

Jet Zero™

Project Ulysses



PLANNING REPORT

Development
Application

Material
Change of Use -
Special Industry

June 2025

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ACKNOWLEDGEMENT OF COUNTRY

Jet Zero Australia acknowledges the Traditional Owners of Country throughout Australia, including the Bindal People, where Project Ulysses will operate and recognises the continuing connection to lands, waters and communities.

We pay our respect to Aboriginal and Torres Strait Islander cultures; and to Elders past, present, and future.



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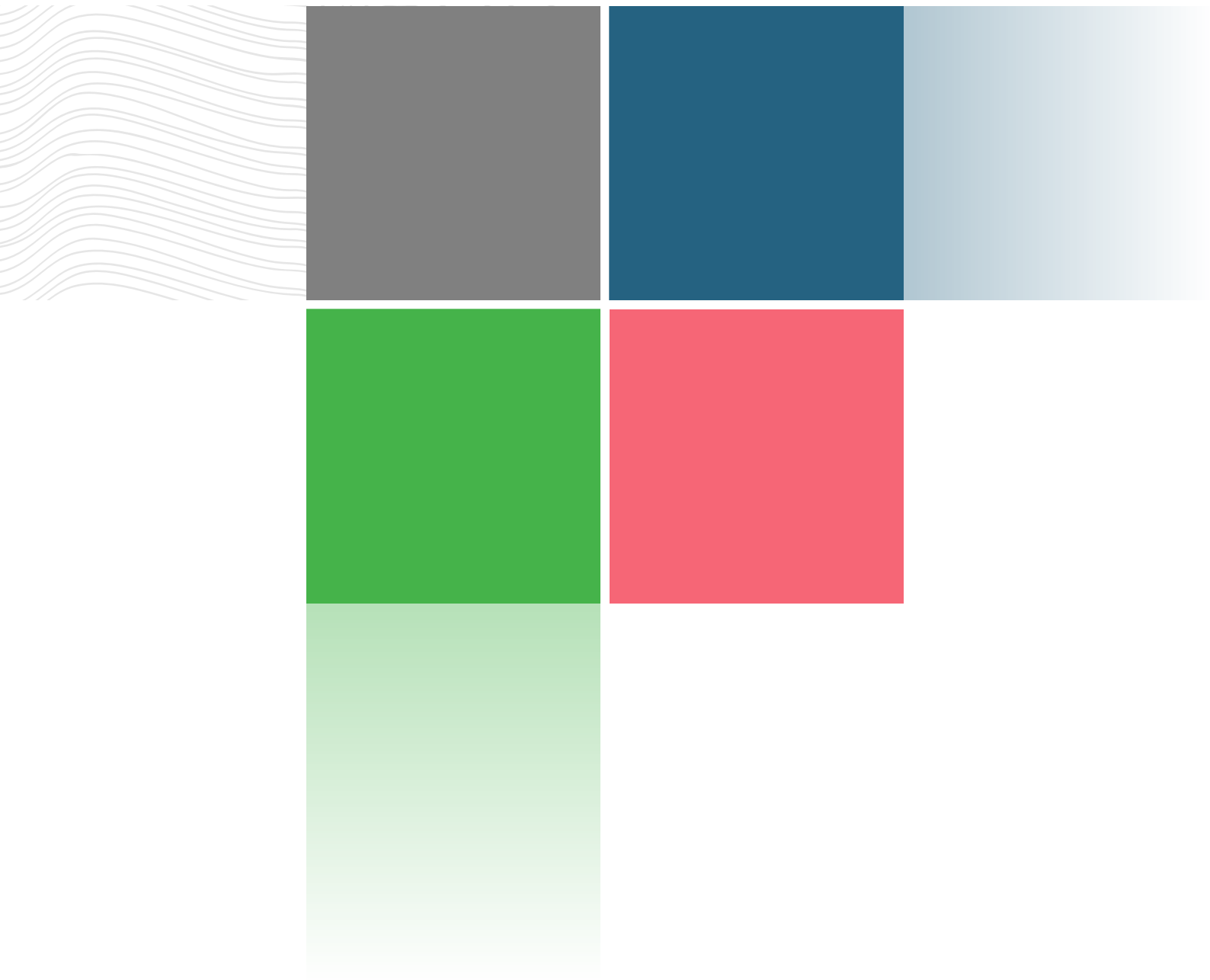
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APPENDICES

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ABBREVIATIONS, TERMS AND ACRONYMS



ABBREVIATIONS, TERMS AND CONDITIONS

Abbreviation or Term	Description
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ASS	Acid Sulfate Soils
ATJ	Alcohol-to-Jet
ARENA	Australian Renewable Energy Agency
CBIP	Cleveland Bay Industrial Park
CEMP	Construction Environmental Management Plan
CHMA	Cultural Heritage Management Agreement
Council	Townsville City Council
CO ₂ -e	Carbon Dioxide Equivalent
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of the Environment, Tourism, Science and Innovation
DPI	Department of Primary Industry
DTMR	Department of Transport and Main Roads
EOI	Expression of Interest
EP Act	<i>Environmental Protection Act 1994</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPC	Engineering, Procurement, and Construction
ERA	Environmentally Relevant Activity
FEED	Front End Engineering Design
FIA	Flood Impact Assessment
GBRWHA	Great Barrier Reef World Heritage Area
GBRNHP	Great Barrier Reef National Heritage Place
GHG	Greenhouse Gas
HAT	Highest Astronomical Tide
HES	High Ecological Significance
Jet Zero	Jet Zero Australia Pty Ltd
KL	Kilolitre
LFL	Low Flammability Limits
ML	Millilitre
MLES	Matter of Local Environmental Significance
MLPY	Million Litres per Year
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Importance
NCE	Northern Consulting Engineers
OCG	Office of Coordinator General
OEMP	Operation Environmental Management Plan
OIR	Office of Industrial Relations
PASS	Potential Acid Sulfate Soils
Planning Scheme	<i>Townsville City Plan 2014</i>
RD	Renewable Diesel
RPEQ	Registered Professional Engineer of Queensland
SAF	Sustainable Aviation Fuel
SARA	State Assessment and Referral Agency

Abbreviation or Term	Description
SDA	State Development Area
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
SPP	<i>State Planning Policy 2017</i>
TIA	Traffic Impact Assessment
Townsville SDA	Townsville State Development Area
TSDA Development Scheme	<i>Townsville State Development Area Development Scheme 2019</i>
TSS	Total Suspended Solids

EXECUTIVE SUMMARY

In accordance with s 84 of the *State Development and Public Works Organisation Act 1971* (the SDPW Act) Jet Zero Australia Pty Ltd (Jet Zero) is seeking approval to construct and operate a Sustainable Aviation Fuel (SAF) Facility on land identified as (part) Lot 36 on SP341877 and (part) Lot 31 on SP341877 and located at 46 Colinta Road, 63 Heleen Downs Road and 249E Heleen Downs Road, Stuart.

Jet Zero are proposing to construct Australia's first Alcohol-to-Jet (ATJ) plant converting ethanol feedstock into SAF in Townsville, Queensland, referred to as 'Project Ulysses' (the Project). The Project includes a plant to convert ethanol derived from sustainably certified feedstocks such as agricultural byproducts including waste wheat starch and sugar molasses, to SAF and Renewable Diesel (RD) using the LanzaJet process. The plant will have a capacity to process at least 183 million litres per year (MLPY) of ethanol into 102 MLPY of SAF and 11 MLPY of RD as the primary case.

The subject site is located within the Townsville State Development Area (Townsville SDA) and more specifically within the Cleveland Bay Industrial Park (CBIP). The subject site comprises a lot created in accordance with recently approved Reconfiguring a Lot approval (reference AP2023/013) and associated Operational Work approval (reference OPW24/0107). Whilst the lots have yet to be sealed, this development application reflects the resultant lot layout. Accordingly, we note that significant assessment considerations, in particular for environmental considerations, have been addressed in these preceding applications.

The subject site maintains frontage to Colinta Road, with approximately 1.1 km access handle to the plant site. The eastern part of the access handle is bisected by an unformed, unnamed road reserve traversing north-south. The subject site is burdened by a number of easements for the purpose of electrical supply and drainage associated with CBIP.

The proposed development has been subject to extensive site selection analysis, consultation, and technical assessment. It is strategically located within proximity to key transport infrastructure and feedstock supply chains and is compatible with surrounding land uses. The design has been informed by specialist assessments addressing key planning considerations including air quality, noise, traffic, ecology, flooding, surface and groundwater, stormwater management, hazardous material, lighting and cultural heritage.

Development within the Townsville SDA is governed by the *Townsville SDA Development Scheme 2019* (TSDA Development Scheme) and is assessed by the Office of the Coordinator General (OCG). The proposed use aligns with the preferred outcomes for the High Impact Industry Precinct and supports the Townsville SDA's strategic intent to facilitate regionally and nationally significant industrial development. The proposal also addresses applicable provisions of the *State Planning Policy 2017*, *Planning Act 2016*, relevant State Development and Assessment Provisions, and relevant provisions of the *Townsville City Plan 2014*. The planning assessment concludes that the proposal complies with the applicable assessment benchmarks.

The Project delivers clear economic and environmental benefits through the production of low-emissions transport fuel and is supported by existing approvals and infrastructure planning. It is recommended that the application be approved, subject to reasonable and relevant conditions.

Refer to **Table 1** below for site and application details.

Table 1: Site Details and Application Summary

Site Details	
Address	63 and 249E Heleen Downs Road and 46 Colinta Road, Stuart, Townsville
Lot description	Lot 31 on SP341877 (part), Lot 36 on SP341877 (part) and unnamed road reserve
Easements	Easement BB on SP341874 Easement BA on SP341874 Easement A on SP346831
Property owner	The Coordinator General (refer Appendix A)
Local Government Area	Townsville City
Tenure	Freehold
Site area	19.556 ha
Application Details	
Purpose of proposal	Sustainable Aviation Fuel Plant
Type of approval sought	Development Permit for Material Change of Use – Special Industry
Assessment manager	The Office of the Coordinator General
Planning Instrument	<i>Townsville State Development Area Development Scheme 2019</i>
Townsville SDA precinct	• High Impact Industry Precinct • Medium Impact Industry Precinct • Environmental Management Precinct
Referral	• State Referral Agency: ○ Department of Environment, Tourism, Science and Innovation ○ Department of Primary Industries ○ Department of Transport and Main Roads ○ Office of Industrial Relations • Ergon Energy • Townsville City Council
Applicant Details	
Applicant	Ulysses Bioenergy Operator Pty Ltd (100% subsidiary of Jet Zero Australia Pty Ltd)
Contact	Meredith Hutton

1. INTRODUCTION

1.1. Overview of Jet Zero

Jet Zero Australia Pty Ltd (Jet Zero) is a leading Australian bio-energy company focussed on delivering Sustainable Aviation Fuel (SAF), via a proven and ASTM (formerly American Society for Testing and Materials) certified technology known as the Alcohol-To-Jet (ATJ) pathway. This is achieved by sourcing bioethanol from agricultural by-products on the east coast of Australia and converting this into SAF and Renewable Diesel (RD), ultimately assisting in decarbonisation of the aviation and wider transport industry.

Jet Zero are proposing to construct Australia's first ATJ plant, referred to as 'Project Ulysses' (the Project), within the Townsville State Development Area in Queensland. The facility will convert ethanol feedstock derived from sustainably certified agricultural byproducts into SAF and RD.

Jet Zero has credible partners and investors, including Australia's largest airline (Qantas), one of Japan's largest energy companies (Idemitsu), the world's largest aircraft manufacturer (Airbus), funding from the Australian Government via the Australian Renewable Energy Agency (ARENA), and the Queensland Government via the Industry Partnership Program Application.

Jet Zero is focused on producing SAF to service the Australian fuel market. Through Project Ulysses and other future projects, Jet Zero aims to bring the following advantages to the Australian economy:

- Supply SAF to the domestic aviation sector to maintain the 206,000 jobs directly employed in the industry, given its pressing need to decarbonise.
- Deliver key demand and employment drivers across the agriculture, aviation, energy, defence and logistics sectors.
- Contribute to decarbonisation of the aviation industry by reducing jet aircraft greenhouse gas (GHG) lifecycle emissions through SAF production.
- Contribute to decarbonisation of the maritime and heavy vehicle industry through RD production.
- Drive new stable revenue and investment opportunities in the grain and sugarcane industries, the largest and second largest export crops that directly employ over 110,000 Australians.
- Providing fuel security for the operations of the 76,000 current full-time Australian Defence Force personnel, including the 15,000 located in Townsville and the 900 Royal Australian Navy personnel in Cairns.
- Driving local demand for the establishment of hydrogen and green power projects in the emerging Townsville renewable energy sector.
- Supporting Australia's position as a world leader in the low-emissions biofuels industry.

1.2. Sustainability Contribution

Project Ulysses is a transformative initiative in renewable fuel production, delivering significant environmental, social, and economic benefits. The Project will produce over 102 million litres of SAF and 11 million litres of RD annually, reducing lifecycle GHG emissions by approximately 48 % (45 g CO₂e/MJ Carbon Intensity), compared to the current petroleum-based kerosene jet fuel (Lifecycles, 2024¹). This GHG reduction value is considered conservative as Jet Zero and the relevant feedstock providers are progressing multiple initiatives to reduce this value to 65% reduction, with a stretch target of 71%.

This reduction directly supports international decarbonisation efforts, including Australia's commitments under the United Nations Framework Convention on Climate Change, and positions the

¹ Lifecycles *Jet Zero Project Ulysses LCA Summary*, March 2025.

Project as a national leader in sustainable aviation. In addition to GHG reductions, the Project aligns with the Townsville SDA's objectives to foster industrial growth while enhancing environmental outcomes.

Sustainable Aviation Fuel offers additional benefits by supporting improving air quality, as its cleaner combustion profile reduces GHG and particulate emissions, minimising broader environmental impacts. The Project adopts a circular economy approach by sourcing feedstock from agricultural by-products, such as waste wheat starch and sugar molasses, thereby indirectly avoiding methane emissions that would otherwise result from decomposition. This approach ensures the value of waste materials is maximised and reinforces principles of resource efficiency and environmental stewardship.

The lifecycle approach taken by the Project ensures that SAF combustion emissions are effectively offset through carbon sequestration during feedstock growth and methane avoidance, delivering net-zero emissions during its use as feedstock. The production of 11 million litres of RD annually will contribute to the decarbonisation of maritime transport and heavy vehicle sectors, thereby extending the Project's sustainability benefits beyond aviation.

All SAF and RD produced will be independently audited and certified in accordance with relevant environmental, social and economic sustainability criteria, including compliance with the International Sustainability and Carbon Certification framework. These certifications, including alignment with the Roundtable on Sustainable Biomaterials, ensure transparency and accountability.

1.3. Community Benefit

Project Ulysses will deliver substantial benefits to the Townsville community and broader North Queensland region through direct economic investment, employment generation, and skills development. The Project represents a capital investment of between \$562 million (base case feasibility) and \$843 million (upper case feasibility) that is being refined during Front End Engineering Design (FEED), supporting the regional economy during both the construction and operational phases. During construction, it is anticipated that a significant number of jobs will be created across a range of disciplines, including engineering design, construction, logistics, and environmental management. In addition, local contractors and suppliers will have the opportunity to bid for specific contracts to provide support to the Project's development. Once operational, the facility will provide permanent employment opportunities with provision of approximately 100 positions in addition to the supply contracts for the facility.

Beyond economic contributions, the Project will advance environmental outcomes that have a lasting benefit to the community. By reducing lifecycle GHG emissions and supporting the decarbonisation of the aviation and transport sectors, the Project contributes to improvements of air quality and climate resilience, both of which are critical to the health and well-being of current and future residents. SAF offers further benefits by supporting decarbonisation of the aviation industry, potentially acting as a catalyst for the development of the sugar industry and other key agricultural sectors, while also enhancing fuel security for defence and other essential government services.

Community engagement has been integral to the development of the Project and is further discussed in **Section 2**.

1.4. Site Selection

The subject site is located within the Cleveland Bay Industrial Park (CBIP), situated in the Townsville SDA. Site selection was informed by a detailed assessment of transport infrastructure accessibility, land capability, and regulatory compatibility. Given the nature of the Project, access to critical infrastructure, including road and port freight networks, while ensuring the avoidance of significant adverse environmental impacts, was a key factor to site selection. The Project is consistent with the

State Planning Policy 2017 (SPP) objectives, facilitating the efficient utilisation of industrial land and contributing to the economic development and diversification of the region.

The proposed site selection for Project Ulysess can be attributed to the following:

- **Feedstock Proximity**

Townsville offers convenient access to agricultural by-product supply chains, which are essential for producing SAF and RD through the ATJ process. The availability of these resources locally minimises transportation costs and supports the Project's sustainability objectives. Further, Townsville provides the potential to grow bioethanol supply from the sugar industry through either partnerships or acquisition and investment in milling assets to produce ethanol.

- **Transport Infrastructure**

The subject site is situated within immediate proximity to established road, rail and port freight transport networks. Specifically, the site is located near major arterial roads, ensuring efficient road transport for both inbound ethanol feedstock and outbound SAF and RD products. Furthermore, the site is in direct proximity to the Port of Townsville, which serves as Northern Australia's largest general cargo and container port.

- **Land Use Compatibility**

The site is located within the Townsville SDA, an area designated to support industrial development of regional, state, and national significance. The proposed locality ensures compatibility with neighbouring operations, access to appropriate shared infrastructure, and ultimately minimises potential land use conflicts.

- **Strategic Regional Location**

Townsville is a regional hub providing critical support for renewable energy initiatives and industrial growth within North Queensland. The region's infrastructure and economic profile aligns with the objectives of Project Ulysess, notably co-located industries within the Townsville SDA that provide opportunities for synergies in logistics, utilities, and workforce development.

Townsville functions as a major node for defence infrastructure, including Lavarack Barracks and the Royal Australian Air Force Base, supporting a stable demand for aviation fuel. Its strategic significance is further enhanced by its role as a key freight and logistics centre. This integration strengthens Townsville's capacity to support sustainable industrial developments that align with state and national economic priorities.

- **Environmental and Topographical Sustainability**

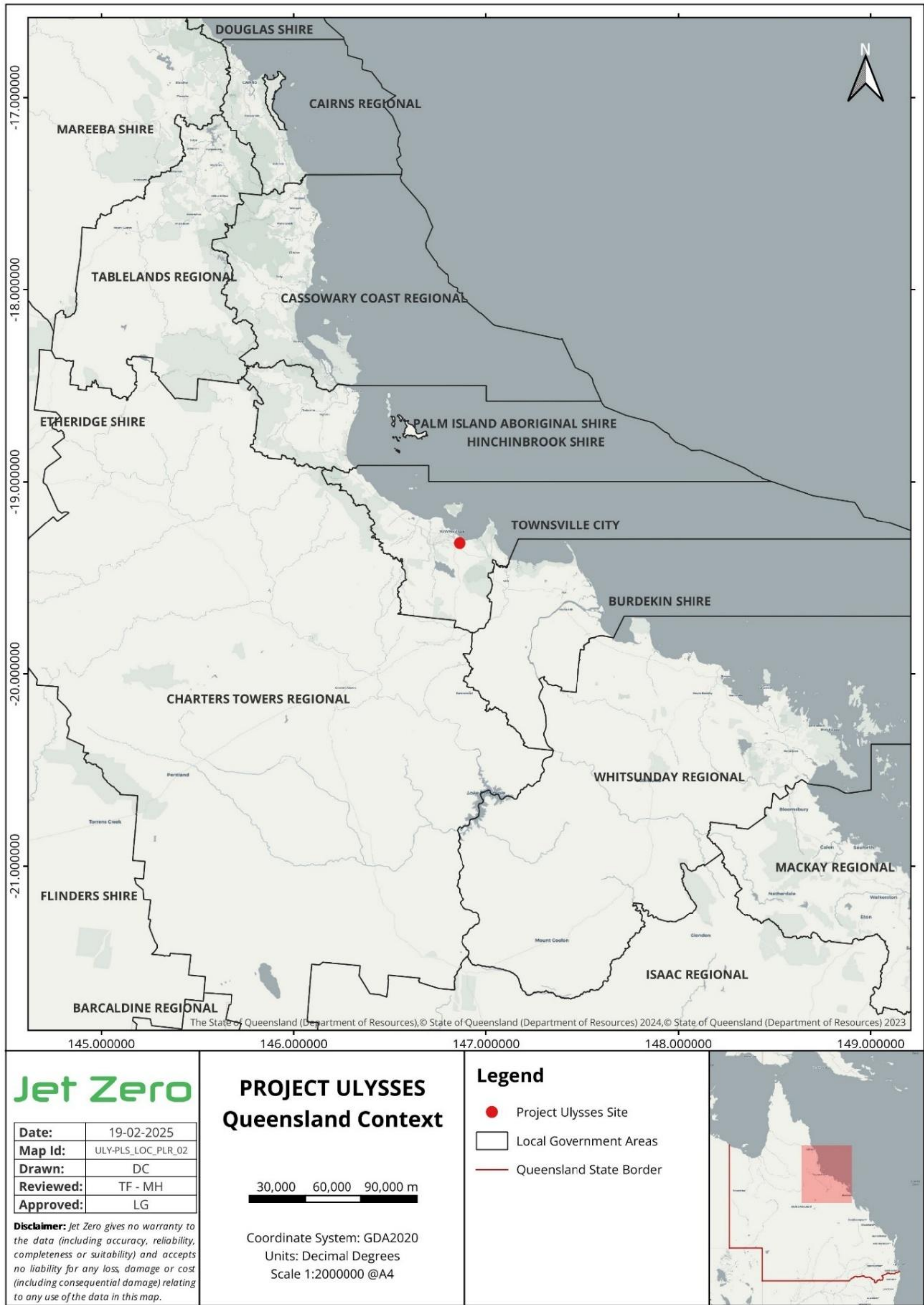
The site features generally even topography, ranging from 2-5 m AHD which supports efficient construction and operational logistics with minimal earthworks. The land is primarily cleared of vegetation, reducing the need for extensive site preparation and minimising environmental disturbance. Existing approvals related to the development of the subject site are outlined in **Section 3.2** below.

