



ABADI GAIA ADULT RESIDENTIAL VILLAGE & AGED CARE & DEMENTIA FACILITY
OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

ABADI GAIA ADULT RESIDENTIAL VILLAGE PROJECT



ENVIRONMENTAL POLICY STATEMENT

Abadi Gia Adult Residential Village senior management is committed to achieving sustainable outcomes from the operational activities of Abadi Gaia Adult Residential Village by managing these in an environmentally sensitive manner and preventing pollution for the benefit of our Employees, client and the community. Continual improvement in environmental performance will be achieved by setting objectives, measuring progress and communicating results.

Our policies are available on our website, prominently displayed at all work sites and communicated to staff and other interested parties via inductions and ongoing awareness and training programs.

This OEMP provides the tools to fulfil these policies.

Environmental Objectives

The overarching environmental objective for the operational activities is to work with our Employees, staff and residents and the community to achieve sustainable outcomes through continual improvement in our environmental performance, in particular to:

- Comply with all environmental legislation, approvals and standards established for the activities.
- Be a good neighbour, to actively engage with the community about activities to understand and resolve any concerns, particularly in relation to noise and air quality.
- Minimise energy consumption,
- Minimise water use and reusing of recycling water where practical, such as harvesting rainwater to supplement supply for non-potable uses such as irrigation.
- Control stormwater water discharges
- Control sediment and erosion
- Minimise disturbance to vegetation and fauna
- Maintain visual amenity
- Mitigate, neutralize & control bushfire risk
- Maintain highest standards of visual and physical disability assisted living

PROJECT SUMMARY

Site Address	107 Bertha St Goodna Ipswich
Real Property Description	Lot 372 SP 104177
Ownership	PGS GOODNA PTY LTD
Site Area	11.43 Hectares
Proponent	ABADI GAIA ADULT RESIDENTIAL VILLAGE
Contact	Adam Slijderink CEO & Project Partner ABADI GAIA ADULT RESIDENTIAL VILLAGE PO Box 981 Main Beach QLD 4217 adam@cli.net.au
State Planning Policy Interactive Mapping System (SPP IMS)	<ul style="list-style-type: none"> • <i>Biodiversity</i> <ul style="list-style-type: none"> -- MSES [- Wildlife habitat (Special least concern animal) -- MSES - Wildlife habitat (Koala habitat area - core) -- MSES - Regulated Vegetation (Essential Habitat) • <i>Natural Hazards Risk and Resilience</i> <ul style="list-style-type: none"> -- Flood hazard area (Local Government flood mapping area). Mapping covers the whole site. -- Bushfire prone area. -- High Pressure Gas Pipeline • <i>Information Purposes</i> <ul style="list-style-type: none"> -- Climatic Regions - Storm water management design objectives • <i>Infrastructure</i> <ul style="list-style-type: none"> -- Major Electricity Infrastructure (Powerlink) -- Active Transport Corridor -- Wildlife Hazard Buffer Zone (13km)

Development Assessment Mapping System (DAMS)	<ul style="list-style-type: none"> • SEQ regional plan land use categories – Urban Footprint. Mapping covers the whole site. • Water resource planning area boundaries. Mapping covers the whole site. • Native Vegetation Clearing <ul style="list-style-type: none"> -- Category B on the Regulated vegetation management map (98% cover) -- Category X on the regulated vegetation management map (2% cover in rec zone) -- Category A or B area that is least concern regional ecosystems (Most of site) -- Coastal Bioregions and sub-regions -- Essential Habitat (Most of site) • Core Koala Habitat Area
Regional Planning Description	Ipswich Planning Scheme
Planning Scheme Zoning	<p>LLR – Large Lot Residential: being either rural unsewered allotments > 4000m2 [self-assessable] or <u>in the alternative</u> one of several differing consistent uses i.e., 4.4.5 (k) multiple residential, if a nursing home or retirement community</p> <p>REC – Recreational</p>
Relevant Planning Scheme Overlays	<p>OV4 – Difficult Topography</p> <p>OVS – Flooding and Urban Storm water Flow Path Areas</p> <p>OV13 – High Voltage Electricity Transmission Lines</p>
Current Use	Vacant land – Storage Shed
Proposed Use	Retirement Community and Aged Care Facility consisting of Independent Living Units, Apartments, serviced rooms, Dementia ward and SDA apartments [Multiple Sclerosis]

DOCUMENT STATUS

Version	Purpose of document	Original	Review	Review date
V1	Operational Environmental Management Plan	A.K Slijderink CEO Abadi Gaia Adult Residential Village	P.G. Slijderink Director Abadi Gaia Adult Residential Village	21 March 2021
V2	Operational Environmental Management Plan	A.K Slijderink CEO Abadi Gaia Adult Residential Village	P.G. Slijderink Director Abadi Gaia Adult Residential Village	23 July 2021
V3	Operational Environmental Management Plan	A.K Slijderink CEO Abadi Gaia Adult Residential Village	P.G. Slijderink Director Abadi Gaia Adult Residential Village	6 October 2021
V4	Operational Environmental Management Plan	A.K Slijderink CEO Abadi Gaia Adult Residential Village	P.G. Slijderink Director Abadi Gia senior management Pty Ltd	26/11/2024

Approval for issue

Version	Recipient	Name	Signature	Date of issue
V3	Electronic issue to Ipswich City Council & SARA-supplementary DA materials	A. K. Slijderink CEO Abadi Gaia Adult Residential Village	Electronic version issued	21 October 2021
V4	EPBC ACT	A. K. Slijderink CEO Abadi Gaia Adult Residential Village	Electronic version issued	November 2024

ABSTRACT

Design by the director

“Abadi Gaia” means “timeless- mother earth”, “undying- soul of the earth” or “immortal – earth mother”

To us it was the fundamental principle driving the envisioning design process and our design team. The underlying design philosophy is a blend of environmental protection, koala habitat enhancement, world class facilities, “productive age in place”, comprehensive disability accessibility pathways, harmonious and inspirational landscaping and sustainable contemporary “livable” architectural design.

We have been associated with numerous award-winning projects over the last 30 years; but on this one simply put **“Our goal is to be the very best”**. Abadi Gaia Adult Residential Village isn’t just a name; it has meaning and purpose and our design team have done the utmost to achieve this goal.

Balancing the needs of an aging population is a planning crisis; which is no longer looming it has fallen upon us. As land owners, designers, planners and developers we must strive harder to service our aging community needs.

We acquired the subject lands with a development consent issued by Ipswich city council in accordance with the current planning scheme. However, after reviewing the proposed development, it was considered undesirable and not in keeping with the companies’ sustainable development core objectives.

After discussions with our specialist planning consultant Mr. David Perkins the site was identified as more beneficial for use in creation of a memorable environmentally sensitive Retirement Community and Aged Care & Dementia facility. After years of planning and research we are ready.

The current proposal addresses critical community care needs, integrates core environmental values, maintains species diversity and abundance, maintains Koala habitat values & movement corridors and provides ongoing koala protection zones, free of invasive predatory animals such as free roaming feral dogs and cats.

The current proposal seeks clean up dump areas, restore damage from local 4wd enthusiasts, manage pest weeds and rehabilitate APZ/stormwater gullies, buffer zones, recreational zone and transitional “stepping stone” linear parks. Specific targeting of Primary and Secondary browser species desired by Koalas for feeding and habitat with intent to promote and preserve koala use of the subject lands. We believe we have achieved an outstanding balance between form and function, need and sustainability.

We trust the reader will help us on our journey to delivering the Abadi Gaia Adult Residential Community. Your ongoing attentiveness and commitment will ensure we achieve our environmental & community goals.

Thanking you in anticipation

The team

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- Table 3 Qualitative Measures of Likelihood
- Table 4 Qualitative Measure of Consequence
- Table 5 Risk Rating
- Table 6 Environmental Values, Potential Impacts and Controls

Introduction

This Operations Environmental Management Plan (OEMP) was produced in house by ABADI GAIA ADULT RESIDENTIAL VILLAGE “the proponent”, for the proposed Abadi Gaia Adult Residential Village, formally described as *107 Bertha Street Goodna Ipswich [Lot 372 SP 104177]*.

The OEMP is prepared to demonstrate proponents understanding, commitment and compliance with the proponents’ objectives of achieving a world best practice environmentally sustainable adult residential community integrating environment, sustainability, medical, health, social wellness and high standards of disability care [visual and physical].

The OEMP stipulates monitoring, reporting and operational requirements to be followed to ensure the General Environmental Duty of Care under the *Environmental Protection Act 1994* (EP Act) and associated Regulations.

The management plans have been written in accordance with the ‘Environmental Management Plan Guidelines, Commonwealth of Australia 2014’. This OEMP is an evolving document and will be amended to incorporate relevant conditions of approval and/or future legislative amendments.

1.1 Purpose

The purpose of this OEMP is to provide a structured approach to environmental management for the operation of the development to minimise the risk of environmental harm as far as practicable during normal and abnormal operations.

1.2 Objectives

The broad objectives of this OEMP are to provide planning and management systems to:

- Facilitate achievement of environmental standards;
- Ensure prevention and mitigation of environmental harm which may occur from operations;
- Facilitate appropriate and timely responses to equipment failure, emergencies or other unusual conditions that may cause environmental harm;
- Facilitate documentation, communication and implementation of contingency plans;
- Ensure that all personnel responsible for the operations are aware of their environmental responsibilities;
- Ensure that environmental monitoring and review occurs to manage the operation activities and to ensure continual improvement in this OEMP;
- Ensure that relevant information is retained and is communicated throughout the organisation; and ensure communication with Ipswich Council environmental officers and Department of Environment Science and Industry (DESI) or other authority as required by legislation.

1.3 Outline of the OEMP

The outline of the OEMP is shown in **Table 1**.

Table 1 Outline of OEMP		
<i>Section 1.0.</i>	Introduction	Contains a brief introduction, site description, lists relevant government regulations and details the Environmental policy.
<i>Section 2.0.</i>	Project Description	Contains a brief summary of the project.
<i>Section 3.0.</i>	Operational Details	Provides a description of operational works,
<i>Section 4.0.</i>	Implementation and Operation	Contains site reporting structure and responsibilities, environmental responsibility, reporting, training requirements, emergency response, incident management and compliance procedures, and pre-operational surveys
<i>Section 5.0.</i>	Environmental Values, Potential Impacts and Controls	Provides the environmental context of the Project, describing environmental values, potential impacts and proposed controls.
<i>Section 6.0.</i>	Environmental Management Measures	Presents proposed environmental management measures.
<i>Section 7.0.</i>	Monitoring and Review	Discusses noncompliance and corrective actions, audit and review.

1.4 Application

This OEMP applies to all personnel (staff and residents) and activities associated with any activities and operation of the proposed development and on land under the control of the proponent.

The Manager is responsible for implementation of the OEMP.

The Manager shall ensure that all persons Employed or sub-contracted are trained in environmental responsibilities as determined by this OEMP and as legislated by the relevant legislation.

Environmental duties of all personnel include the following:

- General Environmental Duty – whereby a person in the performance of their duties shall not do so in a manner which will cause, or is likely to cause, environmental harm unless the person takes all reasonable and practical measures to prevent or minimise the harm.
- Duty to Notify Environmental Harm – whereby if a person in the performance of their duties becomes aware that serious or material environmental harm is caused or threatened, then the person must immediately contact the Manager who in turn must immediately notify the relevant authorities.
- This OEMP applies to the whole of site.

1.5 Legislative and Policy Framework

The relevant environmental legislation to this OEMP is the

- Environmental Protection and Biodiversity Conservation Act 1999, “EPBC Act”
- Nature Conservation [Koala] Conservation Plan, 2017
- Queensland State Code 25, 2020
- Vegetation Management Act, 1999
- Environmental Offsets Act, 2014
- Environmental Protection Act 1994 [and relevant updates].
- EPP Water 1997
- EPP Air 2008
- EPP Noise 2008
- Ipswich Planning Scheme [current]
- Ipswich Koala Strategy [2015]

Government Departments consulted in preparing this document include but not limited too

- Queensland Department of Environment, Science and Industry [DESI]
- Queensland Department of Natural Resources, Environment and Mines [DNREM]
- Queensland Department of Agriculture and Fisheries [DAF]
- Queensland Department of Communities, Disability Services and Seniors
- Queensland Fire and Emergency Services [QFES]
- Ipswich City Council Planning & Environmental officers [ICC]

Specialist consultant advices and site based & receiving environs field studies were undertaken and or provided by:

- Geotechnical- Soil Surveys Geotechnical [2007 & 2021]
- Environmental Engineering- Cozen Regan Engineers [2021]
- Stormwater Report & Management Plan- Cozen Regan Engineers [2021]
- Traffic Engineers- Bitzios Engineers [2021]
- Acoustic Engineers- CRG Acoustics 2021
- Bushfire Assessment and Management Plan – Rob Friend and Associates [2021]
- Environmental-
 - Max Winders and Associates Site investigations and report 2007
 - Queensland Ecologists Site investigations and report 2019
 - Australia Fauna Management [Fauna spotter] Site supervision 2019
 - NewGround Environmental Ecology Assessment Report 2021
 - NewGround Environmental State Code S25-Koala Assessment 2021

These reports are held by the Manager and are available on request.

At a minimum a OEMP should address the following:

- a) Method and timeframes for targeted surveys for listed threatened species or listed migratory species within the operational footprint of the activity.
- b) Identification of, and commitment to, measures that avoid and/or mitigate impacts on any habitat and populations of listed threatened species or listed migratory species found during the targeted surveys.

- c) Provisions to ensure that no untreated waste water is released within 100 metres of a riparian buffer zone, groundwater buffer zone, or nest buffer zones.
- d) Where operational includes the establishment of infrastructure corridors through the other conservation area, that:
 - i. the location and size of infrastructure corridors are justified as the location and sizes that will minimise impacts on listed threatened species;
 - ii. that the methods of establishing the infrastructure corridors includes measures to mitigate and minimise potential impacts on listed threatened species;
- e) Where operational includes the establishment of infrastructure corridors through riparian buffer zones, management measures (including the application of relevant guidelines and/or standards) to minimise the likelihood of erosion and deterioration of water quality.

1.6 Applicable Legislation and Policy

Environmental Protection Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act governs the protection of the relevant World Heritage Areas, Ramsar sites and habitat for listed threatened species and listed migratory species.

In 2022 koalas were placed on the endangered list and are addressed within this EMP, there are no other site issues arising from EPBC Act.

Environmental Protection Act 1994 (EP Act)

The EP Act protects environmental values through development and implementation of environmental protection policies and regulates environmentally relevant activities prescribed in the *Environmental Protection Regulation 1998* (EP Reg).

Environmental Protection (Water) Policy 1997 (EPP Water)

The EPP Water administers the protection of environmental values from activities that may result in the release of contaminants to waterways.

Environmental Protection (Air) Policy 2008 (EPP Air)

The EPP Air governs the protection of ambient air quality and specifies indicators and air quality goals for the control of the release of airborne contaminants that are regulated through issued permits.

Environmental Protection (Noise) Policy 2008 (EPP Noise)

The EPP Noise specifies an acoustic quality objective for the protection of the well-being and amenity of individuals and the community in surrounding residential areas.

Environmental Protection (Waste Management) Policy 2000 (EPP Waste)

The EPP Waste promotes the efficient use of nonrenewable resources and the use of waste as a resource. The hierarchy of waste management is outlined in this Policy and includes a list of waste management practices in the preferred order of adoption.

Nature Conservation [Koala] Conservation Plan, 2017 & Queensland State Code 25, 2020

These manage and South East Queensland Koala Conservation Strategy 2020–2025, set out guidelines and procedures for investigations, assessments, financial offsets and works in Koala Mapped areas.

Vegetation Management Act, 1999

The VMA sets out guidelines and procedures for investigations, assessments and works in differing vegetation mapped communities.

Environmental Offsets Act, 2014

This act determines offset payments for cleared lands and/or koala offsets

State Planning Policy 2017

A state interest is defined under the Planning Act 2016 (the Act) as an interest that the planning minister considers:

- affects an economic or environmental interest of the state or a part of the state
- affects the interest of ensuring that the purpose of the Act is achieved.

The key SPP's relevant to the site are

- Bushfire prone areas [bushfire resilient communities]
- Landslide hazard areas
- Erosion prone areas

Ipswich Planning Scheme

The planning scheme sets out the local planning scheme requirements, performance outcomes and probable solutions. These are defined by the development conditions of approval.

2.0 Site Description

2.1 Site Location

The site is a large parcel of land running east to west between Bertha Road and the southern end of Church Street. The land is described as Lot 372 on SP104177 and covers a total area of 11.43 hectares.

2.2 Project Description

The architectural design philosophy sought to create a special environment, a destination where both residents and guests can come to enjoy and engender a sense of belonging and pride of place. The masterplan will be innovative and leading edge in terms of its philosophy, excellence in architecture and site planning, as well as social, environmental and cultural interaction.

It will inspire the creation of beautiful environments and provide both harmonious and interactive green spaces. These will engage in both an active and passive sense, incorporating a high level of rehabilitation and protection of the natural environs.

The masterplan set out to incorporate the sites intrinsic environmental values by creating an 'inspirational address' whilst delivering environmentally sustainable design, incorporating best practices and demonstrating significant improvements in social, environmental and community values.

The design process recognises the importance of added value by creating a 'sense of place' to each precinct of the development. Accordingly, the location and upfront construction of community facilities and environmental rehabilitation work will not only demonstrate goodwill on the part of the developer, but also consolidate the environmental objectives of the project.

The project has been designed to facilitate health and wellbeing and promotes a range of experiences engaging and providing opportunities for all, irrespective of their socio-economic position.

The Abadi Gaia Adult Residential Village Master Plan has been derived from analysis and integration of the various physical, social and economic aspects affecting development on this site. The physical issues relating to the existing site will be based on understanding the specific environment and include the preservation of existing systems, restoration of disturbed areas, harmonious integration of human activities and natural assets, encouragement of connectivity throughout the site and a respect for its history. This will also include visual amenity to and from the site and the responsibility for enriching the environment with minimal impact.

The social aspect will rely on having outcomes that benefit everyone. This project responds to the increasing demand on the capacity of the area to sustain growth, by providing a variety of support Employment opportunities and by responding to the demand for high quality retirement product that not only set benchmarks in the local development industry, but also equate with world's best practice and create new "destination" experiences.

The impact of this development will not only broaden the Employment opportunities and skills base but it also contributes both directly & indirectly to the economic infrastructure of the region.

The aesthetic quality of this development will be of a form and nature gradually becoming a common practice in Australia. It will reflect a high level of international influence on market demands which will be translated into the character of the new Australia of the 21st Century and as such, will establish a coveted benchmark for resort styled retirement development in the region.

The development provides opportunities for various differentiated precincts, there is multiple accommodation development zones, an Aged Care and Dementia ward facility, 3 key recreational zones, and integrated drainage and flora and fauna reserves. Providing residents community contact and escape zones for personal time.

