

Local Planning Policy DP15 Gap Ridge Industrial Estate Development Requirements



Gap Ridge Industrial Estate Light Industrial Precinct Design Guidelines



PILBARA CITIES
DEVELOPING THE FUTURE



SHIRE OF
ROEBOURNE

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1 INTRODUCTION

1.1 GAP RIDGE INDUSTRIAL ESTATE

The Gap Ridge Industrial Estate fronts Dampier Highway and is strategically located with easy access to the Burrup Peninsula, Karratha Town Centre and the Airport. Due to the high level of access, transport and logistics, laydown and warehousing are priority uses for the Estate.

These guidelines will ensure that that the Estate is developed to a consistently high standard both in built form and functionality as well as protecting the investment for all owners within the development.

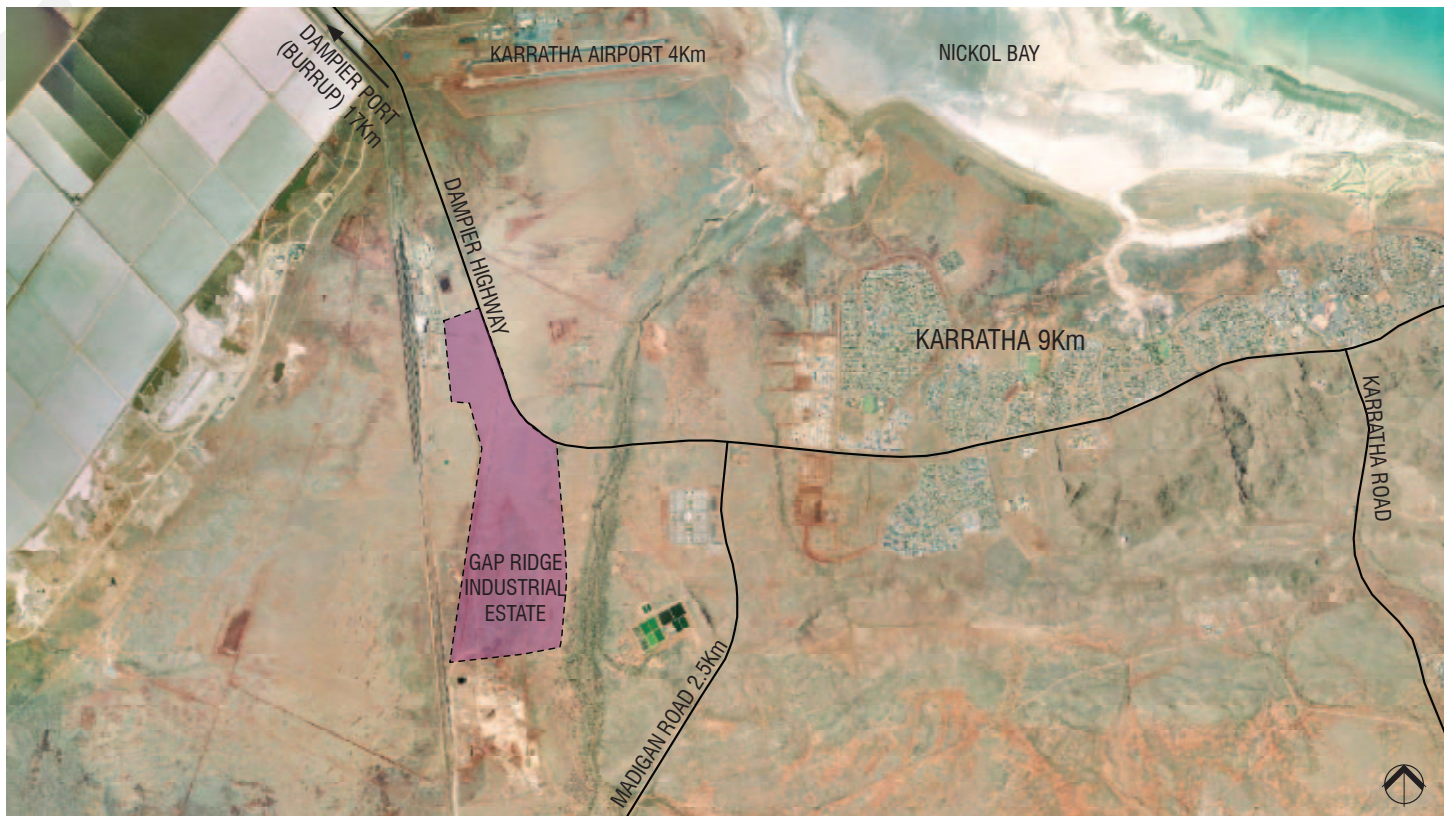


FIGURE 1 – LOCATION PLAN

1.2 APPLICATION OF GUIDELINES

The Gap Ridge Industrial Estate has been divided into two precincts for the purpose of creating appropriate land use clusters (see Figure 2):

- Industrial Precinct A – Light Industry Precinct
- Industrial Precinct B – General Industry Precinct

The objectives, recommendations and requirements set out in these guidelines apply only to all development within the Light Industry Precinct.

Applicants seeking to develop within the Light Industry Precinct must demonstrate compliance with the mandatory requirements and intent of the guidelines.

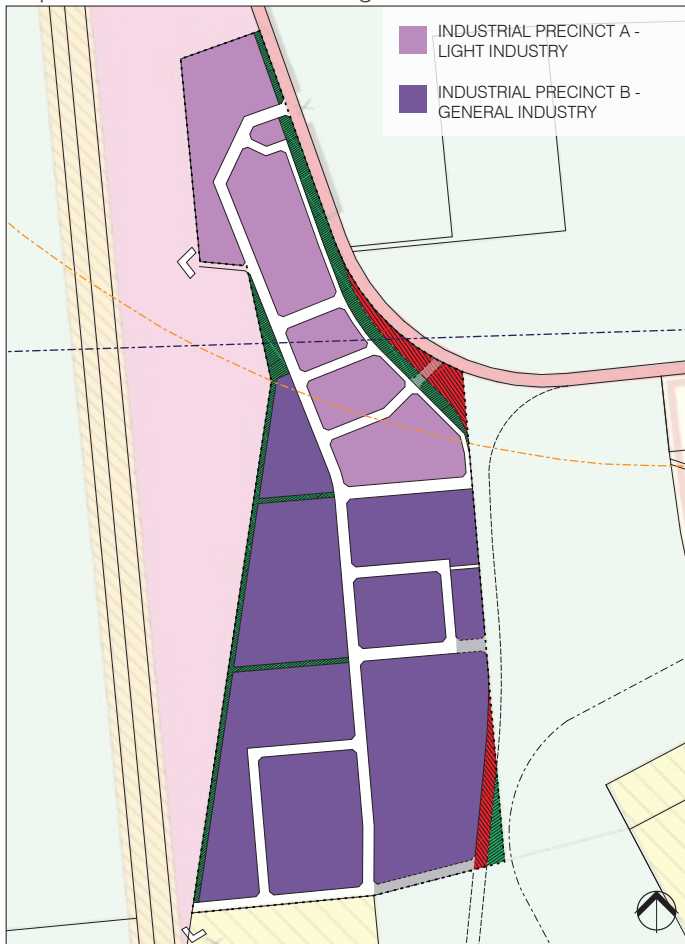


FIGURE 2 – DEVELOPMENT PLAN MAP

1.3 DEVELOPMENT VISION

The vision of this development is to create a flexible, well designed industrial estate catering to the needs of industry and the community to facilitate a diverse range of industries in order to support the continued growth of the Pilbara region.