- **Economic and Policy Alignment**

The Project aligns with the Queensland Government's economic vision and policies with the goal for Queensland to lead the development of the Australian bioenergy and SAF industry with the creation of a bioenergy hub in Townsville (refer **Figure 1** below).

The Queensland Biofutures Roadmap states a vision for *Queensland to be an Asia-Pacific hub in biomanufacturing and biorefining, enabling global effects to decarbonise*. The Queensland Government, through the Industry Partnership Program, and the Australian Government under the Australian Renewable Energy Agency through a SAF Funding Initiative have agreed to contribute funding for the Project for FEED to progress to Financial Investment Decision.

Figure 1: Queensland Context of Subject Site



2. CONSULTATION

Comprehensive consultation was undertaken to support the planning and development of Project Ulysses. Engagement activities were designed to ensure early and meaningful communication with key stakeholders, government agencies and the community. The consultation process sought to inform stakeholders about the Project, identify and address potential issues, and incorporate feedback into the Project's design and environmental management strategies.

A comprehensive Stakeholder Engagement Plan was developed to guide the Project's consultation activities, ensuring systematic, inclusive, and transparent engagement with all identified relevant stakeholders in accordance with best practice principles and relevant regulatory guidelines.

Key stakeholders engaged include the Bindal People (Traditional Owners), Townsville City Council, State and Commonwealth government agencies, the Port of Townsville, neighbouring landowners, industry groups, and the broader community. Consultation activities included targeted briefings, face-to-face meetings, public information sessions, and the dissemination of Project information through newsletters, digital platforms, and media releases. This will be continued through the Project with the implementation of the Stakeholder Engagement Plan.

This proactive engagement process facilitated a high level of transparency and responsiveness, ensuring that local values, interests, and concerns were appropriately considered in the development of the Project. Outcomes from consultation have directly informed the Project's planning, environmental assessments, and design of mitigation measures, reinforcing Jet Zero's commitment to responsible and sustainable project delivery.

2.1. State Government

Jet Zero has engaged extensively with the State Government to ensure a coordinated and informed approach to the development proposal. Comprehensive pre-lodgement consultation has been undertaken, including consistent liaison with the OCG, which serves as the principal body overseeing the assessment of development within State Development Areas.

A combined meeting of the applicant's representatives and relevant state agencies, facilitated by OCG, was undertaken on 12 December 2024. The purpose of this meeting was to provide an opportunity to discuss the background of the Project, identify and address agency-specific considerations, and identify potential referral processes under the regulatory framework. Attendees included the applicant's representatives and the following:

- Office of Coordinator General (OCG);
- State Assessment and Referral Agency (SARA);
- Department of Environment, Tourism, Science and Innovation (DETSI);
- Department of Primary Industries (DPI);
- Department of Transport and Main Roads (DTMR); and
- Office of Industrial Relations (OIR).

Additionally, a further meeting with OIR was coordinated with OCG on 7 May 2025. The purpose of this meeting was to review and discuss the risk assessment of the facility undertaken on behalf of Jet Zero and seek feedback on response strategy.

Jet Zero has also proactively engaged with key State Government representatives to ensure strong local and regional awareness of the Project's strategic value. Meetings have been held with local State Members of Parliament, including Janelle Poole MP, Adam Baillie MP, and Natalie Marr MP and the Deputy Premier, the Hon. Jarrod Bleijie MP.

Jet Zero's engagement has extended to key strategic agencies beyond conventional planning and environmental stakeholders. Notably, Jet Zero has consulted with Defence, including Brigadier Mark

Baldrock, author of the Defence Future Fuel Strategy Report (October 2024), who acknowledged that North Queensland is a strategically important region for Australia's fuel security.

Input obtained through the pre-lodgement consultation process has been appropriately incorporated into the Project's planning and design to address agency requirements and facilitate a coordinated approvals pathway. Jet Zero will continue to engage collaboratively with the State Government throughout the assessment and approval phases to support the timely and efficient progression of the development.

2.2. Townsville City Council

Ongoing discussions have been undertaken with Townsville City Council, noting that Council is a Referral Agency for this application. Pre-lodgement meetings were undertaken in-person with Council and the applicant's representatives on 21 August 2024 and 7 November 2024.

Council was noted as being generally supportive of the proposed development, noting that the proposal aligns with Council's broader economic development objectives for the region. Discussions focused on ensuring the proposal is consistent with the local planning framework and addresses relevant infrastructure, environmental and service delivery requirements.

2.3. Surrounding Landowners

In accordance with the SEP prepared for the Project, Jet Zero has undertaken proactive and targeted consultation with neighbouring landowners and commercial operators to ensure they are fully informed of the proposed development and its potential impacts.

Key surrounding stakeholders include the Port of Townsville, Sun Metals, Ark Energy, JBS Australia and the Cleveland Bay Wastewater Treatment Plant. Jet Zero has actively engaged with these stakeholders through direct consultation to provide information about the Project, seek feedback, and address any issues or concerns. The consultation process has included face-to-face meetings, Project briefings, and ongoing communications to ensure a collaborative approach to the proposed development.

The subject site is adjacent to the Ark Energy solar farm, Korea Zinc's Sun Metals refinery to the east and south-east, and the JBS Australia abattoir to the south. State-owned land is located immediately to the north of the site. All adjoining commercial operators and relevant stakeholders have been consulted throughout the Project's planning phase. The feedback received through these engagements has been considered in the design and planning of the Project, reinforcing Jet Zero's commitment to maintaining positive relationships with surrounding landowners and operators.

2.4. Community and Industry

Jet Zero has undertaken structured and proactive engagement within the Townsville and broader Queensland community to promote transparency, build stakeholder trust, and support informed participation throughout the planning process for the Project. Engagement activities were designed to disseminate clear and accessible information, address community issues, and incorporate relevant feedback into the Project's planning and design, where appropriate.

As part of the SEP, Jet Zero conducted Community Open Days in November 2024 at venues located in Wulguru, Oonoonba, and Townsville City. These events provided opportunities for local residents to engage directly with Project Ulysses representatives, review detailed Project materials, and raise matters of concern or interest for consideration in the ongoing development of the Project.

These forums involved large audiences and have been critical in building regional awareness, communicating the strategic relevance of SAF production and demonstrating alignment with Queensland's broader decarbonisation and regional development agendas.

Key outcomes from the community consultation are summarised as follows:

- **Regional Development and Employment:** Concerns about housing and attracting talent to Townsville, with opportunities for partnerships in construction and regional industrial development.
- **Educational Opportunities:** Interest in programs for student engagement in aviation and increased community education about SAF, including public displays or showrooms.
- **Sustainability and Agriculture:** Support for promoting SAF awareness, with concerns about the decline in youth participation in agriculture.
- **Community Outreach:** Preference for stakeholder engagement during weekends or at local markets to maximise participation, and suggestions for an annual sustainability information day.
- **Overall Support:** Broad backing from stakeholders, with enthusiasm for understanding SAF production and its potential benefits to the region.

Additionally, Jet Zero has undertaken extensive engagement with the North Queensland agricultural and industrial sectors, recognising the critical role these industries play in the project's feedstock strategy. Presentations have been delivered at significant regional and industry forums, which are highly regarded by stakeholders and the Queensland Government. These forums include:

- Queensland Sugar Limited (QSL) Board meeting – March 2024
- Mackay Canegrowers Annual Conference – May 2024
- Tully Canegrowers Annual General Meeting – December 2024
- Townsville Enterprise Green Energy Conference – November 2024
- Burdekin Council RSL Event – February 2024
- Brisbane Canegrowers Annual Conference – May 2025
- Cairns Canegrowers International Conference – June 2025
- WABCG Australia World Forum – June 2025

Figure 2 below shows Jet Zero CEO Ed Mason presenting at an industry event.

Figure 2: Jet Zero Presentation



The Project SEP will be implemented through FEED and towards construction. Activities planned to occur within 2025 include:

- Project working group: State Government representatives
- Project regulatory meetings: OCG, DETSI, Townsville City Council, Port of Townsville.
- Progress with briefing meetings to wider group of stakeholders (Townsville industry).
- Conduct a second Community Open Day during FEED.
- Progress with Bindal People Cultural Heritage Management Agreement (CHMA) and workshops during FEED.

As part of its broader awareness campaign, Jet Zero has delivered targeted marketing and advertising initiatives to reinforce industry support and regional engagement. **Figure 3** below provides an example of a billboard utilised by Jet Zero promoting Queensland's opportunity in SAF production.

Figure 3: Billboard Example



2.5. Indigenous Consultation

The traditional custodians of land south-east of Townsville, encompassing the full extent of the subject site, are identified as the Bindal People. The boundaries of the Bindal country extend from the Ross River in the north to the Burdekin River in the south, the coastline to the east, and the intersection of the Harvey Range and Leichhardt Range to the west, as illustrated in **Figure 4**.

Figure 4: Bindal Claim Area

Source: Bindal Claimants #2 (provided October 2024)

The Native Title Claimants Bindal People #2 registration was accepted on 1st July 2016 under s 190A of the *Native Title Act 1993* (Cth) (National Native Title Tribunal (NNTT) File No. QC2016/005). Since this time the Native Title Tribunal has been assessing the validity of the claim to determine if the claimants would be granted native title to the claim area and deemed the Traditional Owners.

The subject site involves freehold tenure and therefore is not subject to the native title claim, however Jet Zero is committed to managing cultural heritage responsibly and ensure compliance with relevant legislative framework.

Jet Zero adopted a proactive engagement approach by initiating early consultation with the Bindal People during the initial phases of the Project. The objectives of this early engagement were to:

- Gain a comprehensive understanding of the Bindal People's history, cultural heritage, connection to Country, and future goals of their people and organisation.
- Provide detail information on Jet Zero and Project Ulysses, including its scope and intended outcomes.
- Establish an agreed framework for ongoing consultation and the negotiation of an agreement to guide future engagement.

On 27 August 2024, Jet Zero representatives met with Bindal People representatives in Townsville to initiate relationship-building and discuss the above key matters. As part of this engagement, a site visit was conducted to the Project area, during which Jet Zero outlined the proposed development and its potential interface with cultural heritage values. **Figure 5** depicts a photograph of the Jet Zero representatives with Bindal representatives at Ron McLean Drive, overlooking the proposed plant site.

Figure 5: Site Visit with Jet Zero and Bindal Representatives

At this meeting it was agreed that Jet Zero and the Bindal People would progress negotiations toward a CHMA. The CHMA is to include an assessment of potential impacts on Aboriginal cultural heritage, in accordance with the *Aboriginal Cultural Heritage Act 2003* (ACH Act), including adherence to the Duty of Care provisions. Additionally, the CHMA is to include specifics for an archaeological survey of the site conducted in partnership with the Bindal People, noting previous surveys conducted within the Townsville SDA.

Jet Zero and the Bindal People shared a draft CHMA in September 2024 and commenced negotiations to finalise the CHMA during a workshop planned in Townsville on 13th and 14th December 2024. In November 2024, at a meeting chaired by the North Queensland Land Council, the Bindal People #2 applicant members were determined to warrant a change in members due to a challenge within the group. Due to the uncertainty with the claimant members, Jet Zero and the Bindal People agreed to cancel the workshop and suspend negotiations on the CHMA. Jet Zero are currently working with the new Bindal People claimants to re-commence negotiations for a CHMA.

3. SITE CONTEXT

3.1. Subject Site and Description

The subject site comprises a 19.556 ha parcel of land spanning across parts of two existing allotments being Lot 31 and Lot 36 on SP341877 (refer SmartMap at **Appendix B**). The subject site is to be rationalised as a freehold tenure allotment in accordance with existing subdivision approval AP2023/013, prior to the commencement of the proposed development.

The subject site is bisected by an unnamed, unformed road reserve traversing north-south through the centre of the site, resulting in the creation of distinct western and eastern parcels. The western parcel primarily accommodates the access handle, while the eastern parcel constitutes the main developable area intended for the Project Ulysses plant facility.

Access to the site will be achieved via an access handle approximately 25 metres in width and 1,100 metres in length extending westward, connecting directly to Colinta Road. The majority of the access handle is located within the western parcel, although a minor portion extends into the eastern parcel.

Further details of the proposed subject site configuration are outlined in **Table 2** below.

Table 2: Subject Site Configuration

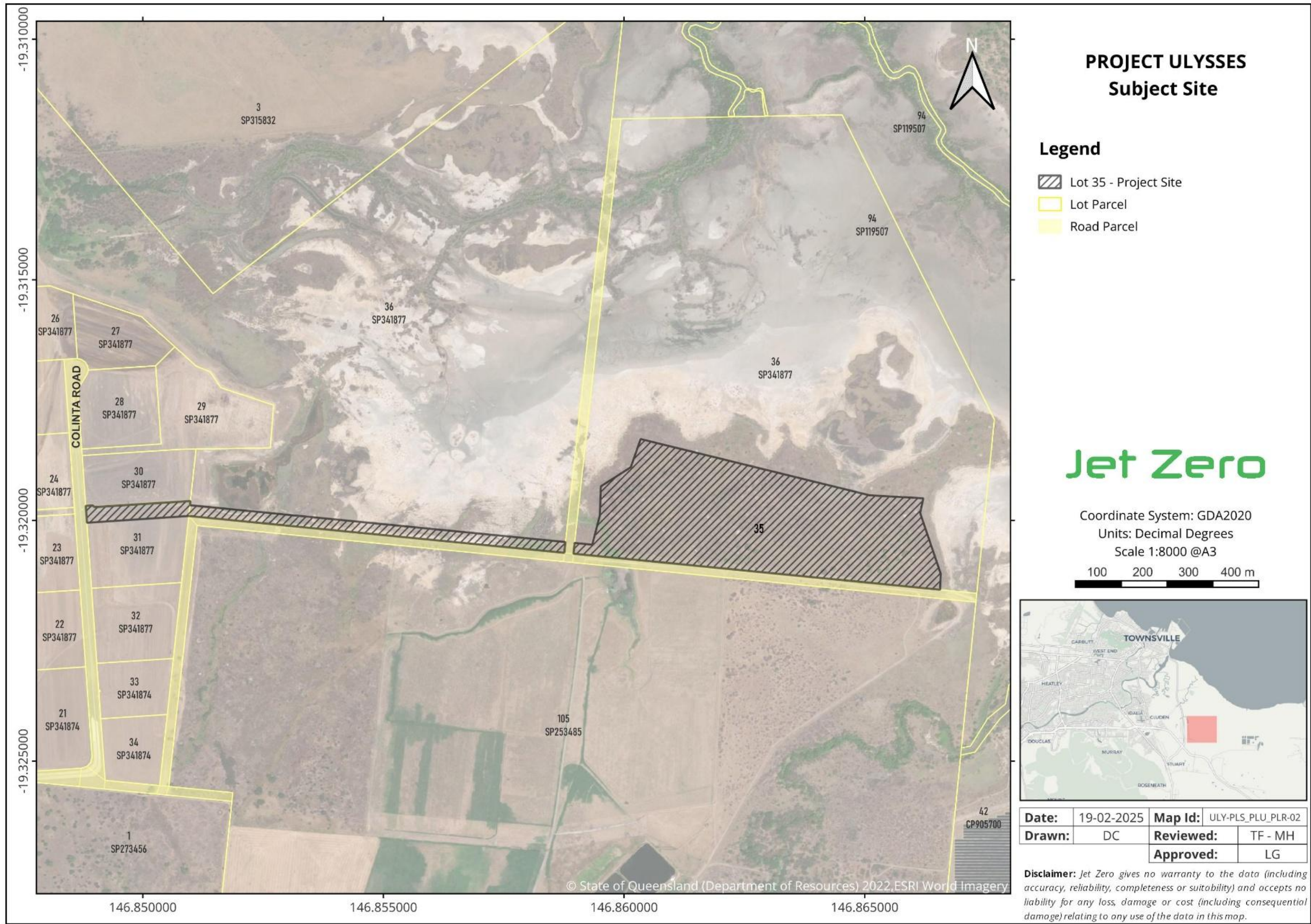
Aspect of proposed subject site	Existing allotment (Lot on Plan)	Area (ha)
Access Handle	Lot 36 & Lot 31 on SP341877	2.846
Developable area	Lot 36 on SP341877	16.71
Total		19.556 ha

Historically, the site has operated as a vacant allotment, utilised for cattle grazing activities. No built form has been constructed on the site to date, with the exception of existing stormwater drainage infrastructure within the western part of the access handle, associated with CBIP Stage 2.

The proposed subject site fronts Colinta Road to the west, which forms part of the broader CBIP road network. An additional unformed road reserve abuts the southern boundary of the site. Through pre-lodgement discussions with Townsville City Council, it was confirmed that the rollout of Council-managed infrastructure within these adjoining unformed road parcels is not anticipated in the foreseeable future.

Refer to **Figure 6** below illustrating the proposed subject site in the context of the existing lot arrangement.

Figure 6: Subject Site



3.2. Associated Development Approvals

The current subdivision approval (reference AP2023/013) is directly related to the proposed development. This approval relates to the excision of the proposed subject site as a distinct freehold allotment from the existing lot configuration, comprising parts of Lot 31 and Lot 36 on SP341877. The approved reconfiguration layout facilitates the creation of a development-ready land parcel to support the Project Ulysses development.

In addition to the Reconfiguring a Lot approval, an associated Operational Works approval (reference OPW24/0107) for civil works has been recently decided by Townsville City Council. The Operational Works approval pertains to the delivery of the required infrastructure to support the subdivision, including access construction, drainage works, and service connections. On-site civil works associated with the Operational Works approval are currently underway.

Refer to **Table 3** below for a summary of the associated development applications relevant to the subject site and this development application. Approved plans relating to AP2023/013 are provided at **Appendix C**, with OPW24/0107 provided at **Appendix D**.

Table 3: Relevant Development Approvals

Application Reference	Status	Assessment Manager	Application Type	Description
AP2022/001	Approved – 27 May 2022	Office of Coordinator General	Combined Reconfiguring a Lot & Operational Works	Reconfiguring a Lot (3 lots into 14 lots plus 2 balance lots and 1 service lot) and Operational Works for Native Vegetation Clearing
OPW22/0066	Approved – 10 August 2022	Townsville City Council	Operational Works	Operational Works – Bulk Earthworks – Cleveland Bay Industrial Park Eastern Precinct Stage 1
AP2023/013	Approved – 11 September 2024	Office of Coordinator General	Combined Reconfiguring a Lot & Operational Works	Reconfiguring a Lot (2 into 3 lots) and Operational Works for Native Vegetation Clearing
OPW24/0107	Approved – 20 March 2025	Townsville City Council	Operational Works	Associated with Reconfiguring a Lot (Townsville SDA Approval AP2023/013) – Civil Works, Marine Plant Clearing, Waterway Barrier Works

Reconfiguring a Lot Approval and associated Operational Works (AP2022/001)

This approval refers to the parent subdivision of the eastern precinct of CBIP, which comprised a three-stage subdivision involving the creation of 14 industrial allotments and 2 balance lots. Additionally, this application was combined with an Operational Works application for clearing of native vegetation.

Operational Works Approval (OPW22/0066)

This approval provided for bulk earthworks associated with the delivery of the CBIP eastern precinct approved under AP2022/0001.

Subdivision Approval (AP2023/013)

This approval involved a combined Reconfiguring a Lot application for a 2 lot into 3 lot subdivision, and Operational work associated with native vegetation clearing. The application was approved

subject to conditions on 11 September 2024. Specifically, the recent subdivision approval involves the creation of an additional allotment within CBIP for the purpose of future industrial development, which comprises the full extent of the proposed Project Ulysses subject site.

Operational Works Approval (OPW24/0107)

This approval provides for Operational Works associated with AP2023/013 for the delivery of the 2 into 3 lot subdivision. This application was approved subject to conditions on 20 March 2025. Specifically, the approval relates to the civil works, marine plant clearing and waterway barrier works associated with the delivery of the subject site as a result of the subdivision approval.

3.3. Associated Environmental Approvals

Jet Zero will be applying for an Environmental Authority (EA) under the *Environmental Protection Act 1994* (EP Act) and *Environmental Protection Regulation 2019* (EP Regulation), through the Department of Environment, Tourism, Science and Innovation (DETSI). The EA application is for ERA 7 Chemical Manufacturing – (1)(b) manufacturing a total of 200 t or more of chemicals, threshold – 5(b) manufacturing, in a year, the following quantity of organic chemicals, more than 100,000 t.