It is important the development presents a rustic feel and maintains a unique and distinctive rural setting. This is achieved with full vegetative buffers to the east, south and north; and limited partial clearing fronting Church Street to the west. The Church Street frontage impact is restricted to ~200m development strip which is buffered by adjacent landscape buffers [>140 m] and two large vegetation communities retained to the south-west corner [70m] and north west corner [65m]. The adjacent generous ~15m wide road verge ensures a softened "park like setting" development facade.

Stage one development has been designed to present as a two-storey height maximum to vehicles and pedestrians using Church Street.

The internal development footprint for stages two and three is fully screened by retained mature perimeter and drainage reserve vegetation, this in conjunction with adoption of a below tree canopy roofline, and landscape works ensures no visible impact or amenity arises from any stage two or stage three building structures. Design has sought to achieve a >90% building screening outcome for stages two and three.

The development is not visible from any other site save for Church Street.

Stage One

The Entry

This is a mix of 13 two storey villas, 52 apartments in buildings of 2 storey height [plus partial undercroft basement reflecting a typical 2 storey pole home height limit], a recreational building and extensive passive and active recreational zones. Carparking is by way of undercroft and/or partial basement.

The gated entrance is to be framed with contemporary Asian styled monolithic structures, leading through security gates on to the resort styled boulevard, creating a dramatic and inviting allure. Creating and reinforcing a sense of community for residents on returning home.

Integrated facilities immediately greet the visitors and include community building, heated indoor pool, steam & sauna room with cold salted dipping spa, gymnasium, café, media room, virtual “3d” golf, medical treatment rooms, with adjacent BBQ area, and Zen styled meditation garden.

Further recreational facilities located in the southern boundary “recreational zone” include outdoor 6 rink bowling green and clubhouse, artist retreat, village community garden [flora and vegetable], 2 flood light pickleball court, bocce court, meditation zone, constructed wetland, extensive interpretive walkways, bee keeping and numerous reflection “stormwater” harvesting/treatment ponds.

While the site has been historically environmentally degraded through clearing there has been regrowth with vegetation generally in the order of >20m height. Well above any anticipated roof height. Furthermore, on maturity 40m tree heights can be expected ensuring no adverse visual amenity issues.

The development will re-establish an extensive system of ground based landscaped treatments and rehabilitation.

The overall site cover [GFA] of the buildings is low ~15%, as most of the site is devoted to landscaping, APZ's, environmental reserves, stepping stone links and recreational facilities.

The development will provide facilities in a low profile eco sensitive environment.

Stage One A has a total of 61 dwellings and recreation facilities by way of:

- 13 Standalone Superior Villas of Type “A” or “B”
- 5 apartment buildings of 2 storey being comprised of
 - 52 x 2 bedroom

Product summary

- Superior Villas ranging from
 - Type “A” 2 bed 2 bath 2 car single storey 165m²
 - Type “B” 3 bed 2 bath 2 car two storey 200m² to 220m²
- Apartments being a mix 2 storey with under croft basement comprising of:
 - 2 Bed, 1 Bath 71m² internal plus 12-20m² balcony
 - 2 Bed, 2 bath 95m² internal plus 20m² balcony

Stage One A is located in the South Western corner and accessed just of the main Church Street entrance.

There is also a single storey Recreational building containing:

- 18m Indoor heated lap pool & spa
- Media room
- Medical treatment room
- Café
- Steam room
- Sauna room
- Virtual Golf
- Gym
- Toilet facilities

Free standing Recreational facilities proposed spread throughout southern “Recreation Zone”:

- Community garden
- Artist retreat
- Bee hive “pollinator rehabilitation” section
- BBQ zone
- Meditation zone
- Community “Workshop”
- Prayer room

Services

- Community bus
- Pilates
- Aerobics
- Aqua aerobics
- Nutritionist/Naturopath
- Medical home visit services “home doctor” and visiting specialist services
- Massage
- Therapy services
- Home meals

- Community work" hub" service
- Art classes
- On site security services

The Church Street villas will be standalone buildings and exclusive in the way they preserve privacy.

The Stage one accommodation is self-supporting fully functional and has all necessary facilities to function as a Retirement Village; fully supported by food, beverage and active and passive recreational attributes.

The visual amenity to the Retirement Village is dominated by native trees and is considered to be consistent with the character of the area. In general, the "below the tree line" principle of the development and extensive landscape and rehabilitation intent would ensure improved Church Street appeal.

The environment/recreational zone along the southern boundary is important in that it integrates passive and active recreation for both residents and guests alike and also provides a direct connection with key koala and vegetative environmental values, thereby enhancing its visual and recreational value.

Stage One B

19 free standing villas benched into the landscape on the northern boundary.

Residents will have a choice of floor plans for each land parcel. The villas are 165-170m² in size and are all 2-bedroom 2-bathroom 2 car garage, low maintenance and can be modified to future mobility needs.

Stage Two

The Hub- Core "Piazza"

The development is designed so that stage two is the key long term focal point and physical community centre with pedestrian pathways radiating out from and road network circulating this area. It provides residents with centrally located essential services and ease of accessibility.

Architecture is a mix of accommodation styles each sympathetic to its environmental surrounds. Medium intensity with villas and apartments, wide range of accommodation types, major dining and recreational facilities, Balinese "resort styled" hard and landscapes and soft terraced landscape features.

The visually dominant and themed terraced piazza will create the central focus for the recreational precinct and form the hub to the stage and whole of development. Internal and external pedestrian pathways will create the links.

The piazza is designed to attract the residents and encourage guests alike and is positioned to take advantage of the landscaped features, giving feel of openness and casual ambience.

Stage Two has 2 distinct precincts

Precinct 2A

The “recreational” hub consists of restaurant & bar and small shop, large swimming pool, terraced auditorium and 5 linked “Balinese” inspired pavilion buildings linked by covered walkways, containing spa [sauna steam/steam room/cold salt spa], massage and wellness centre, hairdressers/beauty, residence business centre, library, billiard room, custom games/card room, aerobics/dance room, gym/Pilates and numerous reflection/meditation zones and resort styled hard & soft landscaping features.

The hub is split level with the “Piazza” lower level containing a free form pool, interfaced with restaurant/bar facilities.

The upper-level main recreational buildings are referred to collectively as the “Gaia Wellness Centre” a series of 5 x smaller 36m²-100m² “pavilion styled” buildings and one larger “Panacea” spa facility. Buildings will progressively step up and across the sloping “centre hub” linking upper and lower levels.

Pathways curve to meet disabled accessibility requirements link all facilities. This disability accessible path then wraps along the terraced open air “amphitheatre”; past the base of Precinct 1B Superior benched villas, leading to a series of pathways through and into the higher accommodations and on to the eastern “Recreational Zone”.

Designed with Feng Shui principles to boost productivity and harmony the Hub can be easily reached by all residents with pathways and links designed for and compliant with best practice disability codes and practices

Preliminary layouts and artist impressions have been prepared and found in the landscape Statement of Intent.

Recreational buildings have been be sited to retain habitat trees for integration within and amongst resort styled ground dwelling landscape areas wherever practical

Key Precinct 2A design elements

- “Gaia wellness centre” comprising pavilion style community buildings linked by covered walkways including:
 - Gym
 - Games room/astronomy club
 - Aerobics/Pilates
 - Billiard room
 - Library
 - Business centre
 - Hair dresser/beauty salon
 - “panacea” spa facilities [toilets, change room, spa, steam room and sauna]
 - Health and massage centre
 - 2 reflection ponds/stormwater devices
- Grand entrance and stairway
- Vehicle drop off zone
- Administration centre
- Mail centre
- Restaurant [indoor/outdoor dining]
- Kiosk
- Bar
- Resort styled open air 250m2 [1.1m depth] free form swimming pool
- Mail centre
- Administration centre
- The “Amphitheatre” a natural seated “terraced” park setting open air meeting place/ transitional zone

Accommodation in Precinct 2A totals 60 dwellings by way of:

-
- Blocks D1 & D2 33 Two-bedroom apartments in 2 x 3 storey buildings [plus part undercroft basement].
- Blocks G2 & G3 27 Two-bedroom apartments in 2 x 3 storey buildings [plus part undercroft basement].

Precinct 2B

“The Retreat”

Precinct 2B has been designed to enhance fauna movements from the southern recreational zone through site to the rehabilitated drainage reserves; this is achieved by retention of two natural parkways. The open parks and residential accommodation comprise of:

- “The summit” contains two linear park and habitat tree retention zones with fauna corridors linking the southern “recreation zone” and rehabilitated stormwater drainage zones.
- Precinct 2B accommodation totals 45 dwellings by way of:
 - Block G1- 9 Two-bedroom apartments in 1 x 3 storey building with undercroft basement:
 - Block E -36 Two-bedroom apartments in 2 x 3 storey building with undercroft basement:

Product summary

- Apartments being 3 storey buildings with under croft basements containing a mix of:
 - 2 Bed, 1 Bath plus powder room 71m2 internal plus 12m2 balcony
 - 2 bed, 2 bath 95m2 internal plus 20m2 balcony

Buildings are sympathetic to natural contours mitigating disturbance, reduce and retard fire hazard, stabilise slopes [anchored basements], improve stormwater management and provide safe and effective housing.

Stage Three

Medical- specialist care

There exists an opportunity to provide much needed Aged Care, Dementia and Special Disability Accommodation [MS] facility and associated medical facilities.

The central southeastern lands are well sited for an isolated, albeit well integrated facility.

Each component of the medical precinct has mutually beneficial design outcomes but differing specific needs. We have addressed these design considerations as follows:

Aged Care design considerations

Fundamentally we have designed to achieve compliance with the Queensland RACF “Design Guidelines for Queensland Residential Aged Care Facilities” 1999, however we have further considered with a greater degree of scrutiny, recent advancements in research and have further considered:

- Close to home communal spaces
- Group dining experience
- Independent quiet zones
- Independent laundry facilities
- Activity areas
- Access to walking pathways
- Integrated indoor-public, pseudo-public and private spaces
- Create opportunities for a spontaneous social interaction
- Provide opportunity to maintain social interaction and level of engagement
- Provide opportunity to maintain own comfort level [temperature and noise]
- Relaxation
- Meaningful change
- Sensory variability
- Spatial organisation and safety to mitigate perceptual, motor, balance, and memory issues
- Ambient qualities of the environment light, colour, sound design to mitigate visual, mood, sleep and auditory issues
- Light quality, intensity and glare to mitigate effects on acuity and perception.
- Colour and contrast for visual acuity and perception
- Sound and noise mitigation for hearing loss and cognitive disorders.
- Indoor temperature
- Biophilic spaces
- Combined effects
- Future adaptability
- Accessible design and universal design
- Integrated technology

Dementia design considerations

All of the above plus additional focus on interior design elements

Principally dementia manifests itself as impaired memory, reasoning and ability to learn. Adversely affecting a person's thinking, ability to perform tasks and behaviour.

Often these symptoms are exacerbated by visual impairment, underlying illness and medical conditions or disability.

People with dementia have specific problems with:

- Discriminate textures
- Depth
- Contrast
- Processing multiple elements to interpret an image
- Impact sounds

The key to addressing these issues is; by design, managing what is seen, smelled, heard or physically felt by a person with dementia. Following the four basic principles:

- Simplicity
- Intuitive logic
- Moderate pace
- Minimise non relevant information

Dementia friendly design includes

- Clearly defined spaces,
- Uncluttered layout
- Open plan design
- Minimising hallways and corridors
- Readily accessible toilet facilities [Assisted and unassisted]

- Exposure to natural light
- Minimise reflections
- Use appropriate materials
- Adopt soft surfaces [minimise Impact noise]
- Prioritising what is important [room numbers, toilets etc]
- Provide double the normal lighting levels
- Control glare
- Good tonal contrast between walls, floors, benches, doors, skirtings and trip hazards, such as change in material surfaces.
- Use stronger colours
- 3-dimensional room colour schemes
- Colours and patterns
- Frequent use of “cues”, such a signage, pictures, way markings
- Use appropriate furnishings
- Minimise noise, by way of improved acoustic insulation, floors, walls, panelling and glazing sections.
- Provide expansive views
- Provide access to private garden courtyard

SDA Design considerations

Whilst many of the design features listed above apply to SDA residents, and appropriately will be adopted, there are a few specialty design considerations which focus predominately on the integration of the resident seamlessly into the wider community.

Specific problems faced are:

- Fatigue
- Depression
- Spasticity
- Weakness
- Tremor/balance
- Mobility
- Bladder and bowel issues

- Speech problems
- Swallowing issues
- Vision impairment
- Pain
- Vertigo
- Numbness
- Cognitive problems
- Medical treatments [blood transfusions/prescribed medication]

Abadi Gaia Adult Residential Village has been designed to facilitate same by way of hard and soft features and services:

Features

- Disabled compliant pathways to every location
- Designated wide carparking spaces
- Regular and easy accessed toilet facilities
- Medical rooms
- Medical services by way of aged care infrastructure, doctors and nursing staff, blood tests etc,
- Multi use medical spaces
- Gym, swimming pool, steam sauna rooms,
- Library
- Media centre etc.
- Restaurant
- Easy access apartments
- Plenty of space allowance between apartment furnishings
- Grab bars
- Long handle levers for doors/sinks
- Secure sturdy furniture
- Rounded counter edges
- Counter edges different colour to counter top,
- Rocker light switches
- Doors wide enough for electrical wheel chairs
- Stairwell hand rails on both sides
- Level apartments and access ways

- Low pile carpet if used
- Electrical outlets raised off floor for easy access
- Water heaters with temperature control
- Ridged non slip flooring
- Appropriate colour schemes [colour theory pyramid] a very important consideration for MS, i.e., warm and cool hues to be used [green & blues] with avoidance for bold and dramatic schemes i.e., red/black.
- Et al

Services

- Massage
- Medical [visiting and onsite care]
- Physiotherapy
- Pilates/yoga
- Aqua aerobics
- Counselling
- House keeping
- Meal preparation
- Laundry service
- Emergency response and care

The Aged Care facility is proposed to cater for 81 rooms and facilities; in a 3-storey configuration, with a 66% aged care & 33% Dementia ward mix.

The dementia ward would be located at first level facing the internal buffer/landscape zone, it will have a small private garden accessed directly off the balcony.

There exists significant opportunity to provide this high quality, unobtrusive and safe exclusive use areas for the dementia ward. The aged care facilities would be located above the dementia ward residents of the aged care facility will be able to access and walk within the “recreational zone” and various retirement zones.¹ under appropriate supervision.

¹ With appropriate level of medical support

To the north of the Aged Care/dementia building is an SDA 15 x 2-bedroom, 3 storey apartment building. The aged care medical staff and facilities will assist with any medical treatments required to assist SDA residents.

SDA residents have full use of the facilities and can utilise cleaning, laundry and food delivery services if required.

Environmentally Sustainable Design (ESD)

The five basic criteria to achieve building energy efficiency and conservation should be considered and be embedded in the design.

These include:

- Orientation
- Thermal mass
- Sun control
- Ventilation
- Insulation

The outcomes from implementing sustainable criteria relating to orientation, material selection, conservation and efficiency rated fittings and systems are intrinsic in achieving a benchmark development.

The design of Abadi Gaia Adult Residential Village has followed these principles by incorporating extensive roof overhangs, covered terraces and balconies in front of the glazed doors and openings providing maximum protection to the internal spaces from incoming solar radiation.

2.3 Road Frontage and Access

The land has an eastern frontage to Bertha Street of approximately 240 metres. The Bertha Street frontage provides current vehicular access to the eastern portion of site.

The western site frontage is to Church Street of approximately 335 metres. There is a major inter suburban/intercommunity link on the Church Street

frontage. The Church Street Road verge is highly scoured, steep terrain and infested with guinea grass it in itself currently forms a barrier to fauna movements.

Access to the proposed development will be via Church Street.

Road classifications, widths and speed control measures are signed and must be adhered too.

Stormwater Management issues are specifically addressed in the Engineers documentation and relevant conditions of approval.

2.4 Infrastructure Services and Facilities

The property is to be connected to council sewer mains. All infrastructure on site is private and a sub-contractor needs to be called to service same, council will not undertake private works.

Minor upgrading of Church Street is proposed to be undertaken in conjunction with the residential development, proposed carriageway widening, bus stop and beautification streetscape works will be undertaken for the site frontage at the time of development of the subject land. These works remain council infrastructure.

The site is bordered by an 80m wide Powerlink easement which runs from east to west along the southern boundary of the site. An open space buffer area will be provided along the southern boundary of the development and will be designed to facilitate free roam koala “functional connectivity” access >125m between the two lands, forming an attractive passive feature of the development, whilst buffering the adverse visual effects of Powerlink infrastructure.

The land contains a trunk sewer main traversing the site from the south -western corner of the site, it is located within the western drainage reserve. Said council works had previously disturbed and runs through the drainage reserve area which subsequently, is now contaminated with guinea grass.

2.5 Vegetation

State Department of Environment and Heritage matters of state significance [MSES] mapping shows the site contains RE 12.9-10.2 least concern regional ecosystem and some Category X. The proposed activity will not result in the removal of vegetation that is MNES (threatened ecological community).

Further Newground Consultants found “During surveys no species listed in the Ipswich LGA as locally significant were found and the site does not contain habitats for any of the flora species listed as locally significant”.

Detailed site investigations have been undertaken from as far back as 2007 and as recent as December 2020.

The site has been previously disturbed, notably a survey conducted in December 2007 by Max Winders and Associates found “There was evidence that the site had been subject to past disturbances associated with prior land uses. Completely uprooted stumps at a number of locations across the site suggested past clearing with earthmoving machinery. Areas of forest dominated by immature regrowth reinforced this deduction.”

The site currently contains a mix of remnant and non-remnant regrowth vegetation, has been impacted by fire, contains pest species and is regularly disturbed by 4wd enthusiasts whom disregard signs and access the lands. Staff and residents will not be allowed to use these existing tracks as many will be rehabilitated as part of proposed restoration works.

The site's vegetation community contains RE 12.9-10.2 an open eucalypt forest/woodland characterized by grey box [*Eucalyptus moluccana*], ironbark [*E. crebra*], pink bloodwood [*Corymbia intermedia*], spotted gum [*Corymbia citriodora*] and grey gum [*E. major*], which consists of young to mature trees; canopy heights ranging between 20m-25m.

The site is defined by Regional Ecosystem Mapping as RE 12.9-10.2 described briefly as *Corymbia citriodora* and *Eucalyptus crebra* woodland.

The 2020, 2019 and 2007 field investigations did not find nor indicate likely to find any rare, vulnerable or threatened flora species identified on the site.

Notably the Max Winders and Associates 2007 report stated

*“No specimens of the endangered herb *Plectranthus habrophyllus* were observed on the site. Habitat information attached HerbreCs records for this species indicates that it occurs in riparian situations in fringing or gallery rainforest. **No such habitat existed on this site.**”*

Queensland Ecologists report of 2019; albeit limited, did focus on the lowest part of the subject site and reviewed the western drainage reserve and also did not observe any of the endangered herb *Plectranthus habrophyllus*.

This finding has been supported by field work undertaken by New Ground Environmental consultants in 2020 “no threat listed flora species were recorded on site”.

However, the Manager must have a flora specialist review proposed clearing areas prior to undertaking clearing works in any rehabilitated drainage reserves.

