slight	Low
Traffic	Site Users	Surface	Poor design of traffic flow and operations can lead to unpredictable traffic routes and create safety hazards for site personnel	Unlikely	Major	Medium	<ul style="list-style-type: none"> One way system and separation of customer and service vehicle traffic to minimise traffic conflicts Use of signage around the site Limit vehicle speed (10km/hr) and access to only designated areas 	Rare	Slight	Low
Vermin	Site Users	Surface	Exposed waste and water bodies can attract vermin presenting risk of disease and reduced amenity	Possible	Minor	Medium	<ul style="list-style-type: none"> Regular disposal of general waste in the landfill and covering to Best Practice Landfill Standards Implement programs to reduce vermin populations onsite when necessary. 	Rare	Slight	Low
	Surrounding land users	Surface	Exposed waste and water bodies can attract vermin presenting risk of disease	Possible	Minor	Medium	<ul style="list-style-type: none"> Implement programs to reduce vermin populations onsite when necessary 	Rare	Slight	Low



10 Residual Risk Assessment Conclusion

The Residual Risk Assessment identified the possible sources of hazards arising from the proposed works. The risk rating of these potential hazards ranges from 'Low' to 'Medium'. The revised risk ratings were all downgraded to 'Low' once management measures were considered. The majority of management measures outlined in Section 8 are already in place at the Site. Therefore, the Site will continue current management practices during the proposed works in order to mitigate any public health, environment, and amenity impacts.



11 Conclusion

The City is in the process of developing a CRC as part of their Cockburn Resource Recovery Park. The CRC will include a Reuse Facility, Education Centre, Community Recycling Area, Bulk Storage Area and a Multi-Tier Drop-off Facility. The objective of the CRRP is to create an integrated facility providing a range of recycling and waste management services, while also allowing for waste management activities to be undertaken on the Site by private industry. There are a number of benefits associated with the CRC, including the provision of additional services for the community, operational efficiency and flexibility, reducing traffic impacts and most importantly increasing the volumes of waste diverted from landfill.

The development of this facility will require a Works Approval in accordance with Part V, Division 3 of the Environmental Protection Act 1986. To support the application for the works approval, Talis Consultants (Talis) has been engaged to prepare an Environmental Assessment and Management Plan (EAMP) to outline the planning and environmental aspects of the project that require consideration and management. The site is currently classified as a Prescribed Premises pursuant to the Environmental Protection Act 1987 with the City seeking a licence amendment for the following categories:

- Category 57 – Used tyre storage (general), meaning Premises on which used tyres are stored; and

The CRC has been designed in accordance with the Waste Hierarchy via a flow through loop design to improve efficiency, minimise traffic impacts and provide a community friendly facility that encourages the recycling and the reuse of materials. The operational capacity for the Multi-Tier Drop-off Facility based on seven (10) hook lift bin bays is 300m³ of greenwaste and refuse. The Reuse Facility will have an area of about 1,200m², while the Bulk Storage Areas for C&D waste, used tyres and mattresses, and scrap metal and white goods, will each be 400m². The Community Recycling Area allows for a capacity of approximately 165m³ of recyclables.

The key potential environmental impacts associated with the construction and operation of the CRC include:

- | | |
|--------------|------------|
| • Odour | • Leachate |
| • Noise | • Litter |
| • Dust | • Traffic |
| • Stormwater | • Vermin |

Following an evaluation of the potential environmental impacts, a suite of engineering and management measures were developed and will be adopted for the CRC. Given the management measures to be employed, the construction and operation of the CRC can be achieved in a manner that ensures that any potential environmental impacts can be managed appropriately.



Figures

Figure 1: Site Map

Figure 2: Locality Plan

Figure 3: Environmentally Sensitive Areas

Figure 4: Groundwater

Figure 5: Surface Water

Figure 6: Sensitive Receptors

Figure 7: Bushfire Prone Areas



LEGEND

- Site Boundary
- Proposed Rail Corridor
- Proposed Site Layout
- Cadastre

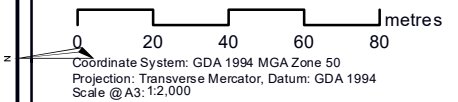
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SITE MAP

Dalison Avenue
Wattleup WA 6166
Cockburn Resource Recovery
Park EAMP

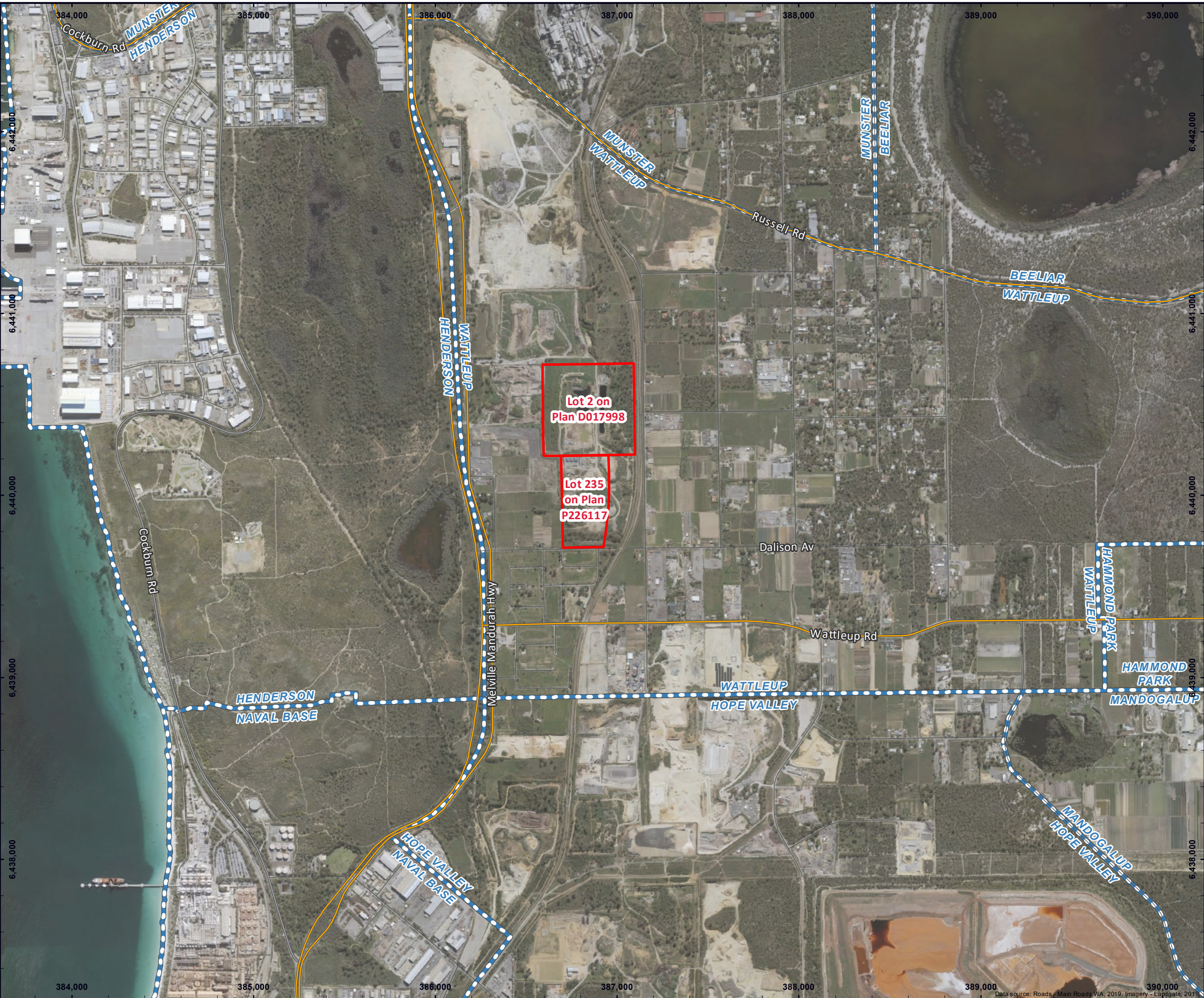
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Checked: R Cullen	Project No: TW18080
Reviewed: A Quispe	Revision: A



Figure 01



LEGEND

-  Site Boundary
-  Suburb Boundary

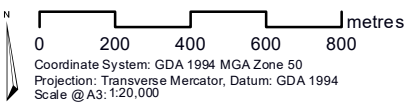
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SITE LOCALITY