1.4 PURPOSE OF THIS DOCUMENT

These guidelines provide the criteria to which all development within the Light Industry Precinct must comply. Guidance on the design, layout and management of development within the Estate is necessary in order to create an efficient, functional and attractive industrial precinct.

The objectives of these Design Guidelines are to:

- Encourage a high standard of industrial development, which is appropriate to the climatic conditions of the Pilbara, within an attractive, cohesive and efficient precinct;
- Encourage innovative and sustainable building design that reduces energy and water use while still maximising functionality and performance;
- To avoid unsightly and poorly planned development and thus enhance and protect the investment of all owners within the estate;
- Ensure that environmental impacts from development are minimised and contained; and
- Create an effective place to conduct business, and a safe and amenable place to work.

1.5 PLANNING FRAMEWORK

The subject site is zoned Industrial Development under the Shire of Roebourne's Town Planning Scheme No. 8 (TPS8). Pursuant to the Industrial Development zone provisions of TPS 8, a Development Plan to guide the overall structure, land use and spatial layout of the subject site has been adopted by the Shire of Roebourne and the Western Australian Planning Commission. These guidelines should be read in conjunction with TPS 8, the Gap Ridge Industrial Estate Development Plan and any relevant Local Planning Policies.

1.6 SUSTAINABILITY

The Gap Ridge Industrial Estate has been designed to facilitate sustainable development. While there are no specific requirements for formal accreditation, each development is expected to have full consideration of methods of construction, site layout and building design to encourage conservation of natural resources during the construction phase and for the life of the building. The design guidelines seek to embody sustainable development principles through practical application.

HOW TO USE THIS DOCUMENT

2.1 HOW TO USE THIS DOCUMENT

The development requirements for each lot within the General Industry Precinct are provided within Part 5 of these guidelines. All development applications shall meet these requirements.

The development requirements are divided into specific design elements, each with one or more mandatory requirements. Some design elements have additional best practice guidelines.

The mandatory requirements are quantitative measures that must be met as part of a development proposal within the Gap Ridge Industrial Estate. The best practice guidelines are qualitative objectives that are encouraged.

2.2 VARIATIONS TO REQUIREMENTS

The development requirements in these design guidelines are generally minimum requirements to ensure that individual lots are developed to a consistent and high quality standard, thereby ensuring the long term viability and functionality of the estate.

Individual circumstances may require different standards to be applied in order to satisfy the specific needs of the end user(s) of the site. A departure from one or more of the mandatory requirements may be considered where the applicant can demonstrate that the proposal will comply with the overall objectives of the guidelines, TPS8 and any other Shire of Roebourne requirements. In order to depart from any development requirements, applicants must provide justification and describe the particular circumstances of the site which have necessitated the departure from the requirement.



3 LODGEMENT CHECKLIST



3.1 LODGEMENT REQUIREMENTS

Applications can be submitted either electronically or in hard copy. The application must include the following details:

Application need to be lodged with Landcorp for preliminary approval prior to lodgement with the Shire of Roebourne. The Shire will not accept any plans that have not been issued with preliminary approval by Landcorp.

LANDCORP REQUIREMENTS (PRE-APPROVAL STAGE)

- One (1) electronic (preferred) or two (2) hardcopies of the development plans with the following details:
 1. Site Plan (1:200 preferred) of property with lot dimension and area, north point, contours (or levels), abutting street name(s), location of proposed building(s) including setbacks to boundaries, location of access/egress point(s), car parking and manoeuvring areas, effluent disposal system, infrastructure within the abutting road reserve (e.g. power poles, signage and Telstra pits);
 2. Floor plans of proposed building(s) (1:100 preferred);
 3. Elevations of proposed building(s) (1:100 preferred) including the existing and finished ground levels and the means to stabilise exposed soil (e.g. batters, retaining walls);
 4. Landscaping concept plan for works forward of the building line (including species list);
 5. Stormwater management measures (e.g. drainage easement and swales);
 6. Construction materials and colour scheme; and
 7. Fencing details (type, location and height).

SHIRE OF ROEBOURNE REQUIREMENTS (DEVELOPMENT APPLICATION)

- A completed "Application for Planning Approval" Form, available from the Shire of Roebourne's website;
- Application Fee (refer to the Shire of Roebourne's Town Planning Fees schedule); and
- A copy of the Certificate of Title.
- Four (4) copies of the plans baring Landcorps pre-approval stamp.

4 LAND USE

4.1 PRELIMINARY

The Gap Ridge Industrial Estate (refer to Figure 2) comprises approximately 260 hectares of industrial land located west of the town of Karratha.

The estate has been divided into two precincts for the purpose of creating appropriate land use clusters:

- Industrial Precinct A – Light Industry Area
- Industrial Precinct B – General Industry Area

These guidelines only apply to development within Precinct A – Light Industry Area.

Precinct A is intended to become a hub of activities which are intensive, but with limited off site impacts. This precinct will have the greatest level of exposure to Dampier Highway, and will be integral in the development of a consistent streetscape.

4.2 PERMITTED USES

Land use within the Gap Ridge Industrial Estate is guided by both the provisions of the Shire of Roebourne TPS 8 and the Gap Ridge Industrial Estate Development Plan.

The following uses are preferred and will be allowed within Precinct A:

- Hire Service (Industrial)
- Light Industry
- Service Industry
- Storage Facility
- Outdoor Display

Refer to table 4 of the development plan for a full list of possibilities.

4.3 INCIDENTAL USES

Uses that are ancillary or incidental to the predominant use of the site may be allowed within the site.

Ancillary uses are likely to include:

- Display and sales component of a manufacturing enterprise
- Office uses
- On-site catering for staff

Incidental uses are only permitted if they assist in the operation of the primary use of the site, and do not represent an additional and/or separate use.

4.4 DRIVERS ACCOMMODATION

Accommodation for driver's in order to satisfy the requirements of the Transport Co-ordination Act 1966, may be provided on transports sites where in accordance with clause 6.16 of the scheme.



5 DESIGN REQUIREMENTS

5.1 INTRODUCTION

The following section outlines the mandatory development requirements and best practice principles for all industrial development within Precinct A – Light Industry (Figure 3). The Light Industry Area is highlighted in figure below and includes the Dampier Highway Sub-Precinct.