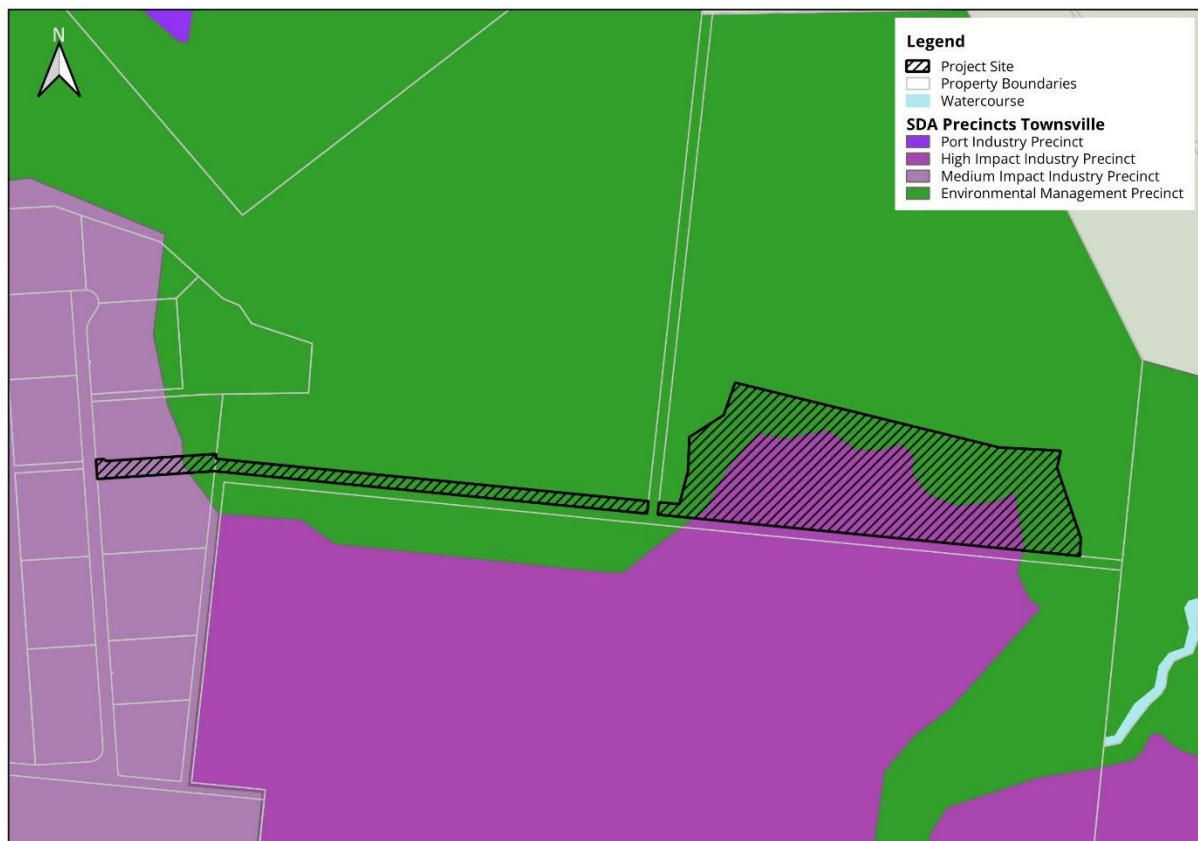
The Project has an existing approval under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) (Commonwealth). The CBIP land developer submitted a Referral for the Project plant site to the Department of Climate Change, Energy, the Environment and Water (DCCEEW), that was deemed a 'Controlled Action' with Preliminary Documentation (EPBC 2020/8810). The Project description was produced and submitted to DCCEEW with an approval gained under the EPBC Act with 'Conditions', decided on 3 September 2011.

The approval conditions relate to the Bare-rumped Sheath Tailed Bat (EPBC listed species), with the conditions being added to the Project approvals register. The species and habitat were further field surveyed and assessed, as described in **Appendix F** and following of this Planning Report.

3.4. Townsville State Development Area

The Townsville SDA encompasses approximately 4,915 hectares of land specifically designed to support industrial development of regional, state and national significance. Strategically located at the intersection of the Bruce and Flinders Highways, the Townsville SDA benefits from direct access to major freight road and rail networks and the Port of Townsville.

The Townsville SDA is administered under the *State Development and Public Works Act 1971* (SDPWO Act), which provides a streamlined, coordinated approach to planning and development assessment under the authority of the Coordinator General. Development within the Townsville SDA is guided by the *Townsville State Development Area Development Scheme 2019* (TSDA Development Scheme), which identifies defined precincts with specific preferred development intents. The subject site associated with the Project is primarily located within the High Impact Industry Precinct, which is intended to accommodate industries with significant material impacts, facilitating efficient clustering of compatible uses while managing potential conflicts with sensitive receptors. The Townsville SDA precinct mapping applicable to the subject site is illustrated in **Figure 7**.

Figure 7: Townsville State Development Area Precincts

The Townsville SDA's development framework seeks to:

- Enable development aligned with the precinct's preferred uses;
- Support major infrastructure and industry initiatives through coordinated planning; and
- Minimise adverse environmental and community impacts by concentrating high impact uses in designated areas.

In accordance with the Townsville SDA's strategic intent, surrounding and proximate developments include major industrial facilities that support the regional economy. These are outlined in **Table 4** below.

Table 4: Surrounding Land Context

Surrounding Uses	
North	• Port of Townsville • South Townsville Power Sub-Station • Cleveland Bay Wastewater Treatment Plant
South	• JBS Australia Abattoir • Glencore Xstrata Copper Refinery • Origin Energy Mt Stuart Peaking Generator Plant • Pacific National Rail Freight Terminal
East	• Ark Energy Solar Farm • Sun Metals Refinery • Townsville City Council Landfill
West	• Aurizon Stuart Intermodal Facility

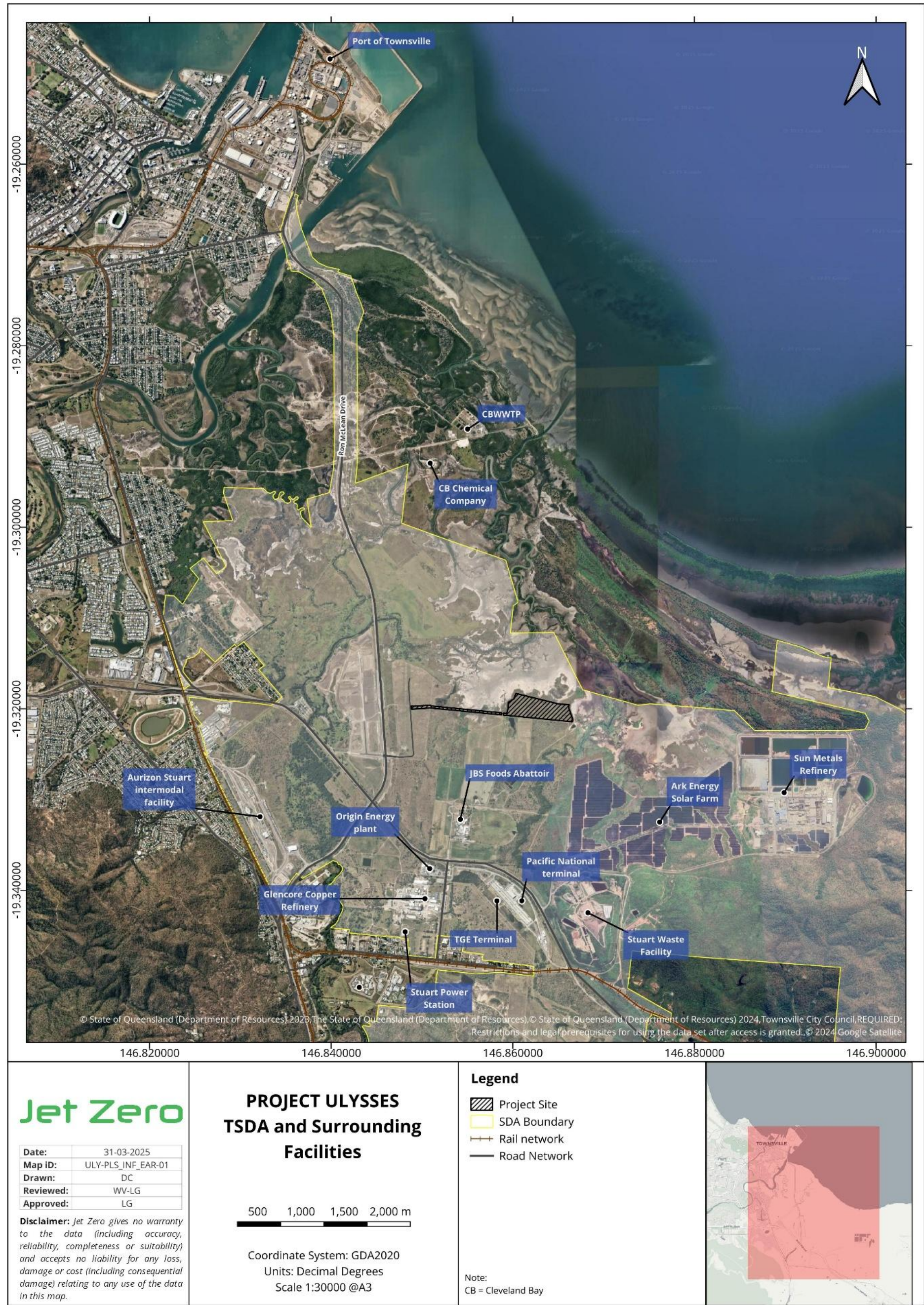
Cleveland Bay Industrial Park

The CBIP involves a master-planned industrial estate that accounts for 125 ha of the Townsville SDA either side of the Townsville Port Access Road (Ron McLean Drive), with the intention of providing for fully serviced freehold industrial lots for development. The estate accommodates 24/7 operation of industry activity.

The subject site forms part of Stage 3 of the CBIP and in accordance with the intent of the estate is intended to be a fully serviced allotment to service industrial development.

The subject site and the wider locality are illustrated in **Figure 8**.

Figure 8: Surrounding Locality Site Context



3.5. Easements

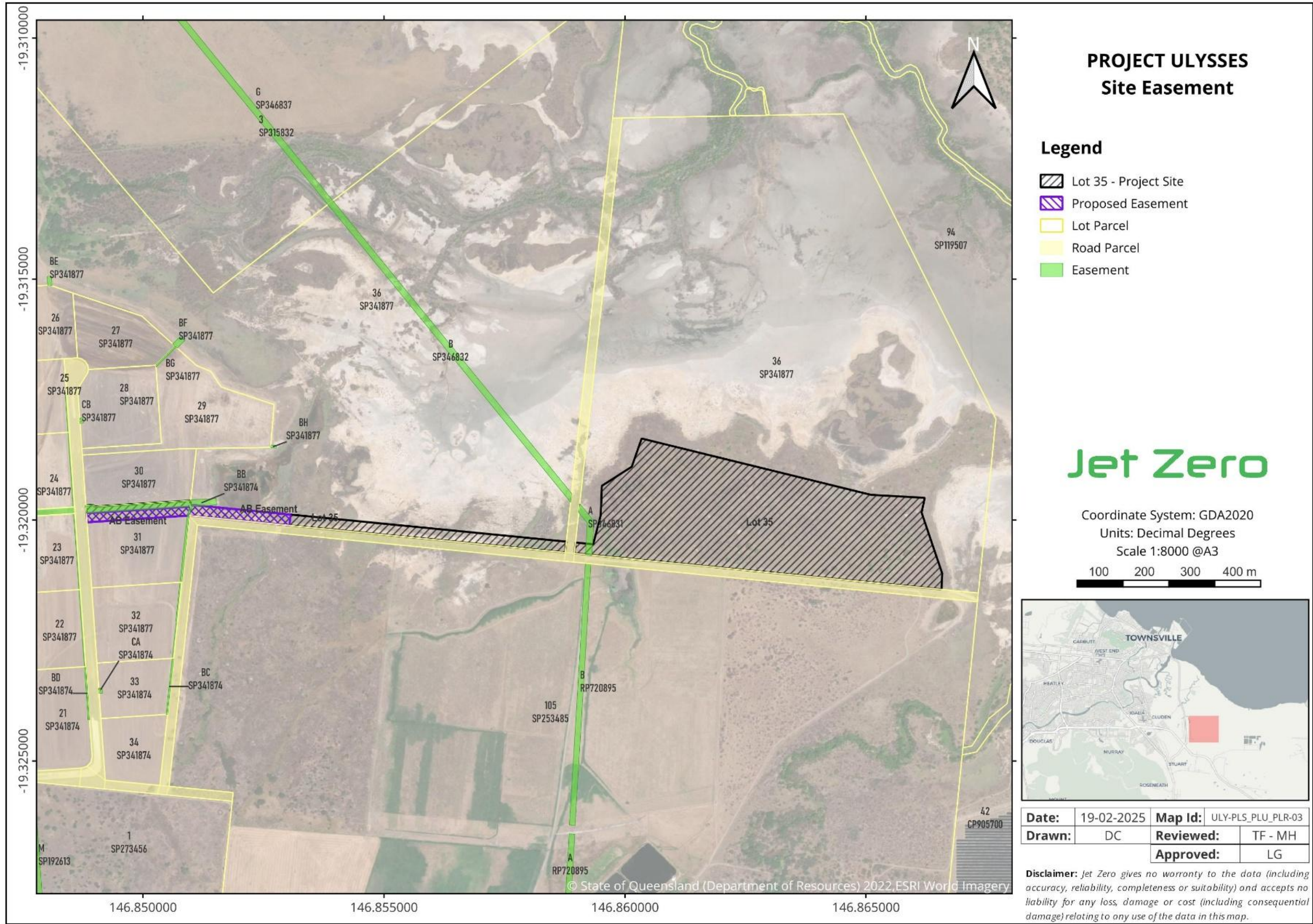
The subject site is affected by multiple existing and proposed easements. These easements primarily facilitate stormwater management, drainage infrastructure, and electrical transmission, ensuring ongoing serviceability and compliance with infrastructure planning requirements. Refer to **Table 5** below for an overview of easements burdening the subject site:

Table 5: Easement Overview

Easement	Status	Location (Lot on Plan)	Purpose
Easement BB on SP341874	Existing	Lot 36 on SP341877 & Lot 31 on SP341877	Stormwater drainage
Easement BA on SP341874	Existing	Lot 31 on SP341877	Stormwater drainage
Easement A on SP346831	Existing	Lot 36 on SP341877	Ergon electrical infrastructure
Easement AB	Proposed	Future Lot 35	Burdening future Lot 35 (subject site) to facilitate shared access from Colinta Road to future Lot 37 (balance allotment)

The location of existing easements in relation to the proposed subject site is depicted in **Figure 9** below.

Figure 9: Easement Overview



3.6. Natural Environment Values Summary

The Project plant and facility will be located on a site within the Townsville SDA that is characterised by flat and low-lying topography. Site elevations range from approximately 2.5 m to 5.25 m Australian Height Datum (AHD), with the majority of the landform situated below 5 m AHD.

The site is located within the Ross River catchment, approximately 2 km inland from the coastline, and lies within the mid-to-lower reaches of the Sandfly Creek catchment. Surface waters from the site drain northward to Sandfly Creek, ultimately discharging into Cleveland Bay. Portions of the site are potentially subject to tidal influence, particularly in lower-lying areas that support estuarine features such as riverine, saltmarsh, and coastal wetland communities. Areas not typically subject to tidal inundation have been historically cleared and over-sown with introduced pasture species for rangeland cattle grazing. Refer **Appendix B** for related state planning policy mapping and identified areas of State interest.

The majority of the site comprises floodplain consisting of clay, silt, sand and gravel, while a smaller area in the northwest is mapped as coastal tidal flats, formed from estuarine and nearshore sediments. These geological conditions reflect the site's coastal and lowland setting and are relevant to considerations around site drainage, foundation suitability, and flood planning.

An ecological assessment of the subject site has been undertaken for the Project by Jet Zero and is provided at **Appendix F**. Matters of environmental significance are outlined following.

3.6.1. Matters of National Environmental Significance

Matters of National Environmental Significance (MNES) are protected under the EPBC Act and represent key environmental values of national and international importance. Any potential impact on MNES is referred under the Act and if considered a 'controlled action', a formal assessment and approval process is undertaken under the EPBC Act to ensure that these values are appropriately managed and safeguarded during development.

The site has an existing approval under the EPBC Act (Commonwealth). The CBIP land developer submitted a Referral for the Project plant site to the DCCEEW, that was deemed a 'Controlled Action' with Preliminary Documentation (EPBC reference 2020/8810). The Project description was produced and submitted to DCCEEW with an approval gained under the EPBC Act with conditions on 3 September 2011.

The Project area lies within the broader influence of several MNES as defined under EPBC Act, though does not directly intersect most MNES values.

- **World and National Heritage Areas and Marine Parks:** While the site does not directly intersect a world or national heritage area, surface waters from the site discharge to Cleveland Bay, approximately 2.5 km downstream, which forms part of the Great Barrier Reef World Heritage Area, National Heritage Place, and Marine Park. These areas are recognised for their biodiversity, ecological processes, and cultural significance.
- **Listed Threatened Species and Ecological Communities:** The Bare-rumped Sheathtail Bat, a listed threatened species, is likely to forage within the Project footprint. Other listed species, including migratory shorebirds such as the Sharp-tailed Sandpiper, Eastern Curlew and Latham's Snipe, have been observed in the receiving environment to the north, but not specifically within the development area.
- **Listed Migratory Species:** The site is on the southern edge of the Cleveland Bay migratory shorebird habitat. Several species listed under the *EPBC Act*, including the Black-tailed Godwit, Eastern Curlew, Whimbrel, and Caspian Tern, have been observed intersecting the Project area. Other migratory species were recorded north of the site.
- **Ramsar and Conservation Areas:** The site does not intersect Bowling Green Bay National Park (a Ramsar-listed wetland) or Cleveland Bay – Magnetic Island dugong conservation area.

These features are located at a distance from the Project site and are not expected to be impacted by the proposed development.

3.6.2. Matters of State Environmental Significance

Matters of State Environmental Significance (MSES) are identified under the *Environmental Offsets Act 2014* and State Planning Policy and include values such as regulated vegetation, wetlands, watercourses, marine plants, and wildlife habitat.

The ecological assessment commissioned by Jet Zero confirmed the presence of MSES within and adjacent to the Project site. These include:

- **Marine Plants:** Approximately 2,480.5 m² of marine plant communities located during an NRA Ecological Consultants field survey above Highest Astronomical Tide (HAT) within the subject site (refer **Appendix F**). Marine plants within the access road are addressed as part of the CBIP operational works approval OPW24/0107.
- **Regulated Vegetation:** Mapped regulated vegetation is located along the access corridor; however, field verification confirmed that these areas are non-remnant or highly degraded and do not represent intact regional ecosystems. Clearing of regulated vegetation has been addressed in existing approval AP2023/013.
- **Wetlands and Watercourses:** The site is located near areas mapped as high ecological significance (HES) wetlands. A mapped waterway, classified as moderate fish passage risk, intersects the site. This feature was observed to be ephemeral, lacks connectivity to downstream systems, and does not support significant aquatic habitat.
- **Wildlife Habitat:** While portions of the broader area support migratory birds and threatened species habitat, the site itself consists of low-quality habitat due to historical clearing and grazing. No essential habitat areas are mapped within the Project footprint.

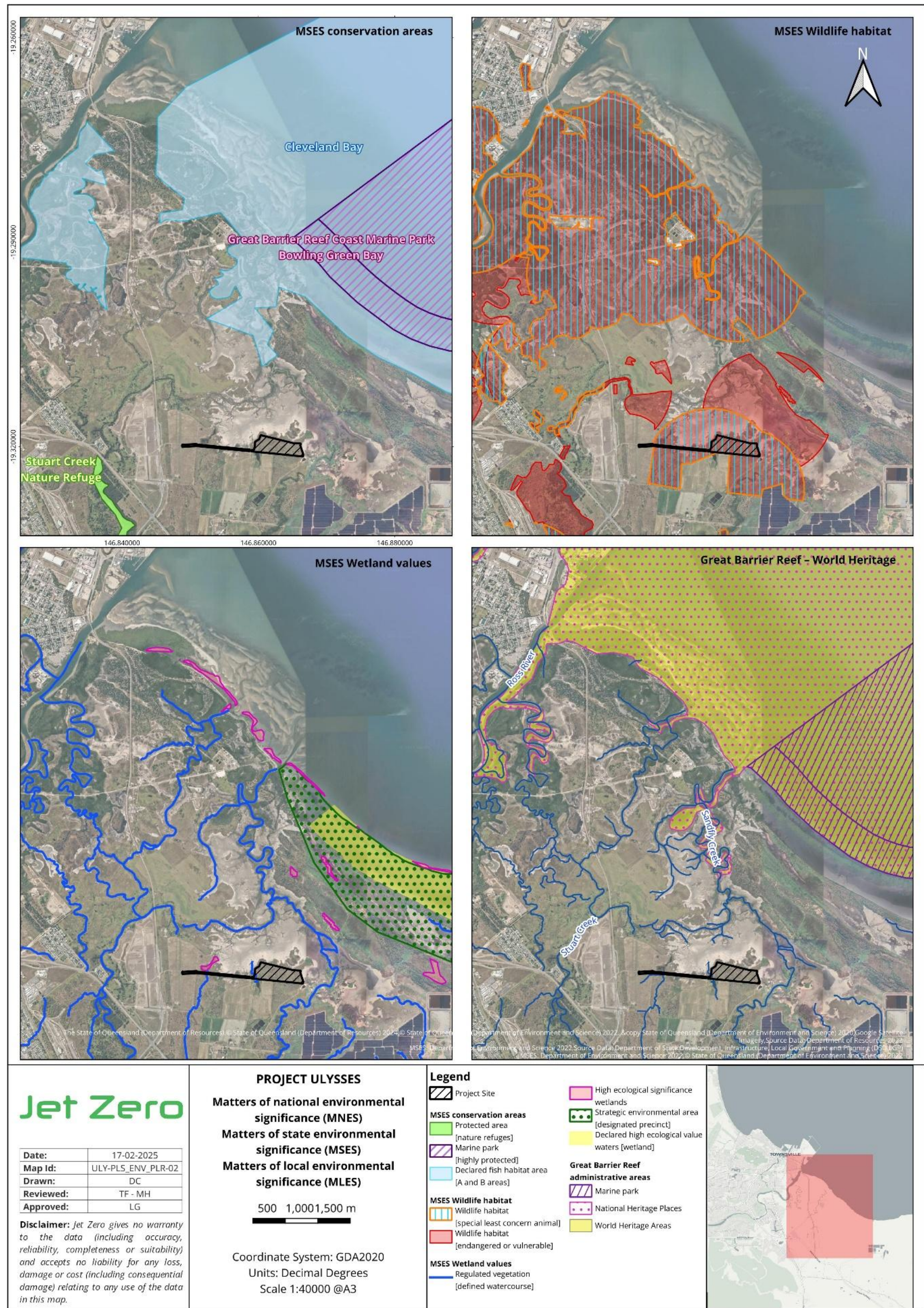
3.6.3. Matters of Local Environmental Significance

Matters of Local Environmental Significance (MLES) are identified within the subject site, including remnant vegetation, essential habitats, ecological corridors, wetlands and other natural features. Council's Natural Assets Planning Scheme Policy emphasises the need for site-specific environmental assessments to ensure accurate identification and protection of local environmental values.