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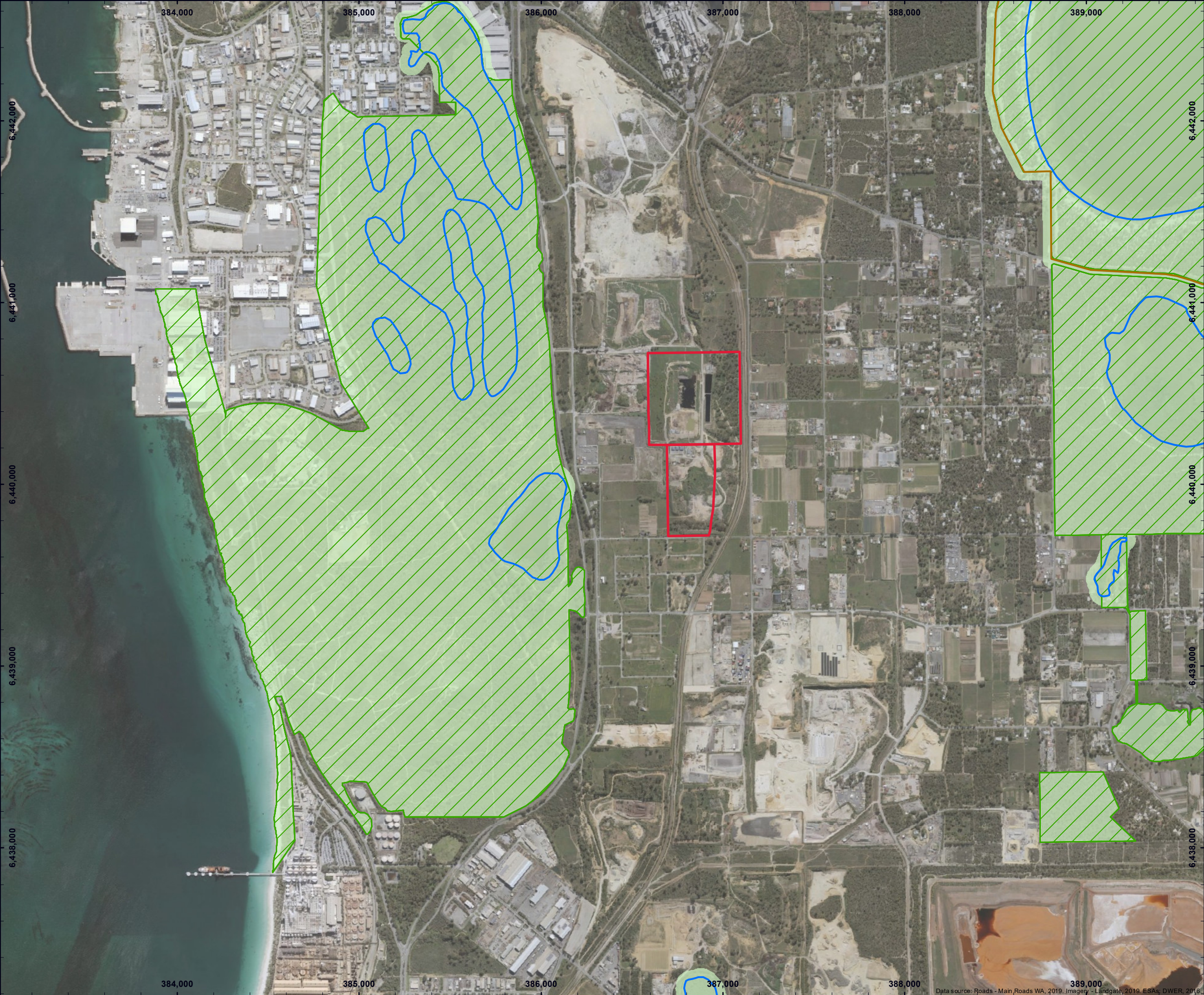
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Figure 02



LEGEND

Site Boundary

Geomorphic Wetlands of the Swan Coastal Plain (Conservation Status)

RAMSAR Wetland

Bush Forever

Environmentally Sensitive Area

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LOCALITY

ENVIRONMENTALLY SENSITIVE AREAS

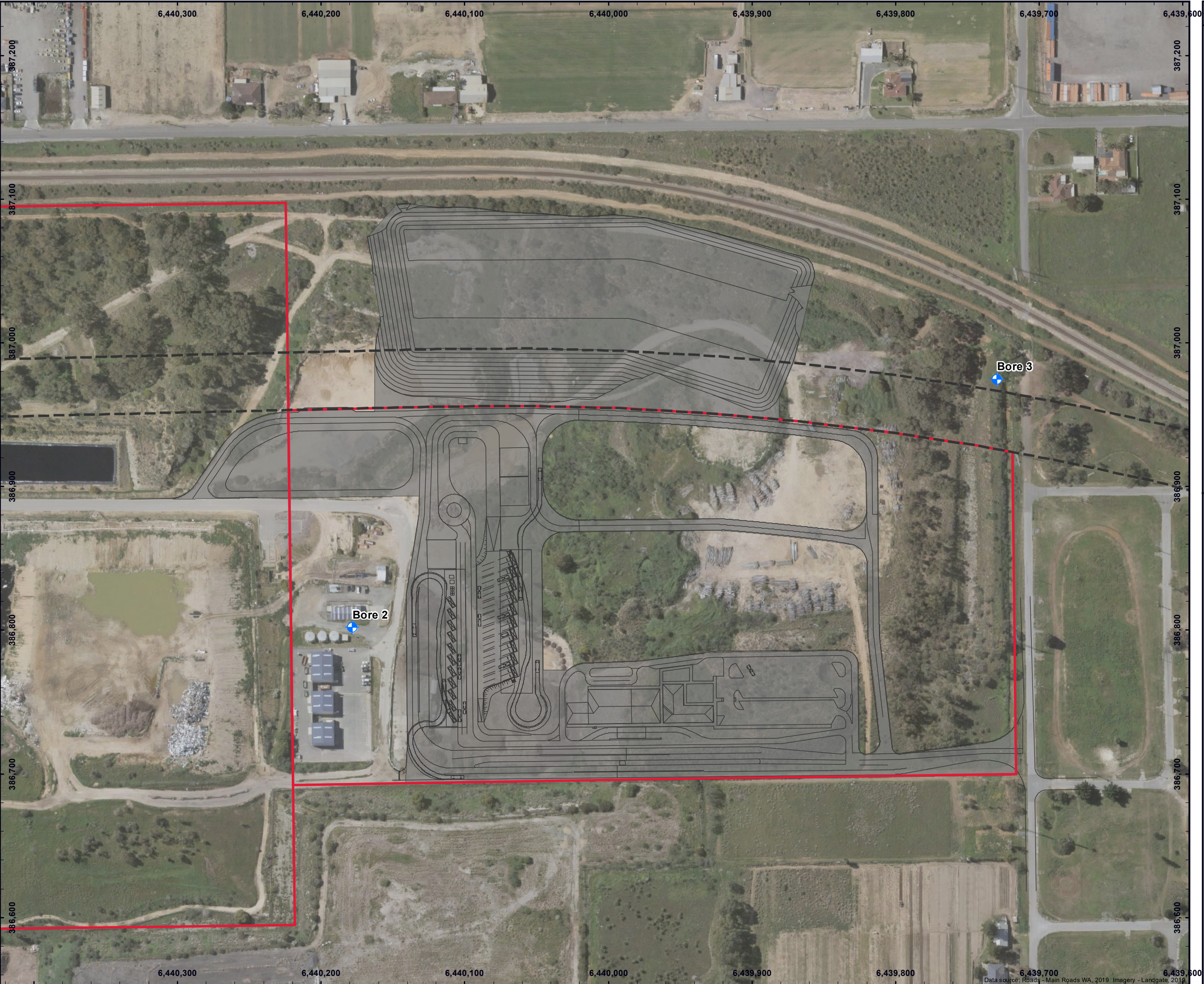
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Cockburn Resource Recovery
Park EAMP

City of Cockburn

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Projection: Transverse Mercator, Datum: GDA 1994
Scale @ A3: 1:20,000

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Figure 03



LEGEND

- Site Boundary
- Proposed Rail Corridor
- Proposed Site Layout
- + Groundwater Bore