There are some cleared areas (particularly in the vicinity of the powerline easement) containing sparse ground cover such as grasses this area has spasmodic *Allocasuarina littoralis*, a known feeding species for the glossy black cockatoo, these trees are not to be disturbed. Albeit no cockatoos have been recorded feeding on the site. If sighted feeding in these trees immediately advise Manager. Such trees are of importance as potential future seed stock.

2.6 Koala Habitat protection

The state Department of Environment and Heritage MSES has identified the site as Wildlife Habitat [koala habitat areas-core] and Wildlife Habitat [special least concern animal].

Accordingly, detailed target specific site investigations in 2020 have been undertaken.

There had been no sightings of a koala nor evidence of koala activity either feeding, scat or scratching sign, recorded for the subject property during any of the 3 specialist ecological studies (2007, 2015, 2019) nor by fauna spotters during site works (2019).

Notwithstanding, 2020 & 2021 New Ground Environmental investigations found very low to low use of the site [est. ~3 periods of koala usage over 12 months], transient koalas were found to be using the site as a conduit between offsite feeding grounds. Accordingly, it is imperative all staff and residents and staff remain vigil and report any koala sightings immediately to the Manager. If koalas found within the work or activity area cease activity until an action plan has been authorised.

No clearing is to be undertaken without a spotter catcher present.

The proposal seeks clean up dump areas, restore damage from local 4wd enthusiasts, manage pest & weeds and rehabilitate APZ/stormwater reserves, buffer zones, corridors and transitional “stepping stone” linear parks. Specific landscape works will target preferred Primary and Secondary browser species with intent to promote and preserve koala use of the subject lands.

In addition, 1 in 4 street trees will be a primary or secondary browser species to further facilitate koala movement through the site.

The proposed fauna corridors, parks and APZ zones provide significant opportunity for feed and habitat species for transient koalas and fauna.

The proposed Retirement Village and Aged Care & Dementia Facilities will provide ongoing controls for feral “domesticated” predatory and pest species² and mitigation of bush fire risk.

It is important landscape and rehabilitation staff and residents understand our strong koala focus when undertaking design and activities.

Primary browse trees

- Forest Red Gum (*Eucalyptus tereticornis*)
- Tallowwood (*Eucalyptus microcorys*)
- Swamp Mahogany (*Eucalyptus robusta*)

Secondary browse trees

- Flooded Gum (*Eucalyptus grandis*)
- Grey Gum (*Eucalyptus propinqua*)
- Blackbutt (*Eucalyptus pilularis*)
- Sydney Blue Gum (*Eucalyptus saligna*)
- Scribbly Gum (*Eucalyptus signata*)
- Grey Ironbark (*Eucalyptus siderophloia*)
- Forest Oak (*Allocasuarina torulosa*)
- Brush Box (*Lophostemon confertus*)
- Paperbark (*Melaleuca quinquenervia*)
- Broad leaf Paperbark (*Melaleuca Leucadendron*)

In addressing these matters and confirming compliance with all performance outcomes defined in the State Code 25: Development in South East Queensland Koala habitat areas S25.1 and S25.2 the reader is referred to Koala Management Plan submitted with development application for relevant details. The relevant actions are addressed in this OEMP.

Notably development form is highly permeable and ~7.45 ha of the 11.43 ha site has been allocated to facilitate enduring koala movement and use.

² Uncontrolled Cats, Dogs, Rats etc

2.7 Topography

The site contains a range of topographic conditions, with gentle to moderate slopes in the central section of the land and higher and more steeply sloping land in the eastern and south-western sections of the land. Topographically, the site shows variation, and falls generally from east to west/north-west, ranging from 20 metres to 65 metres in height.

In the eastern portion of the site, there are some areas of steeply sloping land adjacent Bertha Street, including slopes greater than 20%.

Limited Steep slopes <15% are also present extending from the central portion of the western drainage reserve into the adjacent partially cleared and somewhat levelled Powerlink easement lands.

There is a low point (infrequent drainage reserve) in the south-western portion of the site, running from the adjacent “Recreational Zone” southern boundary “Powerlink high voltage easement” down towards the lower-lying lands to the north.

This area has also been previously disturbed by Ipswich council staff and residents excavating and placing public infrastructure by way of trunk sewer main, and Church Street upgrades.

There are no wetlands, watercourses, streams or regular standing water bodies contained anywhere on or directly adjoining to the site.

Soils are thin overlaying weak-moderate weathered sandstone. The reader is referred to the geotechnical report prepared by Soil Surveys for further details. A copy of which can be obtained from the Manager.

2.8 Surrounding Land Uses

The site is located in an urban setting, although the immediate surrounding land is sparsely populated and or bound by road networks and cleared infrastructure corridors.

- Land to the north is used for large rural home sites [partly cleared, thinned and ground fuels managed].
- Land to the south is mostly cleared with shrub regrowth in patches, used for high voltage transmission lines and gas infrastructure.
- Land to the east has been cleared for Bertha Street
- Land to the West has been cleared for Church Street

2.9 Context and setting “Parks and Reserves”

It is important staff and residents understand context of the development.

The Ipswich region is renowned for its natural environment and Abadi Gaia Adult Residential Village is surrounded by an exceptionally large concentration of parks and nature reserves. Within a 1km radius to the Abadi Gaia Adult Residential Village, an easy walking distance, there is approximately 366,000 square metres (or 36.6Ha) of parkland in 16 separate parks and nature reserves. This comprises bushland reserves, forested reserves with walking tracks and amenities, open space parks, picnic areas and built parks with play equipment, sporting facilities and barbecues.

The name ‘Abadi Gaia’ meaning “timeless mother earth” was inspired by the desire to seek a harmonious balance between engagement and serenity between nature and the built environment.

Staff and residents using the offsite parks for lunch etc are advised to demonstrate good environmental stewardess and seek to mitigate any adverse impacts from their activity.

2.10 Environmental Context “Conservation Areas”

It is important staff and residents understand the sites environmental context and setting.

The site contains no Conservation Area(s) as stated or defined in the EPBC Act and is contained within the defined urban footprint, but studies found evidence of one threatened species “koalas”.

Several independent detailed site investigations conducted over a 14-year period have not identified any other species of threatened or of concern within the property.

The site contains no intermittent or perennial streams or designated watercourses, but does contain two drainage reserves [quick draining]. Notably there is no aquatic environments on the subject site. The Department of Agriculture and Fisheries [DAF] and Department of Natural Resources- Water do not consider any relevant watercourses on site which would adversely impact on fish habitat or water supply. The eastern drainage reserve has infrequent ponding [within 4wd wheel ruts, etc.] but the western drainage reserve contains no ponding or water bodies, even during significant rain events <100mm/day; as evidenced during severe storm period December 2020. However, staff and residents must ensure no adverse impacts to drainage reserves occur. Operations management are not to dam or change the hydraulic flow characteristics of the drainage system.

As one would expect the eastern drainage reserve shows minor vegetation variation [i.e., the occasional swamp mahogany, *E. tereticornis*] the western reserve however exhibits little/no vegetation change from its surrounding vegetation community; and community structure & density is homogenous with RE 12.9-10.2 vegetation found across the site.

Appropriate setbacks from the drainage reserves have been established, staff and residents must not enter any tapped or signed keep out areas. If in doubt contact the Manager. Specialist rehabilitation contractor is to be used in any drainage reserves or APZ areas.

The sites RE 12.9-10.2 vegetation community are defined as “of least concern”; but is of concern to the proponent; staff and residents will be penalized for any rehabilitation works arising from unauthorized activities.

The site is defined as “core koala habitat” as per “koala legislation introduced in February 2020”. The site is regarded as being of low-medium koala habitat value [Ipswich koala plan and Qld Herbarium] and contains less desired feeding/browser species. Notably recent detailed site investigations by New Ground specialist ecologists found KSAT values were extremely low-low ranging from 3% to 13.4%, which equates to 3-4 koala transitional movements per year.

No evidence of a resident koala population exists in any study over the previous 14-year review period. Given the sites shallow dispersive soils the low to medium quality habitat value this is not unexpected. However, the site has been identified as a transition zone between offsite reserves, the design and operational activities & works must maintain this connectivity.

Whilst these reserves are separated by several transport “road” networks and high voltage transmission line easement, it is recognized that maintaining effective site corridors will facilitate the local transient koala population. The proponent and its agents must be cognizant of this fact and be aware of and avoid any transient koalas, both within and when travelling to or from site.

Maintenance of a suitable north-south link corridor and east -west link corridor have been identified as important in maintaining koala movement a matter desired by state & local authorities and importantly the proponent.

With rehabilitation and ongoing management, the proponent desires to improve the effectiveness of such corridor linkages.

The proposed development has embraced these principles with a >100m wide x 245m long north-south corridor fronting Bertha Street adjacent the Bellbird Park reserve; consolidating northern/eastern/southern vegetation communities and a >45m [plus 15m trafficable APZ fire zone] x 560m east-west corridor on the southern boundary; which merges unimpeded with the adjacent 80m powerline reserve; providing a minimum >120m trafficable east/ west linking corridor providing functional connectivity.

These movement corridors are supplemented with two drainage reserve “stepping stone” link parks in addition to a highly permeable development footprint and extensive rehabilitation program focused on preferred koala browser species.

On completion koala transition thru the site will be facilitated, unimpeded and maintained by way of improved primary browser feeding opportunities, reduced fringe effects, improve fire management and improved feral animal control. Staff and residents must do all things to advance this goal.

Nesting boxes will be strategically located by specialist ecologists and maintained to replace any habitat trees removed by development, for aerial and ground dwelling species. The Manager must notify the proponent in cases of damage to these boxes, so they can be immediately replaced.

Asset protection zone vegetation management for fire risk management will as a priority avoid any preferred koala or habitat trees and remove other species as necessitate. Contractors must mark trees prior to commencing work.

The proponent appreciates that it is important to ensure minimal adverse disturbance to designated corridors [edge effects] and stepping stone links occur during clearing and site works.

Low flow

2.11 Riparian and Groundwater Buffer Zones

Thomas and Goudie have identified and defined three type of stream flow perennial, intermittent and ephemeral³.

Whilst there are no intermittent or perennial watercourses contained within the property, there are however two inter allotment drainage reserves [ephemeral] which infrequently drain to Church Street roadway and adjacent northern private property.

These drainage reserves function as allotment drainage and have been adversely impacted by disturbance from previous council trunk sewer works [draining groundwater and lowering water table], and evasive weeds. NewGround consultants found *“along the sites edges significant weed invasion is evident with Giant Guinea Grass dominating the flats associated with the drainage channel impacting on diversity of ground covers in this area”*.

These areas remain subject to restoration and rehabilitation works and will on completion play an important role facilitating fauna movement and floral seed stock. “Careful control of weeds, sediment loads, chemical wastes and rubbish will be important during operational phase for any works adjacent or in this area, particularly ground disturbance works and pollutants. Staff and residents must follow designated setbacks and temporary fence requirements herein later referred.

³ Thomas and Goudie, n28, p 363, p271 & p177

3.0 Operational Details

3.1 Scope of Work

At the time in which this OEMP was written, the design of Abadi Gaia Adult Residential Village is subject to approval conditions which may supplement this plan.

Therefore, the scope of works provided for its operational will only be broadly discussed.

The scope of works comprises partial operational duties and typical daily operations such as waste management, lawn maintenance and sports & recreation activities.

3.2 Infrastructure Corridors

There are a number of proposed traffic infrastructure corridors which will transect the proposed “Stepping Stone link parks”, such activities do not impact on proposed remnant koala corridors.

These include the following:

- Entrance road corridor: crossing western drainage reserve.
- Recreation facilities buggy access” crossing eastern drainage reserve

The proposed location of the infrastructure corridors was selected based on the topographic constraints and minimizing potential impacts to the proposed designated primary koala 100m wide eastern “habitat reserve” and southern boundary fauna “movement corridor”.

The entrance road is approximately 200m north of southern fauna corridor and 400m from the proposed eastern habitat reserve/Bellbird Park remnant vegetation.

The golf buggy access to recreation facilities is single lane width and in excess of 100m from eastern habitat reserve and >200m north from southern fauna corridor remnant vegetation corridor. Location of the recreation area [from recreation zoned land] was facilitated to improve the southern corridor as requested by DoE staff and respective site topographic constraints.

No adverse operational activities will occur on the proposed eastern habitat reserve or southern fauna corridor.

There currently exists a council sewer trunk main running thru the western drainage reserve, the entrance road and stage one fire road access has been designed to overlay these previously disturbed areas. This area is currently over grown with guinea grass which will require removal and rehabilitation.

3.3 Operational Timeframe and Duration

Building operational will progress over a 5–7-year period; these operational activities will need to adhere to the OEMP. Operational tasks will commence on hand over from builder on a staged basis, forming part of the community scheme.

3.4 Working Hours

Work involving the use of machinery of any description will only be carried out from 7.00am to 5.00pm, Monday to Saturdays, with no work to be carried out on Sundays or Public Holidays, unless otherwise approved by the Manager and regulatory agency.

4.0 Implementation and Operation

4.1 Abadi Gaia Adult Residential Village Roles and Responsibilities

This document describes the roles and responsibilities of Abadi Gaia Adult Residential Village senior management, staff and residents.

4.2 Document and Record Control

4.2.1 Control of Environmental Documents

The general manager will ensure that environmental documents and records nominated in this document and specific to implementation of their relevant components of the OEMP are maintained, archived and controlled.

OEMP documentation will be controlled in accordance with this document, including ensuring that all controlled documents are:

- developed, reviewed and approved prior to issue
- issued for use
- controlled
- stored
- removed from use when superseded or obsolete.

The minimum retention period for all documents is two years from end of operational period.

4.2.2 Master Documents

The master of the OEMP and associated attachments are stored as an electronic PDF file attached to the record located within the Project's document management system along with all related documentation.

Where required, hard copies are to be derived from the signed electronic master and are deemed 'uncontrolled'.

'Masters' that have been superseded are identified and located within the Controlled Documents File.

4.2.3 Distribution

The general manager will ensure that the current version of this OEMP is available to all personnel and issues controlled or uncontrolled copies to applicable external organization's where necessary.

Issue details are to be recorded in a distribution file. When issued, it is the responsibility of the user to replace superseded material with the current issue. Superseded material should be DESTROYED or marked 'superseded' as appropriate by the user.

The General Manager will provide full and current access to the Abadi Gaia Adult Residential Village EMR of:

- this OEMP and associated documentation
- documents and records relevant to environmental management.

4.2.4 Control of Records

The following environmental records will be retained for the period specified in the Abadi Gaia Adult Residential Village EMS Manual:

- legislative updates
- licenses and permits
- approvals
- environmental training and induction activities
- monitoring results
- details of non-conformances and corrective/preventive actions/improvements
- incident or complaints reports
- results of environmental audits
- results of management reviews
- inspection, calibration and maintenance activities
- records of hazardous material waste sent for off-site disposal
- correspondence.

All records are to be:

- legible and clearly identifiable
- traceable via referencing to a specific requirement, procedure or this OEMP.

The Site Manager is responsible for maintaining environmental records for the Project, except as nominated in this management plan.

4.2.5 Competency, Training and Awareness

4.2.5.1 Induction and Awareness

Induction to environmental obligations relevant to the development shall be provided to all full and part time personnel, staff and residents (including sub staff and residents and consultants) before entering site and starting work.

Site Induction Procedure, which will include induction to environmental obligations as part of the relevant induction process.

Visitor Inductions

- All visitors going onto any part of the site must undergo a visitor's induction, including:
- Consultants inspecting equipment / areas on the VDP where they are not undertaking physical works, or where there is minimal potential for safety or environmental harm.

All visitors must be accompanied at all times. Under no circumstances may a visitor undertake any physical work onsite. General Manager & personnel and staff and residents are responsible for the actions and conduct of their visitors and must ensure that their visitors obey the site safety and environmental requirements.

The Site Induction will be reviewed annually or in the event of a substantial change to an environmental procedure, to ensure it reflects current working practice.

Site Induction materials will be submitted to the Abadi Gaia Adult Residential Village EMR for approval.

4.2.5.2 Onboarding Procedure

New Employee on Boarding Checklist Procedures are to address the environmental element of this OEMP and includes orientation to:

- Requirements of the OEMP and project environmental obligations.
- Environmental management and compliance.
- Overview of the OEMP
- Incident management.
- Management objectives of the environmental reserves
- Environmental elements of work risk assessments
- Role and responsibilities.

4.2.5.3 Induction Records

Records will be maintained of all inductions conducted, including:

- Names and signatures of personnel attending.
- Date of attendance.
- Name of trainer/facilitator.

Induction records will be generated, controlled and by the Manager.

4.2.5.4 Environmental Management Plan Induction

Where personnel have a specific role in developing or implementing the OEMP, the general manager will induct personnel into the relevant requirements of this OEMP. These personnel will not commence work on activities that could have an impact on the environment until this has been completed.

4.2.5.5 Competency

The key aspects addressed are competency of:

- Employees
- Sub staff and residents and consultants.

Employees

The site manager will ensure that all personnel are suitably qualified or experienced to undertake their work in an environmentally responsible manner.

Sub staff and residents and Consultants

The competency of sub staff and residents and consultants to perform their environmental responsibilities will be specified and assessed as part of the procurement and pre selection process.

Following appointment, where a subcontractor or consultant proves not competent to perform their environmental responsibilities, Abadi Gaia Adult Residential Village is responsible for taking remedial action which includes:

- Communication and an agreed action plan with the subcontractor or consultant.
- Training by Abadi Gaia Adult Residential Village of the relevant personnel.
- Additional support to the subcontractor or consultant.

- Taking remedies under the contract.

4.2.5.6 Environmental Management Training

Environmental Management Training shall be provided to all personnel upon commencement and refreshed at three-yearly intervals thereafter.

The Operations Manager or delegate is responsible for conducting Environmental Management Training.

The purpose of Environmental Management Training is to communicate relevant Project environmental requirements so that all personnel are aware of and understand the rules they are required to conform with and the impacts they are to avoid.

The topics addressed in the Environmental Management Training shall include:

- Duties under environmental legislation and contractual requirements
- Specific environmental objectives and mitigation measures established in this OEMP.
- Responsibilities under this OEMP in relation to implementing mitigation measures, monitoring, reporting and implementing corrective actions.
- Definition, management and responsibilities in the event of an environmental incident.

The consequences of not implementing mitigation measures or departure from specified operating conditions.

- Internal and external communication processes and protocols.
- Community awareness and sensitivities, and cultural perspectives and expectations.

At completion of the training, participants shall complete a competency assessment the Manager (or delegate) is responsible for assessing results of training. Records of these assessments will be retained and made available on request.

4.3 Site Management

ABADI GAIA ADULT RESIDENTIAL VILLAGE will operate the facility; however, the appointed Manager will be responsible for site management during the daily tasks and operational activities.

4.3.1 Records Management

A copy of the OEMP shall be kept in the office at all times.

Any record or document required as an outcome of this OEMP or requested by a regulatory authority must be kept at the project office for a period of 5 years, and be available to an authorised person upon request.

