ROWE GROUP

APPLICATION FOR DEVELOPMENT APPROVAL

LOT 3799 RANKIN ROAD
GAP RIDGE

OUR REF: 8739 30/07/2018

DOCUMENT CONTROL

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SCHEDULE OF MODIFICATIONS

DESCRIPTION OF MODIFICATION	SUMMARY OF THE AMENDMENT	REPORT REFERENCE	DATE OF AMENDMENT
External Lighting	An External Lighting Plan has been prepared and included at Attachment 3 to the DA report. Section 3.6.1 has also been added to the DA report providing commentary on the proposed lighting plan.	Section 3.6.1 and Attachment 3 – External Lighting Plan (AECOM) AECOM Plan Ref: *WBV-AEC-EL-00-SK1000* *WBV-AEC-EL-00-SK1010*	30/07/2018
Stormwater Drainage	A Stormwater Drainage Plan has been prepared and included at Attachment 4 to the DA report. Section 3.7 has also been updated to reflect the amendments to the stormwater drainage strategy (i.e. all stormwater drainage is contained on-site).	Section 3.7 and Attachment 4 – Stormwater Management Plan (AECOM) AECOM Report Ref: *WBV-AEC-REP-CV-00-001* dated 9 July 2018 AECOM Plan Ref: *CD-WBV-AEC-DWG-CV-00-001 E*	10/07/2018
Waste Management	Section 3.8 of the DA report has been updated to provide further details with regard to the anticipated waste management strategy.	Section 3.8	30/07/2018
Operational Management Plan	Section 3.9.1 has been included to provide an overview of the Operational Environmental Management Plan which will be prepared and implemented as a condition of Planning Approval.	Section 3.9.1	30/07/2018
Bushfire Management	Section 4.2.1 has been updated to reflect the preparation of a full Bushfire Management Plan and Emergency Evacuation Plan by Bushfire Safety Consulting.	Section 4.2.1 and Attachment 6 – Bushfire Management Plan dated 3 July 2018 prepared by Bushfire Safety Consulting	30/07/2018
Social Impact	Section 4.2.3 has been updated to reflect the preparation of the Social Impact Management Plan by Creating Communities.	Section 4.2.3 and Attachment 7 – Social Impact Management Plan dated 25 July 2018.	30/07/2018

Traffic Analysis	Section 6 has been added to the DA report to address matters relating to traffic and transport.	Section 6 and Attachment 9 – Traffic Analysis and Management Plan Report prepared by Transcore dated 9 July 2018 (Report Ref: t18.169.mr.r01a)	30/07/2018
Construction Management	Section 7 has been added to the DA report to provide information with regard to construction management.	Section 7	30/07/2018
Removal of 'Wet Mess' and 'Corner Store' elements	The proposed 'wet mess' and 'corner store' references have been removed from the DA report and updated DA plans.	Section 3.1	30/07/2018
External Colours and Materials	The External Colours and Materials Schedule contained within Attachment 2 on Page 22.	Attachment 2	30/07/2018

1. INTRODUCTION

Rowe Group acts on behalf of Woodside Energy Ltd, a primary interest holder in the Crown landholding at Lot 3799 Rankin Road, Gap Ridge (herein referred to as the 'subject site').

This report has been prepared in support of an application to develop a Transient Workforce Accommodation ('TWA') village for Woodside Energy Ltd comprising a total of 700 rooms, to be constructed across two (2) stages.

This report includes a description of the following matters:

- Location of the subject site;
- Description of the existing land use;
- Overview of relevant planning and design issues;
- Detailed explanation of the proposed development; and
- Justification and support for the proposed development.

1.1 THE PROJECT TEAM

Woodside Energy Ltd has established a consultant team comprising experts across the following disciplines.

DISCIPLINE	CONSULTANT
Town Planning and Urban Design	Rowe Group
Builder / Project Manager	Multiplex
Architectural and Civil Engineering	AECOM
Bushfire Assessment	360 Environmental / Bushfire Safety Consulting
Traffic and Transport	Transcore
Community Engagement / Social Impact	Creating Communities

Table 1: Project Team Details

2. DESCRIPTION OF SITE

2.1 LOCATION

The subject site is located within the Municipality of the City of Karratha and is located approximately 5 kilometres west of the Karratha Town Centre.

Refer Figure 1 – Regional Location.

The subject site is bound by Rankin Road to the south, Bayview Road to the east, vacant privately-owned land to the north and vacant Crown land to the west.

Refer Figure 2 – Local Location.

2.2 CADASTRAL INFORMATION

The subject site comprises one (1) land parcel, being:

- Lot 3799 on Deposited Plan 185178, being Certificate of Title Volume LR3019 Folio 150.

The subject site has a total land area of approximately 6.0 hectares, with frontages of 300 metres to Bayview Road and 200 metres to Rankin Road.

The subject site is Crown land the subject of a leasehold tenure.

Refer Figure 3 – Site Plan and Attachment 1 – Certificate of Title.

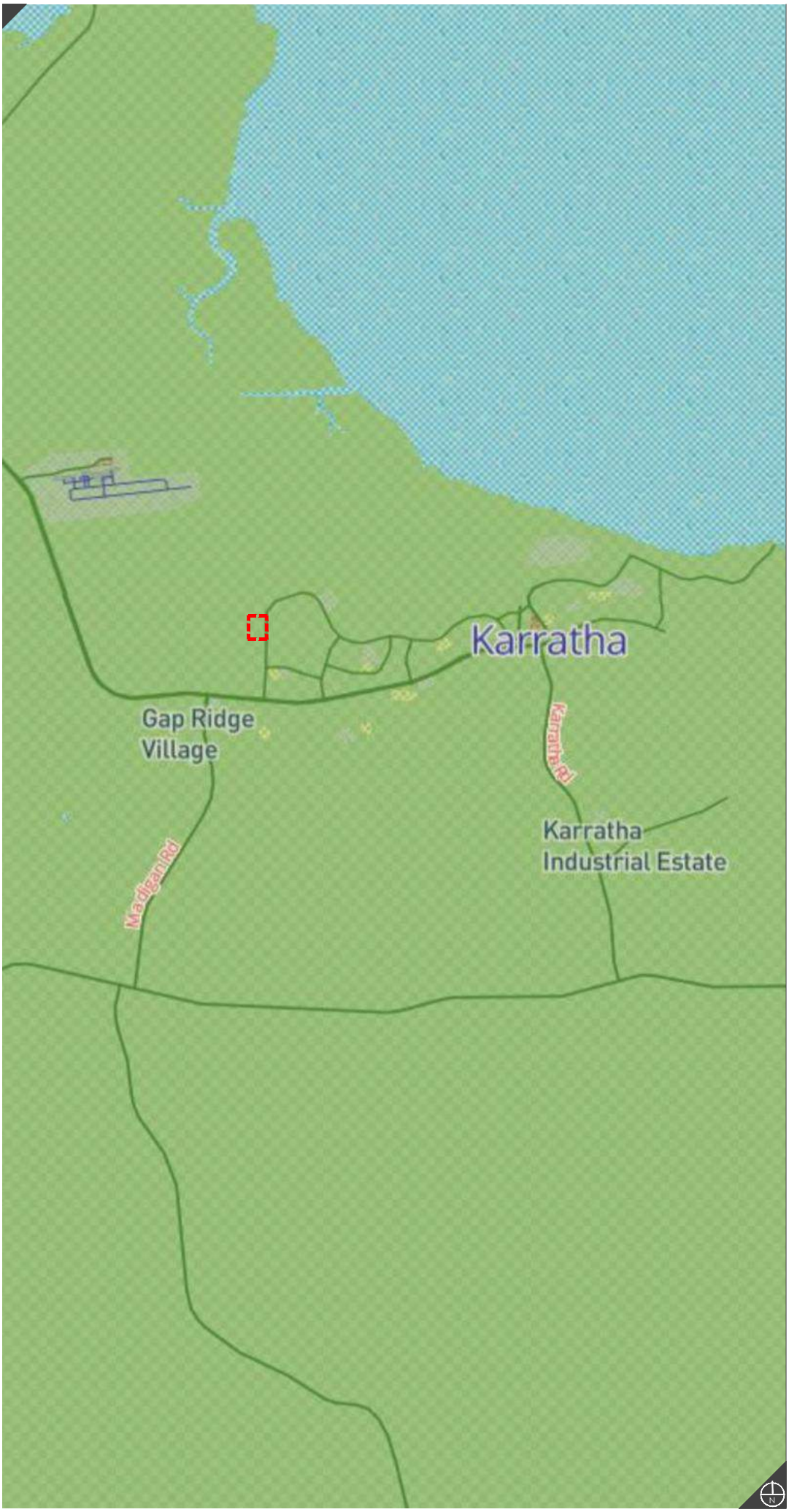
2.3 EXISTING IMPROVEMENTS

The subject site was formerly occupied by the Bay Village Transient Workforce Accommodation camp which has recently been demolished. The subject site is now predominantly vacant with the exception of some vegetation and trees on-site which will be retained where possible.

2.4 SURROUNDING LAND USE

The land to the east and south of the subject site is residential in nature and is generally characterised by single residential dwellings.

The land to the north and west of the site is zoned 'Rural' under the *City of Karratha Local Planning Scheme No. 8* and is currently vacant.



Planning Design Delivery

LEGEND

Subject Site

0 2500 Metres

REVISIONS

Rev	Date	Drawn
A	2017.09.07	W. Clements

ROWEGROUP
PLANNING DESIGN DELIVERY

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Date Drawn:	2017.09.07
Job Ref:	8739
Scale:	1:100,000 @ A4
Client:	Multiplex Australia
Designer:	R. Dial
Drawn:	W. Clements
Projection:	MGA50 GDA94
Plan ID:	8739-FIG-01-A

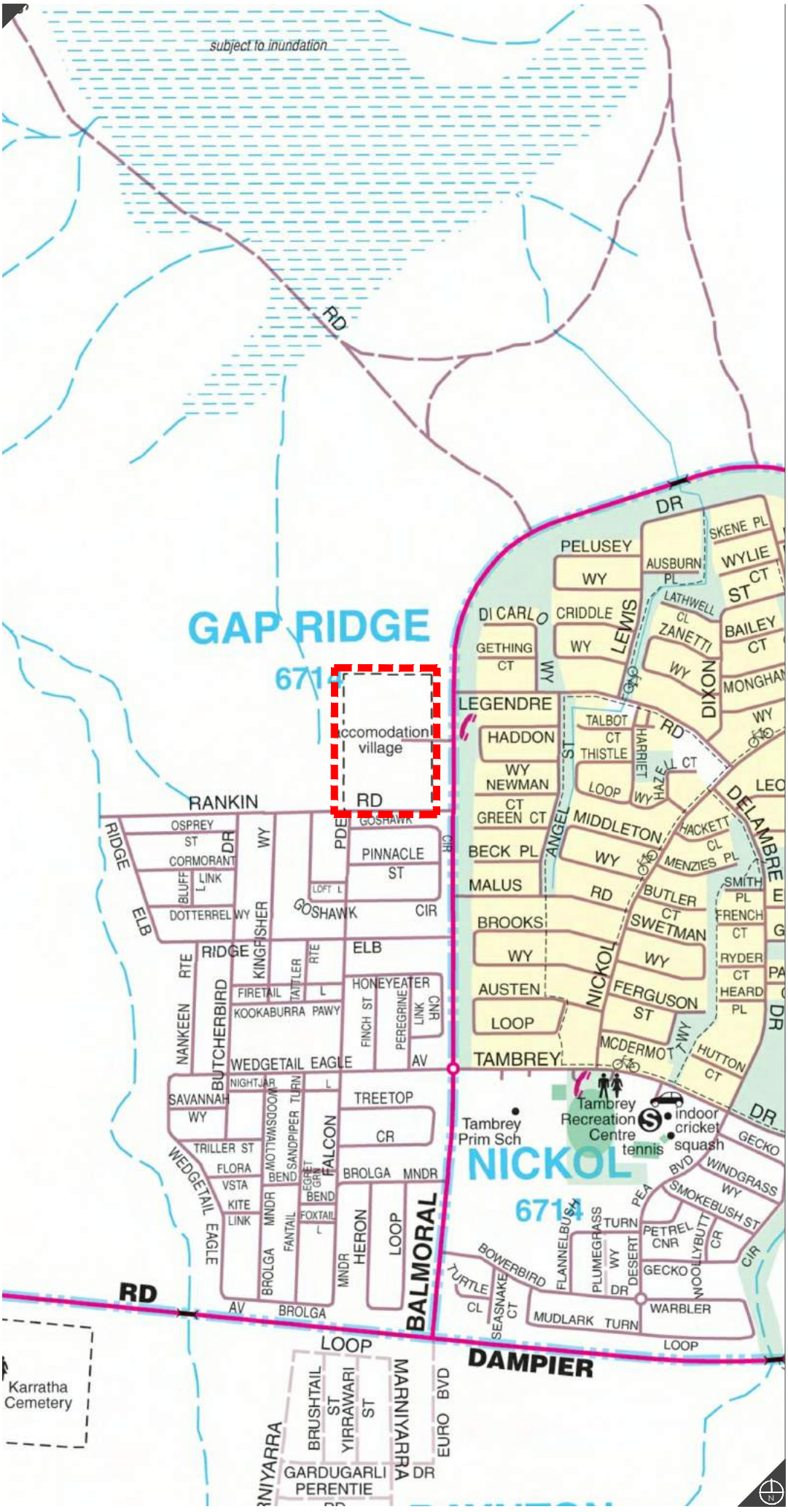
Map data supplied by Mapbox

Regional Location

\\GRA-FS\DATA\TOWN PLANNING\8000-8999\8739\DRAFTING\A-CAD\8739_FIG01A_2010109 GAP RIDGE (REGIONAL).DWG
Adam Glaskin 9 January 2018

Lot 3799 Rankin Road
Gap Ridge

Figure 1



LEGEND

Subject Site

0 312.5 Metres

REVISIONS

Rev	Date	Drawn
A	2017.09.07	W. Clements

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Date Drawn:	2017.09.07
Job Ref:	8739
Scale:	1:12500 @ A4
Client:	Multiplex Australia
Designer:	R. Dial
Drawn:	W. Clements
Projection:	MGA50 GDA94
Plan ID:	8739-FIG-02-A

Map data supplied by Streetsmart

Local Location

Lot 3799 Rankin Road
Gap Ridge

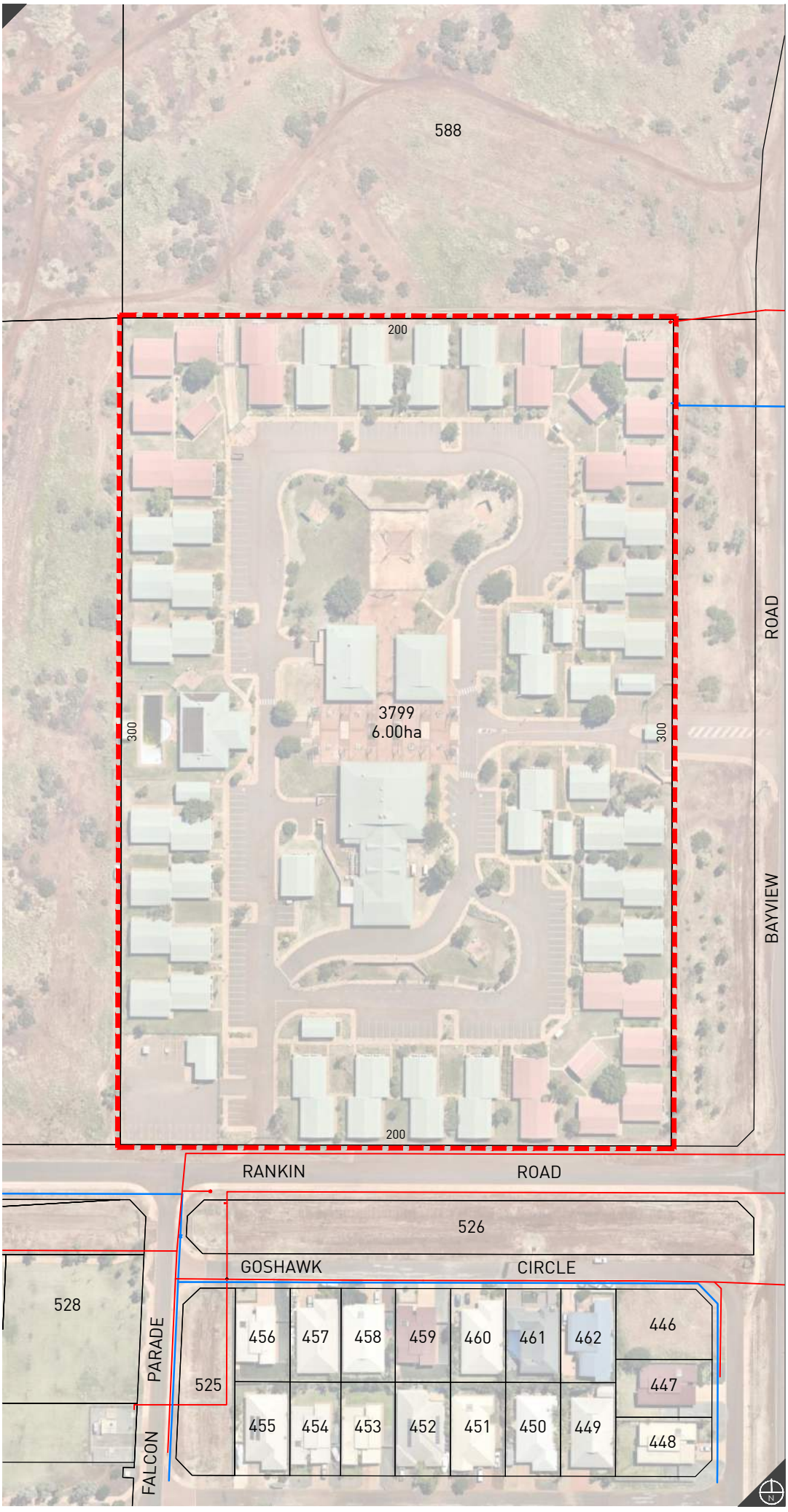
\\GRA-FS\DATA\TOWN PLANNING\8000-8999\8739\DRAFTING\A-CAD\8739_FIG02A_20170906 GAP RIDGE [LOCATION PLAN].DWG
Adam Glaskin 9 January 2018

Figure 2

Planning Design Delivery

LEGEND

- Subject Site
- 7 Existing Lot Numbers
- Existing Boundaries
- Water
- Sewer



0 50 Metres

REVISIONS

Rev	Date	Drawn
A	2017.09.07	W. Clements

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Date Drawn:	2017.09.07
Job Ref:	8739
Scale:	1:2000 @ A4
Client:	Multiplex Australia
Designer:	R. Dial
Drawn:	W. Clements
Projection:	MGA50 GDA94
Plan ID:	8739-FIG-03-A

Aerial Photography captured and supplied by Nearmap

Site Plan

Lot 3799 Rankin Road
Gap Ridge

\\GRA-FS\DATA\TOWN PLANNING\8000-8999\8739\DRAFTING\A-CAD\8739_FIG03A_20170906 GAP RIDGE (SITE PLAN).DWG
Adam Glaskin 9 January 2018

Figure 3

3. DESCRIPTION OF PROPOSAL

3.1 LOCATION AND OPERATION OVERVIEW

The proposed development comprises one and two-storey buildings which are to be developed across two separate stages, comprising of a total of 700 transient workforce accommodation rooms. The application seeks approval of the development for a 30-year period to meet the current and forecast workforce requirements for Woodside's workforce requirements in the City of Karratha. The sought approval timeframe aligns with the lease agreement between the State Government and Woodside for the ongoing use and operation of the land for TWA purposes.

The development will also include a 'Village Centre' which comprises a reception, self-check-in desks, a first aid room containing medical and first aid supplies with an associated ambulance bay, transit lounge, dining and catering facilities, a small gymnasium and a small 'village green' area (i.e. a small open lawn area for informal activities such as barbeques and resting).

The proposed opening times for these facilities are outlined below:

FACILITY	OPENING HOURS
Village Reception	0430 – 0830 1600 – 2100
Check-in and Out	Before 0600 After 1600
First Aid Room	Accessible as required.
Catering Services	Breakfast: 0400 – 0800 Dinner: 1600 – 2000
Dining Room	0630 – 0800 1730 – 2100* *include 30 min closure
Laundries	24 hours
Swimming Pool	0600 – 2000
Gymnasium	24 hours
Recreation and Sporting Facilities	0600 – 2000
BBQ Areas	0600 – 2000

Table 2: Proposed Facility Opening Hours

In addition, the following facilities will also be provided as part of the TWA:

- A small swimming pool (i.e. a plunge pool);
- Multi-purpose sports court and open grassed recreation space;
- Small barbeque areas with picnic tables; and
- Laundry facilities.

The Design Statement for the proposed development is as follows:

> *'Bay Village will support Woodside's workforce requirements at Karratha, providing a high quality of life for residents and making a positive contribution to the neighbourhood of Nickol and the City of Karratha.*
>
> *The needs of residents and the surrounding community have been well considered and addressed in a range of facilities that encourage interaction within the village and social integration with the neighbourhood, and in turn lead to a more engaged, safe and productive workforce. By way of example, this has been achieved through the location of open space facilities at the external boundaries of the site to promote interaction and integration with the adjoining residential areas, thereby providing for a sense of inclusiveness with the surrounding community.*
>
> *The design and layout of the village responds to the project requirements, the site context and principles of sustainability, comprising a legible village with incorporated landscaped zones that provide surface water management, shade, amenity and a sense of community for residents and visitors.'*

Refer Attachment 2 - Architectural Drawings.

3.2 BUILT FORM AND URBAN DESIGN

3.2.1 INTERSECTION OF BAYVIEW ROAD AND RANKIN ROAD

The three buildings located at the intersection of Bayview Road and Rankin Road have been designed with a "T" orientation to ensure each of the respective street frontages are appropriately addressed. The resultant design provides for direct surveillance and well-articulated building facades over each of the existing road reserves. The buildings have been designed on an east-west orientation to ensure impacts from the harsh afternoon sun are generally minimised for future occupants.

3.2.2 EXTERNAL COLOURS AND MATERIALS

An Exterior Materials and Finishes Schedule has been provided on Page 22 of the enclosed Development Application plans, with each of the elevations also contained a "Legend" which provides details on the proposed external finishes. The plans have been revised following feedback from the City of Karratha that some of the buildings have not been appropriately treated. In this regard, AECOM and Multiplex have worked to revise the Development Application package to ensure all buildings within the village are appropriately treated.

3.2.3 CENTRAL KITCHEN DINER

The central kitchen diner is designed to be the focal point for the subject site, occupying a central position within the village. Seating will be provided both inside and outside under the broad verandas which overlook the street providing high levels of passive surveillance and integration with the public domain.

The Central Kitchen Diner will offer workers a range of food options; include burgers, "Tex Mex" and street food type concepts. Workers will also be able to create their own meals.

3.2.4 RECREATION AREAS

The proposed village provides for areas of passive and active recreation (i.e. a mix of areas for relaxation as well as sporting type activities).

The area within the Central Kitchen Diner facilitates passive recreation by providing for activities such as watching movies, reading, internet browsing and table games.

Active recreation is provided for in the small gymnasium, plunge pool, multi-purpose courts and open grassed area.

3.3 UTILITIES AREA

Facilities management activities have been located centrally on the site in a combined facility that includes waste services, bulk linen laundry and maintenance workshop. The recycling facilities are located directly at the end of the central kitchen to allow efficient removal of waste. A separate building for bulk linen laundry and maintenance workshop utilises a common loading and set-down zone and provides a screen for the loading area. The building façade to Balmoral Road is wrapped in a feature screen of an enhanced quality of material to address the street and main site entry and ensure any perceived impacts on the streetscape are appropriately managed.

3.3.1 ACCOMMODATION AREAS

Accommodation buildings are to include both 'in-situ' buildings and modular buildings. The in-situ buildings are located such that they address the street front, whilst the modular buildings are located toward the rear of the site.

It is noted that all buildings throughout the village, with the exception of service and maintenance facilities, storage areas and upper floor accommodation, will be designed for disability access.

3.4 CAR PARKING

A total of 240 car parking bays are proposed at the subject site including 20 visitors' car parking bays and seven (7) accessible bays. The majority of the car bays have been provided at the rear of the camp near the western and northern boundaries. Visitor parking is provided in front of the bus drop-off bay.

It is noted that car parking areas have been designed to AS2890.1 "Off-Street Parking" User Class 2.

The car parking areas can be accessed from two driveways with a preference of using the northern driveway to avoid interference with the bus drop-off and visitor parking. Applying safety in design principles, the southern entrance is the chosen access for buses and visitors, providing a free-flowing route and allowing bus passengers to exit on the buildings side. The northern driveway will be used as access to the site for residents to separate the majority of the traffic from buses and service vehicles.

The driveways have been designed for a 14.5m rigid bus one-way entry and exit. The southern access driveway has been designed for turning entrance and exit of a 12.5m single unit truck to the loading zone. The remainder of the internal road network and parking has been designed to accommodate standard 5.4m passenger vehicles.

All trafficable areas will consist of a sealed asphalt pavement, in most cases kerbed by a semi-mountable kerb. A maximum crossfall of 3% will be applied across all sealed areas to encourage water shed in the direction of the overall stormwater philosophy. The captured stormwater will be released to the drainage network using kerb breaks.

Appropriate signage and line-marking will be used throughout the road network to ensure the correct flow of vehicles within the network and increase safety between the interaction of vehicles and pedestrians.

Due to the number of vehicles generated by the site, the driveways have been designed as intersections with a bell mouth connection to Bayview Road. A safe separation distance of 70m between the driveways has been provided due to the 60km/h speed limit of Bayview Road adjacent to the subject site, in accordance with Austroads Part 4 Appendix A.

Transport to and from site will be facilitated via buses and company cars or vans. Buses will be available to all workers and will run regularly. Company cars and vans will enable workers to 'car pool' to and from site.

Also included at various locations throughout the TWA will be a total of 100 bicycle racks. The majority of these will be located within the 'Village Centre' and in proximity to the parking areas on the western boundary of the subject site.

3.5 LANDSCAPING

The landscaped areas within the TWA will include covered walkways for pedestrian access throughout the site. The north-south spine comprises a 2.4m wide walkway, whilst east-west movement will be facilitated by a series of verandas.

The walkways pass through a series of landscaped courtyards and open space throughout the site.

Further details pertaining to the landscaping of the development are to be finalised post-approval. It is anticipated that the requirement for a Landscaping Plan will be a condition of development approval.

3.6 SERVICING

It is proposed that the site will be serviced by utilities internally using common trenching and service corridors.

Potable water will be supplied from the existing connection point on the street main. The water network will be designed as a ring main to improve serviceability, maintain water quality and provide a constant pressure to all units.

A piped gravity network will be used to collect and convey wastewater towards the Northern boundary of the site. The gravity network will discharge into a pump station connected to the existing Water Corporation connection pit in the north-east corner of the site.

The existing power substation is assumed to be adequate to provide power to the site. Based on detailed design and calculations this may be subject to change and upgrading.

A Main Communications Room is proposed to be located centrally in the Administration building, having direct external access to the site entry. Remote communications hubs are proposed to be co-located within Laundry buildings and evenly distributed around the site. The

telecommunications systems will be designed to facilitate the operator's commitment to a data-powered, system-driven service.

It is also noted that an existing Telstra telecommunications building is located on site, adjacent to the previous entrance to the site from Bayview Road. The existing Telstra telecommunications facility services the suburb of Nickol and will therefore remain on site as part of the proposed development. Similarly, the existing Telstra telecommunications building will be used to service the proposed development.

3.6.1 EXTERNAL LIGHTING

External Lighting Plans have been prepared by AECOM demonstrating the proposed external lighting "P Category" ratings and layout for the proposed village.

The following provides a brief summary of the proposal lighting layout and design, with the External Lighting Plans to be further refined and finalised through the Building Permit process.

- Lowest P category (low night time and low crime) has been assumed for car parks ('P11c'), pathways ('P4') and service areas ('P8').
- The forecourt area (near the Gym and Diner facilities) assumes medium pedestrian traffic, low crime and medium prestige ('P3').
- P12 category has been applied to areas containing disabled car parking.
- The selected fitting is a 'WE-EF' product which is considered to be a good quality product and well suited to marine environments against corrosion.
- Fitting utilise LED technology and allow for many different lenses that can easily be changed as required without replacing the entire fitting.
- Fitting are dimmable, so there is flexibility to have higher wattage versions and dim down as required, whilst keeping the same housing for fitting.
- LED lamps are recessed into the housing of the fitting (not hanging down below). This results in very minimal glare and upwards light pollution, which is advantageous for CCTV camera (if installed).
- 7 metre poles with street lighting distribution are proposed in carparks and vehicle roads. The lighting model shows sharp cut-offs to limit light spillage onto neighbouring properties and into accommodation units.
- 3 metre poles with 2 types of distributions to suit long paths and intersections. The 3 metre poles have been designed to minimise light spill into the windows of accommodation units, whilst keeping good uniformity (i.e. minimise dark spots for people to hide in).
- Further detailed design work / consultation is required to ascertain the usage (i.e. type of sport) anticipated for the playing fields area, with the lighting to be design accordingly once further details are known.

- 3D (false colour) images have been included in the External Lighting Plans to provide an indication of lighting effects. It is noted that the images show very little light spillage across the property boundary or into accommodation units.

Refer Attachment 3 - External Lighting Plan

3.6.2 INTERNET ACCESS

Each unit will be provided access to quality digital entertainment and service as well as WiFi and internet access. The Management and Administration team will ensure that the digital entertainment systems, WiFi and communications network is maintained and operable at all time, which includes:

- Wireless network devices;
- Receiving equipment for data and communications;
- Cabling and other connections throughout the village;
- Televisions in accommodation rooms;
- Televisions in the common areas;
- Foxtel in the Central Diner and gym; and
- Free-to-Air television in the Transit Lounge and Dining Room.

Abatement relief will also be provided in the event of data and/or communication faults or failures originating from the internet and communications provider. The table below sets out the minimum standard required in order to access the high quality digital entertainment and data services.

DESCRIPTION	MINIMUM STANDARD
Internet / Data	Internet backhaul 400MB – Unlimited usage Guest WiFi – Unlimited Access
Entertainment System – Common Areas	Foxtel or similar in the future licenced area (subject to approval) / gym including news, sport and music channels. Free-to-Air television in the Dining Room and Transit Lounge.
Entertainment System – Accommodation Rooms	In room multichannel entertainment system that provides music, television, movies, sports channels and internet services.

Table 3: Minimum Standard for Internet and Entertainment System

3.7 STORMWATER DRAINAGE

A Stormwater Management Plan has been prepared by AECOM and included at Attachment 4 to this report. A summary of the key parameters of the Stormwater Management Plan is provided in Sections 3.7.1 – 3.7.4.

3.7.1 DESIGN PARAMETERS

The drainage system has been designed to for the following storm events:

- Minor Storm – 0.2EY (1 in 5 year); and
- Major Storm – 1% AEP (1 in 100 year).

As Bay Village is classed as a large development with multiple lots, roads and public services the following design parameters will be adhered to;

- 300mm freeboard will be provided below the road shoulder from open channels in the 0.2EY storm;
- Maximum flow velocities in open channels shall not exceed 2 m/s;
- Mortared stone pitching shall be provided in open drains at all outlet structures, junctions and bends greater than 22.5 degrees;
- Minimum habitable floor levels shall be 0.5m above the 100-year ARI floor level;
- Drainage channels to be constructed with a minimum 1:4 side slopes and vegetated where possible. Steeper slopes will aim to be treated with scour protection measures.

3.7.2 STORMWATER MANAGEMENT SYSTEM

3.7.2.1 DESIGN INTENT

The overall stormwater drainage strategy for the site is to collect the stormwater within the road network and landscaped swales throughout the site. The drainage is designed and sized to convey the 1% AEP (1 in 100-year) storm off site towards the City of Karratha drainage swales reducing the risk of flooding.

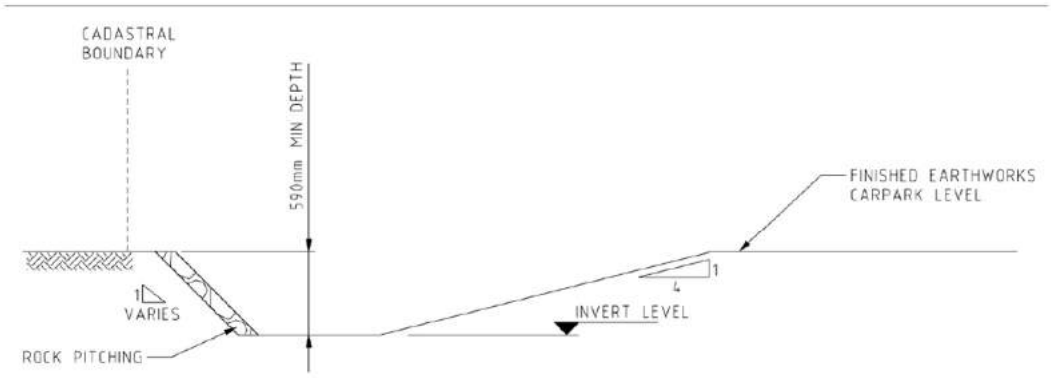
The design intent is that majority of the site run-off from roofs and impervious areas will be directed to towards the south-western corner by a landscaped drainage swale along the western boundary (Catchment 1). Once the stormwater drainage reaches the landscaped drainage swale, twin box culverts will discharge controlled flow to the City of Karratha drainage channel on Rankin Road. The eastern portion of the site (Catchment 2) including the front carparks and driveways are intended to grade and direct stormwater towards the City of Karratha drainage network on Bayview Road. Box culverts will be provided under each driveway crossing to enable the continuation of the City of Karratha drainage.

3.7.2.2 DESIGN DISCHARGE

The majority of the discharge from the site will be in the southwestern corner under Rankin Road through reinforced concrete box culverts to the existing City of Karratha drainage reserve. Limited information has been provided on this channel and it assumed that the drain has the capacity to take the incoming flows through guidance in City of Karratha Drainage guidelines (2011) and City of Karratha Water Management Strategy (Essential Environment, 2016).

High-level stormwater analysis has been undertaken to ensure the proposal will be adequate given the constraints of the sites existing levels. Drains and Bentley Flowmaster has been used to conceptually size the main drainage reserve based on 1% AEP with a catchment area of ~4.6ha. HY-8 was used for the culvert analysis to demonstrate the downstream drainage reserve will not increase by more than 0.15m as a result of the Bay Village development.

A typical section of the drainage reserve is detailed below.



TYPICAL SECTION - DRAINAGE CHANNEL

3.7.2.3 WATER SENSITIVE URBAN DESIGN PRINCIPLES

Along with using the road network for the conveyance of runoff, the proposed drainage strategy has considered Water Sensitive Urban Design (WSUD) principles to collect and convey stormwater transversely through the site using a series of landscaped swales and depressions.

Retention basins and swales are used to capture stormwater and convey runoff towards the outlet, these will be vegetated and landscaped to improve the stormwater quality, reduce runoff volumes and help with scour protection. Run-off from the road network and carparks is to be graded and collected using concrete kerb openings with rock pitching and directed to the drainage reserves.

Low rainfall events are intended to be captured, infiltrated and evaporated on site within the landscaping reducing the amount of water required for reticulation. The drainage system will be designed to ensure there is minimal standing water following a rain event.

3.7.3 DETAIL DESIGN DEVELOPMENT

The following tasks will be undertaken as part of the detailed design phase, following approval of the proposed application:

- Further refining of the main channel, landscaped swales and earthworks;
- Designing swale drain to ensure velocities are <2m/s;
- Sizing and depth of potential retention basins in grassed areas;
- Detailing of kerb openings, rock pitching and other scour protection measures;
- Further investigation of applications for Water Sensitive Urban Design ('WSUD').

3.8 WASTE MANAGEMENT

A Waste Management Plan will be implemented as part of the construction and subsequent operation of the future development. In this regard, it is noted that Woodside typically implement the following waste management procedures through ESS which is part of Compass Group Australia Pty Ltd (i.e. the operators of the future village).

The Waste Management Plan will seek to achieve the following purposes:

- Avoid the generation of unnecessary waste;
- Minimise the quantities of wastes sent to landfill;
- Recover, reuse and recycle waste generated on-site in accordance with the waste hierarchy; and
- Comply with any codes and policies that may apply to the development.

The Waste Management Plan will also detail the procedures for the following:

- Identifying which materials will be recycled;
- Determining the collection strategy in terms of segregation and handling;
- Containment and storage options to store the waste materials prior to collection; and
- Collection arrangements.

It is proposed that waste recycling and sorting will commence concurrently with construction and will continue through to completion of the lifespan of the village. General waste and recycling will be transferred to a central collection point within the village, as shown on the Development Application Plans. The bin storage and collection area are to occur within the Maintenance Compound which is located to the west of the Kitchen-Diner area and which is appropriately screened from view from the public realm through landscaping and architectural built form (i.e. an enclosed storage area). The bin storage facility will be appropriately maintained to ensure impacts arising from odour are minimised with an appropriate separation distance of approximately 10 metres provided to the near accommodation unit.

Waste collection from the site will be outsourced to a private contractor which will occur from Monday to Friday. Appropriate vehicular turning areas have been provided for within the Facilities Management area to accommodate waste and servicing vehicles.

It is anticipated that the requirement for a Waste Management Plan will be imposed as a condition of development approval, with the abovementioned procedures and objectives to be further refined as part of the detailed design process.

3.9 SUSTAINABILITY AND ENVIRONMENT MANAGEMENT

Significant consideration has been given to sustainability and environmental management in the design of the village.

The following practises have been employed to facilitate enhanced sustainability:

- The use of endemic tropical species throughout the site;
- The retention or transplanting of existing trees where possible;
- The maintenance of existing natural grassland around the perimeter of the site;
- The incorporation of stormwater elements to reduce the requirement for watering of plants;
- Incorporation of principles of water sensitive design;
- The balancing of cut and fill across the site to reduce spoil;
- The use of high-gabled and gutter-less roofs to shed downpours;
- The use of passive solar design, light-weight construction materials and insulation, broad verandas and screening to enhance natural lighting and ventilation;
- The use of concrete floors to increase thermal mass;
- The installation of electrical appliances and lighting control systems to power down facilities not in use for extended periods of time;
- The use of external LED lighting; and

A number of initiatives are also proposed for management of water:

- Dual flush cisterns, low flow water outlets and hot water heat pump systems;
- Water wise landscaping with trickle feed irrigation;
- Air-conditioning condensate capture for irrigation;
- Water recycling for laundry facilities;
- Implementation of productive landscaping to include citrus plants adjacent to laundry hubs and central facilities with water demand matched to recycled supply.

Environmental sensitivity has also been considered through the following practises:

- Consideration of surrounding vegetation and the ecological footprint of the development;
- Design for reuse and adaptability; and
- Design for performance and extended lifecycle.

3.9.1 OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

An Operational Environmental Management Plan will be prepared and implemented as a condition of Planning Approval. The Operational Environmental Management Plan will be prepared by the site operator, Compass Group Australia Pty Ltd and will detail various standards and procedures to be adhered to be staff, which will include procedures for the management of environmental issues. Specifically, the document provides details of the following:

- Controlling measures, which will be applied to Compass activities on sites (where applicable and according to contractual requirement) as well as influencing measures during their contractual operating life;
- Reference to the Compass "corporate wide" environmental aspects register as well as site specific control measures; and
- Relevant forms for collection of data and reporting to Senior Management.

The document will be used in conjunction with the Compass Group *Environmental Handbook* which is designed to help employees to think about the environment and in particular, how the Compass Group operations interact with the environment. The document will provide an introduction to the main environmental issues, which Compass faces today and suggests how both Compass employees and business may act to reduce these impacts.

From an operational perspective, the management of environmental issues at the site will be implemented by Site Operations Managers based on the identification and assessment conducted after the award of contract. All Site Operations Managers are to conduct an annual review of the environmental issues at the site and determine environmental procedures that are relevant. The relevant environmental procedures will then be adopted at the site and the Site Manager is to train employees in the relevant procedures.

3.10 STAGING

As per the Staging Plan, the development will become operational in two phases. The construction is proposed to commence in early April 2018, with all central facilities, the swimming pool, main access via Bayview Road (including bussing zone) and 380 rooms becoming operational in February 2019. The second phase, the remaining 320 rooms as well as the sports oval and court, will become operational in April 2019.

Construction will be staged in a way that when the first rooms are inhabited in February 2019, the labour workforce (or any plant/equipment) will not be accessible or pose any risk to the residents of the village. Construction access will be via Rankin Road so not to congest the main entrance on Bayview Road for buses, guests or deliveries.

It is anticipated that a Staging/Construction Management Plan will be required as a condition of development approval.

Refer Attachment 4 – Staging Plan

3.11 DESIGN EVOLUTION

It should also be noted that Woodside, in consultation with the Project Team, have met and discussed the subject application with senior staff of the City of Karratha on a number of occasions over the past 18 months to 2 years. In this regard, the design has evolved significantly from the initial development concept to accommodate the comments and feedback received from City of Karratha's Administration. The major design modifications include, but are not limited to, the following:

- Removal of the "dividing screens" between accommodation rooms.
- Increase in finished floor level for the ground floor in-situ building located adjacent to Rankin Road.
- Relocation of maintenance compound from Rankin Road street frontage to reduce visibility from the street, with the tennis court being relocated to this location to improve streetscape aesthetics.
- Deletion of staff car parking area to reduce overall car parking bays from 320 down to 240 bays.
- Improvements made to the building facade staircase areas on the in-situ building to improve streetscape aesthetics.
- Balconies on the in-situ building converted to wrap around balconies to improve streetscape appearance and overall building design.
- Relocation of site car parking areas from Rankin Road to the northern boundary of the site with the sports oval relocated to the Rankin Road frontage to improve streetscape aesthetics.
- The Kitchen / Diner building has been brought forward as close to the eastern boundary as possible to improve streetscape appearance and integration.
- The Alfresco Dining Area has been relocated from the northern side of the Diner to the eastern side to improve street integration and activation.
- The boundary fence has been deleted to improve streetscape connectivity and integration.
- The 'corner store' and 'wet mess' areas of the village have been removed from the proposed application.

4. TOWN PLANNING CONSIDERATIONS

4.1 CITY OF KARRATHA LOCAL PLANNING SCHEME NO. 8

The subject site is zoned 'Transient Workforce Accommodation' under the provisions of the *City of Karratha Local Planning Scheme No. 8* ('LPS 8').

The subject site is located within the 'Karratha Precinct' (refer Appendix 3 of LPS 8). The objectives for the Karratha Precinct, as stated in LPS 8, include:

- *Facilitate the continued growth of Karratha as the regional centre of the West Pilbara.*
- *Develop Karratha as the tourist entry for the West Pilbara built upon and taking into account the level of commercial travellers associated with resource developments.*

The proposed development will facilitate the continued growth of Karratha by supporting the workforce associated with the resource industry. The residents of the proposed TWA village will contribute to the local economy through their use of the wide range of commercial, retail and recreational facilities within the City. The proposal is therefore, consistent with the objectives of the Karratha Precinct.

Clause 6.5.1 of LPS 8 requires all TWA developments to be in accordance with the relevant local planning policy. In this regard, an assessment of the proposed TWA against the relevant local planning policy provisions has been undertaken and included at Section 5 of this report.

Refer Figure 4 – LPS 8 Zoning.

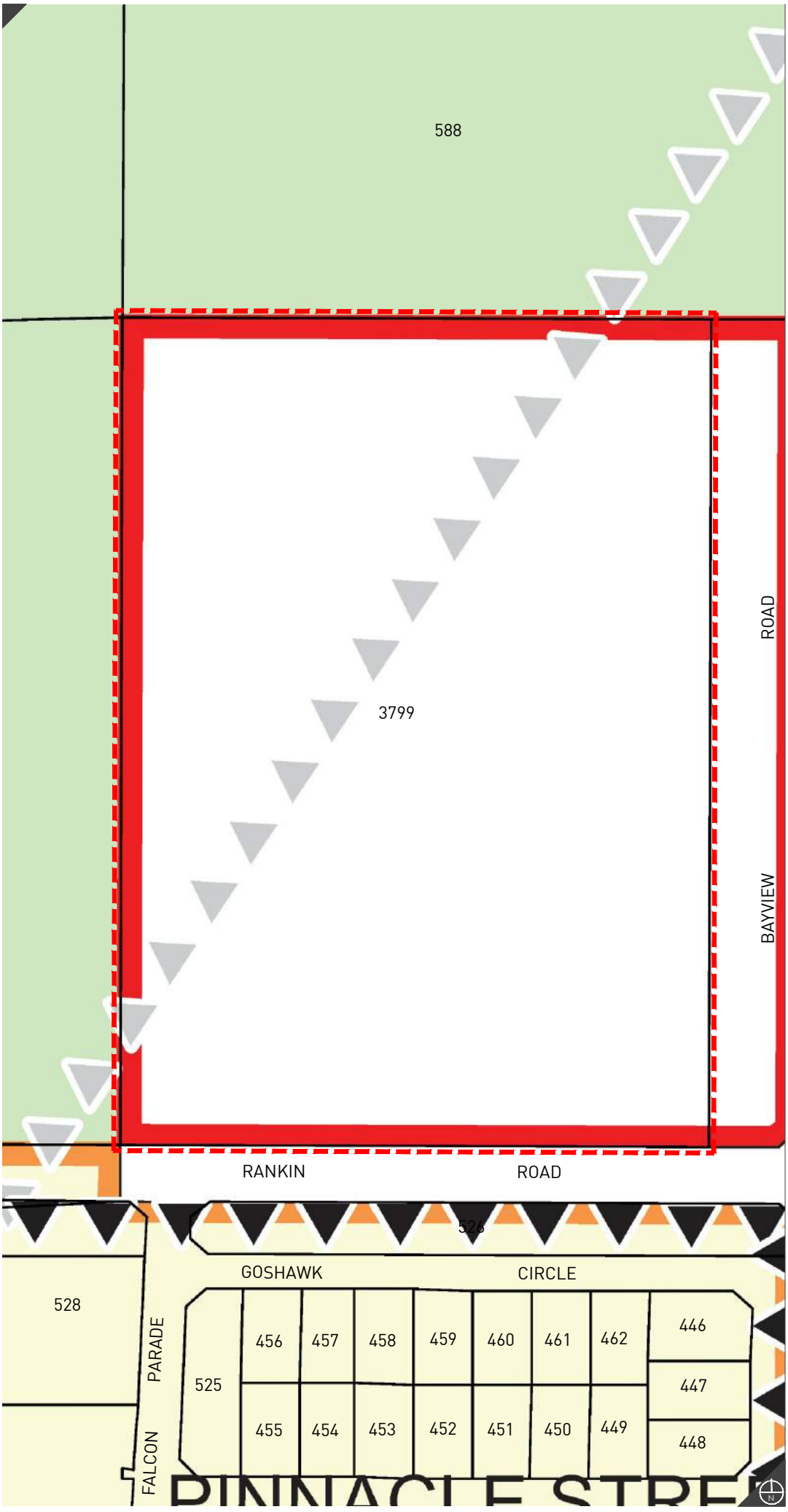
4.1.1 LAND USE PERMISSIBILITY

The proposed land use falls under the use class definition of 'Transient Workforce Accommodation' which is identified under LPS 8 as being a 'P' (Permitted) use within the 'Transient Workforce Accommodation' Zone.

The land use 'Transient Workforce Accommodation' is defined under LPS 8 as follows:

> *dwellings intended for the temporary accommodation of transient workers and may be designed to allow transition to another use or may be designed to as a permanent facility for transient worker and includes a contractor's camp and dongas.*

The proposed land use is therefore consistent with the provisions of LPS 8.



Planning Design Delivery

LEGEND

- Subject Site
- 7 Existing Lot Numbers
- Existing Boundaries

LOCAL SCHEME RESERVES

- Local Road

ZONES

- Development
- General Rural
- Transient Workforce Accommodation

OTHER

- Airport Restriction
- DA1 SCA development areas

REVISIONS

Rev	Date	Drawn
A	2017.09.07	W. Clements

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Date Drawn:	2017.09.07
Job Ref:	8739
Scale:	N.T.S @ A4
Client:	Multiplex Australia
Designer:	R. Dial
Drawn:	W. Clements
Projection:	MGA50 GDA94
Plan ID:	8739-FIG-04-A

Map data supplied by WAPC

City of Karratha Local Planning Scheme No.8

Lot 3799 Rankin Road
Gap Ridge

\\GRA-FS\DATA\TOWN PLANNING\8000-8999\8739\DRAFTING\A-CAD\8739_FIG04A_20170906 GAP RIDGE [LSPN08].DWG
Adam Glaskin 9 January 2018

Figure 4

4.1.2 MATTERS TO BE CONSIDERED BY COUNCIL

Clause 4.4 of LPS 8 identifies a number of matters which Council is to have due regard to when considering an application for planning approval. These matters have been outlined in Table 3 below with a compliance assessment against each of the matters provided.

LOCAL PLANNING SCHEME NO. 8 PROVISION	COMPLIANCE STATEMENT
(a) the purposes and aims and the other provisions of the Scheme and any other relevant town planning schemes operating within the Scheme area;	An assessment against the relevant Scheme provisions has been undertaken as part of the report, refer Section 4.1.
(b) any relevant proposed new town planning scheme or region scheme or improvement scheme which has been granted consent for public submissions to be sought;	Not applicable, there is no relevant proposed new town planning scheme, region scheme or improvement scheme applicable to the site.
(c) any approved State Planning Policy of the Western Australian Planning Commission;	An assessment against the relevant WAPC State Planning Policies has been provided at Section 4.2 of this report.
(d) any approved environmental protection policy under the Environmental Protection Act 1986;	Not applicable, there is no relevant environmental protection policy.
(e) any relevant policy or strategy of the Western Australian Planning Commission and any relevant policy adopted by the Government of the State;	An assessment against the relevant WAPC strategies and policies has been provided at Section 4 of this report.
(f) any Local Planning Policy adopted by the Council under clause 5.1, any heritage policy statement for a designated heritage area adopted under clause 6.9.2, and any other plan or guideline adopted by the Council under the Scheme;	A detailed assessment against the relevant City of Karratha Local Planning Policies has been undertaken at Sections 4.2, 5.1 and 5.3 of this report.
(g) in the case of land reserved under the Scheme, the ultimate purpose intended for the reserve;	Not applicable, the development is not located on reserved land.
(h) the conservation of any place that has been entered in the Register within the meaning of the Heritage of Western Australia Act 1990, or which is included in the Heritage List under clause 6.9.1, and the effect of the proposal on the character or appearance of a heritage area	Not applicable, the subject site is not listed on any Heritage Register's or Lists.
(i) The preservation of the amenity of the locality and the requirements of orderly and proper planning;	A detailed assessment of the development in terms of its impact on the locality is provided in section 5 of this report.

(j) the compatibility of a use or development with its setting;	The proposed development of the site for a TWA facility is consistent with the previous use of the site. The use is therefore considered to be compatible with its setting with additional measures being taken by the Project Team to ensure the external interfaces of the development are consistent with that of a residential development outcome.
(k) any social issues that have an effect on the amenity of the locality;	Significant consideration has been given to social impact management which has been addressed at Section 4.2.3 of this report and the enclosed Social Impact Management Plan..
(l) the cultural significance of any place or area affected by the development;	Not applicable, there are no places or areas of cultural significance which are affected by the development.
(m) the likely effect of the proposal on the natural environment and any means that are proposed to protect or to mitigate impacts on the natural environment;	The proposed development is consistent with the previous use of the site in this regard.
(n) whether the land to which the application relates is unsuitable for the proposal by reason of it being, or being likely to be, subject to flooding, tidal inundation, subsidence, landslip, bush fire or any other risk;	The land is considered suitable for the type of proposed development which is consistent with the site's previous use. An assessment against potential risks of flooding, storm surge and bushfire has been undertaken as part of this report.
(o) the relationship of the proposal to development on adjoining land or on other land in the locality including but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the proposal;	The development has been designed to minimise impacts on adjoining land, through providing for well-articulated, two-storeys buildings to frame the external street frontages as detailed in Section 3 of this report. External recreation areas have been located adjacent to Rankin Road to break up the streetscape elevation and promote integration with the adjoining residential area.
(p) whether the proposed means of access to and egress from the site are adequate and whether adequate provision has been made for the loading, unloading, manoeuvring and parking of vehicles;	The development proposes two vehicular access / egress points from Bayview Road and one access point from Rankin Road for access to the servicing area only. The access and egress points are considered adequate and have been designed to allow for bus and service movements as required.
(q) the amount of traffic likely to be generated by the proposal, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	The development is not expected to generate unreasonable levels of traffic in relation to the existing road network. Workers will predominantly be transported to and from work sites via shuttle buses and vans with a small number of private vehicles travelling to and from the site, as required.

(r) whether public transport services are necessary and, if so, whether they are available and adequate for the proposal;	Public transport services are not required for this proposal. The development will utilise private shuttle bus companies to provide transport services to workers as required. Further, it is noted that residents will have access to bicycles which can be used as a means of transport to and from the town centre.
(s) whether public utility services are available and adequate for the proposal;	Public utility services are available and adequate to service the proposed development as outlined at Section 3.6 of this report.
(t) whether adequate provision has been made for access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);	Pedestrian and cyclist facilities are provided and adequate to service the proposed development as outlined in Section 3 of this report
(u) whether adequate provision has been made for access by people with disabilities;	The buildings have been designed to enable access by people with disabilities in accordance with the *National Construction Code*. Further details in this regard will be provided at the Building Permit stage.
(v) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;	A number of the existing mature trees within the site have been retained, where possible. An Indicative Landscaping Plan has been provided at Attachment 3 to this report. It is anticipated that formal Landscaping Plans will be required as a condition of development approval.
(w) whether stormwater runoff has been adequately provided for and whether existing overland flowpaths are suitably protected or substituted;	A Stormwater Management Plan has been prepared in support of this application, demonstrating that stormwater runoff can be appropriately managed within the site, refer Section 3.7 and Attachment 4.
(x) whether the proposal is likely to cause soil erosion or land degradation;	A detailed assessment of the environmental impact of the development is provided in Section 5 of this report.
(y) the potential loss of any community service or benefit resulting from the planning approval;	The proposed development is not considered to result in any potential loss of community service or benefit, rather, provide for an integrated development solution which supports the local economy through maximising local employment opportunities and promoting the utilisation of existing community facilities as detailed further within this report.
(z) any relevant submissions received on the application;	Not applicable at the time of lodging this application, the Applicant can address any submissions received during advertising, as required.

(za) the comments or submissions received from any authority; and	Not applicable at the time of lodging this application, the Applicant can address any submissions received during advertising, as required.
(zb) any other planning consideration the Council considers relevant.	Not applicable at the time of lodging this application, the Applicant can address any additional planning considerations not covered within this report, as required.

Table 4: Clause 4.4 of LPS 8 Assessment

4.2 RELEVANT PLANNING POLICIES

4.2.1 STATE PLANNING POLICY 3.7 – PLANNING IN BUSHFIRE PRONE AREAS

The Department of Fire and Emergency Services – Map of Bushfire Prone Areas online mapping tool identifies a portion of the subject site as being "bushfire prone" due to the grassland and clumps of shrubland vegetation north and west of the site. It is noted that managed and developed landscapes occur south and east of the site and adjacent public roads.

As the proposed land use of "Transient Workforce Accommodation" falls within the definition of a "vulnerable land use" in accordance *with State Planning Policy – Planning in Bushfire Prone Areas ('SPP 3.7')* a Bushfire Management Plan has been prepared to support the proposed Development Application by Bushfire Safety Consulting Pty Ltd. The Bushfire Management Plan also includes an Emergency Evacuation Plan for proposed occupants.

The Bushfire Management Plan confirms there is good vehicular access to the site in the event of a bushfire emergency by way of the existing public roads within the locality and the proposed movement network within the site. Further, the proposed site and development has adequate access to a water supply in the event of an emergency.

In terms of Bushfire Attack Level ('BAL') ratings, the facility buildings are predominantly exposed to a maximum BAL rating of BAL-12.5, with the only structure being exposed to a BAL rating of BAL-29 being the gatehouse structure.

It is expected that following the implementation of the Bushfire Management Plan and Emergency Evacuation Plan that the threat to staff, residents, contractors, the public and fire fighters in the area are significant reduced. The Bushfire Management Plan confirms that the proposed development complies with SPP 3.7 and the *Guidelines for Planning in Bushfire Prone Areas.*

Refer Attachment 6 – Bushfire Management Plan.

4.2.2 CITY OF KARRATHA POLICY DP10 – TRANSIENT WORKFORCE ACCOMMODATION

The City of Karratha Policy DP10 – TWA Policy ('DP10') was adopted by Council for the purpose of providing guidance for the preparation and assessment of, and decision making on, applications for Transient Workforce Accommodation.

The broad principles and objectives of DP10 seek to minimise the disturbance and impact on the local community as a result of new TWA facilities.

DP10 is undergoing review and as a result, the City of Karratha has released (an updated) *Draft City of Karratha Policy DP10 – Transient Workforce Accommodation* ('Draft DP10') for public comment, which has since closed and is now being considered by the City's Administration. The analysis and assessment of the policy criteria of DP10 has therefore placed a greater emphasis on the Draft DP10 and its objectives/provisions.

An assessment of the operative DP10 and the Draft DP10 are provided in the following sections of this report.