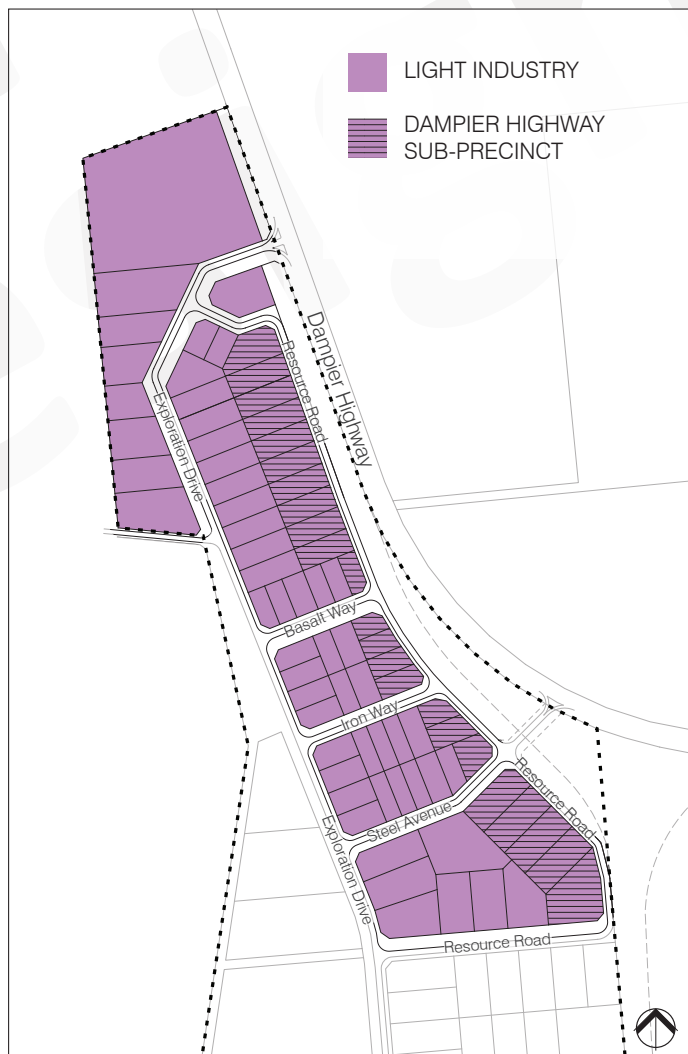


FIGURE 3 – PRECINCT A

5.2 SITE PLANNING

Lots within the light industry precinct are divided into two zones:

- Representative zone; and
- Functional zone.

The representative zone is the area contained within the first 22.0 metres of the lot behind the primary street frontage and is to include components which generate public interaction:

- Office/Administration Use
- Visitors and Staff Parking

The functional zone is the area setback a minimum of 22.0 metres from the lot boundary on the primary street frontage and is to include main activities on site:

- Main Building Mass
- Loading and service areas
- Lay down areas

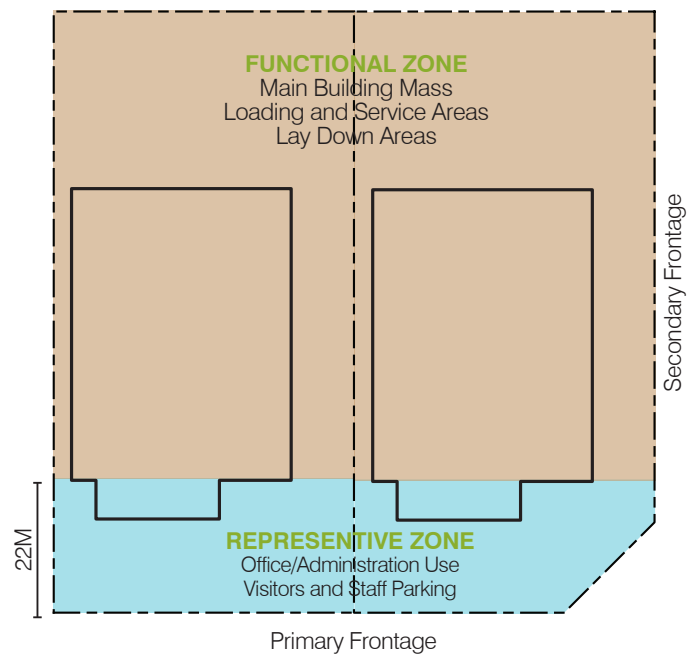


FIGURE 4 – SITE COMPONENTS

5.3 DEVELOPMENT REQUIREMENTS

5.3.1 Street Setbacks

MANDATORY REQUIREMENTS

(a) The building setback for office/administration components, staff amenities and the primary building entrance from the lot boundary on the primary street frontage is a minimum of 5 metres and a maximum of 16.0 metres, while the minimum setback for the main building mass is 22.0 metres. The building setback to the corner truncation boundary shall be 5 metres. Please refer to Appendix A for the indication of primary street frontages.

(b) Street building setbacks to secondary street frontages on corner allotments shall be a minimum of 3 metres.

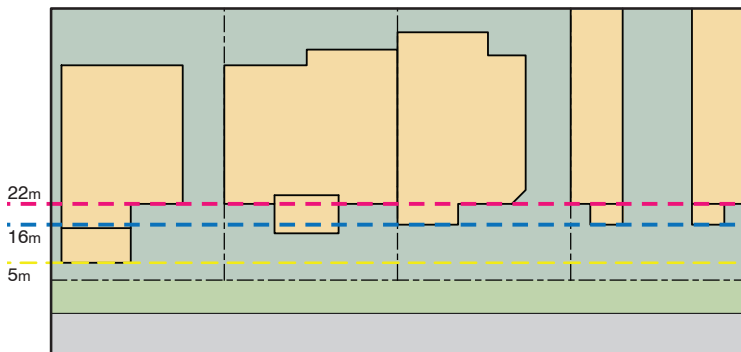





FIGURE 5 – SETBACK - LIGHT INDUSTRY

-  Min 22.0m setback for main building mass
-  Max 16.0m setback for office/administration components, staff amenities and the primary building entrance
-  Min 5.0m setback for office/administration components, staff amenities and the primary building entrance

5.3.2 Side and Rear Boundary Setbacks

MANDATORY REQUIREMENT

Buildings may be constructed to side and rear boundaries. If buildings are not constructed to the boundaries, the setback is to be a minimum distance of 3.0 metres.

ADDITIONAL REQUIREMENTS FOR DAMPIER HIGHWAY SUB-PRECINCT

The lots indicated in Figure 3 as Dampier Highway Sub-Precinct lots have been identified as important road frontage sites with visual exposure to Dampier Highway. The intention of the additional requirements for the Sub-Precinct is to encourage a particularly high quality of development on these subject sites with particular emphasis on uniform building setbacks to improve visual amenity, and the reduction of security fencing across the frontages to enhance the appearance of the estate.

At least 30% of the building frontage is to be setback 16.0 metres from the lot boundary on the primary street frontage, while the remainder of the building mass is to be setback 22.0 metres. The minimum setback on secondary street frontages is 3.0 metres.

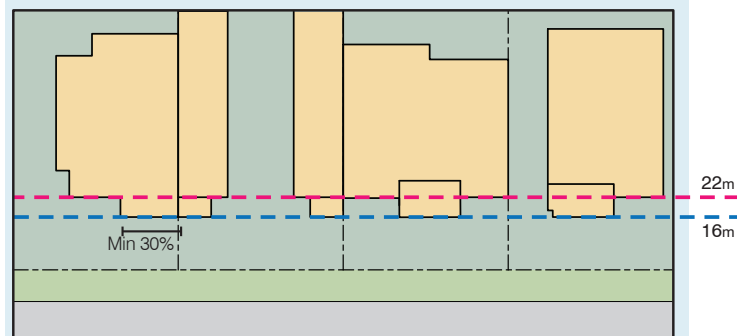




FIGURE 6 – SETBACK - DAMPIER HWY SUB-PRECINCT

-  16.0m setback for office/administration components, staff amenities and the primary building entrance
-  22.0m setback for main building mass

5 DESIGN REQUIREMENTS

5.3.3 Site Layout and Design

MANDATORY REQUIREMENTS

(a) Developments shall be carefully designed to address public streets, car parking areas and pedestrian pathways. Building entrances, offices and other components that generate public movement are to be located facing the main street frontage to promote passive surveillance and to provide a corporate image.

BUILDING ORIENTATION



(b) On corner sites, building shall be designed such that these elements are located near the road intersection and address both street frontages to enhance the streetscape and add visual interest (Please refer to Figure 7)

(c) Loading bays, bin stores, outdoor storage, mechanical plant, and other operational requirements must be located behind the front building line and shall not be visible from any street elevation as indicated in Figure 8. Where such facilities can only be provided to street frontages, they must be screened with landscaping, appropriate fencing or integrated into the building design.