Records must be kept of the key environmental performance indicators, monitoring results, corrective actions, environmental incidents and complaints, reports to management, and any records required by law such as regulated waste tracking.

4.3.2 Training Requirements

It will be the managers responsibility to ensure all Employees and sub-staff and residents are formally inducted into the OEMP. An employee and sub-contractor training register will be maintained Inductions will cover the following:

- Spill kit use and response;
- Equipment and maintenance;
- Location of Conservation and buffer areas;
- Waste management and chemical storage requirements,
- The OEMP requirements; and
- The general duty of environmental care.

4.3.3 Complaints

A complaint register will be maintained.

The site manager will maintain and update a complaints log. The following details must be recorded for all complaints received:

- Time, date, name and contact details of the complainant.
- Reasons for complaint.
- Any investigations undertaken.
- Conclusions formed.
- Any actions taken.

The complaints log must be provided to the administering authority on request.

4.3.4 Incident Management

What is an Incident?

An incident is any non-compliance with this OEMP. This may include but is not limited to:

- Complaints regarding the facility.
- Spilling of products outside the site confines.
- Dusty, odorous or noisy conditions.
- Unauthorized waste disposal.
- Unauthorized works outside of development footprint

4.3.5 Incident Investigation

All incidents shall be investigated by the Manager to determine:

- Nature, type, location and extent of the incident and the affected area.
- Actual and/or potential environmental impacts of the incident (see below).

Suspected cause of the incident

- Measures required to mitigate any further environmental harm.
- Remedial measures required to correct any environmental harm.
- Measures to be implemented to prevent a recurrence of the incident.

The requirements for the environmental assessment of impacts of an incident shall be determined by a suitably qualified Environmental Consultant. The assessment may include environmental monitoring of contaminant releases in relation to land, water, noise, air, flora & fauna and light (in addition to routine monitoring requirements). Based on the nature and type of the incident, the Environmental Consultant shall determine:

- Sampling and analytical requirements.
- Applicable guidelines or levels to apply to data for assessing compliance and level of impact.

Any monitoring shall be undertaken by a competent person and all monitoring equipment shall be appropriately maintained, calibrated and operated. Monitoring will be designed in consultation with regulatory authorities.

4.3.6 Incident Reporting

All personnel are responsible for reporting all incidents to the Manager. The supervisor will be responsible for reporting environmental incidents to the proponent and appropriate agencies. All incidents are to be recorded on the Incident Report Form. All persons attending the site are required to sign in at security and provided with the contact details for emergencies.

The supervisor shall telephone the relevant state pollution hotline as soon as practical after becoming aware of any release of contaminants not in accordance with the Permits. Following this, a written notice detailing the following information must be provided to administering authority within 14 days of the initial notification:

- The name of the operator, including their approval / registration number;
- The name and telephone number of a designated contact person;
- Quantity and substance released;
- Vehicle and registration details;
- Person/s involved (driver and any others);
- The location and time of the release;
- The suspected cause of the release;
- A description of the effects of the release;
- The results of any sampling performed in relation to the release;
- Actions taken to mitigate any environmental harm caused by the release; and
- Proposed actions to prevent a recurrence of the release.

Below incident emergency contact details outlines the necessary contact details of the relevant person/agency in the event of an incident or emergency. This will be updated on receipt of approval conditions i.e., council contact.

Incident/Emergency Contact Details

Incident/Emergency/Spills coordinator to be appointed by Manager.

Relevant third-party contacts are:

*Incident/Spills to the Department of Environment- Pollution Hotline –**1300 130 372** Outside of business hours the hotline is operated by non-DoE staff. You will most likely be asked if it is an ‘emergency incident’. This should be taken as does the incident pose a significant environmental issue – if you answer yes, the call will be forwarded to a DoE incident response person for further clarification and consideration of the onsite response required. Please answer yes if you are unsure so that you can discuss the incident with the incident response officer.*

- *Fire or Other Emergency QLD Fire and Rescue - 000 (112 from a mobile) -*
- *QLD Ambulance - 000 (112 from a mobile) -*
- *QLD Police - 000 (112 from a mobile)*
- *The Camira fire station is located 3 minutes from site and is manned 24 hours a day seven [7] days per week after dialing 000 then call them direct on **07 3437 8459**.*

4.3.7 Emergency Response

This section provides an overview of response requirements for emergencies that could potentially occur at the site. *The above section* outlines the necessary contact details of the relevant person/agency in the event of an incident or emergency.

4.3.8 Spill Response

If a spill threatens the safety or health of people, creates a fire hazard or has the potential to cause or causes serious environmental harm then the site emergency procedure shall be followed.

4.3.9 Chemical Spills

Where a chemical spill occurs, consult the Material Safety Data Sheet (MSDS) for spill procedures. If the MSDS indicates a requirement for containment and clean up, then the following steps should also be

considered:

1. Stop the source and spread of the spill if safe to do so:

- Check for danger.
- Prevent the spill from getting larger (turn off valves, block damaged tanks or pipes).
- Use any suitable material or equipment to confine the spill by “damming it off” (e.g., use available spill response equipment such as booms or absorbent or if unavailable then use soil or other suitable material).

2. Clean up the spill

- Once the spill has been contained, retrieve as much of the spilled liquid as possible and place in an appropriate container (e.g., 20 L drum or 1000 L pod) for disposal.
- Absorb remaining spill with absorbent material and place used absorbent in the appropriate waste bin.
- Where applicable, replenish equipment used from Spill Response Kit.

3. Report the spill

- Investigate and report all spills in accordance with Incident Reporting and Analysis (*Section 4.6*).

4.3.10 Spill Kits

Spill kits and/or spill clean-up equipment will be available at the site office.

Location	Responsible Person
Mobile Spill Response Kits to be carried on all service vehicles or any vehicle that carries more than 50 liters of substances	Individual drivers
In workshop	Manager

Location Responsible Person

Mobile Spill Response Kits to be carried on all service vehicles or any vehicle that carries more than 50 liters of Substances Individual drivers.

In workshop Manager Spill kits and/or spill cleanup equipment should be available on site for use in the event of a spill. Equipment contained in spill response kits shall be replenished upon use, equal to the specified list contained within the kit. The Manager will ensure that Spill Response Kits are inspected regularly and missing items replenished when necessary.

4.4 Community Management

4.4.1 Scope

The Community Management Program is applicable to all staff, staff and residents and visitors to the Site.

4.4.2 Objectives

To ensure site works are conducted responsibly as member of the greater Ipswich Community;

- To minimise disturbance to neighbors and the community through day-to-day operations, services and social activities run at and from the site; maintain the aesthetic values of the area and minimise the effects on neighboring properties.
- To encourage staff to engage with the local community through education and learning activities such as the initial sales Open Day.

4.4.3 Community Management Issues

4.4.3.1 Noise

The site is required to comply with all relevant noise legislation, namely the requirements under the Environmental Protection Act (1994).

Not excluding any regulatory requirements no noise generated at the site shall impact on its neighbours after 10.00pm and before 6.00am.

Police will respond to all noise complaints.

4.4.3.2 Lighting

To minimise the impact of spill lighting (light shining from the mine into neighbouring properties), all activities are to stop and lights out (excepting security lighting) by 12.00pm, except when licensed otherwise.

4.4.3.3 Aesthetics

The site is to be kept clean and tidy at all times. All equipment shall be stored in appropriate areas. No equipment is to be left on or near the fence lines or against the buildings (unless otherwise directed).

4.4.3.4 Major Projects

From time to time the development works will undertake major projects which have the potential to impact on local residents i.e., road upgrades. To ensure that community concerns are addressed the site will use either, and or email, signage or letterbox drop communication prior to project implementation.

The community are then able to raise concerns about the project which can then be addressed by Manager or referred to the appropriate Abadi Gaia Adult Residential Village staff.

4.4.3.5 Feedback on Community Issues

Community representatives are able to contact the site to register a complaint. The complaints are followed up by the Manager and referred to the appropriate Abadi Gaia Adult Residential Village staff where applicable.

4.4.3.6 Responsibilities

Responsibilities for management of community issues lie with everyone at site. Community Management responsibilities outlines these specific responsibilities.

Table 2 Community Management responsibilities

Table 2. Community Management Responsibilities Responsible Person	Duties
All staff and staff and residents	Ensure awareness and understanding of the community issues associated with their activities. To act responsibly and adhere to the procedures outlined in this procedure.
Manager	Ensure facilities and materials are available to limit the impact on the community and to allow compliance with this procedure.

	Identification and review of new and existing community issues and updating the program on an annual basis.
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4.5 Fire Management

4.5.1 Potential Fire Sources

Fire scenarios on the site are likely to arise from:

- Combustion [cigarette disposal, mulch stockpiles etc.].
- Bushfire.
- Refueling incidents.
- Arson

4.5.2 Fire Risk Minimisation

To minimise these risks the following measure are to be adopted for the site:

- Maintaining clear access for the fire extinguishers and hydrants at all times.
- Use of fire suppression systems on all equipment.
- Designated smoking area
- Maintain small mulch piles
- Prohibit fires on the subject site, unless instructed by fire consultant.
- Keep work site clean of debris and flammable items,
- Ensure all people on site have been signed in and undergone induction.

4.5.3 Fire Response

In the event of a small fire at the site, a portable fire extinguisher shall be used to attempt to extinguish the fire. Small fire extinguishers should be carried on all equipment at all times. If the initial response to a fire is unsuccessful or if there are any doubts as to the capability of the onsite firefighting resources, the Queensland Fire and Rescue Service shall be contacted immediately.

The Camira fire station is located 3 minutes from site and is manned 24 hours a day seven [7] days per week after dialing 000 then call them direct on **07 3437 8459**.

4.5.4 Pre-operational Threatened Species Surveys

Prior to the commencement of any staged works, pre-operational surveys will be undertaken for listed threatened species, including:

- A specialist flora and fauna management consultant attend the site to conduct survey prior to commencing clearing works,
- Spotter catcher used during all clearing works.
- Listed migratory species as identified by the Protected Matters database of Matters of National Environmental Significance.
- If during the pre-operational survey threatened or listed migratory species are identified pursuant to the EPBC Act, the proponent is committed to developing measures that avoid and/or mitigate impacts on any habitat and populations.
- Pre-operational surveys will be undertaken at least two weeks prior to the commencement of clearing works.

5.0 Environmental Values, Potential Impacts and Controls

An overview of the environmental values within and adjacent to the site is included in *Table 6*. An assessment of the potential impacts to these values is provided as well as a broad description of environmental controls in place to minimise the risk of environmental harm. Detailed management measures are provided in *Section 6.0*.

5.1 Risk Assessment

A qualitative risk assessment methodology in accordance with *Environmental Management Plan Guidelines, Commonwealth of Australia 2014* was applied to the environmental risks associated with the proposed operational works.

Each environmental risk identified has been provided a rating in terms of likelihood and consequence using the criteria in *Table 3* and *Table 4*. These ratings are then combined using *Table 5* to generate a risk rating of low, medium, high or severe.

Table 3 Qualitative Measures of Likelihood

Qualitative measure of likelihood (How likely is it that this event/issue will occur after control strategies have been put in place)	
Highly likely	Is expected to occur in most circumstances.
Likely	Will probably occur during the life of the project.
Possible	Might occur during the life of the project.
Unlikely	Could occur but considered unlikely or doubtful.
Rare	May occur in exceptional circumstances.

Table 4 Qualitative Measure of Consequence

Qualitative measure of consequences (What will be the consequence/result if this issue does occur rating)	
Minor	Minor incident of environment damage that can be reversed.
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts.
High	Substantial instances of environmental damage that could be reversed with intensive efforts.
Major	Major loss of environmental amenity and real danger of continuing.
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage.

Table 5 Risk Rating

	Consequence				
	Minor	Moderate	High	Major	Critical
Highly Likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

Table 6 Environmental Values, Potential Impacts and Controls

Value	Description	Potential Impacts	Risk Rating			Primary Control Measures
			Likelihood	Consequence	Risk	
Water	<ul style="list-style-type: none"> A number of freshwater drainage reserves transect the proposed development area. The site is located upstream of the Church Street Road reserve. 	<ul style="list-style-type: none"> Potential for fuel and oil spills. Potential for rubbish / waste from operational site to contaminate the downstream receiving environment. Impact on water quality through erosion and sedimentation (turbidity, contamination) and stormwater runoff. 	Possible	Minor	Low	<ul style="list-style-type: none"> Hazardous materials including hydrocarbons will be secured in manner so as to prevent spills. Wherever possible, tanks should be bunded or, self- bunded to prevent spills. When refueling from pods, ensure the hose nozzle is in the tank before starting the dispenser. Always operate the fuel dispenser by hand only – do not lock or jam the dispenser in the open position. Spill kits shall be provided and all operators trained in their use. Visual monitoring will be undertaken during the works to detect any fuel or chemical spills. If any spills / turbidity plumes are observed as a consequence of the works, works will be stopped immediately until work methods have been reviewed.
			Possible	Minor	Low	
			Possible	Moderate	Medium	<ul style="list-style-type: none"> The site will be maintained free of rubbish and monitored daily to ensure compliance.

						<ul style="list-style-type: none"> ▪ Prior to operational commencing, an Erosion and Sediment Control Plan (ESCP) to manage the site during the Operational and Maintenance Periods will be prepared. The ESCP will generally be in accordance with the requirements of the current State Planning Policy 2017 (DILGP, 2017) "Sediment Management Guidelines" which provides new stormwater management design objective for sediment control on operational sites.
						<ul style="list-style-type: none"> ▪ Erosion and sediment control methods will be implemented to prevent adverse impacts to the receiving environment.
						<ul style="list-style-type: none"> ▪ Stormwater management measures will be implemented to prevent adverse water quality impacts through stormwater runoff.
						<ul style="list-style-type: none"> ▪ No untreated operational waste water is released within 100 metres of a riparian buffer zone, groundwater buffer zone, or nest buffer zones. ▪ The plan(s) and program must be prepared by a Certified Professional in Erosion and Sediment Control (CPESC) or Registered Professional Engineer Qld (RPEQ) with suitable qualifications and experience in erosion and sediment control <u>and</u> must be certified by a CPESC. ▪ Documentary evidence demonstrating appropriate qualifications in erosion and

						<p>sediment control must be provided to the Council upon request.</p> <ul style="list-style-type: none"> At least 10 days prior to either the pre-start meeting or commencement of site works, submit copies of all required documentation, including design certificates to Council's Compliance and Regulatory Services.
Landform	<ul style="list-style-type: none"> The Project in most areas is to be constructed on moderate gradients. The site contains a thin organic layer and shallow soils overlying weak to moderate sandstone 	<ul style="list-style-type: none"> Potential for erosion and sedimentation to impact the receiving environment. Potential for land contamination through fuel / chemical spills 	<p>Possible</p> <p>Possible</p>	<p>Moderate</p> <p>Moderate</p>	<p>Moderate</p> <p>Moderate</p>	<ul style="list-style-type: none"> Prior to operations commencing, an Erosion and Sediment Control Plan (ESCP) to manage the site during the Operational and Maintenance Periods will be prepared. Erosion and sediment control methods will be implemented to prevent adverse impacts to the receiving environment. Vehicles will be serviced off site where practical. Spill kits shall be provided in designated site vehicles and all operators trained in their use. Visual monitoring will be undertaken during the works to detect any fuel or chemical spills. If any spills / turbidity plumes are observed as a consequence of the works, works will be stopped until work methods have been reviewed.

Flora	<ul style="list-style-type: none"> ▪ The dominant regional ecosystems (RE) within the development area consist of the following least concern RE: 12.9 -10.2 Corymbia citriodora and Eucalyptus crebra woodland ▪ No threatened plant species in accordance with EPBC Act or <i>Nature Conservation Act</i> 1992 have been identified on site. ▪ The proposed development site is moderately to heavily infested with a number of weed species, namely guinea grass ▪ Large areas of remnant 	<ul style="list-style-type: none"> ▪ Unauthorized clearing of remnant vegetation. ▪ Loss of significant habitat for fauna species (e.g., hollow-bearing trees). ▪ Weed dispersal and introduction throughout the Project area which will reduce the integrity of native flora. ▪ Unauthorized disturbance of native vegetation within the Drainage reserve 	Unlikely	Moderate	Low	<ul style="list-style-type: none"> ▪ All vegetation is to be retained outside the proposed clearing footprint including drainage reserves and 'Conservation Area(s). Site is to be clearly marked using temporary fencing (e.g., star picket fencing or orange barrier mesh) around the tree protection zone (TPZ) prior to vegetation clear commencing, and declared as a 'no go zone'. Where fencing cannot be erected around the TPZ, other protection measures are to be implemented, i.e., trunk, branch and ground protection. Fencing must be provided in accordance with AS 4970-2009 – Protection of Trees on Development Sites (AS 4970-2009). ▪ All trees identified as "to be retained" on the project drawing shall be protected from damage and clearly marked with an easily visible non-injurious and removable means of identification. ▪ Vegetation clearance to be limited to areas designated for vegetation removal. ▪ Minimise vegetation and soil disturbance to reduce rate of weed invasion. ▪ During vegetation clearing and weed removal, weed species are to be stockpiled separately and disposed of at an appropriate waste disposal facility. ▪ Prior to entering the site, all vehicles and equipment involved in clearing and
			Unlikely	Moderate	Low	
			Possible	Moderate	Medium	
			Unlikely	Moderate	Low	

	vegetation will be retained associated within the development,					<p>weed removal works should be cleaned down (using shovels/brushes) to remove soil and plant material to prevent spreading of soil borne disease and weeds seeds or plant material.</p> <ul style="list-style-type: none"> ▪ Ensure that all access tracks are constructed clear of drainage reserves except for designated and approved crossings. ▪ Rehabilitation and landscape works are to focus on providing browser and shelter trees for koalas (<i>E. tereticornis</i> species), glossy black cockatoo's (<i>Allocaeusuarina littoralis</i> species) and Grey headed flying fox (<i>Syzygium</i> species)
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Value	Description	Potential Impacts	Risk Rating			Primary Control Measures
Fauna	<ul style="list-style-type: none"> Potential occurrence of local native and threatened fauna species within the Project site. 	<ul style="list-style-type: none"> Loss of habitat for threatened fauna, such as nesting and roosting trees, rock piles. Injure native fauna as a result of operational works. 	Unlikely	Moderate	Low	<ul style="list-style-type: none"> All vegetation to be retained outside the proposed clearing footprint including Corridors and Conservation Area(s). Any work site is to be clearly marked using temporary fencing (e.g., star picket fencing or orange barrier mesh) around the tree protection zone (TPZ) prior to vegetation clearing commencing, and declared as a 'no go zone'. Where fencing cannot be erected around the TPZ, other protection measures are to be implemented, i.e., trunk, branch and ground protection. Fencing must be provided in accordance with AS 4970-2009 – Protection of Trees on Development Sites (AS 4970-2009). Minimise infrastructure corridors in any part of the 'Core Conservation Areas'. Significant habitat trees will be avoided and maintained <i>in situ</i> wherever possible. Undertake pre-operational surveys for listed threatened species or listed migratory species two weeks prior to the commencement of operational of each precinct. In the days prior to potential habitat trees being removed, these trees should be subjected to a series of bangs, knocks and other loud noises to encourage any wildlife to seek shelter elsewhere. If any animals are identified in trees to be
			Unlikely	Moderate	Low	

						<p>removed during clearing operations, work shall cease on that tree and it is not to be damaged or interfered with until the animal has been allowed to move on freely of its own accord.</p> <ul style="list-style-type: none"> ▪ Should the clearing of significant habitat trees be required, a licensed and qualified spotter-catcher should be present to handle, treat and/or relocate wildlife. ▪ Where significant habitat trees are identified (e.g., hollow-bearing trees with native fauna occupants), operational works will be scheduled wherever possible to avoid the breeding season of the hollow-roosting species. ▪ Any wildlife found injured and sick as a result of the Project should be taken immediately to a wildlife veterinarian or qualified wildlife carer for treatment / rehabilitation. ▪ Ensure that all inducted staff are aware of the location of the 'Conservation Area(s)' ▪ Any threatened species identified during the Project should be reported immediately to the relevant regulatory authorities.
Air and Lighting	<ul style="list-style-type: none"> ▪ 1 residential dwelling only is in close proximity, 	<ul style="list-style-type: none"> ▪ Light nuisance emitted during night time operations. 	Possible	Minor	Low	<p>Work involving the use of machinery of any description will only be carried out from 7.00am to 5.00pm, Monday to Saturdays, with no work to be carried out on Sundays or Public Holidays, unless otherwise approved by the Manager.</p>

Value	Description	Potential Impacts	Risk Rating			Primary Control Measures
		<ul style="list-style-type: none"> Potential air emissions include dust from operational and vehicle movements. 	Unlikely	Minor	Low	<p>There no truck / heavy machinery movement expected at night, unless notified. Therefore, it is not expected that lighting will be a nuisance to sensitive receptors as works will only be undertaken in the daylight hours from 7:00am to 5:00pm.</p> <ul style="list-style-type: none"> Maintain engines and replace faulty equipment. Limit revving of engines on mobile and stationary machines and shut down any equipment not in use. All complaints regarding dust and light should be recorded, investigated and appropriate measures implemented.
Noise	<ul style="list-style-type: none"> 1 residential dwelling is in ~>100 m proximity 	<ul style="list-style-type: none"> Increases in background noise levels from plant and equipment impacting nearby residents. 	Possible	Minor	Low	<ul style="list-style-type: none"> Work involving the use of machinery of any description will only be carried out from 7.00am to 5.00pm, Monday to Saturdays, with no work to be carried out on Sundays or Public Holidays, unless otherwise approved by the Manager. There no truck / heavy machinery movement is expected at night, unless notified. Maintain equipment regularly. Limit revving of engines on mobile and stationary machines and shut down any equipment not in use. Limit the use of horns or other audible signals on mobile equipment to the maximum practical extent. Promptly respond to complaints and modify practices.