4.2.3 CITY OF KARRATHA POLICY DP20 – SOCIAL IMPACT ASSESSMENT POLICY

The *City of Karratha Policy DP20 – Social Impact Assessment Policy* ('DP20') provides guidance on considering the social impact of new developments. DP20 requires all proposals within the 'Transient Workforce Accommodation' Zone to provide a Social Impact Management Plan as part of any Application for Development Approval.

In this regard, Creating Communities, in consultation with Woodside and the Project Team, has prepared a Social Impact Management Plan ('SIMP') table to accompany the proposed Development Application. It is anticipated that the strategies outlined in the SIMP will be refined through further community and stakeholder engagement to be undertaken as part of the Development Application process.

The management strategies outlined in the SIMP have been categorised according to the impact areas outlined in DP20 where appropriate.

In this regard, the key principles and strategies of the SIMP are as follows:

- Appointment of an integration officer to connect workers with City of Karratha opportunities e.g. sporting facilities, classes, cafes, bars and after-hours events.
- Smaller gym/pool areas to encourage use of town facilities.
- Nightly bus service provided to enable visits to town, leisureplex and sporting grounds.
- Active promotion of local Karratha events at the facility, including opportunities to participate in community volunteering initiatives.
- A community working group has recently been formed between our main contractor companies who would be using Bay Village (WP, MGJV & UCJV) with Woodside support. Primary focus is to establish a program of community initiatives and activities which are shared across the KLE Contract and increase opportunities to interact as one team and support the Pilbara community.

A copy of the SIMP table has been included as Attachment 7 to this application.

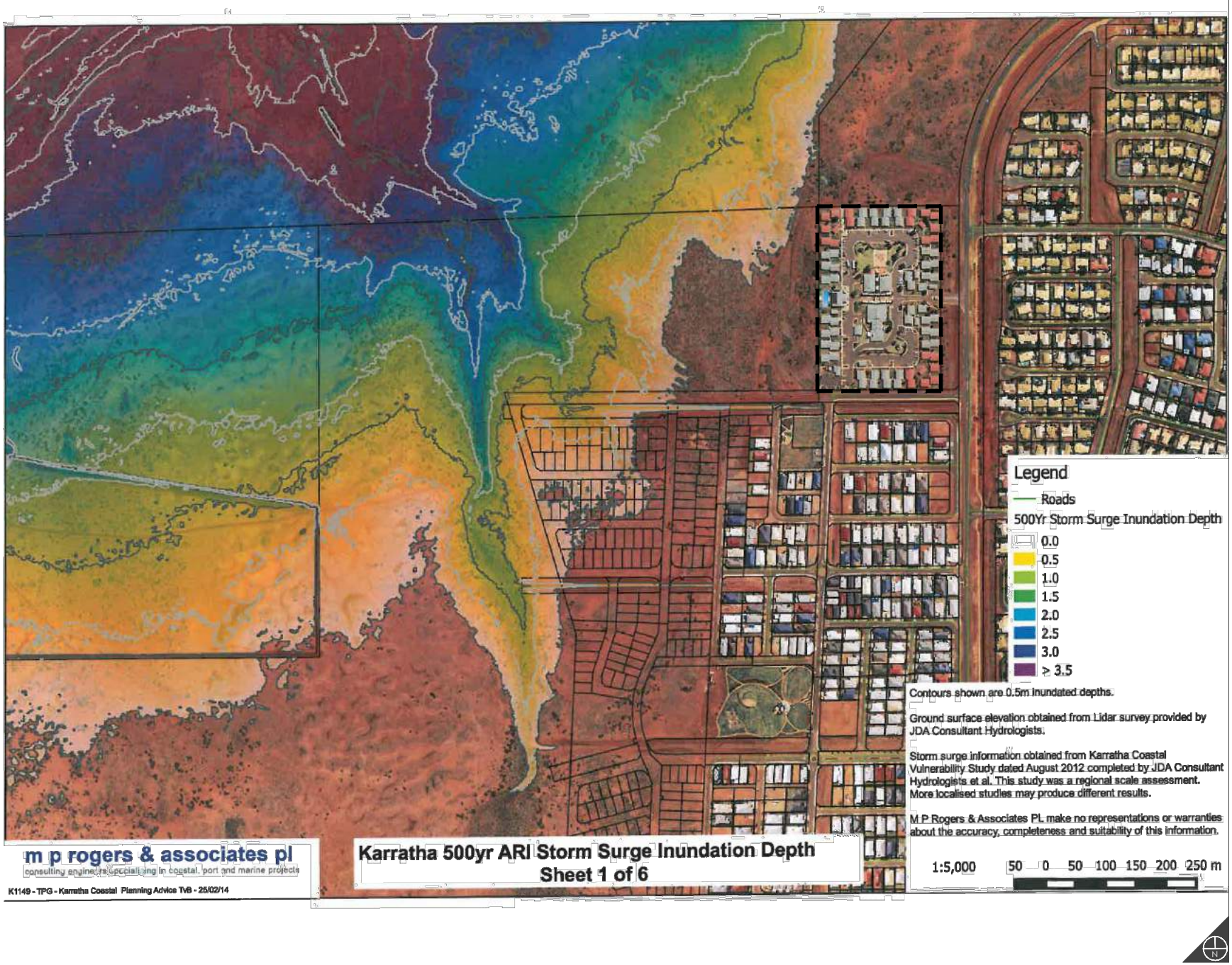
Refer Attachment 7 - Social Impact Management Plan.

4.2.4 CITY OF KARRATHA COASTAL HAZARD RISK MANAGEMENT ADAPTATION PLAN

The *City of Karratha Coastal Hazard Risk Management Adaptation Plan* (the 'Coastal Plan') provides guidance on the risk assessment and management of land which is prone to a 500-year ARI storm surge event.

The Coastal Plan includes mapping which identifies those lots within Karratha which are likely to be inundated during a 500-year ARI storm surge event. The subject site is identified in the Coastal Plan as has having a likely inundation depth of 0.0m. The subject site is therefore not at risk from inundation during such an event with no further action being required.

Refer to Figure 5 – Storm Surge Mapping.



Planning Design Delivery

LEGEND

Subject Site

REVISIONS

Rev	Date	Drawn
A	2017.12.13	A. Glaskin

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Date Drawn:	2017-12-13
Job Ref:	8739
Scale:	NTS @ A4
Client:	Multiplex Australia
Designer:	V. Brown
Drawn:	A. Glaskin
Projection:	MGA50 GDA94
Plan ID:	8739-FIG-05-A

Karratha 500yr ARI Storm Surge Indicator

Lot 3799 Rankin Road,
Gap Ridge

\\GRA-FS\DATA\TOWN PLANNING\8000-8999\8739\DRAFTING\A-CAD\8739_FIG05A_20171213 STORM SURGE INDICATOR A4L.DWG
Adam Glaskin 13 December 2017

Figure 5

5. DEVELOPMENT STANDARDS

5.1 CITY OF KARRATHA POLICY DP10 – TRANSIENT WORKFORCE ACCOMMODATION POLICY

5.1.1 ACCOMMODATING OPERATIONAL WORKFORCES

The policy outlines the City's aspiration for transient workforces to be more integrated with the local community and to transition to more permanent town-based living.

The proposed TWA village responds to the requirement for greater integration through the location of the communal facilities which are located at the periphery of the site, thereby, 'straddling the threshold' between the TWA and surrounding residential land uses. This design approach will provide an active frontage to the development, create a community focal point and help to foster a sense of connection between residents and the broader community.

The 'Village Centre' which consists of the central kitchen diner, administration, active recreation and small fitness facilities and the village green is designed to be a social community hub and is well connected to the surrounding residential neighbourhood via a pedestrian network.

The proposed development will operate following a "one-way" social integration model, meaning residents of the proposed development will be encouraged to use the existing facilities within Karratha (i.e. Leisureplex, shopping centre, etc.), however, the internal facilities of the development will be closed to the public for operational reasons. It is noted that there is no fencing proposed around the development and therefore the recreational oval would be accessible to the public and community.

The administration precinct is designed to be easily accessible to guests and acts as a transition to the 'Village Centre'.

5.1.2 DECOMMISSIONING/TRANSITIONING

A Rehabilitation Plan was approved by the City of Karratha for the subject site as part of the recent demolition approval for (demolition) works associated with the former TWA facility at the subject site. The Rehabilitation Plan is to be implemented at the decommissioning of the TWA village the subject of this application. That is, the subject site will be rehabilitated to a vacant state at the end of the TWA facility's lifespan.

The Decommissioning Statement for the subject site is as follows;

> *'It is Woodside's intention to decommission the facility at the end of its tenure, there are no plans to continue to utilise the land for anything other than temporary workforce accommodation. Whilst the exact requirements at the expiration of the lease agreement are yet to be determined it is anticipated that the obligations will be similar to that proposed under the previous lease arrangement over Bay Village. As a result an indicative rehabilitation plan is found in Attachment 8 (Bay Village Rehabilitation plan). Woodside will be obliged under the lease to rehabilitate the land and this responsibility will be transferred to the Compass Group Consortium under the central accommodation contract.'*

At the time of submitting this application, Woodside's approach for the rehabilitation of the site is to:

- *Remove any vegetation which is not native to the area from garden beds and other landscaped areas prior to commencing rehabilitation works;*
- *Retain identified large native trees where possible;*
- *Retain undisturbed native vegetation along Bayview Road;*
- *Decommission and remove all infrastructure except:*
  - *the telecommunications building located adjacent to Bayview Road;*
- *Conduct a Preliminary Site Investigation (PSI) as per the Assessment and Management of Contaminated Sites – Contaminated Sites Guidelines (Department of Environment Regulation 2014) and if any contamination is detected manage it in accordance with the Contaminated Site Act 2003;*
- *Reshape the site if required to ensure any excavations are backfilled to minimise risk of erosion;*
- *Deep rip to alleviate soil compaction;*
- *Retain a single lane access track to the retained telecommunications building;*
- *Apply a locally sourced lateritic (or similar) material to the surface of the site to minimise erosion from surface water and generation of dust;*
- *Apply seed of appropriate local species along the boundary of the site facing Rankin Road.*

It should be noted that Woodside intends to occupy the site for 30 years and therefore the approach to rehabilitation may change in the future. It is likely that the rehabilitation plan be reviewed by Woodside at the time of decommissioning to the satisfaction of the City of Karratha.

Refer to Attachment 8 – Bay Village Rehabilitation Plan

5.2 CITY OF KARRATHA DRAFT POLICY DP10 – WORKFORCE ACCOMMODATION POLICY

The Draft DP10 Policy was approved for advertising by Council at its Ordinary Council meeting on 11 December 2017. Draft DP10 identifies five (5) key policy measures which are outlined and subsequently addressed in Table 4 below.

The proposed TWA facility at the subject site is considered to be consistent with the policy objectives and provisions of Draft DP10.

DRAFT DP10 PROVISION	DESIGN RESPONSE
5.1 TIME LIMITED APPROVALS	
5.1.1 Where existing workforce accommodation has a time unlimited approval, works including upgrades and maintenance, shall enjoy the same time unlimited approval rights. Should an increase in the number of beds be proposed, a time limited approval shall be applied to the entire workforce accommodation facility.	N/A – this application does not relate to an existing TWA.
5.1.2 New workforce accommodation applications can be approved for a maximum period of ten years. Longer term approval periods exceeding ten years, may be approved where performance criteria set out in this policy are met.	The subject site is the subject of a leasing agreement with the State for 15 years with three 5-year extension options. An approval timeframe of 30 years is therefore sought.
5.1.3 Extensions of time may be permitted for a maximum period of five years.	The subject site is the subject of a leasing agreement with the State for 15 years with three 5-year extension options. An approval timeframe of 30 years is therefore sought.
5.1.4 Construction camp types of workforce accommodation shall be approved for a timeframe based on the timeframe for the related construction project.	N/A - this TWA village is not a construction camp.
5.1.5 Applications for new workforce accommodation and/or extensions of time limits will require lodgement of a new planning application. New applications will be subject to the current planning framework at the time of determination.	Should an extension to the approval be required, a new application will be submitted.
5.1.6 Applications for workforce accommodation will be required to identify the time period for which they are seeking development approval. In considering applications for development approval, decision makers will consider the consistency of the proposal with the planning framework at the date of application.	The subject site is the subject a leasing agreement with the State for 15 years with three 5-year extension options. An approval timeframe of 30 years is therefore sought.

5.1.7 Decommissioning/transition plans are required. As a minimum, a condition will be included on any approval requiring a decommissioning or transition plan to be lodged with the Council 18 months prior to the expiry of the planning approval or a reduced time period considered appropriate at the discretion of Council.	An indicative Decommissioning and Rehabilitation Plan has been prepared for the subject site which is to be implemented at the completion of the proposed TWA (refer to Attachment 8). It should be noted that Woodside intents to occupy the site for 30 years and therefore the approach to rehabilitation may change in the future. It is likely that the rehabilitation plan be reviewed by Woodside at the time of decommissioning.
5.1.8 At the conclusion of the approved timeframe, the planning approval will expire.	Noted.
5.2 NEED	
5.2.1 A proponent of new workforce accommodation, or an increase in the number of beds for an existing facility, must demonstrate a need for the development, as part of their proposal. The need for beds must be demonstrated in the context of workforce accommodation provision across the City and across industry demands.	There has been a significant reduction (2,100) in quality beds across the City of Karratha, following the then Minister for Lands decision not to renew the crown lease on Gap Ridge Village ('GRV'). The proposed 700-bed development falls far short of the bed numbers associated with GRV and is aimed at securing high quality accommodation for Woodside's workforce and to underpin future growth options. Woodside's 15-year demand forecast shows that on current planning the company will require up to 1,500 beds to meet peak shutdown requirements. This does not take into account future projects like a potential Burrup hub development. Woodside had ascertained that there are at present approximately 1,000 suitable quality beds in Karratha, spread across a number of facilities. This assessment does not take into account the risk of other projects' needs and the impact to future supply. At peak times Woodside will contract beds at existing facilities.
5.2.2 Proponents must demonstrate liaison with the City and evaluation of options regarding capacity in local housing and land supply markets, prior to applying for workforce accommodation facilities associated with major projects	A number of meetings have been held between the Applicant, Woodside and the City of Karratha to discuss the proposed TWA facility the subject of this application.
5.2.3 Assertions that there is adequate demand for workforce accommodation to support business investment which are not substantiated with demonstrable demand are not accepted as the basis for demonstrating need for workforce accommodation.	As above for 5.2.1.

5.2.4 Advocating for new workforce accommodation in conjunction with a reduction of workforce accommodation beds elsewhere, is insufficient by itself to demonstrate need for workforce accommodation.	As above for 5.2.1.
5.2.5 Evidence of occupancy, contracts or bookings may contribute to the demonstration of demand for workforce accommodation.	Further evidence of bookings for past periods can be provided to the City of Karratha at its request.
5.2.6 Assessment of workforce accommodation proposals must consider the cumulative impacts of multiple WA developments on the sustainability and liveability of affected towns and the City generally.	Woodside continues to prioritise a residential workforce but does require an element of transient worker accommodation in its workforce model. Refer also 5.2.1.
5.3 LOCATION	
5.3.1 The City encourages the provision of workforce accommodation at locations that lend themselves to providing for community integration. Where the location does not lend itself to community integration, the need for contributions to offset the relative community loss should be considered.	The subject site is located adjacent to an existing residential neighbourhood and is in close proximity to a number of local facilities such as the town centre and areas of public open space. This allows for workers and residents to interact and make mutual use of available facilities. The access point to the TWA is clearly legible from Bayview Road and in combination with the active street front provided by the 'Village Centre' helps to create a community focal point. Furthermore, the subject site's designation as 'Transient Workforce Accommodation' Zone under the provisions of LPS 8 illustrate that the site has been identified as strategically appropriate for TWA development under the City's operative planning framework. The following features focus on the integration of workers into the local community: - Smaller gym/pool areas to encourage use of town facilities - Appointment of an integration officer to connect workers with City of Karratha opportunities e.g. sporting facilities, classes, cafes, bars and after-hours events Bus service provided to enable visits to town, leisureplex and sporting grounds. - Active promotion of local Karratha events at the facility, including opportunities to participate in community volunteering initiatives - A community working group has recently been formed between our main contractor companies who would be using Bay Village (WP, MGJV & UCJV) with Woodside support. Primary focus is to establish a program of

	community initiatives and activities which are shared across the KLE Contract and increase opportunities to interact as one team and support the Pilbara community
5.3.2 A workforce accommodation facility for which a longer term approval is sought (greater than ten years) must be co-located and integrated with an activity centre to support local business, activate public spaces and provide opportunities for occupants to interact and engage with the community.	As outlined above, the subject site is well located for integration with the local community. The 'Village Centre' addresses the street and helps to create a community focal point. In addition, shuttle bus services and a bicycle sharing program will enable workers to easily access the town centre of Karratha and other commercial, retail and recreational facilities nearby.
5.3.3 Where a longer term approval is sought, proponents should liaise with the City prior to lodgement of an application to determine the suitability of the location for a longer term workforce accommodation facility.	A number of meetings have been held with the City of Karratha to discuss the proposed TWA the subject of this application and the requested 30 year approval timeframe.
5.3.4 Workforce accommodation proposals in urban environments should encourage occupants to mix and contribute to a strong sense of community.	As outlined, the subject site is well located for integration with the local community. The 'Village Centre' addresses the street and helps to create a community focal point. In addition, a shuttle bus service which operates from the TWA facility will allow workers to easily access the town centre of Karratha and other commercial, retail and recreational facilities within the City of Karratha.
5.3.5 Workforce accommodation proposals in City or Town Centres should foster a diversity of activities within the centre, supported by a legible street pattern and generally contiguous and active building frontages positioned at the street front boundary.	N/A – the TWA facility is located on 'Transient Workforce Accommodation' zoned land.
5.3.6 Remote WA camps are considered acceptable where it can be demonstrated that it is not feasible or appropriate for workers to be town based.	N/A – the proposed TWA is not in a remote location.
5.4 DESIGN	
5.4.1 The standard of development must be commensurate to its location. In this regard, workforce accommodation within existing or proposed urban areas must consider the standard of development appropriate to its location in the design of the facility.	Within the 'Village Centre', modular buildings are located at the rear of the site while in-situ buildings address the street at a scale that complements the residential character of the surrounding neighbourhood. The quality of the built form will be to a high standard and will enhance the amenity of the existing adjacent residential areas.

5.4.2 Applications for longer term approvals must foster the provision of a balanced and diverse built form which will contribute to the development of an active and interesting character in the public domain.	The accommodation buildings include both 'in-situ' and modular buildings. The in-situ buildings address each street frontage, including the corner of Bayview Road and Rankin Road and are of two-storeys in height to provide for a prominent and well-articulated built form outcome which adds interest and character to the public domain. The modular buildings are arranged in clusters around ventilated light wells. These buildings are two-storeys high and include a 'wrap-around' veranda element to provide further levels of articulation and amenity for residents. A colour strategy has been employed for the development which will establish a unique character within the TWA. The proposed colour palette consists of earthy, rustic colours combined with cool greens and blues. Individual buildings within the 'Village Centre' will be painted externally to create "landmarks" and assist with way finding. In addition, the accommodation units are divided into four neighbourhoods, each with a unique colour palette. This will enable each neighbourhood to be identified and will create an interesting character for each.
5.4.3 Proposals for longer term approvals must provide contiguous, activated street front development.	The 'Village Centre' is located at the periphery of the site such that it provides an active frontage to the street. A pedestrian network is proposed which will provide direct connection between the subject site and the surrounding residential area.
5.4.4 Proposals for longer term approvals must locate car parking areas behind street front buildings.	Car parking areas have been designed such that they are generally screened from view from the public domain. The majority of the cars parking areas are located at the western and northern boundaries of the site which are screen from view from the public realm through the built form. A small car parking area associated with the Village Centre is located adjacent to Bayview Road to provide suitable access for residents and shuttle buses.
5.4.5 Proposals for longer term approvals must achieve high intensity land use and built form outcomes, including a range of medium to high density housing, within a walkable catchment of an activity centre.	The proposed TWA includes 700 units on a site with a land area of 6 hectares. This equates to a residential "density" commensurate to more than 100 "dwellings" per hectare.

	In addition, a bus shuttle service will be provided between the subject site and town centre to allow workers easy access to facilities within the town centre.
5.4.6 Proposals must consider the compatibility of a use or development with its setting. Associated with this matter are amenity, character, streetscape, scale, integration and similar.	The buildings proposed will be designed such that they are a maximum of two storeys high and include "wrap-around" verandas to provide the sense of permanency and amenity afforded in traditionally constructed buildings. The building typology reflects the regional homestead architecture, making use of high roofs, deep eaves and the removal of guttering. The TWA facility the subject of this application will be a high quality and contemporary replacement of the old TWA facility that was constructed at the subject site prior to its recent demolition.
5.4.7 Unless an alternative emergency sheltering solution can be demonstrated to the satisfaction of the City, each facility must provide a building(s) designed for emergency (cyclone) sheltering purposes. Such building(s) must be designed to a Building Code of Australia importance level four (4).	All buildings will be cyclone rated and evidence to this effect will be provided as part of the Building Permit phase.
5.4.8 Building design shall demonstrate regard for the guidelines for Australian Public Safety Shelters Report to Emergency Management Australia (2002).	All buildings will be cyclone rated and evidence to this effect will be provided as part of the Building Permit phase.
5.5 COMMUNITY INTEGRATION	
5.5.1 All workforce accommodation applications are required to be accompanied by a Social Impact Assessment and Social Impact Management Plan in accordance with Council's relevant local planning policy. If the Social Impact Management Plan does not include contributions*, then other management measures need to be considered satisfactory for the purposes of offsetting any relative net loss in community service and benefit.	A SIA and SIMP has been finalised in accordance with DP20 (refer Attachment 7). The key principles of the SIA and SIMP are as follows: - Appointment of an integration officer to connect workers with City of Karratha opportunities e.g. sporting facilities, classes, cafes, bars and after-hours events - Smaller gym/pool areas to encourage use of town facilities - Frequent bus services will be provided to enable visits to town, leisureplex and sporting grounds - Active promotion of local Karratha events at the facility, including opportunities to participate in community volunteering initiatives - A community working group has recently been formed between our main contractor companies who would be using Bay Village (WP, MGJV & UCJV) with Woodside support. Primary focus is to establish a program of community initiatives and activities which are

	shared across the KLE Contract and increase opportunities to interact as one team and support the Pilbara community.
5.5.2 In considering applications for development approval, the community impacts associated with the development will be considered against DP20: Social Impact Assessment.	Refer comments above in response to 5.5.1 and the SIA AND SIMP at Attachment 7.
5.5.3 Contributions may be in the form of: - The ceding of land for an agreed public purpose; - Construction of infrastructure works that are to be transferred to public authorities on completion; - Monetary contributions to acquire land, community infrastructure and/or facilities; and - Monetary contributions to Council programs and/or services. In accordance with Clause 9.1 of TPS 8, agreements can be reached between the Applicant and the Council regarding contributions to be made, the basis upon which contributions are made and the application of those contributions. ** If a proponent does not believe a contribution is warranted, then the Social Impact Management Plan needs to clearly articulate in detail, and based on evidence/commitments, the reasons why they believe a contribution is not warranted so this can be considered in determining the merits of the proposal. It needs to be noted that the Council's position on the need for contributions is based on the adverse cumulative impacts of workforce accommodation developments on building sustainable local communities and local economies, not just the impact of an individual workforce on community facilities and infrastructure.*	Multiplex has made strong commitments to local content during construction and operations. In addition, Woodside has made a number of significant contributions to projects in Karratha in previous years. These include; - NWS Project: $300 million in community infrastructure over 30 years; - NWS and Pluto: $21.5 million towards the last 10 key infrastructure projects within the City of Karratha; - All apprentices and trainees are sourced from within the City of Karratha; - On average, $40 million per annum towards social investment, rates and procurement within the City of Karratha; and - NWSP: $10 million over 10 years towards City of Karratha and Roebourne education initiatives supporting improved high school outcomes. In addition, it is noted that the constructions and operation of the proposed TWA will also result in demand for local employees and will result in workers contributing to the City of Karratha economy during their time in town. In this regard, no further contributions are proposed or considered warranted as part of this application.

Table 5: Draft Policy DP10 Assessment

6. TRAFFIC AND TRANSPORT

A Traffic Analysis and Management Plan report has been prepared by Transcore to support the Development Application. The following provides a summary of the key findings of the Transport Impact Statement.

Refer Attachment 9 – Traffic Analysis and Management Plan Report.

6.1 VEHICLE ACCESS

Vehicular access to the proposed site is provided via two crossovers on Bayview Road and one crossover on Rankin Road. The Rankin Road crossover is for emergency vehicles only and would be gated. This crossover is therefore not expected to be used frequently by day to day users of the village. Both development crossovers on Bayview Road are full movement crossovers.

The southern crossover on Bayview Road exists as part of the previous development at this site. The existing crossover on Bayview Road will be modified and will be used as the main entry/ exit point for the proposed development.

One-way clockwise circulation is proposed within the site between the two Bayview Road crossovers.

6.2 PARKING DEMAND AND SUPPLY

The proposed development provides 240 on-site parking bays which approximately translates to about 1 parking bay per 3 residents. It is noted, however, that the majority of the residents would utilise the Woodside bus services or share cars to travel to work.

The proposed 240 car parking bays provided as part of this development is therefore expected to be sufficient for the development.

6.3 SERVICE VEHICLES

Waste vehicles will access the site from the southern crossover on Bayview Road and will use the waste loading area to pick up the rubbish bins and will exit the site from the northern crossover on Bayview Road. Waste collection will occur two or three times per week.

The service and delivery vehicles would also perform similar movements to the waste vehicle's movements.

6.4 TRAFFIC GENERATION

According to the information provided to by the site operator, 20 buses (30 seaters) would service the site during the AM and PM peak hours. Assuming that each bus is 90% full, the total number of residents which would travel to work by bus is estimated to be approximately 540 (20 x 30 x 0.9 = 540) residents. The balance of the residents (700 - 540 = 160) would travel by car. Assuming a car occupancy rate of 2.3 would results in about 70 cars (160/2.3 = 70) to accommodate the balance of the residents. Therefore, in total about 90 vehicles (20 buses + 70 cars) would exit the site during the morning peak hour and would return to the site during the PM peak hour.

It should be noted, however, that it is unlikely that 100% of the residents would travel to work on any given day due to rostered days off and / or sick leave. In this regard, it is reasonable to assume that the total traffic generation or vehicle occupancy would be lower than what has been assumed in above analysis.

Based on the findings of the Transport Impact Statement, the proposed development will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph. The proposed impact on the surrounding road network is therefore considered to be minor.

7. CONSTRUCTION AND IMPLEMENTATION

A Construction Management Plan ('CMP') will be prepared by Multiplex who has been appointed by Woodside in a "design and construct" role (i.e. builder), which will outline the strategy and methodology for managing the construction of the Bay Village TWA project (the 'project').

Preliminary advice provided by Multiplex anticipates a construction period of 12 months for the project, which will commence once Multiplex obtains possession of the site. Construction works onsite will typically occur from 7.00am to 5.00pm Monday to Saturday. It is noted that "out of hours" permits may be required on an infrequent "as needed", with any out of hours permit to be obtained and undertaken in accordance with the requirements of the City of Karratha.

The anticipated workforce expected to be on-site during peak durations of construction are approximately 70 personnel.

The CMP will be prepared and implemented as a condition of Planning Approval, with the plan to include a detailed methodology of managing issues related, but not limited, to the following:

- Construction Traffic and Pedestrian Management;
- Site Accommodation Establishment and Management;
- Material Handling, Vehicle Parking and Access;
- Emergency Procedures; and
- Cyclone Management.

In addition to the CMP, the following other Project Management Plan will be implemented which will contain "sub-plans" for the management strategies including, but not limited to, the following:

- Construction Noise and Vibration;
- Dust and Air Quality;
- Waste Minimisation; and
- Construction Stormwater Management.

The CMP and supplementary plans are expected to be of a very similar standard to that which were prepared as part of the construction of the Karratha Health Campus by Multiplex.

It is anticipated that the abovementioned high-level principles will form the basis of the CMP, which will be formalised by way of a condition of development approval.

8. CONCLUSION

This report has been prepared in support of a development application for a Transient Workforce Accommodation located at Lot 3799 Rankin Road, Gap Ridge. The development is proposed to be constructed over two (2) stages, with a maximum of 700 beds.

The proposed development is appropriate for the following reasons;

- The proposed land use is consistent with the zoning of the land under *Local Planning Scheme No. 8* and the previous use of the site for transient workforce accommodation purposes;
- The proposed development provides for an "inside out" approach ensuring that the resultant built form appropriately addresses and integrates with the public domain.
- The development intentionally provides for smaller recreation facilities such as a small plunge pool and gymnasium to encourage residents to utilise the existing facilities within the City of Karratha, further stimulating the local economy.
- Matters with regard to Social Impact have been appropriately addressed at the time of lodging this application, with further community and stakeholder engagement to be undertaken by the Project Team as part of the formal Development Application process.
- It meets the requirements of *State Planning Policy 3.7 – Planning in Bushfire Prone Areas*; and
- It is consistent with the City of Karratha relevant Local Planning Policies including the *Draft Policy DP10 – Workforce Accommodation Policy*.

On the basis of the above, it is requested the City of Karratha support the proposed Transient Workforce Accommodation at the subject site.

ATTACHMENT 1

CERTIFICATE OF TITLE

ROWE GROUP

REGISTER NUMBER
3799/DP185178

DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	**N/A**

VOLUME	FOLIO
LR3019	**150**

WESTERN AUSTRALIA

RECORD OF QUALIFIED CERTIFICATE OF CROWN LAND TITLE

UNDER THE TRANSFER OF LAND ACT 1893
AND THE LAND ADMINISTRATION ACT 1997

NO DUPLICATE CREATED

The undermentioned land is Crown land in the name of the STATE OF WESTERN AUSTRALIA, subject to the interests and Status Orders shown in the first schedule which are in turn subject to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 3799 ON DEPOSITED PLAN 185178

STATUS ORDER AND PRIMARY INTEREST HOLDER:
(FIRST SCHEDULE)

STATUS ORDER/INTEREST: LEASEHOLD

PRIMARY INTEREST HOLDER: WOODSIDE ENERGY LTD
SHELL DEVELOPMENT (AUSTRALIA) PTY LTD
BHP BILLITON PETROLEUM (NORTH WEST SHELF) PTY LTD
CHEVRON AUSTRALIA PTY LTD
BP DEVELOPMENTS AUSTRALIA PTY LTD
JAPAN AUSTRALIA LNG (MIMI) PTY LTD
ALL OF 1 ADELAIDE TERRACE, PERTH
AS TENANTS IN COMMON IN EQUAL SHARES

(LC I088601) REGISTERED 29/4/2002

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. I088601 LEASE. SUBJECT TO THE TERMS AND CONDITIONS AS SET OUT IN THE LEASE. REGISTERED 29/4/2002.

J278006 EXTENSION OF LEASE I088601. REGISTERED 9/5/2005.

J278006 THE CORRECT ADDRESS OF THE LESSEES IS NOW 240 ST GEORGES TERRACE, PERTH. REGISTERED 9/5/2005.

J368420 THE CORRECT ADDRESS OF THE FOURTH LESSEE IS NOW LEVEL 24, 250 ST GEORGES TERRACE, PERTH. REGISTERED 21/7/2005.

Warning: (1) A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.
(2) The land and interests etc. shown hereon may be affected by interests etc. that can be, but are not, shown on the register.
(3) The interests etc. shown hereon may have a different priority than shown.

----------END OF CERTIFICATE OF CROWN LAND TITLE----------

END OF PAGE 1 - CONTINUED OVER

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	LR3019-150 (3799/DP185178)
PREVIOUS TITLE:	LR3019-150
PROPERTY STREET ADDRESS:	LOT 3799 RANKIN RD, GAP RIDGE.
LOCAL GOVERNMENT AUTHORITY:	CITY OF KARRATHA
RESPONSIBLE AGENCY:	DEPARTMENT OF PLANNING, LANDS AND HERITAGE (SLSD)

NOTE 1: A000001A CORRESPONDENCE FILE 506/1981 V2.
NOTE 2: LAND PARCEL IDENTIFIER OF KARRATHA TOWN LOT/LOT 3799 ON SUPERSEDED PAPER CERTIFICATE OF CROWN LAND TITLE CHANGED TO LOT 3799 ON DEPOSITED PLAN 185178 ON 08-AUG-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.
NOTE 3: THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE OF TITLE.

ATTACHMENT 2

ARCHITECTURAL DRAWINGS AND PLANS

ROWE GROUP

BAY VILLAGE

APPLICATION FOR DEVELOPMENT APPROVAL - *UPDATED ISSUE*

Woodside Energy Ltd Karratha Longterm FIFO Accommodation

LOT 3799 Ranking Road
Gap Ridge

AECOM DOC NO. BV-AEC ANZ-REP-AR-00001-G
DATE - 25/07/18

AECOM | MULTIPLEX

CONTENT

1.0

ARCHITECTURAL DRAWINGS

ACCOMMODATION SCHEDULE

ACCOMMODATION

A□□□mm□d□□□□	D□□□r□□□□□	N□. □□ B□□d□□□□	S□r□□□	R□□m□ □□r F□□□r	T□□□□ R□□m□	L□□□□□	Br□□d□□	GFA (m2)
T□□□A Accommodation Units (In-situ Buildings)	Motel-style walk-up buildings each containing 64 self-contained rooms. Each room (approx.15 m2) containing□king si□e single bed, desk, bedside draws, wardrobe, 80litre bar fridge, block-out blinds, flyscreen TV, A/C and ensuite. Includes corridor and common lounge. Each building includes 1 laundry containing 8 washers and 8 dryers per laundry (□ 1washer/dryer per 8 resident)	3	2	30 / 34	1□2	59	12	4,248
T□□□B Accommodation Units (Modular Buildings)	2-storey prefabricated buildings in clusters of 4 modules, each module containing 4 self-contained rooms per floor. Each room (approx.15 m2) containing□king si□e single bed, desk, bedside draws, wardrobe, 80litre bar fridge, block-out blinds, flyscreen TV, A/C and ensuite.	15.5	2	16	4□6	14.2	4.2	7,395
Accessible Accommodation Units	4 off ground floor prefabricated buildings each containing 3 self-contained rooms. Each room (approx.18 m2) containing a□king si□e single bed, desk, bedside draws, wardrobe, 80litre bar fridge, block-out blinds, flyscreen TV, A/C and ensuite. Covered verandah space attached to each accommodation unit	1	1	12	12	16.2	4.2	272
Laundries	Ground floor laundries, evenly distributed around the village and containing 10 washers and 10 dryers per laundry (□ 1washer/dryer per 8 resident)	6				14.4	3.3	285
TOTAL ACCOMMODATION					□□□			□□53

1.□ ADMINISTRATION

	D□□□r□□□□□	GFA
1.1 S□□□r□□□ O□□□□ □G□□□□□□□□	incl: security manager□s office, kitchenette, CCTV/comms cupboard (may be integrated with Administration building adjacent to vehicular entry).	27
1.2 Adm□□□r□□□□ B□□d□□□	incl: reception/foyer/transit lounge for 50 people, 2p open plan office, 2x enclosed offices, kitchenette, WCs	200
	Unallocated Area	70
	Communications Room, centrally located equipped to provide services for the maximum occupancy of the village.	45
	First Aid Centre incl: Treatment Room, WC, Ambulance parking	65
Adm□□□r□□□□ Ar□□ T□□□□		**4□□**

2.□ RECREATION

	D□□□r□□□□□	GFA
2.1 G□m□□□□m	incl: gym (12x18m) including weights, cardio, aerobic/yoga, 1x office/reception, store,	285
	Toilets (adjacent to pool) and locker room including 50 lockers and 2x male / 2x female showers	75
R□□r□□□□□ F□□□□□ T□□□□		**36□**

3.□ CENTRAL KITCHEN DINER

	D□□□r□□□□□	GFA
3.1 C□□□r□□ K□□□□□ D□□r	Dining Room: assume 60□ occupancy (444 persons)	625
	Servery, general circulation and toilets (toilets to suit 740 people for cyclone refuge)	325
	Crib area	120
	Kitchen: Food prep and cooking, catering office	320
	Kitchen: Store and cool rooms	235
	Ice machine rooms, with veranda, to provide services for 370 persons (to be included in above areas).	
	Receiving area, storage, loading dock and covered waste handling	190
	Unallocated Area	130
TOTAL COMBINED DINER / WET MESS		**1□45**

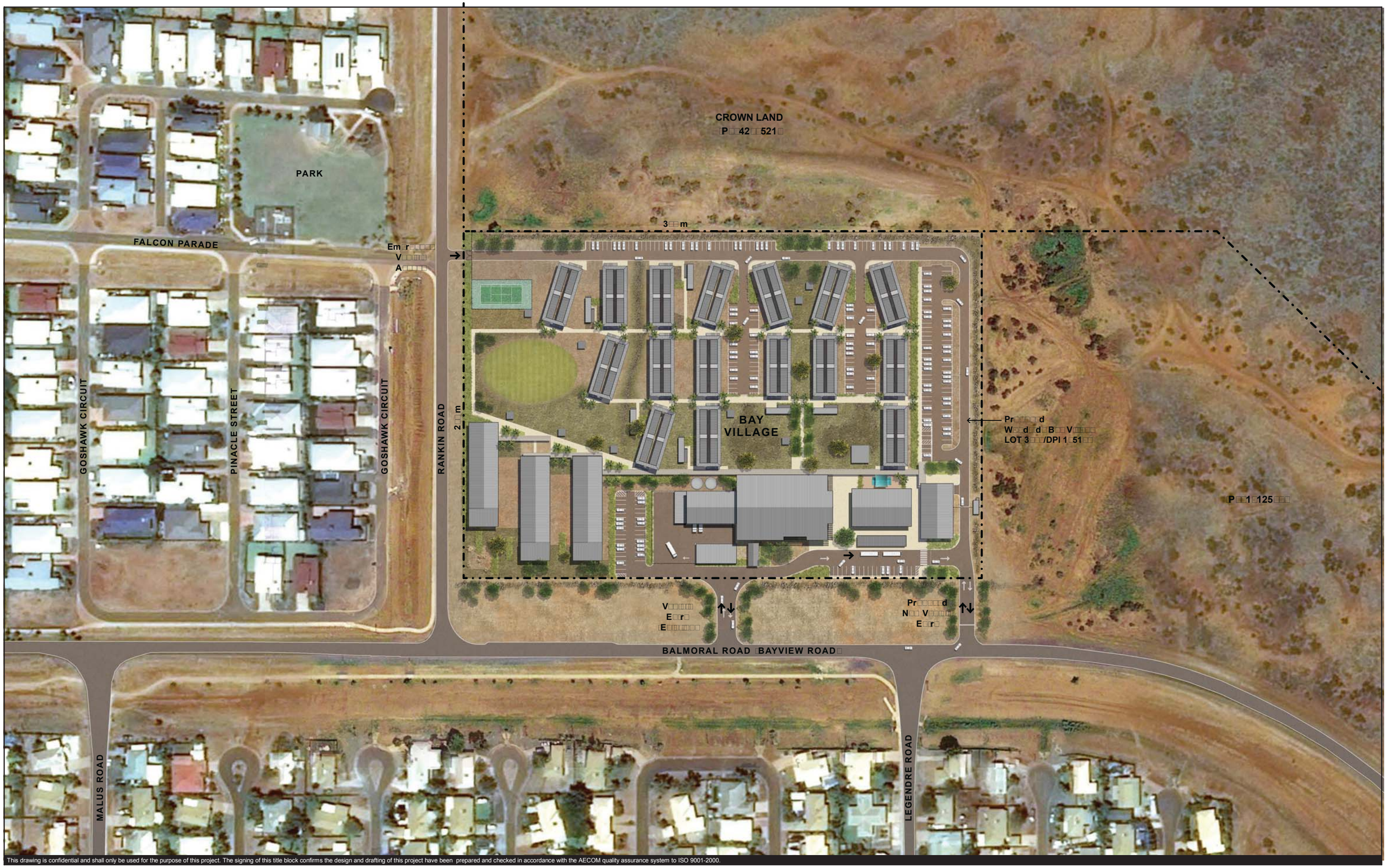
4.□ FACILITIES

	D□□□r□□□□□	GFA
4.1 B□□□ L□□□□ S□□r□	Bulk linen store, dirty linen store, and general store. Ha□ardous chemical cupboards (externally)	110
4.2 M□□□□□□□□□ W□r□□□□□	Workshop and secure storage area including, garden store, maintenance office and workshop. Fenced compound adjacent.	110
4.3 G□r□□□□ □□d R□□□□□□□	Garbage and recycling area	100
F□□□□□□□ M□□□□□m□□□ T□□□		**32□**

CAR PARKING

		N□m□□r
Resident Parking	1 car space per 3 residents	240
Visitor Parking		20
TOTAL NUMBER OF CAR PARKS		**26□**

ISO A1 594mm x 841mm



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AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

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1:100 □ A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
E	25/07/18	REISSUED FOR DA
D	07/06/18	REISSUED FOR DA
C	16/05/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER
60560383

PROJECT PHASE
DA

SHEET TITLE
CONTEXT PLAN

SHEET NUMBER
WBV-AEC-AR-00-010

REVISION
E

ISO A1 594mm x 841mm

CONSULTANT

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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

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ISSUE/REVISION

I/R	DATE	DESCRIPTION
E	25/07/18	REISSUED FOR DA
D	07/06/18	REISSUED FOR DA
C	16/05/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

ILLUSTRATIVE SITE PLAN

SHEET NUMBER WBV-AEC-AR-00-020

REVISION E

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CONSULTANT

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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

□ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60560383

PROJECT PHASE
DA

SHEET TITLE
SITE AXONOMETRIC

SHEET NUMBER
WBV-AEC-AR-00-030

REVISION
C

ISO A1 594mm x 841mm

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

□ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

VILLAGE CENTRE

SHEET NUMBER WBV-AEC-AR-00-031

REVISION C

Last Saved: 25/07/2018 3:51:52 PM
Filename: C:\Users\howardb1\Documents\AR-00-SITE: benhoward8259.rvt

ISO A1 594mm x 841mm

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

□ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60560383

PROJECT PHASE
DA

SHEET TITLE
VILLAGE CENTRE CLOSE UP

SHEET NUMBER
WBV-AEC-AR-00-032

REVISION
C

Last Saved: 25/07/2018 3:51:56 PM
Filename: C:\Users\howardb1\Documents\AR-00-SITE: benhoward8259.rvt

ISO A1 594mm x 841mm

PREVIOUS DESIGN - VIEW RANKIN / BALMORAL (BAYVIEW) ROAD

SINGLE ORIENTATION - INSITU ACCOMMODATION DESIGN (SUPERSEDED)

BUILDING FINISHES, MATERIALS AND LANDSCAPE TREATMENTS CURRENT

NEW DESIGN - VIEW RANKIN / BALMORAL (BAYVIEW) ROAD

'T' ORIENTATION - INSITU ACCOMMODATION DESIGN

NOT REPRESENTATIVE OF LANDSCAPE TREATMENT

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

□ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

RANKIN AND BALMORAL ROAD

SHEET NUMBER WBV-AEC-AR-00-033

REVISION C

Last Saved: 25/07/2018 3:52:00 PM
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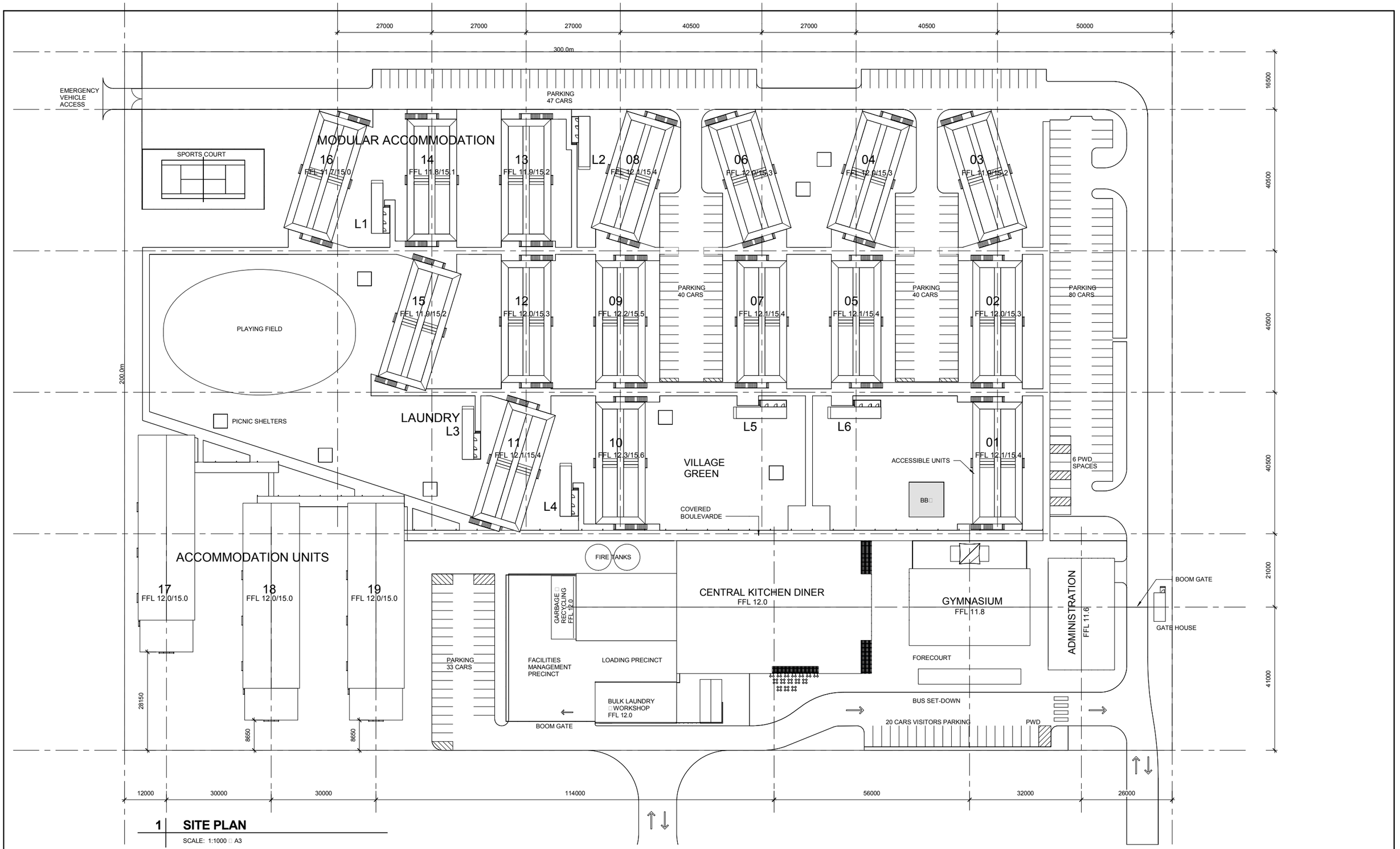
ISO A1 594mm x 841mm



1 SITE PLAN

SCALE: 1:1000 □ A3

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 12500 25000 mm
1:1000 □ A3

ISSUE/REVISION

E	25/07/18	REISSUED FOR DA
D	07/06/18	REISSUED FOR DA
C	16/05/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

SITE PLAN

SHEET NUMBER WBV-AEC-AR-00-100

REVISION E

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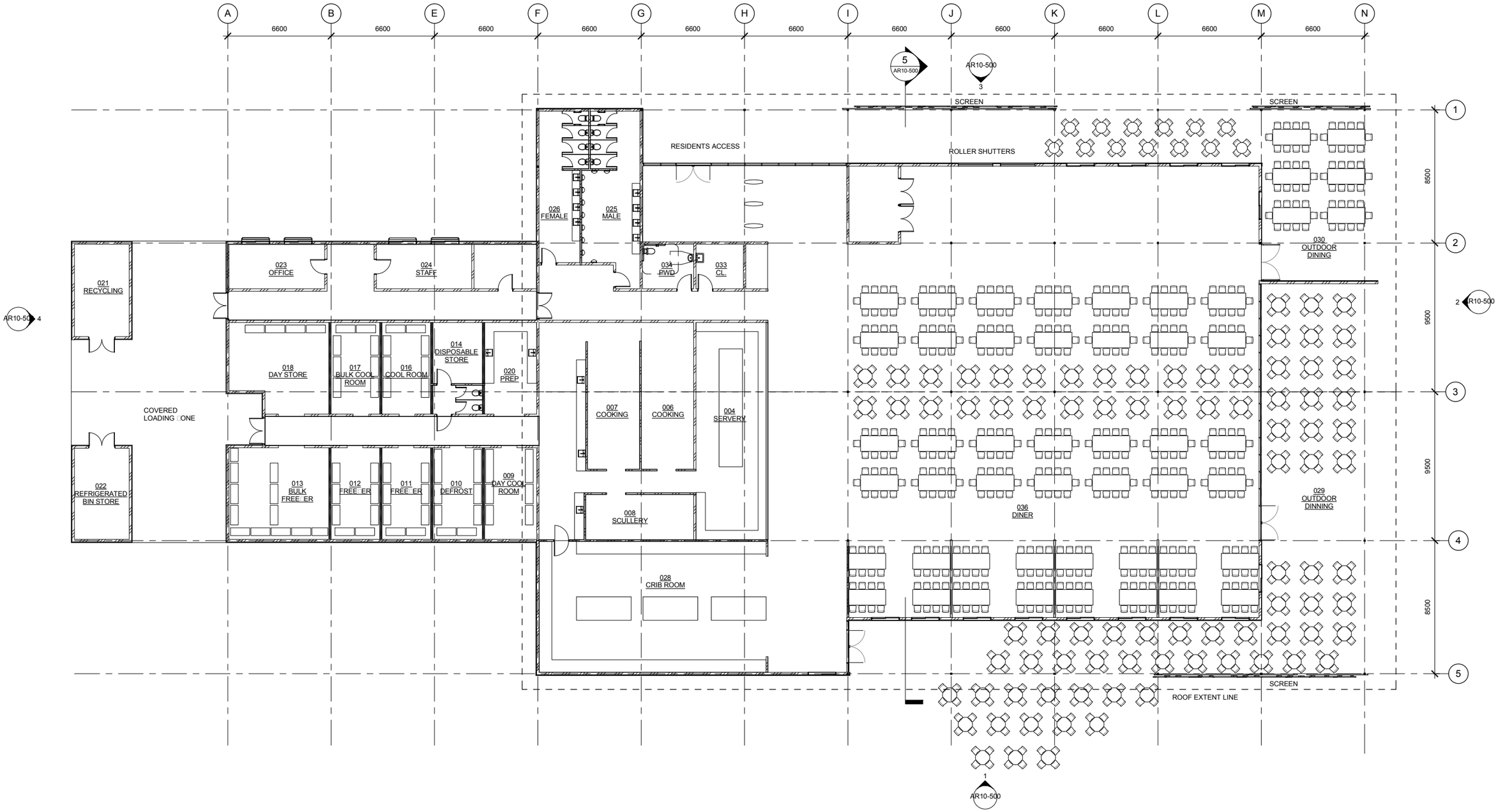
ISO A1 594mm x 841mm



1 CENTRAL KITCHEN DINER FLOOR PLAN

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 @ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

CENTRAL KITCHEN DINER FLOOR PLAN

SHEET NUMBER WBV-AEC-AR-10-100

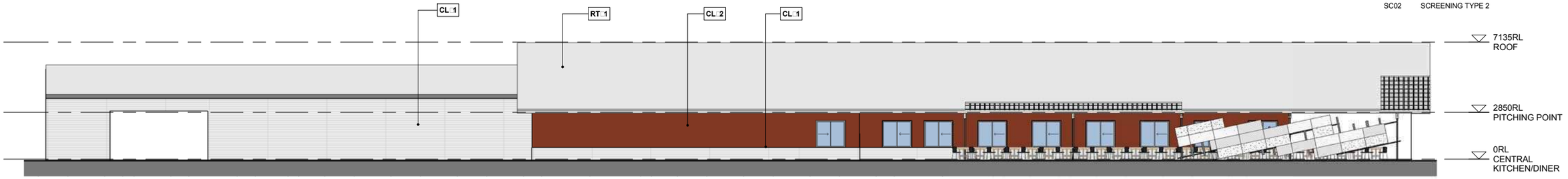
REVISION C

Last Saved: 25/07/2018 3:57:34 PM
Filename: C:\Users\howarb1\Documents\AR-10-KITCHEN DINER- benhoward8259.rvt

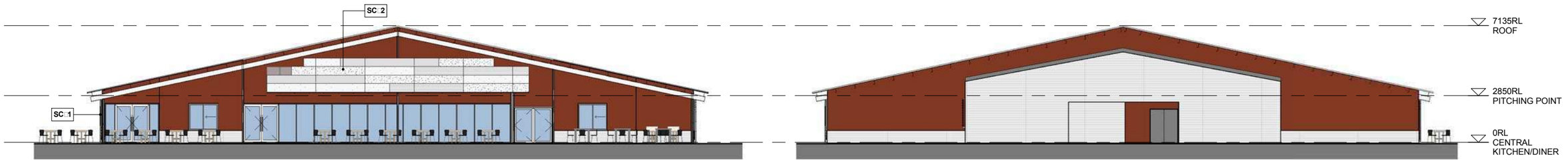
ISO A1 594mm x 841mm

LEGEND

KEY	DESCRIPTION
CL01	CLADDING TYPE 01 (COLORBOND STEEL)
CL02	CLADDING TYPE 02 COMPRESSED FIBRE CEMENT)
RT01	ROOF TYPE 01 (COLORBOND STEEL)
SC01	SCREENING TYPE 1
SC02	SCREENING TYPE 2

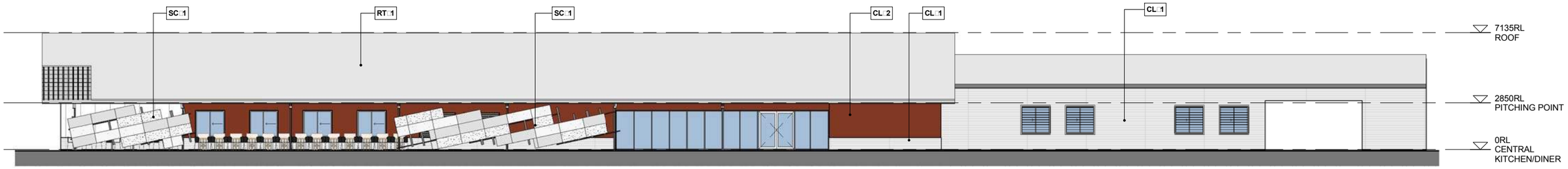


1 CENTRAL KITCHEN DINER □WEST ELEVATION

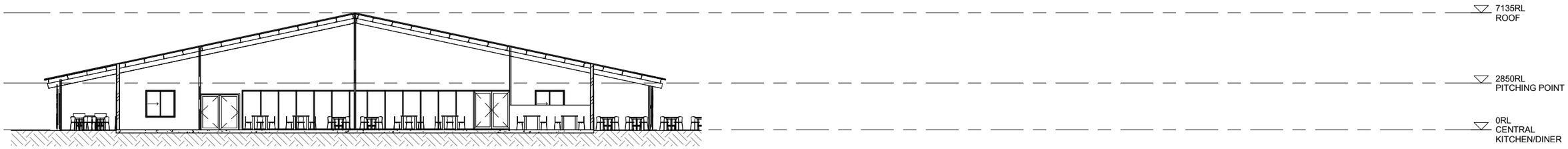


2 CENTRAL KITCHEN DINER □NORTH ELEVATION

4 CENTRAL KITCHEN DINER □SOUTH ELEVATION



3 CENTRAL KITCHEN DINER □EAST ELEVATION



5 CENTRAL KITCHEN DINER □CROSS SECTION

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

CENTRAL KITCHEN DINER ELEVATIONS

SHEET NUMBER WBV-AEC-AR-10-500

REVISION C

Last Saved: 25/07/2018 3:57:42 PM
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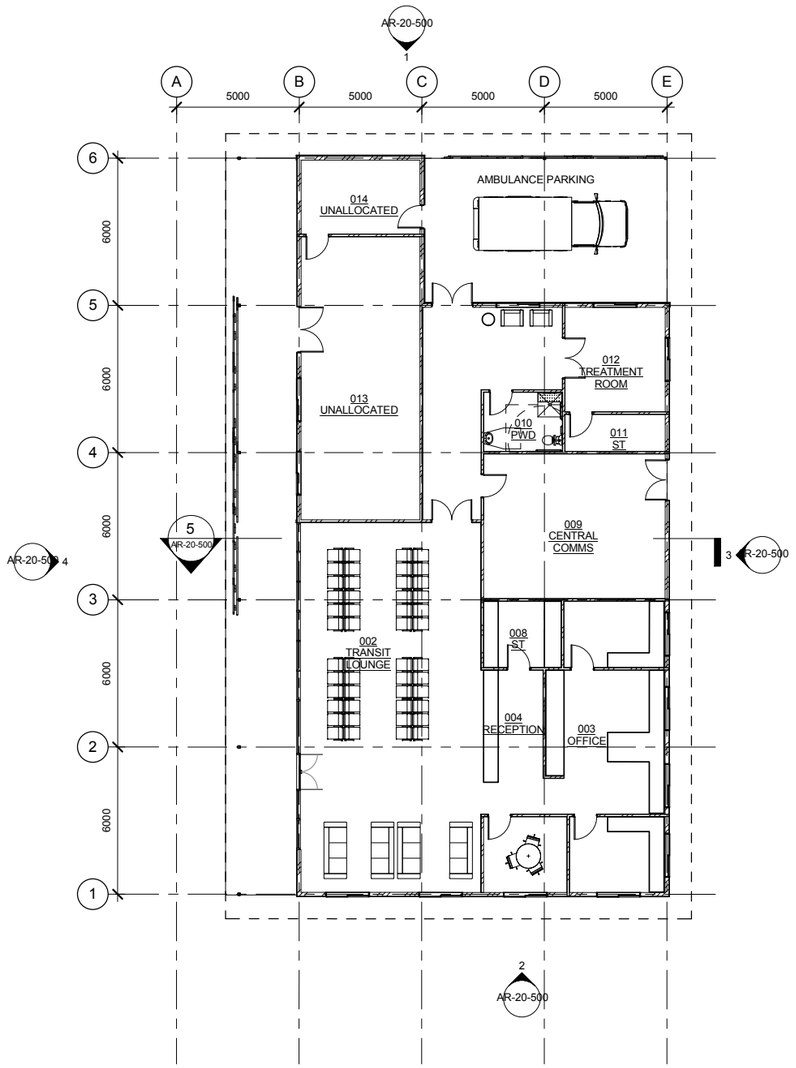
ISO A1 594mm x 841mm