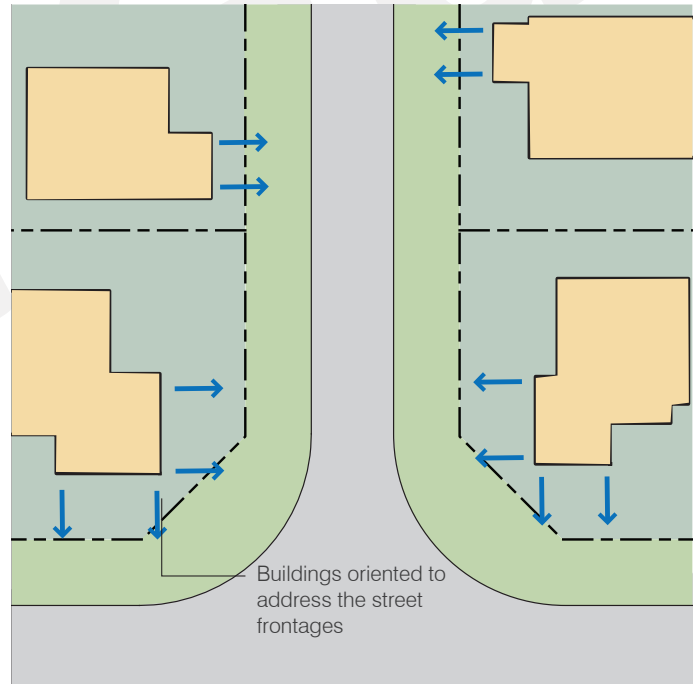


FIGURE 7 - BUILDING ORIENTATION

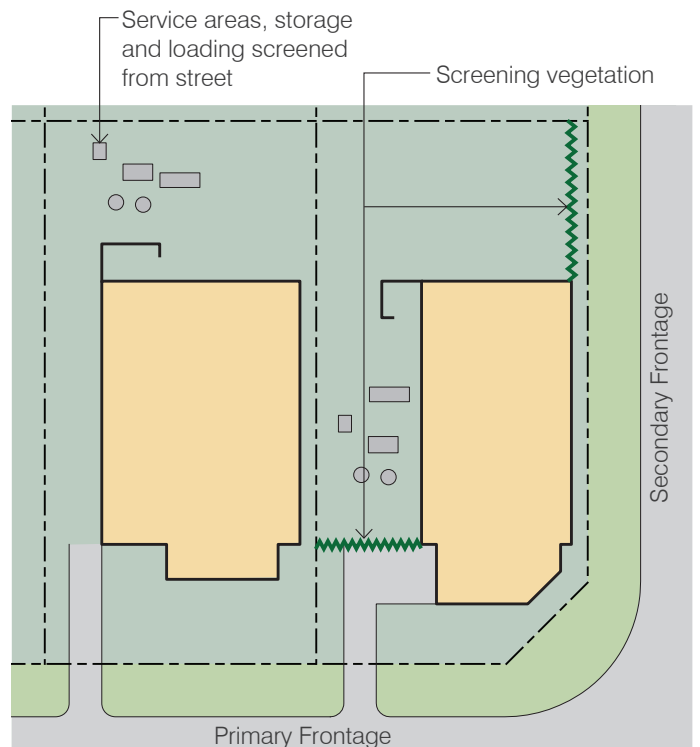


FIGURE 8 - SCREENING OF SERVICE AREAS

5.3.4 Site Cover

MANDATORY REQUIREMENT

(a) The approved development must have a minimum building footprint (excluding car parking and hardstand) of not less than 10% for lots up to 4 hectares in area, and a minimum of 4,000m² for lots over 4 hectares in area.

(b) The maximum coverage shall be in accordance with the Shire of Roebourne Town Planning Scheme and shall not exceed 50% of the site area.

5.3.5 Building Character and Articulation

MANDATORY REQUIREMENTS

(a) The front elevation shall be articulated to contribute to the streetscape. This may include but is not limited to:

- Changes in wall planes and height;
- Varied façade alignment;
- Projections and/or recessions;
- The use of different building materials and colours;
- Incorporating horizontal or vertical elements such as recessed walls or banding;
- Defining the window openings, fenestration, building entrances and doors;
- Integrated signage;
- The use of vertical, horizontal and/or angled grids. These could be expressed through feature joints in the building façade.
- Emphasis of structural and functional elements such as sun shading devices, noise barriers, louvre vents and exposed braces; and
- Feature roof forms, parapets and overhanging elements.

(b) Large expanses of highly reflective building materials and mirror glass windows shall be avoided to prevent heat and glare impacts on the adjacent properties and outdoor areas.

(c) Representative areas such as office/administrative components are to be designed as focus points and must include a building element such as a verandah, canopy or colonnade, with a minimum depth of 2.0 metres, which faces the public street and/or parking areas.

(d) Where possible, side walls are to include openings (such as windows, clerestory windows, doors, roller shutters) in order to promote cross ventilation.

(e) Materials used for the construction of walls on or near boundaries shall be rendered or painted and fully integrated into the building design.

BUILDING ARTICULATION



AWNINGS TO REPRESENTATIVE AREAS



TREATMENT OF SIDE WALLS



DESIGN REQUIREMENTS

BEST PRACTICE

(a) Entrance points to buildings are encouraged to be designed as focus points. Building entries are to be enhanced by landscape design and be clearly lit at night.

(b) The design of buildings should allow for the possibility of some adaption and flexibility. The internal layout, position of entrances, stairs and methods of construction shall allow some flexibility in its use to enhance its life expectancy and long term value.

(c) The design of outbuildings should be considered with the whole of site planning and layout so that they may present as an integrated development. Where possible, future expansion and staging should be considered so as to integrate with existing buildings.

5.3.6 Material Finishes and Colour

MANDATORY REQUIREMENTS

(a) The following factors must be considered when selecting materials:

- Suitability for the use and context;
- Long term appearance of development;
- Durability;
- Environmental impacts; and
- Thermal performance.

(b) Light coloured roof and wall materials with a solar absorbency of less than 0.35 are to be utilised to reduce heat gain. This includes colours such as soft earth browns and reds, creams, greys and whites. Please refer to appendix B for encouraged colour palette.

(c) All external building materials shall be cyclone resistant.

(d) Avoid materials that are likely to contribute to poor internal air quality such as polyurethane or those that may create a breathing hazard in case of a fire.

ENCOURAGED BUILDING MATERIALS



BEST PRACTICE

(a) Limit the number of different building materials to be applied on the exterior of the building to avoid busy composition and achieve legible designs.

(b) The visual impact of colours, wall finishings and roof cladding materials should be considered in relation to the background and context of the building. Generally more subdued and non-reflective finishes are encouraged as they can reduce the overall impact of a building.

(c) The use of glazing on the street frontage is encouraged. Glazed areas are to be divided into sections to articulate large expanses of glass and to reinforce horizontal lines at the built form. Glazing should be applied with consideration of solar heat impacts on internal areas.

(d) Building should incorporate the use of recycled and recyclable building materials where possible.

(e) All developments within a site should have consistent use of colours, form, and materials. Outbuildings and ancillary installations should be compatible with the design theme established by the primary building.