Site assessments have identified the extent of environmental considerations relevant to the site, including mapped natural assets and ecological features. The proposed development is not expected to result in an unacceptable impact on MLES, with appropriate measures in place to minimise and mitigate potential effects.

Matters of National, State and Local Environmental Significance are illustrated in **Figure 10** below.

Figure 10: Matters of National, State and Local Environmental Significance



4. PROJECT DESCRIPTION

4.1. Overview

Jet Zero are proposing to construct and operate a plant to convert ethanol derived from sustainably certified feedstocks such as agricultural byproducts, including agricultural byproducts, into SAF and RD using the LanzaJet ATJ Process.

Jet Zero has partnered with technology provider and licensor, LanzaJet, to provide the licensor process scope of the ATJ plant facility. Jet Zero have contracted T.EN, a tier 1 global engineering, procurement and construction contractor to undertake Pre-FEED and FEED integrating the licensor process with the utilities and tankage requirements. The facility will also include utilities infrastructure to supply the plant including natural gas pipeline, telecommunications, electrical, water, and wastewater connections.

As outlined within the development plans at **Appendix E**, the plant consists of two main elements, being the process plant and tankage / utilities, explained as:

- Process plant equipment including dehydration, oligomerisation, hydrogenation, and fractionation chemical process plant steps.
- Tankage / utilities equipment including storage tanks, fire protection, truck gantry, electrolyzers, flare system, office block and utilities, power supply and instrumentation.
- Other utility Elements outside of the plant include electricity powerline and grid connection, natural gas pipeline, telecommunications, water and wastewater connections, trucking and logistics (stevedore) services, port tank storage, shipping movements of bioethanol, and blending into existing or new airport infrastructure.

This design is based off LanzaJet's Freedom Pines 38 million litre commercial demonstration plant currently under commission in Georgia, United States of America.

Figure 11 illustrates a Project Flowchart and the steps to convert ethanol into SAF and RD. The flowchart shows the Project boundaries of activities assessed and explains the components of the Project. It includes:

- Inside of Project boundary:
 - Ethanol feedstock road transport to plant site.
 - Ethanol storage at plant site.
 - Ethanol ATJ plant process to SAF and RD.
 - SAF / RD storage at plant site.
 - SAF / RD transport to market.
- Outside of Project boundary:
 - Ethanol feedstock from facility, transport and ship to Port of Townsville storage.
 - SAF / RD storage and use by customers.

Refer **Table 6** below outlining the Project components and operational description.

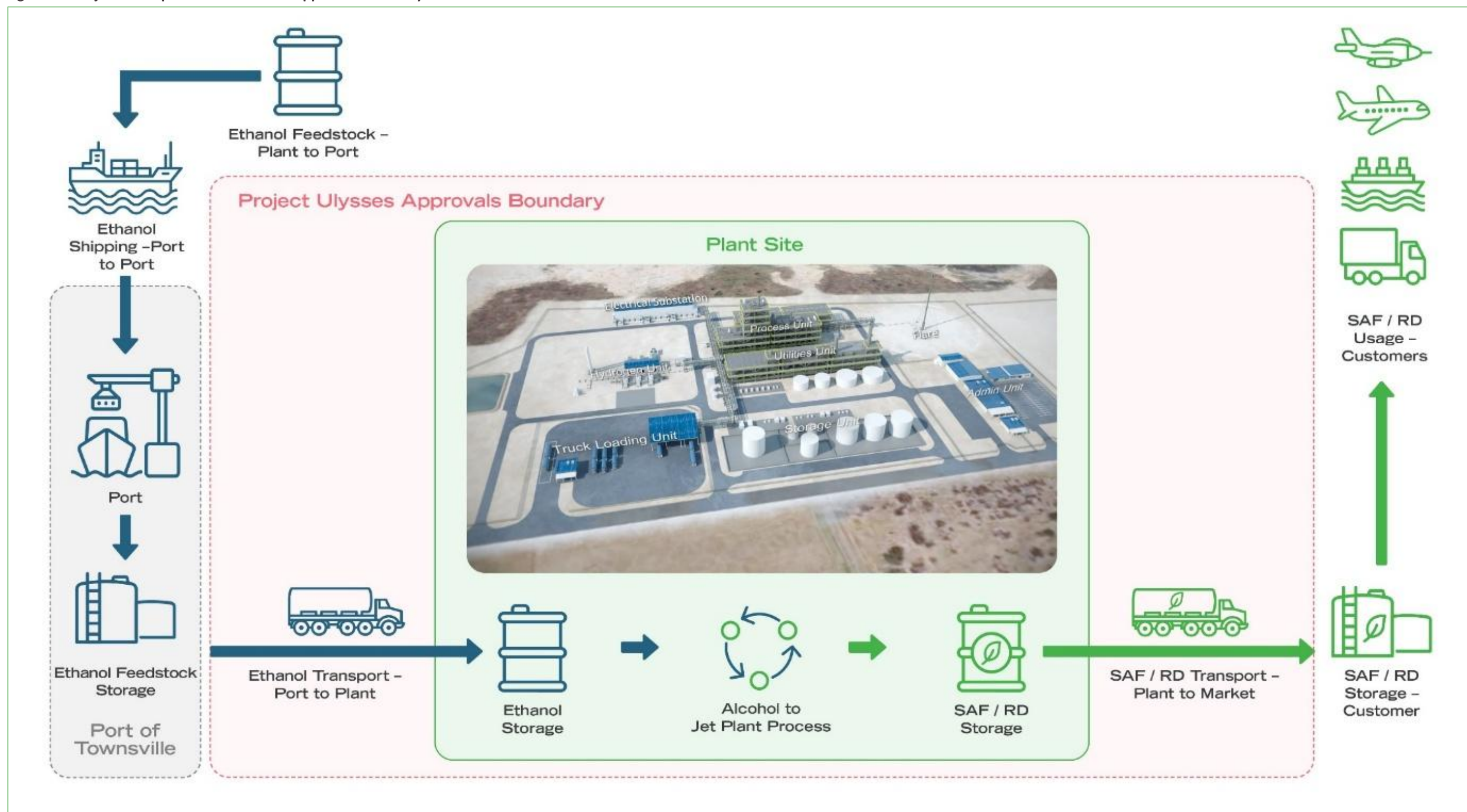
Table 6: Project Description Summary

Project Aspect	Description
Plant Production	• Sustainable Aviation Fuel: 102 MLPY (90 weight %). • Renewable Diesel: 11 MLPY (10 weight %).
Plant Feedstock	• Feedstock volume: 183 MLPY (700,000 tonnes) of anhydrous ethanol. • Ethanol feedstock derived from agricultural byproducts such as agricultural byproducts, will be sourced for conversion to SAF and RD.

Project Aspect	Description
Project Site and Plant Layout	• Project site area of 16.71 ha and 2.85 ha of road access handle (Total 19.556 ha). • Road access 1,100 m length and 25 m width from Colinta Road. • Process plant height 45 m, flare height 50 m. • Plant layout includes: ○ Truck Unloading and Offloading Unit; ○ Tank Farm Storage – Feedstock; ○ Process and Utilities Unit; ○ Hydrogen Unit; ○ Flare; ○ Tank Farm Storage Unit – Product; ○ Administration Unit.
Plant Process	• Plant process flow from ethanol feedstock includes: ○ Dehydration: water extraction from ethanol to make Ethylene. ○ Oligomerization: Ethylene to Olefins (C₄ – C₂₄). ○ Hydrogenation: Olefins plus hydrogen. ○ Fractionation: produce paraffins and isoparaffins as SAF and RD.
Plant Construction	• Modularisation: process ATJ plant will be constructed as modules and transported into Townsville via the Port of Townsville and to site via existing roads. • Process unit support facilities and all other infrastructure outside of the ATJ plant will be modularised and assembled on site or directly constructed on site. • Workforce labour: approximately up to a peak of 1000 people. • Workforce housing: workers will be housed in purpose-built or leased facilities locally in Townsville to ensure minimal pressure on the existing rental / housing market. • Temporary site facilities establishment for construction i.e. cribbing space, office, ablutions, warehousing and workshops.
Plant Operation	• Operating period: plant will be operating 24 hours per day / 365 days per year, 8,000 hr/annum, shutdown and maintenance period estimated at 32 days per year. • Workforce labour: approximately 100 people working shifts of 3 x 8 hours per day. • Workforce housing: workers will live locally within the Townsville or surrounding community.
Plant Inputs and Outputs	• SAF production – 306 m³ / day. • RD production – 33 m³ / day. • Ethanol consumption – 550 m³ / day. • Hydrogen consumption – 3.2 T / day. • Steam consumption – 784 T / day. • ISBL power consumption – 3 MW. • OSBL power consumption – 32 MW. • Total water consumption – 1,356 m³ / day.
Transport and Logistics	• Ethanol feedstock to plant site: Ethanol product will be received via ship at the Port of Townsville, then transported to site via truck (average 10 deliveries per day). • SAF product from plant site: SAF product will be transported from the plant site either to the Port of Townsville for subsequent distribution, or directly by truck to local end users (average 6 deliveries per day). In all cases, SAF will be blended with A1 jet fuel prior to use via established airport fuel infrastructure. • RD product from plant site: RD product will either be loaded onto end customers trucks at plant site, or it will be transported from site via trucks to customers site storage. • Transport of materials will be undertaken in accordance with relevant dangerous goods and heavy vehicle requirements.
Plant Site Utilities	• Power (electricity) required estimated at 44 Mega-watt (MW) continuous supply. • Hydrogen required for process will be generated on site utilising an electrolyser producing 3.7 t/day.

Project Aspect	Description																				
	- Natural gas supply of 2 Terrajoules per day by pipeline from a Northern Queensland Gas Pipeline lateral to the plant facility. - Electricity will be supplied by overhead 66kV line along the existing southern powerline route. NOTE: Planning and environmental approvals for infrastructure to supply the plant site is assumed to be managed and submitted by the company providing the service utility.																				
Water Supply, Wastewater and Stormwater	- Proposed development serviced via connection to Council's reticulated water infrastructure to the Colinta Road frontage. - Wastewater from the plant process will be recycled back into the process where possible. Excess process wastewater will be treated on site. Effluent / sewage and potentially some wastewater will be discharged as trade waste via connection to Council's reticulated wastewater network, with connection via Colinta Road frontage. - Stormwater considered clean from direct rainfall from 'undeveloped' areas will runoff from site. - Stormwater potentially contaminated from direct rainfall from 'developed' areas will be captured as runoff in the 'first flush' 15 mm of rainfall stored within a contaminated water tank and only released following testing to water quality criteria.																				
Feedstock, Fuel and Chemical Storage and Supply	Storage capacity of feedstock, fuel, gases, and dangerous goods on-site, with approximate volumes: <table border="1"> <thead> <tr> <th>Volume</th><th>Feedstock, Fuel and Chemicals</th></tr> </thead> <tbody> <tr> <td>9.16 ML</td><td>Ethanol feedstock</td></tr> <tr> <td>4.82 ML</td><td>Sustainable Aviation Fuel</td></tr> <tr> <td>460 KL</td><td>Renewable Diesel</td></tr> <tr> <td>0.7 tonnes</td><td>Hydrogen (storage volume)</td></tr> <tr> <td>884 tonnes</td><td>Hydrogenation off-spec fluids</td></tr> <tr> <td>569 tonnes</td><td>Olig off-spec fluids</td></tr> <tr> <td>114 KL</td><td>Caustic (NaOH) tanks</td></tr> <tr> <td>114 KL</td><td>Acid Tank (Sulphuric Acid)</td></tr> <tr> <td>30 KL</td><td>Liquified Nitrogen</td></tr> </tbody> </table>	Volume	Feedstock, Fuel and Chemicals	9.16 ML	Ethanol feedstock	4.82 ML	Sustainable Aviation Fuel	460 KL	Renewable Diesel	0.7 tonnes	Hydrogen (storage volume)	884 tonnes	Hydrogenation off-spec fluids	569 tonnes	Olig off-spec fluids	114 KL	Caustic (NaOH) tanks	114 KL	Acid Tank (Sulphuric Acid)	30 KL	Liquified Nitrogen
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Plant Reinstatement Site and Rehabilitation	- Following decommissioning of the plant, the aboveground facilities will be removed from site and recycled where possible. Below ground infrastructure will be removed, if feasible to do so. Plant site reinstatement and rehabilitation of the land will include: - Creation of a stable and safe landform similar to existing contours prior to development. - Establishment of stormwater runoff measures to manage overland flow. - Reinstatement viable topsoil where possible. - Undertake revegetation and rehabilitation for the site to ensure there is adequate groundcover to prevent soil loss in accordance with the guideline Best Practice Erosion and Sediment Control (IECA 2008). - Treat the site to ensure it is free of declared pest and weed species.																				

Figure 11: Project Description Flowchart and Approvals Boundary



4.2. Project Schedule

The Project has completed Pre-FEED and commenced FEED which will include further Project design definition while the regulatory approval and stakeholder engagement process continues. **Table 7** provides a summary of the current Project schedule.

Table 7: Project Schedule Summary

Project Aspect	Schedule
Pre-Front End Engineering	Completed
Front-End Engineering	Q2 2025 – Q1 2026
Regulatory Approvals and Stakeholder	Q2 2024 - Q3 2025
Final Investment Decision	Q2 2026
Procurement and Fabrication	Q2 2026 – Q2 2027
Construction and Installation	Q3 2027 – Q4 2027
Commissioning and Start-up to Operation	Q1 2028

4.3. Plant Production

The Project plant is designed to produce 102 ML of SAF and 11 ML of RD per year, with the option to produce a higher proportion of RD, if required.

4.3.1. Plant Feedstock

The Project feedstock volume is 183 ML (700,000 tonnes) per year of anhydrous ethanol. The ethanol feedstock will be derived from agricultural byproducts such as agricultural byproducts. The feedstock will be sourced from existing suppliers primarily processed via the Port of Townsville.

4.3.2. Plant Site and Layout

The Project plant site area is 16.71 ha with a 1,100 m length road access handle (1,100 m length, 25 m width) from Colinta road, being 2.85 ha of area (Total 19.55 ha). The plant site layout component details are outlined in **Table 8**. **Figure 12** demonstrates the conceptual Project layout and **Figure 13** demonstrates the plot plan layout, respectively. The plant layout images in **Figure 12 and 13** are conceptual only and may alter during FEED.

Table 8: Plant Site Layout Components

Plant Site Component	Details
Truck Unloading and Offloading Unit	• Truck gatehouse administration • Truck parking and weighbridge
Tank Farm Storage – Feedstock	• Ethanol bulk total 1,800 m³ (1 tank) • Flammables bund / ethanol and SAF – 14,000 m³ (storage capacity), • Optional flammables bund – 28,350 m³
Tank Farm Storage Unit – Product	• SAF bulk total 3,037 m³ (3 tanks) • RD bulk total 790 m³ (2 tanks) • Combustibles bund – 500 m³ (storage capacity)
Tank Farm Storage –Process Liquid	• Paraffins bulk total 500 m³ (1 tank) • Hydrogenation off-spec fluids (884 tonnes) • Olig off-spec fluids (569 tonnes) • Intermediates Bund – 2,100 m³ (storage capacity) • Caustic (caustic soda) (114 KL) • Acid (sulphuric acid) (114 KL) • Liquified nitrogen (30 KL) • Chemicals bund – 226 m³ (storage capacity)

Plant Site Component	Details
Process and Utilities Units (maximum height 45 m)	• Fuel gas boiler to produce process high pressure steam • Demineralised water plant to treat water supply • Wastewater Treatment Plant (WWTP) • Ethanol to Ethylene process (ETE) • Ethylene to Jet fuel process (ETJ)
Hydrogen Unit	• Hydrogen production of 3.7 tonnes/day • Hydrogen storage (0.7 tonnes) • Compressor • Electrical transformer
Flare (50 m height)	• Low, high and cold pressure flare system
Water retention basin	• Retention of water on site to mitigate high velocity flows offsite, prevent erosion and protect water quality.
First flush contaminated water tank (225m ³)	• Stormwater runoff collection of first flush (15 % flow)
Electrical substation	• Powerline connection • Substation and transformer
Emergency firefighting	• Firefighting equipment (pumps and piping) • Fire water storage
Administration Unit	• Administration building and process control room • Process fluid laboratory • Warehouse and workshop
Laydown area	• Flat cleared area for construction, equipment and logistics

Figure 12: Conceptual Project Layout Images



Aerial view of plant site with road access to west (left) and laydown area to east (right)

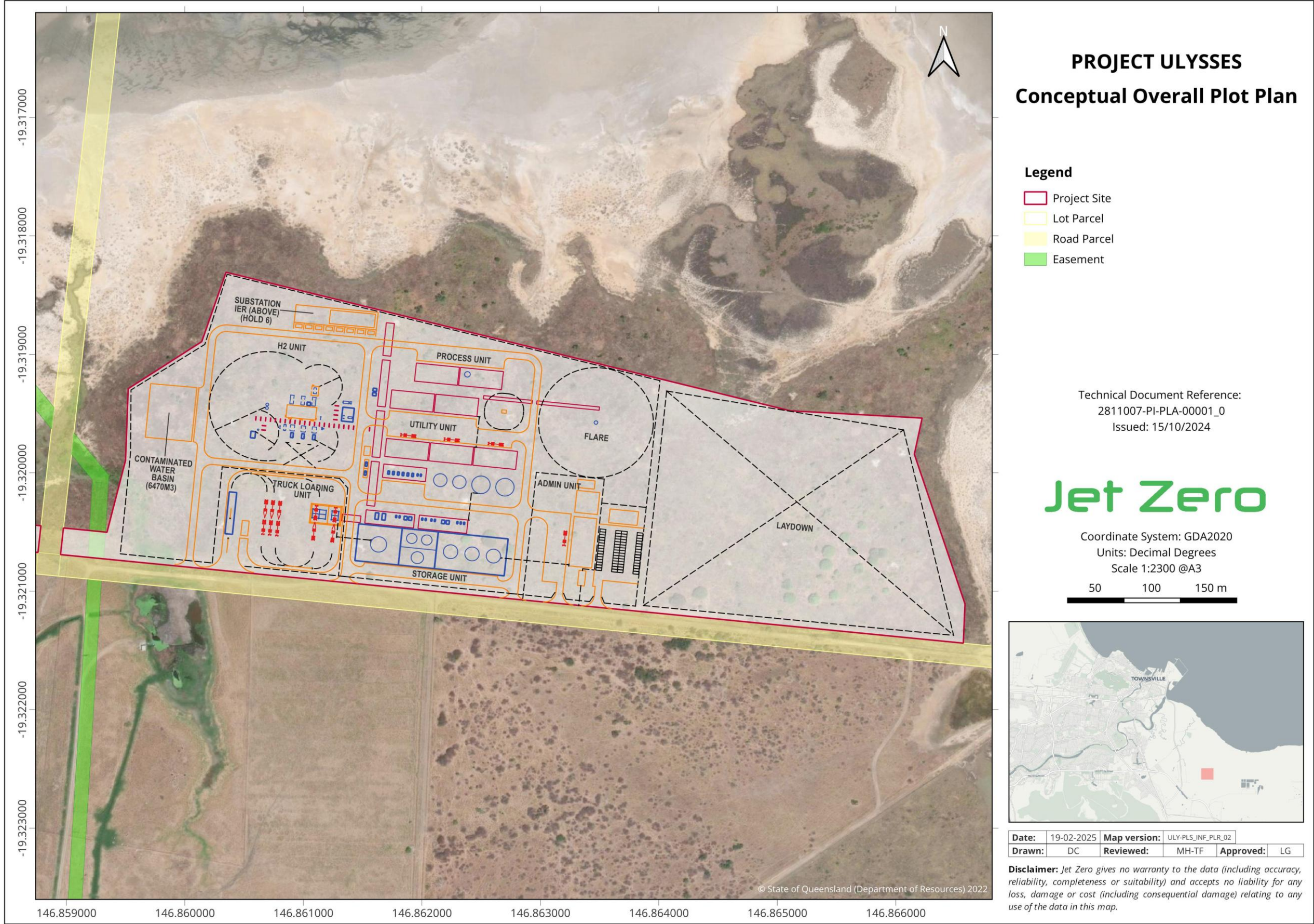


Aerial view of plant site with key unit areas of truck loading, hydrogen, storage, utilities, flare, process and administration



Aerial view showing the tank storage, flare, process, utilities and administration in closer detail

Figure 13: Plant Site Plot Plan Layout

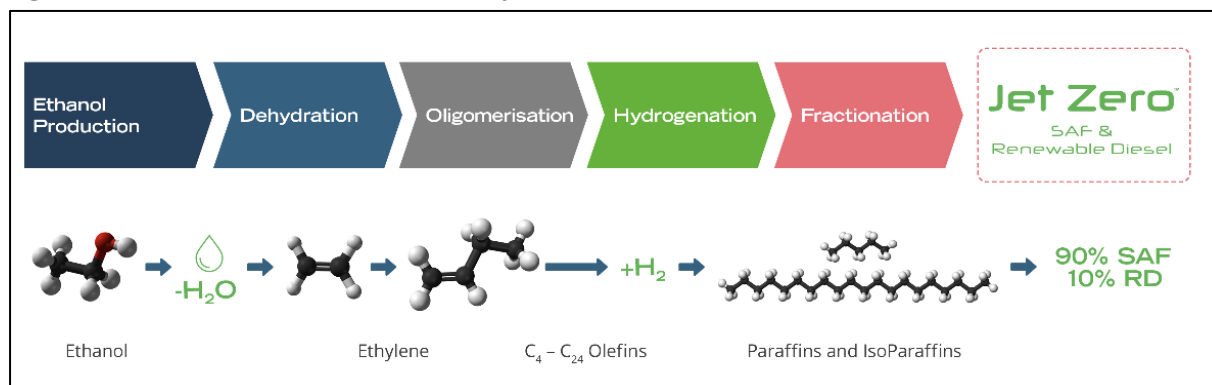


4.3.3. Plant Process Unit Flow and Chemistry

The plant process unit flow and chemistry to produce SAF and RD from ethanol feedstock includes the following phases and components described in **Figure 14**:

- **Feedstock – Ethanol ($\text{CH}_3\text{CH}_2\text{OH}$) production:** Fermented from agricultural byproducts.
- **Phase 1 - Dehydration:** water extraction from Ethanol to produce Ethylene (C_2H_4).
- **Phase 2 - Oligomerization:** Ethylene to Olefins ($\text{C}_4 - \text{C}_{24}$).
- **Phase 3 - Hydrogenation:** Olefins plus hydrogen (H_2).
- **Phase 4 - Fractionation:** produce Paraffins ($\text{C}_n\text{H}_{2n+2}$) and Isoparaffins, as SAF and RD.