Waste	<ul style="list-style-type: none"> ▪ 2 drainage reserves transect the proposed development site. ▪ The site is located upstream Church Street reserve 	<ul style="list-style-type: none"> ▪ Potential for rubbish from the site to enter and potentially impact the freshwater receiving environment. 	Possible	Minor	Low	<ul style="list-style-type: none"> ▪ The work site will be maintained free of rubbish and monitored daily to ensure compliance.
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6.0 ENVIRONMENTAL MANAGEMENT MEASURES

6.1 Air

Air		
Aim		
No environmental nuisance is caused by the release of noxious or offensive airborne odors or contaminants – such as smoke and fumes from faulty equipment and fugitive dust emissions from loading operations.		
Success Criteria		
No odor complaints received from nearby sensitive places or from statutory authorities.		
Management Actions	Responsibility	Frequency
Adhere to speed limits across the site.	All site personnel	At all times
Cover loads on trucks carrying material that would be easily dispersed by the act of normal driving, when in transit before leaving the stockpile loading area.	All site personnel	At all times
Visually monitor dust conditions at the site and implement appropriate mitigation procedures for the level of dust control required.	Manager	At all times
Vehicle movement will be restricted to defined areas.	Manager	At all times
All plant and equipment (e.g., haulage trucks, loading machinery) will be maintained and operated in accordance with Australian Design Rules and manufacture's specification.	Manager	At all times
Ensure machinery or plant is not left running idle when not in use.	All site personnel	At all times
Water down trafficable areas.	Manager	As required

Limit dust generating activities during windy or stormy conditions.	All site personnel	As required
Routine Monitoring		
Report any malfunctioning equipment to the Manager.	All site personnel	As required
Air		
Visually inspect site and operations for smoke, fumes and dust.	Manager	Daily
Monitoring in response to a complaint		
<p>When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaints of environmental nuisance caused by particulate matter.</p> <p>Monitoring must be carried out at a place(s) relevant to the potentially affected odor sensitive place and at upwind control sites and must include:</p> <ul style="list-style-type: none"> ▪ For complaint alleging dust nuisance, dust deposition monitoring shall be in accordance with AS3580.10.1 2003 or more recent editions. ▪ For a complaint alleging adverse health effects caused by dust, the PM10 concentration suspended in the atmosphere over a 24hr averaging time shall be monitoring in accordance with AS3580.9.6 2003 (or more recent editions). 		
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Repair, service or replace faulty plant and equipment. ▪ Implement dust mitigation measures (e.g., watering of roads). 		
Reporting		
Record observations and actions.	Manager	As required
Record and retain inspection notes and observations.	Manager	Weekly
Results from complaint monitoring shall be forwarded to the administering authority.	Manager	Within 14 days of the completion of monitoring.

6.2 Noise and Vibration

Noise and Vibration		
Aim		
No environmental nuisance is caused at a noise sensitive place by noise emissions from the site. No vibration activities within 30m of APA gas pipeline.		
Success Criteria		
Noise emissions do not exceed acoustic quality objectives stated in the <i>Environmental Protection (Noise) Policy 2008</i> .		
Management Actions	Responsibility	Frequency
Adhere to speed limits on across.	All site personnel	At all times
Adhere to approved hours.	Manager	At all times
No unnecessary use of horns or other audible signals on mobile plant or equipment.	All site personnel	At all times
No unnecessary revving or idling of engines on mobile and stationary machines and shut down any equipment not in use.	All site personnel	At all times
Keep equipment well maintained to limit noise emissions.	Manager	As per manufacturers specifications
Inform neighbours prior to creating excessive noise	Manager	As required
Routine Monitoring		
Inspect site in relation to noise controls and operations.	Manager	Daily
Monitor noise from plant and equipment	All site personnel	At all times
Monitoring in response to a complaint		

When requested by the administering authority noise monitoring must be undertaken to investigate any complaint of noise nuisance and must include:

- LA 10, adj, 10mins;
- LA 1, adj, 10mins;
- The level and frequency of occurrence of impulsive or tonal noises;
- Atmospheric condition including wind speed and direction;
- Effects due to extraneous factors such as traffic noise; and
- Location, date and time of recording.

The proponent is responsible for engaging a suitably qualified and experienced acoustic consultant to undertake the monitoring. The method of measurement and reporting of noise levels must comply with the latest edition of the DEHP Noise Measurement Manual. All monitoring equipment used must be calibrated and appropriately operated and maintained.

Noise and Vibration

Corrective Action

When criteria are not met, examples of corrective actions may include:

1. Review the use of any audible signals.
2. Investigate feasible additional noise attenuation devices for plant or equipment.

Reporting

Record observations, actions and notifications from staff in diary.	Manager	As required
Record inspection notes and observations.	Manager	Weekly
Results from complaint monitoring shall be forwarded to the administering authority.	Manager	Within 14 days of the completion of monitoring.

6.3 Stormwater Quality and Drainage Reserves

Stormwater Quality and Drainage Reserves		
Aim		
To minimise the risk of adverse impacts to surface water quality by implementing appropriate water pollution controls at the site.		
Success Criteria		
<p>No adverse impacts to existing surface water from site operations.</p> <p>No oil, fuel or chemical spills.</p> <p>Emergency spill response contacts displayed prominently.</p> <p>No activities block inter allotment urban drainage flows.</p> <p>Efficient and effective treatment of stormwater flows.</p> <p>No exposed ground works left unattended.</p> <p>Artificial wetlands/polishing ponds maintained as per engineers' specifications.</p> <p>Drainage reserve vegetation remains undisturbed save for weed removal and/or bushfire related works.</p>		
Management Actions	Responsibility	Frequency
All hazardous material, including hydrocarbons (fuels) will be securely stored in a designated storage area. All storage tanks to be secured and stored in such as manner to prevent spills. Wherever possible, tanks should be self- bunded or bunded with an impervious surface and a capacity to contain 110% of the largest stage tank capacity.	Manager	At all times
Prior to operational commencing, an Erosion and Sediment Control Plan (ESCP) to manage the site during the operations will be prepared. The ESCP will generally be in accordance with the requirements of the	Manager	Prior to commencement

current TCC AUSSPEC Development Specification – C211-S4 Control of Erosion and Sedimentation.		
Strict erosion and sediment control measures (e.g., silt traps) will be implemented to prevent adverse impacts to the water quality of the receiving environment.	Manager	As required
Strict stormwater quality measures will be implemented to prevent adverse impacts to the receiving environment resulting from stormwater runoff.	Manager	At all times
Topsoil stockpiles are to be protected from sediment runoff by a catch drain constructed along uphill sides and a suitable silt fence/sediment trap constructed on the downhill sides.	Manager	At all times
A spill kit will be available on site and all operators trained in their use.	Manager	At all times
Accidental leaks of oils etc. (e.g., burst hydraulic hoses) will be cleaned up immediately using an on-site spill kit to minimise water contamination.	All site personnel	As soon as practicable
All equipment is to be inspected at daily start up for fluid, oil or fuel leaks.	All site personnel	Daily
No untreated operational waste water is released within 100 metres of a drainage reserve zone, groundwater buffer zone, or nest buffer zones.	Manager	At all times
Ensure that all access tracks are constructed clear of drainage reserves except for approved crossings.	Manager	At all times

Drainage reserve areas are to be rehabilitated and vegetation maintained in a natural state in accordance with conditions of approval.		
Weed infestation; guinea grass and lantana, is of particular concern to the western drainage reserve arising from ongoing reinfestation from upslope properties, which do not implement a regular weed eradication program.		
Routine Monitoring		
Monitor receiving surface water – no sheen or slick on surface, no turbidity plume.	Manager	At all times
Monitor accumulation of sediment against silt traps, fences and other erosion control measures and evasive weed species.	Manager	Regular monitoring and as required
Undertake water sampling at bioretention outlets and confirm results comply with lowland freshwater WQO's defined by ICC Turbidity- <50 NTU SS - <6 mg/L Chl A- <5 ug/L TN - <500 ug/L TP - <50 ug/L DO - 85-110 ug/L pH - 6.5-8.0 Conductivity - <600 uS/L	Manager	3 monthly and or as per Development conditions of approval, results to be maintained and provide to ICC officers on request.
Corrective Action		

If success criteria are not met, examples of corrective actions may include:

- Ensure refueling and maintenance activities are undertaken in contained areas to minimise the risk of water contamination.
- Ensure erosion and sediment controls are appropriate and effective.
- Ensure stormwater management measures are adequate and effective.

Reporting

Record site observations, actions and notifications in diary.	Manager	Daily as required
Record inspection notes and observations.	Manager	Annual Audit
Record all water quality sampling results.	Manager	As required

6.4 Waste

Waste		
Aim		
<p>All solid and liquid wastes are sorted, handled and transferred in a proper and efficient manner to minimise the risk of release to the environment.</p> <p>Minimise consumption requirements and wherever possible buy environmentally sourced/preferred products.</p>		
Success Criteria		
No improper storage, transport or disposal of wastes.		
Management Actions	Responsibility	Frequency
Personnel will be inducted in the requirements for waste management at the commencement of operations.	Manager	Prior to undertaking any operational activities
Characterize all waste streams and develop measures to: <ul style="list-style-type: none"> Minimise site waste generation; Segregate waste groups; and Direct all recyclable/reusable wastes away from landfill wherever possible. 	Manager	As required
All regulated wastes are removed by a licensed waste management company. Examples of regulated wastes include tyres and waste oils.	Manager	As required
General wastes are disposed of in accordance with local council directions and regulations at their nominated facilities.	Manager	As required
General wastes shall be stored in covered bins.	All site personnel	As required
Good housekeeping should be practiced to ensure any loose waste materials are secured in appropriate collection containers.	All site personnel	At all times

Routine Monitoring		
Monitor waste storage, handling and disposal practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Retrain staff in correct waste management and disposal procedures; and ▪ Ensure appropriate storage and disposal facilities are available for regulated and general waste. 		
Reporting		
Waste		
If a regulated waste is removed from the site and disposed of in an unauthorized, improper or unlawful manner, this must be reported to the administering authority.	Manager	As soon as practicable
Retain records of regulated waste disposal.	Manager	At all times
Record site observations, actions and notifications in diary.	Manager	As required

6.5 Land

Land		
Aim		
To minimise the risk of land contamination through the appropriate storage of wastes and potential contaminants such as diesel and oil.		
Success Criteria		
No release of contaminants to land.		
Management Actions	Responsibility	Frequency
All maintenance activities for machinery are undertaken offsite.	Manager	At all times
Vehicle washdown shall only be undertaken outside of the riparian buffers and conservation areas in a nominated wash down area.	All site personnel	At all times
All equipment is to be inspected at daily start up for fluid, oil or fuel leaks.	All site personnel	At all times
Spill kits shall be provided and maintained.	Manager	At all times
Accidental leaks of oils etc. (e.g., burst hydraulic hoses) will be cleaned up immediately using an on-site spill kit to minimise water contamination.	All site personnel	As required
Concrete trucks shall be washed out in designated bunded areas.	Manager	At all times
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		
If success criteria are not met, examples of corrective actions may include:		
<ul style="list-style-type: none"> Remove any contaminants from outside the site limits. If erosion occurs, carry out maintenance and/or repair. Review maintenance activities undertaken on site and ensure that they are undertaken in approved areas only. 		
Reporting		
Record inspection notes and observations.	Manager	Weekly Audit

Record site observations, actions and notifications in diary.	Manager	As required
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6.6 Flora and Fauna

Flora and Fauna		
Aim		
Ensure local and regional biodiversity is not affected as a result of the Project and that legislative requirements are met.		
Success Criteria		
<p>Minimise negative impacts on biodiversity.</p> <p>No loss of threatened species or communities.</p> <p>No injury or death of native wildlife.</p> <p>All vegetated areas outside of clearing footprint are not disturbed.</p> <p>Asset Protection Zone “APZ” works conducted in accordance with approved plan and under the direction of fire and environmental consultants.</p> <p>Protect the integrity of native flora values by minimising weed dispersal throughout the Project area.</p> <p>Rehabilitation and landscape works are to focus on providing browser and shelter trees for koalas (<i>E. tereticornis</i> species), glossy black cockatoo’s (<i>Allocaeusuarina littoralis</i> species) and Grey headed flying fox (<i>Syzygium</i> species)</p>		
Management Actions	Responsibility	Frequency
Pre-operational survey for threatened species is undertaken at least two weeks prior to the commencement of the operation of a precinct.	Consultant	As required
<p>All vegetation is to be retained outside any proposed clearing footprint including conservation areas and drainage corridors. Site is to be clearly marked using temporary fencing (e.g., star picket fencing or orange barrier mesh) around the tree protection zone (TPZ) prior to vegetation clearing commencing, and declared as a ‘no go zone’.</p> <p>Where fencing cannot be erected around the TPZ, other protection measures are to be</p>	Manager	At all times

implemented, i.e., trunk, branch and ground protection. Fencing must be provided in accordance with AS 4970-2009 – Protection of Trees on Development Sites (AS 4970-2009).		
Ensure infrastructure corridors are not constructed in any part of the Core Conservation Area.	Manager	At all times
All trees identified as “to be retained” on the project drawing shall be protected from damage and clearly marked with an easily visible non-injurious and removable means of identification.	Manager	At all times
Vegetation clearance to be limited to areas designated for vegetation removal.	Manager	At all times
Sequential clearing is to be undertaken, with clearing works to be commenced from clear areas towards vegetated areas within or adjacent to the site to allow fauna to move off the site of their own accord.	Manager	During clearing
With the exception of hollow logs, any felled native trees are to be recycled (milled, chipped or mulched) and reused as mulch for landscape works and/or erosion weed control.	Manager	As required
Any felled non-native vegetation is to be disposed of at an appropriate waste disposal facility or mulched and reused provided that no seed-bearing material is present.	Manager	As required
Stockpiling of felled trees will occur only within the operational footprint (i.e., areas to be cleared). Stockpiling is not permitted within exclusion zones or adjacent vegetated areas.	Manager	As required

Consult with ecological specialists and wherever possible work around existing substantial trees and ecological communities to minimise disturbance.	Manager	As required
Where significant habitat trees are identified (e.g., hollow- bearing trees with native fauna occupants), works will be scheduled wherever possible to avoid the breeding season of the hollow-roosting species. A spotter- catcher should be present during clearing activities.	Manager	As required
Any threatened species identified during the Project should be reported immediately to the relevant regulatory authorities.	All site personnel	As required
Any wildlife found injured and sick as a result of the works should be taken immediately to a wildlife veterinarian or qualified wildlife carer for treatment / rehabilitation.	Manager	As required
Should the clearing of significant habitat trees be required, a licensed and qualified spotter- catcher should be present to handle, treat and/or relocate wildlife.	Manager	As required
In the days prior to potential habitat trees being removed, these trees should be subjected to a series of bangs, knocks and other loud noises to encourage any wildlife to seek shelter elsewhere.	Manager	As required
If any animals are identified in trees to be removed during clearing operations, work shall cease on that tree and it is not to be damaged or interfered with until the animal has been allowed to move on freely of its own accord.	Manager	As required

Minimise vegetation and soil disturbance to reduce rate of weed invasion.	Manager	As required
Minimise bare ground with mulch and revegetation to reduce or prevent rate of weed invasion.	Manager	As required
Stockpiles of native vegetation are to be inspected for weeds species and weeds removed prior to reuse on site/mulching.	Manager	As required
Prior to entering or leaving the site, all vehicles and equipment involved in clearing and weed removal works should be cleaned down to remove soil and plant material to prevent spreading of soil borne disease and weed seeds or plant material.	Manager	As required
If water is used to clean equipment and vehicles the wastewater is to be treated by physical or chemical means to ensure weeds and declared plants are not discharged from the site. These clean down areas are to be bunded.	Manager	As required
Floral species beneficial to bees to remain and or relocated.	Landscape manager	As required
Collect seeds for reuse in rehabilitation zones	Landscape manager	As required
All cleared trees to be mulched and reused on site, i.e., within garden beds, composting and vermiculture	Landscape manager	As required
Routine Monitoring		
Fencing is to be inspected regularly to ensure that it remains properly installed.	Manager	Regular monitoring and as required
Monitor vegetation clearing and ensure management strategies are adhered to.	Manager	Regular monitoring and as required