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LOCALITY

0 5 10 20 30 40 km

GROUNDWATER BORE LOCATIONS

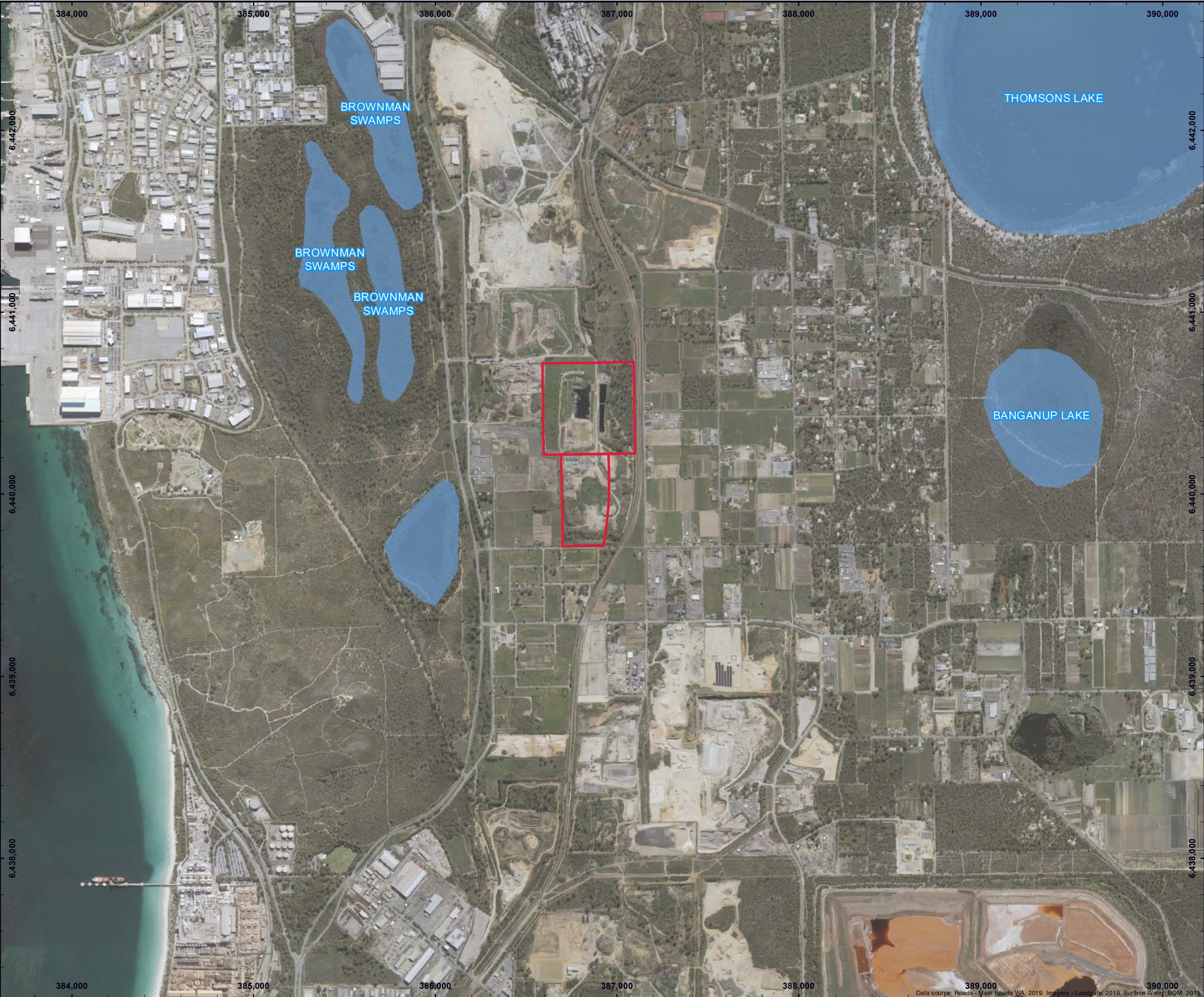
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Figure 04



LEGEND

- Site Boundary
- Surface Waterbody

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LOCALITY

0 5 10 20 30 40 km

SURFACE WATER

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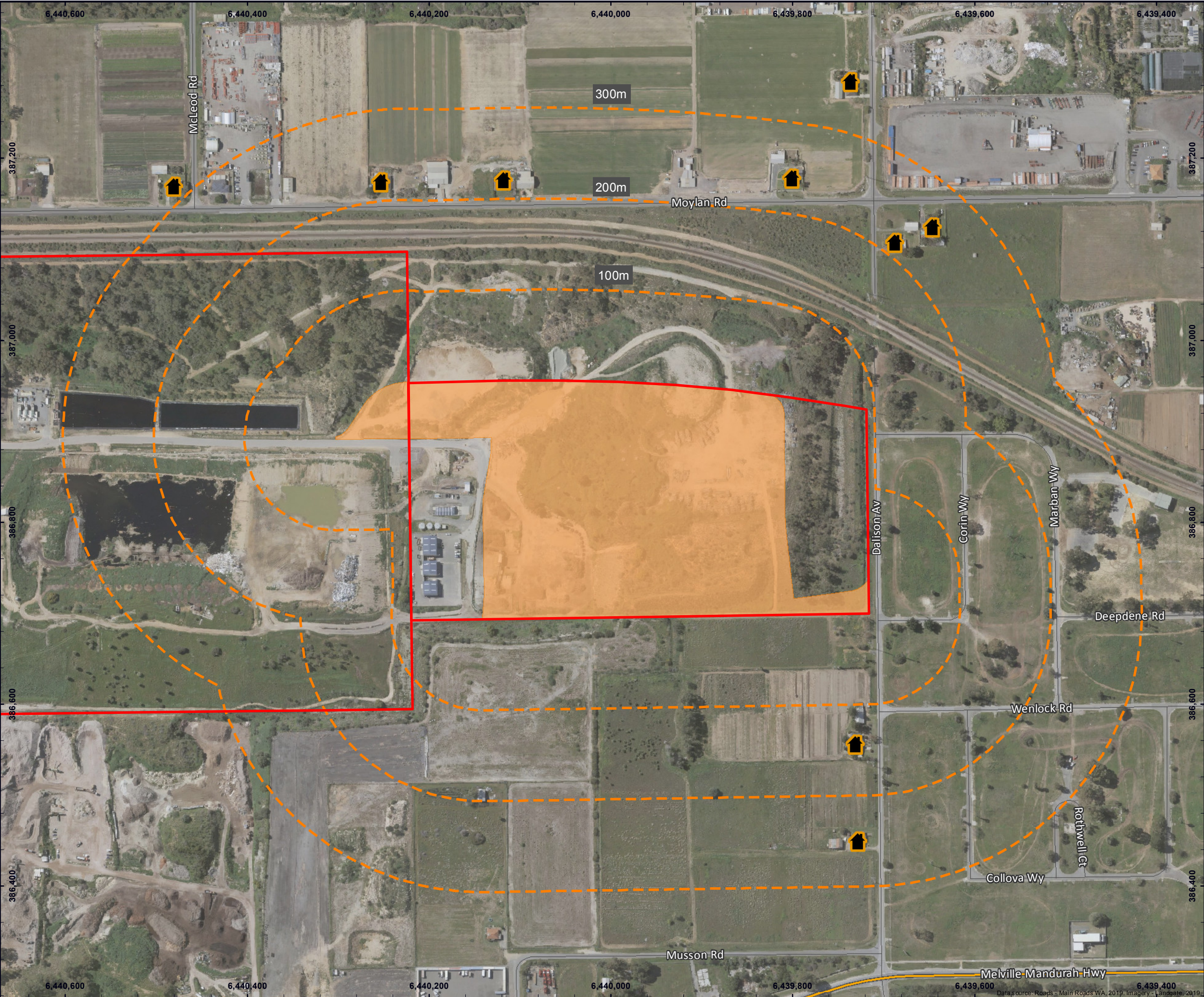
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Figure 05



LEGEND

- Site Boundary
- Distance Buffer
- Site Activities
- Residence

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LOCALITY

0 5 10 20 30 40 km

SENSITIVE RECEPTORS

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Cockburn Resource Recovery
Park EAMP

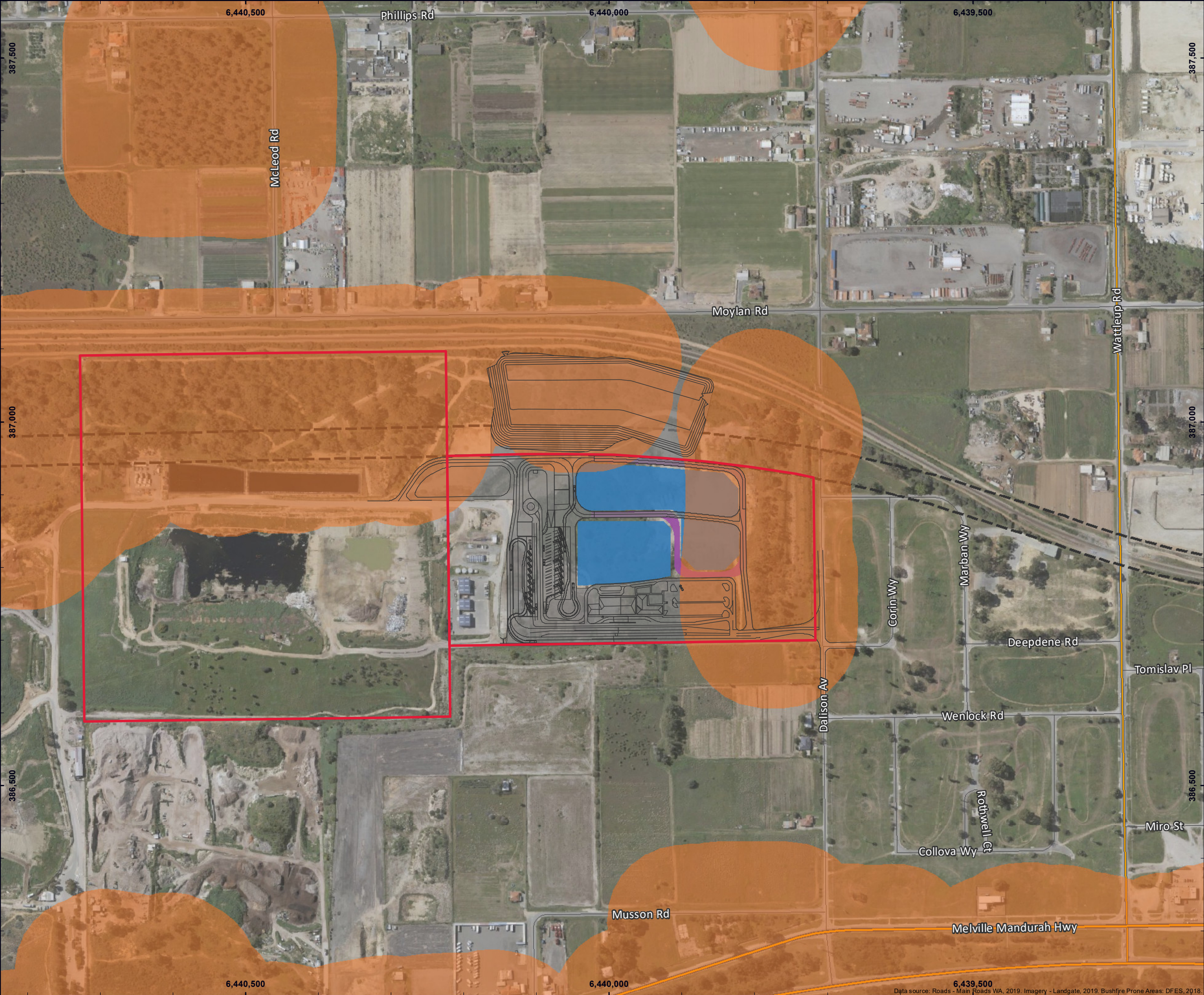
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0 40 80 120 160 metres