Figure 14: Plant Process Phases and Components



4.4. Plant Operation

The Project will operate continuously over a 24-hour cycle, consistent with operational requirements of a high-intensity industrial process. The operational workforce will comprise approximately 100 personnel, distributed evenly across a three-shift rotation with approximately 33 personnel per shift. Anticipated attendance on-site is outlined in **Table 9**.

Table 9: Development Staffing Requirements & Visitor Demands

User Type	Timing	Yield
Staff	Morning Shift (6 am-2 pm)	34 Staff
	Afternoon Shift (2 pm-10 pm)	34 Staff
	Night Shift (10 pm-6 am)	34 Staff
Visitors	Anytime during operational hours	1-2 visitors

4.5. Access

In accordance with approved subdivision plans AP2023/013 (refer **Appendix C**), the subject site is afforded road frontage to Colinta Road from the west via an excised parcel of existing Lot 31 on SP341877. The subject site involves an access handle of approximately 25 m in width and 1,100 m in length from Colinta Road to the plant site.

Operational Works approval OPW24/0107 provides for civil works associated with the construction of the private access road to Colinta Road. In particular, this approval provides for the construction of a 15 m wide private road within the access handle, with the provision of four (4) sections of culvert structures. It is noted no public infrastructure forms part of the access handle, with the constructed access a private asset.

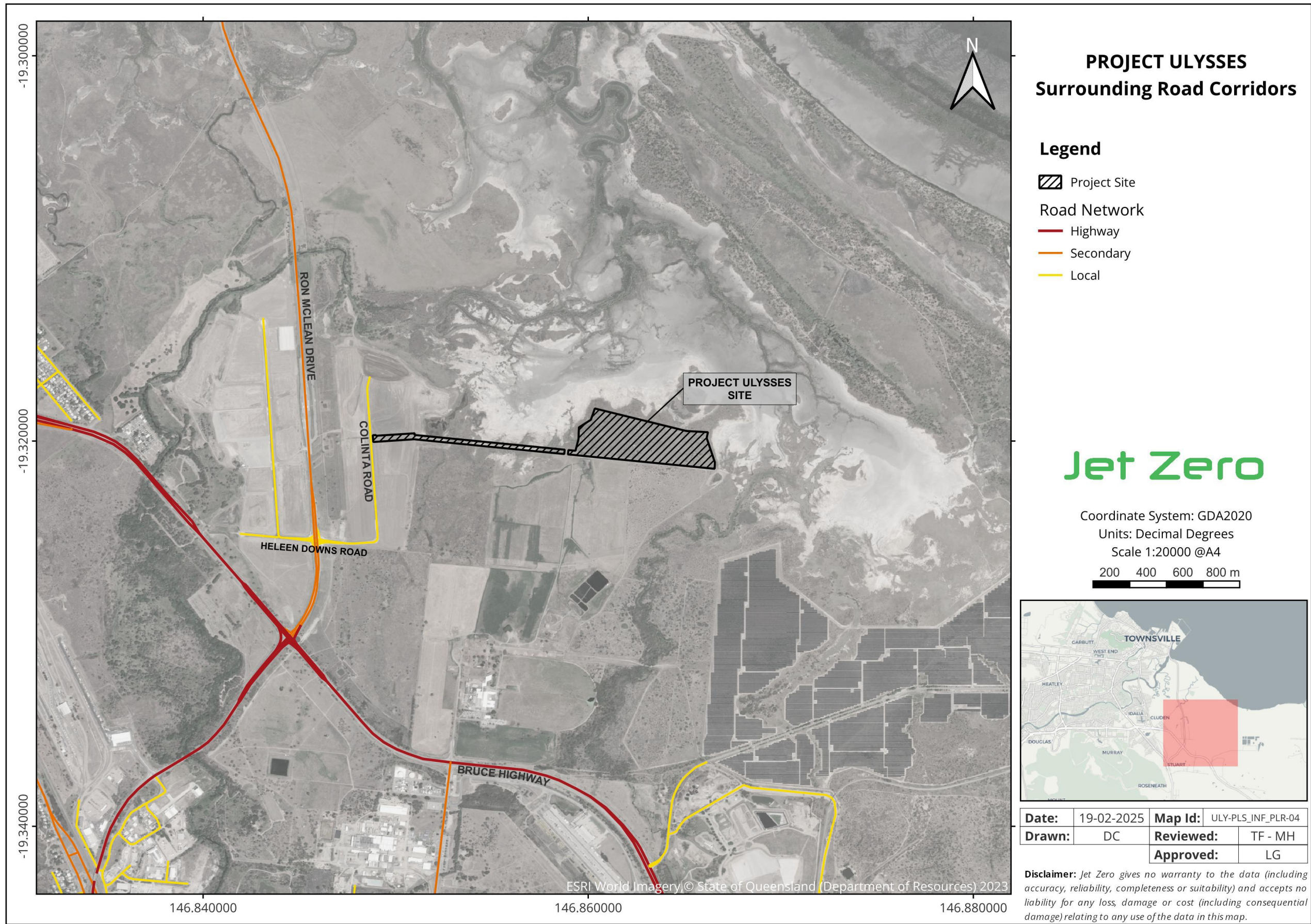
The private access road is designed to accommodate the operational requirements of the facility, including heavy vehicle movements involving B-doubles. These vehicles will transport ethanol

feedstock, SAF and RD between the site, the Port of Townsville, and regional airports. The route provides direct connectivity to Colinta Road and links to Ron McLean Drive via Heleen Downs Road.

Unformed and unnamed road reserve adjoins the southern part of Lot 36 on SP341877, and an additional gazetted road parcel traverses north/south through the site, fragmenting the proposed access handle. Refer to **Figure 6** demonstrating the existing road parcels directly adjoining the subject site. Surrounding key road corridors are illustrated in **Figure 15** below.

The associated access infrastructure will be formalised prior to the commencement of use, ensuring provision of suitable ingress and egress to support the requirements of the Project.

Figure 15: Surrounding Road Corridors



4.6. Services

The subject site will be connected to Council's reticulated water and wastewater networks in accordance with subdivision approval AP2023/013. Private asset water infrastructure will be extended from the property connection to Colinta Road.

Total projected water demand for the facility is approximately 1,356 m³/day, servicing process operations including steam generation, cooling systems, hydrogen production, and demineralised water generation. Onsite water treatment infrastructure includes reverse osmosis systems to meet quality requirements for hydrogen electrolysis and other processes.

Wastewater from the facility will be managed through a combination of onsite treatment and discharge to the reticulated network. An on-site wastewater treatment plant will treat process and utility-generated wastewater. Where feasible, treated water will be reused internally for non-potable applications, with remaining wastewater directed to Council's reticulated network.

4.7. Environmental Management

Potential environmental impacts and risks identified have mitigation measures proposed to minimise the level of impacts and risks as part of the Project. These mitigation measures have been devised as part of the planning and environmental approval process, including technical field studies, modelling and reporting. The mitigation measures are summarised within following sections of this planning report.

A Construction Environmental Management Plan (CEMP) will be developed prior to construction of the Project to guide Jet Zero and the EPC Contractor in ensuring these mitigation measures are incorporated within the construction process.

An Operation Environmental Management Plan (OEMP) will be developed prior to operation of the Project to guide Jet Zero in ensuring these mitigation measures are incorporated into the operation of the plant.

4.8. Stormwater Management

Stormwater will be managed in accordance with conceptual Stormwater Management Plan (SMP) prepared by GHD. The SMP addresses both construction and operational phases, incorporating hydrological, hydraulic, and water quality controls to manage runoff, protect receiving environments, and maintain compliance with applicable stormwater quality objectives.

The proposed stormwater system incorporates a combination of clean water diversion infrastructure, general site drainage, an oily water system (OWS), and containment bunds for potential contaminant sources, including the tank farm. Hydrologic and hydraulic modelling was conducted using DRAINS software, accounting for climate-adjusted rainfall projections. MUSIC modelling was also undertaken to ensure compliance with pollutant load reduction targets, including 80 % total suspended solids (TSS), 65 % total phosphorus, 40 % total nitrogen, and 90 % gross pollutants reduction.

The system has been designed to prevent adverse impacts on nearby waterways, including Sandfly Creek, and to ensure that stormwater discharge meets the environmental values identified for both freshwater and estuarine receiving environments. Stormwater catchments have been delineated and integrated into the site layout, and the treatment strategy includes a bio-retention basin and sediment controls tailored to the impervious nature of the development site.

Further details are provided in the appended SMP (refer to **Appendix G**), including catchment mapping, drainage layout, and system performance modelling outputs.

4.9. Plant Decommissioning

The facility is designed for an operational life of approximately 20 years. Decommissioning will be undertaken at the end of this period, subject to operational viability, and in accordance with relevant legislative requirements.

Decommissioning will be staged as follows:

- Removal of above-ground infrastructure.
- Demolition of hardstand areas.
- Site assessment and remediation.
- Rehabilitation of land.

A Site Decommissioning and Rehabilitation Plan will be prepared, addressing environmental impacts and risks, material reuse, and infrastructure removal. Subsurface infrastructure will be removed or abandoned in situ based on safety and land-use risk and environmental impact implications.

4.10. Use Definition

The use of the site for a SAF facility is defined under the Townville SDA Development Scheme as a Special Industry use.

The scheme refers to a Special Industry as the *use of premises for industrial activities that include the:*

manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products and have one or more of the following attributes:

- (a) *potential for extreme impacts on sensitive land uses due to offsite emissions including aerosol fume, particle, smoke, odour and noise*
- (b) *potential for extreme offsite impacts in the event of fire, explosion or toxic release*
- (c) *onsite controls are required for emissions and dangerous goods risks*
- (d) *the use generally involves night time and outdoor activities*
- (e) *the use may involve the storage and handling of large volumes of dangerous goods*
- (f) *requires significant separation from incompatible uses.*

Note: Examples of special industry include tanneries, rendering plants, oil refineries, waste incineration, manufacturing or storing explosives, power plants, manufacturing fertilisers.

5. KEY PLANNING CONSIDERATIONS

5.1. Lighting

A Lighting Environmental Assessment Report has been prepared by Rubidium Light to inform the lighting strategy for the Project (refer **Appendix H**). The proposed lighting strategy integrates lighting technologies and environmentally responsible design measures to mitigate potential impacts on surrounding sensitive environments, particularly intertidal zones and habitats for migratory and nocturnal fauna. Key components of the strategy include:

- **Optimised Luminaire Distribution:** Light is directed with precision to operational zones, reducing unnecessary spill and minimising impacts on ecologically sensitive areas, including migratory bird and bat habitats.
- **Reflected Light Control:** Asymmetrical distribution patterns and carefully calibrated mounting heights are employed to minimise upward reflection and mitigate contribution to sky glow.
- **Dynamic Lighting Controls:** Lighting systems incorporate adaptive features such as dimming and switching capabilities, allowing intensity adjustments in response to real-time operational and environmental conditions, including ecological sensitivity.
- **Low-Impact Light Sources:** The use of warm-colour temperature (2200K) LED luminaires significantly reduces blue light emissions, mitigating disruption to marine and intertidal fauna, as well as other nocturnal species.
- **Environmental Enhancements:** Directional shielding, physical barriers (e.g., shade sails), and luminaire design optimisations are incorporated to reduce light spill and improve visual containment of light emissions.

The lighting strategy also includes tailored applications for specific site areas, including the flare system, continuously and intermittently occupied zones, truck loading/offloading areas, and administration parking areas.

5.2. Air Quality

An Air Quality Assessment for the Project was prepared by Vipac Engineers & Scientists based on pre-FEED engineering inputs (refer **Appendix I**). The assessment supports environmental approvals by identifying and quantifying key air emission sources and predicting dispersion characteristics using regulatory-compliant methodologies. The approach aligns with the Queensland Department of Environment, Tourism, Science and Innovation (DETSI) guidance, including the *Air—EIS information guideline*, *Applications for activities with impacts to air*, and CALPUFF modelling protocols.

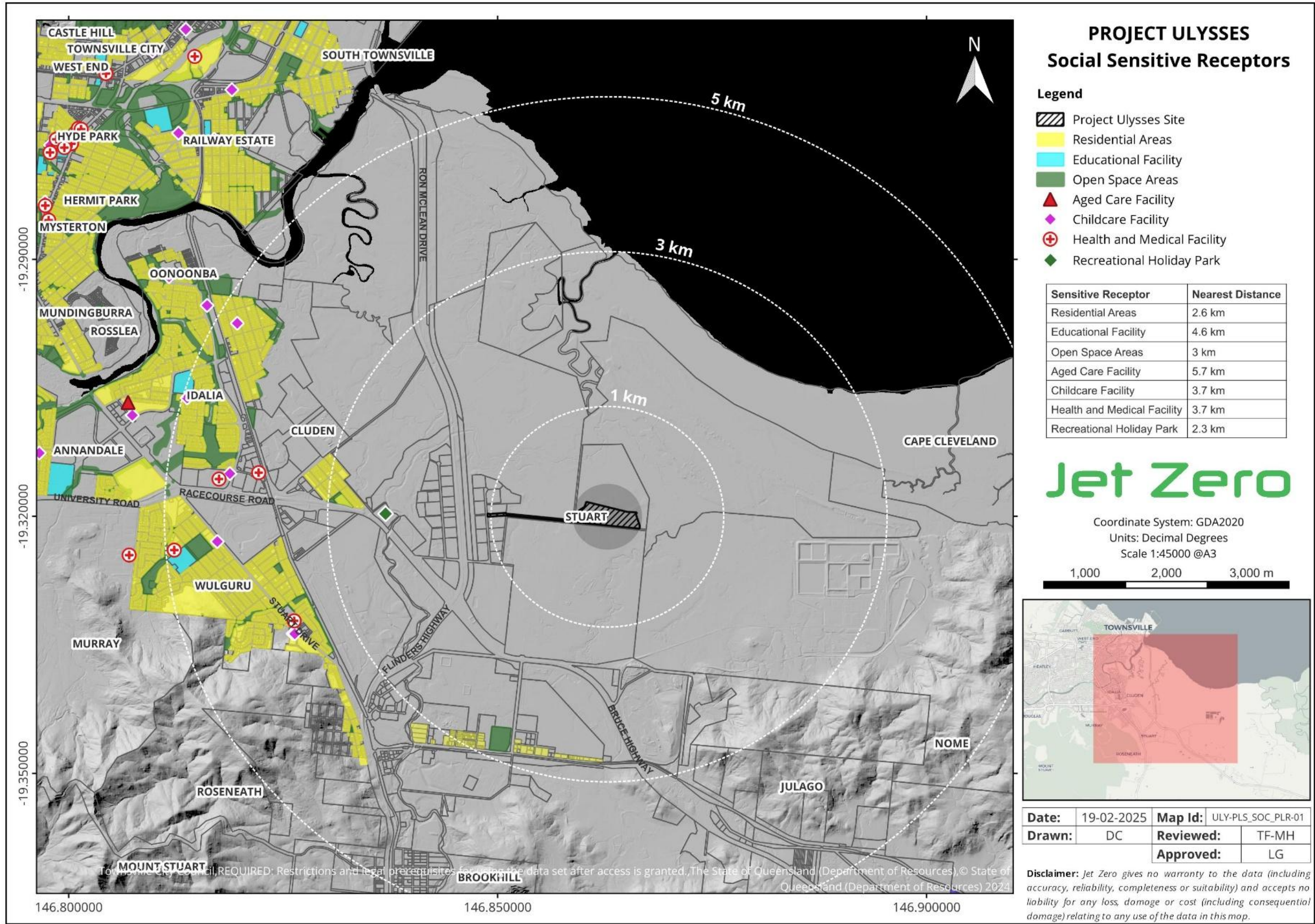
A total of 41 discrete sensitive receptors were identified and included in the modelling domain, covering residential, commercial, educational, health, aged care, childcare, and recreational land uses are illustrated in **6**. The closest sensitive receptor is identified as a recreational holiday park located approximately 2.3 km to the west, with residential areas located approximately 2.6 km to the west and south. The nearest educational facility is approximately 5 km to the west.

The spatial separation between the Project and sensitive uses provides a high degree of natural dispersion potential. Model results confirm that predicted ground-level concentrations of all assessed pollutants, including oxides of nitrogen, carbon monoxide, particulate matter, and volatile organic compounds, remain well below relevant air quality objectives at all sensitive receptor locations under all modelled scenarios.

Air quality impacts during construction are anticipated to be limited to temporary dust generation and combustion emissions from equipment and managed through the CEMP and OEMP. These impacts are not expected to extend to sensitive receptors given the significant distances from the subject site. As such, they were not subject to quantitative dispersion modelling and are proposed to be managed through implementation of standard construction dust suppression and environmental management practices.

Based on the design information and modelling outcomes, the Project is not expected to result in significant adverse impacts to the surrounding air environment or sensitive land uses and will comply with relevant air quality standards.

Figure 16: Social Sensitive Receptors



5.3. Greenhouse Gas Emissions

The projected GHG emissions associated with the operation of the proposed development have been quantified over the indicative 20-year Project life by Lifecycles. Emissions have been categorised in accordance with the GHG Protocol and include Scope 1 (direct), Scope 2 (indirect from electricity use), and Scope 3 (other indirect) sources.

- **Scope 1 emissions** comprise direct emissions from on-site combustion, flaring, and fugitive losses. These emissions are estimated at approximately 30,577 tonnes carbon dioxide equivalent (CO₂-e) per annum.
- **Scope 2 emissions** represent indirect emissions from purchased electricity consumed during operations, with annual emissions estimated at 22,734 tonnes CO₂-e.
- **Scope 3 emissions**, while not mandatory under the Queensland GHG Guidelines (2024), have been assessed to provide a comprehensive emissions profile. These include emissions from upstream and downstream transport, construction, decommissioning, and product use, with total annual Scope 3 emissions estimated at 179,176 tonnes CO₂-e.

An abatement plan has been developed to support compliance with the *National Greenhouse and Energy Reporting Act 2007* and the Queensland GHG Guidelines. The plan outlines the Project's proposed mitigation and management measures, consistent with the scale and nature of the facility, and will be refined through subsequent design stages.

Over the life of the Project, total emissions across all scopes are estimated at 4.7 million tonnes CO₂-e. However, the use of SAF and RD is anticipated to deliver significant lifecycle emissions savings, with avoided emissions estimated at approximately 6.97 million tonnes CO₂-e. This results in a net avoided emissions benefit of approximately 2.27 million tonnes CO₂-e over the Project duration.

5.4. Cultural Heritage

The Project is subject to the cultural heritage provisions established under the ACH Act. The ACH Act establishes a Duty of Care framework to take reasonable and practical steps to be aware of, and to avoid harming, Aboriginal cultural heritage.

The site involves freehold tenure and therefore is not subject to native title claim, however Jet Zero is committed to managing cultural heritage responsibly and in compliance with relevant legislative framework.