Invasion by any new weed species not previously recorded.	Manager	Regular monitoring and as required
Manager to monitor weed removal and ensure management strategies are adhered to.	Manager	Regular monitoring and as required
Corrective Action		
<p>If success criteria are not met, corrective actions may include:</p> <p>Reviewing the effectiveness of the OEMP and proposed mitigation measures for flora and fauna.</p> <p>Use non-conformance record and register to document incidents involving flora and fauna</p> <p>Weed control with herbicides as required.</p>		
Reporting		
Record site observations, actions and notifications in diary.	Manager	As required
Any incidents of non-compliance to be recorded in an environmental diary	Manager	As required

6.7 Koala

Koala		
Aim		
<p>To minimise the risk of stress, injury and disturbance to transient local koala population through maintaining appropriate vegetative corridors and minimising barriers to movement.</p> <p>Develop and encourage a resident koala population by way of planting and maintaining high value feeding species such as <i>E. tereticornis</i> wherever practical.</p> <p>Maintain monitoring programs and provide details to appropriate government and not for profit groups to advance data and research aims.</p> <p>Appropriately fence off high risk areas i.e., dog park, stormwater infrastructure and wetlands, pool area.</p> <p>Maintain low vehicle velocities on site.</p> <p>Adhere to recommendations and actions identified in the Koala Management Plan [refer Annexure 6].</p> <p>Rehabilitation and landscape works are to focus on providing browser and shelter trees for koalas (<i>E. tereticornis</i> species), glossy black cockatoo's (<i>Allocaeusuarina littoralis</i> species) and Grey headed flying fox (<i>Syzygium</i> species)</p>		
Success Criteria		
No injured or killed koalas		
Management Actions	Responsibility	Frequency
Install "beware koala crossing" signage on both Church Street and Bertha Street prior to commencing clearing works.	Manager	Prior to commencement of works
Use spotter catcher before commencing any clearing works	Manager	At all times

Check daily the site before commencing operations to confirm no Koalas residing within the activity area.	All site personnel	At all times
Do not attempt to feed Koalas	All site personnel	At all times
Prevent staff and residents from approaching Koalas	Manager	At all times
Mitigate access and activities in vegetation reserves.	All site personnel	As required
Do not attempt to block Koalas transitioning across site. Stop activities until koala has passed thru; if stationary call fauna catcher to relocate	Manager	At all times
Install and maintain koala appropriate fencing around stormwater treatment ponds. Ensure no over hanging branches on treatment ponds. Ensure all ponds and open water bodies have appropriate fencing and koala safe exit edges.	All site personal	At all times
Ensure all pools have koala safe fencing and easy exit pool edges	Manager	At all times
Maintain virtual fencing devices and program	Manager	At all times
Plant preferred koala browser species as priority whenever undertaking landscape or remedial works.	Manager	At all times
Remove weeds from corridors Note: Guinea grass is a notable barrier to the soft footed koala and is a common problem in drainage reserves	Manager	At all times
Maintain ground fuel loads in APZ zones as required. Note: bushfire is a serious threat to koalas and	Manager	Annual review required

wildlife		
Maintain koala sighting monitoring program for on site and adjacent property sightings. Resident education program to be undertaken on commencement of use and annually thereafter.	Manager	Annual review and as required
If injured koala sighted, record same and immediately contact Koala Foundation, local community koala care group and council.	Manager	As required
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Review activities undertaken on site and ensure that they are undertaken in approved areas only. ▪ Get Newground Environmental consultants review and amend koala management plan to correct defective actions 		
Reporting		
Record inspection notes and observations.	Manager	Weekly Audit
Record any and all site observations, actions and notifications in diary, and notify council of koala siting.	Manager	As required

6.8 Powerlink High Voltage Easement

Powerlink High Voltage easement		
Aim		
<p>To minimise the risk injury or damage thru poor site practices, by way of avoidance, signage and adherence to the Safety Management Study report recommendation's [pending].</p> <p>The Powerlink HV easement contains above ground HV power and an APA Pty Ltd subsurface 400 mm [700kpa] rupture proof pressurized natural gas mains. Whilst this pipeline is extremely robust unauthorized use of heavy machinery such as a large excavator bucket or ripper could cause leaks if direct contact is made.</p> <p>The development does not require any works be undertaken within the gas pipeline "setback standards" of 30m for heavy earthmoving or vibration equipment.</p>		
Success Criteria		
No contractor or employee enters the Powerlink power easement.		
Management Actions	Responsibility	Frequency
No operational works be undertaken within 20m of easement without prior discussions with APA gas or Energex. Contact "dial before you dig" for updated contact details.	Manager	At all times
No vibration works be undertaken within 30m of HV easement	Manager	At all times
Signage erected at 20 and 40 m marks adjacent to any proposed activities.	All site personnel	At all times
Any works proposed within easement i.e., Slabbing of gas pipeline, to be conducted under the supervision of APA,	Manager	At all times
Routine Monitoring		

Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Issue warning to contractor and/or remove if repeat offense ▪ Install improved signage ▪ Tap off boundary ▪ Review activities undertaken on site and ensure that they are undertaken in approved areas only. ▪ Amend Safety management study report. 		
Reporting		
Record inspection notes and observations.	Manager	Weekly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.9 Bushfire

Bushfire
<p>Aim</p> <p>To minimise the risk of injury or damage to life, fauna and vegetation by fire either thru poor site practices or external parties, by way of design, mitigation, signage and rapid response.</p> <p>The current proposed strategy achieves a BAL rating of less than 10.0 in all areas [based on Fire Danger Index [FDI] of 56 [QFES/ Australian Standards].</p> <p>Balance the needs of bushfire “clearing”, APZ [defensible spaces] and vegetation protection.</p> <p>Comply with SPP Natural Hazards, risk and resilience – Bushfire minimum >Bal 12.5 building rating, and further any walls or structures facing potential bushfire to be up graded to BAL 29 or better subject to council conditions.</p> <p>Manage Asset Protection Zones [APZ] throughout all of the development phases consisting of a >10m cleared zone with a further 25m -15m outer fuel reduced zone <8 tons/ha to achieve a combined 30-35 m fire buffer zone. This will require regular/ annual fire assessments and as directed clearing/ thinning works. Final clearance zones/ APZ will be determined by council. Refer development approval conditions.</p> <p>Management to adhere strictly to approved formal bushfire management plan.</p> <p>Rehabilitation and landscape works are to focus on providing browser and shelter trees for koalas (<i>E. tereticornis</i> species), glossy black cockatoo’s (<i>Allocausuarina littoralis</i> species) and Grey headed flying fox (<i>Syzygium</i> species)</p>
<p>Success Criteria</p> <p>No fires occur during operational phase by the General Manager and or its sub staff and residents.</p> <p>Any fire arising from offsite activities is rapidly identified, authorities notified and suppressed with minimization of adverse impacts; including but not limited too loss of life, property and or habitat.</p> <p>APZ areas fuel loads reduced to and maintained at <8 tons per hectare.</p>

Management Actions	Responsibility	Frequency
Comply with SPP Natural Hazards, risk and resilience – Bushfire minimum building Bal 12.5 rating.	Principle contractor/ proponent and design consultants	At all times
<p>Prepare and manage APZ to achieve” less than 8 tons/ha” fuel loads from the maximum remnant state of “20.8 tons/ha” in aggregate and fuel structure which is discontinuous [i.e., reduced ground fuel loads strategy].</p> <p>APZ final fuel loads to be determined by council as Part of development approval conditions. Refer DA conditions.</p> <p>This is expected to be achieved by way of removal of ground fuel loads, install and regularly maintained lawn turf with retained trees as clumps or islands.</p> <p>Retained trees are to prioritize habitat or koala browser species and designed to facilitate safe movement of koala’s i.e., “stepping stone link”.</p>	Principle contractor	At all times
Development layout provides access for fire fighters between assets and vegetation. This zone is to remain clear of obstacles.	Manager	At all times
Have fire consultant conduct APZ annual pre fire season fuel load assessment. Complete works as directed.	Manager	Annual

Development layout <ul style="list-style-type: none"> • Avoid creation of bottle necks • Provides two lane perimeter road with 20m clear width and 6m constructed width in high-risk areas with appropriate water hydrant access • In all other areas provides a fire trail with clearance zone of minimum 4 metre width. • Provide additional understory maintenance APZ zone of minimum 10m adjacent all clearance zones. • Maintain road capacity and trafficability • Signage to direct persons to exits • Prepare safe assembly zone • Contains trafficable vehicle routes to low hazard areas every 200m. • Emergency access granted in favor of QFES • Install irrigation system to ensure well-watered landscape [recycle harvested water] 	Manager, proponent and design consultants	At all times
Maintain main temporary site access and at least one alternate emergency fire trail.		At all times
No unauthorized exposed fires or flames	Manager	At all times
No smoking in the woodland areas, a designated smoking area is to be clearly identified and provided.	Manager	At all times
Signage erected at vegetation boundaries highlighting fire risks.	All site personnel	At all times

Firefighting equipment to be stored on site, hose fire reels at external ends of each building	Manager	At all times
No large stockpiles of mulch	Manager	At all times
Any landscape planting works must maintain the APZ and tree species: <ul style="list-style-type: none"> • free of ground fuel, • be noncombustible, • low volatile oil content, • large fleshy leaves, • have no shedding bark. • a min 2m ground clearance • high leaf moisture • be fire retardant • have appropriate separation distance so branches do not over hang roofs and gutters [when mature]. • Planted to avoid either vertical or horizontal connectedness of plants. • Target species with known low contribution rates to ground fuel levels 	Manager	At all times
Bins provided for flammable waste	Manager	At all times
Temporary buildings are not to be located in bushfire zone and at least 5 metres from any tree.		
Buildings must have: <ul style="list-style-type: none"> • continuous roof line • low pitch roof [12-21 degrees] • slab on ground and are constructed to mitigate fire [min BAL12.5] 		
Routine Monitoring		

Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Issue warning to contractor and/or remove if repeat offense ▪ Install improved signage ▪ Tap off boundary ▪ Review activities undertaken on site and ensure that they are undertaken in approved areas only. ▪ Discuss with QFES improved site-based management procedures. 		
Reporting		
Record inspection notes and observations.	Manager	Weekly Audit
Record site observations, actions and notifications in diary.	Manager	As required
Initial and annual fire assessment to be submitted to council	Manager/proponent	Initial and annual reporting

6.10 Rehabilitation and Landscape works

Rehabilitation works
Aim
<p>To minimise the risk of erosion, dust, weeds and restore habitat vegetation; by way of rehabilitating disturbed areas as soon as practically possible.</p> <p>Integrate landscape philosophy with rehabilitation outcomes to facilitate a seamless merger, noting facilitating koala preferred species is a priority.</p> <p>Identify the three key rehabilitation strategies addressing remnant vegetation communities [natural setting], remnant rehabilitation communities [APZ] and landscape & street scape. Rehabilitation in batter slopes and remnant communities is to achieve a minimum 250 trees per hectare planting rate.</p> <p>Develop site specific rehabilitation/landscape plans and seek regulatory approval generally in accordance with the concept rehabilitation plan contained in Annexure 6. Rehabilitation plans need to address 1. Stabilization to mitigate erosion, 2. Preparation addressing exclusion fencing, weed control, cultivation, soil moisture, topsoil, and mulch requirements, 3. Revegetation : natural nor active, 4. Maintenance, 5. Outcomes. Each will vary subject to the nature and location of works. Rehabilitation and landscape works are to focus on providing browser and shelter trees for koalas (<i>E. tereticornis</i> species), glossy black cockatoo's (<i>Allocaeusuarina littoralis</i> species) and Grey headed flying fox (<i>Syzygium</i> species)</p> <p>Rehabilitate with species found locally wherever practical in and around remnant areas with like same species, irrigate same until 25m canopy height reached or 65% mature height reached; this is expected to be within 5 years.</p> <p>Provide habitat nesting boxes and hollow logs in appropriate locations to encourage return of species. Refer rehabilitation plan for specific details.</p> <p>Rehabilitate and restore the environmental values of any cleared areas and ensure no land degradation occurs.</p> <p>Maintain records and present to DNRME staff on request.</p>
Success Criteria
<p>No rehabilitated zones be left exposed or unvegetated after civil works completed.</p> <p>Any areas disturbed but with delay to completion date be temporary grassed by hydro mulch or mulch, be free of weeds and has appropriate sediment</p>

fencing [stormwater mitigation measures]. Refer Best Practice Erosion and Sediment Control Document IECA,2008 or Qld Soil Conservation Guidelines.

Management Actions	Responsibility	Frequency
<p>Landscape and streetscape to utilise known koala trees and supported by non-flammable fire retardant ground dwelling species.</p> <ul style="list-style-type: none"> Rehabilitate road reserve links at a 1 per 30m with preferred koala primary browser species sourced and propagated from onsite species i.e., <i>E. tereticornis</i> found on site. Plant <i>E. tereticornis</i> each 30 m within internal development landscape footprint “stepping stone links” as part of landscape works. Use smaller koala friendly food trees such as <i>E. kabiana</i> & <i>E. exserta</i> [max height 5m] in and around infrastructure, fringe areas and between buildings where <i>E. tereticornis</i> is not appropriate. 	Manager	As required
<p>Rehabilitation and landscape works are to focus on providing browser and shelter trees too</p> <ul style="list-style-type: none"> glossy black cockatoo’s – protect natural <i>Allocasuarina littoralis</i> species within conservation zone Grey headed flying fox – plant <i>Syzygium</i> species along property 	Manager	As required.

boundary, development footprint and flood free access track in select areas acting as screens, edge effects and food source		
Batters and fringe revegetation works to achieve a minimum 250/ha tree density, contain preferred koala browser trees and supporting endemic species mix.	Manager	As required.
Encourage natural revegetation for rehabilitation works in remnant vegetation i.e., 4wd tracks, rubbish removal areas and large rehabilitation zone adjacent HV power easement.	Manager	At all times
<p>APZ zones have specific vegetation requirements for combined fuel levels [i.e., <8 tons/ha fuel loads, <10 kw/m²], tree over hang [non connecting canopies] and vertical separation.</p> <p>Management must adhere to bushfire management measures and approved drawings/species.</p> <p>APZ zone management will require a thinning of tree species and maintaining a low grass cover.</p>	Manager	At all times
<p>Drainage reserves are to be maintained as a grassed swale cover with retention of all non-juvenile trees [>150 mm dbh], grasses are to be maintained in accordance with APZ requirements [limited to APZ zones].</p> <p>Drainage reserves are to be maintained to</p>	Manager	At all times

mitigate erosion and sediment, maintain habitat values and convey stormwater flows. In a natural setting.		
Use specialist rehabilitation contractor, whenever practical	Manager	As required
Minimise clearing wherever possible.	Manager	At all times
Tape off remnant areas until rehabilitation works are established.	Manager	At all times
Complete rehabilitation works as soon as practical, do not leave exposed soil surfaces.	All site personnel	At all times
Firefighting equipment to be stored on site.	Manager	At all times
No large stockpiles of mulch which can become a fire hazard.	Manager	At all times
Areas are to be kept free from weeds	Manager	As required
Undertake initial APZ fire assessment report and annually thereafter prior to fire season.	Manager and proponent	Initial and annually
Separate bins provided for flammable waste	Manager	At all times
Reuse on site top soils mixed 50% with any potting mix imported to site, if required.	Landscape manager	As required
Develop compost and vermiculture program to maximize organic waste recycling. This is particularly useful for restaurant wastes, where separate organic waste bins are to be provided. Composting will require brown waste [carbon], green waste [nitrogen] and aeration process. Vermiculture program using a mix of Indian blues, red wiggles and tiger worms. Solid and liquid castings to be collected and substituted for fertilizer within development.	Landscape manager	Wherever possible
Routine Monitoring		

Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Issue warning to contractor and/or remove if repeat offense ▪ Review activities undertaken on site and ensure that they are undertaken in approved areas using approved methodologies only. ▪ Discuss with DES, DNRME and council environmental department for improved site-based management procedures. 		
Reporting		
Record inspection notes and observations.	Grounds Manager	Weekly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.11 Water use

Water use		
Aim		
<p>To minimise use of potable water within grounds, facilities and independent living units.</p> <p>Adopt a strategy of avoid, minimise, reuse and recycle potable water.</p>		
Success Criteria		
Achieve a <120L/person/day average		
Management Actions	Responsibility	Frequency
Undertake water audit every 12 months	Manager	As required
Install low flow water fittings including but not limited to:- <ul style="list-style-type: none"> - Flow controlled aerators to taps 	Manager	At all times

<ul style="list-style-type: none"> - WELS 3 star rated showerheads ~5l/min - Time flow taps to vanity units [mitigate toothbrushing waste water] 		
Divert stormwater flows into wetlands for harvesting and recycling as irrigation feed throughout landscape areas	Manager	At all times
Install water storage tanks under each multiuse building	Manager	As required
Install a roof water tank for each standalone dwelling	Manager	At all times
<p>Create raingardens and divert surfaces flows to same; including but not limited to fire break areas, street trees, water features and building garden beds.</p> <p>Use of rain gardens will:</p> <ul style="list-style-type: none"> - Improve health and well being - Reduce potable water demand - Improve amenity - Improve air quality - Reduce urban heat island effect - Enhance biodiversity - Mitigate flood and stormwater impacts - Mitigate sediment loads - Filter pollutants and improve water quality - Reduce bushfire risk 	Manager	At all times
Divert vehicle washdown water to landscape areas	All site personnel	At all times

Restaurants and commercial areas to have recyclable dishwashers	Manager	At all times
Install meters to monitor leaks and water usage	Manager	At all times
Seek to achieve a 5-star NABERS rating for commercial areas <0.4 kl/m2/yr	Manager and design team	As required
Undertake regular training and resident education on “true cost of water” and efficiency practices. Monitor individual use and award prizes for most improved residents.	Manager and proponent	Initial and annually
Install water minimization signage in strategic locations i.e., lift well and recreation zones, interpretive pathways.	Manager	At all times
Reuse greywater from bulk washing facilities into landscape	Operations manager	Aged care facilities
Install a drip irrigation system and timers. Matched to soil moisture measuring sensors.	Landscape manager	On commencement
Install water efficient appliances and equipment >3 star water efficiency rating i.e., front load washers [can save 70% over top loaders equating to 36,000L/annum per household]	Manager and residents	At all times
Provide free leaky tap/toilet repair service	Operations manager	At all times
Provide instantaneous gas hot water systems	Proponent	Specify
Evaporative air conditioning drains to be diverted to garden beds	Proponent	Specify
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		

If success criteria are not met, examples of corrective actions may include:

- Undertake water audit
- Issue cost penalty for excessive use as means to discourage excess water use
- Install improved equipment and fittings

Reporting

Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.12 HVAC- heating, ventilation, air conditioning

HVAC		
Aim		
<p>To minimise use of mechanical means to control air quality and temperature.</p> <p>Provide building materials fit for purpose given the wide range in winter/summer climate conditions for Ipswich.</p> <p>In general buildings need to retain heat in winter and allow for passive cooling winds in summer. Achieved by good natural air flow, clean not “recycled” air flow, cross ventilation, solar orientation [thermal equilibrium to pull clean air into spaces], vertical separation, vegetation screens and open plan living</p> <p>No dead-end sealed areas in walkways, achieved by way of suspended walkways and or core “floor to roof” void areas facilitating natural clean air flow.</p>		
Success Criteria		
No/minimal air conditioning require		
Management Actions	Responsibility	Frequency
Site buildings to maximize solar orientation	Manager	As required
Single load buildings to maximize cross flow ventilation	Manager	At all times
Double sided buildings are to have high air flow rate, be cross ventilated, contain central garden features and have closing passage ways for winter use	Manager	At all times
Building basements are to be part undercroft mitigating mechanical ventilation	Manager	As required

requirements		
Balconies are to be provided with shade and privacy structures	Manager	At all times
Glazing sections are to be thermal insulated and provide wide expansive views, allowing natural light to flow through ILU's.	Manager	At all times
Undertake regular training and resident education on "true cost of water" and efficiency practices. Monitor individual use and award prizes for most improved residents.	Manager and proponent	Initial and annually
Install energy minimization signage in strategic locations i.e., lift well and recreation zones, interpretive pathways.	Manager	At all times
Double glazed windows	Proponent	Specify
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake water audit ▪ Issue cost penalty for excessive use as means to discourage excess water use ▪ Install improved equipment 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.14 Visual Amenity

Visual amenity		
Aim		
Ensure the development retains a dominant rural setting and remains screened from public view.		
Ensure high standards of maintenance and visual amenity is maintained along Church Street		
Success Criteria		
Stage one and entrance area is maintained to ensure a “rustic” and low visual impact occurs, with no unsightly structures or moveable objects in sight lines.		
Stage two building rooflines remain hidden from public view and building facade remain >90% screened by perimeter and retained drainage reserve vegetation.		
Landscape buffers to Church Street are retained and maintained.		
Rehabilitation vegetation communities on both northern and southern boundaries are maintained to ensure visual buffers and ongoing unimpeded koala access and evasive pest species removed.		
Management Actions	Responsibility	Frequency
Retained vegetation communities at northern [~65m] and southern [~70m] ends of Church Street are maintained and present in a natural state and clear of evasive ground species i.e., guinea grass.	Manager	As required
Church Street landscape screen buffer ~140m to be maintained and provide koala access.		