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	Revision: A

Figure 06



LEGEND

-  Site Boundary
-  Proposed Site Layout
-  Proposed Rail Corridor
-  Bush Fire Prone
-  Leased Sites
-  Leased Site Roads

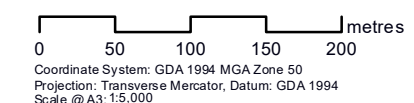
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BUSHFIRE PRONE AREAS

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Figure 07

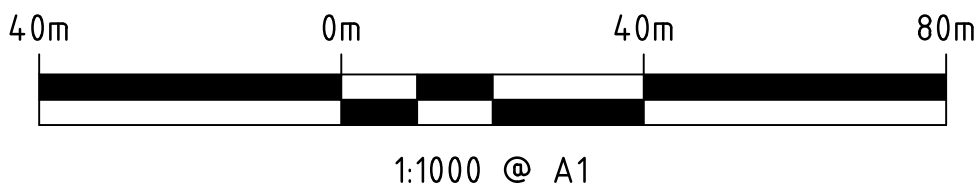


Appendix A: CRC Site Plans

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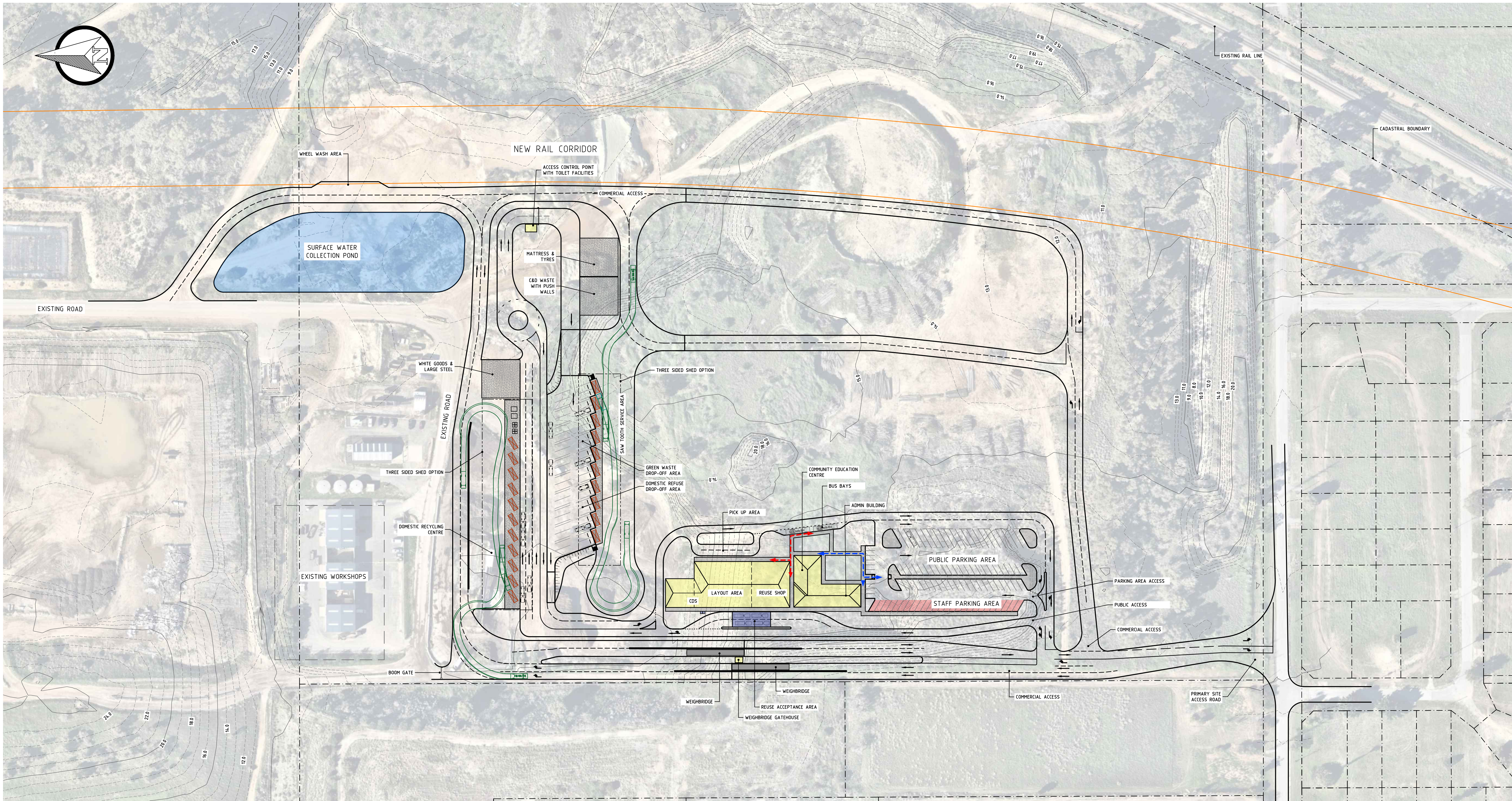
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LEGEND
PEDESTRIAN MOVEMENT TO/FROM PARKING AREA
PEDESTRIAN MOVEMENT TO/FROM DROP-OFF AREA

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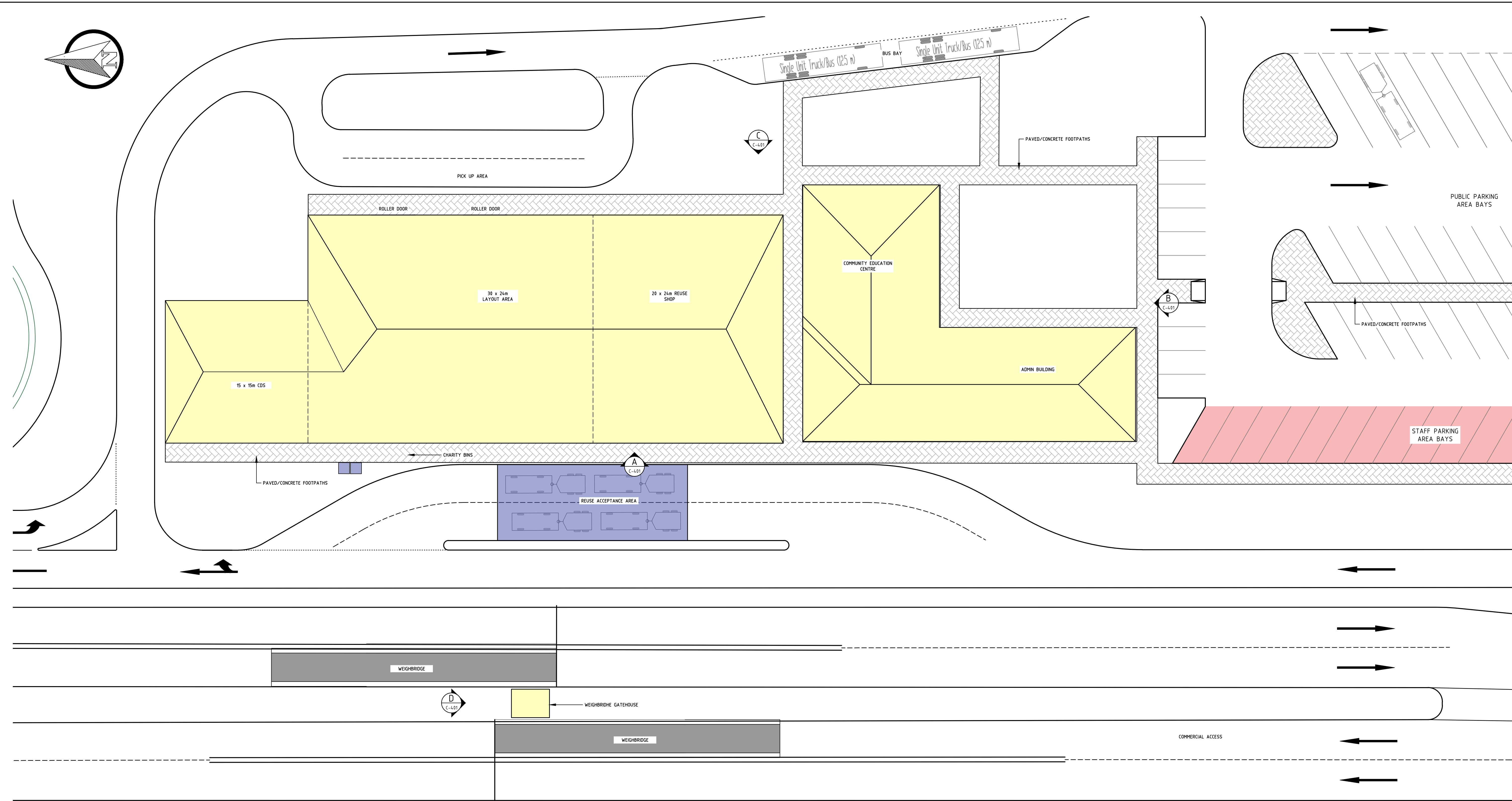