Jet Zero is currently progressing discussions with Bindal People, working towards a draft CHMA. Further details on this are outlined in **Section 2.5**.

5.5. Noise and Vibration

Vipac Engineers and Scientists Ltd was engaged to prepare a Noise and Vibration Assessment (refer **Appendix J**). The purpose of the assessment was to evaluate the potential impacts of noise and vibration generated by the proposed development and to provide recommendations to mitigate any potential impacts on sensitive receptors.

Noise modelling has been undertaken using the SoundPLAN computational noise modelling software package for two scenarios:

- Construction of the Project; and
- 24-hour operation once commissioned.

The key outcomes from the assessment are outlined below:

- Operational noise levels from the proposed development are predicted to comply during all time periods and weather scenarios without the need for noise mitigation.
- Cumulative noise levels from the proposed development alongside existing background noise levels at all receptors are predicted to be maintained.

- Noise levels are predicted to comply at the nearest receptors during construction of the proposed development except for Cluden (NSR 2) during non-standard hours in adverse weather conditions.

Recommendations and mitigation measures are proposed to address any potential impacts associated with construction to minimise the number of sensitive receptors impacted by noise and to reduce the noise level. Primarily, construction activities associated with the proposed development are to be conducted within an area zoned for heavy industry.

Works will generally be undertaken during standard construction hours (7:00 am to 7:00 pm), however some construction activities will occur outside of these hours. The Project will construct 24 hours per day during peak periods, where necessary. In particular, the movement of modules will occur during the night to avoid traffic disruption.

Where out-of-hours works are necessary, appropriate mitigation measures will be implemented in accordance with the CEMP, including:

- Induction of all construction personnel (including subcontractors) on noise management responsibilities.
- Notification to truck drivers regarding designated access routes, delivery schedules, parking areas, and the requirement to minimise engine idling and braking noise.
- Proper operation and maintenance of machinery to avoid excessive noise, including repairs to leaking air lines, tightening of loose components, and replacement of damaged engine covers.

These measures will assist in minimising potential noise and vibration impacts during the construction phase, noting compliance is achieved during operational phase without the need for further mitigation measures.

5.6. Traffic

Bitzios Consulting has undertaken a Traffic Impact Assessment (TIA) to assess the potential traffic, parking, and pavement impacts associated with the Project (refer **Appendix K**). An overview of the TIA's findings and recommendations is outlined below.

5.6.1. Access and Parking

The proposed facility will be accessed via crossover to Colinta Road, connecting to a 14 m wide private access road. The access arrangement has been reviewed for compliance with sight distance and configuration standards, and it is expected to comply with relevant Australian Standards and the TSDA Development Scheme. It is noted the crossover and private access road will be constructed in accordance with Reconfiguring a Lot approval AP2023/013 and associated Operational Work approval OPW24/0107.

The development will provide on-site parking facilities to accommodate staff and visitors. A total of 70 car parking spaces have been recommended, ensuring sufficient capacity during shift changes, with this identified as the peak demand period. It is noted the current layout plans provides for 60 car parking spaces. Sufficient area is provided within the subject site for the required additional car parking requirements, with this to be addressed in detail design as part of the FEED phase.

5.6.2. Traffic Generation and Network Impacts

Traffic modelling and assessment has been conducted for key intersections and road links surrounding the site, with particular consideration given to Ron McLean Drive, Heleen Downs Road, Colinta Road, and the Bruce Highway. Key findings include:

- The additional vehicle movements generated by the Project will not result in unacceptable delays or congestion at the assessed intersections.

- No upgrade works are required at the Bruce Highway/Flinders Highway/Ron McLean Drive intersection or the Ron McLean Drive/Heleen Downs Road intersection.
- The safety risk associated with increased turning movements at these intersections has been assessed as low to medium, with no immediate mitigation measures required.

5.6.3. Pavement Impact Assessment

A pavement impact assessment was undertaken to determine the extent of additional loading on the surrounding road network due to heavy vehicle movements. The assessment concluded that sections of Ron McLean Drive will be subject to significant additional loading.

Contributions towards pavement maintenance may be required to mitigate long-term impacts on road infrastructure.

5.6.4. Mitigation Measures

To ensure the development does not create adverse impacts on the surrounding transport network, the following mitigation measures have been recommended:

- Implementation of a transport logistics plan to manage heavy vehicle movements and minimise impacts on peak-hour traffic conditions.
- Contributions towards road maintenance on sections of Ron McLean Drive where significant pavement impacts have been identified.
- Ongoing assessment of traffic conditions and pavement integrity during both construction and operational phases to ensure compliance with relevant road safety and capacity requirements.

In addition to the above, we note the transport of materials will be undertaken in accordance with relevant dangerous goods and heavy vehicle requirements.

5.7. Ecology, Surface and Groundwater, and Soils

An ecological assessment has been undertaken to support the proposed development (refer **Appendix F** and **Section 3.5** for description of the values). This assessment forms part of a broader suite of technical studies that include extensive field investigations by specialist consultants for surface and groundwater, and soils. These are summarised in **Table 10** below.

Table 10: Summary of Baseline Reports

Report	Consultant	Scope
Ecological Assessment Report	NRA Ecological Consultants	Terrestrial field survey identifying ecological values and potential impacts to native vegetation and fauna habitat within the Project area.
Shorebird Survey Report	NRA Ecological Consultants	Survey for Threatened and/or Migratory shorebirds in areas of suitable habitat near the Project site and within the HAT boundary.
Groundwater Impact Assessment	SubsurfXR	Characterise site environmental values and hydrogeological environment based on groundwater monitoring.
Surface Water Quality Impact Assessment	Terra Solutions Environmental Solutions	Baseline water quality monitoring to enable identification and assessment of potential impacts and risks of proposed development.

Report	Consultant	Scope
Baseline Soils Investigation	C&R Consulting	Detailed baseline soils investigation to assess baseline physical and chemical properties of the soils at the Project site prior to development.

5.7.1. Existing Conditions

Field surveys confirmed an absence of mapped endangered or of-concern regional ecosystems on site. Vegetation within the site largely comprises regrowth or remnant vegetation, with no areas of core habitat intersecting the Project footprint. While no listed flora species providing core habitat were detected, fauna surveys conducted by NRA identified evidence suggestive of conservation-significant species in the broader locality. Habitat within the development footprint was assessed as having limited value, however, may support transient or foraging use by certain fauna. No direct evidence of species-specific habitat dependency was recorded (refer **Appendix F**).

5.7.2. Matters of National and State Significance

The proposed development has been assessed in relation to Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). While the Project footprint does not directly intersect with world heritage areas, national heritage places, or marine parks, it is situated within the area of influence of the Great Barrier Reef World Heritage Area (GBRWHA), the Great Barrier Reef National Heritage Place (GBRNHP), and the Great Barrier Reef Marine Park (GBRMP), with surface waters from the site discharging into Cleveland Bay.

No Ramsar wetlands or other nationally significant wetland areas are located within the subject site. Additionally, no Threatened Ecological Communities were found within the study area.

The Bare-rumped Sheath-tail Bat, EPBC listed, is likely to maintain a regular presence (foraging) over the Project footprint. The EPBC Referral 2020/8810 deemed the development a 'Controlled Action' under the EPBC Act due to potential impacts to the Bare-rumped Sheath-tailed Bat. Approval was granted subject to specific conditions, including pre-clearing surveys for roosting trees and habitat retention protocols.

The potential Project-related threats to MNES and MSES in the receiving environment are described in **Table 11** below and comprise the following:

- Air pollution;
- Noise pollution;
- Water pollution;
- Soil loss/degradation;
- Altered hydrological regimes;
- Direct mortality or harm to fauna;
- Biosecurity ingress/proliferation;
- Altered fire regimes; and
- Habitat loss/degradation.

Table 11: MNES, MSES and Associated Threats of Relevance to Impact Assessment

MNES / MSES	Relevant Values	Relevant Threats
World heritage areas	• GBR World Heritage Area	• Water pollution
National heritage places	• GBR National Heritage Place	• Altered hydrological regimes
	• Sharp-tailed Sandpiper	• Soil loss/degradation
		• Air pollution

MNES / MSES	Relevant Values	Relevant Threats
Listed Threatened species and ecological communities	• Latham's Snipe • Eastern Curlew	• Light pollution • Water pollution • Habitat loss/degradation • Biosecurity ingress/proliferation • Unplanned fire (altered fire regimes) • Altered hydrological regimes • Direct mortality or harm to fauna
	• Bare-rumped Sheath-tail Bat	• Habitat loss/degradation • Direct mortality or harm to fauna
Listed Migratory species	• Common Sandpiper • Sharp-tailed Sandpiper • Latham's Snipe • Eastern Curlew • Whimbrel • Pacific Golden Plover • Caspian Tern • Eastern Osprey • Red-necked Stint • Black-tailed Godwit • Fork-tailed Swift • Estuarine Crocodile Glossy Ibis	• Air pollution • Light pollution • Habitat loss/degradation • Water pollution • Biosecurity ingress/proliferation • Altered hydrological regimes • Unplanned fire (altered fire regimes) • Direct mortality or harm to fauna
Marine parks	• GBR marine park	• Climate change (global scale) • Coastal land use change (catchment scale) • Poor water quality from land-based run-off (catchment scale) • Impacts of fishing (Marine Park scale)
Regulated vegetation	• Remnant vegetation within the defined distance of a wetland (MSES) • Remnant vegetation intersecting a watercourse (MSES) • Category R (regrowth watercourse) vegetation	• Habitat loss and degradation
Connectivity areas	• Mapped remnant REs	• Habitat loss and degradation
Wetlands and watercourses	• Wetland in a wetland protection area (HES wetland)	• Water and land pollution • Soil loss/degradation • Altered hydrological regimes • Habitat loss/degradation
Protected wildlife habitat	• Common Sandpiper • Fork-tailed Swift • Sharp-tailed Sandpiper • Latham's Snipe • Caspian Tern • Eastern Curlew • Whimbrel • Eastern Osprey • Red-necked Stint • Black-tailed Godwit • Glossy Ibis • Pacific Golden Plover • Bare-rumped Sheath-tail Bat	• Air pollution • Light pollution • Water pollution • Habitat loss/degradation • Biosecurity ingress/proliferation • Unplanned fire (altered fire regimes) • Altered hydrological regimes • Direct mortality or harm to fauna

MNES / MSES	Relevant Values	Relevant Threats
	• Short-beaked Echidna • Estuarine Crocodile	
Declared Fish Habitat Areas	• Fish habitat area (MSES)	• Water pollution
Waterway providing for fish passage	• Major (tidal) waterway (MSES)	• Habitat loss/degradation • Direct mortality or harm to fauna
Marine plants	• Marine plants above and below HAT (MSES)	• Habitat loss/degradation

Overall, the Order 1 watercourse that intercepts the Project site, mapped as of moderate risk, is unlikely to provide fish passage due to an artificial stock dam that disrupts the connectivity of the watercourse. Most vegetation in the Project plant site area is non-remnant, and most of the marine plants are distributed along the access road, with a small portion within the north-eastern boundary of the plant site above HAT (refer **Appendix F**).

Notably, the Project occurs on the southern margin of Cleveland Bay important Migratory shorebird habitat. The results from the shorebird surveys indicate that inland areas, including habitats to the west, north and east of the facility site are visited by particular threatened and migratory shorebird species when conditions are suitable, primarily in association with spring tide events and following substantial rainfall. Observed abundances of all migratory shorebird species in the Project receiving environment were below the thresholds for national significance. The area within 500 m of the core infrastructure footprint does not contain core habitat for threatened and/or migratory shorebird species.

A detailed Flood Impact Assessment (FIA) has been undertaken by Northern Consulting Engineers (NCE) to support the Project. The FIA was based on a fine-scale TUFLOW hydraulic model, incorporating updated terrain and boundary conditions derived from the Townsville Ross River Flood Study (2021). The modelling assessed the development against the 20% AEP, the defined flood event (1 % AEP), and the 0.5 % AEP event applicable to regional fuel storage infrastructure, and sensitivity scenarios including climate change and joint riverine-coastal flooding.

The results of the FIA confirm that the proposed development can proceed without causing actionable off-site flood impacts. The majority of the site is outside flood hazard areas, with only minor portions intersecting low to high flood risk zones. Localised mitigation measures, including strategic fill exclusion zones and minor levees in the south-western corner of the site, were incorporated into the design to preserve existing drainage pathways and prevent flood conveyance interference.

All finished floor levels for critical infrastructure will be set at or above the 0.5 % AEP flood level or the storm tide level of 3.9 m AHD, whichever is higher, in accordance with applicable Planning Scheme and TSDA Development Scheme requirements. The modelling confirms compliance with afflux thresholds and demonstrates that the Project will not increase flood risk to surrounding land or infrastructure.

Further details are provided in the appended Flood Impact Assessment Report (refer to **Appendix L**).

6. LEGISLATIVE FRAMEWORK

6.1. Commonwealth Legislation

The EPBC Act is the primary Commonwealth legislation governing the protection of nationally significant environmental values. The Act is administered by the DCCEE and provides a legal framework for the assessment and approval of actions that are likely to have a significant impact on MNES.

Under the EPBC Act, any action – defined to include a project, development, activity, or series of changes – that is likely to result in significant impact on a MNES requires referral to the Minister. If the Minister determines that the action constitutes a ‘controlled action’, the proposal must be assessed and approved under the provisions of the EPBC Act before it can proceed.

Matters of National Environmental Significance protected under the EPBC Act include:

- World Heritage properties;
- National Heritage places;
- Wetlands of international importance (Ramsar sites);
- Listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- Great Barrier Reef Marine Park;
- Nuclear actions (including facilities and waste storage); and
- Water resources, in relation to coal seam gas and large coal mining developments.

Where a proposed action is considered likely to significantly affect any of these MNES, it must be referred to DCCEE for a controlled action determination. If deemed a controlled action, the development will be subject to an environmental assessment process under the EPBC Act to evaluate potential impacts and ensure appropriate mitigation and management measures are adopted.

6.2. State Legislation

6.2.1. State Development and Public Works Organisation Act 1971

The *State Development and Public Works Organisation Act 1971* (SDPO Act) provides the legislative foundation for the establishment and administration of SDAs in Queensland. The primary objective of the SDPO Act is to facilitate timely and coordinated development in specific regions designated for significant economic activities, ensuring that these developments align with state planning objectives and community interests.

6.2.2. Townsville State Development Area

Pursuant to section 77 of the SDPO Act, the Townsville SDA was declared in October 2003. The purpose of the Townsville SDA is to support large-scale industrial and infrastructure projects, contributing to the economic growth and development of North Queensland. The TSDA Development Scheme sets out the land use planning and development assessment framework for the area, ensuring that development is consistent with the strategic vision for the region.

Development that is not regulated by the TSDA Development Scheme may be regulated by other legislation and planning instruments, including the *Planning Act 2016* and the *Townsville City Plan 2014*.

The TSDA Development Scheme identifies land within a series of precincts:

- Port Industry Precinct;
- High Impact Industry Precinct;
- Medium Impact Industry Precinct;

- Low Impact Industry Precinct;
- Infrastructure Corridors Precinct;
- Resources Precinct; and
- Environmental Management Precinct.

In accordance with section 2.4.3, Table 3 of the TSDA Development Scheme, the proposed development is identified as SDA assessable development, given the proposal involves a Material Change of Use within the High Impact Industry Precinct, Medium Impact Industry Precinct and the Environmental Management Precinct.

Section 2.5.9 of the TSDA Development Scheme provides for consideration of the proposed development against other government matters.

6.2.3. State Planning Policy 2017

The *State Planning Policy 2017* (SPP) is Queensland's primary planning instrument, setting out the state's interests in land use planning and development. It ensures that local and regional planning instruments integrate economic, environmental, social and infrastructure considerations in a way that supports sustainable growth and resilience.

The SPP identifies 17 state interests, grouped under five key themes:

- Liveable communities and housing;
- Economic growth;
- Environment and heritage;
- Safety and resilience to hazards; and
- Infrastructure.

For assessable development, the SPP provides state interest policies and assessment benchmarks, ensuring that development aligns with Queensland's long-term goals. Where a local planning instrument has not fully integrated a state interest, the SPP applies directly to decision-making.

In accordance with section 2.5.9 of the TSDA Development Scheme, assessment against the SPP is required, with the development to be consistent with the SPP to the extent practicable.

Assessment against the SPP is provided in **Table 12**, demonstrating that there is no significant conflict or non-compliance with the SPP.

Table 12: SPP Applicability

State Interest	Sub-Category	Identified Within Site	Applicability to Development
Liveable Communities and Housing	Housing supply and diversity	Not prescribed	Not applicable.
	Liveable Communities	Not prescribed	Not applicable, given the development's industrial nature, location in the Townsville SDA and lack of direct residential or community interface.
Economic Growth	Agriculture	No mapped interest	Not applicable.
	Development and construction	Located within State Development Area	Project Ulysses is an economically and sustainably significant project within the Townsville SDA, supporting industrial growth, job creation and innovation in renewable fuel production.
	Mining and extractive resources	No mapped interest	Not applicable.

State Interest	Sub-Category	Identified Within Site	Applicability to Development
	Tourism	Not prescribed	While the development is not directly related to tourism, the Project supports economic diversification and regional development, indirectly benefitting the broader regional economy.
Environment and Heritage	Biodiversity	While some MNES were identified in the broader area, including the receiving environment (such as migratory shorebirds) and the Bare-rumped Sheath-tail Bat, no critical habitat was found within the immediate Project site. No significant threatened flora species or essential fauna habitats were identified within the Project site, and all observed vegetation clearing activities are expected to comply within accepted development guidelines.	The ecological assessment indicates that the proposed Project is positioned within a landscape where anthropic activities already occur (i.e. within Townsville SDA), with limited ecological values likely to be significantly impacted. The nearest ecologically significant areas, including the Great Barrier Reef World Heritage and National Heritage Areas, are located at a sufficient distance (2.5 km or more) where direct impacts are unlikely to occur. Additionally, aquatic ecosystems within the study area are modified and of low ecological value, with minimal risk posed to fish passage or wetland integrity. Overall, the findings suggest that the Project can proceed with minimal residual ecological impact, provided that the existing environmental management mitigation controls are adhered.
	Coastal environment	The entirety of the site is located within the Coastal Management District, with the exception of the extent of the site within Lot 31 on SP341877.	The proposed development will be suitably designed and operated to ensure erosion and sediment control, stormwater management and avoidance of impacts to coastal processes.
	Cultural heritage	No mapped interest	No registered cultural heritage sites identified through desktop assessment. Jet Zero is currently progressing discussions with Bindal People, working towards a draft CHMA, where further cultural heritage assessments are to be undertaken in accordance with applicable legislation.
	Water quality	No mapped interest	While no water quality state interest is directly mapped, the Project discharges to Sandfly Creek which drains to the GBRWHA. Water quality will be managed in accordance with the site's Stormwater Management Plan and

State Interest	Sub-Category	Identified Within Site	Applicability to Development
			water sampling in accordance with the Surface Water and Groundwater Quality Monitoring Programs to ensure protection of downstream environmental values.
Safety and Resilience to Hazards	Emissions and hazardous activities	No mapped interest	While the site is not located within any mapped sensitive land use buffer under the SPP, it is situated in proximity to environmentally sensitive areas, including Cleveland Bay, the Great Barrier Reef World Heritage Area, and important migratory shorebird habitat. The Project has been designed to minimise emissions and hazardous impacts through implementation of best practice mitigation measures, including advanced emission control systems and lighting strategies, and will operate in accordance with conditions of an Environmental Authority.
	Natural hazards, risk and resilience	The site is affected by multiple natural hazard overlays, including: Flood hazard area (full extent), Queensland floodplain assessment overlay (full extent), storm tide inundation areas (medium and high), bushfire prone areas (medium potential bushfire intensity), and erosion-prone areas.	The proposed development has been appropriately designed to respond to flood mitigation, bushfire management and climate-responsive design measures. The Project will be designed to minimise risk to people, property and the environment, ensuring resilience against potential natural hazards through appropriate design, siting, infrastructure provisions and emergency management strategies.
Infrastructure	Energy and water supply	Major electrical infrastructure (Ergon)	Extent of the interest aligns with Easement A on SP346831.
	Infrastructure integration	Not prescribed	The development is strategically located within the Townsville SDA to leverage access to existing and planned infrastructure, including road networks and energy supply. It will integrate seamlessly with surrounding industrial uses, ensuring efficient transport, utilities, and services to support long-term operational needs.
	Transport infrastructure	State-controlled road – Ron McLean Drive to the west and Bruce Highway to the south	The development is well-positioned within the Townsville SDA, ensuring efficient access to major road networks and the Port of Townsville for the transport of feedstock and finished products.

State Interest	Sub-Category	Identified Within Site	Applicability to Development
		Active transport corridor – Bruce Highway to the south	The Project will incorporate appropriate traffic management measures to minimise impacts on the surrounding transport network and support the efficient movement of goods and services.
	Strategic airports and aviation facilities	Wildlife hazard buffer zone and Height restriction zone 90m	The development supports the aviation sector by producing SAF, contributing to fuel security and emissions reduction for the industry. While not directly impacting strategic airports and aviation facilities, the Project will ensure safe and efficient fuel transport logistics, aligning with regulatory requirements for airport supply and distribution.
	Strategic ports	Priority Ports Townsville priority ports precinct	The development will utilise the Port of Townsville for the transport of feedstock and SAF and RD products, ensuring efficient supply chain logistics. The Project aligns with the strategic role of the port by supporting industrial growth and facilitating the movement of goods in a way that minimises environmental and operational impacts.