<p>Drive way entrance landscape to provide dense canopy screen whilst providing vehicle sightlines at ground level.</p> <p>Secondary garden beds are to complement and provide further screening of buildings from any breaks in Church Street vegetation buffers.</p> <p>No removal of non-juvenile koala trees is to occur unless approved in writing from council.</p>		
<p>The main entrance remains clear of debris and rubbish. Understory is to remain clear improving vehicle site lines.</p> <p>Canopy cover is to be enhanced providing unimpeded vehicle access and form a vegetative screen to the development.</p>	Manager	At all times
<p>Retention of mature vegetation within key site lines has been built in to development design, these mature trees are not to be removed without council consent.</p> <p>These trees provide both valuable visual screening, habitat value and reduce heat island effect.</p>	Village management	At all times
<p>Stage one building basements are to be part undercroft/basement recessed into slope ensuring building height is comparative to or less than an equivalent 2 story pole home. This will minimise building mass and ensure</p>	Manager	As required

<p>buildings are not visible to casual pedestrians and traffic along Church Street.</p> <p>It will also mitigate mechanical ventilation requirements and building massing.</p> <p>Building rooflines are broken and contour to existing slope and maintained below retained vegetation tree line.</p> <p>Landscape and streetscape plantings are to adopt E. tereticornis et al, which with irrigation will exceed >25m within 5 years. Providing primary koala browser species and visual screening of buildings.</p>		
Balconies are to be provided with shade and privacy structures.	Manager	At all times
<p>Church Street retaining structures, fencing and vegetation is to be highly maintained, providing high quality aesthetic rustic environs.</p> <p>Koala access and fence structures must be maintained at all times.</p>	Landscape Manager	At all times
No rubbish is to be present along Church Street Road reserve.	All site personnel	At all times
Subject to council consent Church Street Road reserve grass is to be mowed minimum once per month.	Landscape Manager	At all times
Church street fencing is to remain koala friendly and provide safe causal surveillance of Church Street.	Manager	At all times

<p>Building materials are to be of an “earthy” colour selection, blending into the surrounds.</p> <p>Bright dramatic colours are not to be used in any facades facing Church Street.</p>	Manager and design team	As required
<p>The Church Street Road reserve contains dispersive soils and is subject to erosion from stormwater running down the road reserve from HV easement.</p> <p>Wherever practical stormwater is to be diverted away from Church Street Road reserve.</p> <p>On discovery of scour event within road reserve notify council. These scour events form significant barriers to koala movement and must be rectified at earliest opportunity.</p> <p>If opportunity exists development is to enter into agreement with council to maintain the eastern verge.</p>	Manager and proponent	Initial and annually
No hung laundry is to be visible along Church Street.	Manager	At all times
<p>Stage Two & Three has been located and designed to ensure no visual amenity issues arise and is >90% fully screened when viewed from Church Street.</p> <p>The landscape buffers are to be maintained to screen the buildings at ground level.</p>	Manager	on completion of stage one.

Retained vegetation in the drainage gully and north western corner must be maintained to achieve:		
<ul style="list-style-type: none"> • >90% building buffer • >95% roofline cover 		
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily and after severe storm event
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake audit of approval conditions. ▪ Change maintenance contractor ▪ Install improved maintenance regime ▪ Plant more trees ▪ Install streetside vegetated screen wall i.e. hanging garden 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.15 Traffic Management

Traffic management		
Aim		
<p>Maintain safe access to Church Street for residents, community, fauna and council contractors.</p> <p>Maintain low internal vehicle velocities <10 km/hr to ensure mitigating risk to fauna movements.</p> <p>Ensure vehicles stop at internal roundabout and watch for koala crossing.</p> <p>Install security gates on main entrance.</p> <p>Provide full council RCV waste service contractor access.</p> <p>Provide heavily ridged vehicle access on a loop main around stage 2 and 3.</p> <p>Provide full firefighting access to sealed roads and fire trails.</p>		
Success Criteria		
No accidents or fauna strikes.		
Management Actions	Responsibility	Frequency
Inspect road way and ensure no residences have parked inappropriately.	Manager	Daily
Maintain vegetation for site lines.	Manager & Landscape manager	At all times
Install signage at round about and along	Manager	At all times

roads.		
Maintain clear accessways to basements	Manager	As required
Ensure all bins remain in enclosures or pick up bays.	Manager	At all times
Maintain traffic calming devices.	Manager	At all times
Slow resident vehicles as needed	All site personnel	At all times
Monitor koala safety devices	Manager	At all times
Routine Monitoring		
Monitor vehicle velocities and signage.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake velocity checks ▪ Issue cost penalty for infringement notice ▪ Install improved traffic calming devices 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.16 Disability

Disability		
Aim		
Achieve world's best practice standards for visual, sensory and physical impaired residents concurrent with industry best practice.		
Success Criteria		
<p>Development maintains and provides both a direct and scenic disability compliant pathway between destinations.</p> <p>Pathways are to incorporate color, textures, hard and soft features, landscape, sounds and floral odors which provide evolving and distinctive characteristics; which thru design provide a multi dimensioned "unravelling" experience at each fractal of the journey.</p> <p>Fractals are to be found a minimum every 30 secs and incorporate a minimum of three alternatives to each characteristic.</p> <p>Buildings are design to Gold Standard.</p> <p>No complaints lots of complements.</p>		
Management Actions	Responsibility	Frequency
Pathways are to contour to and be sympathetic to slope	Manager	As required
Scenic pathways are to be intercepted with level change "linking elevator lobbies" providing all residents with a direct/short cut to facilities and easy up slope access.	Manager	At all times
These short cuts are to provide full weather		

protected access.		
Garden bed floristics are to match themes along each pathway and vary across site; to aided visually impaired residents.	Manager	At all times
Rest areas are to be provided on pathways.	Manager	As required
Any ramps must be at maximum 1:14 grades, with 1:20 preferred.	Manager	At all times
Pathways are to remain unimpeded	All site personnel	At all times
Buildings are to be designed to achieve highest best practice design standards i.e., “best practice design standards for senior community design” issued by Property Council of Australian and/or other appropriate regulatory advices.	Manager	At all times
Undertake regular resident satisfaction surveys	Manager and proponent	Initial and annually
Monitor web-portal feedback	Manager	At all times
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake survey ▪ Commission independent audit and certification ▪ Install improved equipment 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.17 Chemical use and storage

Chemical use and storage		
Aim		
Avoid, mitigate and reduce environmental impacts from chemical use, to the receiving environment.		
Success Criteria		
<p>No adverse discharges to receiving environment</p> <p>No adverse reactions to chemicals.</p> <p>No fires resulting from mixing of chemicals.</p> <p>No contamination of soil, air, water, waste water or solid wastes from site activities.</p>		
Management Actions	Responsibility	Frequency
Avoid use of toxic chemicals	All residents and staff	As required
Prescribe environmentally products wherever practical	All residents and staff	At all times
All chemicals stored in appropriate storage area and containers, with regulated access as required.	Manager	At all times
All hazardous chemicals contained by bunded area	Manager	As required
Restrict activities in storage areas	Manager	At all times
Sperate acids and bases	Manager	At all times

Educate residents on chemical use and storage	All site personnel	At all times
Prohibit chemicals entering sewer system and dispose of to appropriate council facility	Manager	At all times
Provide wash down bays for vehicles	Manager	At all times
	Manager and design team	As required
Undertake regular training and resident education on “true cost of pollution” and efficiency practices.	Manager and proponent	Initial and annually
Dispose of wastes in accordance with council standards	Manager	At all times
Routine Monitoring		
Monitor operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake chemical audit ▪ Undertake rectification works ▪ Install improved equipment 		
Reporting		
Record inspection notes and observations.	Operations Manager	Annual Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.18 Material Storage

Material storage		
Aim		
Avoid, mitigate and reduce environmental impacts from temporary storage of materials.		
Success Criteria		
<p>No adverse discharges to receiving environment</p> <p>No contamination of soil, air, water, waste water or solid wastes from site activities.</p>		
Management Actions	Responsibility	Frequency
Temporary stockpiles to be limited to the development footprint	All residents and staff	As required
Resident materials are to be maintained within own private property unless authorised by manager.	All residents and staff	At all times
Stockpiles are to be covered	Manager	At all times
All storage areas contained by bunded area or retained fencing as required.	Manager	As required
Restrict activities in storage areas	Manager	At all times
Limit exposed storage areas to temporary only.	Manager	At all times
Resident private in dwelling storage areas to exceed: 1 bed 6m3	Design personnel	At all times

2 bed 8m3 3 bed 10m3 No additional external storage areas allowed without manager approval and subject to Visual Amenity assessment criteria.		
Dispose of wastes in accordance with council standards	Manager	At all times
Routine Monitoring		
Monitor operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake audit ▪ Undertake rectification works 		
Reporting		
Record inspection notes and observations.	Operations Manager	Annual Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.19 Bees and pollinating species

Bees and pollinating species		
Aim		
<p>The world is facing major adverse impacts on pollinating species including but not limited too bees. Environmental issues relate to toxic sprays, radiation and reduction in suitable habitats.</p> <p>The development seeks to develop and maintain an active bee and pollinating species program to achieve:</p> <ol style="list-style-type: none"> 1. A source of natural honey for residents, and 2. Improve pollinator species richness and diversity, and 3. raise community awareness 		
Success Criteria		
Improved bee counts, noticeable improvement in floral activity and provision of honey.		
Management Actions	Responsibility	Frequency
Install several bee hives in key suitable locations, away from main activities. Achieving passive thermal regulation, access to food source and protection from vandalism and severe weather conditions.	Manager	As required
Construct and maintain a community flora and vegetable garden	Manager and residents	At all times
Rehabilitate with highly floral species,	Manager	At all times

ensuring flowering times provide a yearly source of food.		
Seek advices from professional bee keeper	Manager	As required
Regularly harvest honey	Landscape Manager	At all times
Install signage advising residents of activity and risk of bee sting; retain emergency EpiPen in close proximity.	Manager	At all times
Ensure floral species reflect feng shui principles	Landscape manager	At all times
Routine Monitoring		
Monitor operations and work practices.	Manager	Conduct annual bee audit by way of resident surveys. Track bee production volumes as collected.
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake audit ▪ Issue cost penalty for excessive use as means to discourage excess water use ▪ Install improved equipment 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.20 Construction standards & Sustainability compliance

Construction standards & Sustainability compliance
Aim
<p>To achieve a high standard of environmental design, materials use and efficient life cycle cost.</p> <p>Siting and design to achieve appropriate BAL bushfire ratings >12.5 kw/m2.</p> <p>Maintain independent third party certification i.e. Envirodevelopment Certification</p> <ul style="list-style-type: none">• Achieve a Gold Standard [Livable Housing Design Guidelines – Livable Housing Australia]
Success Criteria
<p>Buildings designed in accordance with Building Code of Australia, and further consider and adopt where appropriate best practice and achieve a > 6 leaf Envirodevelopment rating independently audited [initial/annually] and certified by the Urban Development Institute of Australia.</p> <p>With relevant and due regard for other industry standards and rating systems such as; but not limited to:</p> <ul style="list-style-type: none">• Greenstar• LEED• BASIX• CIRA best practice indicators• NABERS• Building Code of Australia• Long Term Care – Global Aging Network

- Livable Housing Design Guidelines – Livable Housing Australia
- Best Practice Principles for Seniors Community Design- Property Council of Australia
- Queensland Design Guidelines “Queensland Residential Aged Care Facilities” -Queensland RACF Design Guidelines
- AS 3959:2018 Construction of Buildings in Bushfire Prone Areas

Management Actions	Responsibility	Frequency
Undertake design audit by UDIA Queensland	Design team and proponent	Initial
Repairs to comply with design parameters	Manager	At all times
Projects will give preference to concrete, steel and asphalt from ISO 14001 EMS accredited suppliers	Proponent	Specify
Projects to provide a waste reduction plan demonstrating >90% of wastes recycled or reused. i.e. by way of specialized recycle bins.	Proponent	Specify
A management team will be developed to coordinate with infrastructure manager to ensure any required metering and monitoring is included in the project, during construction and operations.	Proponent	On commencement of construction works
Concrete- mix substrates will be 60% Portland cement when compared to standard practice	Proponent	Specify
Steel- will be high strength [500 mPa] and produced using energy reducing processes and/or EN15804 compliant	Proponent	Specify
Asphalt- to be warm mix and or v10% reclaimed asphalt pavement	Proponent	Specify
PVC -to be obtained from a ISO 14001 certified supplier and meet PVC best practice guidelines, or use an alternative material	Proponent	Specify

Concrete to >30% recycled aggregate wherever practical	Proponent	Specify
Aluminum windows to contain >20% recycled product [glass or alum]	Proponent	Specify
Plasterboard to contain >10% recycled gypsum or recycled paper	Proponent	Specify
Construct bus stop in front of development to reduce vehicle dependency.	Proponent	On commencement of use.
On site electric buggy to assist residents around community	Proponent	On commencement of use
Avoid and reduce use of toxic products: Paints, Carpets, cleaning products, fuel additives, herbicides, pesticides etc.	Manager	At all times
On approval develop responsible specific plans addressing: <ul style="list-style-type: none"> - Construction, Verification and hand over - Procurement procedures - Finishes - Structure - Clean air - Light quality - Exposure to toxins/emissions - Noise levels - Climate change resilience - Systems resilience - Water use - Connectivity - Social wellness - Amenity 	Manager and proponent	Specify

- Waterways protection		
<p>Design incorporates mix of high and low thermal mass products in conjunction with solar orientation, cross ventilation, insulation, window over hangs, double glazing and clean air flow to achieve NatHERS >7 star energy rating, target for certification to be 8-10.</p> <p>High density materials such as bricks, tiles and concrete have a high thermal mass as they can retain heat.</p> <p>Lightweight materials such as timber have a low thermal mass.</p> <p>Appropriate use of thermal mass can make a significant difference to the heating and cooling needs.</p>	Design team	Compliance certificate required at detailed design
Designers to use energy raters to help design thermal mass and window volume, wall ratings as well as insulation.	Design team	At detailed design
<p>Water heating and appliances, wherever possible to be</p> <ul style="list-style-type: none"> - Dishwashers <245 kwh/annum - Air conditioning with COP>3.20 and EER>3.00 - Washing machines <280 kwh/annum - Dyers <175 kwh/annum 	Proponent	Specify
Buildings to have ventilated living spaces, security screens on windows [two sides], meet BCA insulation standards and use drought seals.	Proponent	Specify

Whenever practical adopt sensors, timers and load monitoring devices	Proponent	Specify
95% of paint [~50g/l VOC], sealants [~420G/L], adhesives [~50G/L] and floor coverings [~,0.5mg/m ² /day] and or industry standard low emission/VOC	Proponent	Specify
Routine Monitoring		
Independent Audits	Urban Development Institute Australia	Initial and annual independent audit
Monitor operations and work practices.	Construction manager/general manager	At all times during construction
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake audit and implement corrective action 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.21 Energy management

Energy management		
Aim		
<p>To minimise energy consumption</p> <p>Provide efficient reticulation services.</p> <p>Provide ample natural lighting</p> <p>Install community solar panels to mitigate reticulated demand loads.</p> <p>Use natural gas wherever practical.</p> <p>LED lighting throughout ILU's and community spaces.</p> <p>It is the principle aim of the development to balance natural gas and solar supply to meet the development needs and result in a zero net reticulated electrical supply requirement.</p>		
Success Criteria		
<p>Low power usage fittings and equipment.</p> <p>Achieve > 6 star energy rating with as final detailed design target of >8-10.</p>		
Management Actions	Responsibility	Frequency
Site buildings to maximize solar orientation and ensure landscape does not overtly interfere.	Design team Landscape manager	Initial design As required
Single load buildings to maximize cross flow ventilation	Manager	At all times
Double sided buildings are to have high air	Manager	At all times

flow rate, be cross ventilated, contain central garden features and have closing passage ways for winter use.		
Building basements are to be part undercroft mitigating mechanical ventilation requirements	Manager	As required
Balconies are to be provided with shade and privacy structures	Manager	At all times
Glazing sections are to thermal insulated [double glazed] and provide wide expansive views, allowing natural light and air to flow through ILU's.	Manager	At all times
Buildings are stepped and recessed allowing natural light >4hrs per day in each room and natural cross ventilation.	Proponent	Design
All buildings are insulated mitigating energy requirements	Proponent	Specify
Install energy efficient globes, equipment, lighting and variable speed/multi staged pumps.	All site personnel	At all times
Use gas cooking and instant water heating in dwellings, restaurants and community facilities	Manager	At all times
Undertake regular training and resident education on "true cost of energy" and efficiency practices. Monitor individual use and award prizes for most improved residents.	Manager and proponent	Initial and annually
Install timed or sensor lights in community spaces	Manager	At all times
Install power saving signage in strategic locations i.e., lift well and recreation zones, interpretive pathways.	Manager	At all times

Install instant gas water heaters and dual use dishwashers to each ILU.	Proponent	Specify
Front facing washers in laundry to be specified [70% energy reduction]	Proponent	Specify
Install solar lights in community areas	Manager	Wherever practical
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake energy audit ▪ Issue cost penalty for excessive use as means to discourage excess energy use ▪ Install improved equipment 		
Reporting		
Record inspection notes and observations.	Manager	Annual Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.22 Resident health and well being

Resident health and well being
Aim
<p>The Abadi Gaia Adult Residential Village master plan is derived from extensive analysis and integration of the various environmental, physical, social and economic aspects affecting the subject site.</p> <p>This includes a sympathetic understanding of the specifics governing the physical environment and particularly the preservation of existing values and the harmonious integration of human activities encouraging connectivity and mitigating environmental impact.</p> <p>Socially the development relies on achieving outcomes that benefit all residents.</p> <p>The design responds to this by first respecting the privacy of the residences and the practical requirements for successful recreational activities, servicing not only the residents but also family and guests whilst maintaining architectural integrity in planning and design.</p> <p>The development will not only broaden the employment for locals through the opportunities created by construction and operations but will endeavour through the emergence of supportive professional medical services namely doctors, physiotherapists, dentists etc to cater also to the needs of the greater community.</p> <p>Focus on walkability, physical transport, wayfinding, improved public spaces and social interaction.</p> <p>DESIGN PHILOSOPHY</p> <p><i>Abadi: (meaning) not belonging to, or typical of; any particular time.....it is timeless.</i></p> <p><i>Gaia: (meaning) mother earth</i></p>

Abadi Gaia: timeless -mother earth

This was the underlying desire of the Developer and a keynote design principle. The aim was to create a development layered with intrinsic experiences that slowly unfold over time; a built form that with time aged with grace and in itself adopted the timeless principles of architecture; what is the art form called “simplicity”.