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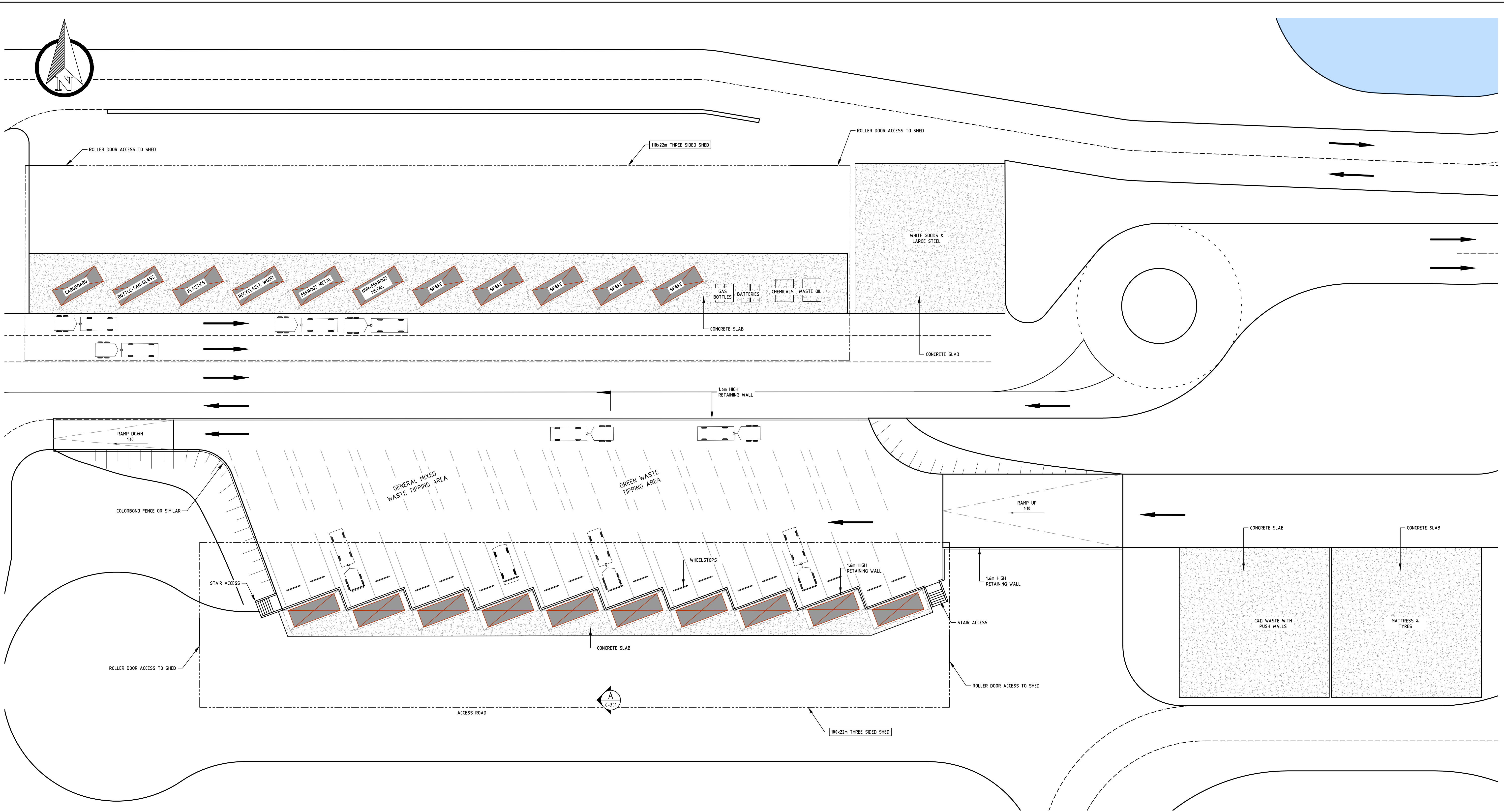
Project: **COCKBURN RESOURCE RECOVERY PARK**

Title: **RE-USE, ADMIN AND COMMUNITY EDUCATION CENTRE AREA**

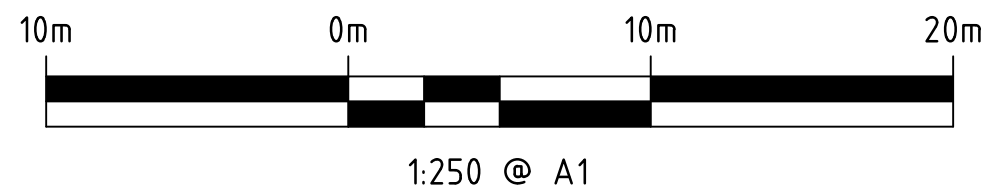
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Checked by:	AB	File No:	TW18080-C-103
Approved by:		Drg. No:	
Scale:	1:200 @ A1	C-103	B
Date:			

Printed by Armand Bester on 25/11/2019 02:09 PM

FILENAME: \\SERVER\TALIS\SECTIONS\WASTE\PROJECTS\TWO007\TWO002 - COCKBURN HENDERSON FEASIBILITY STUDY\DRAWINGS\PROD DROPS\TWO002 - SET.DWG



PRELIMINARY ONLY
NOT FOR CONSTRUCTION



VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
HORIZONTAL DATUM: MGA 94 ZONE 50



ASSET
ENGINEERING
ENVIRONMENT
NOISE
SPATIAL
WASTE

Client:



NOTES

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No.	Date	Drawn By	Checked By	Amendment / Issue	App.
B	05.11.2019	AB	AB	CANOPY REVISED; STAIRS ADDED	
A	07.08.2019	JAH	AB	PRELIMINARY ISSUE	

Project:

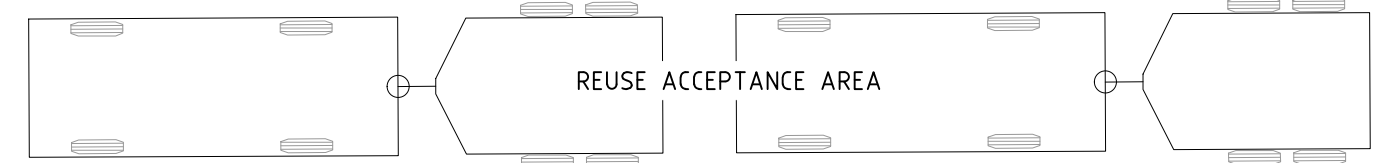
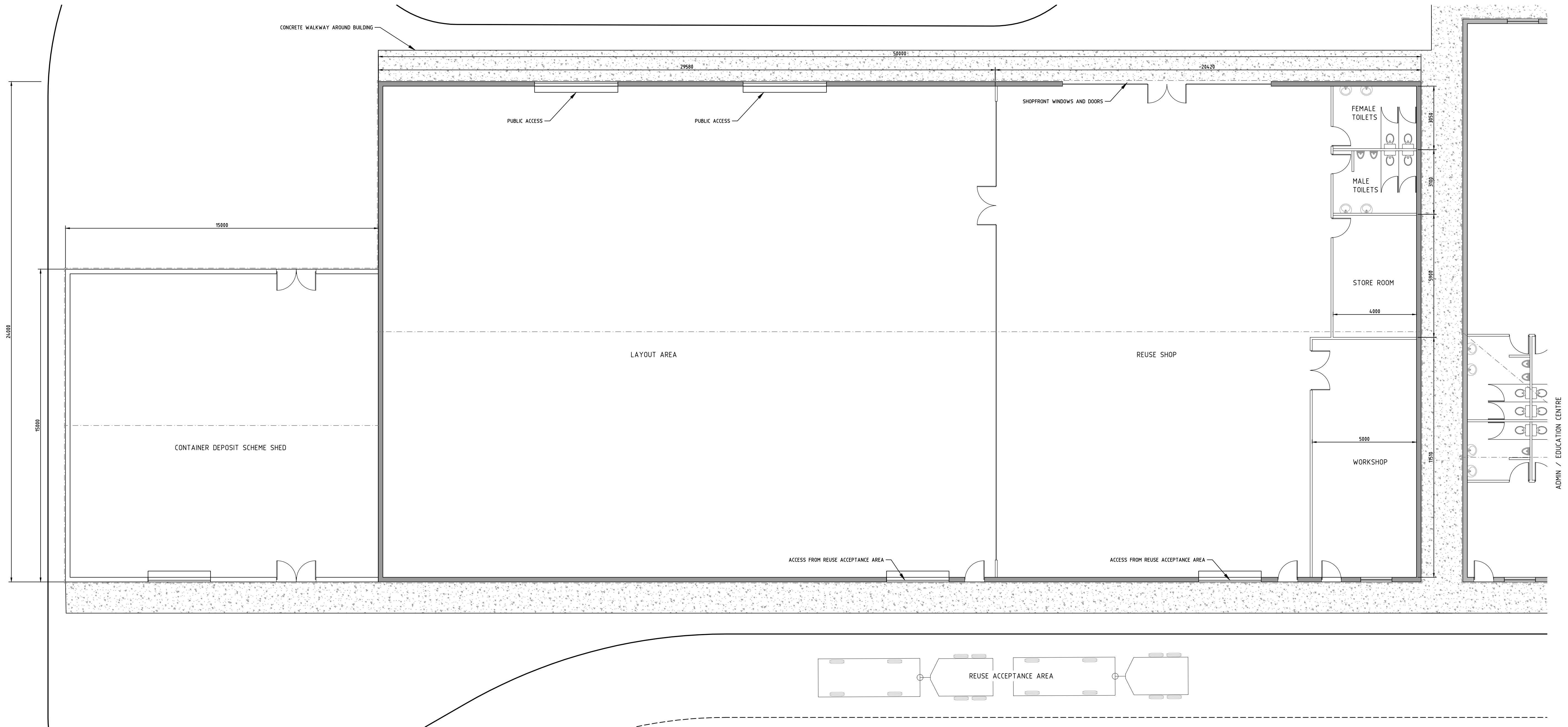
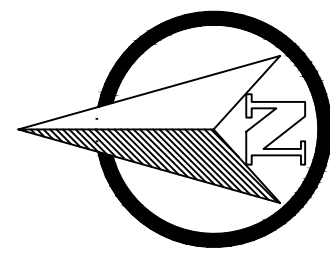
COCKBURN RESOURCE
RECOVERY PARK

Title:

PUBLIC DROP-OFF AREA
LAYOUT

Drawn by:	JAH	Job No:	TW18080
Checked by:	AB	File No:	TW18080-C-104
Approved by:		Drg. No:	Rev:
Scale:	1:250 @ A1	C-104	B
Date:			

Printed by Armand Bester on 25/11/2019 02:09 PM
FILENAME: \\SERVER\TALIS\SECTIONS\WASTE\PROJECTS\TWO007\TWO002 - COCKBURN RECOVERY PARK\DRAWINGS\PROD\0605\TWO002 - SET.DWG



REUE SHOP AND LAYOUT AREA PLAN LAYOUT
SCALE 1:100

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VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
HORIZONTAL DATUM: MGA 94 ZONE 50



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Leederville WA 6007
PO Box 454, Leederville WA 6903

Client:



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B	08.11.2019	AB	AB	BUILDING SIZE REVISED; CDS ADDED	
A	07.08.2019	AB	AB	PRELIMINARY ISSUE	
No.	Date	Drawn	Checked	Amendment / Issue	App.

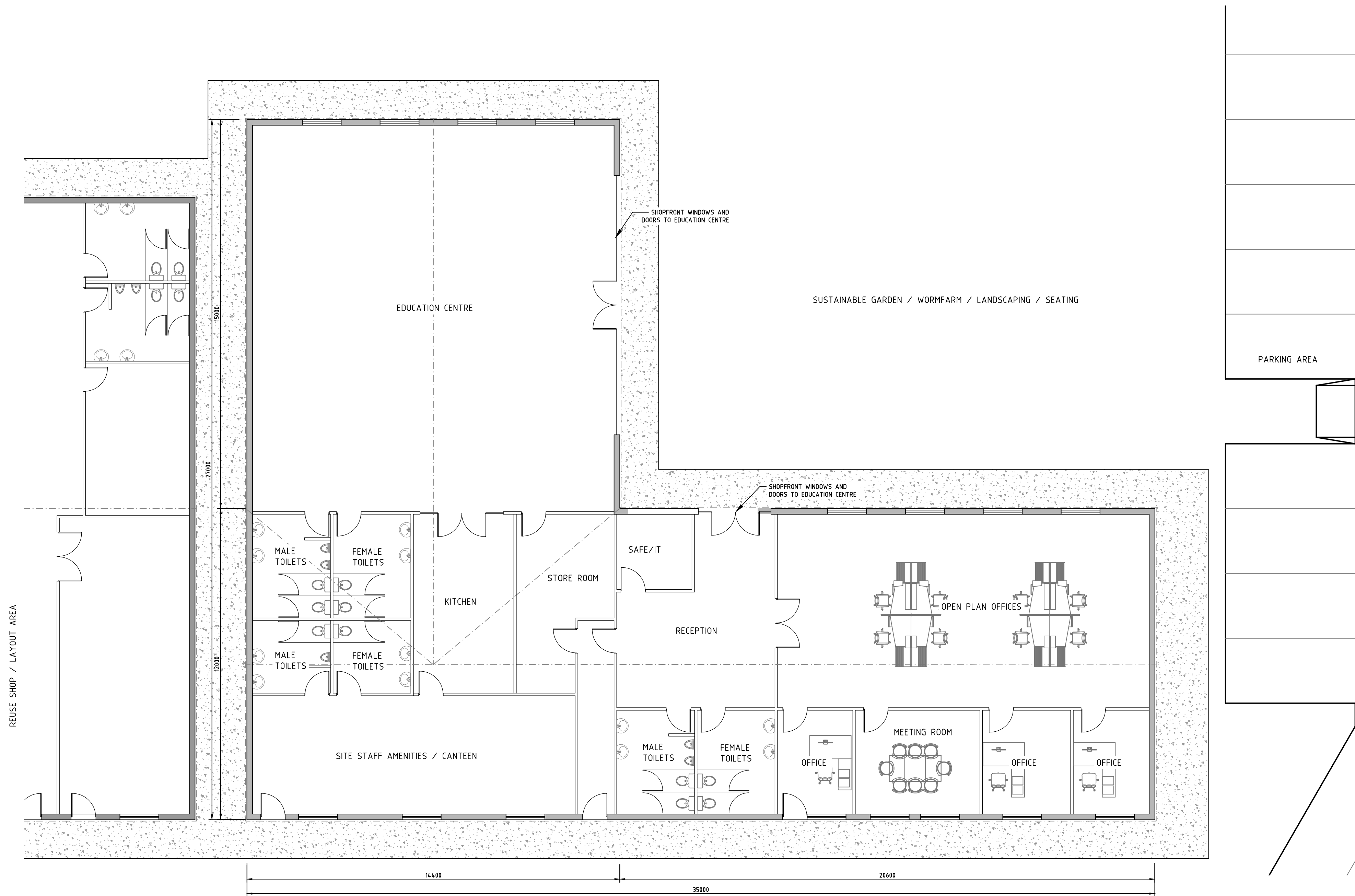
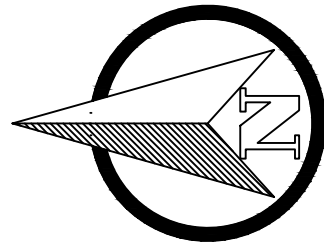
Project:

COCKBURN RESOURCE
RECOVERY PARK

Title:

RE-USE SHOP LAYOUT

Drawn by:	JAH	Job No:	TW18080
Checked by:	AB	File No:	TW18080-C-110
Approved by:		Drg. No:	Rev:
Scale:	1:100 @ A1	C-110	B
Date:			



ADMIN AND EDUCATION CENTRE PLAN LAYOUT
SCALE 1:100

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VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
HORIZONTAL DATUM: MGA 94 ZONE 50