6.2.4. North Queensland Regional Plan

The North Queensland Regional Plan (NQRP) provides a strategic direction for the sustainable development and growth of the North Queensland region. It aims to balance economic development, environmental conservation, and community wellbeing. The plan identifies priority areas for economic development, infrastructure investment, and environmental management, guiding local governments and developers in making informed planning decisions that align with regional objectives.

The subject site is located within the Townsville Urban Area and Areas of regional economic significance within the NQRP. On review of the proposed development and the NQRP, it is considered all matters within the NQRP relevant to assessment of the proposal are generally in alignment with the TSDA Development Scheme and the Planning Scheme. Therefore, no further assessment against the NQRP is required.

6.2.5. Planning Act 2016

The *Planning Act 2016* establishes the legal framework for land use planning and development assessment in Queensland. It sets out the processes for preparing planning instruments, assessing development applications, and enforcing planning regulations. The *Planning Act 2016* aims to promote sustainable land use and development, streamline assessment processes, and enhance community involvement in planning decisions. Development applications within the TSDA are also subject to the provisions of the *Planning Act 2016*, ensuring consistency with broader state planning objectives.

6.2.6. State Development Assessment Provisions

The State Development Assessment Provisions (SDAP) provide a comprehensive set of criteria for assessing development applications that require state-level assessment. These provisions ensure that developments address relevant state interests, such as environmental protection, infrastructure provision, and community safety.

6.2.7. Environmental Protection Act 1994

The EP Act provides the key legislative framework for environmental management and protection in Queensland. The objective of the EP Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development). To meet its objective, the EP Act sets out a program for the identification and protection of environmental values and creates a range of regulatory tools for controlling activities of individuals or companies.

Jet Zero will be applying for an EA under the EP Act, through the DETSI as administering authority.

6.3. Townsville City Plan 2014

The *Townsville City Plan 2014* (the Planning Scheme) is the local government planning instrument for the Townsville region. It outlines the strategic vision, zoning and development assessment criteria for the area. Development within the Townsville SDA must consider relevant provisions of the Planning Scheme.

6.4. Assessment Benchmarks

The relevant assessment benchmarks for this development application are outlined within the TSDA Development Scheme as well as the Planning Scheme.

Accordingly, assessment against the following nominated benchmarks is addressed within this planning report:

- TSDA Development Scheme:
 - Strategic vision for the Townsville SDA.
 - Overall objectives for development in the Townsville SDA.
 - High Impact Industry Precinct – preferred development intent.
 - Environmental Management Precinct – preferred development intent.
 - SDA wide assessment criteria.
- State Development Assessment Provisions:
 - State code 1 – Development in a state-controlled road environment.
 - State code 6 – Protection of state transport networks.
 - State code 8 – Coastal development and tidal works.
 - State code 9 – Great Barrier Reef wetland protection areas.
 - State code 11 – Removal, destruction or damage of marine plants.
 - State code 16 – Native vegetation clearing.
 - State code 18 – Constructing or raising waterway barrier works in fish habitats.
 - State code 21 – Hazardous chemical facilities.
 - State code 22 – Environmentally relevant activities.
- Townsville City Plan:
 - Healthy Waters Code.
 - Landscaping Code.
 - Transport Impact, Access and Parking Code.
 - Works Code.

- Airport Environs Overlay Code.
- Bushfire Hazard Overlay Code.
- Coastal Hazard Overlay Code.
- Flood Hazard Overlay Code.
- Natural Assets Overlay Code.

Assessment against the relevant benchmarks is provided at **Sections 7-9**.

7. STATE DEVELOPMENT ASSESSMENT PROVISIONS

7.1. State Code 1: Development in a State-Controlled Road Environment

The purpose of State Code 1 is to *protect the safety, function and efficiency of state-controlled roads, future state-controlled roads, road transport infrastructure, active transport infrastructure and public passenger services on state-controlled roads from adverse impact of development. The code is intended to protect the safety of people using, and living or working near, state-controlled roads.*

Specifically, this code seeks to ensure:

- (1) *Development does not create a safety hazard for users of a state-controlled road, by increasing the likelihood or frequency of fatality or serious injury.*
- (2) *Development does not compromise the structural integrity of state-controlled roads, road transport infrastructure or road works.*
- (3) *Development does not result in a worsening of the physical condition or operating performance of state-controlled roads and the surrounding road network.*
- (4) *Development does not compromise the state's ability to construct state-controlled roads and future state-controlled roads, or significantly increase the cost to construct state-controlled roads and future state-controlled roads.*
- (5) *Development does not compromise the state's ability to maintain and operate state-controlled roads, or significantly increase the cost to maintain and operate state-controlled roads.*
- (6) *Development does not compromise the structural integrity of public passenger transport infrastructure located on state-controlled roads or compromise the operating performance of public passenger transport services on state-controlled roads.*
- (7) *The community is protected from significant adverse impacts resulting from environmental emissions generated by vehicles using state-controlled roads*

The proposed development is considered to comply with the purpose of State Code 1. The development involves a high-impact industrial use, with anticipated traffic generation and vehicle types consistent with the intended function of the High and Medium Impact Industry Precinct within the Townsville SDA. The site's layout ensures the primary built form is set back over 1 km from the local road network, with access provided via a dedicated access handle connecting to Colinta Road. The nearest state-controlled road corridor is situated more than 280 metres from the access crossover, and the primary processing facility is located over 1.4 km from this corridor.

Accordingly, the proposed development is considered to comply with the purpose of the code. In particular, the Project:

- does not result in a safety hazard for users of state-controlled roads;
- does not impact the structural integrity or operational performance of state-controlled road infrastructure;
- maintains appropriate access arrangements, ensuring that heavy vehicle movements do not interfere with the function or safety of state-controlled roads;
- avoids any direct connection to state-controlled roads, thereby limiting potential conflict; and
- ensures stormwater discharge is managed appropriately, with runoff not impacting state-controlled roads or exacerbating existing flooding or drainage conditions.

Further detail assessment against State Code 1 is provided at **Appendix P**.

7.2. State Code 6: Protection of State Transport Networks

The purpose of State Code 6 is to *protect state transport infrastructure, public passenger transport infrastructure, active transport infrastructure and public passenger services from the adverse impacts*

of development; maintain the operating performance of the transport network; and ensure development enables safe and convenient access to public passenger transport.

Specifically, this code seeks to ensure development:

- (1) does not create a safety hazard for users of state transport infrastructure or public passenger services by increasing the likelihood or frequency of a fatality or serious injury;*
- (2) does not result in a worsening of the physical condition or operating performance of the state transport network;*
- (3) does not compromise the state's ability to cost-effectively construct, operate and maintain state transport infrastructure;*
- (4) provides public passenger transport infrastructure to enable development to be serviced by public passenger transport;*
- (5) provides safe and direct access to public passenger transport infrastructure or active transport infrastructure, including access by cycling and walking.*

The proposed development is considered to comply with the purpose of State Code 6. The proposal involves an industrial use within Townsville SDA and is supported by a TIA prepared by Bitzios Consulting (refer **Appendix K**).

Access is proposed via a dedicated private access road connecting to Colinta Road. The internal layout and access design accommodates B-double vehicles and complies with relevant Australian Standards. The access crossover location, geometry and sight distances meet applicable standards and do not require alterations to exiting public road infrastructure.

Traffic modelling using SIDRA analysis confirms that the development will not result in exceedance of operational thresholds at the Ron McLean Drive / Heleen Downs Road and Bruce Highway / Flinders Highway intersections. The assessed degree of saturation, average delays, and queue lengths remain within acceptable performance limits under all scenarios. The cumulative delay increase is less than 5 %, consistent with DTMR criteria.

A safety risk assessment was undertaken for key intersections in accordance with Department of Transport and Main Roads' Guide to Traffic Impact Assessments. The assessment concluded that the risk profile remains medium both with and without the development. No mitigation works are required based on traffic volumes, intersection geometry, and crash history.

A pavement impact assessment identified that traffic associated with the development will result in impacts exceeding 5 % on one segment of Ron McLean Drive.

Accordingly, the development:

- Does not compromise the safety, efficiency, or operation of State transport infrastructure;
- Does not require intersection upgrades to accommodate development traffic;
- Incorporates compliant heavy vehicle access arrangements; and
- Provides for appropriate mitigation of pavement impacts.

Further detailed assessment to State Code 6 is provided in Appendix J of the TIA (refer **Appendix K**).

7.3. State Code 8: Coastal Development and Tidal Works

The purpose of State Code 8 is to *ensure that development is designed and located to:*

- (1) protect life, buildings and infrastructure from the impacts of coastal erosion;*
- (2) maintain coastal processes;*
- (3) conserve coastal resources;*
- (4) maintain appropriate public use of, and access to and along, state coastal land;*
- (5) account for the projected impacts of climate change;*

- (6) *avoid impacts or, where the matters of state environmental significance cannot be reasonably avoided, impacts are reasonably minimised and mitigated; and*
- (7) *does not result in a significant residual impact on a matter of state environmental significance unless the significant residual impact is acceptable, and an offset is provided.*

The proposed development is considered to comply with the purpose of State Code 8. The subject site results from a Reconfiguration of a Lot approval (AP2023/013) and is subject to an associated Operational Works approval (OPW24/0107). Accordingly, the site will be subject to necessary landform and infrastructure improvements prior to commencement of the construction phase of the Project.

The subject site has previously been assessed against the requirements of State Code 8 through the prior development approvals. These approvals included assessment of the site's location within an erosion prone area and tidal process area and addressed relevant matters such as marine plant clearing and tidal works. The operational works approval incorporates offset obligations for clearing of marine plants within the access handle.

The proposed works will not affect coastal processes, environmental values of coastal waters, or MSEs. No tidal works or marine access structures are proposed as part of the development.

Accordingly, the development:

- Does not involve or require coastal protection works, reclamation, or dredging;
- Does not reduce public access to state coastal land;
- Minimises risk to coastal processes and coastal resources through avoidance of tidal areas and implementation of water and soil management measures;
- Will implement mitigation measures through a Construction Environmental Management Plan and Operational Environmental Management Plan, including sediment and erosion controls, biosecurity measures, and water quality protection; and
- Will not result in significant residual impact requiring further offset, as existing offset conditions are in place under prior approvals.

On this basis, the development is considered to satisfy the relevant assessment benchmarks of State Code 8.

7.4. State Code 9: Great Barrier Reef Wetland Protection Area

The purpose of State Code 9 is to *ensure that development involving high impact earthworks in a wetland protection area:*

- (1) *is located outside of a wetland;*
- (2) *does not have an unacceptable impact on wetland environmental values;*
- (3) *is designed and located to avoid impacts or, where the matters of state environmental significance cannot be reasonably avoided, impacts are reasonably minimised and mitigated;*
- (4) *does not result in a significant residual impact on a matter of state environmental significance unless the significant residual impact is acceptable, and an offset is provided.*

The Project is considered to comply with State Code 9. The subject site is located adjacent to a mapped wetland protection area, with the wetland protection area trigger area extending into the development footprint. Specifically, the trigger area bisects the western side of the access handle.

The site has been previously assessed under the Reconfiguring a Lot approval (AP2023/013) and associated Operational Works approval (OPW24/0107), which included ecological and hydrological assessments, and approval for high impact earthworks in proximity to the wetland protection area.

The approved works included the clearing of native vegetation and marine plant disturbance within the wetland protection area trigger area, including conditions for clearing and offset requirements under that approval.

Accordingly, the Project:

- Is located outside of the mapped wetland and does not involve direct works within the wetland itself;
- Maintains the hydrological and ecological integrity of the wetland protection area;
- Implements mitigation and management measures to minimise potential impacts to wetland fauna and environmental values (refer **Appendix F**); and
- Is supported by existing ecological approvals and offset arrangements.

On the above basis, the development is considered to satisfy the relevant assessment benchmarks of State Code 9.

7.5. State Code 11: Removal, Destruction or Damage of Marine Plants

The purpose of State Code 16 is to *ensure development*:

- (1) *maintains the extent, distribution, diversity and condition of marine plant communities and protects the ecological functions to which they contribute;*
- (2) *maintains the health and productivity of fisheries resources and fish habitat;*
- (3) *minimises impacts on the management, use, development and protection of fisheries resources and fish habitat;*
- (4) *is designed and located to avoid impacts or, where the matters of state environmental significance cannot be reasonably avoided, impacts are reasonably minimised and mitigated;*
- (5) *does not result in a significant residual impact on a matter of state environmental significance unless the significant residual impact is acceptable, and an offset is provided.*

The proposed development complies with the purpose of State Code 11. Small areas of MSES marine plants have been identified by NRA survey (refer **Appendix F**), above HAT with approximately 2,480.5 m² (portion on northern boundary of plant site). The vegetation clearing, including marine plants, forms part of the approved Operational Works at the site (OPW24/0107).

Accordingly, the proposed development:

- Does not introduce any new or additional impact to marine plant communities beyond those already assessed;
- Avoids direct disturbance to tidal land and confines works to areas already approved for clearing;
- Is subject to offset obligations already secured under Operational Works approval OPW24/0107; and
- Does not result in fragmentation of fish habitats or adverse effects on fish movement or fisheries resources.

On the above basis, the development is considered to satisfy the relevant assessment benchmarks of State Code 11.

7.6. State Code 16: Native Vegetation Clearing

The purpose of State Code 16 is to *ensure development*:

- (1) *avoids clearing, or where avoidance is not reasonably possible, minimises clearing to:*
 - a) *conserve vegetation;*

- b) *avoid land degradation;*
- c) *avoid the loss of biodiversity;*
- d) *maintain ecological processes;*
- (2) *minimises contributions to greenhouse gas emissions;*
- (3) *for vegetation retention purposes, is undertaken in a manner that retains or regenerates vegetation by sustainably managing the impacts of the clearing on regional ecosystems, biodiversity and ecological processes over time;*
- (4) *is consistent with any notice requiring compliance on the land subject to the development application unless a better environmental outcome can be achieved;*
- (5) *is consistent with vegetation management requirements for particular regulated areas unless a better environmental outcome can be achieved;*
- (6) *avoids impacts on vegetation and minimises and mitigates impacts on vegetation where avoidance is not possible;*
- (7) *does not result in a significant residual impact on a matter of state environmental significance unless the significant residual impact is acceptable, and an offset is provided (where appropriate). An offset is not appropriate for acceptable significant residual impacts on a connectivity area unless the clearing is for development that is a coordinated project, natural channel diversion or contaminants removal*

The proposed development complies with the purpose of State Code 16. The site contains area mapped as Category B (remnant vegetation). The removal of regulated vegetation was assessed and approved under the prior subdivision approval (AP2023/013).

No further clearing is proposed as part of this development application beyond what was approved under the approval AP2023/013. Accordingly, the development:

- Does not involve additional clearing of regulated vegetation;
- Reflects previously assessed and conditioned vegetation impacts; and
- Maintains consistency with the environmental outcomes established under approval AP2023/013.

On the above basis, the development is considered to satisfy the relevant assessment benchmarks of State Code 16.

7.7. State Code 21: Hazardous Chemical Facilities

The purpose of State Code 21 is to *ensure development is designed and sited, so far as reasonably practicable, to ensure:*

- (1) *human health and safety, and the built environment are protected from off-site risks resulting from physical or chemical hazards;*
- (2) *hazardous chemical facilities are protected from:*
 - a) *off-site hazard scenarios at existing hazardous chemical facilities;*
 - b) *natural hazards.*

The Project involves the storage and handling of hazardous chemicals in quantities exceeding the thresholds prescribed in Schedule 15 of the *Work Health and Safety Regulation 2011*, and therefore constitutes a hazardous chemical facility pursuant to the *Planning Act 2016*.

To support the assessment of the facility, a Fire and Explosion Analysis (refer **Appendix M**) has been prepared by Technip Energies in accordance with the planning guidelines for State Code 21. The assessment evaluated a wide range of credible hazardous scenarios, including jet fires, pool fires, explosion overpressures, toxic and flammable gas dispersion, and escalation events. The study confirms that most impacts from small to medium release events are contained within the site due to

internal module layout and separation distances. However, it also identifies that several larger-scale scenarios could result in impacts extending beyond the site boundary.

In accordance with provisions of State Code 21, the assessment criteria for an industrial land use are identified as:

- 14 kPa (0.14 bar) explosion overpressure contour;
- 12.6 kW/m² radiant heat contour;
- Consideration of Toxic dispersion.

The surrounding land to the south maintains existing established industrial uses, with land to the west located within the Medium Impact Industry Precinct of the TSDA Development Scheme. Land to the north is identified as Environmental Management Precinct.

This area encompasses saltpans and tidal land associated with Sandfly Creek and is not anticipated to provide for future development. The provided figures in this section of the planning report are excerpts from the fire and explosion analysis report (refer **Appendix M**) and are representative of the credible worst-case scenarios related to State code 21 that exceed the boundary of the site or are considered relevant worst-case scenarios.

7.7.1. Consequence Analysis and Credible Worst-Case Scenarios

The early consequence-based analysis undertaken for the Project highlights that 23mm (medium) leak sizes exhibit the largest distances for the flammable and / or toxic dispersions, jet flame radiation and explosion overpressures in many failure scenarios and is presented in the Fire and Explosion Analysis Report.

The 23mm leak size utilised in the assessment provides a more credible basis (e.g. in terms of meaningful fire durations for a potential escalation with or without plant isolation) when no frequency analysis has been performed and to avoid over conservatism in the model for making key development design decisions.

The frequency analysis is planned in FEED phase for Ulysses. It is well noted that real-world reference incidents that have caused off-site harm typically involve catastrophic equipment failures. Hence the Project will implement multiple layers of proven risk reduction measures through the Project design life cycles.

7.7.2. Explosion Overpressure

Overpressure contours exceeding the boundary include the 0.07 bar explosion overpressure contour and a small portion of the 0.14 bar contour extending off-site under some of the worst-case conditions for some modules. These are primarily associated with the rear of the facility in land mapped within the Environmental Management Precinct. Scenarios exceeding the boundary related to overpressure are provided below in The BLEVE scenarios for the Project are very limited (e.g. ethylene separation column reflux drum or LPG tank or Olig 1 HP separator releases). These are only analysed as part of a severe escalation event. Being an explosion, the harmful level criteria is overpressure (7kPa and 14kPa) rather than thermal radiation level. The BLEVE 14 kPa contour from the LPG tank extends over the boundary at the rear of the facility.

Figure 17 includes the worst-case scenarios related to overpressure.

The majority of these scenarios relate to the 7kPa overpressure contour, with the representative worst case (14kPa) scenarios related to the following scenarios:

- LPG Tank BLEVE (14kPa exceeds the rear site boundary)
- IS2 Module explosion (credible worst-case Scenario) (14kPa exceeds the rear site boundary)
- IS3 Module explosion (14kPa exceeds the rear site boundary)

The BLEVE scenarios for the Project are very limited (e.g. ethylene separation column reflux drum or LPG tank or Olig 1 HP separator releases). These are only analysed as part of a severe escalation event. Being an explosion, the harmful level criteria is overpressure (7kPa and 14kPa) rather than thermal radiation level. The BLEVE 14 kPa contour from the LPG tank extends over the boundary at the rear of the facility.