5.3.7 External Fixtures

MANDATORY REQUIREMENT

External fixtures and equipment such as roof ventilation, exhaust towers and plumbing pipes must be effectively screened from view using roof structures and architectural elements or be designed as an integral part of the building aesthetic.

5.3.8 Vehicle Parking and Maneuvering Areas

MANDATORY REQUIREMENTS

(a) Car parking to be provided at rates for the nominated use in accordance with Appendix 4 of the Shire of Roebourne's TPS.

(b) Off site parking (street and verge) is not permitted.

(c) Parking areas adjacent to road intersections shall be avoided.

(d) Visitor and staff parking areas are to be located adjacent to areas of the building that are commonly accessed, and a pedestrian pathway must be provided to the entrance of the building. Visitor parking to be located forward the building line with staff and spill-over parking permitted to be located on the side.

(e) Car parking bays and associated circulation and manoeuvring areas for standard vehicles must be designed in accordance with Australian Standard AS2890 and are to be drained and sealed with bitumen to the satisfaction of the Shire of Roebourne.

(f) Vehicle access and on site manoeuvring shall be designed so that all vehicles (including heavy vehicles) enter and leave the site in a forward gear.

(g) Visitor and/or staff parking shall be located in a separate location from operational areas such as truck manoeuvring areas, hard-stand and external storage.

(h) Parking areas shall be separated from buildings by landscaping and walkways.

(i) Car parking areas shall be designed with a regular grid of suitable species of shade trees between parking rows at a ratio of 1 per 4 car bays. Please refer to Attachment C for a list of appropriate species.

LANDSCAPING OF PARKING AREAS



BEST PRACTICE

(a) Parking areas of adjoining lots are encouraged to be interconnected to allow for more efficient vehicle circulation.

(b) Extensive areas of paved parking areas in excess of operational and parking requirements are undesirable, and are discouraged.

(c) Shared areas for manoeuvring of large vehicles is encouraged between allotments.

5 DESIGN REQUIREMENTS

5.3.9 Crossovers

MANDATORY REQUIREMENTS

(a) All lots require the installation a crossover. A second access points may be constructed to facilitate the effective use of the land for the proposed purposes, if it can be demonstrated that the second access point will not impact on the efficiency or safety of the road network.

Lot 1 shall only be permitted 1 (one) crossover onto Exploration Drive. Such a crossover will have to be a constructed a minimum distance of 100.0 metres from the eastern lot boundary (please refer to Appendix A).

(b) Purchasers are to construct their own crossovers to LandCorp and the Shire of Roebourne's technical specification and shall be sealed with bitumen. These specifications can be provided upon request from LandCorp. The proposed location of crossovers must be discussed with LandCorp and the Shire of Roebourne and shown on the proposal plans.

(c) All crossovers that traverse a roadside drainage reserve must be constructed using box concrete culverts to ensure flows are not constrained.

(d) Vehicle crossovers shall not be located within 10.0 metres of a road intersection.

BEST PRACTICE

(a) Shared crossovers between adjoining lots are encouraged to minimise the traffic impact on the internal road structure and reduce construction costs.

(b) Provide adequate separation between crossovers to improve traffic safety and the ease of vehicle movement.

(c) All access driveways are to be located so as to provide maximum sight distances.

5.3.10 Washdown Bays and Refuse Collection Areas

MANDATORY REQUIREMENTS

(a) Where petrol, benzene, grease/oily matter or other flammable or explosive substances is likely to be discharged, a sealed washdown area and a petrol and oil trap must be installed and operated in accordance with the requirements of the Department of Water and is to be connected to either an approved on-site effluent system or to the sewer, with the Water Corporation's approval.

(b) Each site requires adequate garbage and recycling areas. These areas are to be:

- constructed with bonded concrete flooring graded to an industrial floor waste gully (bucket trap);
- connected to an on-site effluent system; and
- provided with a tap with adequate mains supply, to the satisfaction of the Manager of Planning Services of the Shire of Roebourne.

If not fenced or otherwise enclosed, tie down points or alternative means of securing bins during cyclones must be provided.

BEST PRACTICE

All outbuildings for plant and refuse areas should be provided with secure boundaries and gated accesses as they are vulnerable to break in and should be designed so as not to allow unauthorised access onto roofs of primary buildings.

5.3.11 Signage

Signage approvals can be incorporated into the Development Approval for the building. Where signage is proposed, the details of such signage shall be provided with the Development Application. If no signage detail is received, any proposed signage will be subject to a subsequent application to the Shire or Roebourne.

MANDATORY REQUIREMENTS

(a) All signs must be designed and placed in accordance with the Shire of Roebourne's Local Law - Signs, Hoardings & Bill Posting.

(b) One free standing sign per lot is permitted. The location of the sign adjacent to the lot entry is preferred. Where multiple occupancy is proposed, a composite sign may be permitted with one panel per occupancy.

(c) The following signs will not be permitted:

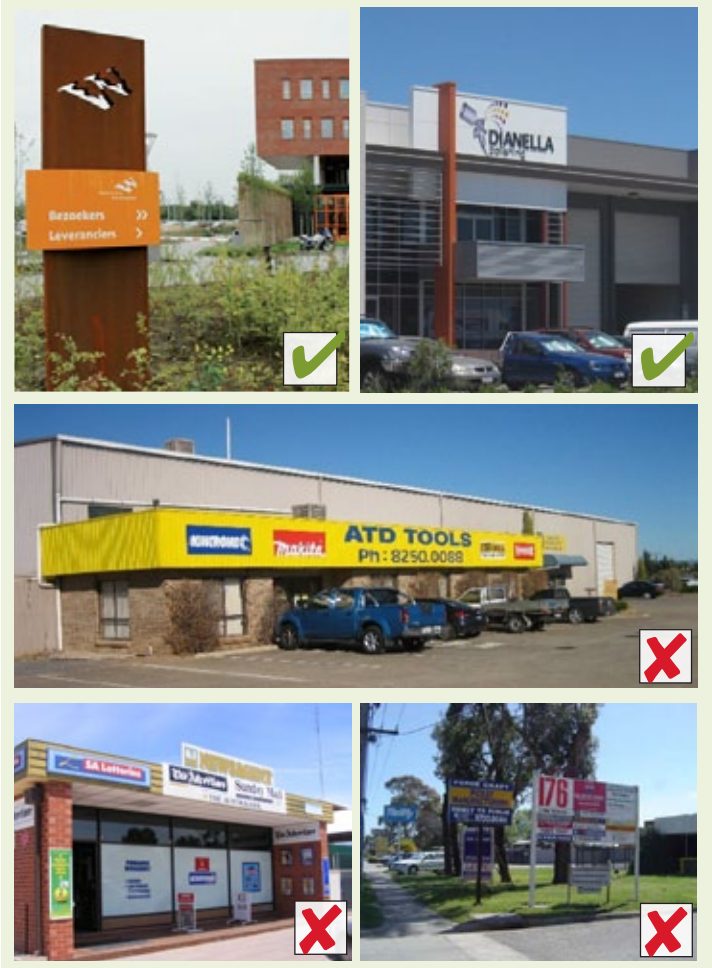
- Intermittent flashing illuminated signs;
- Signage which display information unrelated to the use of a site (e.g. billboards);
- Rotating or moving signs; and
- Sequined or glittering signs.

(d) No flood lighting is to be utilised to illuminate signage. Electron-luminescent strips and fluorescent side-lit panels are preferred. Halo lighting and/or indirect illuminations or internally illuminated signs are preferred to direct lighting.