1 ADMINISTRATION □FLOOR PLAN

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
C	25/03/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

ADMINISTRATION - FLOOR PLAN

SHEET NUMBER WBV-AEC-AR-20-100

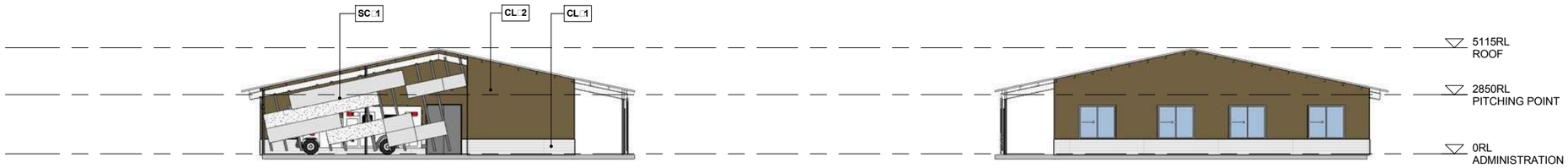
REVISION C

Last Saved: 25/07/2018 3:59:14 PM
Filename: C:\Users\howardb1\Documents\AR-20-ADMINISTRATION_benhoward8259.rvt

ISO A1 594mm x 841mm

LEGEND

KEY	DESCRIPTION
CL01	CLADDING TYPE 01 (COLORBOND STEEL)
CL02	CLADDING TYPE 02 COMPRESSED FIBRE CEMENT)
RT01	ROOF TYPE 01 (COLORBOND STEEL)
SC01	SCREENING TYPE 1

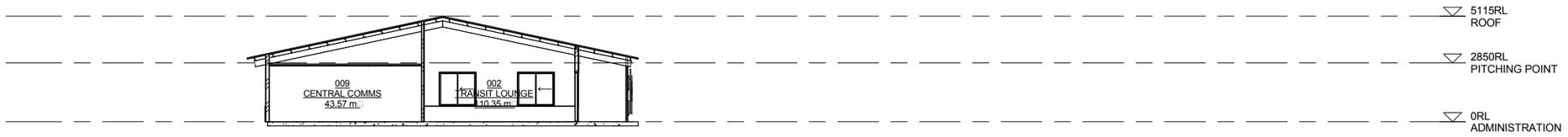


1 ADMINISTRATION WEST ELEVATION

2 ADMINISTRATION EAST ELEVATION

3 ADMINISTRATION NORTH ELEVATION

4 ADMINISTRATION SOUTH ELEVATION



5 ADMINISTRATION CROSS SECTION

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
C	25/03/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

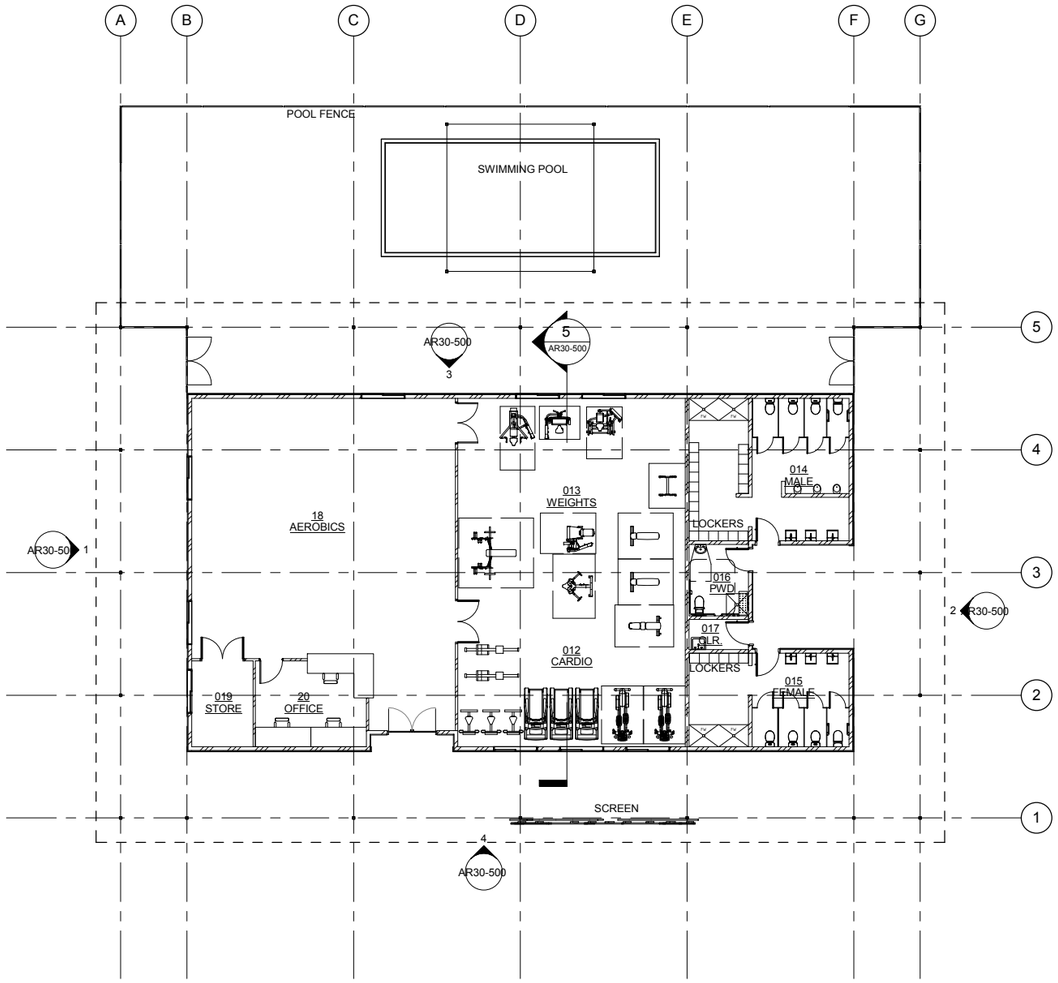
ADMINISTRATION - ELEVATIONS AND SECTION

SHEET NUMBER WBV-AEC-AR-20-500

REVISION C

Last Saved: 25/07/2018 3:59:19 PM
Filename: C:\Users\howarb1\Documents\AR-20-ADMINISTRATION_benhoward8259.rvt

ISO A1 594mm x 841mm



1 GYMNASIUM - FLOOR PLAN

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

D	25/07/18	REISSUED FOR DA
C	25/03/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

GYMNASIUM - FLOOR PLAN

SHEET NUMBER WBV-AEC-AR-30-100

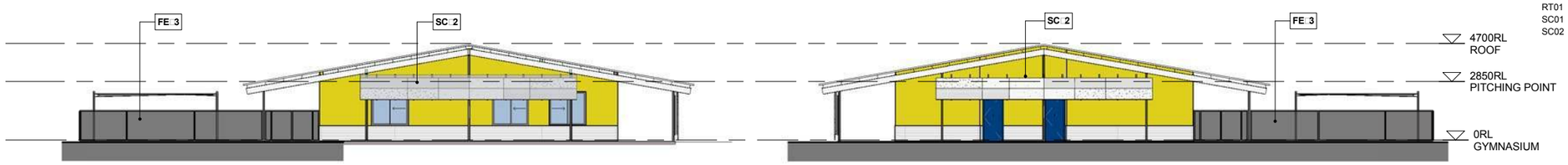
REVISION D

Last Saved: 25/07/2018 4:04:02 PM
Filename: C:\Users\howardb1\Documents\AR-30-GYMNASIUM_benhoward8259.rvt

ISO A1 594mm x 841mm

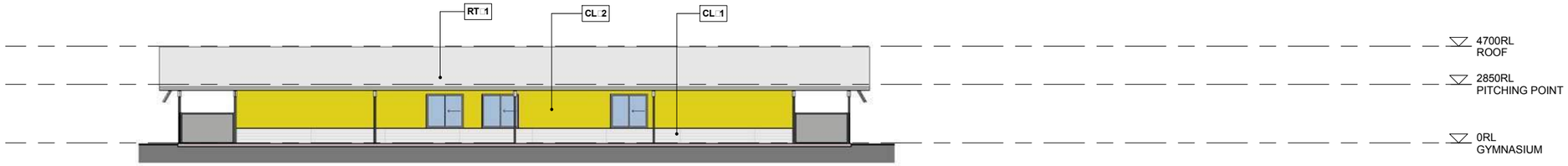
LEGEND

KEY	DESCRIPTION
CL01	CLADDING TYPE 01 (COLORBOND STEEL)
CL02	CLADDING TYPE 02 COMPRESSED FIBRE CEMENT)
FE03	FENCING TYPE 03 (POOL FENCE)
RT01	ROOF TYPE 01 (COLORBOND STEEL)
SC01	SCREENING TYPE 1
SC02	SCREENING TYPE 2

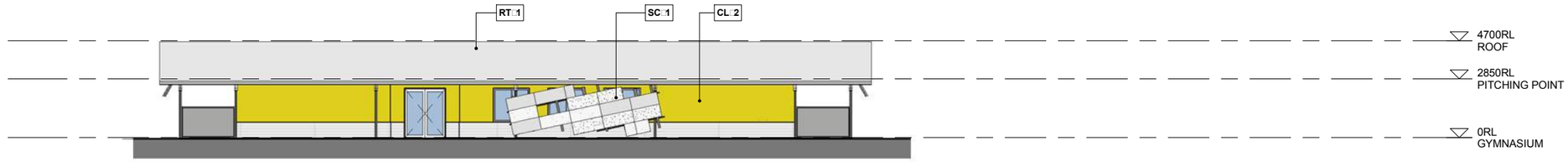


1 GYMNASIUM □SOUTH ELEVATION

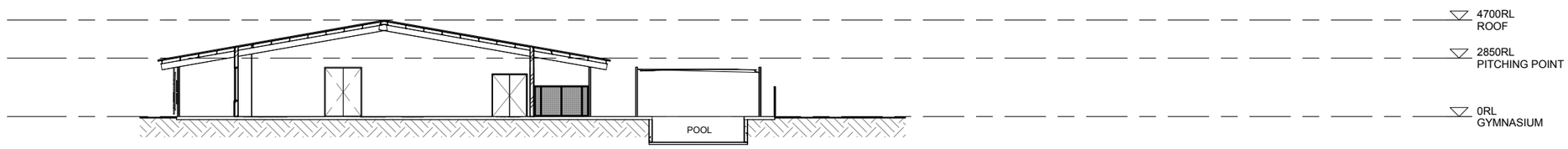
2 GYMNASIUM □NORTH ELEVATION



3 GYMNASIUM □WEST ELEVATION



4 GYMNASIUM □EAST ELEVATION



5 GYMNASIUM □CROSS SECTION

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
D	25/07/18	REISSUED FOR DA
C	25/03/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

GYMNASUM - ELEVATIONS AND SECTION

SHEET NUMBER WBV-AEC-AR-30-500

REVISION D

Last Saved: 25/07/2018 4:04:07 PM
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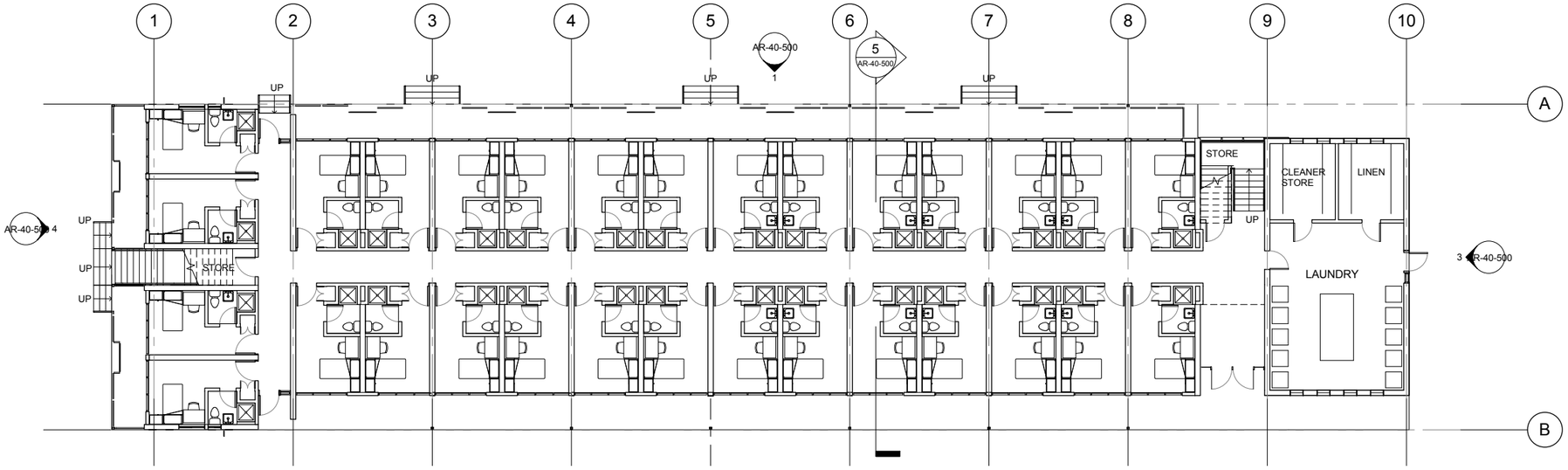
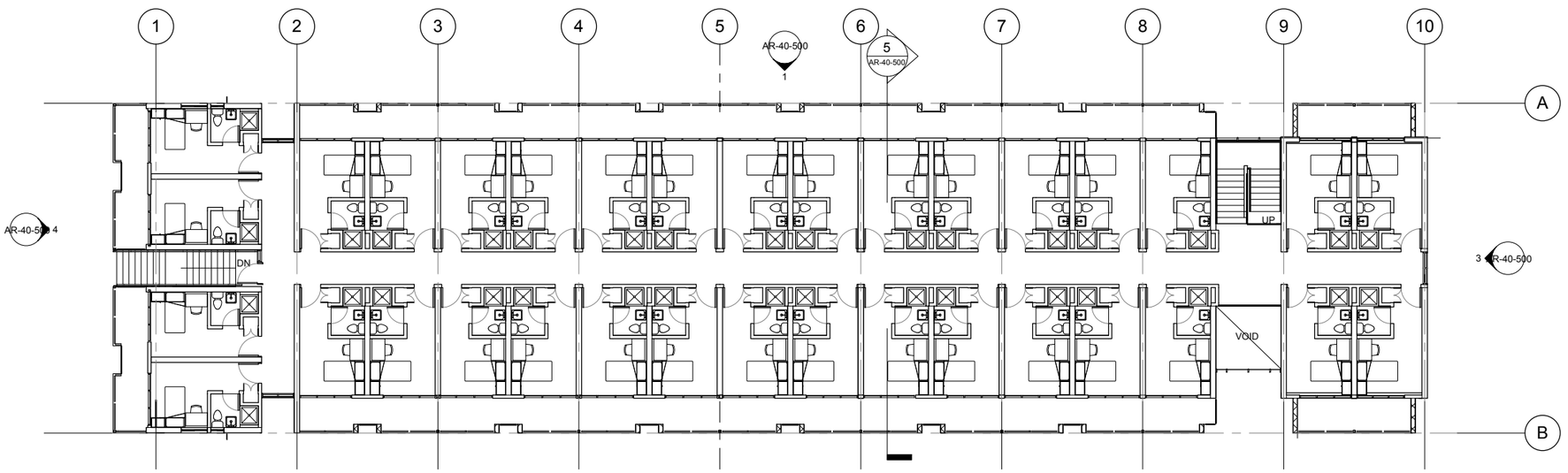


1 UNIT TYPE A □GROUND FLOOR PLAN



2 UNIT TYPE A □LEVEL 1

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

UNIT TYPE A - FLOOR PLAN

SHEET NUMBER WBV-AEC-AR-40-100

REVISION C

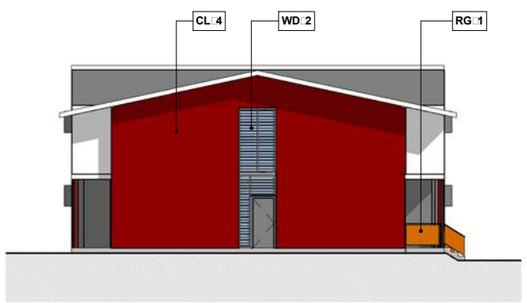
ISO A1 594mm x 841mm

LEGEND

KEY	DESCRIPTION
CL04	CLADDING TYPE 04 (FEAUTRE WALL COLOUR)
CL05	CLADDING TYPE 05 (FEAUTRE PATTERN SCREEN)
CL06	CLADDING TYPE 06 (PERFORATED SCREEN)
CL07	CLADDING TYPE 07 (PROPRIETARY LOUVRE SCREEN)
RG01	RAILING TYPE 01 COLOURED PANEL
RT01	ROOF TYPE 01 (COLORBOND STEEL)
WD01	TYPICAL WINDOW
WD02	LOUVRE WINDOW

1 UNIT TYPE A □NORTH ELEVATION

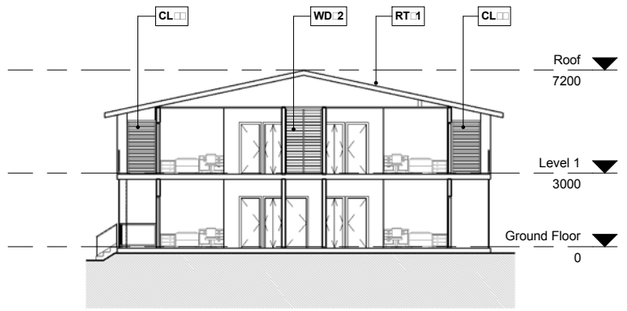
2 UNIT TYPE A □SOUTH ELEVATION



3 UNIT TYPE A □WEST ELEVATION

SCALE: 1 : 125

4 UNIT TYPE A □EAST ELEVATION



5 UNIT TYPE A □CROSS SECTION

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

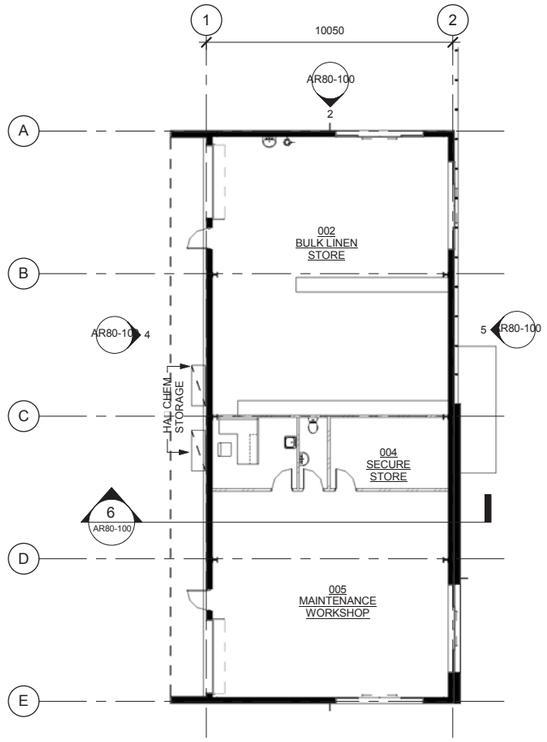
UNIT TYPE A - ELEVATIONS

SHEET NUMBER WBV-AEC-AR-40-500

REVISION C

Last Saved: 25/07/2018 4:01:37 PM
Filename: C:\Users\howardb1\Documents\AR-40-UNIT TYPE A- benhoward8259.rvt

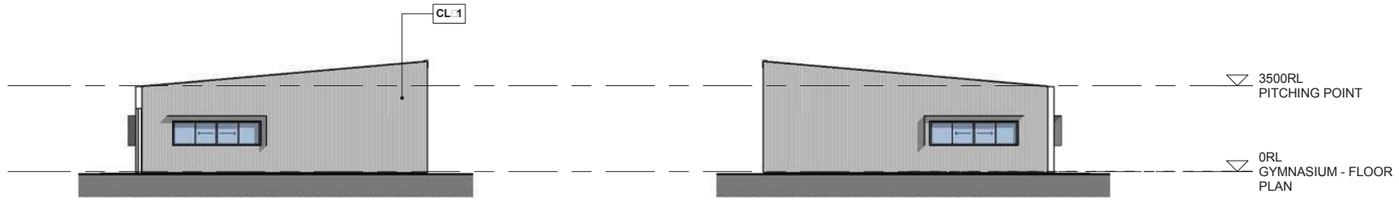
ISO A1 594mm x 841mm



1 BULK LINEN □ WORKSHOP □FLOOR PLAN

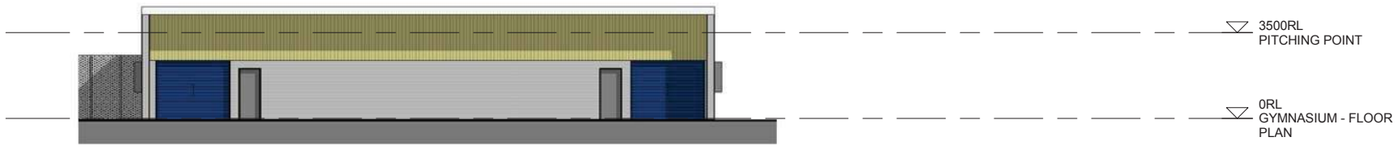
LEGEND

KEY	DESCRIPTION
CL01	CLADDING TYPE 01 (COLORBOND STEEL)
CL05	CLADDING TYPE 05 (FEAUTRE PATTERN SCREEN)
RT01	ROOF TYPE 01 (COLORBOND STEEL)

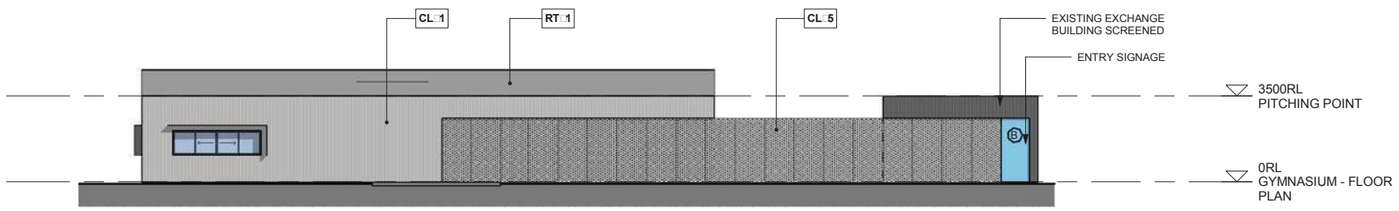


2 BULK LINEN □ WORKSHOP □WEST ELEVATION

3 BULK LINEN □ WORKSHOP □EAST ELEVATION



4 BULK LINEN □ WORKSHOP □SOUTH ELEVATION



5 BULK LINEN □ WORKSHOP □NORTH ELEVATION

CL5 ENTRY SCREEN REFERENCE IMAGES

6 BULK LINEN □ WORKSHOP □CROSS SECTION

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 □ A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

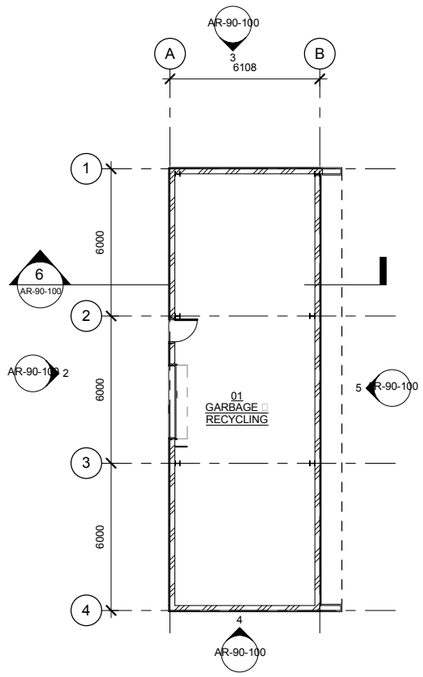
BULK LINEN □ MAINTENANCE WORKSHOP

SHEET NUMBER WBV-AEC-AR-80-100

REVISION B

Last Saved: 25/07/2018 4:06:21 PM
Filename: C:\Users\howardb1\Documents\AR-80-BULK LINEN □ WORKSHOP_benhoward8259.rvt

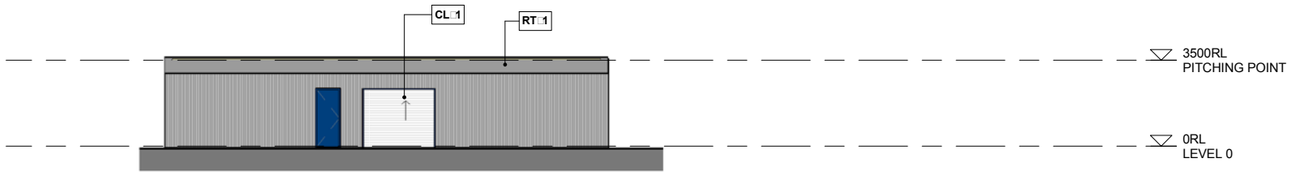
ISO A1 594mm x 841mm



1 GARBAGE RECYCLING FLOOR PLAN

LEGEND

KEY	DESCRIPTION
CL01	CLADDING TYPE 01 (COLORBOND STEEL)
RT01	ROOF TYPE 01 (COLORBOND STEEL)



2 GARBAGE RECYCLING WEST ELEVATION

3 GARBAGE RECYCLING NORTH ELEVATION

4 GARBAGE RECYCLING SOUTH ELEVATION

5 GARBAGE RECYCLING EAST ELEVATION

6 GARBAGE RECYCLING CROSS SECTION

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 3125 6250 mm
1:250 A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
C	25/07/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

GARBAGE RECYCLING

SHEET NUMBER WBV-AEC-AR-90-100

REVISION C

Last Saved: 25/07/2018 4:08:42 PM
Filename: C:\Users\howardb1\Documents\AR-90-GARBAGE RECYCLING - benhoward8259.rvt

EXTERIOR MATERIAL AND FINISHES

Colour Strategy

A colour strategy assists in unifying the disparate parts of the village and establishing a recognisable character and village ‘brand’, while simultaneously defining functional areas and providing clear navigational clues that reinforce the legibility of the master plan.

The Woodside Bay Village colour strategy applies three colour layers to create a unified and functional system of decorative finishes and signage:

1. Village Branding
2. Village centre buildings – external paint colours
3. Accommodation neighbourhoods

Village Branding

The operator has developed the ‘Village Life’ brand to improve the customer experience within Compass sites. It is about providing customer areas with personality and feeling.

The operator’s service and solutions are designed to stand out from the competition. When embraced and rolled out successfully, they have the power to change the way customers feel about the operator and the place in which they work and live.

The ‘Village Life’ brand is defined by a unique collection of colours, design and graphic elements. A strong visual identity establishes brand recognition, and consistently reinforces the brand to its intended audience.

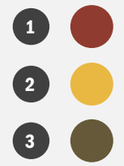
The colour palette mixes earthy and rustic colours together with cool blues and greens to create a feeling of comfort and richness.

Village Centre Buildings

Individual buildings within the Village Centre will be painted externally in a range of colours that signify each buildings particular use. In time each building’s unique colour will come to be associated with the building’s function and help to create landmarks and visual clues that assist in way-finding.

The colours of the Village Centre Buildings are a derived from the Village Life colour palette, and contribute to Bay Village’s overall visual identity.

Colorbond roofs and dados, with a subtle variation of neutral colours, reflect a regional vernacular architecture and create a consistent, low-maintenance thematic base that unites the collective buildings and provides a base for the bespoke colour variations provided by the painted surfaces.



Kitchen / Diner
carmen miranda

Gymnasium
midas touch

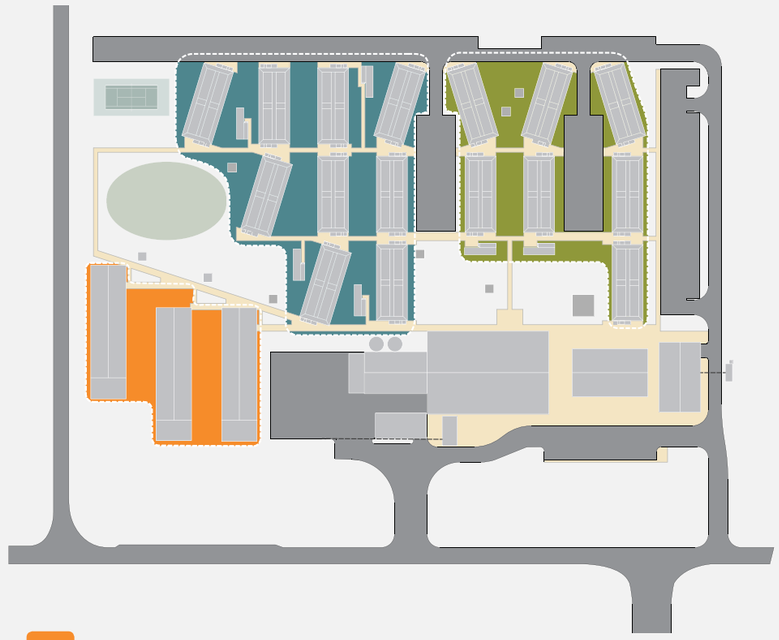
Administration
beach casuarina

Accommodation Neighbourhoods

The accommodation units are divided into four separate neighbourhoods, each distinguished by a unique colour palette. Roofs will be finished in a range of Colorbond colours each selected to provide subtle variation while minimising heat loads on the buildings.

Primary colours of the Village Life brand will be carried throughout the village, applied to signage and built elements.

Neighbourhoods will be identified by one of four bold colours, applied to veranda screens and walls with bold super-graphics, ensuring that each neighbourhood is unified, identifiable and unique.



Neighbourhood A

Neighbourhood B

Neighbourhood C

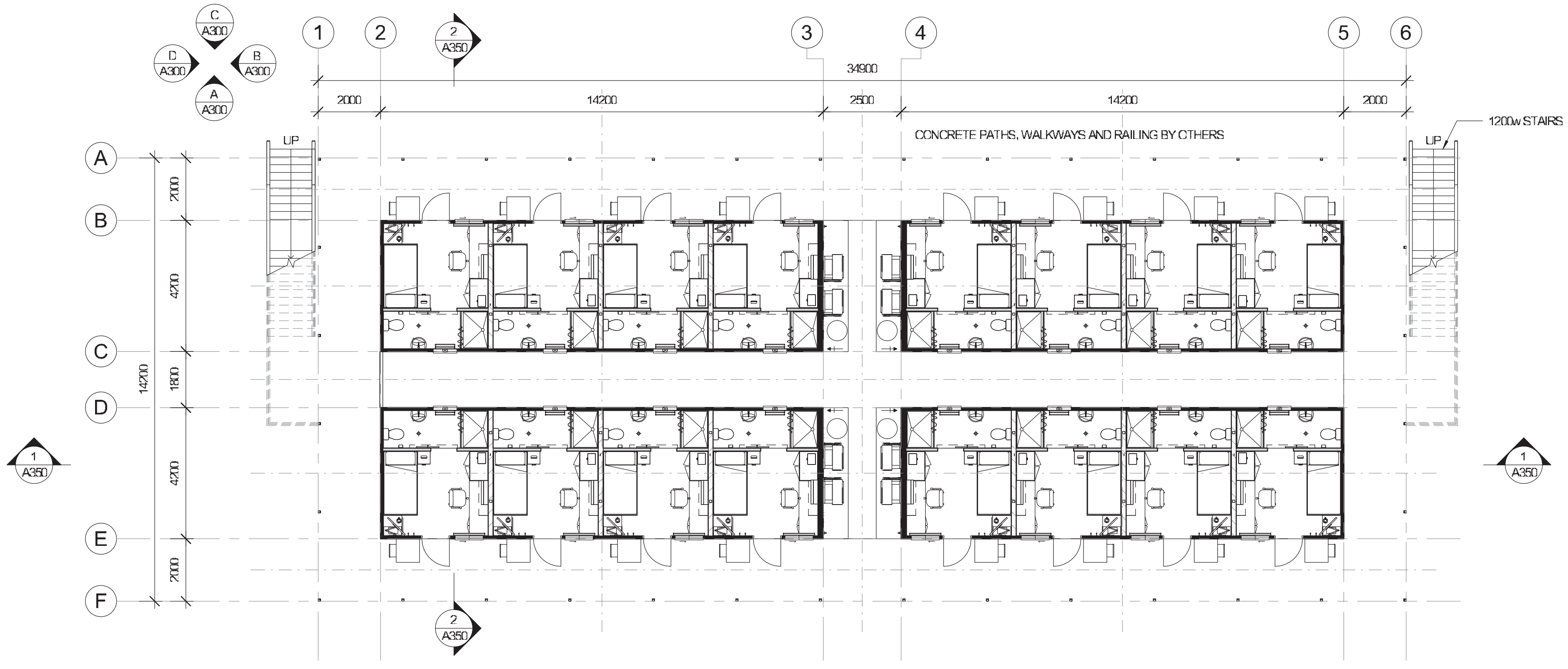
ATCO MODULAR

ISSUED FOR REVIEW

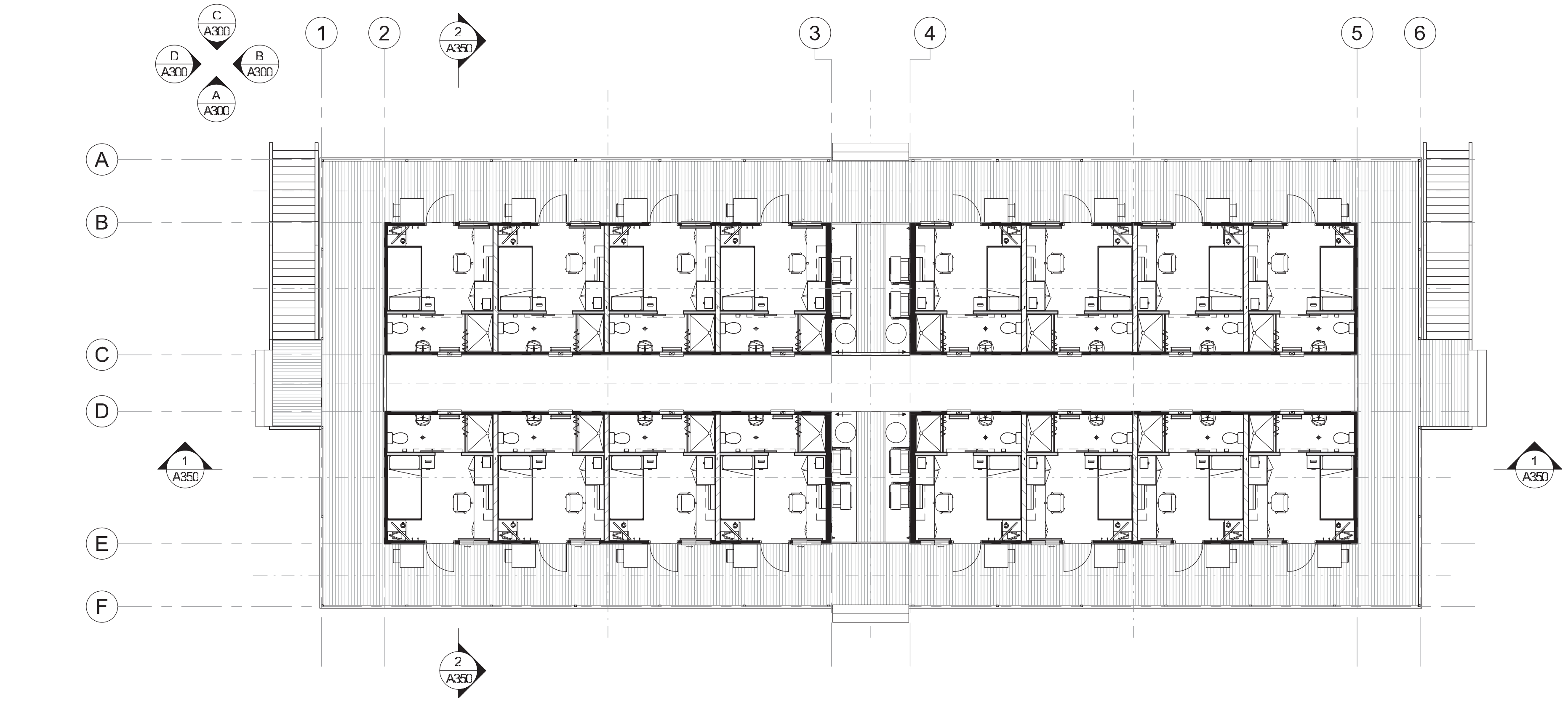
WIND REGION:		D
TERRAIN CATEGORY:		2
IMPORTANCE LEVEL:		2
SHIELDING FACTOR:		NS
BUILDING CLASS:		3
FLOOR LOADS	DISTRIBUTED (kPa):	3
	CONCENTRATED (kN):	2.7
CLIMATE ZONE:		1

NORTH

FLOOR LOADS CALCULATED FROM AS1170.1 - 2002. WIND SPEED CALCULATED FROM AS1170.2 - 2011. BUILDING CLASS, IMPORTANCE LEVEL, PROBABILITY OF EXCEEDANCE, WIND REGION, TERRAIN CATEGORY, TOPOGRAPHIC CLASIFICATION, SHIELDING FACTOR, CLIMATE ZONE & NORTH POINT ARE ASSUMED UNLESS OTHERWISE ADVISED BY CLIENT.



1 PLAN - GROUND FLOOR
1 : 100



2 PLAN - FIRST FLOOR
1 : 100

FINISHES SCHEDULE	
FLOOR COVERING	2mm VINYL TO BEDROOM
FLOOR COVERING	2mm VINYL - SLIP RESISTANT TO BATHROOM
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (QUADSHIELD, 2 LAYERS EACH SIDE)
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)
CEILING LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (FIRESHIELD), PAINTED TO GROUND FLOOR 10mm PLASTERBOARD, PAINTED TO FIRST FLOOR
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

ITEM LIST

ITEM	QTY	DESCRIPTION
Electrical Equipment		
EE1	32	TELEVISION - FLAT SCREEN - 32" (81cm) (BY OTHERS)
EE2	32	REFRIGERATOR - 115Ltr
EE3	32	KETTLE, CORDLESS, ELECTRIC
EE4	32	ELECTRIC CLOCK / RADIO
EE5	32	DVD PLAYER
Fire Alarm Devices		
FE1	8	FIRE EXTINGUISHER - 4.5Kg ABE w/ SIGNAGE & HEAVY DUTY BRACKET
Furniture		
F1	32	BED, KING SIZE SINGLE ENSEMBLE
F2	32	WARDROBE - 1950H x 950W x 600D w/ SHELVES & HANGING SPACE (w/ 8 ANTI THEFT HANGERS), DIVIDED IN HALF (HORIZONTALLY)
F3	32	BEDSIDE CABINET w/ 2 DRAWERS - 580H x 400W x 400D (SUPPLIED LOOSE)
F4	32	600H x 400W -SHAVING CABINET w/ MIRROR TO FRONT FACE
F5	32	CHAIR, HIGH BACK, OFFICEI
F6	32	DESK w/ CUPBOARDS UNDER & SHELF OVER
F7	32	SHELF (FOR SET TOP BOX)
F8	32	TABLE, OUTDOOR - 750 x 750
F9	32	CHAIR, PVC, STACKABLE
F10	32	SHOWER CURTAIN
F11	32	FRIDGE RECESS CABINET w/ CABLE ENTRY TO TOP - 900H x 673W x 600D
Generic Models		
	2	
Plumbing Fixtures		
P1	32	WC SUITE (VC BASE, PVC CISTERN, PVC SEAT) (4.5/3Ltr FLUSH)
P2	32	SHOWER BASE, ACRYLIC FIBREGLASS - 900 x 1200 w/ STAINLESS STEEL ROUNDED CORNER BASKET, ADJUSTABLE ARM SHOWER ROSE & MIXER
P3	32	HAND BASIN, VITREOUS CHINA
P4	32	FLOOR WASTE
P5	8	HOT WATER SYSTEM - 250Ltr, 1x3.6kW
P6	8	HOSE TAP w/ VACUUM BREAKER
P7	8	WATER INLET w/ LINE STRAINER
Specialty Equipment		
SP1	32	TOWEL RAIL, DOUBLE, CHROME - 600mm
SP3	96	COAT HOOK, CHROME
SP5	32	SAFE, DIGITAL - FIXED IN WARDROBE
SP6	32	TV WALL BRACKET, FULL MOTION, EXTENDABLE

CONFIRM DETAILS OF SET OUTS, LEVELS AND CRITICAL DIMENSIONS ON SITE PRIOR TO SHOP DRAWINGS AND FABRICATION
QUALITY CERTIFIED TO AS/NZS ISO 9001:2008 BY SCI-QUAL INTERNATIONAL REGN No. 531
DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS OVERALL DIMENSIONS EXCLUDE EXTERNAL CLADDINGS U.N.O.
ALL CONSTRUCTION TO COMPLY WITH NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND APPLICABLE AUSTRALIAN STANDARDS

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	Date		

ATCO Structures & Logistics
ATCO STRUCTURES & LOGISTICS PTY. LTD.
149-151 MAGNESIUM DRIVE,
CRESTMEAD, QLD 4132
P.O. BOX 1171, BROWNS PLAINS BC, QLD 4118
E-mail: atcosales@atcosl.com.au
PHONE: (07) 3412 8600
FAX: (07) 3803 0175
ABN: 71 083 902 309

CLIENT: MULTIPLEX
DESCRIPTION: MODULAR ACCOMMODATION POD
ADDRESS: CNR. BALMORAL RD & RANKIN RD KARRATHA, W.A.6714
TITLE: PLAN
PROJECT No.
SCALE AT A1: 1 : 100
DRAWING NUMBER: 170919C -A200
REVISION: A

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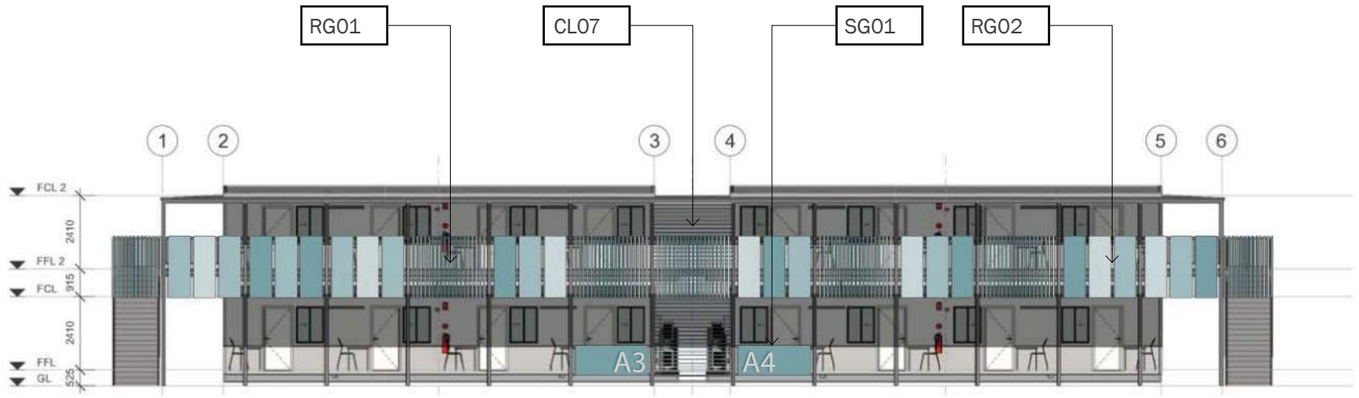
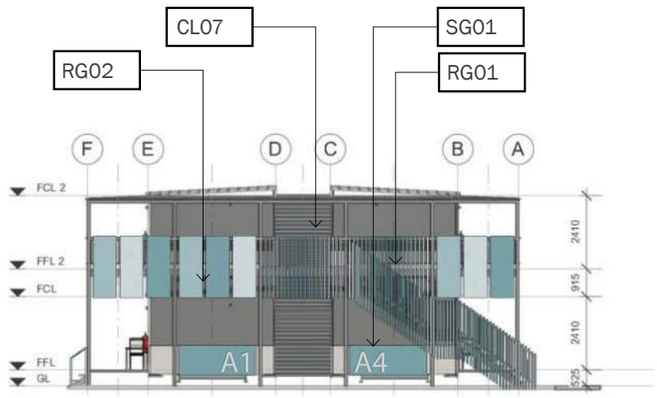
ISSUED FOR REVIEW

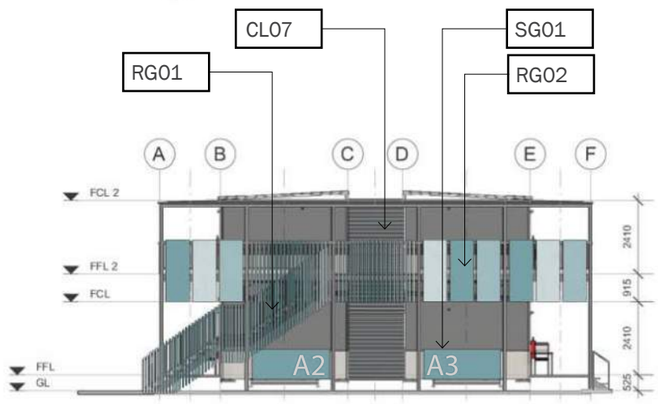


A ELEVATION
A200 1 : 100



B ELEVATION
A200 1 : 100

C ELEVATION
A200 1 : 100



D ELEVATION
A200 1 : 100

RG01 COLOURED VERTICAL BALUSTERS

RG02 COLOURED PANEL BALUSTRADE

SG01 BUILDING WAYFINDING SIGN

CL07 PROPRIETARY LOUVRE SCREEN

CONFIRM DETAILS OF SET OUTS, LEVELS AND CRITICAL DIMENSIONS ON SITE PRIOR TO SHOP DRAWINGS AND FABRICATION
QUALITY CERTIFIED TO AS/NZS ISO 9001:2008
BY SO-QUAL INTERNATIONAL REGN No. 531
DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS
OVERALL DIMENSIONS EXCLUDE EXTERNAL CLADDINGS U.N.O.
ALL CONSTRUCTION TO COMPLY WITH NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND APPLICABLE AUSTRALIAN STANDARDS

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	Date		

ATCO Structures & Logistics
ATCO STRUCTURES & LOGISTICS PTY. LTD.
149-151 MAGNESIUM DRIVE,
CRESTMEAD, QLD 4132
P.O. BOX 1171, BROWNS PLAINS BC, QLD 4118
E-mail: atcostrata@atco.com.au
PHONE: (07) 3412 8500
FAX: (07) 3800 2175
ABN: 71 060 902 595

CLIENT: MULTIPLEX
DESCRIPTION: MODULAR ACCOMMODATION POD
ADDRESS: CNR. BALMORAL RD & RANKIN RD KARRATHA, W.A.6714

TITLE: ELEVATIONS
PROJECT No.:
SCALE AT A1: 1 : 100
DRAWING NUMBER: 170919C -A300
REVISION: A

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ISSUED FOR REVIEW

BASEFRAME SCHEDULE	
DESCRIPTION	BACK TO BACK
250 UB SKID BEAMS	2200

FLOORING SCHEDULE	
ITEM	DESCRIPTION
FLOOR - 100mm JOISTS, 17mm	PLY WITH VINYL E/E
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
INSULATION - UNDER FLOOR	R2.1 HEAVY DUTY FOIL FACED BATTS
FLOORING	17mm F11 T□G PLYWOOD
FLOOR COVERING	2mm VINYL
FLOOR - 100mm JOISTS, 18mm	CFC WITH SR VINYL E/E
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
INSULATION - UNDER FLOOR	R2.1 HEAVY DUTY FOIL FACED BATTS
FLOORING	18mm COMPRESSED FIBRE CEMENT (CFC)
FLOOR COVERING	2mm VINYL - SLIP RESISTANT

WALL SCHEDULE	
ITEM	DESCRIPTION
WALL - EXT SR VBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
WALL - INT PBD / FC	
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	10mm PLASTERBOARD
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
WALL - INT SR VBD/ VBD (Rw□Ctr 50) 90/90/90	
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R1.8 BATTS
WL1	
WALL - EXT PBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
SISALATION	
THERMAL BREAK BETWEEN FRAMING □ CLADDING	
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
WL2	
WALL - EXT SR PBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
WL3	
WALL - INT SR PBD/ PBD (Rw□Ctr 50) 90/90/90	
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R1.8 BATTS

CEILING □ ROOF SCHEDULE	
ITEM	DESCRIPTION
CEILING - 100mm w/ PLASTERBOARD LINING (GROUND FLOOR FRL 30)	
CEILING LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (FIRESHIELD), PAINTED TO GROUND FLOOR 10mm PLASTERBOARD, PAINTED TO FIRST FLOOR
JOIST	100mm JOIST
ROOF - W.A. SUPERDEK (0.48mm) w SISALATION	
INSULATION	R2.5 FOIL BACKED FIBREGLASS INSULATION
SISALATION	
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

FINISHES SCHEDULE		
ITEM	DESCRIPTION	COLOUR/ TREATMENT
FLOOR COVERING	2mm VINYL	LIGHT GREY
FLOOR COVERING	2mm VINYL - SLIP RESISTANT	SILVER
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL	DUNE
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL	SURFMIST
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED	
WALL LINING - INTERNAL	10mm PLASTERBOARD	
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)	
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)	
SKIRTING	66x11mm TREATED PINE, PAINTED	T.B.A. (GLOSS)
SKIRTING	COVED VINYL	
WALL JOINT - FC OR PLASTERBOARD LINING	PVC	GREY
WALL JOINT - FC OR PLASTERBOARD LINING	FLUSH SET, PAINTED	-
CORNICE - FC OR PLASTERBOARD LINING	55mm PLASTERBOARD CORNICE, PAINTED	T.B.A. (GLOSS)
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED	BLACK
CEILING LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (FIRESHIELD), PAINTED TO GROUND FLOOR 10mm PLASTERBOARD, PAINTED TO FIRST FLOOR	T.B.A.
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING	□INCALUME
	Rendering appearance not upgraded	
EXTERNAL DOOR LEAF	COLORBOND	T.B.A.
EXTERNAL DOOR FRAME	COLORBOND	T.B.A.
WINDOW FRAME	POWDERCOATED	BLACK
WINDOW ARCHITRAVE	PVC	GREY

FASCIA	COLORBOND - T.B.A.

SITE NOTES

MISCELLANEOUS NOTES

FITTINGS SCHEDULE		
ITEM	DESCRIPTION	□TY
Electrical Equipment		
EE1	TELEVISION - FLAT SCREEN - 32" (81cm) (BY OTHERS)	3
EE2	REFRIGERATOR - 115Ltr	3
EE3	KETTLE, CORDLESS, ELECTRIC	3
EE4	ELECTRIC CLOCK / RADIO	3
EE5	DVD PLAYER	3
Electrical Fixtures		
	ISOLATION SWITCH FOR AIR CONDITIONER	3
	ISOLATION SWITCH FOR HOT WATER SYSTEM	1
Fire Alarm Devices		
FE1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE	1
Furniture		
F1	BED, KING SI□E SINGLE ENSEMBLE	3
F2	DISABLED WARDROBE MIRROR INSIDE (800x600) - 2 DRAWERS	3
F3	BEDSIDE CABINET w/ 2 DRAWERS - 580H x 400W x 400D (SUPPLIED LOOSE)	3
F4	1800W x 600D DISABLED STEPPED DESK (FRIDGE RECESS)	3
F5	SHELF (FOR SET TOP BOX)	3
F6	TABLE, OUTDOOR - 600 x 600	3
F7	CHAIR, PVC, STACKABLE	3
Plumbing Fixtures		
F8	DISABLED VANITY UNIT w/ LAMINATED BENCH TOP □ 1000 x 600 MIRROR OVER	3
P1	WC SUITE, AS1428.1: 2009 COMPLIANT - c/w TOILET ROLL HOLDER, GRAB RAILS □ BACKREST	3
P2	SHOWER, DISABLED c/w FOLD-UP SEAT, GRAB RAILS □ COAT HOOKS	3
P4	FLOOR WASTE	3
P5	HOT WATER SYSTEM, MOUNTED EXTERNALLY - 250Ltr, 1x3.6kW (SUPPLIED LOOSE FITTED ON SITE))	1
P6	HOSE COCK w/ VACUUM BREAK	1
P7	WATER INLET c/w LINE STRAINER	1
Specialty Equipment		
SP1	CHROME PLATED TOWEL RAIL - 600mm	3
SP2	SAFE, DIGITAL - FIXED IN WARDROBE	3
SP3	COAT HOOK, CHROME	2
SP3	TV WALL BRACKET, FULL MOTION, EXTENDABLE	3

DOOR SCHEDULE												
	DOOR LEAF			DOOR FRAME	DOOR HARDWARE					□TY	
		SI□E			HANDLE TYPE	LOCKING	CLOSER	PANIC BAR	SEALS		
No.	DOOR LEAF	H	W								COMMENTS
D01	POLY CORE MC	2043	881	ALUMINIUM	LEVER	ENTRANCE	Yes	No	E/E SEALS	3	DOOR STOP, SWIPE ACCESS MORTICE LOCK (FREE ISSUED TO ATCO)
D02	HOLLOW CORE	2040	1200			PRIVACY	No	No		3	w/ FLUSH PUSH HANDLE

WINDOW SCHEDULE										
			SI□E							
No.	TYPE	GLA□ING	H	W	SILL HEIGHT	MOULDS	SECURITY	CURTAINS	□TY	COMMENTS
W01	SLIDING	LAMINATED COMFORT PLUS GLASS	1200	908	900	ALUMINIUM	-	BLACK OUT BLINDS	3	
W02	SLIDING	LAMINATED COMFORT PLUS GLASS	350	750	1600	ALUMINIUM	-	-	3	

MECHANICAL SCHEDULE				
No.	DESCRIPTION	SILL HEIGHT	□TY	COMMENTS
M1	AIR CONDITIONER, SPLIT SYSTEM, INVERTER - 2.5kW R/C	2035	3	
M2	EXHAUST FAN, WALL MOUNTED	1960	3	

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	04.12.17	IK	OJ

ATCO Structures & Logistics
ATCO STRUCTURES & LOGISTICS PTY. LTD.
28 ARMSTRONG ROAD,
HOPE VALLEY, WA 6165
PO BOX 40, WATTLEUP, WA 6166
E-mail: atcowa@atcosl.com.au
PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX
DESCRIPTION: 15.5 x 4.2m 3P ACCESSIBLE ACCOMMODATION
ADDRESS: CNR, BALMORAL RD □ RANKIN RD KARRATHA, W.A.6714

TITLE: SALES SCHEDULES 1 OF 1
PROJECT No.: -
SCALE AT A1
DRAWING NUMBER: 170917D -A500
REVISION: A

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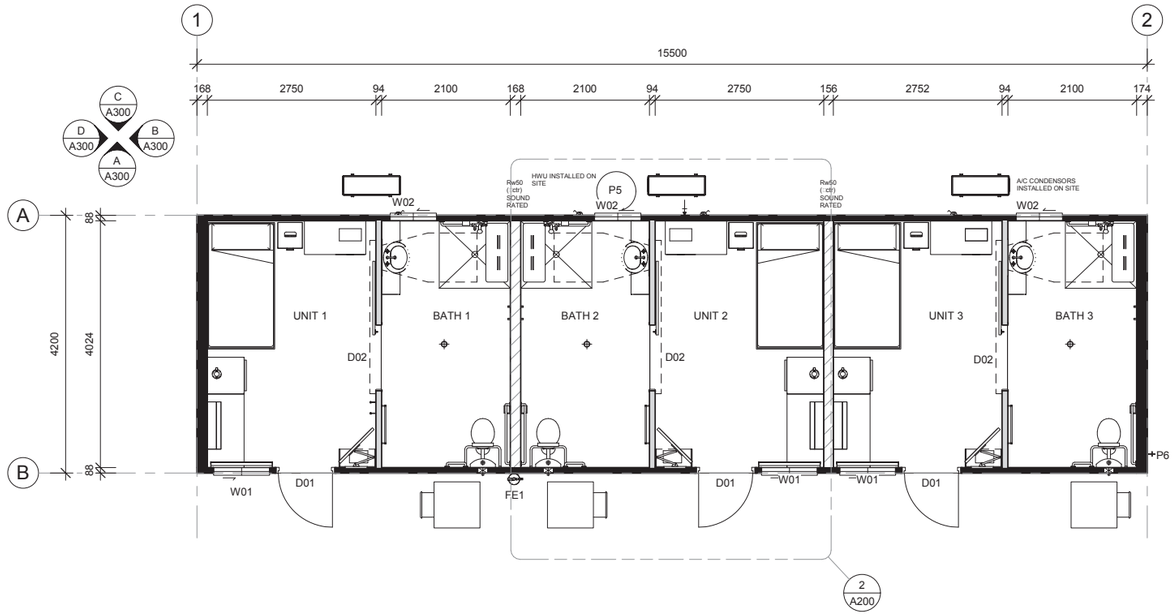
ISSUED FOR REVIEW

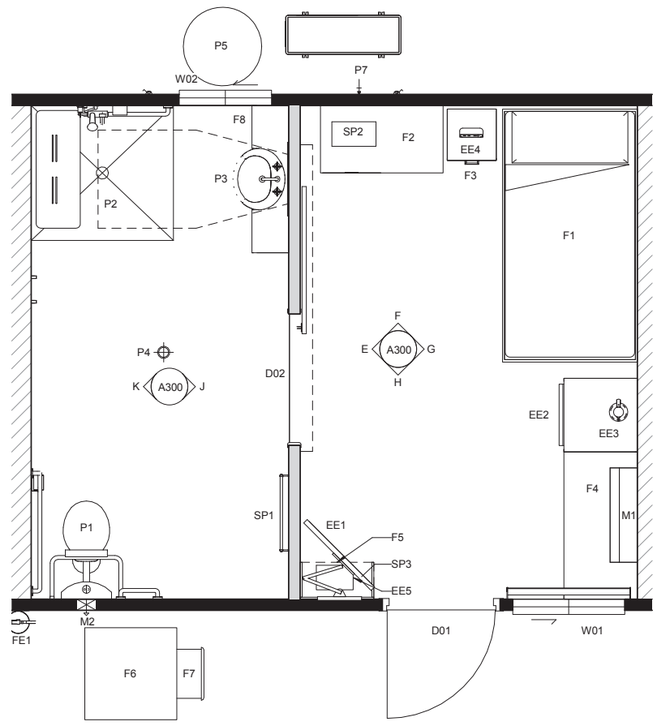
WIND REGION:	D	
TERRAIN CATEGORY:	2	
IMPORTANCE LEVEL:	2	
SHIELDING FACTOR:	NS	
BUILDING CLASS:		
FLOOR LOADS — DISTRIBUTED (kPa):	3	
FLOOR LOADS — CONCENTRATED (kN):	3	
CLIMATE □ONE:	1	

NORTH

FLOOR LOADS CALCULATED FROM AS1170.1 - 2002. WIND SPEED CALCULATED FROM AS1170.2 - 2011. BUILDING CLASS, IMPORTANCE LEVEL, PROBABILITY OF EXCEEDANCE, WIND REGION, TERRAIN CATEGORY, TOPOGRAPHIC CLASIFICATION, SHIELDING FACTOR, CLIMATE □ONE □ NORTH POINT ARE ASSUMED UNLESS OTHERWISE ADVISED BY CLIENT.