Designers have been mindful of the intrinsic and often neglected relationship between landscape, streetscape and the built environment and respective dynamic changes in both over time; an important consideration.

The Abadi Gaia Adult Residential Village provided the designers an excellent opportunity to develop in accordance with a masterplan community, to set new standards in aged residential care by way of integrating environment, social well-being, sense of community, healthy lifestyle and medical care.

The project is seeking to set an unparalleled benchmark for the retirement industry moving forward and deliver a pride in place project to the greater Ipswich community.

Success Criteria

Provide a wide range of activities and facilities engaging on both the passive and active interaction level, which adapt with the continually changing needs for a successful “age in place” community.

Provide a highly aesthetic low-cost maintenance facility which does not burden the resident with nonsensical operational fees.; whilst creating a wide range of experiences which develop over time, servicing the evolving needs and desires of residents.

Form external community ties which create a bond between residents and community.

Use density to mitigate operational costs and maintain high standards of service.

Develop in a logical sequence ensuring minimal disruption and providing at each phase adequate privacy and communal spaces for individual, paired or group activities.

In reviewing the development, the following intrinsic values were identified for inclusion and integration within the development proposal. They are including, but not limited to the following:

- Creation of special places and destinations where both the residents and public can come to enjoy, adding value through a sense of place and belonging.
- Product must be innovative and be seen to be leading the market in terms of its design philosophy, including excellence in architecture, site planning and social/environmental interaction.
- Provide a range of product choices.
- Adopt “Age in Place” and “Universal Design” philosophies
- The project will be seen to be an employment creator and provide a range of investment opportunities.
- Must be seen to be a creator of beautiful environments and provide interactive green spaces which respond to the resident in both an active and passive sense.
- The site must take advantage of the intrinsic environmental values and be seen to create an “inspirational address”.
- Must deliver environmentally sustainable design and best practices and be seen to proactively adopting said principles.
- From start to finish, must be seen to be delivering on promises. The project must retain the original philosophy, adaptable over time to incorporate changes in technology and shifts in the market.
- The design must engender a sense of belonging and pride of place.
- Master plan must have a good interactive road transport network with function and form to facilitate the site as a destination. It must provide good access to external commercial and community regional centres.
- Project must be seen to be a benchmark opportunity.
- Planning must clearly demonstrate significant social and community values.
- The design will show progression in development “adding value” via sense of place in each precinct. Each precinct serves to enhance and contribute to the outcomes of the development. Accordingly, development staging is important and must be given serious consideration. The upfront construction of community facilities is important in demonstrating bonnifides of the developer and consolidates the future outcomes of the project.
- Management team needs to be able to identify and nurture the development of the community as it grows and be able to satisfy the change in the onsite community needs. These demands will be affected by climate, environmental factors, social, economic and changing needs. The design must be adoptable to change over time to provide beneficial outcomes.
- The project will be designed for health and wellbeing and promote and facilitate improved lifestyle.

Management Actions	Responsibility	Frequency
Develop Stage 1 A including restaurant and	Proponent	Initial works

comprehensive recreational facilities.		
<p>Appoint a wellness and facilities manager to assist residents using and benefiting from the following extensive activities and facilities</p> <p>Self-help activities</p> <ul style="list-style-type: none"> • Central Mail boxes • Panacea ⁴rooms: indoor heated pool, bath house [Steam, room/sauna/spa] • Picasso: Artist retreat [Painting] • Large outdoor free form Swimming pool • Business centre [one room fully set up: meeting room, board room desks etc] • Productive virtual “skills sharing centre” • Library/ reading room • Bamboo screen reflection pools • Billiard room • Games/cards room • Arts and craft room • Community garden/market • Interpretive walks⁵ • Fire pits [pool side] • BBQ areas • Meditation zones • Pavilion meeting space/Chess/draughts tables • Reflection ponds 	Proponent	On commencement

⁴ Greek goddess of universal remedy

⁵ Don’t retire- aspire; “knowledge, experience, support”

<ul style="list-style-type: none"> • Media/cinema room- dual use party hire “cleaning fee” • Prayer room • Bee hives • Virtual golf • Medical consultation room • Wine bar • Terraced Amphitheatre for games, outdoor movies, reading • Zen gardens • Astrology club and star gazing platform • Japanese inspired “Zen” bath house [sauna/steam room/cold “salt” spa] • Community vegetable and floral garden • 2 gymnasiums <p>Managed activities</p> <ul style="list-style-type: none"> • 6 rink Lawn bowl and club house • 2 lighted pickle ball courts • Croquet • Bocce • Bee pollination and honey program • Koala monitoring program • Glossy black cockatoo program <p>User pay as you go- value added activities</p> <ul style="list-style-type: none"> • Wine bar • Restaurant • Café • Kiosk • Hair dresser • Beauty salon 		
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<ul style="list-style-type: none"> • Hobby “woodwork” workshop • RV and camper storage options • Gaia wellness centre [3 treatment room] • Pilates/yoga • Massage/therapy • Aromatherapy/body scrubs • Meditation/pranayama • Tai chi etc • Naturopathy/holistic healing • Health shop • Aqua aerobics/aerobics • Physiotherapy 		
Project to strengthen connection to culture, heritage and identity.	Manager	At all times
Project will comply with crime prevention through environmental design principles.	Proponent, manager and design team	Specify
Maintain and encourage community garden activities and internal farmers market.	Manager, events coordinator	At all times
Routine Monitoring		
Monitor resident behavior, satisfaction and mood, operations and work practices.	Manager /wellness manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake review ▪ Install improved equipment 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.23 “Feng Shui and Zen tranquility gardens”

Feng Shui and Zen tranquility gardens”	
Aim	
<p>Ensure the principles of Feng Shui and Zen are woven into the fundamental design elements and carried thru in construction process.</p> <p>Feng shui is culturally neutral, non-religious in nature and does not require one to compromise their principles or faith. Using feng shui is about benefiting oneself, helping and making use of the natural energies that already exist in nature, not changing or compromising one’s beliefs in God.</p> <p>Zen philosophy is non-religious in nature and relies on structured form and landscape art to focus and clarify one’s own internal thoughts and energy; achieving balance between yin and yang.</p> <p>Integrate Feng shui principles into sustainability and landscape programs.</p>	
Success Criteria	
<p>Key feng shui features of the development are:</p> <ul style="list-style-type: none">• flowing non structured roadways which retain energy,• dwellings facing east, north or north west wherever possible.• Buildings present down slope• Dwellings can all exit to the right.	

Focus on “Location + Purpose-benefit + Features ”		
Management Actions	Responsibility	Frequency
Northwest “Big metal-travel” main entrance: use of metal, wind chimes and stone features, use of metallic surfaces and colours.	Proponent/ manager	As required
North “Big water-lifepath” stormwater treatment, swimming pool, dark blue and dark colours	Proponent/ manager	At all times
Northeast “Little earth-wisdom” natural landform, mix of water, rocks and boulder outcrops, use of blue and green colours.	Proponent/ manager	At all times
East “Wood-family”	Proponent/ manager	As required

woodland reserve, light & dark green and aqua colours		
Southeast “wood/wind-prosperity” woodland reserve, wind chimes, use of native brown colour,	Proponent/ manager	At all times
South “Fire-reputation” lighting, lanterns, orange, yellow, red colours, red and yellow flowering plants i.e., Corymbia citriodora.	Proponent/ manager	At all times
Southwest “Big earth-love” mix of elements stone/timber/stone facing, earth colours browns, cream, yellow and orange	Proponent/ manager	At all times
West	Proponent/ manager	At all times

“Little metal-creativity” recreational centre, spicy food café, white, silver and orange colours,		
Central Piazza Zen garden “yin & yang” squared walkways and building form, stone finishes, low maintenance areas, reflection ponds, tranquility zones and wellness centre.	Proponent/manager	At all times
Routine Monitoring		
Monitor site operations and work practices.	Manager	Daily
Corrective Action		
If success criteria are not met, examples of corrective actions may include: <ul style="list-style-type: none"> ▪ Undertake review ▪ Change materials and colours ▪ Improve usage/equipment 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.24 Community engagement

Community engagement
Aim
<p>Provide transparency and proactive engagement of community.</p> <p>Provide informative information to the public addressing population growth, planning strategies and impacts on the aging population. Including but not limited to the following facts:</p> <p><i>“With a growing population that will live longer, the intergenerational report [2015] shows growth in costs of many services, especially health, that will put pressure on the budget and threaten the sustainability of those services. Every day our spending exceeds government revenue by more than \$100 million. To make up the shortfall we must borrow that \$100 million per day.” The Honorable J.B. Hockey MP 2015.</i></p> <p>Australians will live longer and continue to have one of the longest life expectancies in the world. By 2054-2055, life expectancy is projected to be 95 years for men and 96.6 for women. By 2054 there are projected to be in excess of 40,000 people aged over 100 years. In 1975 there was just 122 centenarians.</p> <p>By 2054 it is projected that 4.9 % or 2,000,000 Australians will be 85 years or older or 5 % of the forecast population. The 65-84 years cohort will jump from 3.1 million in 2015 to a staggering 7 million some 18% of the total forecast population⁶.</p> <p>As Australians live longer and do so in better health more Australians will continue to lead an active lifestyle and participate in the work force after they reach traditional retirement age. Participation rates from those 65 years and older are expected to rise to 17.3 % by 2054.</p> <p>Ipswich</p> <p>Ipswich is currently Queensland’s fastest growing city and government projections show it will remain so for the next two decades, until at least 2036. Projected growth rates in Ipswich considerable outpace both the state capital Brisbane and the state’s second largest city, lifestyle destination and tourist</p>

⁶ 2015 intergenerational report pages 12-13

mecca, the Gold Coast.

Ipswich city council reports the population of Ipswich was 208,490 in December 2017. The government statistician's office forecasts this to rise by 132% in the next 18 years, to 484,718.

Forecasts show that Ipswich will not only considerably outpace the state capital in the overall rate of growth, but Ipswich will also outpace Brisbane in baseline population increases. Specifically, government forecasts predict that between 2016 and 2036 the Ipswich population will grow by 288,537, whereas Brisbane will grow by only 256,868 people (or 31,669 less than Ipswich). To put the significance of this further into context, the population of the state capital Brisbane is currently six times larger than the population of Ipswich.

As early as 2011, Queensland government LGA population reports noted that, 'Ipswich population is much smaller than Brisbane or the Gold coast, so the large projected population increase in Ipswich translates to a much higher annual growth rate, averaging a remarkably high 3% p.a. for the decade to 2021.

Aging demand:

The catchment is forecast to have strong growth in the over 65 population. Population forecasts indicate that the catchment area can expect a growth rate of 65% for the over 65 years old cohort from 19,331 in 2015 to 31,957 in 2026. In context this is an increase of 12,000 people which is the whole of Mackays over 65 population as of 2013.

By 2026 the catchment area will also experience a sharp rise in the over 70 age cohort with an 86% increase predicted.

This aging population coupled to Ipswich's phenomenal growth forecasts will see elevated property prices and accordingly many a retiree seeking to sell their home and move to improved local surroundings.

Retirement village model has many benefits but struggles to keep up with demand

The new breed of retirement model can provide effective social and amenity benefits not found in standard residential strata development. Albeit the rise of the Residential Land Lease/Manufactured Mobile Home Estates are ever improving and over time likely to be a significant alternative.

A social problem loaming with the Manufacture home estates arises from displacement of the lower socio-economic residents therein residing.

In general, a modern retirement village creates a sense of place, builds community structure, offers low maintenance, safety, security in tenure, age-appropriate infrastructure, enables residents and is a well-established model.

Grant Thornton Research⁷ report of 2014 found retirement villages:

- Delay moves to residential aged care by 5 years
- Reduced the number of hospital admissions
- Reduced number of hospital stays by 2 days
- Reduced GP visits where villages have on site facilities
- Improved mental health by reducing social isolation
- Makes significant contributions to GDP

Why does it matter to Ipswich?

Ipswich is the fastest growing LGA, notably

- There is a substantial projected increase in people aged 65+ years in the Ipswich catchment from 2015 to 2026 (over 12,000 more people);
- There are limited existing new facilities and only one other planned aged care facility and retirement village in the Springfield-Redbank Plains-Ripley corridor, being the constructed Aveo Springfield development and the proposed Bethania College facility at Redbank [which has been placed on an indefinite hold]⁸;
- West Moreton Aged Care Planning Region is currently operating at a ratio of 60.8 which is significantly below the Australian Government's 80.0 residential aged care places per 1,000 people over 70 years to be met by 2021-22;
- Even with the current identified pipeline stock coming online progressively to 2026, there is insufficient supply to meet demand within the catchment area.
- Ipswich retirement villages are operating at less than a 2% vacancy rate, which is effectively the turnover period.
- 27% of the 222,307 Ipswich catchment was over 50 years as of 2019; some 60,032 persons.

⁷ Grant Thornton, National Overview of RV Sector 2014

⁸ The author was advised the project will not be proceeding.

Available Sites

Available sites are very limited and or uneconomic.

Retirement villages are a high-cost low return long term investment model, and are largely shunned by property investors over the more profitable, more easily funded and less risky “residential land” model.

These pressures have grown worse since tightening of environmental legislation in particular the Vegetation Management Act 1999, which by limiting general clearing of land has given rise to bushfire risk. Accordingly, nearly every potential site is flood effected, bushfire hazard or contains “remnant vegetation” protected under the act and with it a higher cost of development or development risk. Koala legislation of February 2020 and 2022 has further exacerbated land supply shortages.

This has made developers focus on smaller sites and specific products; there no longer remains a less desirable “discounted site” within a project that is not constrained by the ever-tightening development controls or has been dedicated “in fee simple” to council as part of the development approval process.

Whilst environmental legislation has many benefits such legislation has not benefited the lower socio-economic groups such as retirees or aged care.

Ipswich forecast growth rates has and will further exacerbated land shortage and residential land demands.

The increased pressure on land values and lack of available “englobo” in fill sites has placed enormous limitations on available sites for retirement villages. Forcing retirement villages to the extremities of city limits or alternatively to a luxury inner city product; to which only a few affluent can afford.

The Abadi Gaia Ault Residential Village seeks to address the underlying demand whilst providing environmental sustainability and design focused on “100 year” resident life.

Setting a new retirement model and industry best practice benchmark.

Success Criteria

1. Undertake initial online survey: - predevelopment application to confirm community’s general acceptance and concept desirability [completed].
2. Provide informative website educating community to project specific outcomes and benefits: - on receipt of Negotiated development conditions [pending]

3. Provide operational interactive web portal for residents and community providing transparency and a positive feedback loop for future operations [pending approval]

Management Actions	Responsibility	Frequency
Undertake Facebook Survey	Proponent	Initial- completed
Develop Website	Proponent	Receipt of negotiated decision notice
Interactive web portal	Manager	At all times
Routine Monitoring		
Monitor feedback	Manager	Daily
Corrective Action		
<p>If success criteria are not met, examples of corrective actions may include:</p> <ul style="list-style-type: none"> ▪ Undertake review ▪ Liaise with Council planning officers as to feedback and suggestions make appropriate changes as necessary. 		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

6.25 Wetland maintenance

Wetland maintenance		
Aim		
To ensure long term treatment of surface and stormwater water discharges to maintain discharge water quality, mitigate downstream effects and provide habitat.		
Success Criteria		
Deliberately left blank and to be completed on receipt of council approval conditions.		
Management Actions	Responsibility	Frequency
Routine Monitoring		
Corrective Action		
tba		
Reporting		
Record inspection notes and observations.	Manager	Six monthly Audit
Record site observations, actions and notifications in diary.	Manager	As required

7.0 Monitoring and Review

Non-Compliance and Corrective Action

The Manager shall assume responsibility for implementation of this OEMP. Where the Manager becomes aware of a site or operational condition that does not comply, a Corrective Action Report (CAR) form is to be completed and actioned. An example CAR form is provided in the Annexures of this OEMP. A CAR for any non-compliance is to be actioned within 24 hours of receiving confirmation of the non-compliance.

In some instances, further investigation or monitoring may be required to establish whether the OEMP has been adequately implemented, or whether the work is compliant with relevant legislation, guidelines and statutes. In these instances, an independent party, such as an Environmental Auditor, will carry out the investigation or monitoring.

The notification of any emergency or incident which results in the release of contaminants not in accordance with conditions of the relevant approval, must include, but should not be limited to the following information.

- The name of the holder of the approval;
- The location of the emergency or incident;
- The number of the relevant approval;
- The name and telephone number of the designated contact person;
- The time of the release;
- The time the Manager became aware of the release;
- The suspected cause of the release;
- The environmental harm caused, threatened, or suspected to be caused by the release; and
- Actions taken to prevent any further release and mitigate any environmental harm caused by the release.

Audits and Review

An audit check list is provided; in the Annexures attached herewith, to assist assessing site operations against the requirements of the OEMP and identify opportunities for improvement. The OEMP audit shall be undertaken weekly at the direction of the Manager. Following each audit, the OEMP shall be reviewed and updated where necessary.

Reporting

General Progress Reports shall be prepared by the Manager or delegate for monthly submission to the proponent. The report will include the following summaries:

- OEMP revisions;
- Weekly Environmental Performance Evaluation findings;
- Environmental training;
- Internal audit results;
- Non-conformances, incidents and/or proposed actions for rectification or improvement of management procedures; and
The status of open non-conformances