(e) Signage shall be of a high design standard and shall be integrated into the building design (e.g. recessed into the façade, fascia or awning) and shall not adversely impact visual amenity or conflict with architectural features. Signage should be on a backing board and or be three dimensional. Signage consisting of painted lettering/logos only on the building face is not permitted

(f) Signage shall not intervene with vehicle sightlines.

SIGNAGE GUIDE



DESIGN REQUIREMENTS

5.3.12 Side and Rear Fencing

MANDATORY REQUIREMENTS

Security fencing will be permitted along side and rear boundaries but shall not be constructed beyond the building line (refer to figure 9). The minimum standard for security fencing is 1800mm – 2000mm rail-less chain link or steel mesh incorporating black coloured PVC coating with black gates, posts and fittings.

5.3.13 Front Fencing

The installation of front fencing is at the land owners discretion.

MANDATORY REQUIREMENTS

Front fencing along all street frontages must be in accordance with the following specifications:

- Type: Garrison / Guardian
- Fence Panel : 1800mm High x 2000m Wide
- Pickets : 25x25x1.6mm
- Rails : 40x40x1.6mm
- Posts : 65x65x2.5mm
- Gate Posts : 100x100x4mm
- Gate Frames : 50x50x1.6mm
- Gates : 6m, 8m or 10m (One (1) set of standard manual swinging gates provided)
- Colour : Dulux Power Coated black
- Posts & Fitting : Dulux Powder Coated black
- Finish : Dulux Powder Coated black

FRONT FENCING

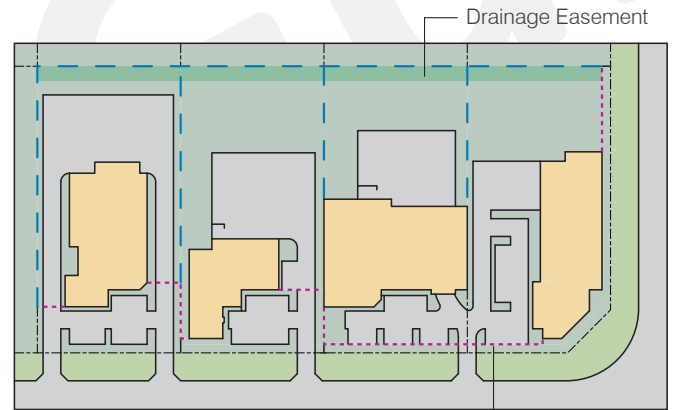
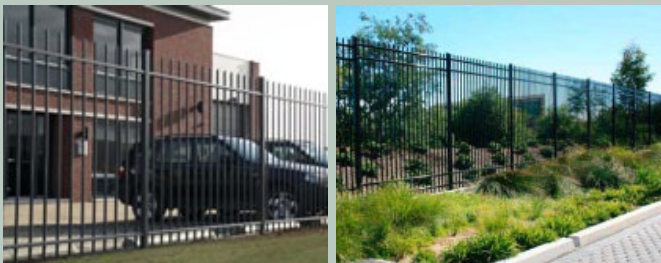


FIGURE 9: SECURITY FENCING

- Front fencing
- Suggested location of security fencing

Any front fencing shall be setback beyond 3.0m landscape strip. Refer to section 3.5.15 (a).

ADDITIONAL REQUIREMENTS FOR DAMPIER HIGHWAY SUB-PRECINCT

Should the purchaser require front fencing it must be setback behind the building line.

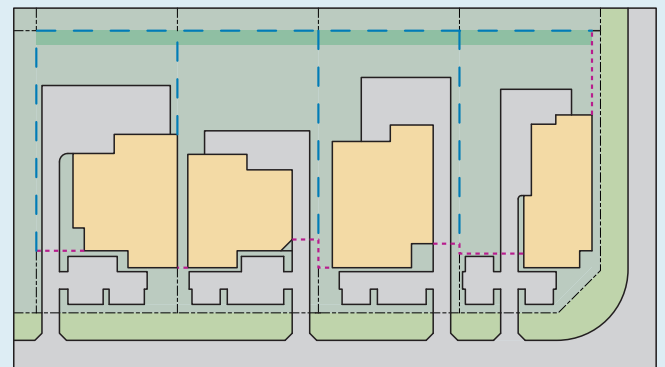


FIGURE 10: FRONT FENCING

- Front fencing
- Suggested location of security fencing

5.3.14 Energy Management and Lighting

MANDATORY REQUIREMENTS

- (a) Site layout and building design is to:
- Maximise natural cross flow ventilation. The building is to be designed to take advantage of the prevailing winds which are easterly in winter and south westerly in summer;
 - Minimise the length of any east and west facing façades wherever possible;
 - Provide for adequate shading; and
 - Provide opportunities for winter sun to penetrate the building.
- (b) Clerestory windows and/or roof vents are to be provided within the building to assist in cross ventilation and heat purging.
- (c) Glazing on east and west facades should be avoided or minimised, with the exception of street facing façades, which shall be appropriately shaded or treated to avoid solar glare and heat gain.
- (d) External lighting shall be contained within the site and not directed beyond the lot boundary in order to minimise adverse impacts on adjoining properties and passing motorists.

BEST PRACTICE

- (a) External shading devices (overhangs, awnings, shutters and directional louvers) are encouraged for all north, west and east facing openings.
- (b) Internal lighting should incorporate the following:
- Use of natural daylight through skylights and clerestory windows;
 - Highly efficient light systems;
 - Ultrasonic ambient light/motion sensors; and
 - Lighting management systems.
- (c) High efficiency external lighting systems (e.g. T5 Triphosphor Fluorescent, motion sensors, time clock and/or photo sensitive cells to control operation hours) are encouraged.
- (d) Down lights mounted on the façade should be avoided, while the up lighting of surface façades is to be encouraged.
- (e) Provision of solar hot water systems (minimum 4 star rating), or 5 star gas or heat pumps system for all buildings that require hot water facilities.
- (f) Consider the use of solar cell technology to supply some portion of the power for the buildings.
- (g) Buildings should maximise energy efficiency, through measures such as insulation, and low embodied energy materials.
- (h) Developments shall incorporate the following fit outs:
- 4 star cooling/heating system;
 - AAA rated shower heads;
 - AAA rated tap ware and flow regulators; and
 - AAA dual flush toilets

5 DESIGN REQUIREMENTS

5.3.15 Landscaping and Stormwater Management MANDATORY REQUIREMENTS

(a) All lots require a 3.0m wide landscape strip along all street frontages of the lot. Drainage management measures are to be integrated into this strip through the installation of vegetated allotment swales..

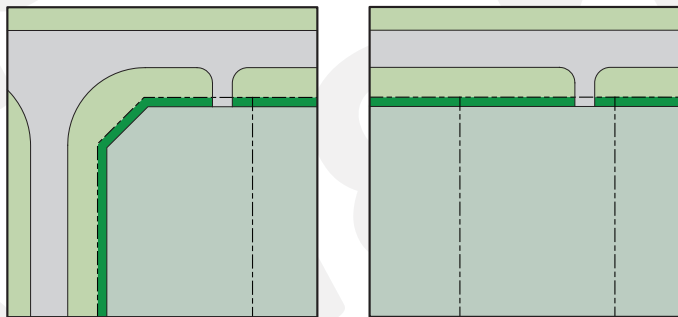


FIGURE 11 - MANDATORY LANDSCAPE STRIP

- Verge provided
- Mandatory Landscape Strip

(b) Allotments with drainage easements shall include a swale area constructed with an 'one in six slope' and are to be planted to obtain 100% vegetation coverage with a combination of trees, shrubs, groundcovers and grasses (tussock plants) using the plant and tree species, installation sizes and planting densities as listed in Appendix C. Swales are to be mulched to a depth of 75mm using on-site mulch (to gain greater revegetation) or if not available, an organic bush mulch. Any rocks or boulders excavated when constructing the swales are to be retained within the swale area

EXAMPLES OF DRAINAGE SWALE



(c) The remainder of landscaped areas shall have 100% coverage of mulch to a maximum thickness of 75mm. Mulches can range from onsite mulch and organic bush mulches to inorganic mulches such as rock and coarse gravels. Planting is to comprise of species, installation size and planting densities as listed in Appendix C.