1 FLOOR PLAN
1 : 50



2 ROOM DETAIL
A200 1 : 25

ITEM	□TY	DESCRIPTION
ITEM LIST		
Electrical Equipment		
EE1	3	TELEVISION - FLAT SCREEN - 32" (81cm) (BY OTHERS)
EE2	3	REFRIGERATOR - 115Ltr
EE3	3	KETTLE, CORDLESS, ELECTRIC
EE4	3	ELECTRIC CLOCK / RADIO
EE5	3	DVD PLAYER
Fire Alarm Devices		
FE1	1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE
Furniture		
F1	3	BED, KING SI□E SINGLE ENSEMBLE
F2	3	DISABLED WARDROBE MIRROR INSIDE (800x600) - 2 DRAWERS
F3	3	BEDSIDE CABINET w/ 2 DRAWERS - 580H x 400W x 400D (SUPPLIED LOOSE)
F4	3	1800W x 600D DISABLED STEPPED DESK (FRIDGE RECESS)
F5	3	SHELF (FOR SET TOP BOX)
F6	3	TABLE, OUTDOOR - 600 x 600
F7	3	CHAIR, PVC, STACKABLE
Plumbing Fixtures		
F8	3	DISABLED VANITY UNIT w/ LAMINATED BENCH TOP □ 1000 x 600 MIRROR OVER
P1	3	WC SUITE, AS1428.1: 2009 COMPLIANT - c/w TOILET ROLL HOLDER, GRAB RAILS □ BACKREST
P2	3	SHOWER, DISABLED c/w FOLD-UP SEAT, GRAB RAILS □ COAT HOOKS
P4	3	FLOOR WASTE
P5	1	HOT WATER SYSTEM, MOUNTED EXTERNALLY - 250Ltr, 1x3.6kW (SUPPLIED LOOSE FITTED ON SITE))
P6	1	HOSE COCK w/ VACUUM BREAK
P7	1	WATER INLET c/w LINE STRAINER
Specialty Equipment		
SP1	3	CHROME PLATED TOWEL RAIL - 600mm
SP2	3	SAFE, DIGITAL - FIXED IN WARDROBE
SP3	2	COAT HOOK, CHROME
SP3	3	TV WALL BRACKET, FULL MOTION, EXTENDABLE

FINISHES SCHEDULE	
FLOOR COVERING	2mm VINYL
FLOOR COVERING	2mm VINYL - SLIP RESISTANT
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	10mm PLASTERBOARD
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)
CEILING LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (FIRESHIELD), PAINTED TO GROUND FLOOR 10mm PLASTERBOARD, PAINTED TO FIRST FLOOR
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

NOTE:

□ NO PLUMBING HARNESS
□ STRUCTURAL SUPPORT COLUMN LOCATION TO SUIT FIRST FLOOR CHASSIS

CONFIRM DETAILS OF SET OUTS, LEVELS AND CRITICAL DIMENSIONS ON SITE PRIOR TO SHOP DRAWINGS AND FABRICATION
QUALITY CERTIFIED TO AS/NZS ISO 9001:2008 BY SCI-QUAL INTERNATIONAL REGN No. 531
DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS OVERALL DIMENSIONS EXCLUDE EXTERNAL CLADDINGS U.N.O.
ALL CONSTRUCTION TO COMPLY WITH NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND APPLICABLE AUSTRALIAN STANDARDS

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	04.12.17	IK	OJ

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ABN: 71 083 902 309

CLIENT: MULTIPLEX
DESCRIPTION: 15.5 x 4.2m 3P ACCESSIBLE ACCOMMODATION
ADDRESS: CNR, BALMORAL RD □ RANKIN RD KARRATHA, W.A.6714

TITLE: PLAN
PROJECT No.: -
SCALE AT A1: As indicated
DRAWING NUMBER: 170917D -A200
REVISION: A

4/12/2017 4:16:05 PM

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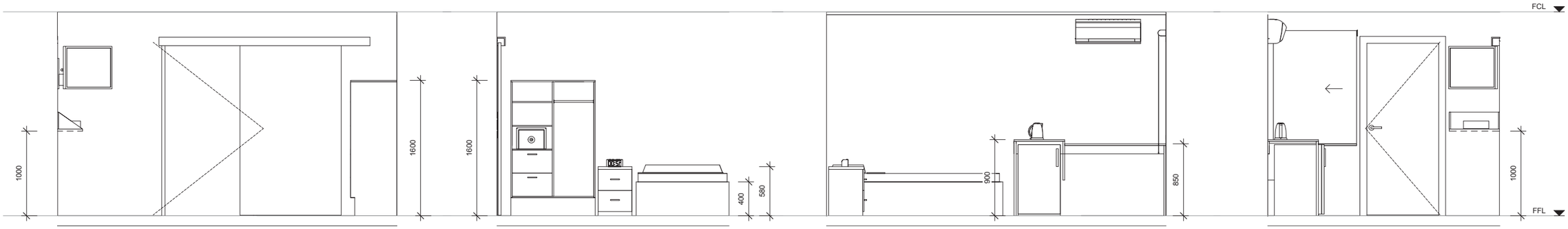
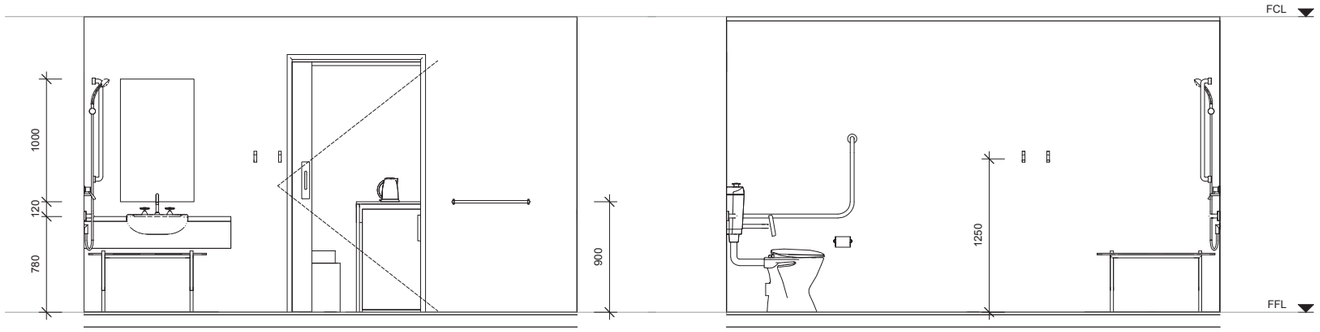


E A200 ELEVATION - E
1 : 25

F A200 ELEVATION - F
1 : 25

G A200 ELEVATION - G
1 : 25

H A200 ELEVATION - H
1 : 25



J A200 ELEVATION - J
1 : 25

K A200 ELEVATION - K
1 : 25

-

CONFIRM DETAILS OF SET OUTS, LEVELS AND CRITICAL DIMENSIONS ON SITE PRIOR TO SHOP DRAWINGS AND FABRICATION
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A	ISSUED FOR REVIEW	04.12.17	IK	OJ

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CLIENT: MULTIPLEX

DESCRIPTION: 15.5 x 4.2m 3P ACCESSIBLE ACCOMMODATION

ADDRESS: CNR. BALMORAL RD □ RANKIN RD KARRATHA, W.A.6714

TITLE: ELEVATIONS

PROJECT No.: -

SCALE AT A1: As indicated

DRAWING NUMBER: 170917D -A300

REVISION: A

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ISSUED FOR REVIEW

BASEFRAME SCHEDULE	
DESCRIPTION	BACK TO BACK
250 UB SKID BEAMS	2200

FLOORING SCHEDULE	
ITEM	DESCRIPTION
FLOOR - 100mm JOISTS, 17mm PLY WITH VINYL E/E	
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
INSULATION - UNDER FLOOR	R2.1 HEAVY DUTY FOIL FACED BATTS
FLOORING	17mm F11 T□G PLYWOOD
FLOOR COVERING	2mm VINYL
FLOOR - 100mm JOISTS, 18mm CFC WITH SR VINYL E/E	
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
INSULATION - UNDER FLOOR	R2.1 HEAVY DUTY FOIL FACED BATTS
FLOORING	18mm COMPRESSED FIBRE CEMENT (CFC)
FLOOR COVERING	2mm VINYL - SLIP RESISTANT

WALL SCHEDULE	
ITEM	DESCRIPTION
WALL - EXT SR VBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
WALL - INT PBD / FC	
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	10mm PLASTERBOARD
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
WALL - INT SR VBD/ VBD (Rw□Ctr 50) 90/90/90	
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R1.8 BATTS
WL1 WALL - EXT PBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
SISALATION	
THERMAL BREAK BETWEEN FRAMING □ CLADDING	
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
WL2 WALL - EXT SR PBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
WL3 WALL - INT SR PBD/ PBD (Rw□Ctr 50) 90/90/90	
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)
FRAMING	104mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R1.8 BATTS

CEILING □ ROOF SCHEDULE	
ITEM	DESCRIPTION
CEILING - 100mm w/ PLASTERBOARD LINING (GROUND FLOOR FRL 30)	
CEILING LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (FIRESHIELD), PAINTED TO GROUND FLOOR 10mm PLASTERBOARD, PAINTED TO FIRST FLOOR
JOIST	100mm JOIST
ROOF - W.A. SUPERDEK (0.48mm) w SISALATION	
INSULATION	R2.5 FOIL BACKED FIBREGLASS INSULATION
SISALATION	
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

FINISHES SCHEDULE		
ITEM	DESCRIPTION	COLOUR/ TREATMENT
FLOOR COVERING	2mm VINYL	LIGHT GREY
FLOOR COVERING	2mm VINYL - SLIP RESISTANT	SILVER
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL	DUNE
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORI□ONTAL	SURFMIST
WALL LINING - INTERNAL	6mm FIBRE CEMENT, PAINTED	
WALL LINING - INTERNAL	10mm PLASTERBOARD	
WALL LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (□UADSHIELD, 2 LAYERS EACH SIDE)	
WALL LINING - INTERNAL	16mm FIRE RATED PLASTERBOARD (2 LAYERS)	
SKIRTING	66x11mm TREATED PINE, PAINTED	T.B.A. (GLOSS)
SKIRTING	COVED VINYL	
WALL JOINT - FC OR PLASTERBOARD LINING	PVC	GREY
WALL JOINT - FC OR PLASTERBOARD LINING	FLUSH SET, PAINTED	-
CORNICE - FC OR PLASTERBOARD LINING	55mm PLASTERBOARD CORNICE, PAINTED	T.B.A. (GLOSS)
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED	BLACK
CEILING LINING - INTERNAL	13mm FIRE RATED PLASTERBOARD (FIRESHIELD), PAINTED TO GROUND FLOOR 10mm PLASTERBOARD, PAINTED TO FIRST FLOOR	T.B.A.
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING	□INCALUME
	Rendering appearance not upgraded	
EXTERNAL DOOR LEAF	COLORBOND	T.B.A.
EXTERNAL DOOR FRAME	COLORBOND	T.B.A.
WINDOW FRAME	POWDERCOATED	BLACK
WINDOW ARCHITRAVE	PVC	GREY

FASCIA	COLORBOND - T.B.A.

SITE NOTES

MISCELLANEOUS NOTES

FITTINGS SCHEDULE		
ITEM	DESCRIPTION	□TY
Electrical Equipment		
EE1	TELEVISION - FLAT SCREEN - 32" (81cm) (BY OTHERS)	3
EE2	REFRIGERATOR - 115Ltr	3
EE3	KETTLE, CORDLESS, ELECTRIC	3
EE4	ELECTRIC CLOCK / RADIO	3
EE5	DVD PLAYER	3
Electrical Fixtures		
	ISOLATION SWITCH FOR AIR CONDITIONER	3
	ISOLATION SWITCH FOR HOT WATER SYSTEM	1
Fire Alarm Devices		
FE1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE	1
Furniture		
F1	BED, KING SI□E SINGLE ENSEMBLE	3
F2	DISABLED WARDROBE MIRROR INSIDE (800x600) - 2 DRAWERS	3
F3	BEDSIDE CABINET w/ 2 DRAWERS - 580H x 400W x 400D (SUPPLIED LOOSE)	3
F4	1800W x 600D DISABLED STEPPED DESK (FRIDGE RECESS)	3
F5	SHELF (FOR SET TOP BOX)	3
F6	TABLE, OUTDOOR - 600 x 600	3
F7	CHAIR, PVC, STACKABLE	3
Plumbing Fixtures		
F8	DISABLED VANITY UNIT w/ LAMINATED BENCH TOP □ 1000 x 600 MIRROR OVER	3
P1	WC SUITE, AS1428.1: 2009 COMPLIANT - c/w TOILET ROLL HOLDER, GRAB RAILS □ BACKREST	3
P2	SHOWER, DISABLED c/w FOLD-UP SEAT, GRAB RAILS □ COAT HOOKS	3
P4	FLOOR WASTE	3
P5	HOT WATER SYSTEM, MOUNTED EXTERNALLY - 250Ltr, 1x3.6kW (SUPPLIED LOOSE FITTED ON SITE))	1
P6	HOSE COCK w/ VACUUM BREAK	1
P7	WATER INLET c/w LINE STRAINER	1
Specialty Equipment		
SP1	CHROME PLATED TOWEL RAIL - 600mm	3
SP2	SAFE, DIGITAL - FIXED IN WARDROBE	3
SP3	COAT HOOK, CHROME	2
SP3	TV WALL BRACKET, FULL MOTION, EXTENDABLE	3

DOOR SCHEDULE												
	DOOR LEAF			DOOR FRAME	DOOR HARDWARE							
		SI□E			HANDLE TYPE	LOCKING	CLOSER	PANIC BAR	SEALS	□TY	COMMENTS
No.	DOOR LEAF	H	W								
D01	POLY CORE MC	2043	881	ALUMINIUM	LEVER	ENTRANCE	Yes	No	E/E SEALS	3	DOOR STOP. SWIPE ACCESS MORTICE LOCK (FREE ISSUED TO ATCO)
D02	HOLLOW CORE	2040	1200			PRIVACY	No	No		3	w/ FLUSH PUSH HANDLE

WINDOW SCHEDULE										
			SI□E							
No.	TYPE	GLA□ING	H	W	SILL HEIGHT	MOULDS	SECURITY	CURTAINS	□TY	COMMENTS
W01	SLIDING	LAMINATED COMFORT PLUS GLASS	1200	908	900	ALUMINIUM	-	BLACK OUT BLINDS	3	
W02	SLIDING	LAMINATED COMFORT PLUS GLASS	350	750	1600	ALUMINIUM	-	-	3	

MECHANICAL SCHEDULE				
No.	DESCRIPTION	SILL HEIGHT	□TY	COMMENTS
M1	AIR CONDITIONER, SPLIT SYSTEM, INVERTER - 2.5kW R/C	2035	3	
M2	EXHAUST FAN, WALL MOUNTED	1960	3	

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	04.12.17	IK	OJ

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ABN: 71 083 902 308

CLIENT: MULTIPLEX
DESCRIPTION: 15.5 x 4.2m 3P ACCESSIBLE ACCOMMODATION
ADDRESS: CNR. BALMORAL RD □ RANKIN RD KARRATHA, W.A.6714

TITLE: SALES SCHEDULES 1 OF 1
PROJECT No.: -
SCALE AT A1
DRAWING NUMBER: 170917D -A500
REVISION: A

4/12/2017 4:16:13 PM

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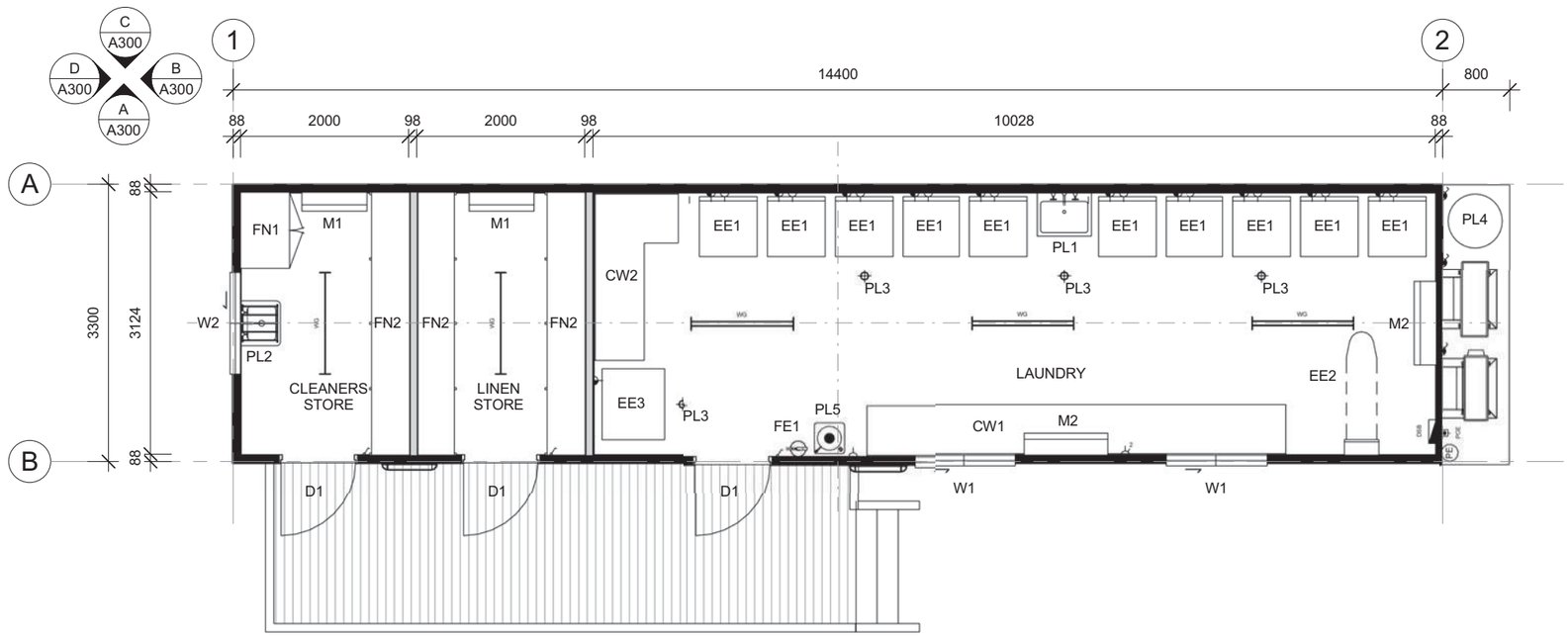
ISSUED FOR REVIEW

WIND REGION:		D
TERRAIN CATEGORY:		2
IMPORTANCE LEVEL:		2
SHIELDING FACTOR:		NS
BUILDING CLASS:		6
FLOOR LOADS	DISTRIBUTED (kPa):	3
	CONCENTRATED (kN):	2.7
CLIMATE ZONE:		1

NORTH

FLOOR LOADS CALCULATED FROM AS1170.1 - 2002. WIND SPEED CALCULATED FROM AS1170.2 - 2011. BUILDING CLASS, IMPORTANCE LEVEL, PROBABILITY OF EXCEEDANCE, WIND REGION, TERRAIN CATEGORY, TOPOGRAPHIC CLASIFICATION, SHIELDING FACTOR, CLIMATE ZONE & NORTH POINT ARE ASSUMED UNLESS OTHERWISE ADVISED BY CLIENT.



1 PLAN
1 : 50

SYMBOL LEGEND

- DISTRIBUTION SWITCHBOARD
- ELECTRICAL POINT OF ENTRY
- SINGLE LIGHT SWITCH
- TWO WAY LIGHT SWITCH
- SINGLE LIGHT SWITCH - IPX5
- ISOLATION SWITCH
- 10 AMP SINGLE GPO
- 10 AMP DOUBLE GPO
- 15 AMP SINGLE GPO
- 10 AMP SINGLE GPO - IPX5 RATED
- 20 AMP SINGLE GPO
- - INDICATES FLOOR MOUNTING
- - INDICATES CEILING MOUNTING
- DRAW WIRE - 'D' DENOTES DATA
- TELEVISION OUTLET - 'F' TYPE
- SMOKE DETECTOR - 240V
- 28W T5 SINGLE FLUORESCENT LIGHT
- 28W T5 SINGLE FLUORESCENT LIGHT WITH DIFFUSER
- 28W T5 DOUBLE FLUORESCENT LIGHT
- 28W T5 DOUBLE FLUORESCENT LIGHT WITH DIFFUSER
- 10W SPITFIRE EMERGENCY EXIT LIGHT
- EMERGENCY EXIT LIGHT
- EXTERNAL LIGHT
- 18W SINGLE WEATHERPROOF LIGHT
- PHOTOELECTRIC LIGHT SWITCH
- PLUMBING WATER INLET POINT
- PLUMBING WASTE MANIFOLD OUTLET POINT

FINISHES SCHEDULE	
FLOOR COVERING	2mm VINYL - SLIP RESISTANT
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
CEILING LINING - INTERNAL	10mm PLASTERBOARD, PAINTED
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

ITEM LIST

ITEM	QTY	DESCRIPTION
Casework		
CW1	1	BENCHTOP, LAMINATED - 32mm, 600D
CW2	1	BENCHTOP, STAINLESS STEEL, L SHAPED - 32mm, 600D
Electrical Equipment		
EE1	10	WASHER/ DRYER, STACKED, COMMERCIAL (ALLOW 1x20A & 1 x 10A GPO's)
EE2	1	IRONING CENTRE & HARD WIRED STEAM IRON
EE3	1	ICE MAKER - 155Kg/24Hrs
Fire Alarm Devices		
FE1	1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE
Furniture		
FN1	1	CUPBOARD FOR CHEMICAL STORAGE - 900W x 580D x 2100H
FN2	3	SHELVING, 3 TIER - 450 DEEP
Plumbing Fixtures		
PL1	1	LAUNDRY TUB w/ CABINET - 70Ltr, SPLASHBACK & WALL TAPS
PL2	1	SINK, CLEANERS w/ HINGED GRATE (HOT & COLD TAPS)
PL3	4	FLOOR WASTE
PL4	1	HOT WATER SYSTEM, MOUNTED EXTERNALLY - 250Ltr, 1x3.6kW
PL5	1	WATER COOLER - MAINS CONNECTED c/w MINI STOP VALVE PROVISION

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	22.09.17	A.C.	

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PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX
DESCRIPTION: 14.4 x 3.3m LAUNDRY
ADDRESS: CNR. BALMORAL RD & RANKIN RD KARRATHA, W.A.6714

TITLE: PLAN
PROJECT No.:
SCALE AT A2: As indicated
DRAWING NUMBER: 170919D -A200
REVISION: A

25/09/2017 11:53:13 AM

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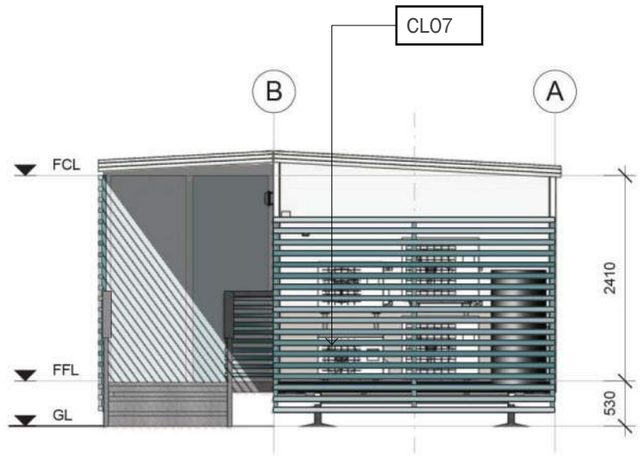
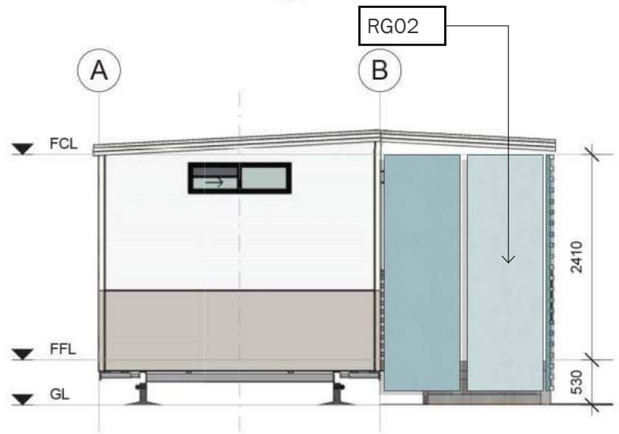
A A200 ELEVATION
1 : 50



B A200 ELEVATION
1 : 50

C A200 ELEVATION
1 : 50



D A200 ELEVATION
1 : 50

NOTE: GATEHOUSE TREATMENT SIMILAR TO ABOVE

RG02 COLOURED PANEL BALUSTRADE

SG01 BUILDING WAYFINDING SIGN

CL07 PROPRIETARY LOUVRE SCREEN

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	22.09.17	A.C.	

ATCO Structures & Logistics

ATCO STRUCTURES & LOGISTICS PTY. LTD.
28 ARMSTRONG ROAD,
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PO BOX 40, WATTLEUP, WA 6166
E-mail: atcowa@atcosl.com.au

PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX

DESCRIPTION: 14.4 x 3.3m LAUNDRY

ADDRESS: CNR. BALMORAL RD & RANKIN RD
KARRATHA, W.A.6714

TITLE: ELEVATIONS

PROJECT No.:

SCALE AT A2: 1 : 50

DRAWING NUMBER: 170919D -A300

REVISION: A

25/09/2017 11:53:26 AM

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ISSUED FOR REVIEW

BASEFRAME SCHEDULE	
DESCRIPTION	BACK TO BACK
200PFC SKID BEAMS	2200

FLOORING SCHEDULE	
ITEM	DESCRIPTION
FLOOR - 100mm JOISTS, 17mm PLY WITH SR VINYL	
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
FLOORING	17mm F11 T&G PLYWOOD
FLOOR COVERING	2mm VINYL - SLIP RESISTANT
FLOOR - 100mm JOISTS, 18mm CFC	
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
FLOORING	18mm COMPRESSED FIBRE CEMENT (CFC)

WALL SCHEDULE	
ITEM	DESCRIPTION
WALL - EXT PBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
SISALATION	
THERMAL BREAK BETWEEN FRAMING & CLADDING	
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
SKIRTING	COVED VINYL
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED
WALL - INT PBD / PBD	
WALL LINING - INTERNAL	10mm PLASTERBOARD
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)

CEILING & ROOF SCHEDULE	
ITEM	DESCRIPTION
CEILING - 75mm w/ PLASTERBOARD LINING	
CEILING LINING - INTERNAL	10mm PLASTERBOARD, PAINTED
JOIST	75mm JOIST (REFER STRUCTURAL SPECIFICATION)
ROOF - SUPERDEK (0.48mm) w SISALATION	
INSULATION	R2.3 FOIL BACKED FIBREGLASS INSULATION
SISALATION	
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

FINISHES SCHEDULE		
ITEM	DESCRIPTION	COLOUR/ TREATMENT
DECKING	88 x 19mm SHOTEDGE DECKING	
FLOOR COVERING	2mm VINYL - SLIP RESISTANT	SILVER
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL	DUNE
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL	SURFMIST
WALL LINING - INTERNAL	10mm PLASTERBOARD	
SKIRTING	66x11mm TREATED PINE, PAINTED	T.B.A. (GLOSS)
SKIRTING	COVED VINYL	
WALL JOINT - FC OR PLASTERBOARD LINING	PVC	GREY
WALL JOINT - FC OR PLASTERBOARD LINING	FLUSH SET, PAINTED	-
CORNICE - FC OR PLASTERBOARD LINING	55mm PLASTERBOARD CORNICE, PAINTED	T.B.A. (GLOSS)
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED	BLACK
CEILING LINING - INTERNAL	10mm PLASTERBOARD, PAINTED	T.B.A.
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING	ZINCALUME
EXTERNAL DOOR LEAF	COLORBOND	T.B.A.
EXTERNAL DOOR FRAME	COLORBOND	T.B.A.
WINDOW FRAME	POWDERCOATED	BLACK
WINDOW ARCHITRAVE	PVC	GREY
EAVE FLASHING	EAVE FLASHING	COLORBOND - T.B.A.
VERTICAL CORNER ANGLE	COLORBOND - DUNE	
VERTICAL CORNER ANGLE	COLORBOND - SURFMIST	
FASCIA	COLORBOND - T.B.A.	

SITE NOTES

MISCELLANEOUS NOTES

FITTINGS SCHEDULE		
ITEM	DESCRIPTION	QTY
Casework		
CW1	BENCHTOP, LAMINATED - 32mm, 600D	1
CW2	BENCHTOP, STAINLESS STEEL, L SHAPED - 32mm, 600D	1
Electrical Equipment		
EE1	WASHER/ DRYER, STACKED, COMMERCIAL (ALLOW 1x20A & 1 x 10A GPO's)	10
EE2	IRONING CENTRE & HARD WIRED STEAM IRON	1
EE3	ICE MAKER - 155Kg/24Hrs	1
Electrical Fixtures		
	ELECTRICAL - SWITCHBOARD & POINT OF ENTRY	1
	GPO, SINGLE POLE - 1x10A	11
	GPO, SINGLE POLE - 1x20A	11
	GPO, SINGLE POLE - 2x10A	1
	ISOLATION SWITCH FOR AIR CONDITIONER	4
	ISOLATION SWITCH FOR HOT WATER SYSTEM	1
	PHOTO ELECTRIC CELL	1
Fire Alarm Devices		
FE1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE	1
Furniture		
FN1	CUPBOARD FOR CHEMICAL STORAGE - 900W x 580D x 2100H	1
FN2	SHELVING, 3 TIER - 450 DEEP	3
Lighting Fixtures		
	LIGHT - 1x28W T5 FLUORO & WIRE GUARD	2
	LIGHT - 2x28W T5 FLUORO & WIRE GUARD	3
	LIGHT SWITCH, SINGLE	3
	LIGHT, WEATHERPROOF - 1 x 18W	2
Plumbing Fixtures		
PL1	LAUNDRY TUB w/ CABINET - 70Ltr, SPLASHBACK & WALL TAPS	1
PL2	SINK, CLEANERS w/ HINGED GRATE (HOT & COLD TAPS)	1
PL3	FLOOR WASTE	4
PL4	HOT WATER SYSTEM, MOUNTED EXTERNALLY - 250Ltr, 1x3.6kW	1
PL5	WATER COOLER - MAINS CONNECTED c/w MINI STOP VALVE PROVISION	1

DOOR SCHEDULE

No.	DOOR LEAF	SIZE H	SIZE W	DOOR FRAME	HANDLE TYPE	LOCKING	CLOSER	PANIC BAR	SEALS	QTY	COMMENTS
D1	POLY CORE MC	2043	881	ALUMINIUM	LEVER	ENTRANCE	Yes	No		3	

WINDOW SCHEDULE

No.	TYPE	GLAZING	SIZE H	SIZE W	SILL HEIGHT	MOULDS	SECURITY	CURTAINS	QTY	COMMENTS
W1	SLIDING	GREY GLASS	900	1208	1000	ALUMINIUM	-	-	2	
W2	SLIDING, PV		350	1200	1960		-	-	1	

MECHANICAL SCHEDULE

No.	DESCRIPTION	SILL HEIGHT	QTY	COMMENTS
M1	AIR CONDITIONER, SPLIT SYSTEM, INVERTER - 2.5kW R/C	1960	2	
M2	AIR CONDITIONER, SPLIT SYSTEM, INVERTER - 7.1kW R/C	1960	2	

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	22.09.17	A.C.	

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E-mail: atcowa@atcosl.com.au
PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX
DESCRIPTION: 14.4 x 3.3m LAUNDRY
ADDRESS: CNR. BALMORAL RD & RANKIN RD KARRATHA, W.A.6714

TITLE: SALES SCHEDULES
PROJECT No.:
SCALE AT A2
DRAWING NUMBER: 170919D -A500
REVISION: A

25/09/2017 11:58:19 AM

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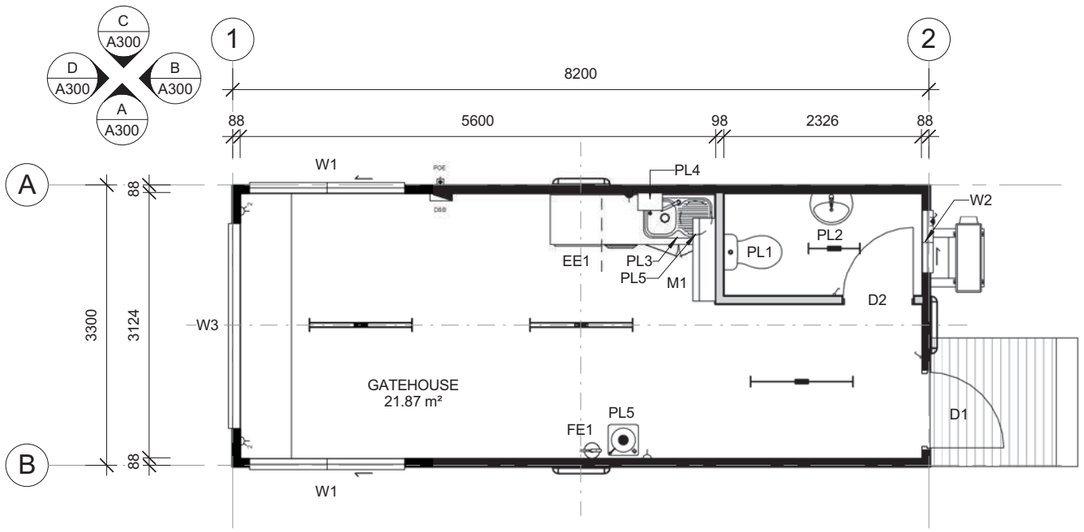
ISSUED FOR REVIEW



1 PLAN
1 : 50

WIND REGION:		D
TERRAIN CATEGORY:		2
IMPORTANCE LEVEL:		2
SHIELDING FACTOR:		NS
BUILDING CLASS:		6
FLOOR LOADS	DISTRIBUTED (kPa):	3
	CONCENTRATED (kN):	2.7
CLIMATE ZONE:		1

NORTH

FLOOR LOADS CALCULATED FROM AS1170.1 - 2002. WIND SPEED CALCULATED FROM AS1170.2 - 2011. BUILDING CLASS, IMPORTANCE LEVEL, PROBABILITY OF EXCEEDANCE, WIND REGION, TERRAIN CATEGORY, TOPOGRAPHIC CLASIFICATION, SHIELDING FACTOR, CLIMATE ZONE & NORTH POINT ARE ASSUMED UNLESS OTHERWISE ADVISED BY CLIENT.

SYMBOL LEGEND

- DISTRIBUTION SWITCHBOARD
- ELECTRICAL POINT OF ENTRY
- SINGLE LIGHT SWITCH
- TWO WAY LIGHT SWITCH
- SINGLE LIGHT SWITCH - IPX5
- ISOLATION SWITCH
- 10 AMP SINGLE GPO
- 10 AMP DOUBLE GPO
- 15 AMP SINGLE GPO
- 10 AMP SINGLE GPO - IPX5 RATED
- 20 AMP SINGLE GPO
- - INDICATES FLOOR MOUNTING
- - INDICATES CEILING MOUNTING
- DRAW WIRE - 'D' DENOTES DATA
- TELEVISION OUTLET - 'F' TYPE
- SMOKE DETECTOR - 240V
- 28W T5 SINGLE FLUORESCENT LIGHT
- 28W T5 SINGLE FLUORESCENT LIGHT WITH DIFFUSER
- 28W T5 DOUBLE FLUORESCENT LIGHT
- 28W T5 DOUBLE FLUORESCENT LIGHT WITH DIFFUSER
- 10W SPITFIRE EMERGENCY EXIT LIGHT
- EMERGENCY EXIT LIGHT
- EXTERNAL LIGHT
- 18W SINGLE WEATHERPROOF LIGHT
- PHOTOELECTRIC LIGHT SWITCH
- PLUMBING WATER INLET POINT
- PLUMBING WASTE MANIFOLD OUTLET POINT

FINISHES SCHEDULE	
FLOOR COVERING	2mm VINYL - SLIP RESISTANT
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
CEILING LINING - INTERNAL	10mm PLASTERBOARD, PAINTED
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

ITEM LIST		
ITEM	QTY	DESCRIPTION
Casework		
	1	CUPBOARD w/ LAMINATED TOP - 32mm, 600D
CW1	1	BENCHTOP, LAMINATED - 32mm, 600D
Electrical Equipment		
EE1	1	BAR REFRIGERATOR - 130Ltr
Fire Alarm Devices		
FE1	1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE
Generic Models		
	1	
Plumbing Fixtures		
PL1	1	WC SUITE c/w TOILET ROLL HOLDER
PL2	1	HAND BASIN, VITREOUS CHINA - c/w MIRROR OVER
PL3	1	SINK, 1 BOWL, 1 DRAIN - 820mm LONG w/ FLICKMIXER (COLD ONLY)
PL4	1	AUTOBOILER - 5.0Ltr w/ IN-BUILT TIMER
PL5	1	HOT WATER SYSTEM, MOUNTED INTERNALLY ON SAFE TRAY - 50Ltr, 1x3.6kW
PL5	1	WATER COOLER - MAINS CONNECTED c/w MINI STOP VALVE PROVISION

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	22.09.17	A.C.	

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E-mail: atcowa@atcosl.com.au
PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX

DESCRIPTION: 8.2 x 3.3m GATEHOUSE

ADDRESS: CNR. BALMORAL RD & RANKIN RD
KARRATHA, W.A.6714

TITLE: PLAN

PROJECT No.:

SCALE AT A2: As indicated

DRAWING NUMBER: 170919E -A200

REVISION: A

26/09/2017 11:03:30 AM

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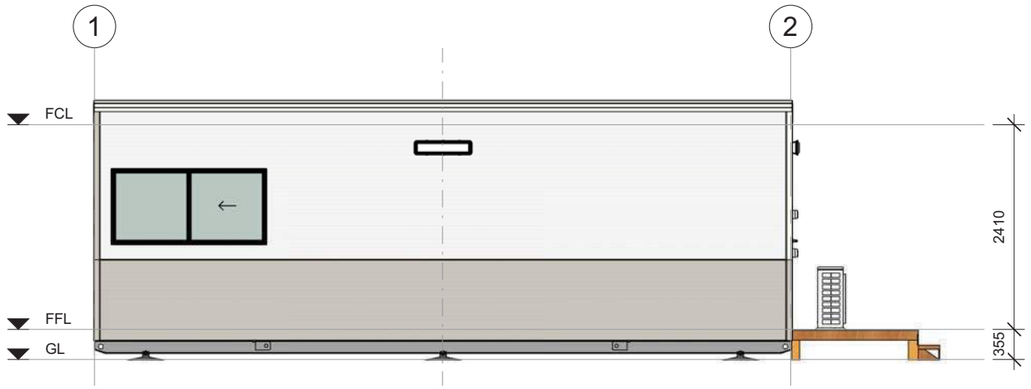
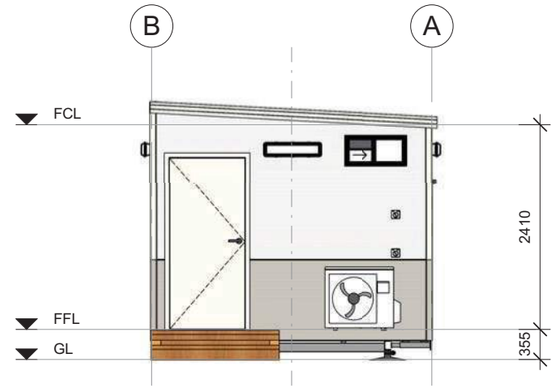
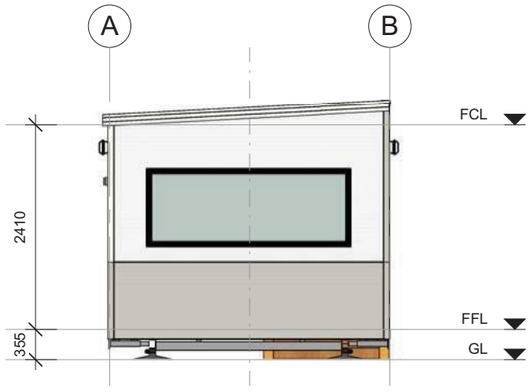


A A200 ELEVATION
1 : 50



B A200 ELEVATION
1 : 50

C A200 ELEVATION
1 : 50



D A200 ELEVATION
1 : 50

NOTE: GATEHOUSE TREATMENTS TO MATCH LAUNDRY UNIT SCREENING

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	22.09.17	A.C.	

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PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX

DESCRIPTION: 8.2 x 3.3m GATEHOUSE

ADDRESS: CNR. BALMORAL RD & RANKIN RD KARRATHA, W.A.6714

TITLE: ELEVATIONS

PROJECT No.

SCALE AT A2: 1 : 50

DRAWING NUMBER: 170919E -A300

REVISION: A

26/09/2017 11:03:41 AM

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ISSUED FOR REVIEW

BASEFRAME SCHEDULE	
DESCRIPTION	BACK TO BACK
150 PFC SKID BEAMS	2200

FLOORING SCHEDULE	
ITEM	DESCRIPTION
FLOOR - 100mm JOISTS, 17mm PLY WITH SR VINYL	
FLOOR FRAMING	100mm STEEL JOIST (REFER STRUCTURAL SPECIFICATION)
FLOORING	17mm F11 T&G PLYWOOD
FLOOR COVERING	2mm VINYL - SLIP RESISTANT

WALL SCHEDULE	
ITEM	DESCRIPTION
WALL - EXT PBD / MRIB TWO TONE (SURFMIST/ DUNE)	
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
WALL LINING - INTERNAL	10mm PLASTERBOARD
SISALATION	
THERMAL BREAK BETWEEN FRAMING & CLADDING	
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
INSULATION	R3.1 BATTS
SKIRTING	COVED VINYL
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED
WALL - INT PBD / PBD	
WALL LINING - INTERNAL	10mm PLASTERBOARD
FRAMING	78mm STEEL STUD (REFER STRUCTURAL SPECIFICATION)
SKIRTING	COVED VINYL
WALL JOINT - FC OR PLASTERBOARD LINING	PVC
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED

CEILING & ROOF SCHEDULE	
ITEM	DESCRIPTION
CEILING - 75mm w/ PLASTERBOARD LINING	
CEILING LINING - INTERNAL	10mm PLASTERBOARD, PAINTED
JOIST	75mm JOIST (REFER STRUCTURAL SPECIFICATION)
ROOF - SUPERDEK (0.48mm) w SISALATION	
INSULATION	R2.3 FOIL BACKED FIBREGLASS INSULATION
SISALATION	
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING

FINISHES SCHEDULE		
ITEM	DESCRIPTION	COLOUR/ TREATMENT
DECKING	88 x 19mm SHOTEDGE DECKING	
FLOOR COVERING	2mm VINYL - SLIP RESISTANT	SILVER
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL	DUNE
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL	SURFMIST
WALL LINING - INTERNAL	10mm PLASTERBOARD	
SKIRTING	COVED VINYL	
WALL JOINT - FC OR PLASTERBOARD LINING	PVC	GREY
CORNICE - FC OR PLASTERBOARD LINING	ALUMINIUM SCOTIA, POWDERCOATED	BLACK
CEILING LINING - INTERNAL	10mm PLASTERBOARD, PAINTED	T.B.A.
ROOF SHEETING	0.48mm BMT SUPERDEK ROOFING	ZINCALUME
EXTERNAL DOOR LEAF	COLORBOND	T.B.A.
EXTERNAL DOOR FRAME	COLORBOND	T.B.A.
INTERNAL DOOR LEAF	PAINTED	T.B.A.
INTERNAL DOOR FRAME	COLORBOND	T.B.A.
WINDOW FRAME	POWDERCOATED	BLACK
WINDOW ARCHITRAVE	PVC	GREY
EAVE FLASHING	EAVE FLASHING	COLORBOND - T.B.A.
VERTICAL CORNER ANGLE	COLORBOND - DUNE	
VERTICAL CORNER ANGLE	COLORBOND - SURFMIST	
FASCIA	COLORBOND - T.B.A.	

SITE NOTES

MISCELLANEOUS NOTES

FITTINGS SCHEDULE		
ITEM	DESCRIPTION	QTY
Casework		
	CUPBOARD w/ LAMINATED TOP - 32mm, 600D	1
CW1	BENCHTOP, LAMINATED - 32mm, 600D	1
Electrical Equipment		
EE1	BAR REFRIGERATOR - 130Ltr	1
Electrical Fixtures		
	ELECTRICAL - SWITCHBOARD & POINT OF ENTRY	1
	GPO, SINGLE POLE - 1x10A	1
	GPO, SINGLE POLE - 1x15A FOR BOILING WATER UNIT	1
	GPO, SINGLE POLE - 2x10A	2
	ISOLATION SWITCH FOR AIR CONDITIONER	2
Fire Alarm Devices		
FE1	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE	1
Lighting Fixtures		
	LIGHT - 1x14W T5 FLUORO & DIFFUSER	1
	LIGHT - 1x28W T5 FLUORO & DIFFUSER	1
	LIGHT - 2x28W T5 FLUORO & DIFFUSER	2
	LIGHT SWITCH, SINGLE	2
	LIGHT, WEATHERPROOF - 1 x 18W	3
Plumbing Fixtures		
PL1	WC SUITE c/w TOILET ROLL HOLDER	1
PL2	HAND BASIN, VITREOUS CHINA - c/w MIRROR OVER	1
PL3	SINK, 1 BOWL, 1 DRAIN - 820mm LONG w/ FLICKMIXER (COLD ONLY)	1
PL4	AUTOBOILER - 5.0Ltr w/ IN-BUILT TIMER	1
PL5	HOT WATER SYSTEM, MOUNTED INTERNALLY ON SAFE TRAY - 50Ltr, 1x3.6kW	1
PL5	WATER COOLER - MAINS CONNECTED c/w MINI STOP VALVE PROVISION	1

DOOR SCHEDULE

No.	DOOR LEAF	SIZE H	SIZE W	DOOR FRAME	HANDLE TYPE	LOCKING	CLOSER	PANIC BAR	SEALS	QTY	COMMENTS
D1	POLY CORE MC	2043	881	ALUMINIUM	LEVER	ENTRANCE	Yes	No		1	
D2	HOLLOW CORE	2040	820	ALUMINIUM	LEVER	PRIVACY	No	No		1	

WINDOW SCHEDULE

No.	TYPE	GLAZING	SIZE H	SIZE W	SILL HEIGHT	MOULDS	SECURITY	CURTAINS	QTY	COMMENTS
W1	SLIDING	GREY GLASS	900	1808	1000	ALUMINIUM	-	-	2	
W2	SLIDING, PV	OBSCURE GLASS	350	750	1960	ALUMINIUM	-	-	1	
W3	FIXED	GREY GLASS	900	2408	1000	ALUMINIUM	-	-	1	

MECHANICAL SCHEDULE

No.	DESCRIPTION	SILL HEIGHT	QTY	COMMENTS
M1	AIR CONDITIONER, SPLIT SYSTEM, INVERTER - 5.0kW R/C	1960	1	

REV	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	22.09.17	A.C.	

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PHONE: (08) 6252 6200
FAX: (08) 6252 6299
ABN: 71 083 902 309

CLIENT: MULTIPLEX
DESCRIPTION: 8.2 x 3.3m GATEHOUSE
ADDRESS: CNR. BALMORAL RD & RANKIN RD KARRATHA, W.A.6714

TITLE: SALES SCHEDULES
PROJECT No.:
SCALE AT A2
DRAWING NUMBER: 170919E -A500
REVISION: A

26/09/2017 11:03:42 AM

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2.0

LANDSCAPE PLAN

OPEN SPACE STRUCTURE PLAN

1. Rain-tree Avenue entry road
2. Informal planting to drainage swale
3. Feature semi-public landscaped courtyard and signage
4. Public Parking & Bus set-down
5. Maintenance, Waste and Recycling Compound
6. Forecourt & arrivals
7. Village Entry
8. Pool and Sun deck
9. Screening planting and ground cover
10. ‘Boulevard’ North-South Primary Axis
11. Secondary colonnade Streets
12. Village Green
13. Playing field
14. Landscaped neighbourhood courtyards
15. Security Fence
16. Loading and Kitchen Waste Compound
17. Picnic shelter
18. BBQ shelter
19. Feature Screen to Balmoral Road

E Existing tree to remain

PLANTING STRATEGY

The planting strategy for the Bay Village proposes the use of a broad range of exotic, native and endemic planting species which are well suited to the expected climate and conditions in Karratha so as to create a water efficient and largely self-sustaining landscape. The predominant landscape approach will use native and endemic species to the outer areas of the village and concentrate non-native and 'feature' species around the core facilities, courtyards and gathering areas so as to provide a 'home identity' for each courtyard. Key tree and shrub species will be utilised in different areas of the site to assist in user legibility and create distinct zones or character areas.

The front verge, entry road and civic plaza will utilize iconic and dramatic native and endemic species which will ground the Bay Village within the Karratha context. These species will change seasonally so as to express the unique qualities of the arid setting and will become part of the identity of the Village. Clusters of palms will be positioned at key locations throughout the site so as to accentuate height and scale, these will be used to assist in wayfinding and legibility as they will announce entries to key buildings and courtyards.

The following planting species are proposed for use within the project.

Trees

Acacia coriacea	Wandering Wirewood
Acacia dunnii	Elephant Ear Wattle
Albizia lebbek	Rain Tree
Azadirachta indica	Neem Tree
Bauhinia cunninghamii	Butterfly Tree
Brachychiton australis	Rock Kurrajong
Brachychiton gregorii	Desert Kurrajong
Caesalpinia ferrea	Leopard Tree
Callitris collumellaris	White Cypress Pine
Casuarina equesitifolia	Beach She Oak
Delonix regia	Poinciana
Eucalyptus caesia	
Eucalyptus camandulensis	River Red Gum
Eucalyptus coolabah	Coolibah
Eucalyptus dichromophloia	Variable Barked Bloodwood
Eucalytus macrocarpa	
Eucalyptus terminalis	Desert Bloodwood
Eucalyptus Torquata	Coral gum
Ficus hilli	Hills Fig
Hibiscus tileaceaus	Cottonwood
Lysiphyllum cunninghamii	Kimberley Bauhimia
Melaleuca leucadendron	Broadleaf Paperbark
Melaleuca argentia	Silver Leafed Paperbark
Peltophorum pterocarpum	Yellow Jacaranda



Existing site trees



Palms and Cycads

Cocos Nuifera	Malayan Coconut Palm
Dypsis leptocheilos	Redneck Palm
Livistona alfredii	Millstream Palm
Livistona inermis	Fine Leaved Fan Palm
Livistona nitida	Carnarvon Gorge Cabbage Palm
Wodyetia bifurcate	Foxtail Palm
Roystonea regia	Cuban Royal Palm
Cycad spp.	
Zamia spp.	


Shrubs

Acacia arida	Arid Wattle
Acacia gregorii	Gregory's Wattle
Acacia translucens	Poverty Bush
Acacia victoriae	Bardie Bush
Alyogyne hakeilfolia	Native Hibiscus
Eremophila spp.	
Senna spp.	
Enchylaena tomentosa	Ruby saltbush
Rhagodia eremaea	Tall saltbush
Ptilotus obovatus	Cotton Bush
Callistemon spp.	Bottlebrush
Anigozanthos spp.	Kangaroo Paw
Beaufortia spp.	
Nerium spp.	Oleander
Russella equisetiformis	Coral bush




Groundcovers and Grasses

Triodia spp.	Hard and soft spinifexes
Aristida spp.	
Eragrostis spp.	
Lomandra spp.	
Scaevola spp.	
Myoporum parvifolium	Creeping Boobiala
Ipomeas pp.	
Swainsona Formosa	Sturt Desert Pea
Ptilotus exaltatus	Pink Mulla Mulla
Bougainvillea spp.	




PUBLIC REALM IMAGERY AND PALETTE

Landscape materials for the site are to be selected based on their robustness and availability within the region in order to minimise maintenance and trucking to the site. The palette of proposed materials is also intended to reflect the earthy tones of the region and compliment the native planting character of the site.

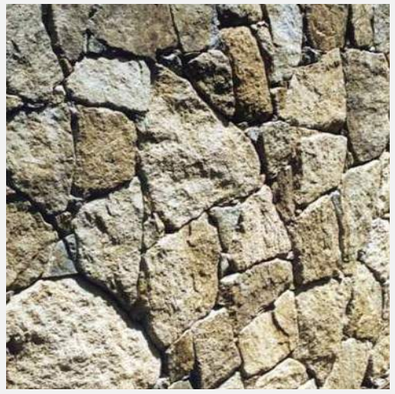
Concrete finishes are to be simple uncoloured broom finished grey, with an exposed aggregate finish proposed to the feature areas to lift its presence and significance within the village centre.

Cement stabilised decomposed granite or pea gravel is proposed for secondary areas where pedestrian milling is envisaged, in order to reduce the amount of hard-stand and associated costs and to provide a softer visual appearance.

Gravel / rock finish is proposed to drainage swales for weed suppression and scour protection. The selection of rock type will be dependent upon proximity to the site and availability in large quantities. Gravel / Rock size will be subject to hydraulic assessment to ensure it can withstand the anticipated water flows.

Low landscape / seating walls are also intended to be constructed from a similar rock.

Bench seating is to be simple and robust, with galvanised frame and timber battens.



VILLAGE CENTRE LANDSCAPE PLAN

1. Grouping of Trees & screening to existing substation
2. Advanced shade trees to emphasize the main axis
3. Advanced tree for shade & character
4. Advanced shade trees & screening planting to pool area
5. Advanced Rain tree avenue planting to main entry road to provide arrival impact
6. Informal plantings of eucalyptus, melaleucas and acacias to front verge and drainage swale
7. Informal planting to drainage swale
8. Productive garden area including drought-hardy herbs & fruits
9. Screening planting and ground cover
10. Native Grass
11. Coloured concrete paving
12. Gravel

E Existing tree to remain

NOT TO SCALE

TYPICAL COURTYARDS/ ENTRY FOCUS PLANTING

1. Walkway
2. Entry stairs to Accommodations
3. Semi-advanced shrub screening
4. Native grass
5. Gravel
6. Palm clusters
7. Planted swale

NOT TO SCALE

IRRIGATION STRATEGY

The Master Plan adopts a multi-layered approach to conserve water in the landscape using the following principles:

Use Low Water Demand Plant Species

The project will prioritise the selection of species with a focus on drought resistant species and a particular emphasis upon native and indigenous species. The use of proven and reliable non-native species which are well adapted to the climate and rainfall patterns of Karratha is also proposed. Hydro-zoning (planting of species with similar water demands) should be utilised in the planting design process so as to rationalize irrigation demands across the project.