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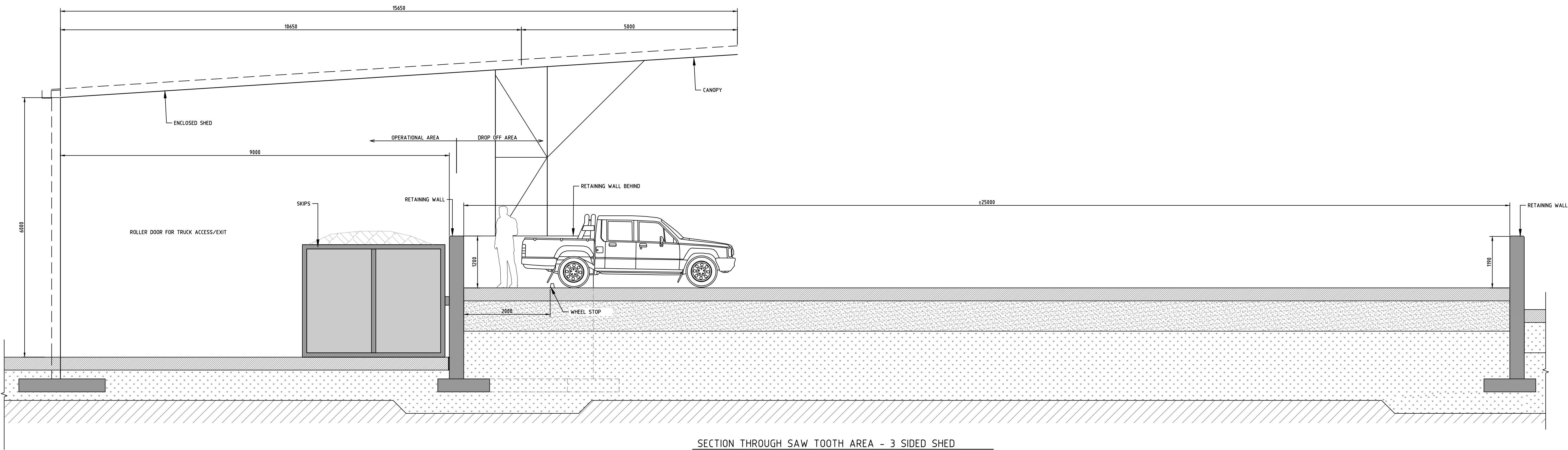
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WASTE

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Leederville WA 6007
PO Box 454, Leederville WA 6903



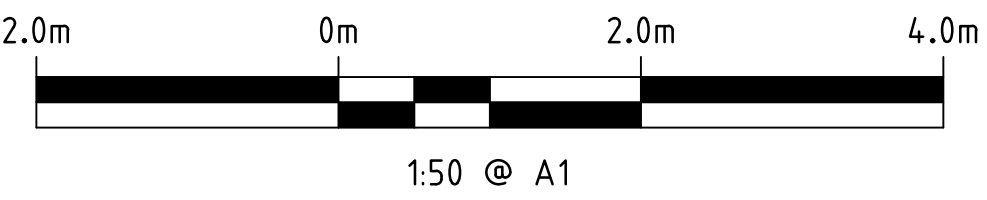
NOTES				Project:	
1. This drawing is the property of Talis Consultants Pty Ltd. It is a confidential document and must not be copied, used, or its contents divulged without prior written consent.				COCKBURN RESOURCE RECOVERY PARK	
2. DO NOT SCALE, use figured dimensions only, if in doubt please contact Talis Consultants.				ADMIN AND COMMUNITY EDUCATION CENTRE LAYOUT	
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No.	Date	Drawn By	Checked By	Amendment / Issue	App.
B	08.11.19	AB	AB	BUILDING REVISED	
A	07.08.2019	AB	AB	PRELIMINARY ISSUE	

Project: <



SECTION THROUGH SAW TOOTH AREA - 3 SIDED SHED
SCALE: 1:50

PRELIMINARY ONLY
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VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
HORIZONTAL DATUM: MGA 94 ZONE 50




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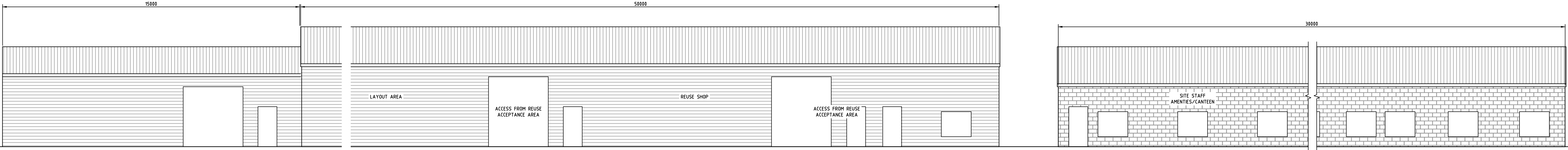
Client:



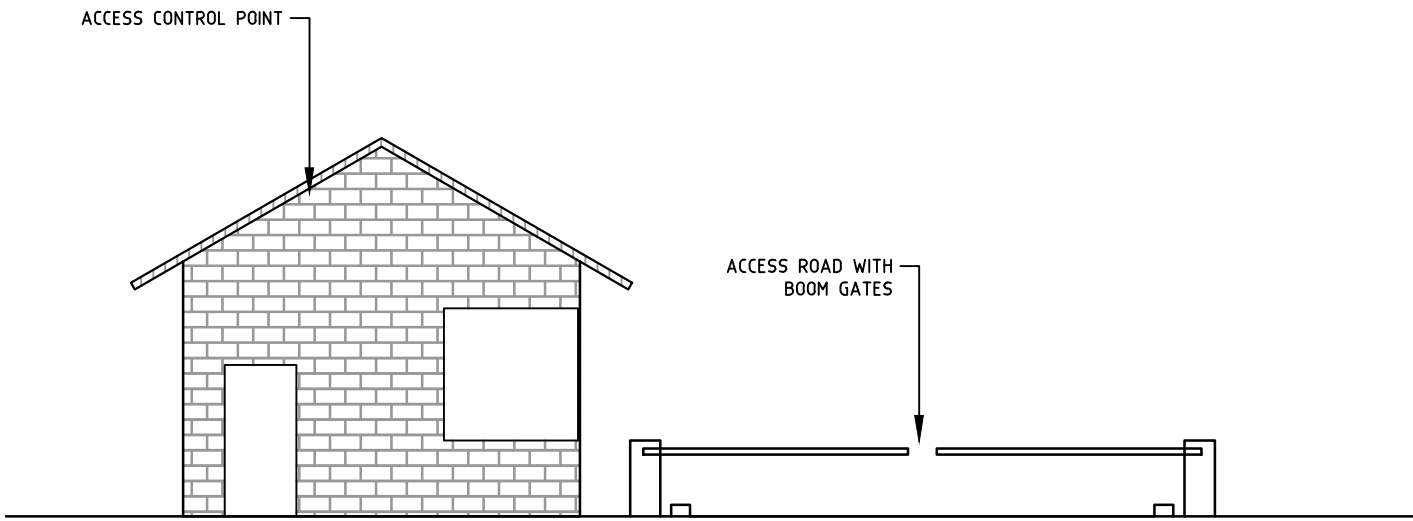
NOTES					
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B	05.11.2019	AB	RETAINING WALLS REVISED		
A	07.08.2019	JAH	PRELIMINARY ISSUE		
No.	Date	Drawn By	Amendment / Issue	App.	

Project: COCKBURN RESOURCE RECOVERY PARK	Title: SECTION THROUGH SAW TOOTH AREA	Drawn by:	JAH	Job No: TW18080	
		Checked by:	AB	File No: TW18080-C-301	
		Approved by:		Drg. No:	
		Scale: 1:50 @ A1		C-301	
		Date:		B	

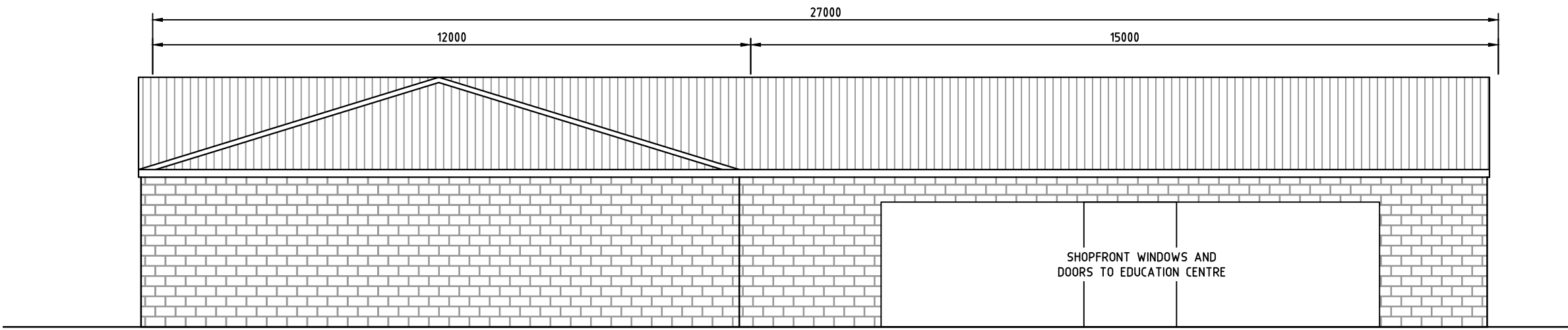
Printed by Armand Bester on 25/11/2019 02:11 PM