(d) Trees with high canopies and low growing shrubs should be adequately spaced and located within the front setback to allow views into and from the site. Landscape elements shall be less than 900mm or above 2000mm in height. Mature trees are to be pruned clear to a minimum of 1800mm above ground level.

(e) Design landscape in the vicinity of the crossover into the site in a manner that preserves the sightlines for vehicles.

(f) Only low flow and trickle irrigation will be permitted for the reticulation of landscaped areas. Reticulation shall be connected to a timing mechanism.

(g) The purchaser will be required to maintain the area immediately within the front of their allotment.

(h) All on-site drainage systems must be regularly maintained and in good working order as a condition of any development consent granted to a site.

(i) No work or structures will be permitted within road side drainage reserves during construction or thereafter, unless prior approval from the Shire of Roebourne is obtained.

BEST PRACTICE

(a) Site layout, building location, car parking, landscaping and setbacks should be established having consideration for on-site stormwater management.

(b) Lesson heavy mulching around plant stems so as not to choke or damage fragile plantings.

(c) Landscaping is to be of an appropriate scale relative to the road reserve and building bulk.

(d) Take into account the provision of shade. Vegetation can be incorporated into a development's sustainable design features by reducing heat load through the shading of buildings.

(e) Where possible all site areas not required for operational needs should be mulched and vegetated to reduce dust, even as a temporary measure.

(f) Use hardscape— materials that are sympathetic to the colours of the local landscape.

5.4 INDICATIVE CONCEPT PLAN

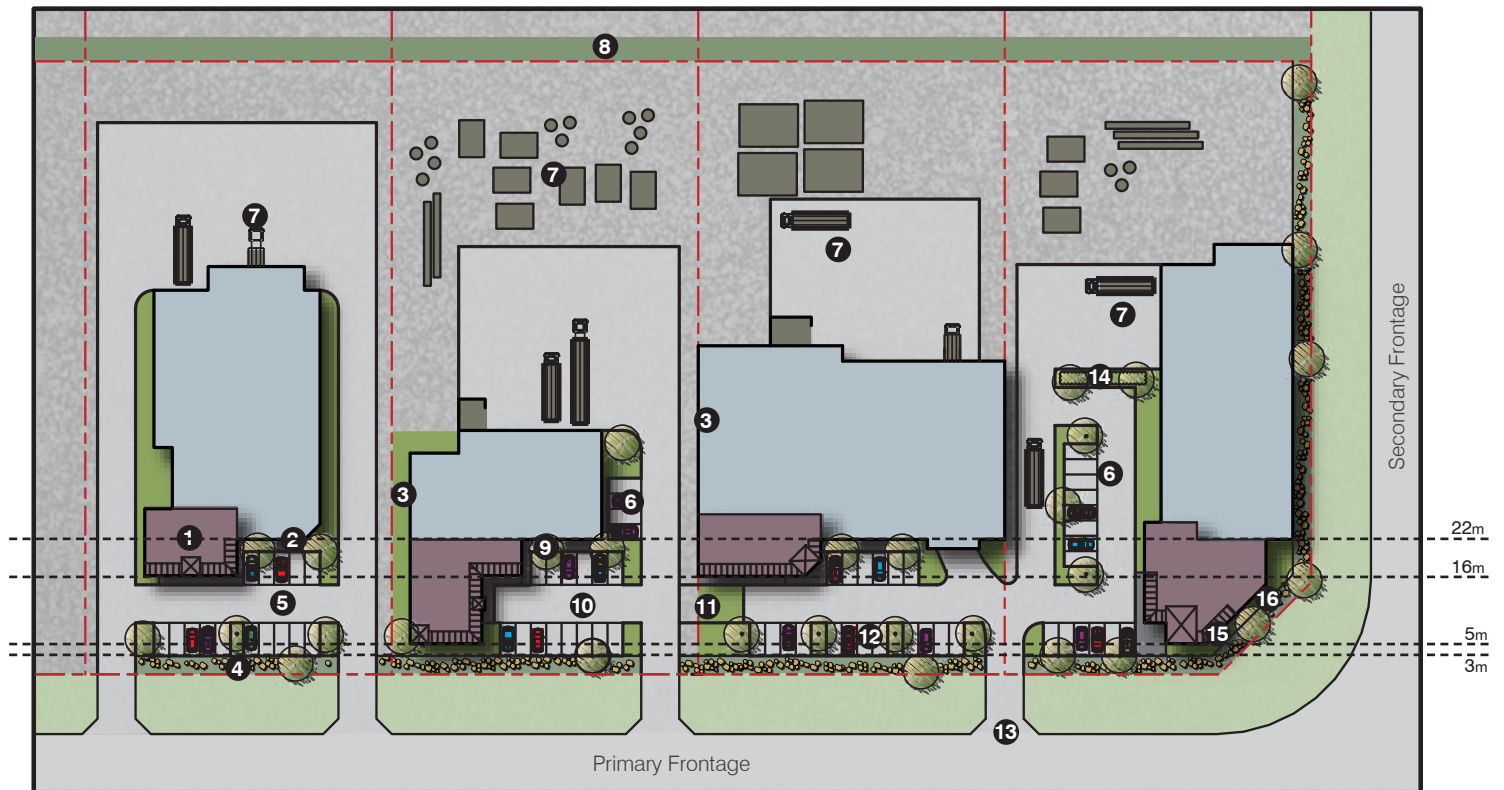


FIGURE 12 - CONCEPT DRAWING LIGHT INDUSTRIAL (EXCLUDING DAMPIER HIGHWAY SUB-PRECINCT)