Use a Variety of Irrigation Demand Intensities

This includes focusing highest water demand landscape treatments at building entrances where they will have the most visual impact, with lower water demanding landscapes provided in lower use areas.

Implement Efficient Irrigation Systems

Efficient irrigation systems and regimes will contribute significantly to water savings across the development. These systems include automated components that deliver water effectively, where and when needed and have the ability to collect and interpret data on local weather and adjust the delivery of water according to the changing requirements. Typically garden areas which are proposed to be irrigated will seek to use a high-efficiency drip irrigation system. The central lawn areas will review the appropriateness of a sub-surface textile irrigation system where the application of a system may reduce overall watering demands, minimise evaporation whilst reducing pumping and equipment requirements.

Integrate Passive Irrigation

Though rain is infrequent, runoff is directed into soft landscape areas to provide passive irrigation after events. This has the added benefit of removing sediment and nutrient loads from storm water. The civil and landscape design may also review the potential to capture and store rainwater in underground rainwater harvesting/storing for irrigation reuse.

Consider the Water Source

The long term water source for irrigation is proposed to be treated sewage effluent (TSE). To avoid the use of potable water and negate the need for trucking in water (TSE or otherwise), the volume of water required for irrigation will be equal to the waste water produced by the site population. The use of treated water sources will impact on the types of irrigation systems and method of irrigation which can be used. Any irrigation works to communal productive gardens would need to utilise potable sources to ensure health and safety requirements are met.

Integrate Soil Improvement

The use of mulch and water retention additives within the soil can significantly decrease water demands and increase water savings across the development.

Irrigation is proposed to be installed to the village green (playing field) and planting areas within the central village core and courtyards to promote plant health and growth year round. A drip irrigation system (or a sub-surface textile irrigation system) to these areas will reduce water consumption and evaporation caused by sun and rain (compared to a spray system). Note: The proximity, type and availability of water for irrigation purposes needs to be carefully considered as it can impact the species selection (i.e. if using bore water, salt tolerant species may be required). If recycled water is to be used for irrigation, drip irrigation has the added benefit of being able to be treated to a lesser standard than spray irrigation.

SHADE STRATEGY

The purpose of the shade strategy is to increase outdoor thermal comfort in public spaces and walkways year round. Due to the hot climate, coupled with the pedestrian nature of the development, shading is of extreme importance. The shading strategy would seek to provide opportunities for shade to be provided to outdoor communal areas at different times of the day.

The shade strategy provides a logical hierarchy of shading provision for different landscape typologies that place more emphasis on priority areas. This ensures that maximum shade interventions are placed in the area of highest pedestrian activity. To supplement tree shading in these primary priority links, shaded walkways are provided along primary circulation routes.

The shading strategy is closely linked to the Pedestrian Circulation Strategy.

Primary Pedestrian Path - Boulevard

Shading is provided throughout the village, with particular focus on the main pathways. The Boulevard, the village's primary pedestrian spine, consists of a steel framed covered walkway, and provides a shaded, lateral (north-south) connection across the site. This path is highly trafficked and should include enhanced levels of amenity and be well shaded by canopy trees.

Covered Streets

A number of parallel, secondary paths intersect the Boulevard running in an east-west direction, and provide covered access to each neighbourhood, passing through courtyards on the way. Intersections are wide enough to allow golf-cart access and are further highlighted by raised sections of the roof, which also provide access for emergency vehicles.

Verandas

Accommodation buildings are provided with verandas, providing shelter from the sun and rain.

Buildings within the village centre also have verandas, providing covered access along the perimeter of each building as well as a place to rest out of the sun and rain. Verandas also protect the buildings from excessive heat loads, thereby reducing the costs of air-conditioning.

Village Centre, Retail and Community Facilities

The retail and community facilities are the heart of the site and will have the highest volume of pedestrian activity.

Providing high levels of shading to these spaces will ensure the comfort of the residents at all times of the day and year. Shading through semi-advanced tree planting, architectural elements or shade structures is proposed.

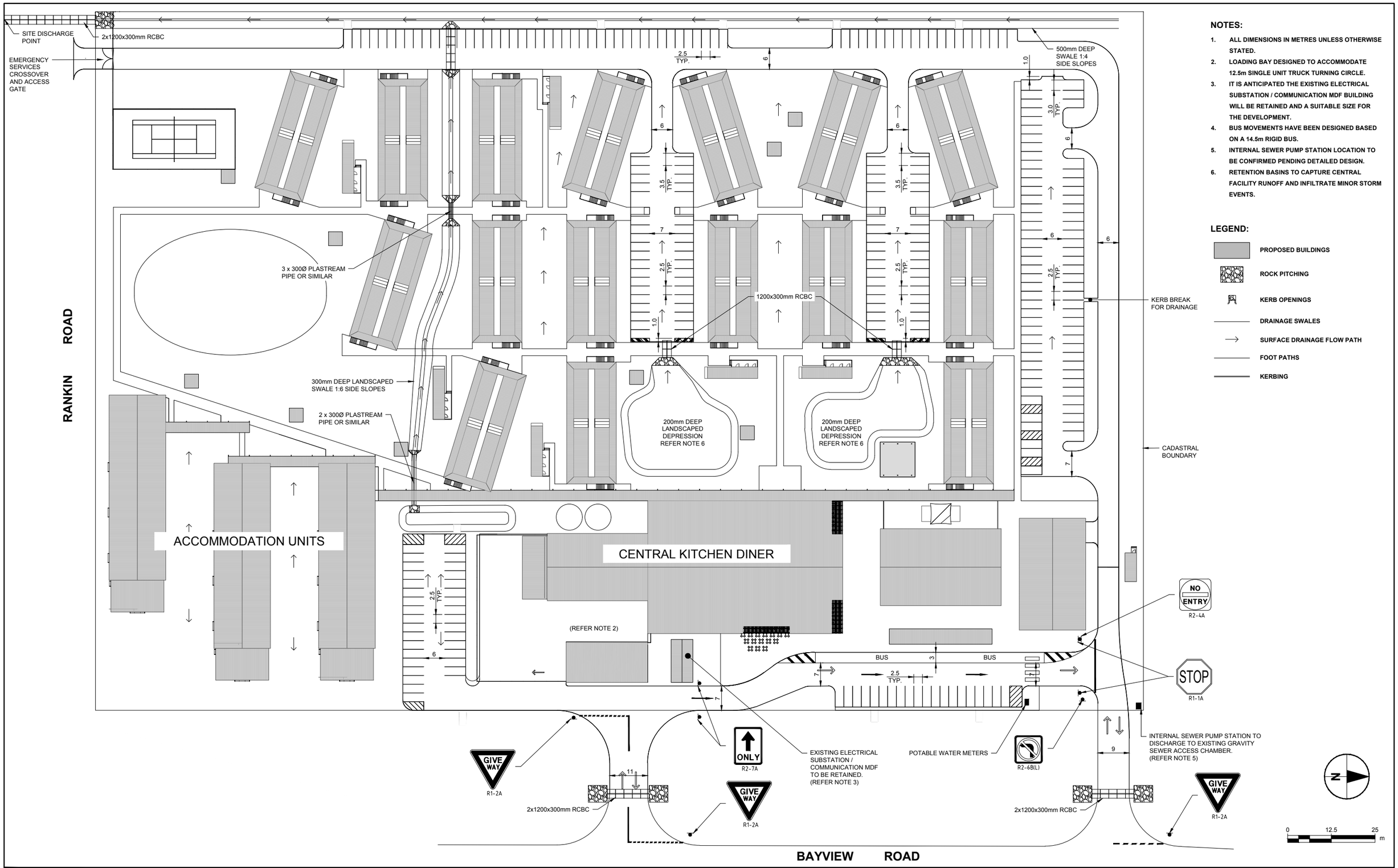
Open Space

Shading to the open space will be concentrated to the areas where it will be of maximum benefit to thermal comfort. Large canopy trees and nodal seating shade structures are to be placed on circulation routes and passive lawn spaces where opportunity existing to provide shaded areas directly adjacent to the open spaces. Larger shade structures are to be placed for BBQ areas, gathering places and adjacent to sports fields and courts.

3.0

SUPPORTING INFORMATION

ISO A1 594mm x 841mm



NOTES:

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.
2. LOADING BAY DESIGNED TO ACCOMMODATE 12.5m SINGLE UNIT TRUCK TURNING CIRCLE.
3. IT IS ANTICIPATED THE EXISTING ELECTRICAL SUBSTATION / COMMUNICATION MDF BUILDING WILL BE RETAINED AND A SUITABLE SIZE FOR THE DEVELOPMENT.
4. BUS MOVEMENTS HAVE BEEN DESIGNED BASED ON A 14.5m RIGID BUS.
5. INTERNAL SEWER PUMP STATION LOCATION TO BE CONFIRMED PENDING DETAILED DESIGN.
6. RETENTION BASINS TO CAPTURE CENTRAL FACILITY RUNOFF AND INFILTRATE MINOR STORM EVENTS.

LEGEND:

- PROPOSED BUILDINGS
- ROCK PITCHING
- KERB OPENINGS
- DRAINAGE SWALES
- SURFACE DRAINAGE FLOW PATH
- FOOT PATHS
- KERBING

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A.B.N 20 093 846 925
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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

JB	MK	PF
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	

ISSUE/REVISION

I/R	DATE	DESCRIPTION
F	25/07/2018	RE-ISSUED FOR JDAP
E	09/07/2018	RE-ISSUED FOR D.A
D	07/06/2018	RE-ISSUED FOR D.A
C	24/05/2018	RE-ISSUED FOR D.A
B	07/02/2018	RE-ISSUED FOR D.A
A	14/12/2017	ISSUED FOR APPROVAL

PROJECT NUMBER

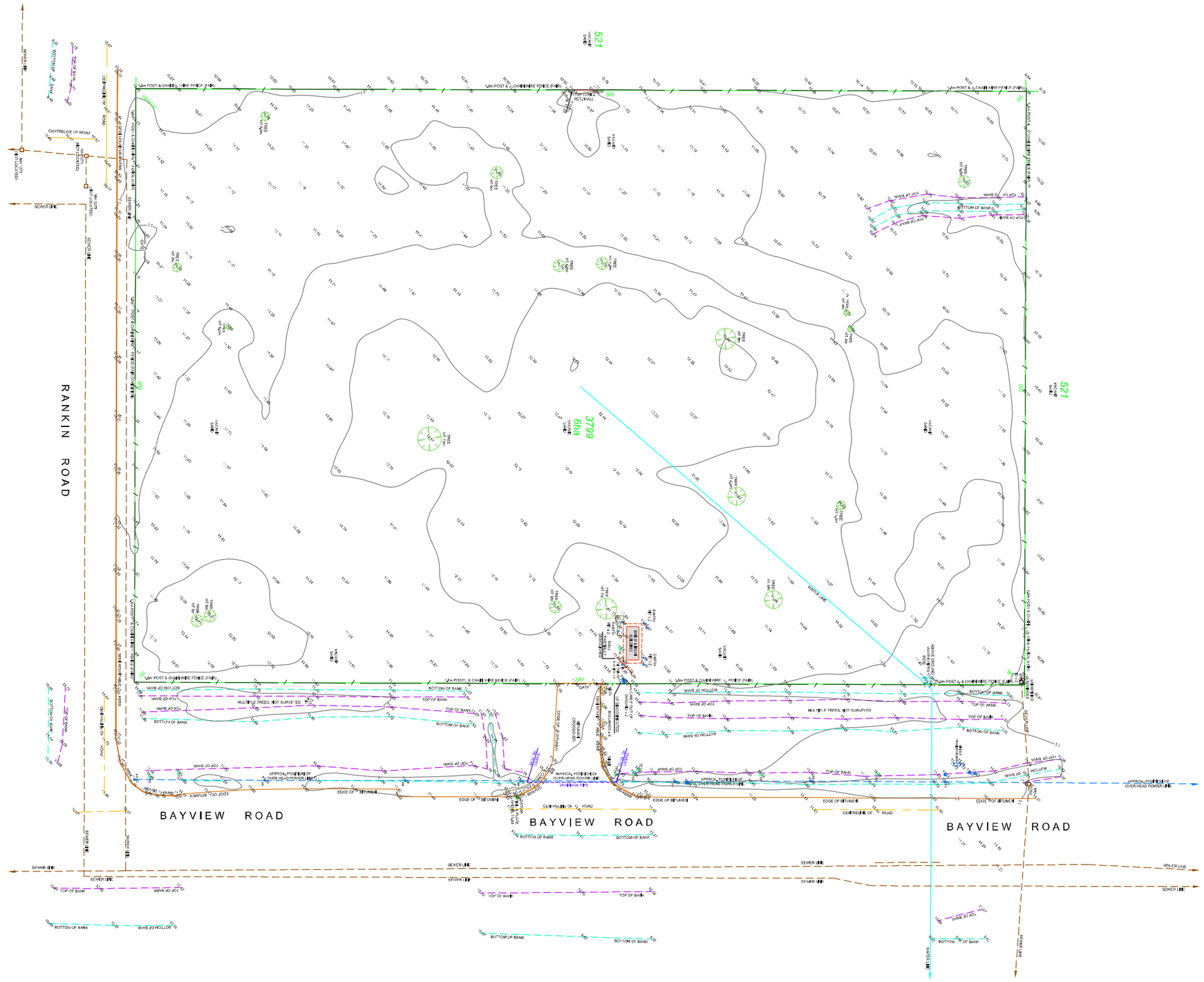
60560383 DA

SHEET TITLE

CIVIL ENGINEERING
LOCALITY PLAN AND KEY PLAN

SHEET NUMBER

CD-WBV-AEC-DWG-CV-00-001 F



LOT DIMENSIONS SHOWN HAVE BEEN TAKEN FROM DEPOSITED PLAN 185178. THE LINE WORK IS THE CALCULATED SURVEYED BOUNDARY.

NOTE:
THIS PLAN HAS BEEN PREPARED WITH 3D VALUES AND HAS KAR94 COORDINATES.

NOTE:
AHD LEVEL DERIVED FROM STANDARD SURVEY MARK DAMPIER 96 & DAMPIER 93

WARNING!
BOUNDARY RE-ESTABLISHMENT SURVEY REQUIRED TO CONFIRM LOT BOUNDARY POSITION AND DIMENSIONS.

SERVICE RECORD

SERVICE \ STATUS	LOCATED	AVAILABLE	NO SERVICE	CONFIRM
WATER	✓			
SEWERAGE	✓			
GAS				✓
TEL / COMM	✓			
POWER U/G	✓			
POWER O/H	✓			

SERVICES MARKED CONFIRM REQUIRE BUILDER / CLIENT TO CONFIRM POSITION AND / OR AVAILABILITY ON SITE.

REV	DESCRIPTION	DRN	DATE	APP

LOT : 3799 RANKIN ROAD	DEPOSITED PLAN 185178
SUBURB : GAP RIDGE	C/T : LR3019 / 150
MAP REF : REGIONAL	AUTHORITY : KARRATHA

BUILDERS / CLIENTS
SITE SURVEY only. The information shown on this plan is current as at the date of survey. Boundary information, easements etc. to be verified from the Certificate of Title. Plan / Diagram or a Boundary Repeg. Boundary position approximate only. Location of boundary pegs or fences in relation to the boundary lines are not guaranteed. Sewer / Drainage may vary from screen-plan presentation, clearances to be checked on site. Services information to be confirmed with relevant AUTHORITIES. For underground services - ring "DIAL BEFORE YOU DIG" for confirmation of those services.

SCALE :
1:500
@ A0 Portrait
10 0 5 10 20 30

CLIENT : MULTIPLEX CONSTRUCTION PTY. LTD.
BUILDER :
SURVEYED ON : 04/12/2017 SURVEYOR : MOS DRAFTER : MR

Land Surveys

Unit 12 Karratha Shopping Centre
5 Sharpe Avenue KARRATHA WA 6714
Telephone (08) 9143 1744
Fax (08) 9143 1755
karratha@landsurveys.net.au

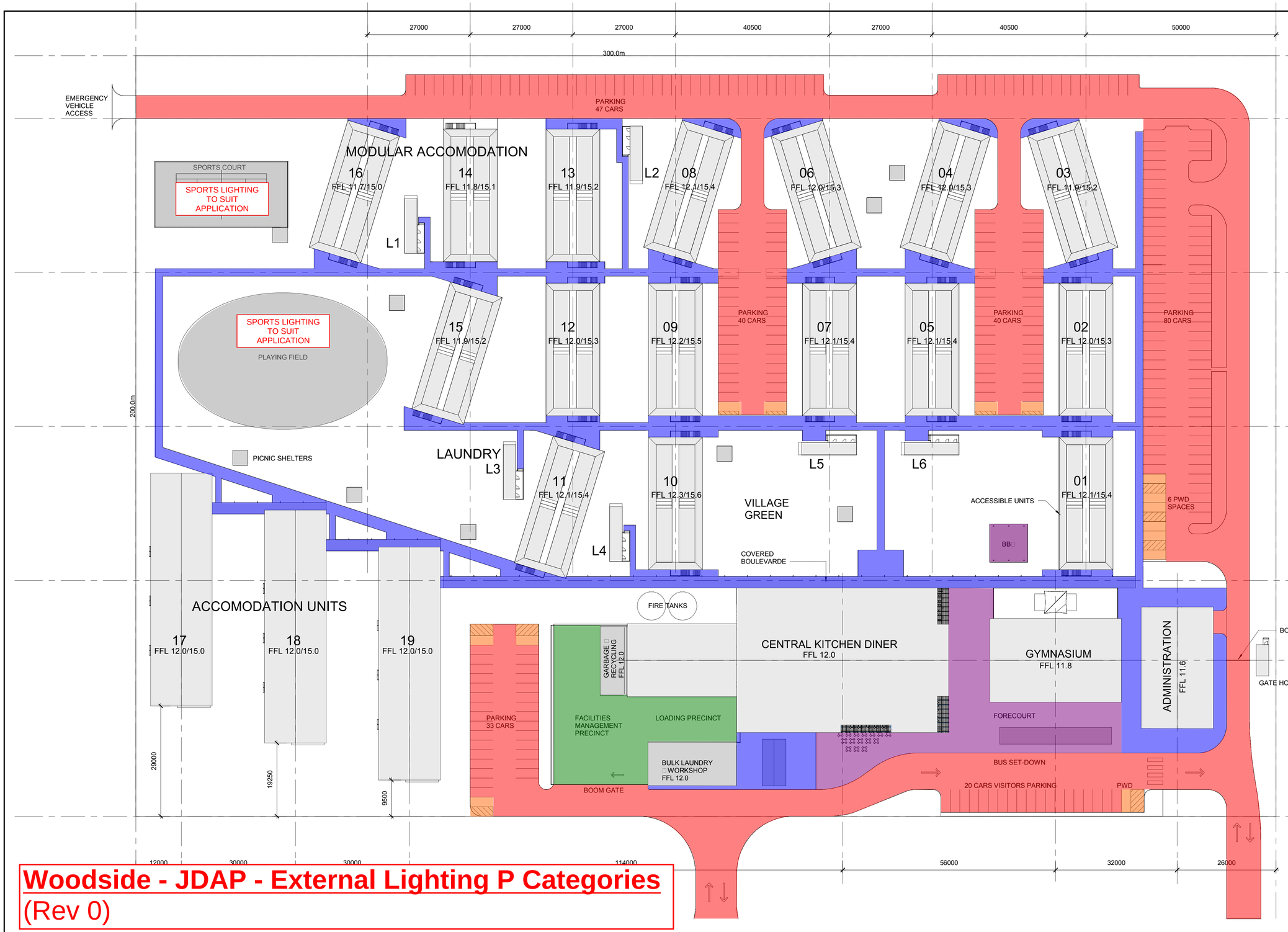
JOB No.: 1701309 - PLAN: FS - DRG: 001 - REV. A SHEET 1 OF 1

ATTACHMENT 3

EXTERNAL LIGHTING PLAN

ROWE GROUP

ISO A1 594mm x 841mm



LEGEND

TABLE 2.1
LIGHTING CATEGORIES FOR ROAD RESERVES IN LOCAL AREAS

1	2	3	4	5	6
Type of road or pathway		Selection criteria[a]			
General description	Basic operating characteristics	Pedestrian/ cycle activity	Risk of crime[b]	Need to enhance prestige	Applicable lighting subcategory[c,d]
Collector roads or non-residential roads carrying and distributing traffic in an area, as well as serving abutting properties	Mixed vehicle and pedestrian traffic	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Low	Medium	P3
		Low	Low	N/A	P4
Local roads or streets used primarily for access to abutting properties, including residential properties	Mixed vehicle and pedestrian traffic	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Medium	Medium	P3
		Low	Low	N/A	P4
		Low	Low	N/A	P5[e]
Common area, forecourts of cluster housing	Mixed vehicle and pedestrian traffic	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Low	Medium	P3
		Low	Low	N/A	P4

[a] The selection criteria of Columns 3 to 5 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the road will determine the applicable lighting subcategory.

[b] Refer to Appendix C for guidance on choosing the applicable level of each selection criteria for the environment and purpose of a lighting scheme.

[c] Lighting categories P1, P4 and P5 apply across the whole of the road reserve width, including the footpath. Lighting categories P1 or P2 may be selected where there is a significant risk of crime or need to enhance the prestige of the area, however, such lighting only applies over the physical extent of any formed pathway.

[d] Refer to the footnotes to Table 2.6 regarding modified sub-categories P3R and P4R for use in New Zealand.

[e] Discretionary use of subcategory P5.

Generally, subcategory P5 shall only be applied to the replacement of existing luminaires installed on existing electricity distribution poles or for the initial application of a lighting scheme where the cost to re-configure these poles limits or precludes compliance with category P4.

It is recognized however that for some authorities, category P4 could be deemed as being excessive in terms of providing adequate level of service and meeting with community expectations. In this case subcategory P5 may be used.

[f] The risk levels 'High', 'Medium' and 'Low' correspond to classification of the same names in HB 436.

TABLE 2.2
LIGHTING CATEGORIES FOR PATHWAYS (INCLUDING CYCLEWAYS)

1	2	3	4	5	6
Type of pathway		Selection criteria[a,b]			
General description	Basic operating characteristics	Pedestrian/ cycle activity	Risk of crime[c]	Need to enhance prestige	Applicable lighting subcategory
Pedestrian or cycle orientated pathway, e.g. footpaths, including those along local roads[d] and arterial roads[d], walkways, lanes, park paths, cycleways	Pedestrian/cycle traffic only	N/A	High	N/A	P1[e]
		High	Medium	High	P2[e]
		Medium	Low	Medium	P3
		Low	Low	N/A	P4

[a] The selection criteria of Columns 3 to 5 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the pathway will determine the applicable lighting subcategory.

[b] Refer to Appendix C for guidance on choosing the applicable level of each selection criteria for the environment and purpose of a lighting scheme.

[c] Where there are vertical surfaces of high reflectance (e.g. light colored walls bordering on an alleyway) alongside the pathway, the next lower lighting subcategory may be selected.

[d] Where the footpath is along a local road and subcategory P1 or P2 is selected, the light technical parameters for that subcategory only apply to the formed footpath. Where subcategory P3 or P4 is selected, the light technical parameters apply to the whole road reserve width, including the footpath.

[e] Footpaths associated with arterial roads are deemed not to require separate lighting provided that—

(i) the road is lit to at least the applicable level of Category V lighting complying with AS/NZS 1158.3.1; and

(ii) the footpath is unshaded, e.g. there are no substantially continuous building awnings, and the footpath is contiguous with the roadway.

If the footpath is shaded, or is separated from the roadway by an extensive nature strip or a service road, it shall be provided with lighting to at least subcategory P4.

[f] The risk levels 'High', 'Medium' and 'Low' correspond to the classifications of the same names in HB 436.

TABLE 2.3
LIGHTING CATEGORIES FOR PUBLIC ACTIVITY AREAS (EXCLUDING CAR PARKS)

1	2	3	4	5	6
Type of area or activity		Selection criteria[a,b]			
General description	Basic operating characteristics	Night time vehicle movements	Risk of crime[c]	Need to enhance prestige	Applicable lighting subcategory
Areas primarily for pedestrian activity, e.g. shopping centres, including outdoor shopping precincts, malls, open arcades, town squares, civic centres	Generally pedestrian movement only	N/A	High	High	P6
		Medium	Medium	Medium	P7
		Low	Low	N/A	P8
Transport terminals and interchanges, service areas	Mixed pedestrian and vehicle movement	High	High	High	P6
		Medium	Medium	Medium	P7
		Low	Low	N/A	P8

[a] The selection criteria of Columns 3 to 5 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the area type will determine the applicable lighting subcategory.

[b] Refer to Appendix C for guidance on choosing the applicable level of each selection criteria for the environment and purpose of a lighting scheme.

[c] The risk levels 'High', 'Medium' and 'Low' correspond to the classifications of the same names in HB 436.

NOTE: See Table 2.5 for lighting categories applicable to outdoor car parks, including roof-top car parks.

TABLE 2.5
LIGHTING CATEGORIES FOR OUTDOOR CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5
	Selection criteria[a]			
Type of area	Night time vehicle or pedestrian movements	Night time occupancy rates (NTOR)	Risk of crime[b]	Applicable lighting subcategory[c,d]
Parking spaces, aisles and circulation roadways	High	>75%	High	P11a
	Medium	≥25%, ≤75%	Medium	P11b
	Low	<25%	Low	P12
Designated parking spaces specifically intended for people with disabilities	N/A	N/A	N/A	P12

[a] The selection criteria of Columns 2 to 4 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the area type will determine the applicable lighting subcategory.

[b] The risk levels 'High', 'Medium' and 'Low' correspond to the classifications of the same names in HB 436.

[c] Providing a lighting scheme that meets the requirements of more than one subcategory by the use of switching is permitted.

Woodside - JDAP - External Lighting P Categories
(Rev 0)

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PROJECT
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KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT
WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR COMMENT

PROJECT MANAGEMENT INITIALS

VH	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

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1:1000 A3

ISSUE/REVISION

0	26/06/18	ISSUED FOR COMMENT
I/R	DATE	DESCRIPTION

PROJECT NUMBER 60560383
PROJECT PHASE DA
SHEET TITLE SITE PLAN
SHEET NUMBER WBV-AEC-EL-00-SK1010
REVISION 0

Last Saved: 7/06/2018 1:42:12 PM
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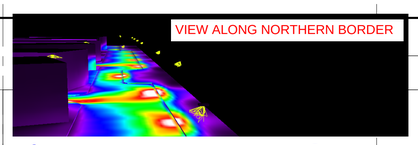


27000 | 27000 | 27000 | 40500 | 27000 | 40500 | 50000

300.0m

EMERGENCY VEHICLE ACCESS

PARKING 47 CARS

MODULAR ACCOMODATION

SPORTS COURT

SPORTS LIGHTING TO SUIT APPLICATION

16 FFL 11.7/15.0 | 14 FFL 11.8/15.1 | 13 FFL 11.9/15.2 | L2 | 08 FFL 12.1/15.4 | 06 FFL 12.0/15.3 | 04 FFL 12.0/15.3 | 03 FFL 11.9/15.2

L1

SPORTS LIGHTING TO SUIT APPLICATION

PLAYING FIELD

15 FFL 11.9/15.2 | 12 FFL 12.0/15.3 | 09 FFL 12.2/15.5 | PARKING 40 CARS | 07 FFL 12.1/15.4 | 05 FFL 12.1/15.4 | PARKING 40 CARS | 02 FFL 12.0/15.3 | PARKING 80 CARS

200.0m

PICNIC SHELTERS

LAUNDRY L3

11 FFL 12.1/15.4 | 10 FFL 12.3/15.6 | L5 | L6 | 01 FFL 12.1/15.4

VILLAGE GREEN

ACCESSIBLE UNITS

6 PWD SPACES

L4

COVERED BOULEVARDE

LIGHTING FIXED TO CANOPY

ACCOMODATION UNITS

17 FFL 12.0/15.0 | 18 FFL 12.0/15.0 | 19 FFL 12.0/15.0

FIRE TANKS

CENTRAL KITCHEN DINER FFL 12.0

GYMNASIUM FFL 11.8

ADMINISTRATION FFL 11.6

BOOM GATE

GATE HOUSE

21000

GARBAGE RECYCLING FFL 12.0

PARKING 33 CARS

FACILITIES MANAGEMENT PRECINCT

LOADING PRECINCT

BULK LAUNDRY WORKSHOP FFL 12.0

BOOM GATE

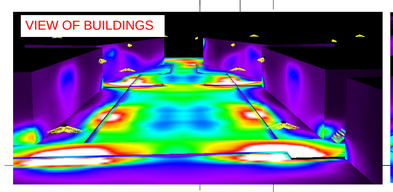
FORECOURT

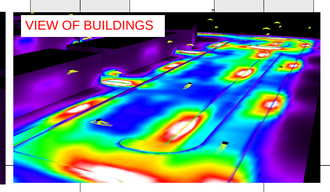
BUS SET-DOWN

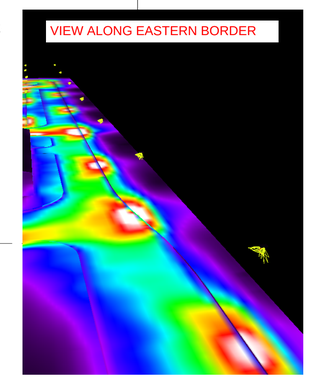
20 CARS VISITORS PARKING

PWD

56000 | 32000 | 26000

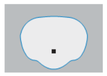






LEGEND

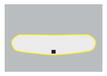
PATHWAY POLE-TOP LUMINAIRE (3m POLE)
REF: WE-EF VFL530



[R65] Rectangular forward throw distribution for lighting public spaces and car parks.

Maximum angle of peak intensity (side and forward) approximately under 65°. Rearward spill limited to an angle of 10°.

Typical mounting height 4 m to 8 m.



[P65] Pedestrian / bicycle lane distribution. Illuminance optimised lens, based on Class S2-S4 from EN 13201.

Spacing 5 – 7 x mounting height.

Typical mounting height 3 – 5 m.

OR

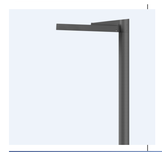
CARPARK POLE-TOP LUMINAIRE (7m POLE)
REF: WE-EF VFL530

[S70] Streetlighting distribution, illuminance-optimised lens, based on Class S1-S6 from EN 13201.

Spacing 7 to 9 times the mounting height; Ti<15 per cent.

Typical mounting height 3 m to 6 m.

IMAGES



Woodside - JDAP - External Lighting P Categories
(Rev 0)

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CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR COMMENT

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 12500 25000 mm
1:1000 □ A3

ISSUE/REVISION

I/R	DATE	DESCRIPTION
0	26/06/18	ISSUED FOR COMMENT

PROJECT NUMBER 60560383

PROJECT PHASE DA

SHEET TITLE

SITE PLAN

SHEET NUMBER WBV-AEC-EL-00-SK100

REVISION 0

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ATTACHMENT 4

STORMWATER MANAGEMENT PLAN

ROWE GROUP

Bay Village - Stormwater Management Plan

WBV-AEC-REP-CV-00-001

Bay Village - Stormwater Management Plan

WBV-AEC-REP-CV-00-001

Client: Multiplex Global

ABN: 70 107 007 527

Prepared by

AECOM Australia Pty Ltd
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09-Jul-2018

Job No.: 60560383

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

Quality Information

Document Bay Village - Stormwater Management Plan

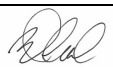
Ref 60560383

Date 09-Jul-2018

Prepared by Justin Boskovski

Reviewed by Mathew Milnes

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	09-Jul-2018	Issue for DA	Ben Howard Project Manager	

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1.0 Introduction

1.1 Background Information

Bay Village will support Woodside's operations at Karratha, providing a high quality of life for residents and making a positive contribution to the neighbourhood of Nickol and the city of Karratha.

The needs of residents and the surrounding community are anticipated and addressed in a range of facilities that encourage interaction within the village and social integration with the neighbourhood, and in turn lead to a more engaged, safe and productive workforce.

The design and layout of the village respond to the project requirements, the site context and principles of sustainability, comprising a legible village with incorporated landscaped zones that provide surface water management, shade, amenity and a sense of community for residents and visitors.

1.2 Site Characteristics

1.2.1 Location & Climate

The proposed village will be located on the corner of Bayview and Rankin Roads, in Nickol, a suburb on the western fringe of Karratha.

Karratha is characterised by a hot, semi-arid climate, tending towards desert climate classification. Whilst often hot and dry, daytime temperatures are generally warm to hot throughout the year on average. In summer the mean daily maximum temperatures are in the mid-thirties but may reach as high as 45 degrees Celsius, while in winter temperatures peak in the high 20s.

Rainfall is low with the predominant rainfall in the summer, between January and March, with 60% of the mean annual rainfall occurring during this period often associated with cyclonic events.

At either side of the summer rainfall peak are troughs in spring and autumn. In the mild winters, rainfall is less, as is evaporation. Recharge of the soil water occurs in both summer and winter, though in summer there is also a volume of surplus water accompanying heavy downpours, while in spring and autumn there tend to be soil water deficits. A low level of winter rain slightly mitigates the effects of the drying that occurs in spring, the driest part of the year.

1.2.2 Groundwater

Groundwater level is currently unknown for the site due to limited information. It has been assumed that Groundwater level will not pose any significant issues. However, groundwater levels can vary significantly throughout Karratha and it is recommended a groundwater survey be undertaken as part of the geotechnical investigations.

1.2.3 Flooding Risk

The site is outside the area shown to be at risk of inundation during a 500yr ARI storm surge event (Policy DP19 Storm Surge Risk Policy – Town Planning Scheme No. 8).

No special treatment of consideration is required for storm surge flooding risk

1.2.4 Geotechnical

At the time of this report no geotechnical investigations have been undertaken for the site. A geotechnical investigation will be undertaken in the detailed design phase.

2.0 Stormwater Design Objectives

2.1 Guidelines & Standards

Stormwater has been designed in accordance with the following guidelines;

- City of Karratha – Stormwater Design Guidelines for Residential Developments – June 2011 – Large Developments
- Australian Rainfall & Runoff – Engineers Australia (AR&R2016)
- City of Karratha Water Management Strategy (Essential Environment, 2016)
- Better Urban Water Management – (WAPC 2008)
- Australian Runoff Quality – A Guide to Water Sensitive Urban Design – Engineers Australia
- Policy DP19 Storm Surge Risk Policy – Town Planning Scheme No. 8 (City of Karratha)

2.2 Design Parameters

The drainage system has been designed for the following storm events;

Minor Storm – 0.2EY (*1 in 5 year ARR87*)

Major Storm – 1% AEP (*1 in 100 year ARR87*)

As Bay Village is classed as a large development with multiple lots, roads and public services the following design parameters will be adhered to;

- 300mm freeboard will be provided below the road shoulder from open channels in the 0.2EY storm
- Maximum flow velocities in open channels shall not exceed 2 m/s
- Mortared stone pitching shall be provided in open drains at all outlet structures, junctions and bends greater than 22.5º
- Minimum habitable floor levels shall be 0.5m above the 100-year ARI flood level
- Drainage channels to be constructed with minimum 1:4 side slopes and vegetated where possible. Steeper slopes will aim to be treated with scour protection measures

2.3 Stormwater Management System

2.3.1 Stormwater Design Intent

The overall stormwater drainage strategy for the site is to collect the stormwater within the road network and landscaped swales throughout the site. The drainage is designed and sized to convey the 1% AEP (1 in 100 year) storm off site towards the City of Karratha drainage swales reducing the risk of flooding

The design intent is that majority of the site run-off from roofs and impervious areas will be directed to towards the south-western corner by a landscaped drainage swale along the western boundary (Catchment 1), from here twin box culverts will discharge controlled flow to the City of Karratha drainage channel on Rankin Road. The eastern portion of the site (Catchment 2) including the front carparks and driveways are intended to grade and direct stormwater towards the City of Karratha drainage network on Bayview Road. Box culverts will be provided under each driveway crossing to enable the continuation of the City of Karratha drainage. Refer to Figure 1 below for the layout of the drainage strategy.

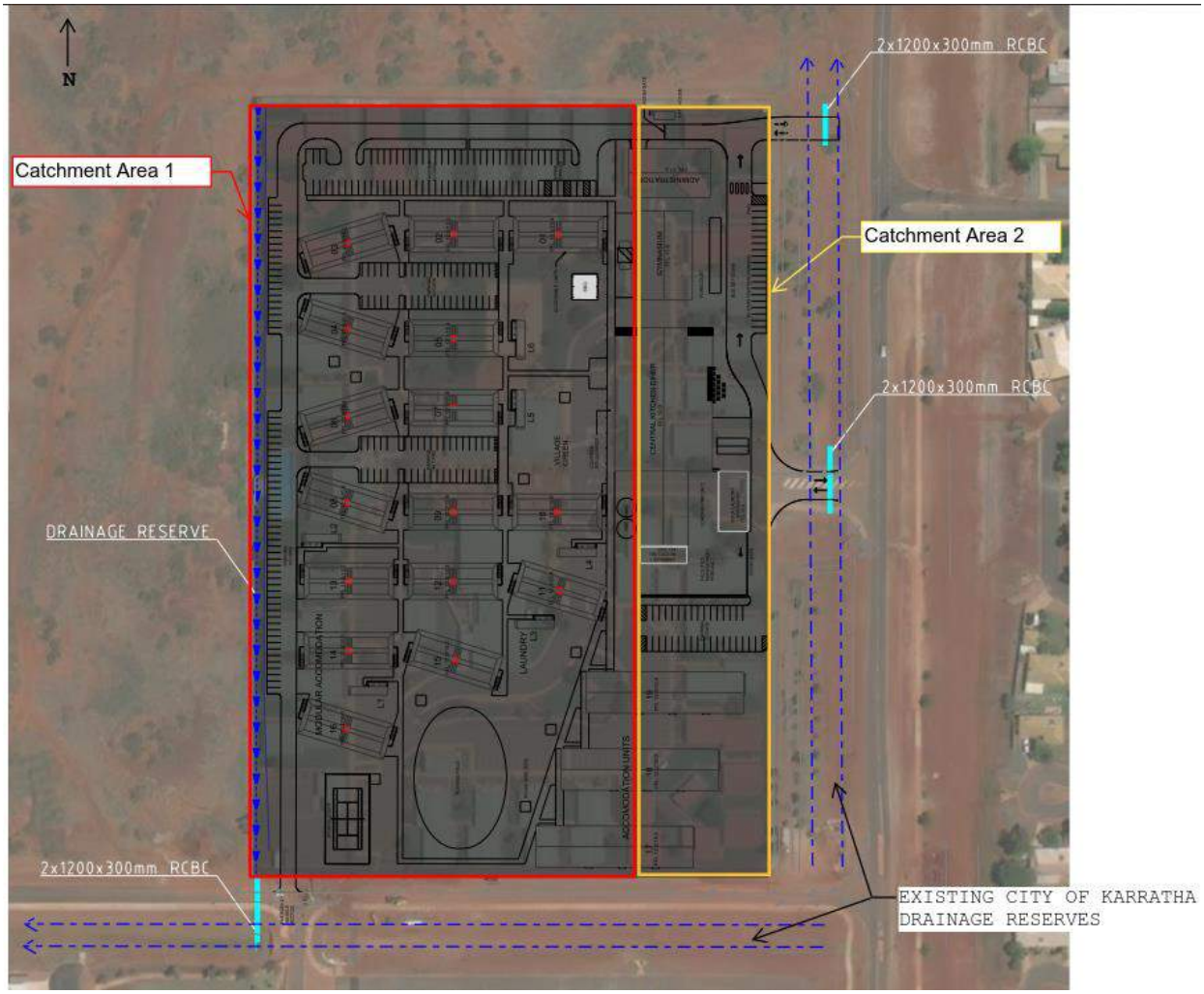


Figure 1 Drainage Strategy Plan

2.3.2 Design Discharge

The majority of the discharge from the site will be in the southwestern corner under Rankin Road through reinforced concrete box culverts to the existing City of Karratha drainage reserve. Limited information has been provided on this channel and it assumed that the drain has the capacity to take the incoming flows through guidance in City of Karratha Drainage guidelines (2011) and City of Karratha Water Management Strategy (Essential Environment, 2016).

High-level stormwater analysis has been undertaken to ensure the proposal will be adequate given the constraints of the sites existing levels. Drains and Bentley Flowmaster has been used to conceptually size the main drainage reserve based on 1% AEP with a catchment area of ~4.6ha. HY-8 was used for the culvert analysis to demonstrate the downstream drainage reserve will not increase by more than 0.15m as a result of the Bay Village development. Supporting documentation and calculations have been attached in Appendix A. A typical section of the drainage reserve is shown in Figure 2 below;

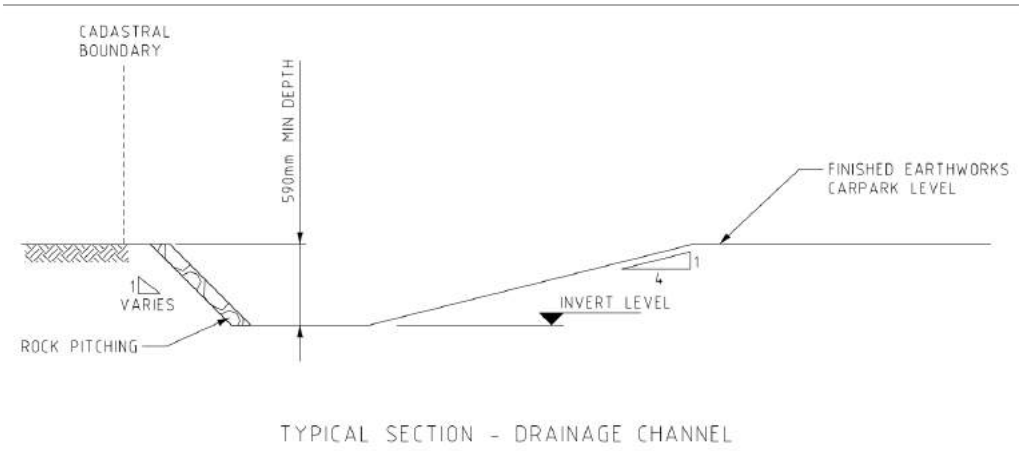


Figure 2 Drainage Channel of Western Boundary

2.3.3 Water Sensitive Urban Design Principles

Along with using the road network for the conveyance of runoff, the proposed drainage strategy has considered Water Sensitive Urban Design (WSUD) principles to collect and convey stormwater transversely through the site using a series of landscaped swales and depressions.

Retention basins and swales are used to capture stormwater and convey runoff towards the outlet, these will be vegetated and landscaped to improve the stormwater quality, reduce runoff volumes and help with scour protection. Run-off from the road network and carparks is to be graded and collected using concrete kerb openings with rock pitching and directed to the drainage reserves.

Low rainfall events are intended to be captured, infiltrated and evaporated on site within the landscaping reducing the amount of water required for reticulation. The drainage system will be designed to ensure there is minimal standing water following a rain event.

3.0 Detail Design Development

The following tasks will be undertaken in the detail design phase;

- Further refining of the main channel, landscaped swales and earthworks
- Designing swale drain to ensure velocities are <2 m/s
- Sizing and depth of potential retention basins in grassed areas
- Detailing of kerb openings, rock pitching and other scour protection measures
- Further investigation of applications for Water Sensitive Urban Design (WSUD)

4.0 Management of Construction Works

4.1 Dewatering

It is not anticipated that dewatering is required given the works are assumed to be above the water table. Should dewatering be required a Dewatering Management Plan and ASS Management plan will need to be submitted prior to dewatering commencing.

4.2 Acid Sulfate Soils and Soil Management

The development area is classified as having moderate to low known risk of acid sulfate soils occurring within 3 m of the natural surface and above ground water. A project construction management plan will be developed by the Contractor, part of which will outline an unexpected finds procedure.

4.3 Stormwater Management During Construction

Silt and sand that is disturbed during construction works will be highly susceptible to mobilisation and transport via surface/storm water. A project construction management plan will be developed by the Contractor prior to works commencing. The Contractor will need to carefully consider runoff flow paths during and following construction to ensure no surface water is allowed to leave the site or enter constructed parts of the drainage system without adequate treatment to manage water quality.

5.0 Monitoring and Maintenance

5.1 Monitoring

The proposed Bay Village precinct upgrade is considered a low risk to groundwater resources or downstream water quality; therefore no post-development groundwater monitoring is proposed.

The site will discharge surface water off-site in major storm events and there will be no permanent or semi-permanent water bodies associated with the works. Therefore no surface water monitoring is proposed.

5.2 Maintenance

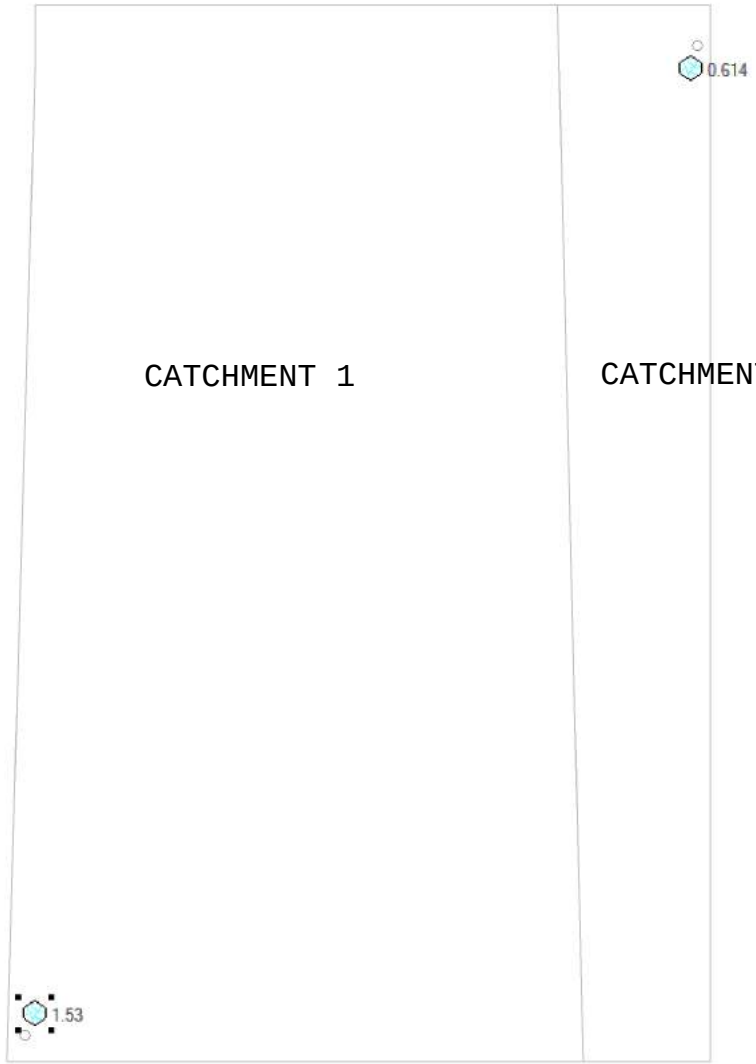
Drainage infrastructure will require regular maintenance to ensure efficient operation. Table 1 outlines the proposed maintenance schedule.

Table 1 Drainage Infrastructure Maintenance Schedule

Maintenance Task	Interval		
	Bi-Annually	Annually	As Required
Remove litter, rocks, sand and other debris from open drains	X		
Sweep pavement areas and kerbs		X	

Appendix A

Calculations & Supporting Documentation



BAY VILLAGE DEVELOPMENT

DRAINS -CATCHMENT AREAS ANALYSIS

DRAINS results prepared from Version 2018.06

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area □	Grass Area □	Supp Area □	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(□)	Grass Slope □	Supp Slope □	Paved Rough	Grass Rough
Cat1	N3	4.6	60	40	0	0	0	0	250	250	-1	0.5	0.5	-1	0.016	0.04
Cat2	N4	1.4	90	10	0	0	0	0	200	200	-1	0.5	0.5	-1	0.014	0.035

SUB-CATCHMENT DETAILS

Name	Max Flow □ (cu.m/s)	Paved Max □ (cu.m/s)	Grassed Max □ (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
Cat1	1.528	1.128	0.399	10.74	18.61	0	1□ AEP, 15 min burst, Storm 4
Cat2	0.614	0.585	0.029	8.17	14.16	0	1□ AEP, 10 min burst, Storm 4

Cross Section for Drainage Reserve

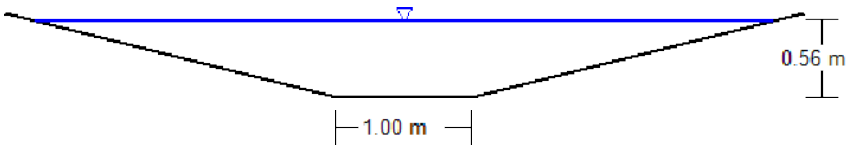
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.040	
Channel Slope	0.00500	m/m
Normal Depth	0.56	m
Left Side Slope	4.00	m/m (H:V)
Right Side Slope	4.00	m/m (H:V)
Bottom Width	1.00	m
Discharge	1.53	m³/s

Cross Section Image

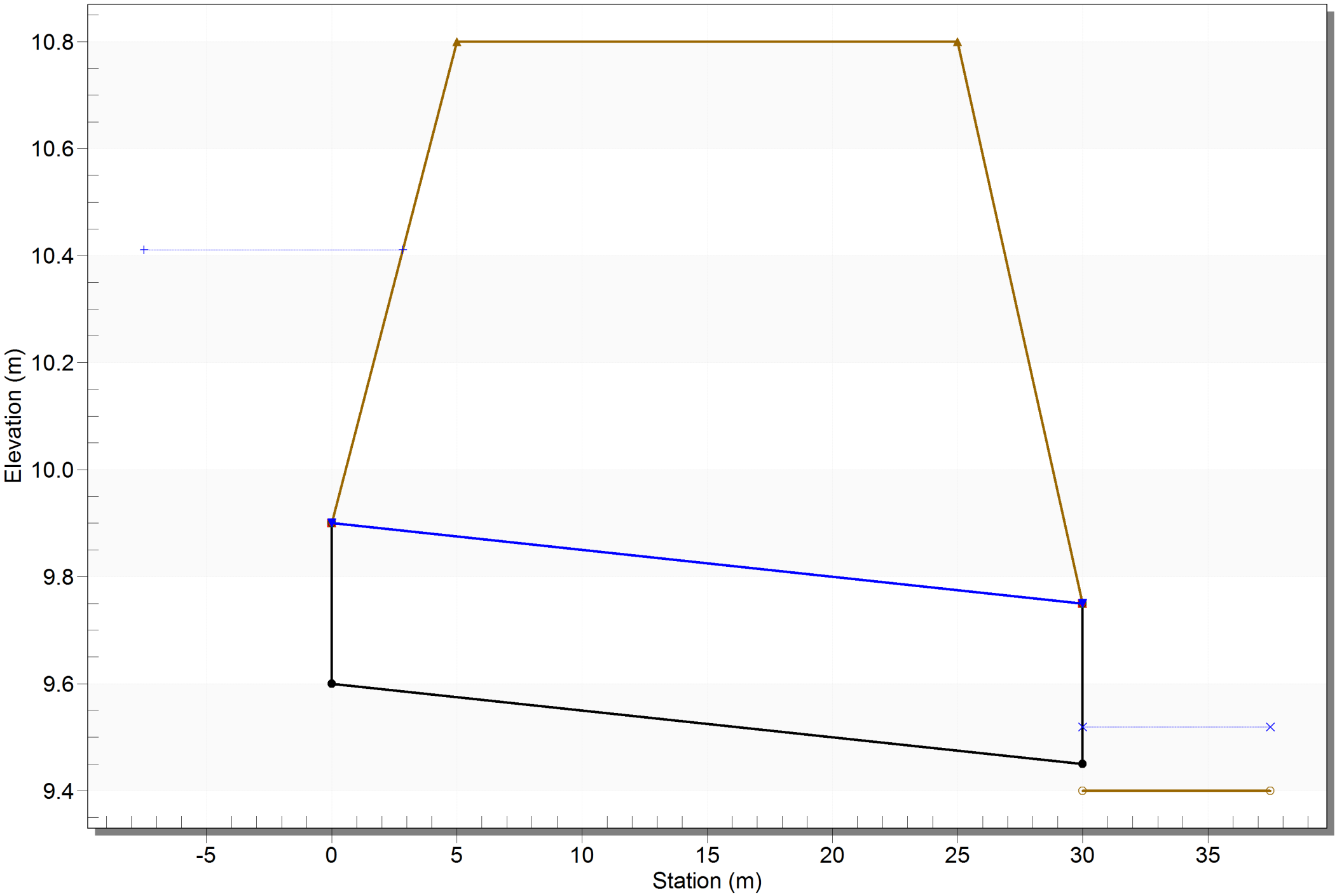


Flow Area:	1.83	m²
Wetted Perimeter:	5.64	m
Hydraulic Radius:	0.32	m
Top Width:	5.51	m
Critical Depth:	0.39	m
Critical Slope:	0.02597	m/m
Velocity:	0.83	m/s
Velocity Head:	0.04	m
Specific Energy:	0.60	m
Froude Number:	0.46	
Flow Type:	Subcritical	

V: 1
H: 1

Crossing - Crossing 1, Design Discharge - 1.53 cms

Culvert - Culvert 2, Culvert Discharge - 1.53 cms



HY-8 Analysis Results

2 x 1200 x 300 RCBC

Culvert Crossing

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth(m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
0.80	0.80	9.97	0.37	0.26	5-S2n	0.21	0.22	0.21	0.08	1.58	2.28
0.87	0.87	9.99	0.39	0.33	5-S2n	0.22	0.24	0.22	0.09	1.63	2.35
0.95	0.95	10.02	0.42	0.38	5-S2n	0.24	0.25	0.24	0.09	1.67	2.42
1.02	1.02	10.05	0.45	0.42	5-S2n	0.25	0.26	0.25	0.09	1.71	2.49
1.09	1.09	10.09	0.49	0.47	5-S2n	0.26	0.28	0.26	0.10	1.75	2.55
1.16	1.16	10.12	0.52	0.0*	5-S2n	0.27	0.29	0.27	0.10	1.78	2.61
1.24	1.24	10.18	0.56	0.58	6-FFc	0.30	0.30	0.30	0.10	1.72	2.67
1.31	1.31	10.24	0.59	0.64	6-FFc	0.30	0.30	0.30	0.11	1.82	2.72
1.38	1.38	10.29	0.63	0.69	6-FFc	0.30	0.30	0.30	0.11	1.92	2.78
1.46	1.46	10.35	0.68	0.75	6-FFc	0.30	0.30	0.30	0.12	2.02	2.83
1.53	1.53	10.41	0.72	0.81	6-FFc	0.30	0.30	0.30	0.12	2.12	2.88

ISO A1 594mm x 841mm

SITE DISCHARGE POINT

2x1200x300mm RCBC

EMERGENCY SERVICES CROSSOVER AND ACCESS GATE

RANKIN ROAD

3 x 300Ø PLASTREAM PIPE OR SIMILAR

300mm DEEP LANDSCAPED SWALE 1:6 SIDE SLOPES

2 x 300Ø PLASTREAM PIPE OR SIMILAR

1200x300mm RCBC

200mm DEEP LANDSCAPED DEPRESSION REFER NOTE 6

200mm DEEP LANDSCAPED DEPRESSION REFER NOTE 6

500mm DEEP SWALE 1:4 SIDE SLOPES

KERB BREAK FOR DRAINAGE

CADASTRAL BOUNDARY

ACCOMMODATION UNITS

CENTRAL KITCHEN DINER

(REFER NOTE 2)

BUS

BUS

NO ENTRY R2-4A

STOP R1-1A

GIVE WAY R1-2A

ONLY R2-7A

GIVE WAY R1-2A

EXISTING ELECTRICAL SUBSTATION / COMMUNICATION MDF TO BE RETAINED. (REFER NOTE 3)

POTABLE WATER METERS

R2-6B(L)

INTERNAL SEWER PUMP STATION TO DISCHARGE TO EXISTING GRAVITY SEWER ACCESS CHAMBER. (REFER NOTE 5)

2x1200x300mm RCBC

GIVE WAY R1-2A

BAYVIEW ROAD

N

0 12.5 25 m

NOTES:

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.
2. LOADING BAY DESIGNED TO ACCOMMODATE 12.5m SINGLE UNIT TRUCK TURNING CIRCLE.
3. IT IS ANTICIPATED THE EXISTING ELECTRICAL SUBSTATION / COMMUNICATION MDF BUILDING WILL BE RETAINED AND A SUITABLE SIZE FOR THE DEVELOPMENT.
4. BUS MOVEMENTS HAVE BEEN DESIGNED BASED ON A 14.5m RIGID BUS.
5. INTERNAL SEWER PUMP STATION LOCATION TO BE CONFIRMED PENDING DETAILED DESIGN.
6. RETENTION BASINS TO CAPTURE CENTRAL FACILITY RUNOFF AND INFILTRATE MINOR STORM EVENTS.