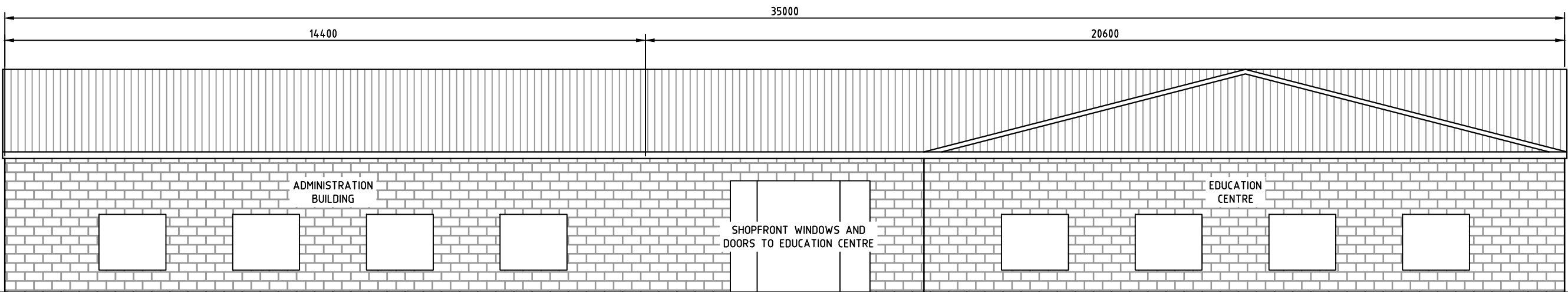
A REUSE SHOP AND LAYOUT AREA ELEVATION
SCALE: 1:100



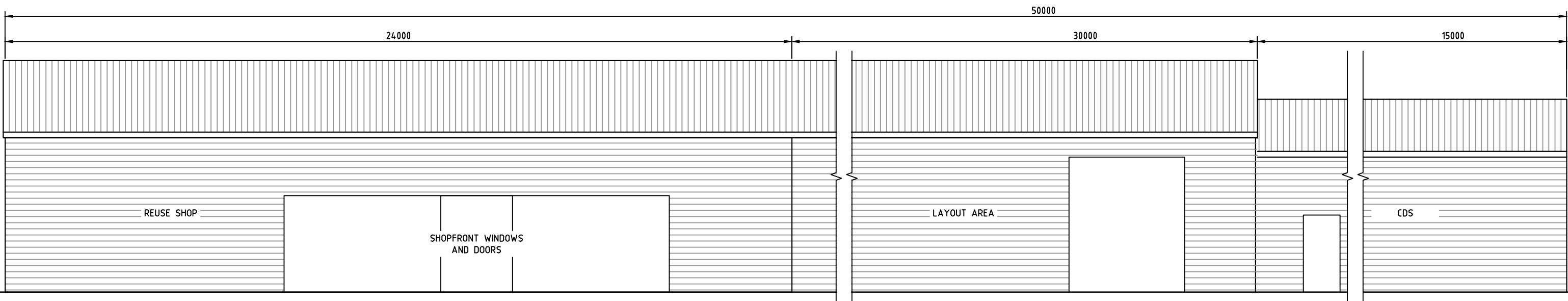
ELEVATION ON EASTERN ACCESS CONTROL
SCALE: 1:100



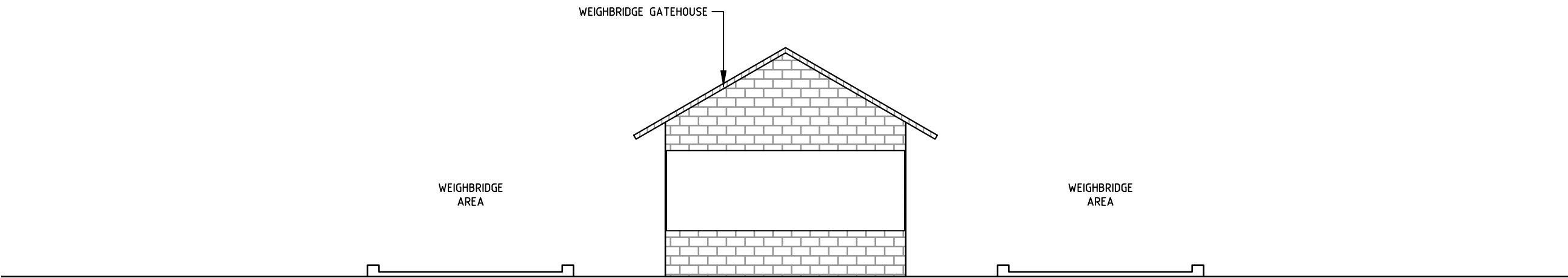
B ADMIN BUILDING ELEVATION
SCALE: 1:100



C COMMUNITY EDUCATION CENTRE ELEVATION
SCALE: 1:100



D TYPICAL WEIGHBRIDGE GATEHOUSE AND ACCESS CONTROL POINT ELEVATION
SCALE: 1:100



D TYPICAL WEIGHBRIDGE GATEHOUSE AND ACCESS CONTROL POINT ELEVATION
SCALE: 1:100

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VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
HORIZONTAL DATUM: MGA 94 ZONE 50



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No.	Date	Drawn	Checked	Amendment / Issue	App.
B	08.11.2019	AB	AB	ELEVATIONS REVISED	
A	07.08.2019	AB	AB	PRELIMINARY ISSUE	

Project:

COCKBURN RESOURCE
RECOVERY PARK

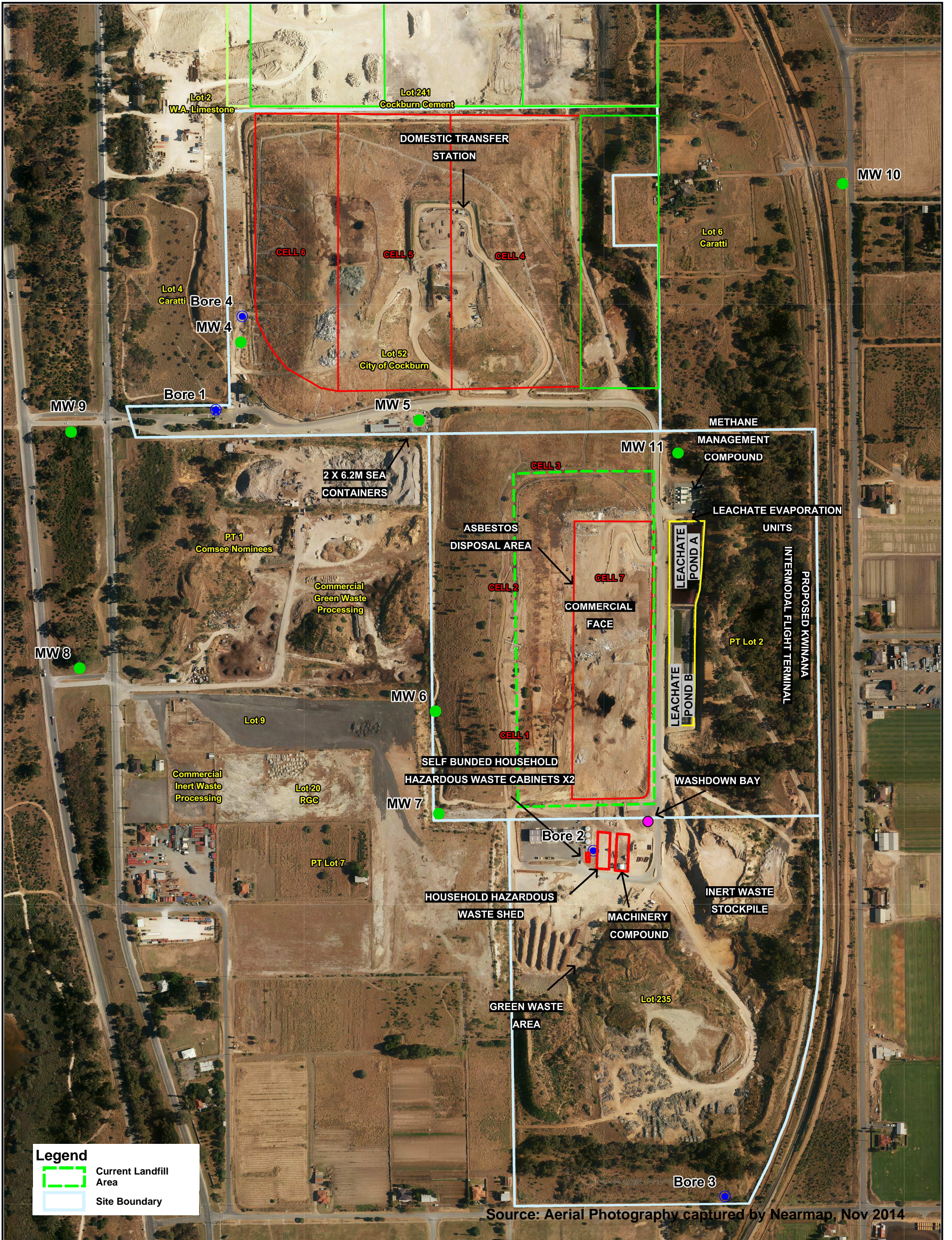
Title:

REUSE SHOP, ADMIN AND
EDUCATION CENTRE
ELEVATION

Drawn by:	JAH	Job No:	TW18080
Checked by:	AB	File No:	TW18080-C-401
Approved by:		Drg. No:	C-401
Scale:	1:100 @ A1	Rev:	A
Date:			



Appendix B: CRRP Boundary



CITY OF COCKBURN
G.I.S Services Department

HENDERSON LANDFILL

SCALE: 1: 4,500 DATE: 31/03/2015

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