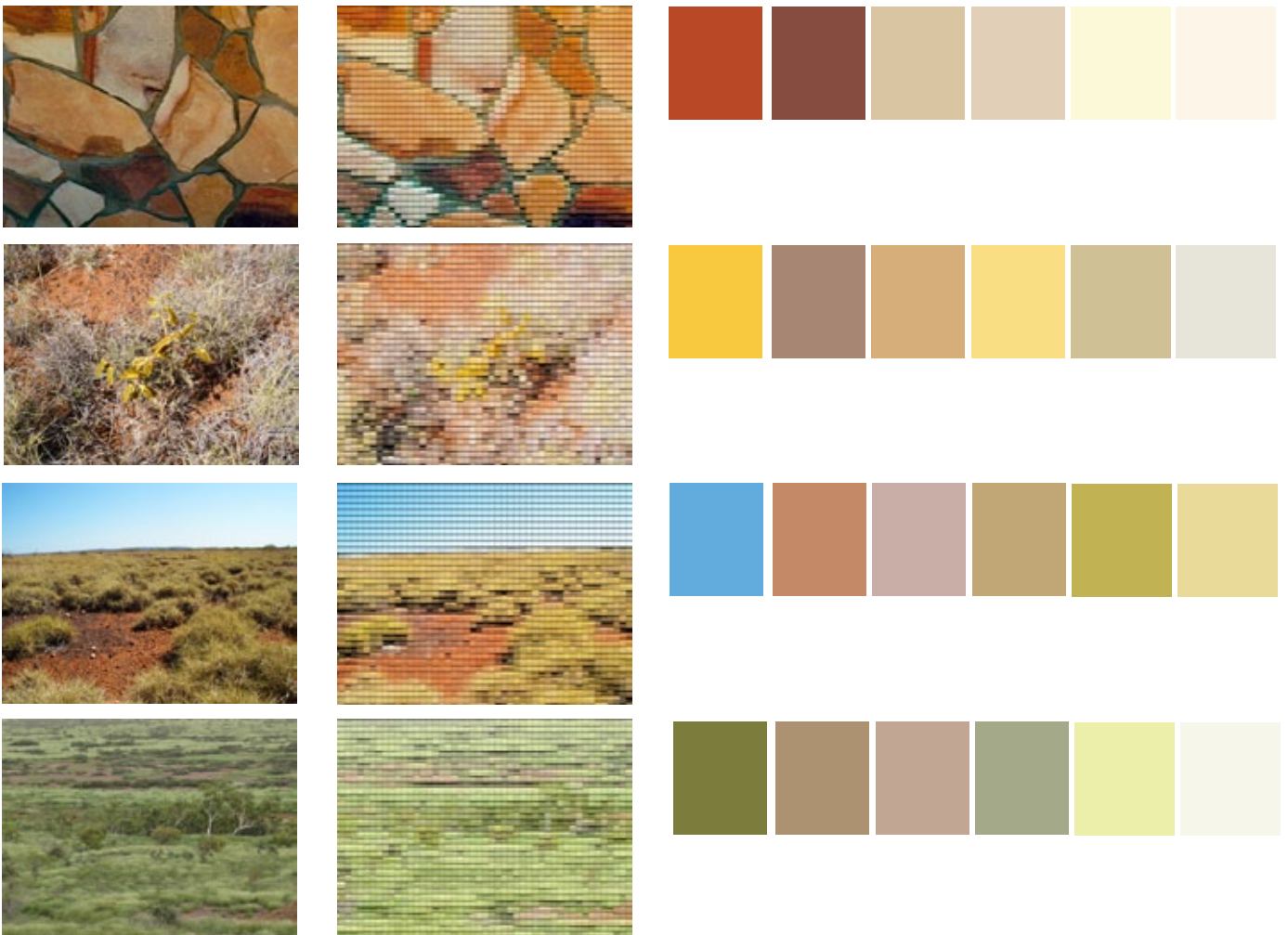
- 1 Front setback of building components such as office, administrative areas are to be located within the representative zone.
- 2 Minimum setback of main building bulk is 22.0m.
- 3 Minimum side setback is nil or 3.0m.
- 4 All lots require a 3.0m landscaping strip along the street boundary and is to include drainage management measures through the installation of vegetated allotment swales.
- 5 Parking to be provided within the front setback adjacent representative components.
- 6 Additional parking may be provided within the side setback.
- 7 Loading and service areas to be located out of sight from public street.
- 8 Drainage easement.
- 9 Developments shall be separated from parking areas by landscaping and walkways.
- 10 The 22.0m setback allows for double parking bays, allotment swale and landscaped strip between development and parking areas.
- 11 Allow adjoining parking areas to be interconnected.
- 12 Parking areas shall be overlaid with a regular grid of shade trees at a ratio of 1 tree per 4 car-bays.
- 13 Shared access points are encouraged.
- 14 Loading and service areas to be screened from the street.
- 15 On corner sites, buildings shall be located near the intersection and address both street frontages.
- 16 Office, display and sales components shall include verandahs facing the public street and parking areas.

APPENDIX A



APPENDIX A – STREET FRONTAGES

APPENDIX B



APPENDIX B – ENCOURAGED COLOUR PALETTE

APPENDIX C

Appendix C: Category 1: Species suitable for allotment swale areas

A combination of any or all of the following plant species may be used in the 3.0 metre wide frontage landscape areas. Species can be sourced from Pilbara native nurseries.

TREE SPECIES			
Scientific Name	Common Name	Mature Size	Planting Rate (per m ²) -to obtain 60% canopy coverage
Acacia anuera	Mulga	10m	single/group 3 - 5 per 10m ²
Acacia coriacea	Desert Oak / Dogwood	7m	
Brachichyton acuminatus	Rock Kurrajong	8m	
Corymbia deserticola	Desert Bloodwood	7m	
Eucalyptus dichromophloia	Variable Barked Bloodwood	10m	
Eucalyptus leucophloia	Snappy Gum	8m	
Lysiphyllum cunninghamii	Native Bauhinia	7m	
Melaleuca leucadendron	Cadjeput	10m	
Pittosporum phylliraeoides	Weeping Pittosporum	8m	

SHRUB SPECIES			
Scientific Name	Common Name	Mature Size (height x spread)	Planting Rate (per m ²)
Acacia sclerosperma	Limestone Wattle	1.5m x 1.5m	1/sqm
Acacia xiphophylla	Snakewood	1.5m x 1.5m	1/sqm
Eremophila glabra	Emu Bush	1m x 1m	3/sqm
Eremophila macdonnellii		1m x 1m	3/sqm
Eremophila maculata	Spotted Emu Bush	1.5m x 1.5m	2/sqm
Eremophila pterocarpa	Silver Poverty Bush	1m x 1m	3/sqm
Senna artemisioides	Silver Cassia	1.5m x 1.5m	1/sqm
Senna artemisioides ssp. helmsii	Crinkled Cassia	1.5m x 1.5m	1/sqm
Senna artemisioides ssp. Oligophylla	Bloodbush	1.5m x 1m	2/sqm
Senna artemisioides ssp. Sturtii	Grey Cassia	1.5m x 1.5m	2/sqm

GROUND COVER SPECIES			
Scientific Name	Common Name	Mature Size (height x spread)	Planting Rate (per m ²)
Acacia gregorii	Gregory's Wattle	0.5m x 2m	2/sqm
Enchylaena tomentosa	Barrier Salt Bush	0.1-0.6 x 2m	3/sqm
Gomphrena canescens	Bachelor's Buttons	0.1-0.9m x 0.8m	3/sqm
Ipomoea muelleri	Native Morning Glory	0.2m x 2m	2/sqm
Maireana georgei	Satiny Bluebush	0.5m x 1.3m	3/sqm
Pimelea ammocharis		0.2-1.5m x 1.5m	3/sqm
Ptilotus calostachyus	Weeping Mulla Mulla	0.2-2m x 0.5m	3/sqm
Ptilotus rotundifolius	Royal Mulla Mulla	0.5m x 1m	2/sqm
Scaevola parvifolia	Camel Weed	0.3m x 0.5m	3/sqm
Swainsona Formosa	Sturt's Desert Pea	0.3m x 1m	3/sqm
Tribulus hirsutus		0.15 x spreading	3/sqm

TUSsock SPECIES			
Scientific Name	Common Name	Mature Size (height x spread)	Planting Rate (per m ²)
Chrysopogon fallax	Golden Beard Grass	0.3-1.5m (h)	4/sqm
Cymbopogon ambiguous	Native Lemon Grass	0.5m x 0.5m	4/sqm
Triodia epactia		1m x 0.5m	4/sqm
Triodia pungens	Soft Spinifex	0.3-2m (h)	3/sqm

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