LEGEND:

- PROPOSED BUILDINGS
- ROCK PITCHING
- KERB OPENINGS
- DRAINAGE SWALES
- SURFACE DRAINAGE FLOW PATH
- FOOT PATHS
- KERBING

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CONSULTANT

AECOM Australia Pty Ltd
A.B.N 20 093 846 925
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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

JB	MK	PF
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	

ISSUE/REVISION

E	09/07/2018	RE-ISSUED FOR D.A
D	07/06/2018	RE-ISSUED FOR D.A
C	24/05/2018	RE-ISSUED FOR D.A
B	07/02/2018	RE-ISSUED FOR D.A
A	14/12/2017	ISSUED FOR APPROVAL
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60560383 CONCEPT

SHEET TITLE

CIVIL ENGINEERING
LOCALITY PLAN AND KEY PLAN

SHEET NUMBER

CD-WBV-AEC-DWG-CV-00-001 E

ATTACHMENT 5

STAGING PLAN

ROWE GROUP

MULTIPLEX	**Woodside Karratha Long Term FIFO Accommodation Project** **Zoning Plan**	Revision: MPX-WEL-WFA-C06 Date : 01 Dec 2017

ATTACHMENT 6

BUSHFIRE MANAGEMENT PLAN

ROWE GROUP

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: Lot 3799 Rankin Road, Karratha

Site visit: Yes ☑ No ☐

Date of site visit (if applicable): Day 20th Month June Year 2018

Report author or reviewer: Rohan Carboon (BPAD 23160)

WA BPAD accreditation level (please circle):

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☐ Level 3 practitioner ☑

If accredited please provide the following.

BPAD accreditation number: 23160 Accreditation expiry: Month January Year 2019

Bushfire management plan version number: V1

Bushfire management plan date: Day 4 Month July Year 2018

Client/business name: Woodside Energy Ltd

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		✔
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		✔

Is the proposal any of the following (see SPP 3.7 for definitions)?	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)		✔
Strategic planning proposal (including rezoning applications)		✔
High risk land-use		✔
Vulnerable land-use	✔	

None of the above ☑

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The facility is a Transient Workforce Accommodation and requires a level of coordination during a bushfire event.

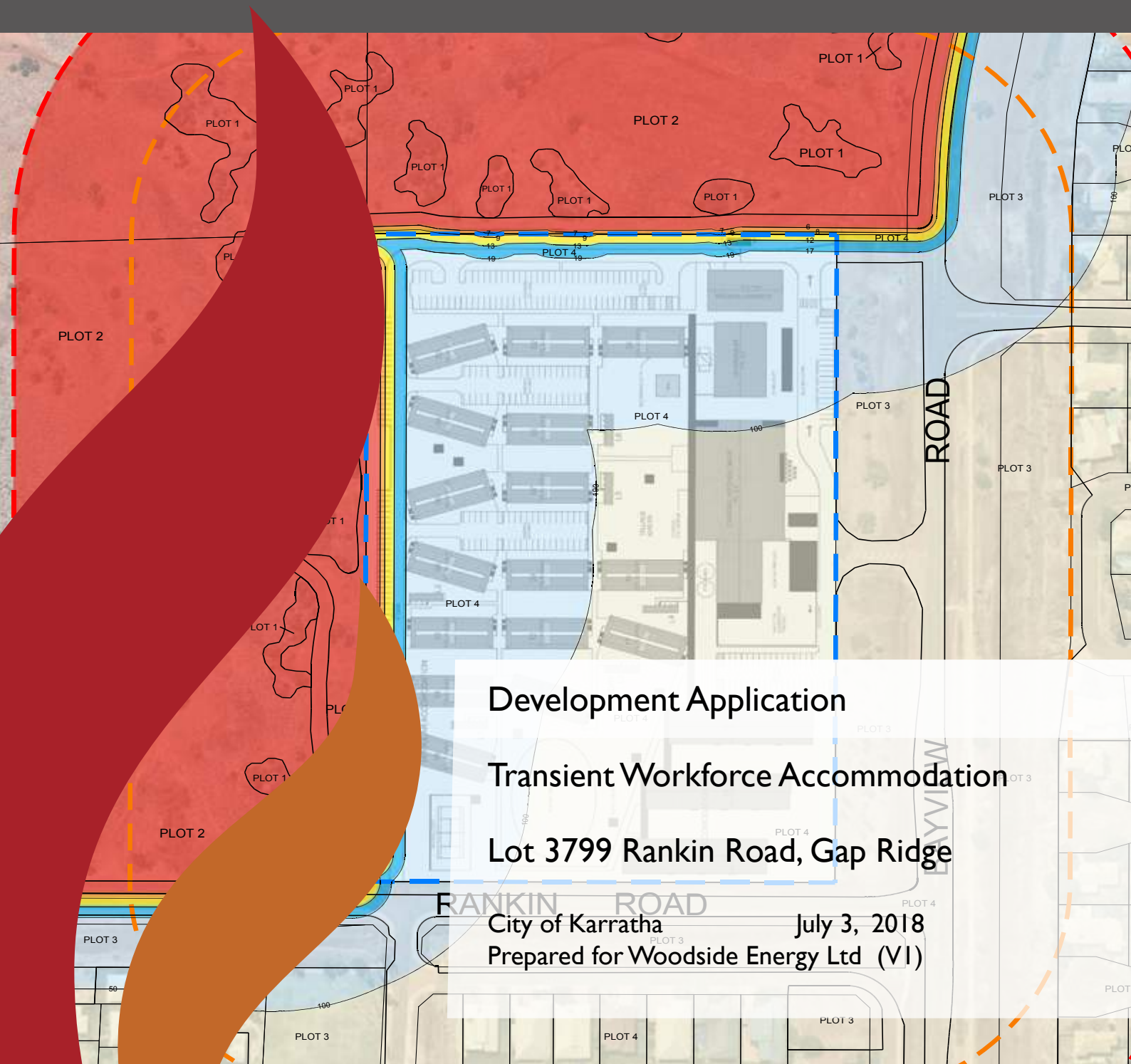
The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer 

Date 5/7/2018

Bushfire Safety
CONSULTING

Bushfire Management Plan



Development Application

Transient Workforce Accommodation

Lot 3799 Rankin Road, Gap Ridge

City of Karratha July 3, 2018
Prepared for Woodside Energy Ltd (V1)

Document Information

Prepared for: Woodside Energy Ltd

Project Name: Development Application: Bay Village Karratha

Address: Lot 3799 Rankin Road, Gap Ridge, City of Karratha

Document Control

Bushfire Management & Emergency Evacuation Plan			
REPORT VERSION	**PURPOSE**	**AUTHOR/REVIEWER AND ACCREDITATION DETAILS**	**DATE SUBMITTED**
V1	Client Review	Rohan Carboon (BPAD Level 3 - 23160) Reviewed Dr Ken Strahan (BPAD	3/07/2018

Front cover photo: BAL Contours over proposed development.

Bushfire Safety Consulting Pty Ltd
PO Box 84
STONEVILLE WA 6081

Tel: 0429 949 262
Email: enquiries@bushfiresafety.net
Web: www.bushfiresafety.net

EXECUTIVE SUMMARY

This Bushfire Management and Emergency Evacuation Plan (BMEEP) has been prepared to support a Development Application for a Transient Workforce Accommodation (TWA) facility at Lot 3799 Rankin Road, Gap Ridge in the City of Karratha.

The TWA facility will comprise a total of 700 rooms to be constructed in 2 stages. The development will also include a "Village Centre" comprising of a reception, first-aid room and ambulance bay, kitchen facilities, gymnasium and an outdoor landscaped lawn area.

Car parking is provided for 266 vehicles with the majority of the bays located on the western and northern perimeter of the site. There are two driveways into the site from Bayview Road and emergency access south to Rankin Road. Perimeter vehicular access is provided around the entire site using existing public roads and internal driveways.

There are bushfire threats to the site from the grassland and clumps of shrubland vegetation north and west of the site. Managed and developed landscapes occur south and east of the site and adjacent public roads.

The proposed TWA facility complies with the definition of "vulnerable land use" in the *State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7)*, policy clause 6.6 and therefore requires a Bushfire Management Plan which includes an emergency evacuation plan for proposed occupants.

In the event of a bushfire emergency, fire services require ready access to the site and to an adequate water supply. There is good vehicular access to the site on existing public roads and within and around the site.

The facility buildings are predominantly exposed to BAL-12.5, only one structure is exposed to BAL-29.

It is expected that the implementation of this BMEEP will reduce the threat to staff, residents, contractors, the public and fire fighters in the area addressed by this BMEEP. The proposal complies with the *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* and the *Guidelines for Planning in Bushfire Prone Areas* (WAPC 2017 V1.3).

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1 PROPOSAL DETAILS

The proposed development is to construct a total of 700 workforce accommodation rooms in 19 accommodation units to meet the current and predicted worksforce requirements for Woodside for the next 30 years. The development will also include a "Village Centre" which comprises a reception, first-aid room with medical supplies and an ambulance bay, dining and catering facilities, gymnasium and an outdoor landscaped lawn area. Swimming pool multi-purpose sports court, outdoor recreation areas and laundry facilities will also be developed.

The development proposal (Figure 1) demonstrates how the site will be laid out. Car parking is provided for 266 vehicles with the majority of the bays located on the western and northern perimeter of the site. There are two driveways into the site from Bayview Road and emergency access is provided to Rankin Road from the south-west corner of the site. Perimeter vehicular access is provided around the entire site using existing public roads and internal driveways on the north and west interface.

Accommodation buildings will include modular buildings, which are to be located towards the rear of the facility and 'in-situ' buildings sited on the street front. The central kitchen/diner is designed to be the focal point and occupies the central position within the site.

The site is located approximately 5 kilometres west of the Karratha town centre within the City of Karratha (Figure 3). It is located on the edge of the developed residential area of Karratha. Existing residential estates are located to the immediate south and east of the site (Figures 1 & 2). The site is approximately 6ha in size and is bound by Bayview Road to the east, Rankin Road to the south, vacant, privately owned land to the north and unallocated Crown land to the west.

The site has formally functioned as the Bay Transient Workforce Accommodation which has recently been demolished.

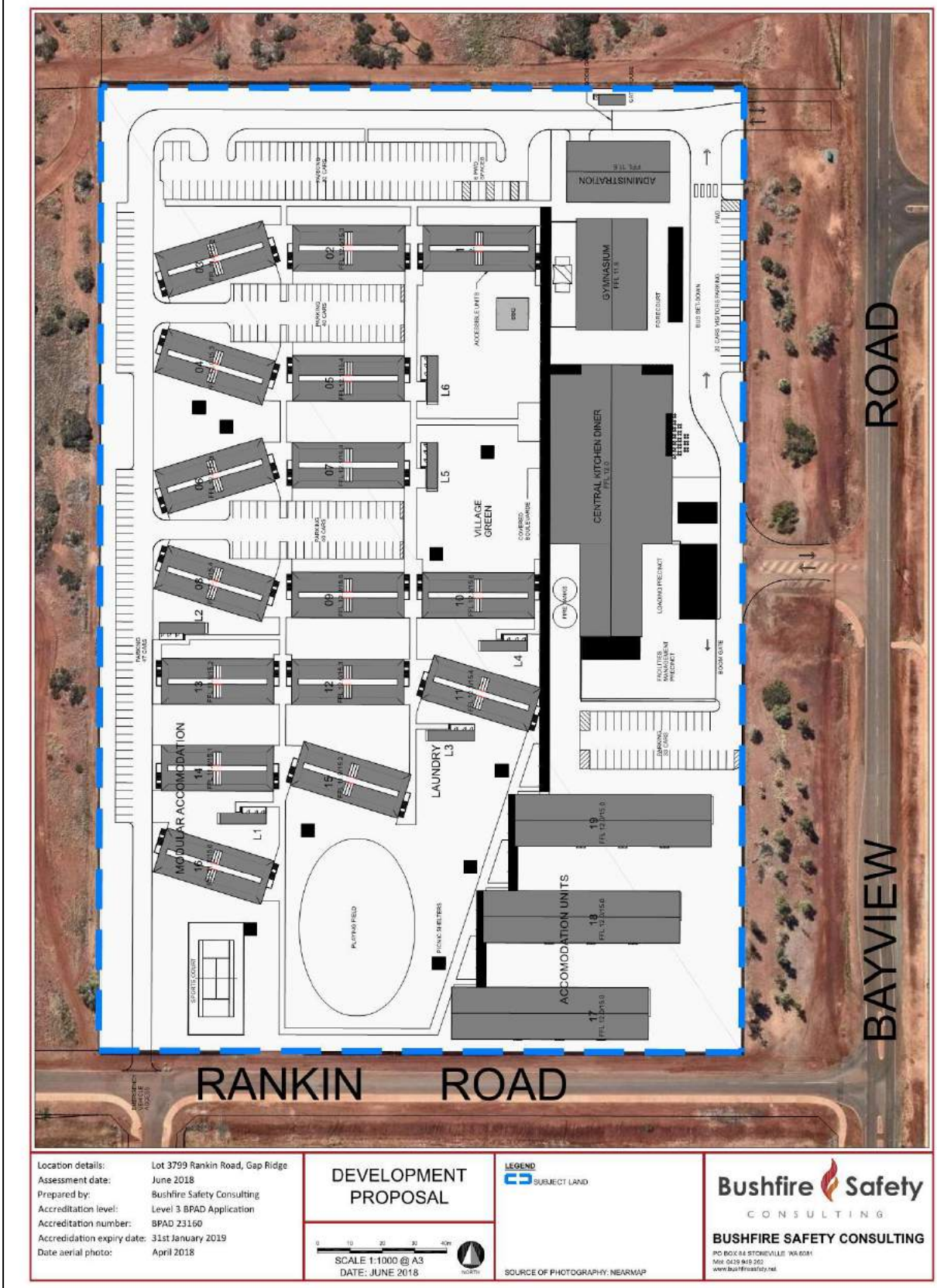


Figure 1: Development Proposal for Bay Village Karratha

1.1 Staging

The development will become operational in two phases (Figure 2). Stage one includes the construction of all central facilities, the swimming pool, main access via Bayview Road (including bus zone) and 380 rooms. The second stage, the remaining 320 rooms as well as the sports oval and court, will become operational in April 2019.

Construction will be staged in a way that when the first rooms are inhabited in February 2019, the labour workforce (or any plant/equipment) will not be accessible or pose any risk to the TWA residents. Construction access will be via Rankin Road so not to congest the main entrance on Bayview Road for buses, guests or deliveries. The Emergency Access Way in the south-west corner of the site will be provided during both construction stages for TWA residents, contractors and fire appliances

1.2 Purpose of Plan

This BMP has been prepared to support the Development Application and addresses existing and future bushfire threats by providing responses to the performance criteria in the *Guidelines for Planning in Bushfire Prone Areas* V1.3 (WAPC et.al. 2017). If there is a bushfire within or near the site, implementing this BMP will reduce the threat to residents, staff and contractors, property and emergency response personnel.

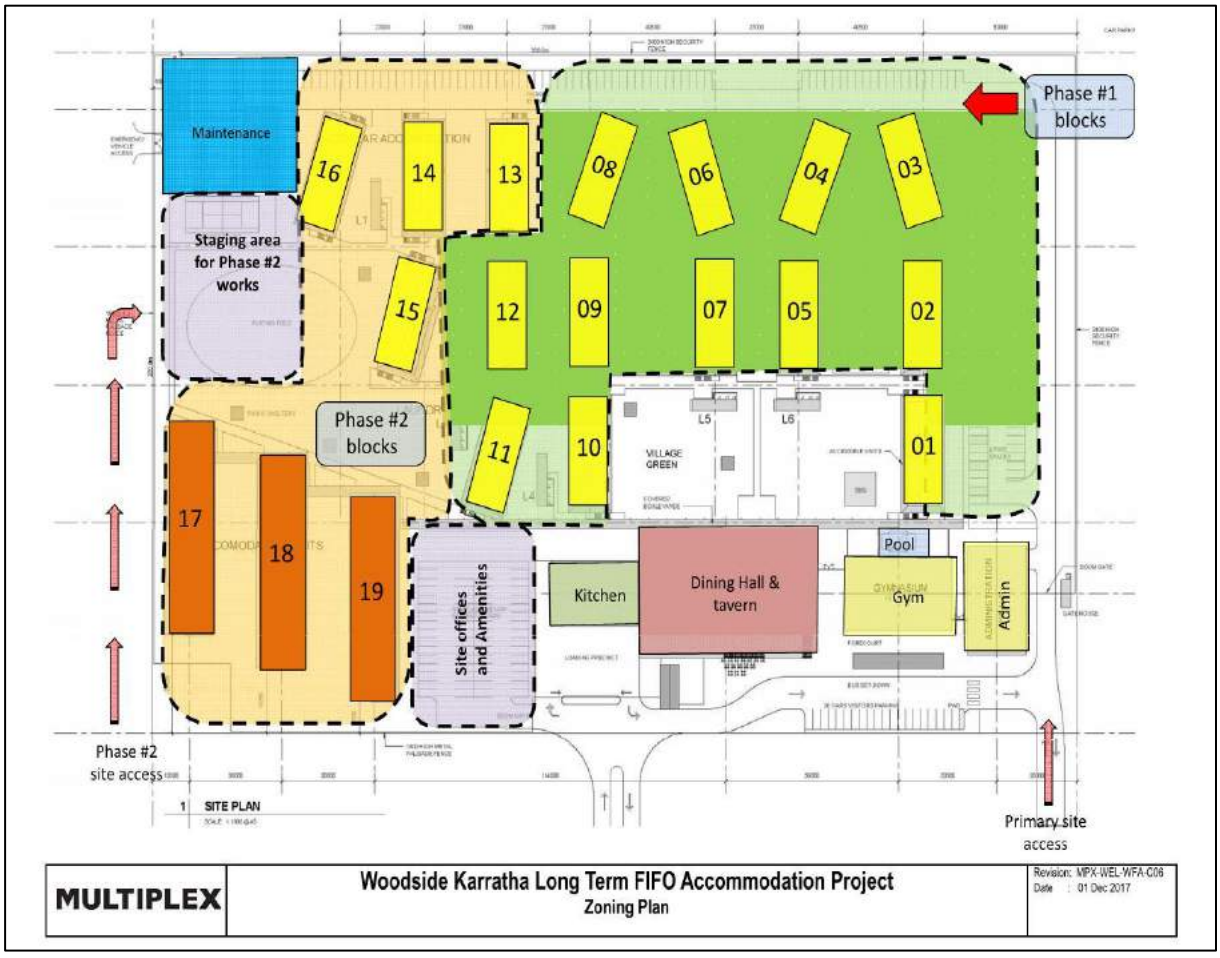


Figure 2: Staging Plan for Bay Village Karratha

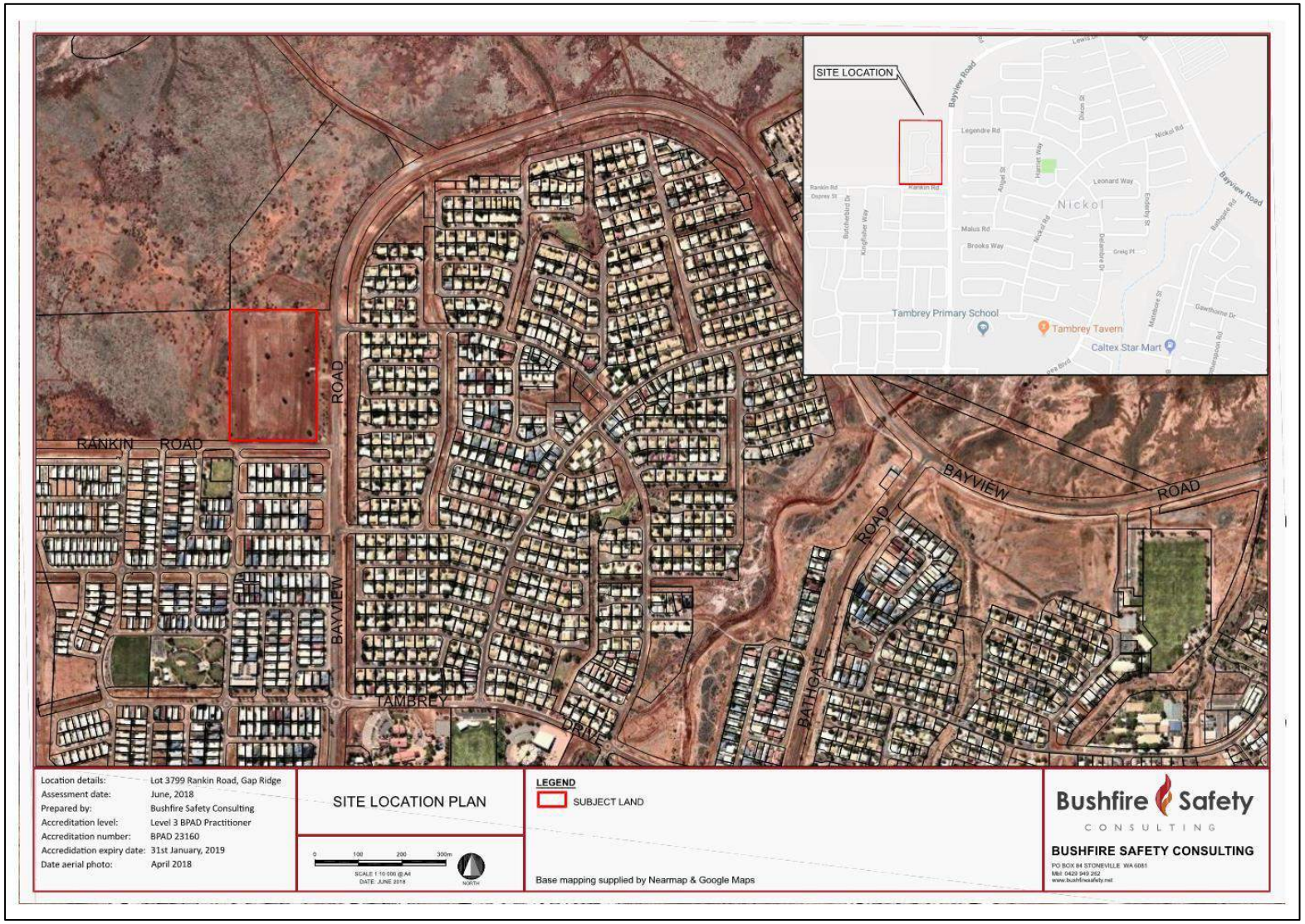


Figure 3: Site location.

Policy and Guidelines

1.2 Application of SPP 3.7

The *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* provides the foundation for land use planning to address bushfire risk management in Western Australia. It is used to inform and guide decision makers, referral agencies and land owners to help achieve acceptable bushfire protection outcomes.

The policy contains objectives and policy measures as well as reference to the bushfire protection criteria as outlined in the Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 V1.3; the Guidelines). The policy applies to this Development Application because the site is located in a designated bushfire prone area on the WA map of Bushfire Prone Areas (Figure 3). The following policy measures will need to comply with SPP 3.7:

Table 1. Policy measures

Policy Measure 6.2	The development application is located within a designated bushfire prone area and will have a Bushfire Hazard Level above low and a Bushfire Attack Level rating above BAL-LOW.
Policy Measure 6.4	Policy 6.2 applies, meaning the development proposal will be accompanied by a Bushfire Management Plan including the following: - BHL Assessment - BAL Contour Plan - BAL ratings - Identification of relevant issues; and - Demonstration of compliance with the Guidelines
Policy Measure 6.6	Policy Clause 6.6 applies to vulnerable land use applications. The development application proposes a Transient Workforce Accommodation facility which is a vulnerable land use under the policy because the users of the facility may be unfamiliar with the facility and the local environment. The development application will therefore include a comprehensive emergency evacuation plan which specifically reflects the users' needs and circumstances.

The proposed development is considered a vulnerable land use as defined in clause 5.5 in the guidelines because the TWA facility will is a short term accommodation facility for workers who temporarily use the site while working in the area. East and south of the site are large residential areas and surrounding bushfire hazard to the north and west is predominantly moderate. The site does not pose unacceptable access limitations and people residing in the facility will be provided with a safety induction into the facility prior to staying, and will be trained in basic emergency procedures.

The proposed development is not a high-risk land use as defined in clause 5.6 in the guidelines. The development application does not propose vulnerable or high risk land use and is not considered as minor or unavoidable development under SPP 3.7.

1.3 Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)

The Department of Planning have recently released the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017).* The requirements of this document are accommodated within this BMEEP. The *Guidelines for Planning in Bushfire Prone Areas V 1.3(2017)* is intended to in-

form and guide decision makers, referral authorities and proponents to achieve acceptable bushfire protection outcomes, including expectations at the different stages of planning.

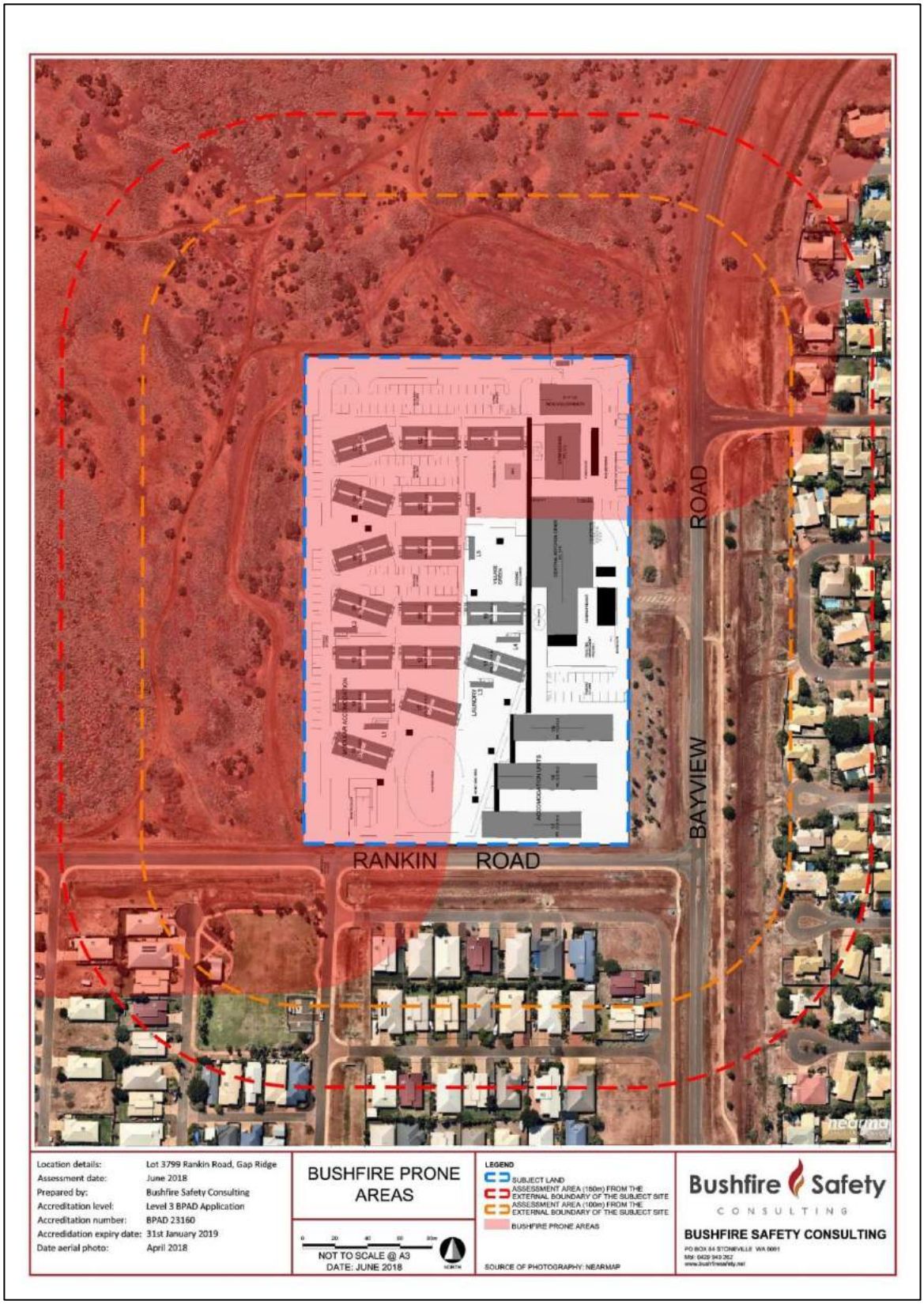


Figure 4: The development site is partially in the declared Bushfire Prone Area of WA

2 ENVIRONMENTAL CONSIDERATIONS

2.1 Native Vegetation – modification and clearing

The development site is cleared of all vegetation except for a few isolated trees. The site is in an established area previously used as a transient accommodation camp. The development plans include some outdoor recreation areas and garden landscaping at the site. Mature trees will be retained where possible and fuel loads and fuel structure will remain low to ensure APZ standards are maintained. There are no native vegetation clearing considerations that limit this proposal. Any planned landscaping will comply with Standards for Asset Protection Zones as outlined in Appendix 1.

2.2 Re-vegetation/Landscape Plans

The facility will be landscaped using endemic tropical species and the retention or transplanting of existing trees will occur where possible. Importantly, Asset Protection Zones will be established and maintained throughout the site.

3 BUSHFIRE ASSESSMENT RESULTS

Bushfires are common in the City of Karratha and local brigades respond to numerous bushfires in the district annually. Given the bushfire threat in the area this BMEEP plays a critical role in ensuring that the development of the land appropriately mitigates the risk from bushfire. The most important weather variable influencing fire behaviour in grassland and spinifex fuels is wind speed and spring and summer tend to the the windiest months in the Pilbara.

3.1 Assessment Inputs

The methodology used to assess the site is outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017).* The development proposal is known and a strategic level bushfire hazard assessment is not required. A BAL Contour map is provided in accordance with Appendix 3 of the guidelines. Assessing bushfire hazards at the site-specific level accounts for the predominant class of vegetation on the site and surrounding area for a minimum of 150 m, as shown in **Figure 6**.

3.1.1 Vegetation Classification

The site was formally the Bay Village Transient Workforce Accommodation camp which was demolished in 2017 and has been cleared apart from one building retained on-site. The only vegetation is 16 isolated trees in a cleared landscape. North and west of the site are clumps of acacia shrubs (Plot 1) in a grassland dominated landscape. The grass fuels closer to the site are dominated by the introduced **buffel** grass and native spinifex grassland (Plot 2) occurs further from the site.

The vegetation plots on and surrounding the site and within 150 metres of the site boundary are found in the plot descriptions below and in Figure 5.

Photo ID: 1 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification**：Sparse shrubland with several dead plants.	
Photo ID: 2 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification**：Low acacia shrubs separated by mineral earth and clumps of spinifex.	
Photo ID: 3 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification**：Low acacia shrubs adjacent to firebreak	
Photo ID: 4 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification**:Low acacia shrubs separated by mineral earth.	
Photo ID: 5 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification**：Low acacia shrubs separated in large mineral earth area	

Photo ID: 6 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification :** Low acacia shrubs in area of buffel grass.	
Photo ID: 7 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class D Shrubland **Description/justification of classification :** Low acacia shrubs separated by mineral earth and clumps of spinifex and buffel grass	
Photo ID: 8 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** Spinifex grassland.	
Photo ID: 9 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** Regenerating buffel grass.	
Photo ID: 10 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** Regenerating buffel grass.	

Photo ID: 11 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** Spinifex and buffel grass	
Photo ID: 12 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** Spinifex and buffel grass.	
Photo ID: 13 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** 100% buffel grass	
Photo ID: 14 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification :** connected Spinifex clumps.	
Photo ID: 15 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification :** mown buffel grass in town drain.	

Photo ID: 16 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification :** Managed parkland and oval	
Photo ID: 17 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification :** Cleared development site.	
Photo ID: 18 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification :** **M**own buffel grass in town drain.	
Photo ID: 19 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification :** Unvegetated road verge.	
Photo ID: 20 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** Cleared development site.	

Photo ID: 21 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification :** Buffel grass in roadside reserve to be managed	
Photo ID: 22 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** **M**own buffel grass in town drain.	
Photo ID: 23 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** **M**own buffel grass in town drain.	
Photo ID: 24 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** **M**own buffel grass in town drain and road reserve.	
Photo ID: 25 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** Cleared development site	

Photo ID: 26 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** Buffel grass in roadside reserve to be managed	
Photo ID: 27 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** Buffel grass in roadside reserve to be managed	
Photo ID: 28 **Plot Number:** 3 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2(f) **Description/justification of classification:** Mown buffel grass in town drain and road reserve.	

3.1.2 Effective Slope

The site is flat and the surrounding landscape is similarly effectively flat. There are no slopes that will increase the intensity or forward rate of spread of an approaching bushfire. The landscape is very open and wind driven fires are likely to impact the site, the intensity of which will be determined by the connectivity of grass fuels in the surrounding landscape.

The effective slope under areas of classified vegetation is found in Table 2.

The landscape directly north and west of the site is effectively flat. The effective slopes were field checked using a clinometer during the site visit.

Table 2. Summary of vegetation type and effective slope

Vegetation Area/ Plot	Applied Vegetation Classification	Effective Slope under the Classified Vegetation (degrees)
1	Class C Shrubland	Flat
2	Class G Grassland	Flat

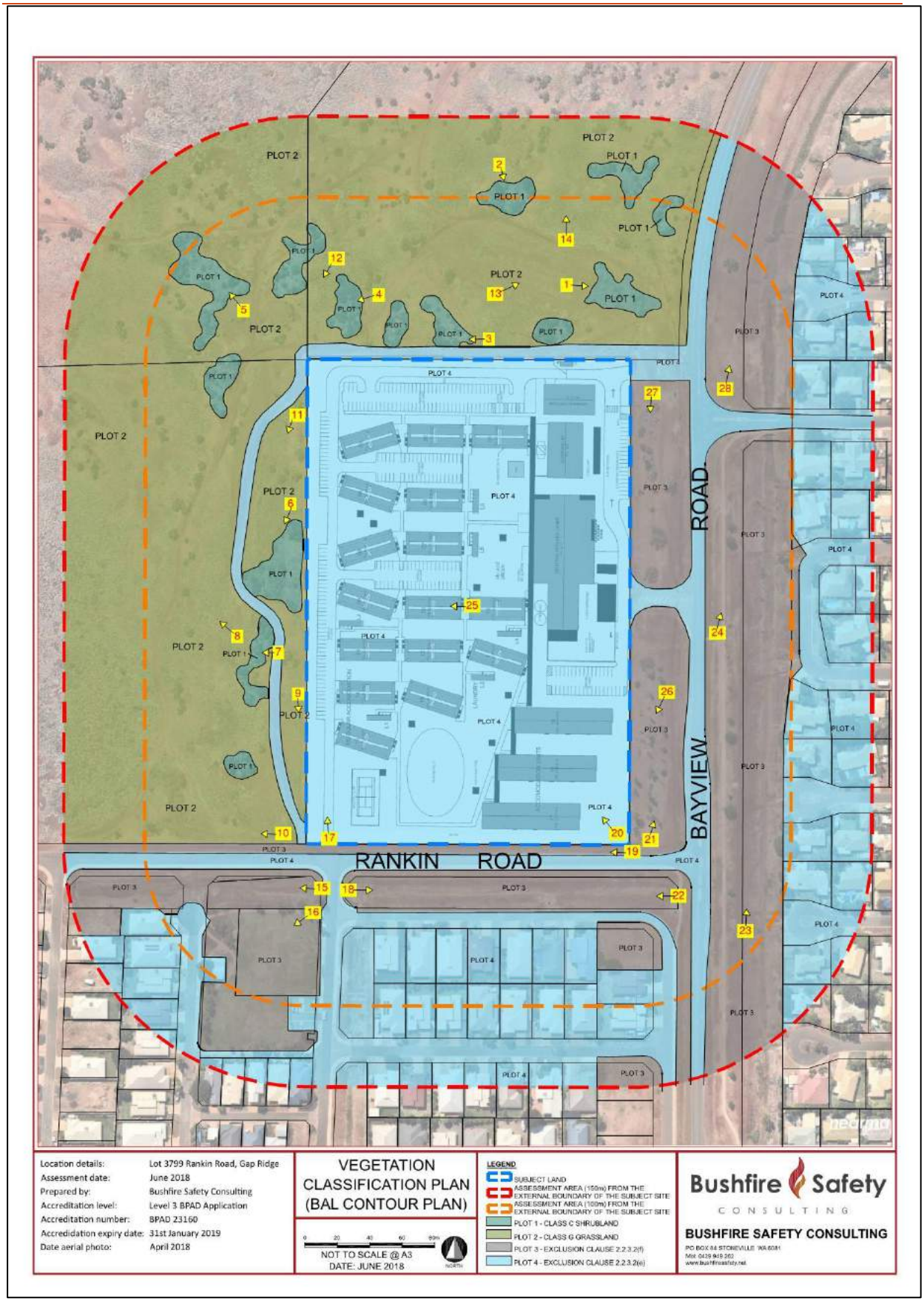


Figure 5: Vegetation Classification Map (for BAL Contour) showing photo points.

3.2 Assessment Outputs

A BAL contour assessment was undertaken according to Appendix 3 of the Guidelines and the results are found in **Figure 6.**

A Method 1 BAL Assessment was undertaken to determine the BAL contours and BAL ratings on individual buildings (Table 3).

Table 3. BAL rating assessment outputs

Building	Direction and Applied Vegetation Classification	Plot No. & Effective slope (°)	Separation distance to Classified Vegetation	Highest BAL Contour
Modular 1 & 2	North - Class C Shrubland	Plot 1 - Flat	50 metres	BAL-12.5
	North – Class G Grassland	Plot 2 - Flat		BAL-12.5
Modular 3 & 4	West - Class G Grassland	Plot 2 - Flat	17 metres	BAL-12.5
Modular 5	West - Class C Shrubland	Plot 1 - Flat	63 metres	BAL-12.5
Modular 6	West - Class G Grassland	Plot 2 - Flat	17 metres	BAL-12.5
	West – Class C Shrubland	Plot 1 - Flat	20 metres	BAL-12.5
Modular 7	West - Class C Shrubland	Plot 1 - Flat	61 metres	BAL-12.5
Modular 8	West - Class C Shrubland	Plot 1 - Flat	20 metres	BAL-12.5
	West – Class G Grassland	Plot 2 - Flat	17 metres	BAL-12.5
Modular 9	West - Class C Shrubland	Plot 1 - Flat	61 metres	BAL-12.5
Modular 10	West – Class C Shrubland	Plot 1 - Flat	102 metres	BAL-LOW
Modular 11	West - Class C Shrubland	Plot 1 - Flat	106 metres	BAL-LOW
Modular 12	West – Class C Shrubland	Plot 1 - Flat	64 metres	BAL-12.5
Modular 13 & 14	West – Class G Grassland	Plot 2 - Flat	17.5 metres	BAL-12.5
Modular 15	West – Class C Shrubland	Plot 1 - Flat	82 metres	BAL-12.5
Modular 16	West – Class G Grassland	Plot 2 - Flat	17 metres	BAL-12.5
Gate House	North - Class C Shrubland	Plot 1 - Flat	10.5 metres	BAL-29
	North – Class G Grassland	Plot 2 - Flat		BAL-29
Administration	North - Class C Shrubland	Plot 1 - Flat	25 metres	BAL-12.5
	North – Class G Grassland	Plot 2 - Flat		BAL-12.5
Gymnasium	North - Class C Shrubland	Plot 1 - Flat	49 metres	BAL-12.5
	North – Class G Grassland	Plot 2 - Flat		BAL-12.5
Kitchen / Diner	North - Class C Shrubland	Plot 1 - Flat	94.5 metres	BAL-12.5
Accom. Units 17	North – Class G Grassland	Plot 2 - Flat	110 metres	BAL-LOW
Accom. Units 18	North – Class G Grassland	Plot 2 - Flat	120 metres	BAL-LOW
Accom. Units 19	North – Class G Grassland	Plot 2 - Flat	130 metres	BAL-LOW

Figure 6 outlines the final developed scenario where the entire site remains fuel reduced and managed to Asset Protection Zone (APZ) standards. The proposed accommodation buildings are all exposed to BAL-12.5 due to Class G grassland and Class C shrubland vegetation located north and west of the site.

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

The classified vegetation north and west of the site could generate a fast moving wind driven bushfire in the grass fuels with larger flame heights possible in the acacia shrubland fuels. The site is adjacent to residential areas to the south and east and an extensive public road network. The vast majority of buildings within the site are exposed to BAL-12.5 or BAL-LOW. Only one structure is exposed to BAL-29. Access routes and water supply are currently being assessed in detail and will be provided to acceptable levels.

Road verge vegetation is slashed and mown by the City of Karratha which keep grass fuels in a low threat condition.

The site could be impacted as outlined in the BAL contour plan (Figure 7). With the property managed to Asset Protection Zone standards, lower levels of radiant heat and ember attack will pose the biggest issues to the facility.

Public access roads are extensive and border the eastern and southern boundary and four multiple access routes are available within 200m of the site.

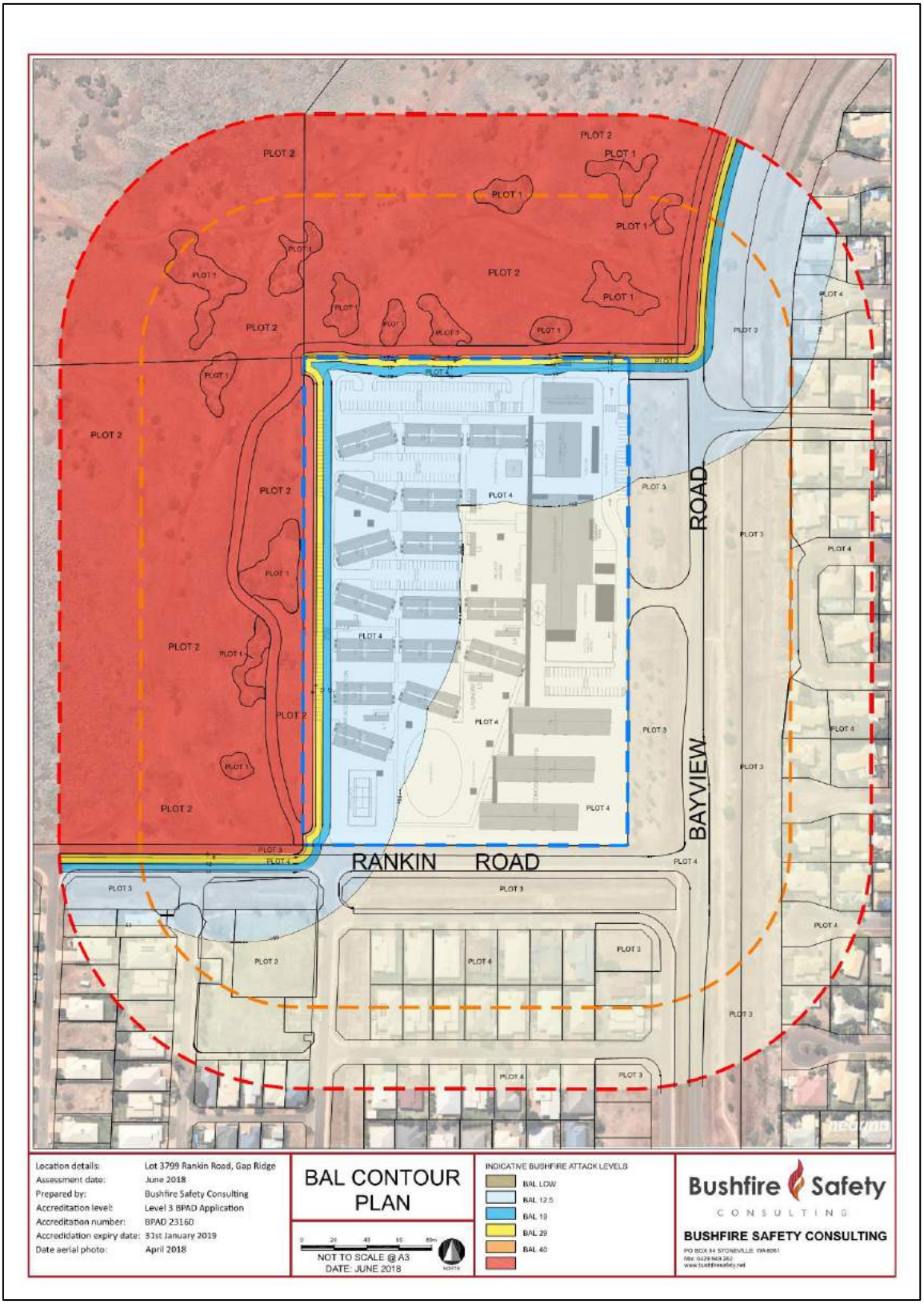


Figure 6: BAL Contour Plan showing predicted radiant heat flux levels into the site

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA

This report adopts an acceptable solution and performance-based system of control for each bushfire protection criteria. This methodology is consistent with Appendix 4 of the *Guidelines for Planning in Bushfire Prone Areas, Version 1.3 (2017).* The management issues are:

- Location of the development
- Siting and Design of Development
- Vehicular access.
- Water

Acceptable solutions are proposed for all bushfire protection criteria.

Land use planning bushfire risk mitigation strategies are comprehensively detailed in the following sections by providing responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017).* The compliance details are outlined in Table 4 below.

Table 4: Compliance Table

Bushfire Protection Criteria	Method of compliance Acceptable Solutions	Proposed bushfire management strategies
Element 1: Location	A1.1 Development Location	The Method 1 BAL Assessment outlined in this report demonstrates that all buildings within the development can be accommodated at an exposure level of BAL-29 or lower One structure (ie. The Gate House) is exposed to BAL-29, Fourteen modular accommodation blocks are exposed to BAL-12.5, as is the Administration, Gymnasium and Kitchen buildings. All other proposed buildings are exposed to BAL-LOW.
Element 2: siting and Design	A2.1 Asset Protection Zone (APZ)	The Asset Protection Zones (APZs) occupies the entire site and current APZ standards over the entire site comply. Future landscaping of the site will consider the APZ is established and managed in accordance with the requirements of Schedule 1 Standards for Asset Protection Zones outlined in Appendix 2. All buildings are exposed to BAL-29 or lower as confirmed by the Method 1 BAL assessment.
Element 3: Vehicular Access	A3.1 Two access routes	The site is located on the corner of Rankin Road and Bayview Road and adjacent to urban lots with multiple public roads to the south and east. The Development Proposal (Figure 1) has two dual access driveways connected to Bayview Road and a third access point being the Emergency Access Way connecting the perimeter road through to Rankin Road in the south-west corner of the site. All internal driveways will accommodate type 3.4 fire appliances. A Traffic Impact Assessment is currently being developed by Transcor and considerations include details for the length of type 3.4 urban fire appliances within the site and ensure that all internal roads that lead to hydrants have adequate swept paths/turning clearances. A minimum two access routes are achieved. Vehicular access technical requirements are outlined in Appendix 2.
	A3.2 Public Road	No public roads are proposed within the site however the adjacent public roads all comply with public road standards (Appendix 2).
	A3.3 Cul-de-sac	There are no internal cul-de-sacs proposed, however dead end carparks will accommodate turning clearances for type 3.4 appliances to the technical standards outlined in Appendix 2.

	A3.4 Battle-axe	There are no battle axes proposed.
	A3.5 Private drive-way longer than 50 metres	The site will be serviced by internal driveways constructed to a minimum width of 6 metres and including turn-around areas throughout the site and adjacent to fire hydrants. A Traffic Impact Assessment is currently being developed by Transcor and considerations include details for the length of type 3.4 urban fire appliances within the site and ensure that all internal roads that lead to hydrants have adequate swept paths/turning clearances. The private driveway standards that will be achieved are found in Appendix 2 - Vehicular Access Technical Requirements.
	A3.6 Emergency access way	An Emergency Access entrance at the south-west corner of the site will provide access to the internal driveway system and residents car parking areas. The Emergency Access Way standards that will be achieved are found in Appendix 2 - Vehicular Access Technical Requirements.
	A3.7 Fire service access routes	There are no fire service access routes proposed. The site has a perimeter driveway.
	A3.8 Firebreak width	Compliance with the current of City of Karratha Firebreak notice is achieved with the perimeter driveway adjacent to areas of bushfire hazard in combination with low threat internal landscaping throughout the site. The entire site will comply with the firebreak notice as it will be managed to APZ standards.
Element 4: Water	A4.1 Reticulated areas	Fire services require ready access to an adequate water supply during fire emergencies. Existing fire hydrants are located in Rankin Road, Goshawk Circuit and Legendre Road south and east of the site. As required by Regulation 18B (1) of the amended (19 Dec 2012) Building Regulations 2012, the application for the building permit for a Class 2-9 building is required to have plans and specifications of sufficient detail for assessment purposes deposited with DFES. Fire tanks are proposed and a hydrant system will be designed to minimum specifications. This documentation will be provided to DFES for assessment to satisfy the condition of DA.
	A4.2 Non-reticulated areas	Not Applicable
	A4.3 Individual lots within non-reticulated areas (for 1 additional lot only)	Not Applicable

5.1 Additional Management Strategies

The site will be developed in a two stages and the APZ standards within the site will be established and maintained by the site owners/managers. An internal site safer assembly area is designated for bushfire evacuations which is exposed to less than 2kW/m2 of predicted radiant heat flux.

There are no designated Community Fire Refuges in the City of Karratha, however, at the time of an emergency, the relevant authorities will select an evacuation centre and DFES, the Council and Police will provide this information to the facility managers and residents at the site if this is required.

The safest place to be during a bushfire is away from it. Where to go is a crucial element when people are relocating during a time of emergency. The evacuation of the site if threatened by a bushfire will occur preferably by vehicle if time permits away from the threat with the assistance of the Police, local government and DFES. Where sufficient capacity cannot be organised for a complete site evacuation, there is potential for residents to walk away from the threat towards the south-east corner of the site and be safe from life threatening radiant heat.

Comprehensive details are provided in the bushfire evacuation plan (Appendix 4).

The spatial representation of bushfire management strategies is outlined in Figure 7.

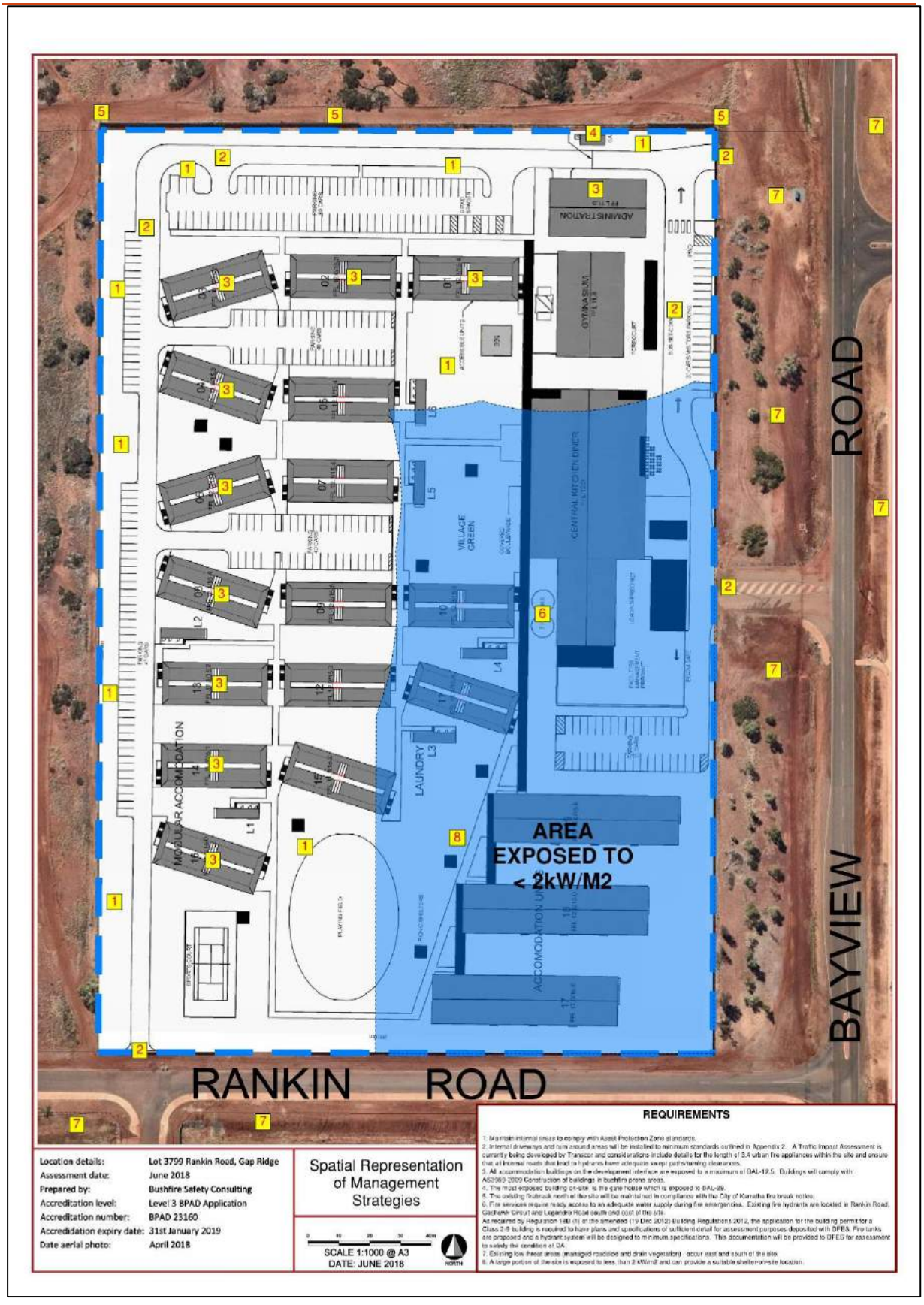


Figure 7: Spatial Representation of Bushfire Management Strategies

6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

Table 5 outlines the initial and ongoing responsibilities, actions and associated works that need to be undertaken by the Developer, landowners and facility managers and the City of Karratha . The check boxes for implementation actions will be used for development application clearance. A Bushfire Planning Practitioner will certify the BAL ratings are correct and necessary implementation actions have been completed.

Table 5. Responsibility for bushfire measures

DEVELOPER – PRIOR TO OCCUPATION OF FACILITY		
No.	**Implementation Action**	**DA Clearance**
1	**Establish the driveways and access ways to standards outlined in this report**	☐
2	**Have an accredited Bushfire Practitioner certify the BAL ratings at building licence stage**	☐
3	**Make a copy of this BMEEP available to the facility manager and staff and ensure it features in all resident TRWA inductions.**	
4	**Ensure compliance with AS3959 standards.**	
5	**As required by Regulation 18B (1) of the amended (19 Dec 2012) Building Regulations 2012, the application for the building permit for a Class 2-9 building is required to have plans and specifications of sufficient detail for assessment purposes deposited with DFES. This documentation will be provided to DFES for assessment at this stage.**	
FACILITY MANAGEMENT – ONGOING MANAGEMENT		
6	**Update the BEEP once the facility is staffed and operational. Annually review the Bushfire Emergency Evacuation Plan**	
7	**Maintain the Asset Protection Zone (APZ) to standards stated in this BMEEP (Appendix 1).**	
8	**Ensure the site complies with the City of Karratha's Fire Break Notice as published.**	
9	**If buildings are subject to additional construction in the future, AS 3959:2009 compliance is recommended.**	

CITY OF KARRATHA – ONGOING MANAGEMENT	
10	**Ensure road verge vegetation in proximity to the facility is maintained in a 'low threat' condition.**
11	**Maintain public roads to appropriate standards and ensure compliance with the City of Karratha Fire Break Notice.**
12	**Provide fire prevention and preparedness advice to management upon request, including the and the City of Karratha Fire Break Notice.**

Certification by Bushfire Consultant

I _____ certify that at the time of inspection, the BAL rating contained within this BMEEP is correct; and implementation action 1 and 2 have been undertaken in accordance with the BMEEP.

Clearance is recommended.

Signature: _____

Date: _____

REFERENCES

Standards Australia. 2009. Construction of buildings in bushfire-prone areas (Amendments 1-3), AS 3959-2009, Standards Australia International Ltd, Sydney

Western Australian Planning Commission (WAPC). 2017. Guidelines for Planning in Bushfire Prone Areas. December 2017 V1.3. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

Western Australian Planning Commission (WAPC). 2015b. State Planning Policy No. 3.7: planning in Bushfire Prone Areas (SPP3.7). December 2015. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

APPENDICES

Appendix 1: Asset Protection Standards
Appendix 2: Vehicular Access Technical Requirements
Appendix 3: City of Karratha – Firebreak Notice
Appendix 4: Bushfire Emergency Evacuation Plan

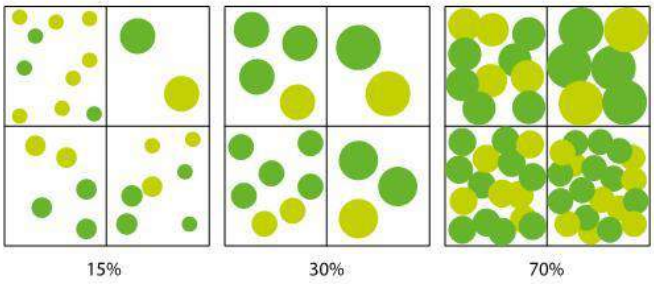
Appendix 1: Asset Protection Zone Standards

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.

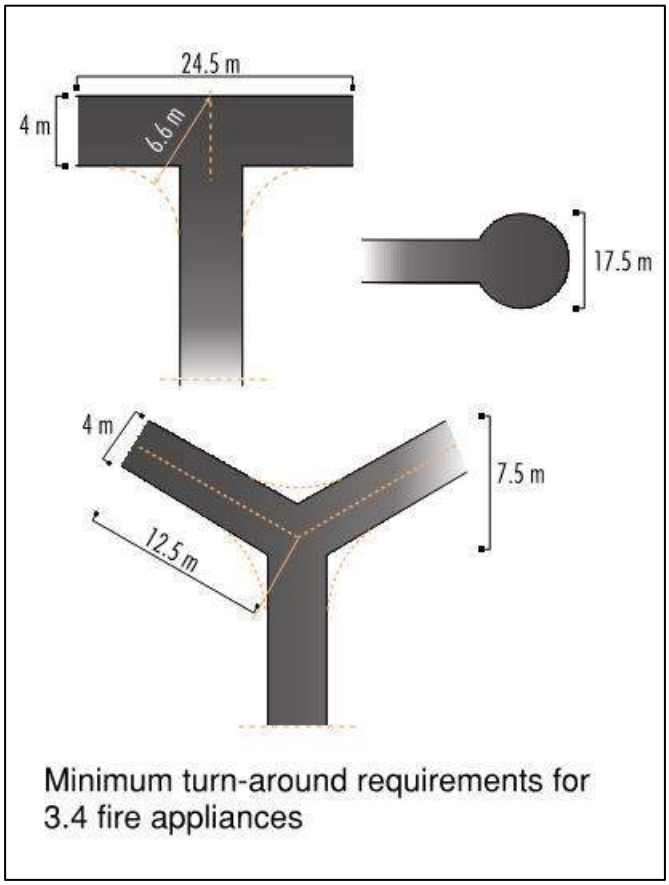
Figure 18: Tree canopy cover – ranging from 15 to 70 per cent at maturity



- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

Appendix 2 : Vehicular Access Technical Requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5
*Refer to E3.2 Public roads: Trafficable surface					



Minimum turn-around requirements for 3.4 fire appliances

Appendix 3: City of Karratha – Firebreak Notice

Fire break notice

Owners or occupiers of land within the City of Karratha are hereby notified that you must comply with the Bush Fires Act 1954, (the Act) section 33, and carry out annual fire prevention work as set out in this notice.

It is the responsibility of the owner or occupier to maintain the property free of fire hazards and have all fire breaks installed as per the requirements of this Notice and maintain the land in that condition for the entire year.

Persons who fail to comply with the requirements of this order may be issued with an infringement notice which carries a modified penalty of $250 and a maximum penalty of $25,000. In accordance with the Act, Council may carry out the required works at the expense of the land owner or occupier regardless if issued with an infringement notice or prosecuted.

Requirements

1. **Rural and Town-site Land (includes residential, commercial and industrial)**

   (a) Where the area of land is 2024m² (approximately half an acre) or less, remove all flammable material on the land except living standing trees from the whole of the land.

   (b) Where the area of the land exceeds 2024m², provide fire breaks at least three (3) metres wide, immediately inside all external boundaries of the land and also immediately surrounding all buildings and haystacks situated on the land. Where several adjoining lots are held or used by the owner/ occupier, the firebreaks may be provided inside and along the external boundaries of the group or lot.

2. **Special Rural Land**

   The owners of all small rural holdings zoned as Special Rural under Town Planning Schemes must maintain clear of all flammable materials a fire break at least three (3) metres wide, immediately inside all external boundaries of the land.

3. **Fuel and/or Gas Depots**

   In respect of land owned and/or occupied by you on which is situated any container normally used to contain liquid or gas fuel, including the land on which any ramp or supports are constructed, you shall have the land clear of all flammable material.

Remember

Firebreaks must be maintained fuel-free year round. The City of Karratha is a designated "Restricted Burning" area;

A Permit to Burn is required from 1 January to 31 December (inclusive); and

On days of Very High, Severe, Extreme and Catastrophic Fire Danger Rating, as issued by Bureau of Meteorology, you are prohibited to burn-off or to use cooking fires (including gas appliances)

For more information, contact the City of Karratha on **(08) 9186 8555** or visit **www.karratha.wa.gov.au**.

Pay your rates on time to WIN!

Ratepayers who pay their rates and rubbish collection charges in full by the due date will be in the running for the following prizes*

1st prize: $2,000 cheque sponsored by Westpac

2nd prize: $1,500 cheque sponsored by the City of Karratha.

3rd prize: Two nights stay in a Double Deluxe Spa Suite at Point Samson Resort (valued at $1260) and dinner at Ta Ta's Restaurant ($200 voucher)

4th prize: 2 night weekend stay for 2 people including full buffet breakfast each morning, at the Perth Ambassador Hotel in a new, refurbished Premium Deluxe Room (valued $560)

5th prize: $500 cheque sponsored by the City of Karratha.

6th prize: Two nights stay in a one bedroom spa apartment at Seashells Resort Broome (valued at $470)

7th prize: Overnight accommodation with breakfast in a Deluxe Eco Tent for 2 adults and 1 child up to 12 years old (value $349).

*Terms and conditions apply. For the full terms and conditions please visit **www.karratha.wa.gov.au**

Contact us

Front desk: **Administration Building, Welcome Road, Karratha**

Mail: **PO Box 219, Karratha WA 6714**

Tel: **08 91868555**

Email: **enquires@karratha.wa.gov.au**

Web: **www.karratha.wa.gov.au**

Facebook: **/cityofkarratha**

City of Karratha

Understanding your Rates

City of Karratha

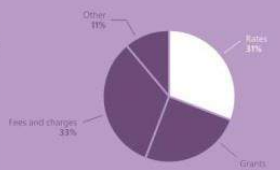
Why do we pay rates?

Rates are just one of the sources of revenue that the City of Karratha uses to fund our services and infrastructure.

Our major source of income is fees and charges – the user pays fees charged at facilities like Karratha Leisureplex and Karratha Airport as well as for services like Building and planning applications. Another major source of income is grants received from the State and Federal Government as well as from corporate partners which help us to build new facilities and deliver our services. We also get revenue from other sources including interest, disposal of assets and transfers from our reserves. This year, rates comprise around less than a third of our total revenue.

The City of Karratha collects rates to fund a wide range of services including the maintenance of recreational facilities, roads and footpaths, waste management, parks and gardens, libraries as well as important community infrastructure projects such as the Karratha Leisureplex, Dampier Community Hub and Karratha Airport Terminal Redevelopment. Rates are the contribution each property owner makes to improving services and facilities within the City of Karratha for the growing needs of our community. Rates are calculated annually from 1 July to 30 June.

2015/16 Income Breakdown



How are rates calculated?

To calculate how much each ratepayer is required to contribute, Council first determines how much rate income is required to run the City. The required income amount is divided by the total value of all the properties in the City of Karratha to determine the Rate in the Dollar (RID). Council then calculates rates for each property by multiplying its Gross Rental Value (GRV) or unimproved value (UV), as determined by the State Government's Valuer General, by the rate in the dollar.

For example:

GRV of $31,200 x RID of 0.064121 = Total rates bill $2000.58

As valuations move up or down the Rate in the Dollar adjusts to ensure the total amount raised in rates still meets the income required to run the City.

Property Valuations

Residential property valuations are conducted by the State Government's land authority, Landgate, every three years. The total value of all the properties in the City of Karratha is used to determine the Rate in the Dollar. Landgate last conducted a general revaluation in August 2014 with those valuations effective 1 July 2015 and used to determine this year's rates.

2015/16 Rates in the Dollar

This year Council has resolved the following rates in the dollar to be applied to properties in the City of Karratha. Final valuations received from the Valuer General have enabled Council to lower the rates in the dollar from those advertised while still achieving Council's desired overall rate yield increase.

Gross Rental Value	Proposed minimum payment	Proposed Rate in the Dollar
Residential	$1,450	0.064121
Commercial/Tourism/ Town Centre	$1,450	0.073271
Industry/Mixed Business	$1,450	0.056287
Airport /GRV (Strategic Industry)	$1,450	0.126515
Transient Workforce Accommodation/ Workforce Accommodation	$1,450	0.216481

Unimproved Value	Proposed minimum payment	Proposed Rate in the Dollar
UV (Pastoral)	$408	0.096978
UV (Mining/Other)	$408	0.134010
UV (Strategic Industry)	$408	0.152053

This means that for residential properties, 6.4 cents of rates will be generated for every dollar of GRV.

Appendix 4: Bushfire Emergency Evacuation Plan

Bushfire Safety CONSULTING

M: 0429 949 262
W: www.bushfiresafety.net
E: enquiries@bushfiresafety.net
Bushfire Safety Consulting Pty Ltd
ACN: 143 414 117
ABN: 58 143 414 117

Bushfire Emergency Evacuation Plan

for

Bay Village Karratha
Lot 3799 Rankin Road, Gap Ridge
Western Australia.

Created 4th July, 2018

Document Control

Bushfire Emergency Evacuation Plan – Bay Village Karratha					
VERSION	**DATE**	**PURPOSE**	**PREPARED**	**REVIEWED**	**SUBMITTED TO CLIENT**
V1	4/7/2018	DRAFT 1	R Carboon	K Strahan	Electronic
A					

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1. Introduction

This Bushfire Emergency Evacuation Plan (BEEP) has been prepared to support a Development Application for a Transient Workforce Accommodation (TWA) Facility at Lot 3799 Rankin Road, Gap Ridge in the City of Karratha.

The TWA facility is known as Bay Village Karratha and comprises a total of 700 rooms to be constructed in 2 stages.

The Village will require 35 full time positions during steady state operations, comprising the following roles:

- Management: 4 FTE
- Administration: 2 FTE
- Skilled (Chefs, Maintenance Trades, Security): 10 FTE
- Unskilled (Cleaners, Catering Utilities): 19FTE

The staff will all be contractors through "Compass Group.

The development will also include a "Village Centre" comprising of a reception, first-aid room and ambulance bay, kitchen facilities, gymnasium and an outdoor landscaped lawn area.

There are two driveways into the site from Bayview Road and emergency access south to Rankin Road. Perimeter vehicular access is provided around the entire site on internal driveways.

There are moderate bushfire threats to the site from surrounding areas of grassland and area of higher fuel in small clumps of shrubland vegetation. The threat is concentrated north and west of the site.

The proposed TWA facility complies with the definition of "vulnerable land use" in the *State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7)*, policy clause 6.6 and therefore requires a Bushfire Management Plan which includes an emergency evacuation plan for proposed occupants.

In the event of a bushfire emergency occurring in the vicinity of the facility, the residents and staff may not be able to respond independently, and due to their large numbers, an effective and comprehensive plan for evacuation is essential.

2. Objective of the Bushfire Evacuation Plan

This document seeks to mitigate and manage the risk associated with a bushfire emergency threatening the facility, staff and residents and has been prepared to satisfy the requirements of *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. The document details the components, personnel functions and implementation of evacuation procedures, and is outlined further below.

The purpose of this Bushfire Emergency Evacuation Plan (BEEP) is to provide guidance and direction to all occupants of the Facility, including staff and residents, by providing:

- Information, advice and means to prepare for a bushfire emergency
- Actions to be taken in the event of a bushfire emergency

This BEEP defines the process to be followed in the event of an emergency situation caused by a predicted threat from bushfire. It should be regarded as a 'living document' with guidelines that can be adapted to changing circumstances.

The BEEP is intended to be used by the facility managers to:

- Outline key emergency features relevant for a bushfire event, see Section 3.
- Define the functions, roles and responsibilities of staff in a bushfire emergency, see Section 4.
- Establish ongoing education and training as part of the overall strategy, see Section 5.
- Provide procedures to evacuate staff, residents and visitors in the event of a bushfire, see Section 6.

Critical to an effective evacuation is appropriate planning. This includes identifying staff functions, resources needed, arrangements and documentation. Importantly an established plan needs to be practiced.

Control and coordination is critical to effective evacuation of all stages in the evacuation process. This is especially the case where fire impact is imminent and immediate evacuation is required, as there may not be time for emergency agencies to assist in an evacuation. In this context, the responsibility to affect the safe evacuation falls to the person identified as having the control function.

The BEEP specifically addresses the personal safety and survival of people present at the time of bushfire emergency and is not as concerned with the protection of property. Everyone at the site needs to know what to do in the event of a bushfire emergency

2.2 Policies, Guidelines and Standards Informing the Bushfire Evacuation Plan

The responsible person at the workplace has:

- Specific obligations for emergency evacuations – these include ensuring that there is an evacuation procedure in place to protect anyone on the premises in the event of an emergency; and
- A general 'duty of care' obligation to ensure that preparations have taken place for potential emergencies that might occur – this includes identifying potential hazards that might arise because of an emergency and ensuring that employees will not be, as far as practicable, exposed to them.

This BEEP is based on guidance provided in the following:

- Evacuation Planning Handbook 4 [Attorney General's Department; Australian Emergency Management Institute]
- Guidelines for Planning in Bushfire Prone Areas V1.3 (2017) [Western Australian Planning Commission and Department of Fire and Emergency Services]
- Australian Standard 3745-2010, Planning for Emergencies in Facilities.
- Compass Group (2018) Site Specific Emergency Response Manual (internal document)

2.3 Distribution of the Bushfire Evacuation Plan

The BEEP is an internal document, to be further developed in consultation with with employees and safety and health representatives. It is to be used by staff to guide evacuation procedures, with an up-to-date copy of the document to be maintained within the facility and to be provided to all staff and residents on request.

3. Emergency features relevant to the Bushfire Evacuation Plan

3.1 Fire-fighting equipment

In accordance with the minimum requirements, the Facility will need onsite firefighting equipment that will be available for trained staff and emergency personnel for small scale events, including:

- Fire extinguishers
- Fire blankets
- Fire hose reels
- Evacuation maps and diagrams

All equipment is maintained annually (as a minimum) in accordance with equipment specifications and the relevant standards, including (but not limited to) Australian Standard 1851 – 2005 Maintenance of Fire Protection Equipment.

3.2 Vehicular access

There is good vehicular access to the site from existing public roads south and east of the site from Rankin Road and Bayview Road. The site has a perimeter driveway and carpark areas on the north and west boundary.

4. Roles and Responsibilities

An Emergency Planning Committee (EPC) is required so that all roles and responsibilities are clearly identified and required actions understood in the event of a bush fire/building fire and or damage caused to the Facility.

The following roles are suggested:

- Chief Warden (The Senior Staff Supervisor on the day of the emergency)
- Area Wardens
- First Aid Personnel

The proposed organisational chart for the Facility's response to an emergency is illustrated in Figure 1 below.

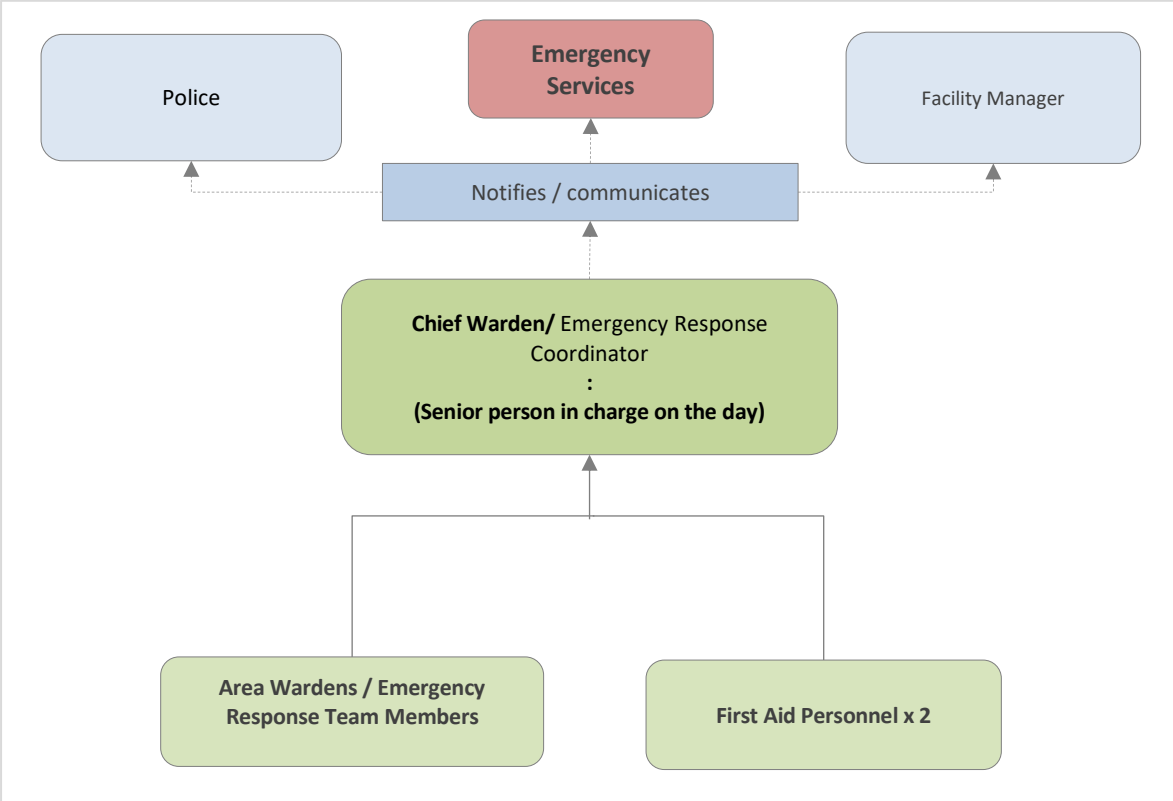


***Figure 1**: Proposed Organisational chart for the Facility*

4.1 Emergency Planning Committee

The EPC will review the BEEP, coordinate education and training, evaluate the outcomes of drills and responses (when applicable), and revise the BEEP as is required. The EPC will assign roles and responsibilities to staff, which have been outlined in Appendix 1, with contact details for the Committee provided in Appendix 2.

The Committee will meet on a monthly basis to discuss OH&S requirements and training, including bushfire response.

4.2 Roles of Emergency Response Coordinator

- Ensure the names of the Emergency Response Team Members and area of responsibility are displayed
- Ensure the details of the nominated persons and area of responsibility is forwarded to the Client Representative and advise of any changes
- Ensure that there are contingencies in place for Emergency Response Team members whilst they are on leave
-

4.2.1 Chief Warden

The Chief Warden is the most senior staff member on site at the facility on the day and is responsible for:

- Evaluating the need for evacuation (using the Response Decision Making Process - Figure 2);

- Initiating evacuation;
- As required, advising authorities that an evacuation is underway – including DFES, City of Karratha fire and emergency services manager;
- Documenting the circumstances of the emergency, processes and outcome.

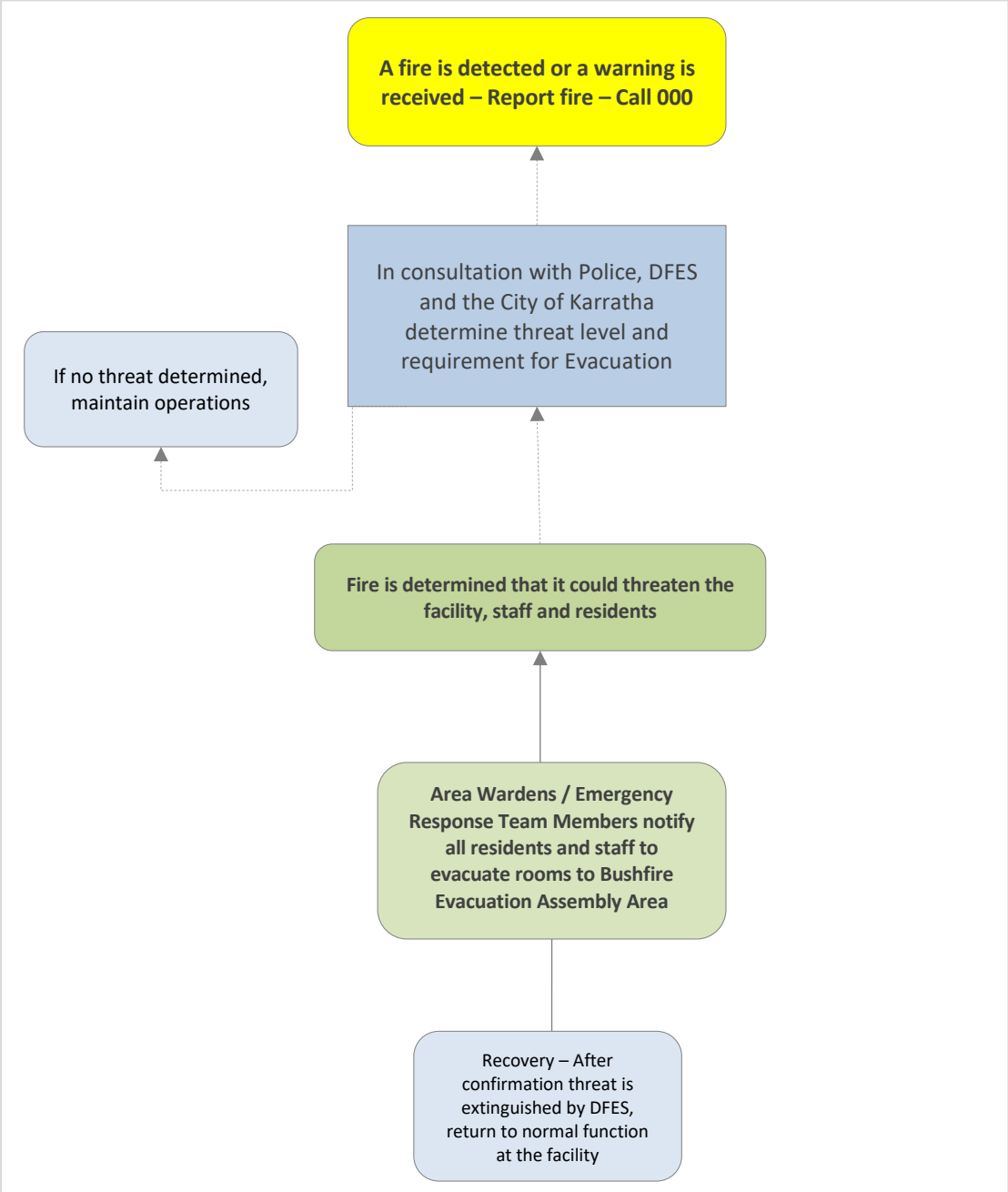


***Figure 2**: Response decision making process*

4.2.2 Area Wardens / Emergency Response Team Members

The Emergency Response Team Members are assigned to evacuate designated areas (ie. Café, gym, residental blocks and offices) and are responsible for:

- Taking direction from and carrying out tasks allocated by the Chief Warden;
- Checking all rooms and any outbuildings/outdoor areas;

- Ensuring all residents, staff and visitors have been alerted and a relocation / evacuation has been initiated;
- Maintaining communication with, and updating the Chief Warden with situation reports;
- Providing situational information to staff and residents;
- Emergency Response Team Members will direct people to the Bushfire Evacuation Assembly Area. Each support Emergency Response Team Members is responsible for raising the alarm and alerting all occupants as to the occurrence of the emergency.
- Contributing to debriefing.

In addition to these responsibilities, all full-time staff are trained in the role of Area Warden.

4.2.3 First Aid Personnel

First aid personnel, under the direction of the Chief Warden or Area Warden are responsible for:

- Evaluate the extent of any allergies or injuries.
- Administer first aid (only where safe to do so) or
- Assess if injured personnel can be evacuated safely

4.2.5 Emergency Planning Committee Identification

A bushfire emergency response is greatly assisted by key personnel being quickly identified by staff, visitors and emergency services. See Table 2 below.

Table 2: Emergency Planning Committee identification items and colours

Wearers Title	***Item and identification colour***
Chief Warden	***White helmet***
Area Wardens	***Red helmet***
First Aiders	***Green helmet or green arm band***

5. Preparations and Actions

The actions outlined below relate specifically to bushfire evacuation and should be managed in the context of the broader Emergency Response Plan for the Facility.

5.1 Training requirements

All Wardens, staff and other responsible personnel working at the Facility should attend a bushfire evacuation session with the key local government and local Emergency Services to be informed of and trained in relation to:

- All information contained in this document
- Individual roles and responsibilities
- Access and egress routes
- Assembly point location
- Written evacuation procedures applicable to the process.

All those who have received bushfire training should formally acknowledge that they have read and understood the emergency evacuation procedures, understand their role and responsibilities, and had any questions relating to the evacuation procedure adequately answered.

5.2 Exercise drills

Evacuation to the safer assembly area on-site should be practiced annually.

Staff briefing should occur prior to each such drill and a debriefing should follow any drill or bushfire event to discuss any issues regarding the implementation of the plan.

5.3 Maintenance of equipment

The fire-fighting equipment and water supply infrastructure will be maintained according to servicing schedules.

5.4 Evacuation plan review

This plan should be treated as a 'living document' and reviewed and revised (if required) prior to each bushfire season. A review checklist has been provided in Appendix 3.

In addition to this annual review, a review of the plan and response of the Facility personnel and visitors should be undertaken following any bushfire in the area and/or after an evacuation.

6. Evacuation Plan

6.1 Objective of the Bushfire Evacuation Plan

The objective of this Bushfire Evacuation Plan is to:

- Decrease the level of risk to staff, residents and others on the Facility grounds; and
- Ensure safe and effective evacuation (both within the Facility and off site) of all those at the Facility through effective control and management.

There are two principal types of evacuation possible from the Facility:

1. *Pre-warned Evacuation*: when authorities contact the Facility, and coordinate an evacuation. This decision is made to evacuate ahead of a bushfire impacting the Facility.
2. *Self-Evacuation*: a spontaneous evacuation involving the self-initiated movement of staff and residents after an assessment has been made that the Facility could be threatened by a bushfire and time exists to move everyone safely to the Bushfire Evacuation Assembly Area .

An alternative to evacuation is to shelter in place rather than evacuate. There is no conceivable reason as to how this could occur. The facility is exposed to a fast moving grass fire and by walking a short distance away from the fire threat to the Bushfire Evacuation Assembly Area, the predicted radiant heat levels reduce rapidly and are not life threatening.

6.2 Communication

The Emergency Response Team (i.e. wardens and/or full-time staff) will communicate during a bushfire event using two-way handheld radios / walkie-talkies.

Contact with emergency authorities will be maintained through cellular / mobile telephone. All Facility mobile phones need to be registered with the State Governments State Alert System. The Chief Warden should have access to a satellite phone in the event that a bushfire disrupts cellular reception.

Staff and residents will be informed of a bushfire event that may impact the Facility and any action required via staff quietly moving through the facility and communicating face-to-face. It is important to keep calm and minimize potential distress.

6.3 Evacuation Process

The Chief Warden is responsible for deciding whether an evacuation is necessary and should take the following into consideration when determining if and when to evacuate:

- The advice from Emergency Services, including public warnings
- The severity of a bushfire incident, proximity of the bushfire and predicted fire spread (i.e. smoke, embers and radiant heat)

The decision should take account of all information provided by Emergency Services. The process that should be followed involves:

- Determining whether the bushfire is a potential threat.
- Deciding to evacuate if the threat is confirmed.

6.3.1 Monitoring for Bushfires

Receiving a warning of an approaching fire is enhanced by actively monitoring communications over the internet (i.e. EmergencyWA) and ABC radio and observing the environment surrounding the site. It is common for the first indication that a bushfire is burning nearby to observe smoke in the surroundings.

Fire Danger Ratings (FDRs) provide advice on the level of bushfire threat on any given day and are based on the forecast daily fire danger indices (which include consideration of forecast wind speed, temperature, humidity and fuel conditions). There are seven FDRs ('low', 'moderate', 'high', 'very high', 'severe', 'extreme' or 'catastrophic', summarised in Figure 3 and Figure 4) which provide an indication of how difficult a bushfire will be for authorities to extinguish and on what days bushfires are going to pose the greatest threat to property and lives. FDRs are therefore an important component of bushfire emergency evacuation planning.

The forecasted FDR can be accessed online through the Department of Fire and Emergency Services or Bureau of Meteorology websites.

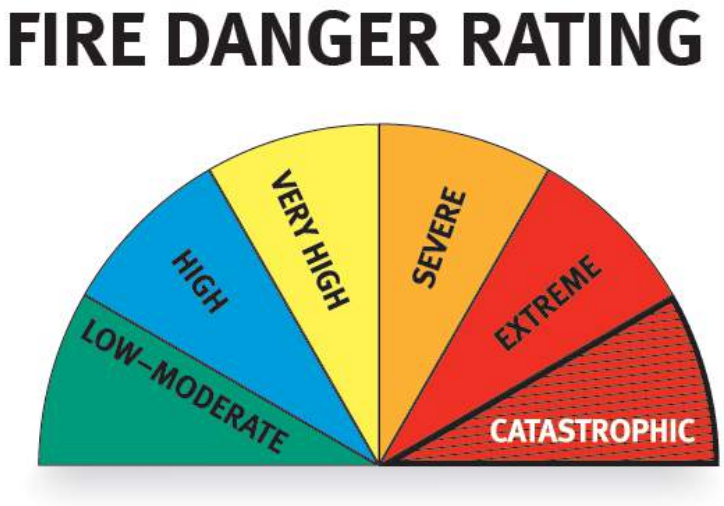


Figure 3: *Fire Danger Ratings*

On days when the FDR is 'high' or above, bushfires can be unpredictable and uncontrollable, and these days trigger basic preparation and monitoring procedures.

The monitoring procedures to be implemented for the Facility have been outlined within Table 3 below. Monitoring involves accessing websites (i.e. those of the Department of Fire and Emergency Services and the Department of Biodiversity Conservation and Attractions) and listening to the emergency services broadcaster 720 ABC radio at regular intervals throughout the day.

Monitoring also involves regularly checking for smoke in the surrounding area. A staggering 56% of people surveyed after the Victorian Black Saturday bushfires reported that the sight of smoke was the first indication that they had that a bushfire was burning nearby (VBRC 2009).

Table 3: *Fire Danger Rating monitoring procedures*

Actively monitor for bushfires according to these guidelines:

Fire Danger Rating	Predicted Fire Behaviour	Monitoring Requirements
Catastrophic Extreme and Severe	Uncontrollable fire, the worst conditions possible, very hot and windy, significant ember attack ahead of the fire, life threatening radiant heat and fast moving fire	Monitor ABC radio and DFES website every 15 minutes all day. Staff advised in the morning of fire conditions and requested to stay alert for smoke in local area
Very High & High	Hot, dry and possibly windy conditions, fire may be hard to control	No specific monitoring required, but staff alert for any signs of smoke
Low-Moderate	Fire likely to be controlled, but possibly unpredictable if windy	No specific monitoring required, but staff alert for any signs of smoke

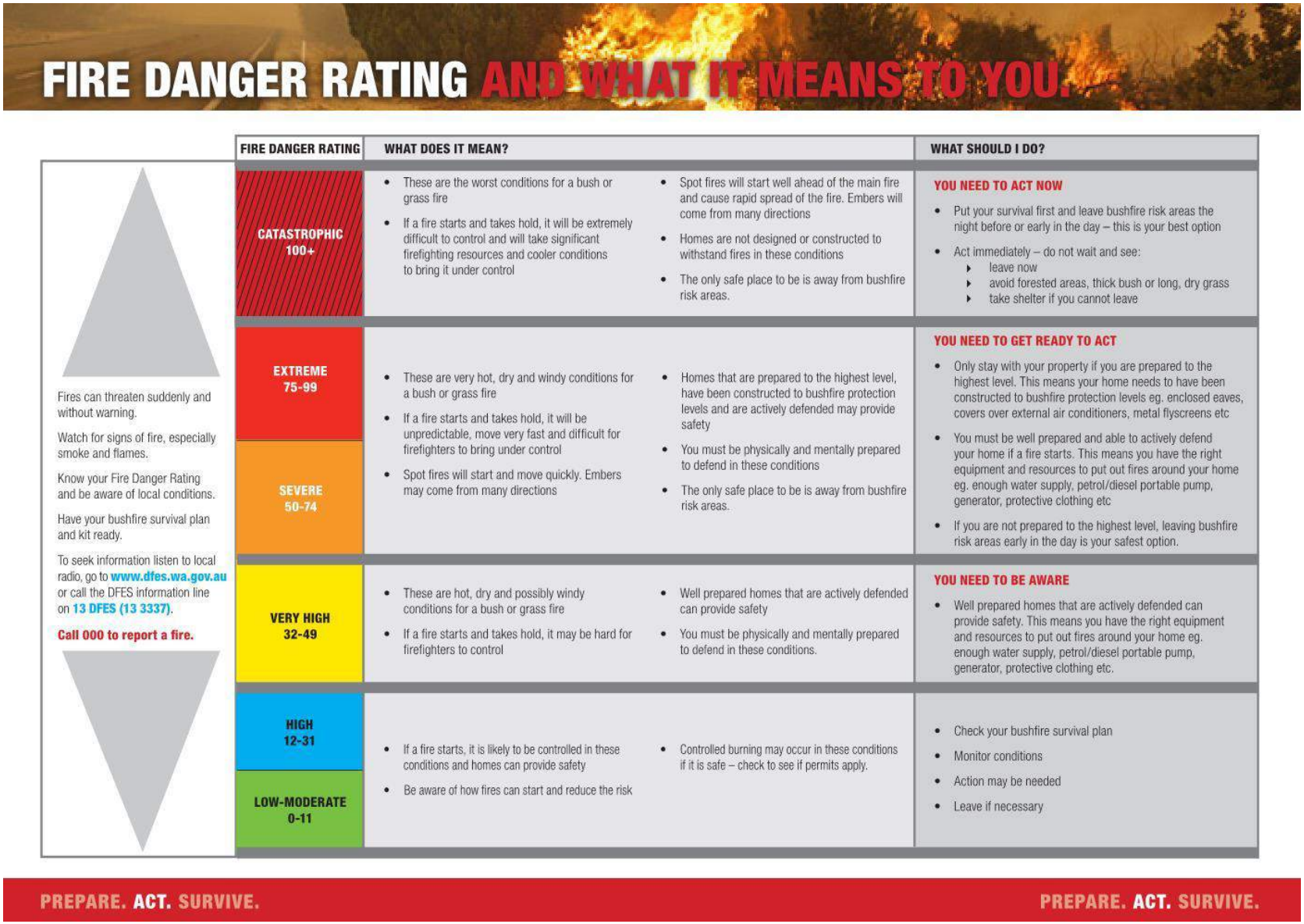


***Figure 4**: Fire Danger Ratings and considerations for bushfire propagation and responses*

In addition to FDRs, where a bushfire occurs, the Department of Fire and Emergency Services have three levels of warnings that escalate to reflect the increasing risk to life from a bushfire and the decreasing amount of time people have until the bushfire arrives. The three warning levels are detailed in Appendix 4 and include:

- Advice;
- Watch and Act; and
- Emergency.

In the event that an **Advice** Warning is received at the Facility for an approaching bushfire, staff should be notified of the potential need to muster and/or evacuate. If a **Watch and Act** Warning is received, it is recommended that residents be mustered in preparation to enable the orderly evacuation of staff and visitors, if evacuation is required.

An all clear message means the danger has passed and the fire is under control. Although, it is possible that it still may not be safe to return to the Facility and the Emergency Services will advise the Chief Warden when it is safe to do so (DFES 2017).

Importantly, early detection of a bushfire's location provides everyone with the best opportunity to evacuate early. Warning of a bushfire may be provided by emergency authorities, but this is not guaranteed. Nominated staff should actively monitor for bushfires on days that a bushfire is likely to be difficult for fire agencies to suppress, in accordance with the procedure outlined in Table 3. This increases the chance of receiving an early warning of a bushfire.

If electricity fails, phone lines and internet can be interrupted. Mobile phones can assist with accessing information, however back-up battery powered radios will help with information in the event of power failure, therefore portable radios should be maintained within the administration area.

6.3.2 Evacuation triggers

The key to a safe evacuation is evacuating rooms prior to the fire front being adjacent to the site.

Within the Facility, the following are triggers for evacuation:

- Receipt of an official warning to evacuate from the emergency authorities. Monitoring of the Emergency WA web page (https://www.emergency.wa.gov.au/) at regular intervals must occur (outlined in Section 6.3.1);

Advice may be provided by emergency authorities to self-evacuate to the Bushfire Evacuation Assembly Area.

6.3.3 Procedure for evacuation

The order to evacuate will be given by DFES to the senior person (Chief Warden) in charge at the Facility. The order will be received either electronically or by verbal instruction.

The Chief Warden will immediately inform the CEO/Facility Manager. The Chief Warden on duty will then issue the evacuation order to the staff working in areas throughout the Facility. Staff will coordinate residents to evacuate their rooms.

Equipment and Supplies

Area Wardens/ Emergency Response Team Members are to collect all documentation including medication documentation, rosters, staff and residents contact details and residents registrations (if relevant). The Chief Warden will then conduct a check of the Facility and all buildings to ensure all residents and personnel are assembled at the Bushfire Evacuation Assembly Area

A summary of the evacuation process has been outlined in Appendix 5.

7. Shelter-on-site – Bushfire Evacuation Assembly Area

The Bushfire Evacuation Assembly Area has been specifically assessed for predicted levels of radiant heat flux levels that are below 2kW/m2. The design fire modelling is found in Figure 6. This radiant heat flux level is the equivalent of what people experience in the full sun. It is not life threatening and provides a safer place to shelter outside within the facility grounds (Figure 5).

For sheltering in place, the following will be undertaken:

- Advise emergency authorities of the decision to evacuate to the Bushfire Evacuation Assembly;
- Notify all staff and residents of the decision to evacuate to the Bushfire Evacuation Assembly Area
- Initiate procedures outlined in Appendix 5 to have Wardens move residents to the Bushfire Evacuation Assembly Area and provide P2 smoke masks to all people sheltering to assist with breathing if the air fills with smoke;
- Area Wardens to ensure that all staff and residents have moved to the Bushfire Evacuation Assembly Area.

The Facility may be subject to ember attack that may last for many hours. Embers may cause fires on-site that threaten lives. The Chief Warden and Area Wardens must therefore be prepared when assembled at the site with residents to extinguish embers or small fires using fire-fighting equipment provided within the Facility.

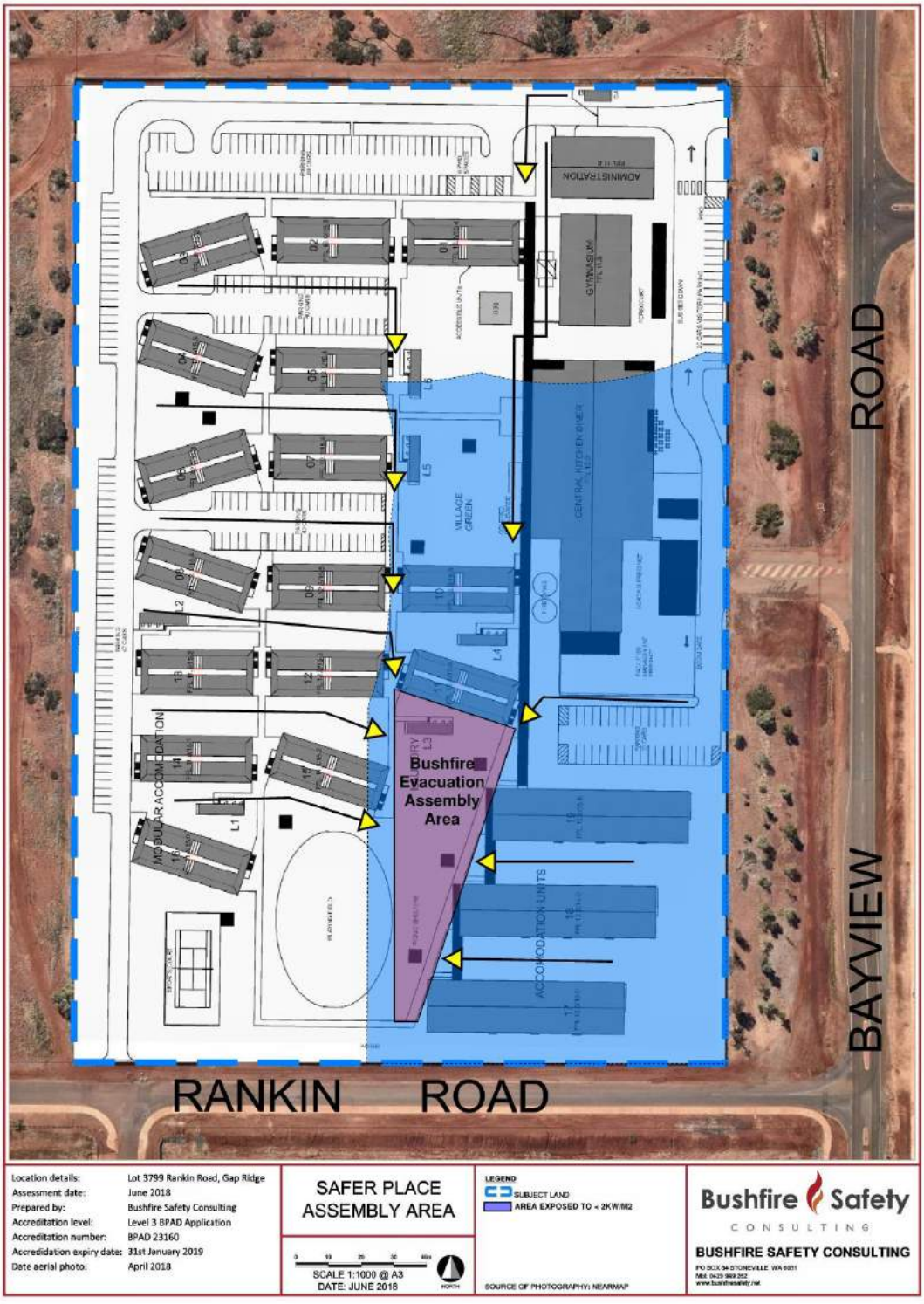
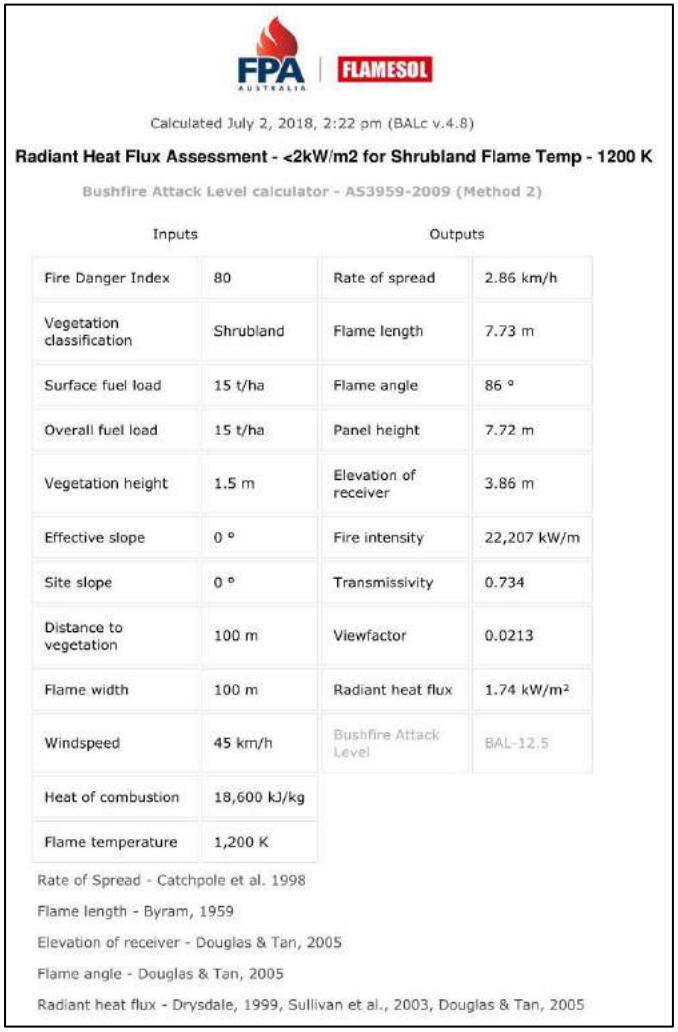


Figure 5: Evacuation Routes to the Bushfire Evacuation Assembly Area



FPA AUSTRALIA | FLAMESOL

Calculated July 2, 2018, 2:22 pm (BALc v.4.8)

Radiant Heat Flux Assessment - <2kW/m2 for Shrubland Flame Temp - 1200 K

Bushfire Attack Level calculator - AS3959-2009 (Method 2)

Inputs		Outputs	
Fire Danger Index	80	Rate of spread	2.86 km/h
Vegetation classification	Shrubland	Flame length	7.73 m
Surface fuel load	15 t/ha	Flame angle	86 °
Overall fuel load	15 t/ha	Panel height	7.72 m
Vegetation height	1.5 m	Elevation of receiver	3.86 m
Effective slope	0 °	Fire intensity	22,207 kW/m
Site slope	0 °	Transmissivity	0.734
Distance to vegetation	100 m	Viewfactor	0.0213
Flame width	100 m	Radiant heat flux	1.74 kW/m²
Windspeed	45 km/h	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Catchpole et al. 1998

Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

FPA AUSTRALIA | FLAMESOL

Calculated July 2, 2018, 2:34 pm (BALc v.4.8)

Radiant Heat Flux Assessment - <2kW/m2 for Grassland FDI - 100

Bushfire Attack Level calculator - AS3959-2009 (Method 2)

Inputs		Outputs	
Grassland Fire Danger Index	110	Rate of spread	14.3 km/h
Vegetation classification	Grassland	Flame length	6.87 m
Surface fuel load	4.5 t/ha	Flame angle	86 °
Overall fuel load	4.5 t/ha	Panel height	6.85 m
Vegetation height	n/a	Elevation of receiver	3.42 m
Effective slope	0 °	Fire intensity	33,247 kW/m
Site slope	0 °	Transmissivity	0.74
Distance to vegetation	90 m	Viewfactor	0.0226
Flame width	100 m	Radiant heat flux	1.87 kW/m²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Noble et al. 1980

Flame length - Purton, 1982

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

***Figure 6**: Design Fire modelled to determine the Bushfire Evacuation Area*

APPENDIX 1: List of Emergency Control Personnel

Function	Name
Chief Warden	
Area Wardens	
First Aid Officers	

APPENDIX 2: Emergency Contacts

Reception Office:	Direct Line:
Chief Warden	Name: Direct Line:
Area Wardens	Name: Direct Line: Name: Direct Line:
First Aid Officers	Name: Direct Line: Name: Direct Line:
Police TTY ***(hearing impaired service)***	
Local Police	
Wanneroo Hospital	
General Emergency	000
General Emergency ***(from mobile)***	112
SES	
Water	Water Corporation:
Gas	
Electricity	

APPENDIX 3: Review of Emergency Plan

Date	Plan Reviewed	Modification Requested	Action Procedures Practiced	Responsible Person	
		Yes / No	Yes / No	Name	Signature
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				
	☐				

APPENDIX 4: Details of Fire Warning Levels

An **ADVICE** provides information that a fire has started but there is no immediate danger, this is general information to keep people informed and up to date with developments. **An Advice warning is a trigger to assess where the fire is and its potential threat level.**

A **WATCH AND ACT** message is issued when a fire is approaching and conditions are changing, DFES recommend people need to leave their property or prepare to actively defend (DFES 2017).

An **EMERGENCY WARNING** means there is immediate danger and the fire is likely to impact the site. There is a threat to lives and buildings, it is the highest level of warning (DFES 2017). The message may start with a siren called a Standard Emergency Warning Signal.

APPENDIX 5: Evacuation Procedures

To facilitate orderly evacuation of the Facility, the movement of residents and staff could be phased if necessary, depending upon the number of occupants at the Facility and the resources available. This can be achieved by:

- Evacuating the most vulnerable people first;

After satisfying the criteria in the response decision making process (Figure 2) and the decision has been made to evacuate, the following procedures should be implemented:

- Advise emergency authorities of the decision to evacuate and proposed route.
- Notify staff and residents that a bushfire evacuation is underway.
- Residents and staff to be informed and organised for evacuation by Area Wardens.
- Nominated Area Wardens are to ensure the Facility is completely evacuated before the site is secured.
- Evacuate away from the threat to Bushfire Evacuation Assembly Area.

ATTACHMENT 7

SOCIAL IMPACT MANAGEMENT PLAN

ROWE GROUP

BAY VILLAGE REDEVELOPMENT

Social Impact Management Plan Commitments (as at 25 July 2018)

This document provides a list of social impact management strategies that have been identified for the redevelopment of Bay Village. These strategies are current as at 25 July 2018 and based on Woodside and DIF Consortium's existing commitments and Creating Communities' professional knowledge and experience in conducting Social Impact Assessments (SIAs) and Social Impact Management Plans (SIMPs).

These strategies will be refined through community and stakeholder engagement, consultation with neighbours and feedback from the fly-in fly-out (FIFO) workforce.

The management strategies are categorised according to the impact areas outlined in DP20 where appropriate. Based on the advice of Creating Communities, two additional impact areas have been added: Health and Wellbeing of FIFO workers; and Social Impacts of Built Form and Construction.

Impact Area	Details	Strategies	Commitments	Intended Impact
Overarching strategies	*These overarching strategies are designed to address multiple impact areas.*	Establish internal working group	• Establish an internal working group (comprised of key internal stakeholders from Woodside and DIF Consortium, including the Social Integration Coordinator) to manage social impacts of the redevelopment and operation of Bay Village. • This group will be the custodians of the SIMP. • This group will engage with the City of Karratha and key community stakeholders to continue to inform the plan and monitor progress. • Working group to meet quarterly.	Further commitments are delivered during the project lifespan in order to minimise negative impacts and maximise positive impacts.
		Communication and Engagement Strategy	Develop a Communication and Engagement Strategy, outlining processes for communicating and engaging with neighbours, local businesses and other stakeholders throughout the project lifecycle – i.e. from construction through to sustainable operations.	Local community stakeholders can raise issues and concerns, as well as identify opportunities for enhancing community benefit from the establishment of the village.
		Community induction	Conduct an induction for Bay Village residents to provide information on the social and community engagement opportunities, while also describing behavioural expectations in the community. Induction to include: • Information about Karratha and surrounding towns prior to arriving in the town, including information on local heritage and activities. • Training on community expectations including behaviour, dress standards, cultural awareness, and respecting local heritage (Induction could involve local police, City of Karratha and community association members.). An information pack provided in the accommodation rooms that includes a range of details about accommodation policies and procedures, information about the attractions, services, clubs, activities and events available in Karratha.	Combined economic and community benefits through: • Enhanced cultural awareness and understanding of local context among Bay Village residents. • Enhanced awareness (and therefore opportunities for use) of local facilities, amenities and businesses.

Impact Area	Details	Strategies	Commitments	Intended Impact
Demographic and population change	• Re-opening Bay Village (closed 2014) will result in 700 extra people in the Nickol West area. • Development will result in no change to the City of Karratha population or Woodside's overall FIFO workforce numbers (moving 700 of existing FIFO workforce from 4 facilities).	Prioritise residential workforce	• Woodside is focused on growing the number of residential employee and contractor positions available in Karratha, through the use of a local jobs portal; and progressively filling Woodside-managed housing. Specifically Woodside has committed to filling 690 houses by 2020. • Continue to recruit Woodside's trainees and apprentices from the City of Karratha. (42 or 100% of the 2018 intake are City of Karratha residents). • Detailed SIAs and SIMPs for Woodside growth projects (i.e. Scarborough and Browse developments) will be finalised in the first half of 2019. This will cover anticipated population growth requirements and demographic changes.	Enhanced positive economic and social impacts in Karratha due to the commitment to the residential workforce.
		Traffic management due to increased local population	Access from Bayview Road, inclusive of service vehicles, will be in line with the traffic management plan.	Negative impacts of increased traffic are minimised.
Accommodation and housing	• Bay Village development not expected to affect residential housing. • Woodside growth project impact on accommodation likely to be significant. • Accommodation will be two-storey units with activated street frontages to ensure it successfully integrates with the visual aesthetic and feel of surrounding community. • Increased supply in the Transient Worker Accommodation (TWA) market.	Prioritise residential workforce	• Woodside is focused on growing the number of residential employee and contractor positions available in Karratha, through use of a local jobs portal; and progressively filling Woodside-managed housing. Specifically Woodside has committed to filling 690 houses by 2020. • Continue to recruit Woodside's trainees and apprentices from the City of Karratha. (42 or 100% of 2018 intake are City of Karratha residents). • Detailed SIAs and SIMPs for Woodside growth projects (i.e. Scarborough and Browse Developments), will be finalised in the first half of 2019. This will cover anticipated accommodation and housing.	Woodside policies will see a growing residential footprint in Karratha.
		Cater for future demand for TWA facilities from future growth projects (this growth is expected to be significant)	• Ongoing commitment to additional TWA facilities for twice-yearly shutdowns (1,500 beds) and overflow requirements (150-200 beds). • Detailed SIAs and SIMPs for Woodside growth projects (i.e. Scarborough and Browse Developments), will be finalised in 1H 2019. This will cover accommodation requirements. Significant impact expected to TWA facilities during construction peak from 2020.	Bay Village ensures accommodation security for the existing FIFO workforce at a time when growth projects are putting pressure on TWA facilities across Karratha.
Accessibility to community services and facilities	• Bay Village is 1km from Tambrey Centre and 6.7km from Karratha town centre. • Outward social integration model employed.	Shuttle buses	Continuous shuttle buses between Bay Village, City Centre and Leisureplex facilities will operate between 6.30pm and 9.30pm.	Regular and frequent free access to local sport and recreation facilities.
		Provide cycling infrastructure	• Initially 20 bikes. • Bike racks.	Additional opportunity for access to local facilities, amenities and businesses at residents' own leisure.
		Limit size of on-site facilities	Smaller pool and gym.	The size of the gymnasium and pool are limited to encourage the use of in-town facilities such as the Karratha Leisureplex.
		Exclusion of on-site shop and wet mess	• No wet mess at Bay Village. • No corner store at Bay Village.	The site does not include a convenience store or wet mess which will encourage the use of in-town services by Bay Village residents.

Impact Area	Details	Strategies	Commitments	Intended Impact
		Social Integration Coordinator	Prior to operations commencing, DIF Consortium will hire a local person to be a Social Integration Coordinator. The Social Integration Coordinator will encourage use of Tambrey and Karratha city facilities, community organisations and local businesses (e.g. community events, sporting clubs, restaurants, bars).	Opportunities for accessing community facilities, amenities and businesses are promoted, encouraged and improved by the Social Integration Coordinator.
		Promotion of external initiatives to Bay Village residents	Promote 'What's on in Karratha?' and neighbouring towns to Bay Village residents through multiple means including a calendar of local events, programs and initiatives, including those organised by: • City of Karratha; • Karratha Districts Chamber of Commerce and Industry (KDCCI); • Karratha Community Association; and • Sporting Associations. Promote local community clubs, facilities and events via village communication channels (e.g. via a dedicated village TV channel, app).	Opportunities for accessing community events, programs and initiatives are promoted and encouraged.
		Incentivise participation in external facilities and businesses	Work with local organisations and businesses to incentivise use of local facilities and amenities – e.g. may include discounted memberships to local clubs and facilities, discount vouchers to local restaurants etc.	Opportunities for accessing community facilities, amenities and businesses are directly incentivised.
		Karratha Life Extension Community Group (KLE contractor representatives working together to enhance community participation).	Continue operation of the KLE community group to enable growth of opportunities for community participation.	KLE community group members continue to identify opportunities for enhancing community benefit through access to community facilities, amenities, businesses and events.
Cultural values and beliefs	• No areas of cultural significance have been identified on or in the immediate vicinity of the site. • The land is not subject to any native title. The site is currently vacant and underutilised. • Community integration and mutual understanding and respect between Bay Village residents and the local community is desired. • Understanding and respect of the diversity that exists within the	No barriers to cultural and faith practices	• Provide opportunities for residents to attend cultural and faith-related celebrations in the local region. • Include cultural and faith-related celebrations in the 'What's on in Karratha?' calendar.	Village residents are better able to practice and celebrate their culture and faith, including more opportunities for participation in local community initiatives.
		Zero tolerance towards antisocial behaviour	Reinforce to transient workers and the community Woodside's and DIF Consortium's strong stance on zero tolerance towards antisocial behaviour, including any discrimination based upon cultural values and beliefs.	Increased safety and wellbeing of transient workers and community members.

Impact Area	Details	Strategies	Commitments	Intended Impact
	transient workforce at Bay Village is desired. • Some members of the Karratha community and stakeholders are known to value residential work over transient work.			
Social infrastructure	Outward social integration model employed. NOTE: many of the strategies related to *Accessibility to community services and facilities* also address social infrastructure impacts.	Social Integration Coordinator	The Social Integration Coordinator will work with owners, managers and users of social infrastructure – as well as with Bay Village residents – to promote use social infrastructure.	Opportunities for accessing social infrastructure are promoted, encouraged and improved by the Social Integration Coordinator.
		Village Lifestyle Coordinators	Employ Village Lifestyle Coordinators, who support not only residents' health and well-being through fitness and recreation activities but also support social and engagement activities for residents and community.	Opportunities for accessing social infrastructure are promoted, encouraged and improved by the Village Lifestyle Coordinators.
		Accessible oval space	Recreational oval space accessible for neighbours from surrounding Nickol West community.	Increased potential for social sport, recreation and integration between workers and surrounding community members.
Community values, identity and cohesion	• Potential disconnect between transient workers and Karratha residents. • Some members of the Karratha community and stakeholders are known to value residential work over transient work.	Outward social integration model	Multiple strategies outlined in this document are designed to increase the use of community facilities, amenities and businesses by Bay Village residents.	Increased potential for integration between workers and surrounding community members within the community.
		Accessible oval space – increased opportunities for interaction on the site	Recreational oval space accessible for neighbours from the surrounding Nickol West community.	Increased potential for integration between workers and surrounding community members.
Crime and public safety	• Behavioural guidelines and standards implemented by Woodside and DIF Consortium are stricter upon transient workers than upon the broader community.	Employee and contractor behavioural standards	Woodside and DIF Consortium workers to abide by clear behavioural standards at Bay Village and when in the surrounding community.	Behavioural standards are strictly enforced, limiting opportunities for crime and risks to public safety more strictly than criminal controls only.
		Zero tolerance towards antisocial behaviour	Reinforce to transient workers and the community Woodside's and DIF Consortium's strong stance on zero tolerance towards antisocial behaviour.	Increased safety and wellbeing of transient workers and community members.
		Community liaison for any crime or public safety concerns	Local police and rangers to be provided with the details of a specific Woodside contact in case of any crime or public safety concern.	Woodside is able to cooperate with police to address behaviours of concern.
		Limit opportunities for crime as a result of an unfenced Bay Village site	Ensure Bay Village has good passive surveillance that is supported by effective lighting and appropriate landscaping. Additionally, install CCTV and good lighting around shared facilities, as well as clear signage that provides relevant information to guests.	Criminal and antisocial activity is discouraged through surveillance and design features that assist to 'design out crime'.

Impact Area	Details	Strategies	Commitments	Intended Impact
		Duty of care in accessible area	As community access will be allowed to the oval and the site will be unfenced, the duty of care for workers and community members will be clearly defined in these areas, through consultation between local police, City of Karratha, Woodside and DIF Consortium.	Local police, City of Karratha, Woodside and DIF Consortium all aware of responsibilities around behaviour in Bay Village.
Health and wellbeing	Opportunities may exist for Bay Village to contribute to the health and wellbeing of the surrounding community (as well as to Bay Village residents – as is outlined in impact area *Health and wellbeing of transient workers* below).	Accessible oval space and landscaped gardens	• Recreational oval space accessible for neighbours from surrounding Nickol West community. • Use of social integration officer to enhance opportunities for health and well-being.	Increased potential for social sport and recreation, positively impacting physical and mental health and wellbeing.
Employment and local benefits	Local employment and training opportunities.	85% local employment during construction	Commitment to at least 85% local employment during construction (approximately 70 jobs).	Positive contribution to local employment and the local Karratha economy.
		85% local employment during operations	Bay Village will require 85% local employment during operations. The Facilities Management Operator will be contractually committed to: • Advertise all roles locally; • Using the Locals First online portal to source suitable applicants; • Maintain a register of all interested local applicants for future opportunities as they arise; and • Provide flexibility in rostering to suit requirements of local employees.	Positive contribution to local employment and the local Karratha economy.
		Locals First Portal	The 'Locals First Portal' was launched in June 2018. The portal will also be used and applied to positions for current and future Woodside-operated projects in the Pilbara and it will immediately (subject always to compliance with applicable legislative requirements) request its labour hire contractors and suppliers on Woodside operated projects in the Pilbara use the Portal. As current contracts are renewed and new contracts are established, Woodside will (subject to the above proviso) ensure that use of the Portal is compulsory.	• Improved accessibility to job prospects for locals. • Prioritisation of locals seeking employment.
		Reconciliation Action Plan (RAP) commitments	Indigenous employment and contracting commitments are part of Woodside's RAP. The current RAP runs from 2016 to 2020, and sets out indicators of success, baselines, criteria and measurement. Indicators of success numbers 6 and 7, respectively, commit Woodside to: • *"year on year improvement in aggregate employment totals across Woodside, suppliers, community partners and other contributors"; and* • *"year on year improvement in contract totals across Woodside, suppliers, community partners and other contributors"*.	Increased local Indigenous employment.
		Local traineeships and apprenticeships	• Trainees and apprentices on Woodside-operated facilities continue to be sourced from City of Karratha (42 local apprentices and trainees in 2018 intake). • Explore opportunities to support education and training, for example VET courses, to develop training and career pathways for local youth and to retain families in Karratha.	• Increased local participation in training and employment pathways. • Increased local Indigenous participation in training and employment pathways.

Impact Area	Details	Strategies	Commitments	Intended Impact
Economic considerations	• Impact to existing facilities (Aspen, Cherratta, Civeo and Kingfisher Villages). • Impacts resulting from competition or cooperation with local businesses. • Patronage of local businesses by Bay Village residents. • Local content commitments.	Use of other TWA accommodation during shutdown and overflow periods	Shutdown and overflow requirements mean other TWA facilities will be used; also offset by growth projects where there will be significant demand for TWAs.	Ongoing patronage of existing facilities.
		Use of existing TWA accommodation as a result of growth projects	Detailed SIAs and SIMPs for Woodside growth projects (i.e. Scarborough and Browse developments), will be finalised in the first half of 2019. This will cover accommodation requirements. Significant impact expected to TWA facilities during construction peak from 2020.	Ongoing patronage of existing facilities.
		Support local Indigenous businesses and organisations	Continue to support local Indigenous businesses and organisations such as NYFL. These relationships should be maintained and communicated.	Woodside continues direct contribution to local Indigenous businesses and organisations.
		Promotion of external initiatives to Bay Village residents	Promote 'What's on in Karratha?' and neighbouring towns to Bay Village residents through multiple means including a calendar of local events, programs and initiatives, including those organised by: • City of Karratha; • Karratha Districts Chamber of Commerce and Industry (KDCCI); • Karratha Community Association; and • Sporting Associations.	Opportunities for accessing local businesses are promoted, encouraged and improved.
		Incentivise participation in external facilities and businesses	Work with local organisations and businesses to incentivise the use of local facilities and amenities – e.g. this may include discounted memberships to local clubs and facilities, discount vouchers at local restaurants etc.	Opportunities for accessing local businesses are directly incentivised.
		Impact to existing facilities (Aspen, Cherratta, Civeo, Kingfisher)	Engage with owners and managers of Aspen, Cherratta, Civeo and Kingfisher villages to determine options for mitigating any social impacts that occur as a result of reduced patronage and reduced local transient population.	Existing facility managers and owners are provided opportunity to raise issues and concerns, as well as identify opportunities for enhancing community benefit from changes in transient and residential workforces.
Health and wellbeing of transient workers	*This impact area has been added by Creating Communities as specific health and wellbeing impacts upon residents are additional to the Health and wellbeing impact area as outlined in DP20.*	Ensure Bay Village management and contractors commit to occupational health and safety standards	Recognise employee needs within DIF Consortium's, Woodside's, partner companies' and contractors' corporate health services to foster positive behaviours and healthy, active lifestyles for FIFO employees and their families.	Ensure a high standard of occupational health and safety policies and processes are applied at all times.
		Programs that address mental and physical health	Village Lifestyle Coordinators and a Social Integration Coordinator to implement programs that address mental health, opportunities for socialisation and community development (as well as recreation and physical health).	Opportunities to address health and wellbeing though socialisation, recreation and community development.
		Impacts of noise	Ensure noise is limited at all times within shared areas to ensure it does not disturb or interrupt the sleep of day and night shift workers.	Health, safety and comfort of Bay Village residents are ensured whilst at the facility and during work hours.
		Quality living spaces	Ensure the rooms provided are of a high standard that enable comfortable living spaces that promote health, wellbeing and a quiet place to sleep.	Health, safety and comfort of Bay Village residents are ensured whilst at the facility and during work hours.

Impact Area	Details	Strategies	Commitments	Intended Impact
		Provide cycling infrastructure	• Initially 20 bikes. • Bike racks.	Opportunities for active transport and thereby improved health and fitness.
		Shuttle buses	Continuous shuttle buses between Bay Village, Karratha city centre and Leisureplex facilities will operate between 6.30pm and 9.30pm.	Regular and frequent free access to local sport and recreation facilities.
		Management Plan for dining area	Develop a comprehensive Management Plan for the management of the dining area, (e.g. proposed health promotion actions; maximum servings per person etc.).	Opportunities to address health and wellbeing though diet.
Social impacts of built form and construction	*This impact area has been added by Creating Communities as impacts resulting from construction and the design of built form are additional to the Health and impact areas outlined in DP20.*	Noise, dust, litter and traffic management plans	Implement comprehensive noise, dust, litter and traffic management plans in association with Multiplex to reduce impact on the local community during construction and operation.	Noise, dust, litter and traffic impacts are mitigated during the construction phase.
		Develop Construction Interface Management Plan	Keep local neighbours and Bay Village residents regularly informed of the development process and any potential impacts from construction (e.g. days when large vehicle movements will occur).	Local community stakeholders can raise issues and concerns during the construction phase.
		Communications to all key stakeholders on the future design	Clearly communicate to stakeholders and the community the approach to developing the built form, landscaping and environmental management during the development and operation of the facility (the FAQ sheet distributed by Woodside and upcoming FAQ booklet developed by Creating Communities are elements of this strategy).	Local community stakeholders can raise issues and concerns during the construction phase.
		Integration with streetscape	Built form and landscaping have been designed to integrate effectively with the local streetscape.	• Improved visual impacts. • Increased opportunities for interaction between residents and surrounding community.
		Phasing of construction	Two-phase construction process to allow the front of the site to become operational whilst construction continues.	Minimises the impacts upon surrounding community members – especially neighbouring residential properties.

ATTACHMENT 8

DECOMMISSIONING AND REHABILITATION PLAN

ROWE GROUP

Bay Village
Rehabilitation Plan

June 2017

Prepared for
Woodside Energy Limited

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Report Reference: 14013-16-RESR-1Rev1_170616

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Bay Village
Rehabilitation Plan

Prepared for
Woodside Energy Limited

Job Number: 14013-16

Reference: 14013-16-RESR-1Rev1_170616

Revision Status

Rev	Date	Description	Author(s)	Reviewer
A	28/11/2016	Draft Issued for Client Review	K. Strelein	S. Pearse
B	02/12/2016	Draft Issued for Client Review	K. Strelein	S. Pearse
0	05/12/2016	Final Issued for Information	K. Strelein	S. Pearse
1	16/06/2017	Final Issues for Information	K. Strelein	S. Pearse

Approval

Rev	Date	Issued to	Authorised by	
			Name	**Signature**
A	28/11/2016	L. Wylie	S. Pearse	
B	02/12/2016	L. Wylie	S. Pearse	
0	05/12/2016	L. Wylie	S. Pearse	
1	16/06/2017	S. Robson	R. Archibald	

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Abbreviations

Abbreviation	Definition
°C	degrees Celsius
ha	hectares
kg/ha	kilograms per hectare
Lease of Crown Land	Lease of Crown Land (L) – Lot 3799 on Deposited Plan 185178, Volume 3019, Folio 150
m	metres
NATA	National Association of Testing Authorities of Australia
WEL	Woodside Energy Limited

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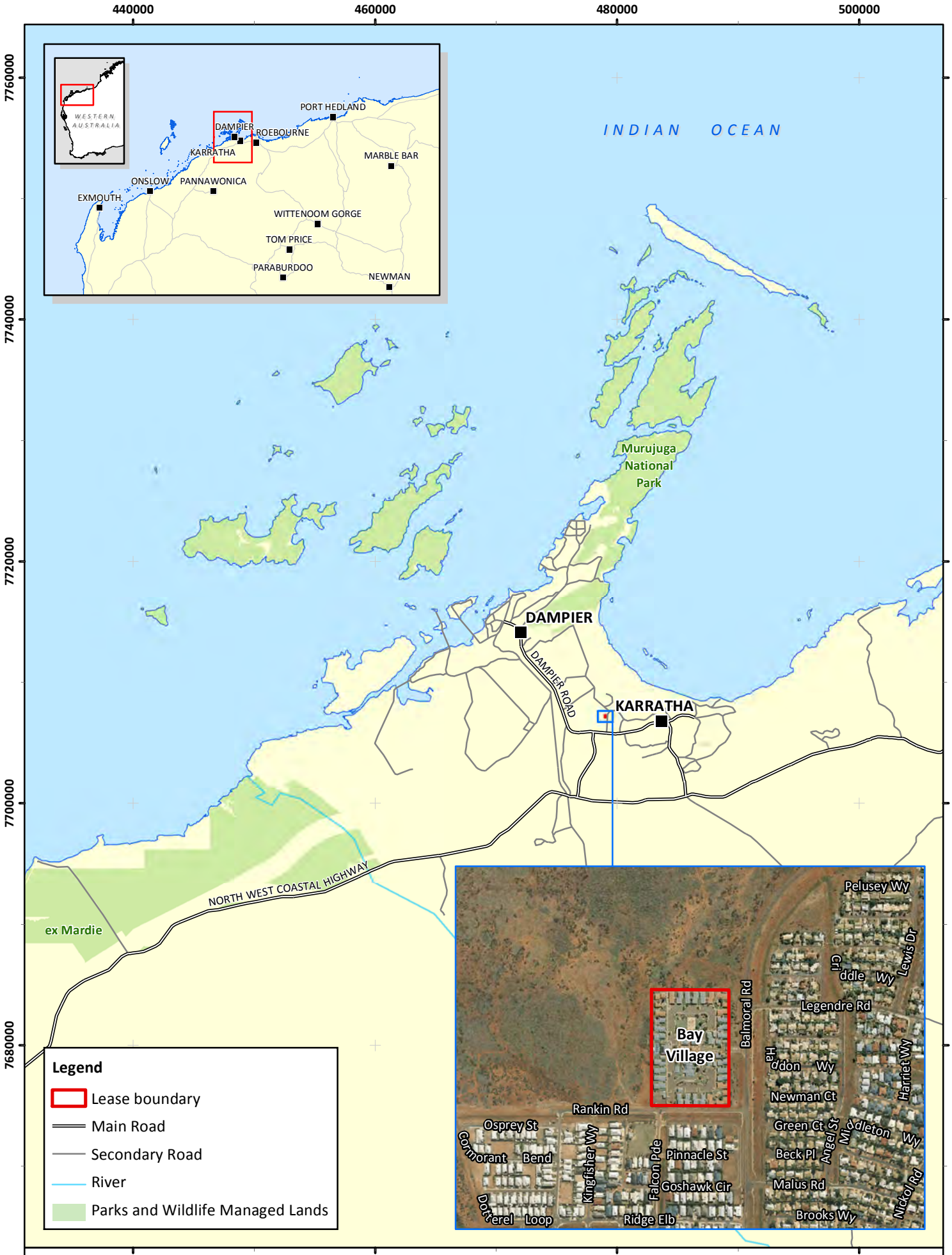
1 Introduction

In 2002, Woodside Energy Limited (WEL) entered into a Crown Lease agreement with the State of Western Australia for workforce accommodation on Lot 3799 of Deposited Plan 185178 Volume LR 3019 Folio 150 (Figure 1). The accommodation, known as Bay Village, was used for maintenance personnel at Woodside operated facilities in Karratha. Bay Village and associated facilities are to be demolished and removed from the site. A Rehabilitation Plan may be required to be submitted to the City of Karratha for inclusion in the planning application for the demolition works.

This Plan summarises the rehabilitation strategy for the site and provides specifications and guidance for site rehabilitation. The Plan has been developed to meet the requirements of all relevant approvals and guidelines.



Woodside Energy Limited

Bay Village – Rehabilitation Plan, December 2016

Figure 1: Location map

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Author: K. Strelein	Date: 15-06-2017
Drawn: T. Pedersen	Figure Ref: 14013-16-REDR-1Rev1_170615_Fig_1

Datum: GDA 1994 - Projection: MGA Zone 50

0 5 10 15 20 Km

N

2 Site Overview

This section provides background information on the location and natural environment of the site as well as conditions relevant to its rehabilitation.

2.1 Location

Bay Village is located in a peri-urban area near the suburb of Nickol, City of Karratha (Figure 1). The closest residential properties are located approximately 50 metres (m) to the south and 100 m to the east of the site.

The site is bordered by Balmoral Road to the east, Rankin Road to the south and sparsely vegetated unoccupied Crown Land to the north and west. A buffer of disturbed sparsely vegetated unoccupied Crown Land runs along the boundary with Balmoral Road. The site measures approximately 200 m by 300 m, with an approximate area of 6 hectares (ha).

2.2 Regulatory Requirements

Rehabilitation of the Bay Village site must fulfil the relevant conditions specified in Lease of Crown Land (L) – Lot 3799 on Deposited Plan 185178, Volume 3019, Folio 150 (Lease of Crown Land). Lease of the site is subject to the rights and obligations relevant to rehabilitation summarised in Table 1.

Table 1: Conditions of Lease of Crown Land (L) – Lot 3799 on Deposited Plan 185178, Volume 3019, Folio 150.

Condition number	Description
10.3	Yielding up a) On the expiration or earlier determination of the Term, the Lessee must: i. surrender peaceably and yield up the Land (including subject to clause 10.4 all improvements on the Land) to the Lessor clean, free from rubbish and in such state of repair and condition as shall be consistent with the Lessee's covenants and obligations under the Lease, the Agreement and the Approved Proposals to the reasonable satisfaction of the Minister; and ii. fill in, consolidate and level off an unevenness, excavation or hole caused by the Lessee or by the Lessee's use of the Land to the reasonable satisfaction of the Minister and the Agreement Minister; and iii. remove any fixtures, fittings or any other property on the Leased Premises as may be required by the Minister and the Agreement Minister (and whether before or after the expiration of any option period as referred to in clause 104(b)) to the Ministers' reasonable satisfaction; iv. promptly make good to the reasonable satisfaction of the Minister or the Agreement Minister (as the case requires) any damage caused by the removal in clause 10.3(a)(iii). b) The Lessee's obligations under clause 10.3(a) shall survive the expiration or earlier determination of the Term.

Condition number	Description
10.4	Ownership of improvements upon determination of Term a) Subject to clause 10.4(b), upon determination of the Term in accordance with clause 10.1, all buildings erections or other improvements erected on the Land not then already the property of the Lessor shall become and remain the absolute property of the Lessor without payment of any compensation or consideration to the Lessee (otherwise than in accordance with clause 10.4(b)) or any other party and free and discharged from all mortgages and other encumbrances. The Lessee shall do and execute and cause to be done and executed all such deeds, documents and other acts, matters and things (including surrenders) as the Lessor may reasonably require to give effect to the provisions of this sub clause. b) Immediately prior to or following determination of the Lease, if the Lessee wishes to remove all or any of its fixed and movable plant and equipment from any part of the land occupied by it at the date of such determination, the Lessee must give to the Lessor notice of such intention and must grant to the Lessor the right or option exercisable within 3 months following the date of determination of the Lease to purchase in situ such fixed or movable plant and equipment at a fair valuation to be agreed between the Parties or failing agreement as determined by arbitration under the Agreement. If the Lessor does not exercise that right or option, the Lessee may on the expiration of the 3 month period, or sooner with the consent of the Agreement Minister, remove all or any part of such fixed or movable plan and equipment.

2.3 Facilities

The village consists predominantly of accommodation units, mess halls and vehicle parking. Additional amenities consist of recreational facilities including a swimming pool, gymnasiums and grassed barbeque facility areas. The site is mostly sealed by hardstand, with the exception of garden beds and grassed areas.

2.4 Natural Environment

The following sections summarise the key characteristics of the site which are relevant to rehabilitation.

2.4.1 Climate

The Pilbara is situated largely in the summer rainfall zone of the Australia tropics, where the majority of the rainfall occurs when temperatures are at their peak between December and March (Figure 2). In addition to extreme temperatures (which consistently exceed 40 to 45 degrees Celsius (°C) during summer in parts of the Pilbara), rainfall can be highly variable from year to year and is dependent on summer thunderstorms, tropical cyclones and sporadic winter rains (Erickson et al. 2016). The flora of this arid region is highly attuned to survive harsh seasonal fluctuations in temperature and moisture availability (Erickson et al. 2016).

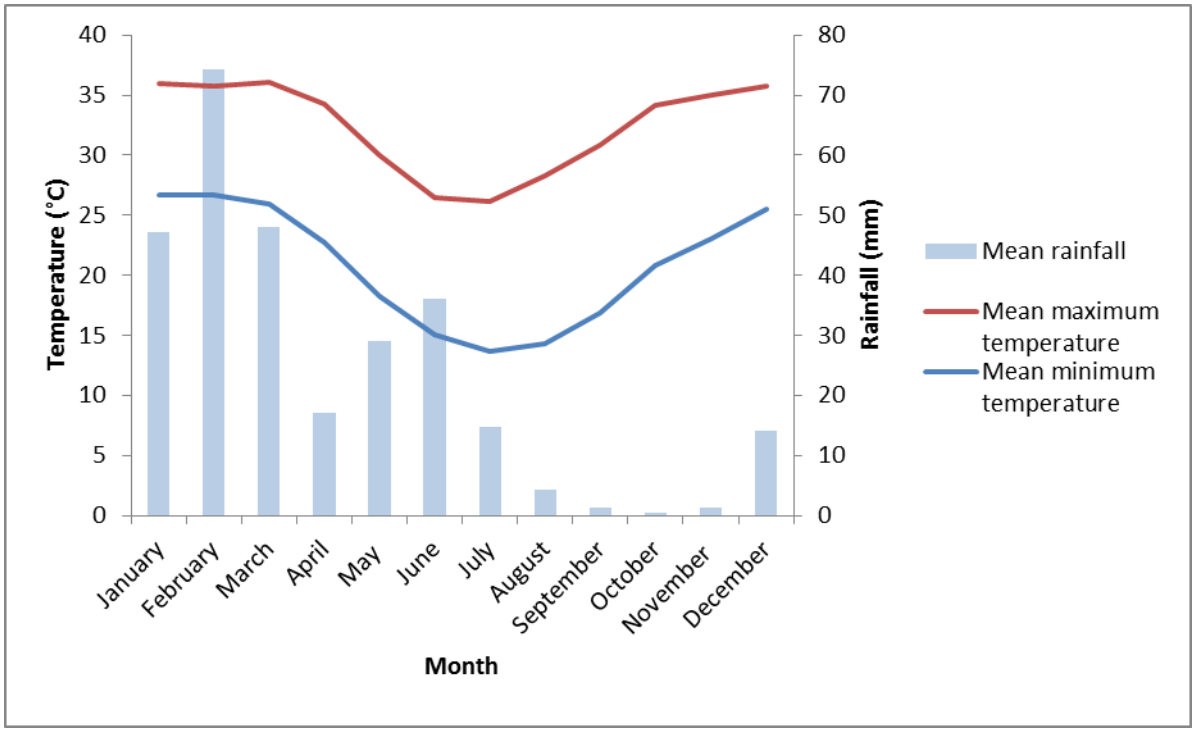


Figure 2: Long term mean monthly rainfall (bars) (1972 to 2016) and maximum and minimum temperature (lines) (1993 to 2016) at Karratha weather station (004083) (Bureau of Meteorology 2016).

2.4.2 Flora and Vegetation

Bay Village is located in the Roebourne subregion (PIL4) of the Pilbara Bioregion (Department of Conservation and Land Management 2002). The Roebourne subregion is characterised by quaternary and older colluvial coastal and subcoastal plains with a grass savannah of mixed bunch and hummock grasses, and a dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera* (Kendrick and Stanley 2001). Uplands are dominated by Triodia hummock grasslands, while ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands (Kendrick and Stanley 2001).

Clearing of vegetation at the site occurred prior to WEL constructing Bay Village. Prior to clearing, the vegetation was likely to have comprised *Acacia* dominated shrublands and closed annual tussock grasslands.

The vegetation surrounding the site highly degraded and impacted by access tracks and weeds.

2.4.3 Surface Water

The surface of the site slopes gently to the northwest with a change in height of approximately 2 m over the lease area. Surface water flow will only occur during heavy rainfall events and will drain into the tidal flats surrounding Nickol Bay.

3 Rehabilitation Approach and Prescription

The objectives for rehabilitation of the Bay Village site are to:

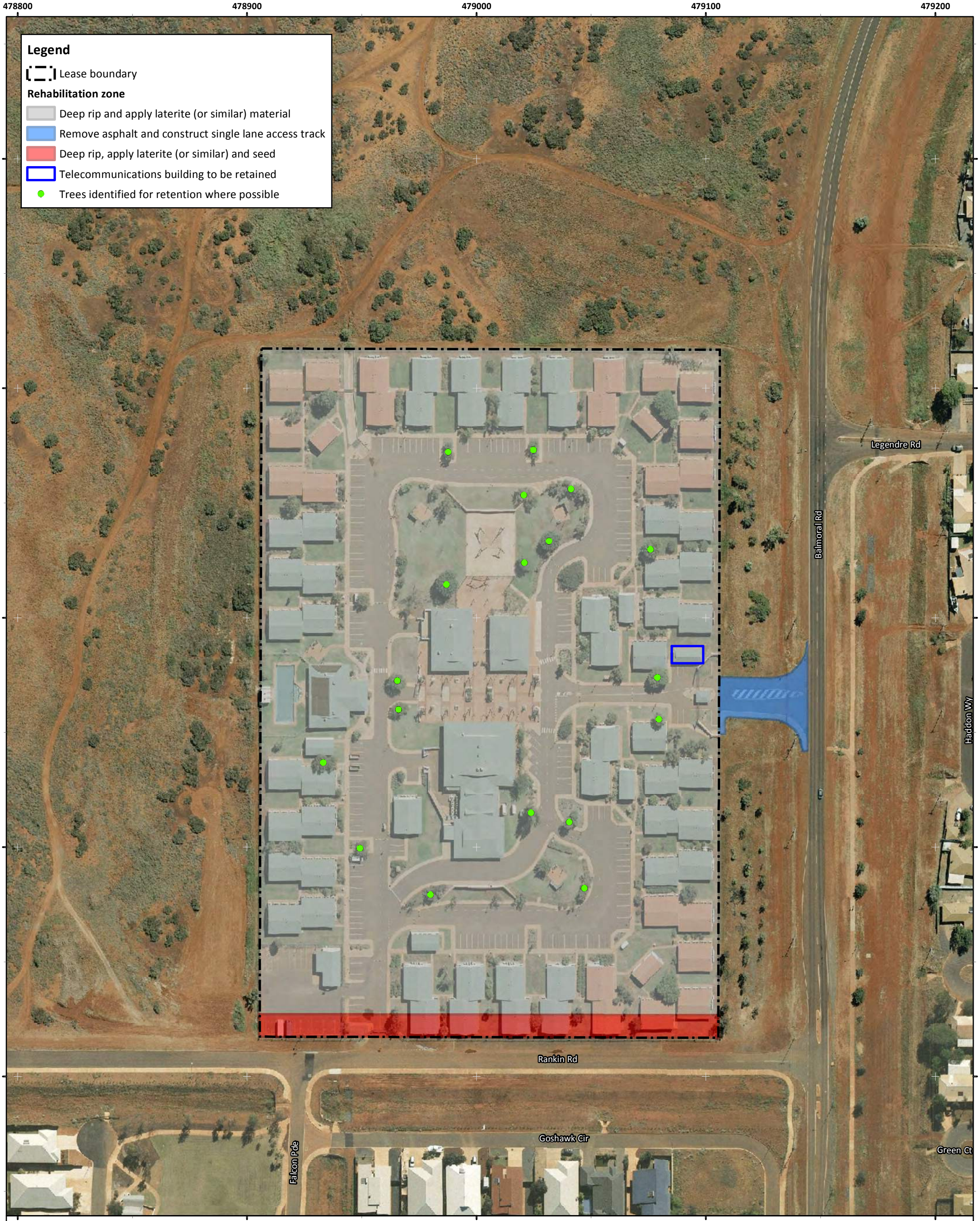
- meet all regulatory requirements
- stabilise the site in order to minimise the potential for dust generation and erosion
- not restrict future use of the site.

To achieve these objectives, the approach for rehabilitation of the Bay Village site is to:

- remove any vegetation which is not native to the area from garden beds and other landscaped areas prior to commencing rehabilitation works
- retain identified large native trees where possible
- retain undisturbed native vegetation along Balmoral Road
- decommission and remove all infrastructure except:
    - the telecommunications building located adjacent to Balmoral Road
    - any buildings identified for retention by the Minister for Lands in accordance with condition 10.4 of the Lease of Crown Land
- conduct a Preliminary Site Investigation (PSI) as per the Assessment and Management of Contaminated Sites – Contaminated Sites Guidelines (Department of Environment Regulation 2014) and if any contamination is detected manage it in accordance with the *Contaminated Site Act 2003*
- reshape the site if required to ensure any excavations are backfilled to minimise risk of erosion
- deep rip to alleviate soil compaction
- retain a single lane access track to the retained telecommunications building
- apply a locally sourced lateritic (or similar) material to the surface of the site to minimise erosion from surface water and generation of dust
- apply seed of appropriate local species along the boundary of the site facing Rankin Road.

Maintenance of a fire break is not required as the Bay Village site has no neighbouring properties and Balmoral and Rankin Roads provide a boundary with the adjacent residential area.

The site has been segmented into rehabilitation zones based on the activities required (Figure 3). Detailed information on each of the rehabilitation activities is provided the following sections along with a summary of alternative options considered.



Woodside Energy Limited

Bay Village – Rehabilitation Plan, December 2016

Figure 3: Bay Village rehabilitation zones

astron
delivering environmental intelligence™

Author: K. Strelein	Date: 15-06-2017	Coordinate System: GDA 1994 MGA Zone 50
Drawn: T. Pedersen	Figure Ref: 14013-16-REDR-1Rev1_170615_Fig_3	0 20 40 60 80 100 Metres; N

3.1 Remove Non-Native Species from Site

Prior to the commencement of rehabilitation works, all vegetation that is not native to the area will be removed, including areas of turf. Where possible, the stumps of non-native trees will be removed or sprayed with an appropriate herbicide as otherwise they may coppice. For any weed species that are reproducing, prior to removal of the plant, all flowers or seeds present will be removed by hand, double bagged and disposed of appropriately to prevent spreading of weed seed around the site.

Non-native species will be disposed of at the local tip if allowed. Alternatively, non-native species will be buried at a depth of at least two metres.

3.1.1 Alternative Options Considered

Retention of non-native species at the site was considered. This alternative was dismissed as the retention of non-native species presents a risk of introduction to the surrounding area of unallocated Crown Land.

3.2 Retain Large Native Trees

Large native trees will be retained on the site where possible as they improve the aesthetics of the site (Figure 3). As machinery will need to be able to access the area around buildings during the decommissioning process, trees that are located close to buildings may not be able to be retained

3.2.1 Alternative Options Considered

Retention of all native vegetation currently present on the site, including small shrubs and bushes, was considered. This option was dismissed because earthmoving machinery is not able to move around small shrubs and bushes to undertake reshaping of the site, ripping and placement of rehabilitation materials as required.

3.3 Decommissioning and Removal of Infrastructure

In order to meet the requirements of the obligations under the Lease of Crown Land (Table 1), all infrastructure and services, except any buildings identified for retention by the Minister for Lands, will be removed from the site by appropriately qualified and experienced personnel.

The telecommunications building located adjacent to Balmoral Road will be retained as it is required to provide services to neighbouring residential properties. A fence will be constructed around this building, the design and location of which will be confirmed with the telecommunication provider (Telstra). The area around this building will not be rehabilitated so that it can be safely accessed and utilised by Telstra.

All areas of bitumen or concrete (such as footpaths) will also be removed. Prior to decommissioning and removal of infrastructure commencing, all connections to services such as power, water and waste water will be disconnected.

Any underground voids or excavations will be backfilled with appropriate material to surface level. Fill material will be compacted to prevent slumping in the future which would create a public safety risk and potentially cause ponding or erosion.

To prevent the introduction of weed species, any earth moving machinery utilised for decommissioning and removal of infrastructure will be cleaned of soil and vegetation prior to entering.

3.3.1 Alternative Options Considered

No alternatives were considered as removal of all infrastructure, except that identified by the Minister for Lands, is required to meet the conditions of Lease of Crown Land.

3.4 Contaminated Sites

The current land use at Bay Village presents a low risk of contamination. A PSI as per the Assessment and Management of Contaminated Sites - Contaminated Sites Guidelines (Department of Environment Regulation 2014) will be conducted to document the condition of the site upon termination of the lease.

The PSI will comprise a visual assessment of the site to assess the areas which may pose a risk of potential contamination based on their current usage (for example underneath currently sealed areas at storage areas). After the removal of all infrastructure (including bitumen and concrete surfaces) and prior to deep ripping and the application of rehabilitation materials, the site will be assessed for staining, odours or other evidence of contamination which may require investigation.

Collection of soil samples will be conducted if necessary based on the site assessment. All samples will be sent to a National Association of Testing Authorities of Australia (NATA) accredited laboratory for testing of appropriate parameters.

A report will be prepared describing the condition of the site and the results of any sampling conducted. Should anything significant be visually identified or, upon any sampling required, a sampling and analysis plan will be required.

If any contamination is detected it will be managed in accordance with the *Contaminated Site Act 2003.* If required, contamination will be removed or remediated prior to ripping and placement of rehabilitation materials commencing.

3.4.1 Alternative Options Considered

No alternatives were considered as an assessment of the site and sampling, if required, is the only way to document the condition of the site upon termination of the lease.

3.5 Rehabilitation Earthworks

3.5.1 Re-Shaping

After the decommissioning and removal of all infrastructure, the site will be reshaped if required, to ensure that any excavations are backfilled and slopes do not present an erosion risk. Any areas of erosion around the perimeter of the site will be filled with competent material which will be compacted and blended in with the surrounding topography. Application of laterite (or similar material) (Section 3.6) will minimise future erosion of these areas.

To prevent the introduction of weed species, any earth moving machinery utilised for decommissioning and removal of infrastructure will be cleaned of soil and vegetation prior to entering the site.

Prior to the application of rehabilitation materials, a visual inspection of the site will be conducted to ensure that all excavations have been filled.

To prevent the generation of dust during rehabilitation earthworks, water will be applied to the soil surface when required.

3.5.2 Deep Ripping

After the removal of infrastructure, the site will be deep ripped (to a depth of 1 to 1.5 m). Deep ripping will alleviate soil compaction that may limit the growth of vegetation and reduce runoff and the risk of erosion.

3.5.3 Retention of Access Track to Telecommunications Building

The bitumen access road to the site will be removed. To enable access to the telecommunications building that is to be retained, a single lane access track will be left in place consisting of road base.

If retention of the telecommunications building is not required the access track will not be retained.

3.5.4 Alternative Options Considered

No alternatives were considered as:

- reshaping of the site may be required to meet the condition of the Lease of Crown Land to fill in, consolidate and level of any unevenness, excavation or hole caused by the Lessee of by the Lessee or the Lessee's use of the Land
- deep ripping of the site is required to alleviate compaction caused by construction of the infrastructure
- access is required for maintenance of the telecommunications building.

3.6 Application of Laterite (or Similar) Material

In order to minimise the potential for generation of dust or erosion of the site a locally sourced laterite (or similar material) will be applied over the surface of the whole site at a depth of approximately 50 millimetres.

Laterite has successfully been used as an alternative to topsoil in the rehabilitation of mine sites in the northern Goldfields area. The characteristics of the material provide surface stability to minimise erosion and dust generation without the need for ongoing monitoring and maintenance. However, the fines component also provides water holding capacity to support vegetation growth. The rocky nature of the material also produces surface roughness which promotes the lodgement of seed blown in from surrounding vegetation. Plate 1 illustrates the use of laterite material, shallow ripping and seeding in the northern Goldfields.

The laterite (or similar) material will be locally sourced overburden (where possible) to ensure that it looks as similar as possible to the surrounding material with respect to colour and texture. Local material will also have the appropriate chemistry to support the growth of the local vegetation. To minimise the introduction of weeds, the lateritic (or similar) material will be locally sourced.

Plate 1: Use of laterite for rehabilitation in the northern Goldfields of Western Australia.

3.6.1 Alternative Options Considered

Alternatives considered for rehabilitation of the site are summarised in Table 2.

Table 2: Alternatives considered for rehabilitation materials.

Alternative	Reason for dismissal
Application of a polymer stabiliser (such as Dustex, Total Ground Control, Gluon)	Does not provide a medium to long term solution to stabilisation of the site from wind and surface water without ongoing monitoring and re-application. Polymers applied to the soil surface are particularly vulnerable in areas which may be trafficked (such as where recreational use of motorbikes may occur) as the surface may crack and create sites where erosion is accelerated.
Application of a hydromulch or hydroseed (generally comprising paper mulch, additives might include dyes, stabilisers, seed and fertiliser)	Hydromulch materials last six to 12 months and so do not provide a medium to long term solution to stabilisation of the site from wind and surface water without ongoing monitoring and re-application. Similar to polymer stabilisers, hydromulch forms a surface crust which is vulnerable in areas which may be trafficked. Cracking of the surface crust creates sites where erosion is accelerated.
Application of organic mulch	A source of organic mulch is not available locally in the required volume. Vegetation mulch is often used in rehabilitation to help with stabilisation and as a source of seed. However, this requires the pre-clearing vegetation to be stockpiled and is most successful if the vegetation cover was high prior to disturbance.

Alternative	Reason for dismissal
Application of topsoil	There is no topsoil available at the site for rehabilitation. To apply topsoil over the site, material would need to be sourced from surrounding areas which are free from weeds. This would require mosaic topsoil stripping in undisturbed areas of native vegetation. This increases the area of disturbance of the project and results in clearing of vegetation that is potentially unlikely to be disturbed in the future. As the Bay Village site is already disturbed and is likely to be redeveloped in the future, it was not considered the best environmental outcome to disturb additional areas of native vegetation to source topsoil for rehabilitation of the site.

3.7 Seeding

After the application of laterite (or similar) material, seed of appropriate native species will be applied to create a vegetation buffer along the Rankin Road boundary of the site. Seed will be applied at a rate of 10 kilograms per hectare (kg/ha) with species from the following list:

- *Acacia ancistrocarpa*
- *Acacia bivenosa*
- *Acacia inaequilatera*
- *Acacia pyrifolia*
- *Acacia xiphophylla*
- *Aristida inaequiglumis*
- *Chrysopogon fallax*
- *Enchylaena tomentosa*
- *Hakea lorea* subsp. *lorea*
- *Ptilotus nobilis*
- *Senna artemisioides* subsp. *oligophylla*
- *Senna glutinosa* subsp. *pruinosa*
- *Senna glutinosa* subsp. *glutinosa*
- *Senna notabilis*
- *Solanum lasiophyllum*
- *Streptoglossa bubakii*
- *Triodia pungens*
- *Triodia wiseana.*

The species list was developed taking into account the following:

- species likely to be present at the site prior to clearing or in the area with potential to grow on a rocky plain
- inclusion of species within each stratum.

The availability of native seed can vary from year to year based on seasonal conditions therefore; the species used may need to be modified based on the seed that is available at the time that the rehabilitation is being conducted.

The seeds of arid zone species have evolved various mechanisms and environmental signals to time their germination to particular periods that are most favourable to seedling establishment and survival. In the harsh and highly variable conditions that are found in the Pilbara, seed dormancy prevents germination from occurring during any rainfall events that occur outside of the growing season (that is April to November) (Erickson et al. 2016). Extensive research has been undertaken on many species used in rehabilitation in the Pilbara to identify the optimal treatment methodology to overcome seed dormancy mechanisms to maximise germination rates (Erickson et al. 2016).

At Bay Village, to provide for initial vegetation growth, as well as development of a soil seed bank that will germinate over successive years when optimal seasonal conditions occur, a mixture of both treated and untreated seed will be applied at the site. For species for which the optimal seed treatment methodology is known, a proportion of the seed (30 to 40%) will be treated prior to spreading using the methodology recommended in the Pilbara Seed Atlas and Field Guide – Plant Restoration in Australia's Arid Northwest (Erickson et al. 2016). The pre-treatment of a proportion of the seed of each species will stimulate early germination to facilitate initial vegetation growth.

The remainder of the seed for each species (60 to 70%) will be kept un-treated so that germination occurs under optimal seasonal conditions. For some species, seed may remain in the soil seed bank for several years until the correct seasonal conditions are received to break the seed dormancy to trigger germination.

3.7.1 Alternative Options Considered

As there is no topsoil at the site natural recruitment from seed stored in the soil is likely to be limited. Natural recruitment without additional seeding may not achieve the rehabilitation objectives.

The planting of tubestock as an alternative to direct seeding was dismissed as, in the Pilbara region, planting of tubestock generally requires irrigation during at least the first six months after planting to prevent high mortality rates. As the water connection for the site will be disconnected and all infrastructure will be removed it is not possible to support the planting of tubestock.

Monitoring of vegetation growth and secondary application of seed (if required) was considered but dismissed as unnecessary as application of a combination of treated and untreated seed provides initial vegetation growth as well as the establishment of a soil seed bank that will germinate over successive years. Additionally, seed will be applied at a higher rate than usual (10 kg/ha) to ensure sufficient germination for revegetation of the site. For comparison, rehabilitation in the Pilbara generally involves the application of seed at a rate of up to 6 kg/ha. Where topsoil is applied that has been stockpiled for less than about five years, often no additional seed is applied and revegetation is dependent on germination from the in situ soil seed bank and natural recruitment from neighbouring vegetation.

Timing the application of seed to occur after rainfall was considered, however, experience within the mining industry has shown that application of seed while the soil surface is still soft after ripping is more important to successful seed lodgement and germination than application during favourable seasonal conditions. Additionally, treating a proportion of the seed of each species and leaving the majority untreated to germinate during optimal seasonal conditions removes the requirement to apply seed at the time when germination is most likely to occur.

4 References

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ATTACHMENT 9

TRAFFIC ANALYSIS AND MANAGEMENT REPORT

ROWE GROUP

Bay Village Karratha

Lot 3799 Rankin Road, Gap Ridge

Transport Impact Statement

PREPARED FOR:
Multiplex

July 2018

Document history and status

Author	Revision	Approved by	Date approved	Revision type
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Project manager: Mohammad Rasouli

Client: Multiplex

Project: Bay Village, Karratha

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Project number: t18.169

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REPORT FIGURES

1.0 Introduction

This Transport Impact Statement has been prepared by Transcore on behalf of Multiplex with regards to the proposed Bay Village, located at Lot 3799 Rankin Road, Gap Ridge, in Karratha.

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: "A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic and therefore would have a moderate overall impact on the surrounding land uses and transport networks". Section 6.0 of Transcore's report provides details of the estimated trip generation for the proposed development. Accordingly, as the total peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

The subject site is located at the north-west corner of Bayview Road/ Rankin Road intersection. Figure 1 shows the location of the subject site.

Figure 1: Location of the site

The key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns, and access to the site by alternative modes of transport.

2.0 Proposed Development

The proposal for the subject site entails the Bay Village Transient Workforce Accommodation (TWA) for Woodside, comprising 700 rooms, with a gymnasium, pool, sport courts and playing fields. The proposed Bay Village also provides 240 on-site parking bays and a bus port. The proposed development plan is included for reference in **Appendix A**.

The subject site entails two crossovers on Bayview Road and one crossover on Rankin Road. The Rankin Road crossover is for emergency vehicles only; it would be gated and is not expected to be utilised frequently. Waste collection, delivery and other service vehicle operations for the subject site will be accommodated within the site in the loading area accessed and egressed from the proposed crossovers on Bayview Road. The proposed one-way traffic circulation system within the southern part of the site between the development crossovers on Bayview Road would reduce traffic conflicts and would facilitate safe traffic circulation of vehicles within the site.

Pedestrians will access the site from the external footpath network abutting the site. Currently, a 2.0m foot path is in place along the east side of Bayview Road and the south side of Rankin Road.

According to the information provided to Transcore, Bus services would be provided for the site which would facilitate the pickup and drop offs of the residents from and to the site in order to reduce the car dependency of the residents. The location of the bus port within the site is shown in the development plans (refer Appendix A). The proposed buses are expected to be 30-seater buses which can enter, park and exit the site easily without impacting the traffic operations within the site. According to the information obtained from Multiplex a total of 20 buses would service the site in future.

The proposed Bay Village provides a total of 240 on-site parking bays which satisfies the anticipated parking demand of the proposed development.

3.0 Vehicle Access and Parking

3.1 Access

Vehicular access to the proposed site is provided via two crossovers on Bayview Road and one crossover on Rankin Road. The Rankin Road crossover is for emergency vehicles and would be gated. Therefore, this crossover is not expected to be used frequently. Rankin Road intersects with Bayview Road and forms the southern boundary of the subject site. Both development crossovers on Bayview Road are full movement crossovers.

The southern crossover on Bayview Road is part of the previous development (TWA) at this site. The previous development was dormant for about 10 years and has been demolished to be replaced with the new Bay Village accommodation. The existing crossover on Bayview Road will be modified and will be used as the main entry/ exit point for the proposed development. This crossover is referred to as the southern crossover in **Figure 2**.

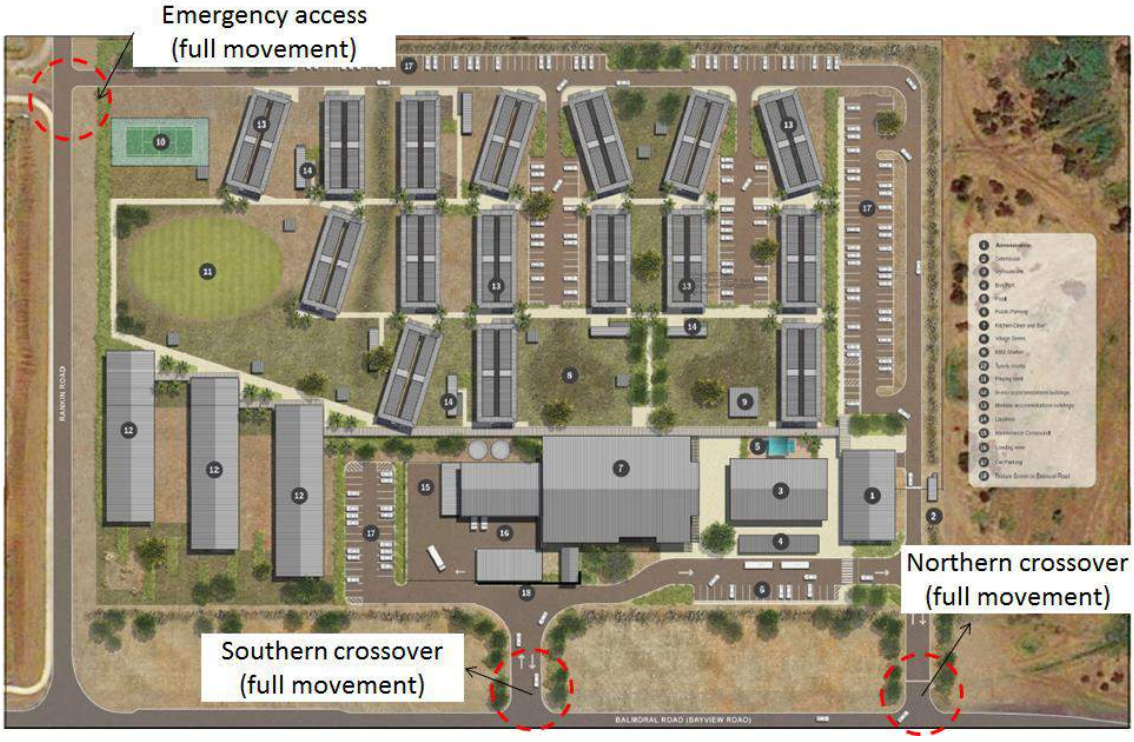

Figure 2: Development crossovers

One-way clockwise circulation is proposed within the site between the two Bayview Road crossovers.

3.2 Parking Demand and Supply

The proposed development provides 240 on-site parking bays which approximately translates to about 1 parking bay per 3 residents. Section 6.2 of this report reviews the trip generation of the proposed development and indicates that the majority of the residents would utilise the Woodside bus services or would share cars to travel to work. The site also provides entertainment facilities, kitchen-diner and bar which minimise the car dependency of the residents for travelling outside of the site.

Therefore the proposed 240 bays parking supply is expected to be sufficient for the development.

4.0 Provision for Service Vehicles

Waste vehicles will access the site from the southern crossover on Bayview Road and will use the waste loading area to pick up the rubbish bins and will exit the site from the northern crossover on Bayview Road. Waste collection will occur two or three times per week.

The service and delivery vehicles would also perform similar movements to the waste vehicle's movements.

5.0 Hours of Operation

According to the information provided to Transcore the residents would leave the development before 6:00 AM to be on site for work at 6:30 AM. They will finish work about 5:00 PM. Therefore the development peak hours are expected to be about 5:00-6:00 AM and 5:00-6:00 PM.

6.0 Daily Traffic Volumes and Vehicle Types

6.1 Existing Traffic Flows

The site is currently vacant and no existing traffic flows are expected for the site.

6.2 Traffic Generation

Considering the nature of the site which is a Transient Workforce Accommodation, the highest traffic generation of the site is expected to be related to the work trips. The work trips depend on the mode of transport that residents would use to travel to work.

According to the information provided to Transcore, 20 buses (30 seaters) would service the site during the AM and PM peak hours. Assuming that each bus is 90% full, the total number of residents which would travel to work by bus is estimated to be approximately 540 (20 x 30 x 0.9 = 540) residents. The balance of the residents (700 - 540 = 160) would travel by car. Assuming a car occupancy rate of 2.3 would results in about 70 cars (160/2.3 = 70) to accommodate the balance of the residents. Therefore in total about 90 vehicles (20 buses + 70 cars) would exit the site during the morning peak hour and would return to the site during the PM peak hour.

It must be noted that in reality not 100% of the residents would travel to work on any given day. Some would be rostered off or on sick leave, so total traffic generation or vehicle occupancy would be lower than what has been assumed in above analysis.

The distribution of the proposed development traffic is detailed in **Figure 3**.

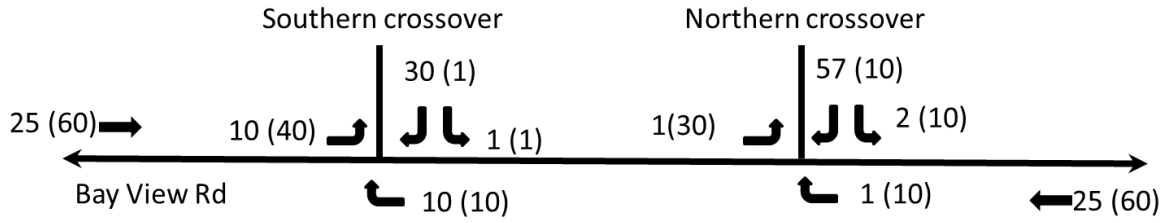

Figure 3: Total post-development traffic flows – Weekday AM and (PM peak hour)

6.3 Impact on Surrounding Roads

The WAPC *Transport Impact Assessment Guidelines for Developments* (2016) provides the following guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

The proposed development will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph to warrant further analysis.

Therefore, the impact on the surrounding road network is minor.

7.0 Traffic Management on the Frontage Streets

Figure 4 shows the frontage streets abutting the proposed development.

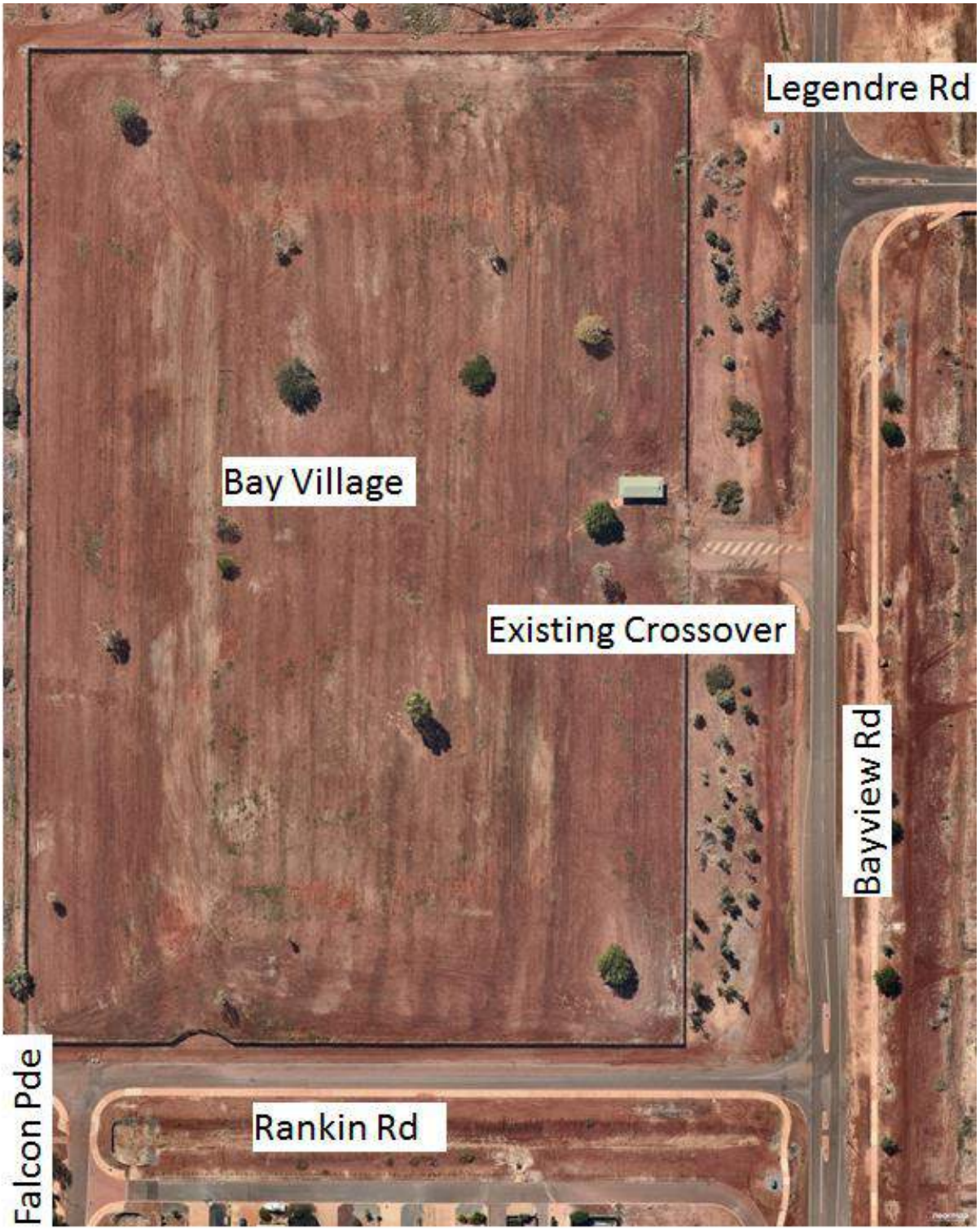

Figure 4: Surrounding roads

Bayview Road fronting the subject site is constructed to a 2-lane, single carriageway standard with a posted speed limit of 80 km/h and a foot path along the eastern side of the road. Existing traffic counts sourced from City of Karratha indicate that Bayview Road in the vicinity of the subject site carried about 120vph and 170vph during the AM (8:00-9:00) and PM (17:00-18:00) peak hours in March 2018.

Rankin Road forms the southern boundary of the subject site and is constructed to a 2-lane, single carriageway standard with a posted speed limit of 50 km/h and a foot path along the southern side of the road. Rankin Road intersects with Bayview Road in the form of a priority controlled T-intersection without any turn pockets on Bayview Road.

Falcon Parade and **Legendre Road** are two access roads that intersect with Rankin Road and Bayview Road respectively. The intersection of these roads with Rankin Road and Bayview Road is in the form of a basic priority controlled T-intersection.

8.0 Public Transport Access

Figure 5 shows the existing bus routes which connect different part of Karratha to the City Centre. The closest bus route and bus stops to the site are located along Tambrey Drive which is approximately 700m to the south of the subject site.

Figure 5: Existing bus routes

The main trips by residents of the Bay Village would be work trips and the site would be serviced with 20 buses every day to transfer the workers to the work site and return them to the Bay Village.

9.0 Pedestrian Access

Pedestrians will access the development from the external footpath network abutting the site mainly to the east side of Bayview Road. Significant pedestrian activity outside of the subject site is not expected due to the nature of the proposed development.

Figure 6 illustrates the City of Karratha footpath implementation strategy. Currently footpaths are in place along the eastern side of Bayview Road and southern side of Rankin Road. These footpaths will be integrated and connected to the other parts of Karratha when the footpath strategy is fully implemented.

Figure 6: City of Karratha footpath implementation strategy

(Source: City of Karratha footpath strategy 2018-2028)

10.0 Cycle Access

Cyclists will access the development from the external shared path network abutting the site with primary access via Bayview Road. The proposed development is not expected to generate significant cycle movements due to the nature of the development.

11.0 Site Specific Issues

No site-specific issues were identified within the scope of this assessment.

12.0 Safety Issues

No safety issues were identified within the scope of this assessment.

13.0 Conclusions

This Transport Impact Statement has been prepared by Transcore with regards to the proposed Bay Village, located at Lot 3799 Rankin Road, Gap Ridge, in Karratha.

The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is moderate (less than 100vph in the peak hour) and as such would not have any significant impact on the surrounding road network.

Vehicular access to the proposed site is provided via two crossovers on Bayview Road and one crossover on Rankin Road. The Rankin Road crossover is for emergency vehicles and would be gated. Therefore it is not expected to be utilised frequently.

Accordingly, the findings of this Transport Impact Statement are supportive of the proposed development.

Appendix A

PROPOSED DEVELOPMENT PLAN

AECOM

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
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PROJECT

BAY VILLAGE
KARRATHA

LOT 3799 / DP185178
RANKIN ROAD, GAP RIDGE
CITY OF KARRATHA

CLIENT

WOODSIDE ENERGY LTD

(GRV PROPERTIES)
GPO Box D188
PERTH WA 6840

ISSUED FOR DEVELOPMENT APPROVAL

PROJECT MANAGEMENT INITIALS

CJ	DP	JD
DESIGNER	CHECKED	APPROVED

PROJECT DATA

DATUM	AHD	SURVEY	MGA-50
SCALE			

0 12500 25000 mm
1:1000@A3

ISSUE/REVISION

D	07/06/18	REISSUED FOR DA
C	16/05/18	REISSUED FOR DA
B	23/03/18	REISSUED FOR DA
A	15/12/17	ISSUED FOR DA
I/R	DATE	DESCRIPTION

PROJECT NUMBER: 60560383
PROJECT PHASE: DA

SHEET TITLE
ILLUSTRATIVE SITE PLAN

SHEET NUMBER: WBV-AEC-AR-00-020
REVISION: D