Figure 17: Overpressure Scenarios

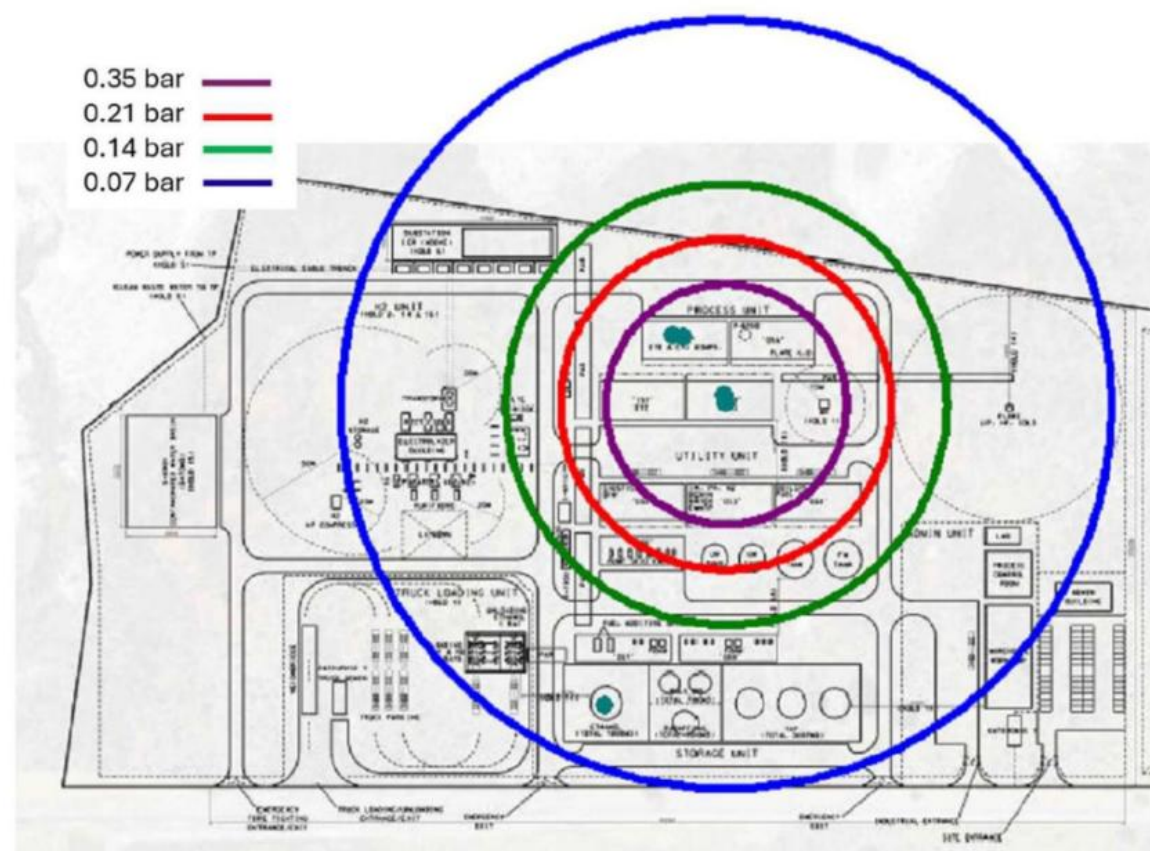


Figure 7-11: Explosion Overpressure from worst case 23mm release, 5D wind

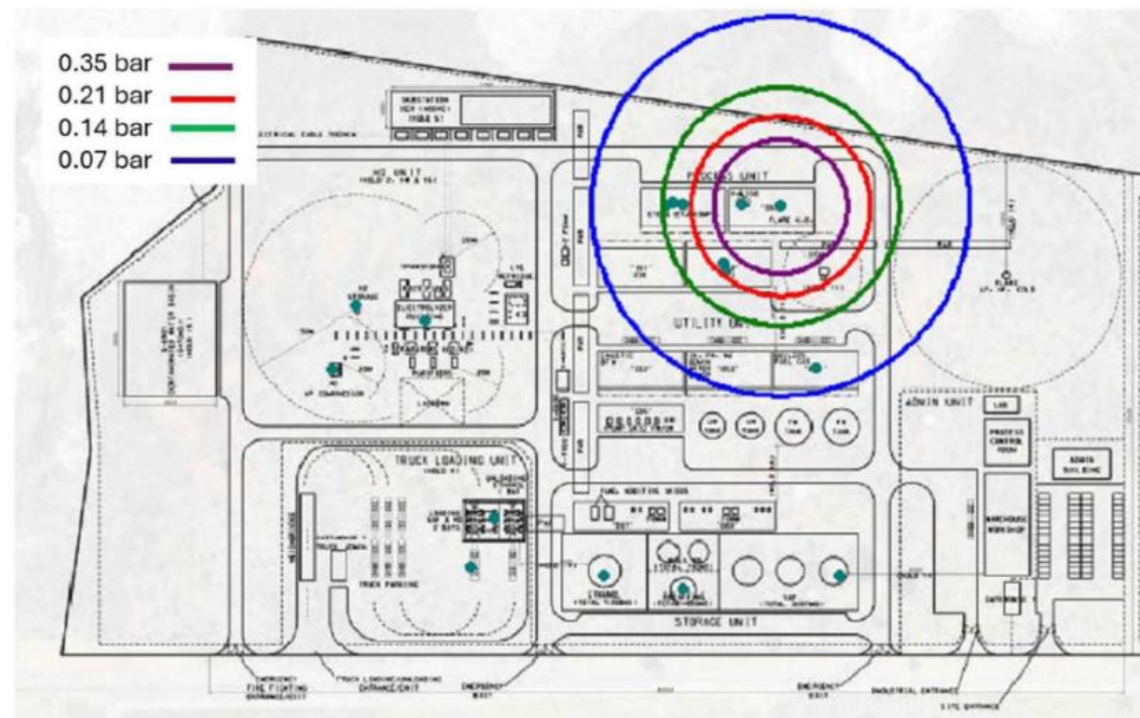


Figure 7-25: LPG Tank BLEVE

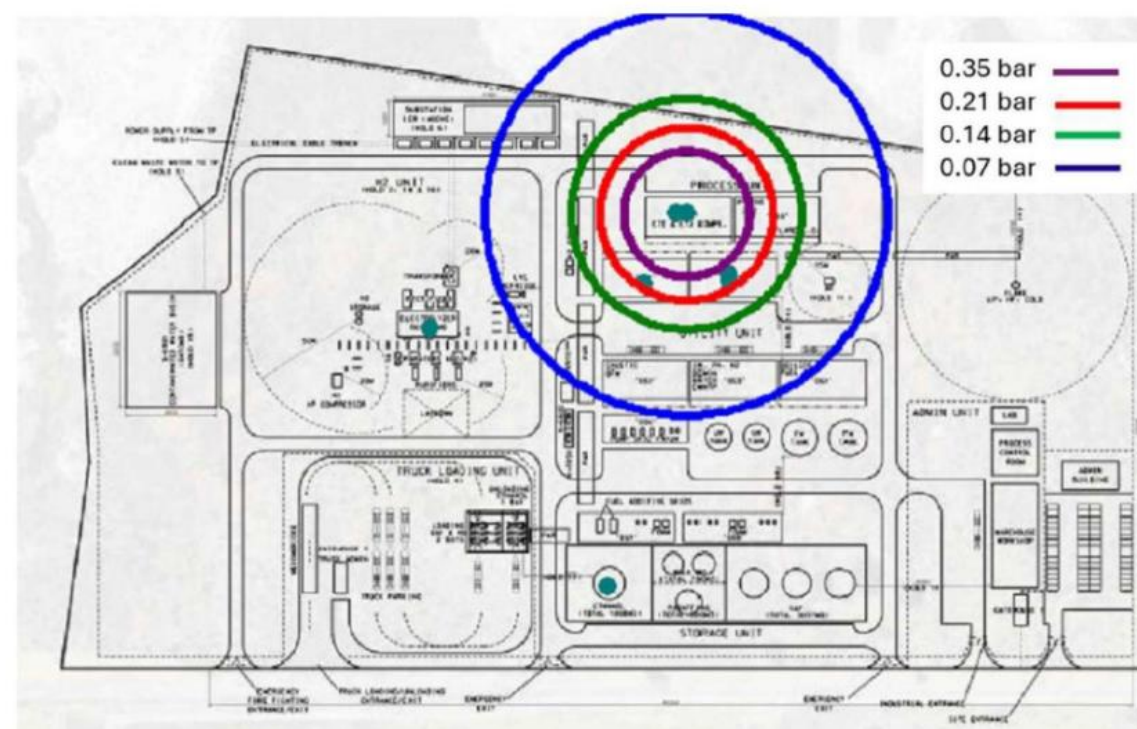


Figure 7-15: Explosion Overpressure from worst case 23mm release, 5D wind

7.7.3. Flammable dispersion and radiant heat

Where pool fire scenarios exhibit harmful thermal radiations and initiated from the same process equipment sources as the BLEVEs, the duration of their releases to cause an escalation has been accounted for in the modelling (refer **Appendix M**).

The worst-case scenarios are provided in **Figure 18 and 19** below. The dispersion of flammable clouds is reported in the study to the conditions where the cloud edge reaches 50% and 100% of Low Flammability Limits for the relevant release scenarios. 100% fatality is considered if located in an area where the concentration is higher or equal to the LFL and engulfed by the flash fire. Of note the LFL scenarios exceed the rear boundary of the site in the zoned environmental management area.

The two scenarios exceeding the boundary are:

- Flammable dispersion from the IS3 module (exceeds the rear site boundary);
- Flammable dispersion from the ETJ module (exceeds the rear site boundary).

The credible worst case thermal radiation scenarios related to the Project that exceed the boundary related to an industrial facility are detailed in **Figure 19**.

These scenarios are:

- Tank Pool fire at the loading facility (the 12.6kW/m² contour exceeds the boundary of the site out onto the private access road for the facility).
- Ethanol pool fire at the Ethanol Guard beds and dryer package (the 12.6kW/m² contour exceeds the boundary of the site into the Environmental management zone at the rear of the facility).

Jet fire from the IS3 module (the 12.6kW/m² contour exceeds the boundary of the site into the Environmental management zone at the rear of the facility).

Figure 18: LFL Release Scenarios

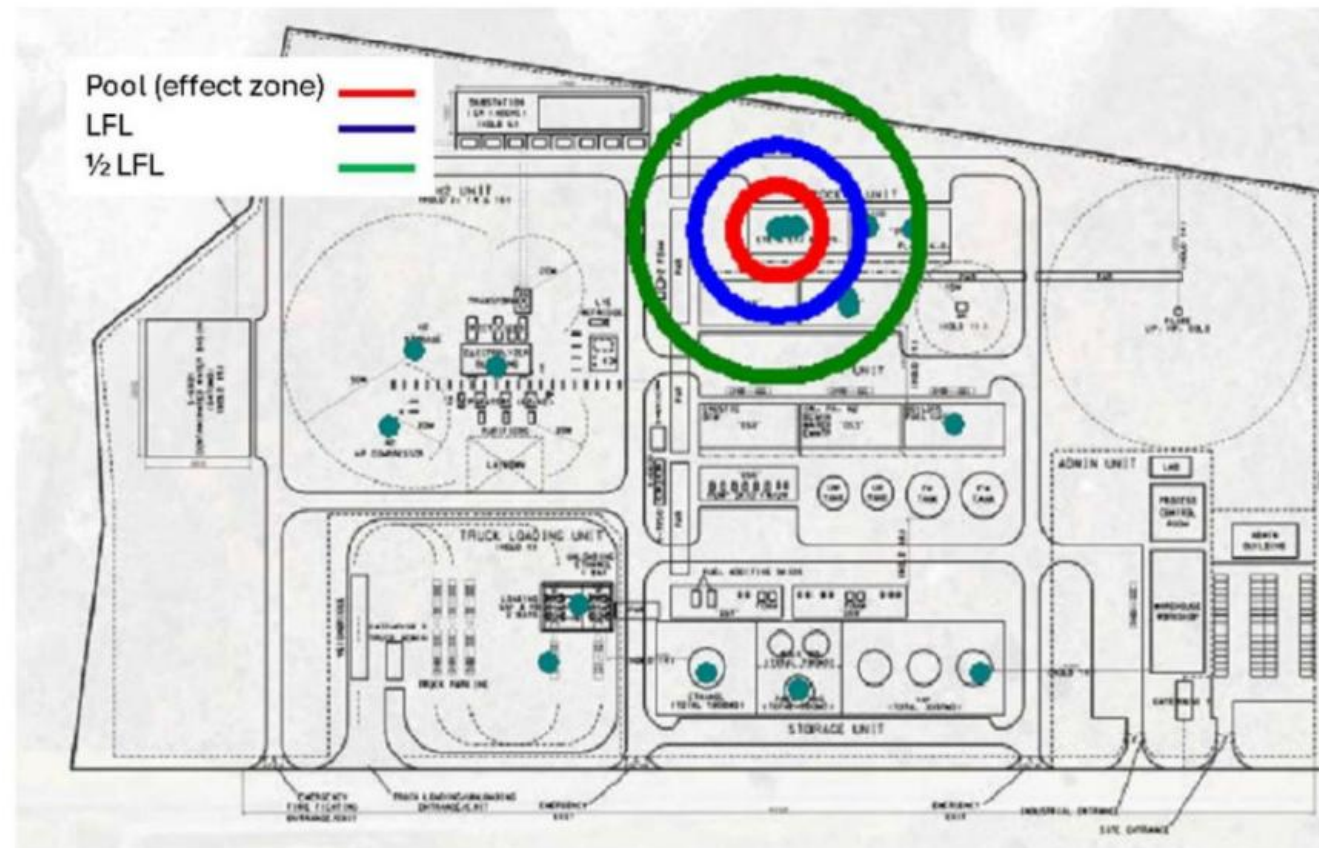


Figure 7-14: Flammable dispersion from FC145, 5D wind, 23mm release

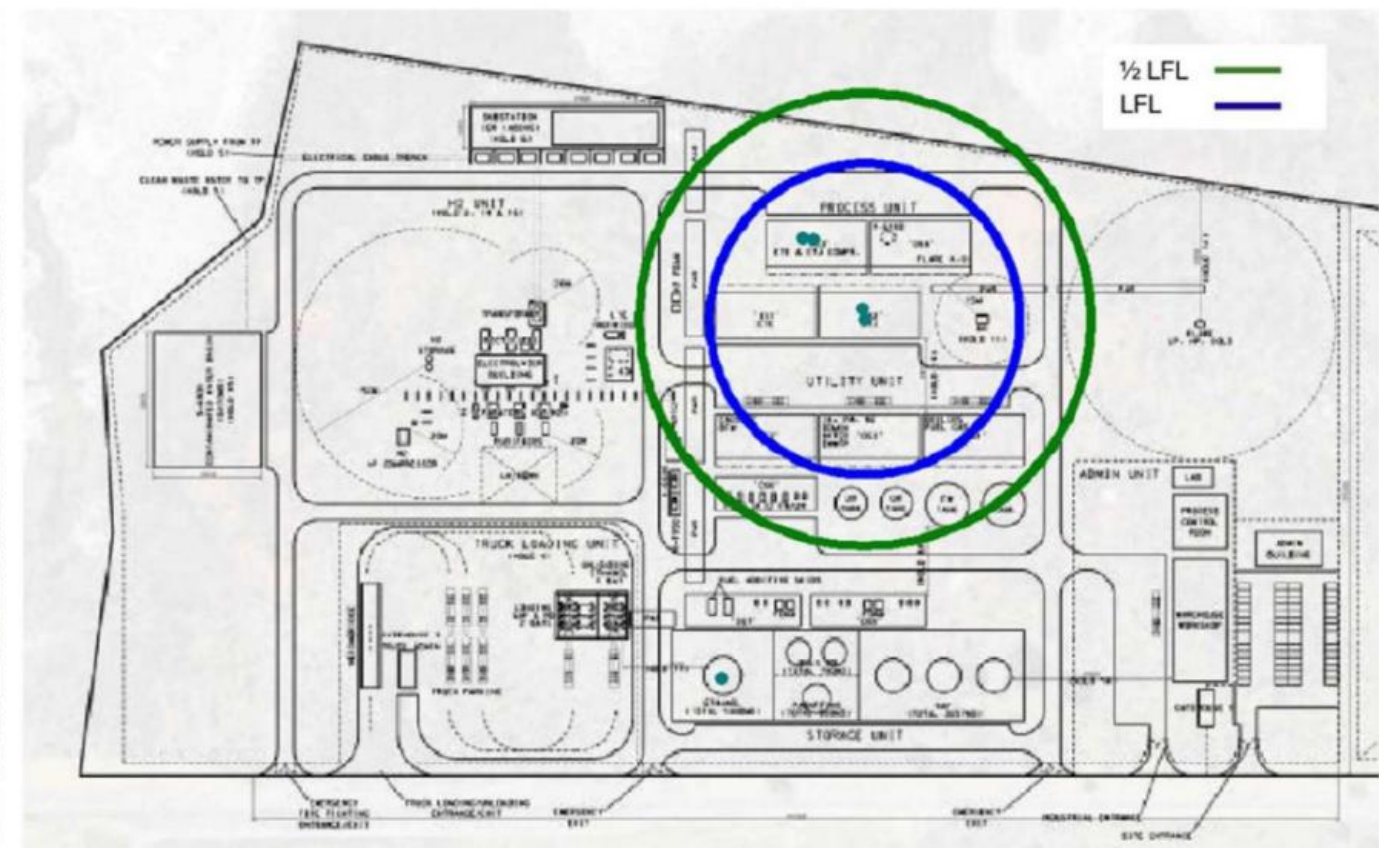


Figure 7-10: Flammable dispersion from FC96, 5D wind, 23mm release

Figure 19: Thermal Radiation Scenarios

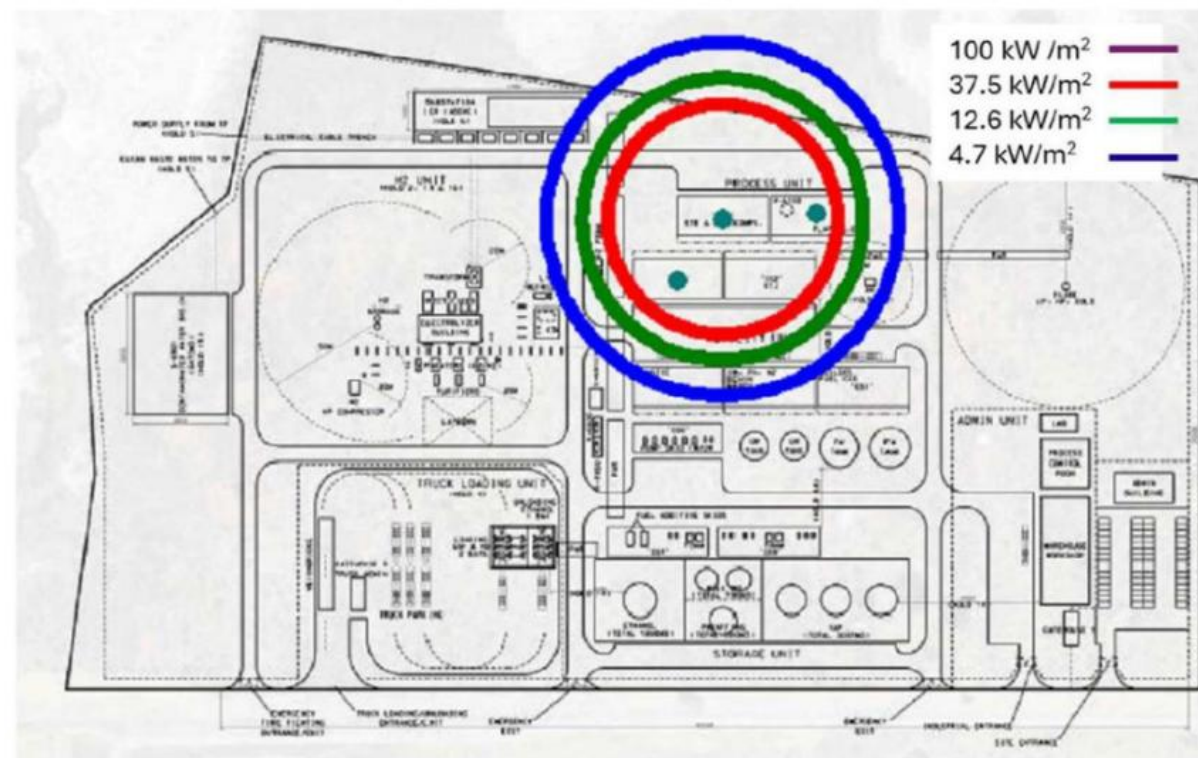


Figure 7-12: FC12 Jet fire Thermal Radiation 23mm release, 5D wind

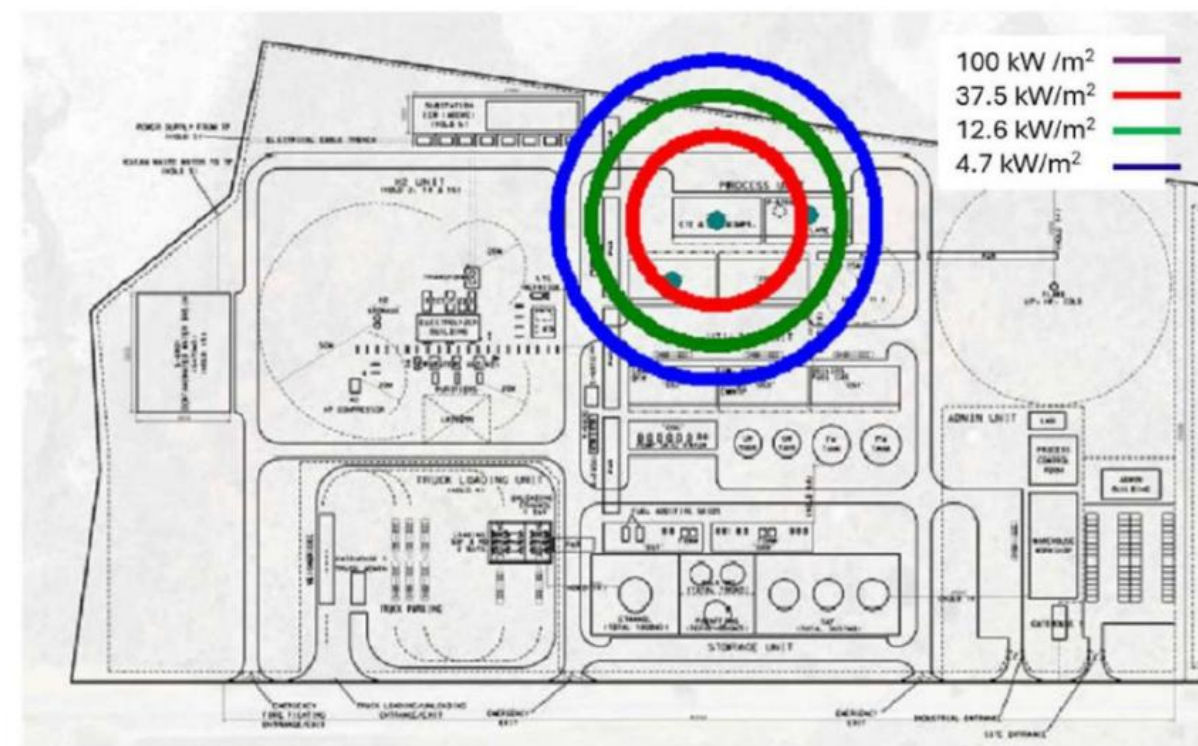


Figure 7-13: Pool fire Thermal Radiation from FC107, 5D wind, 23mm release

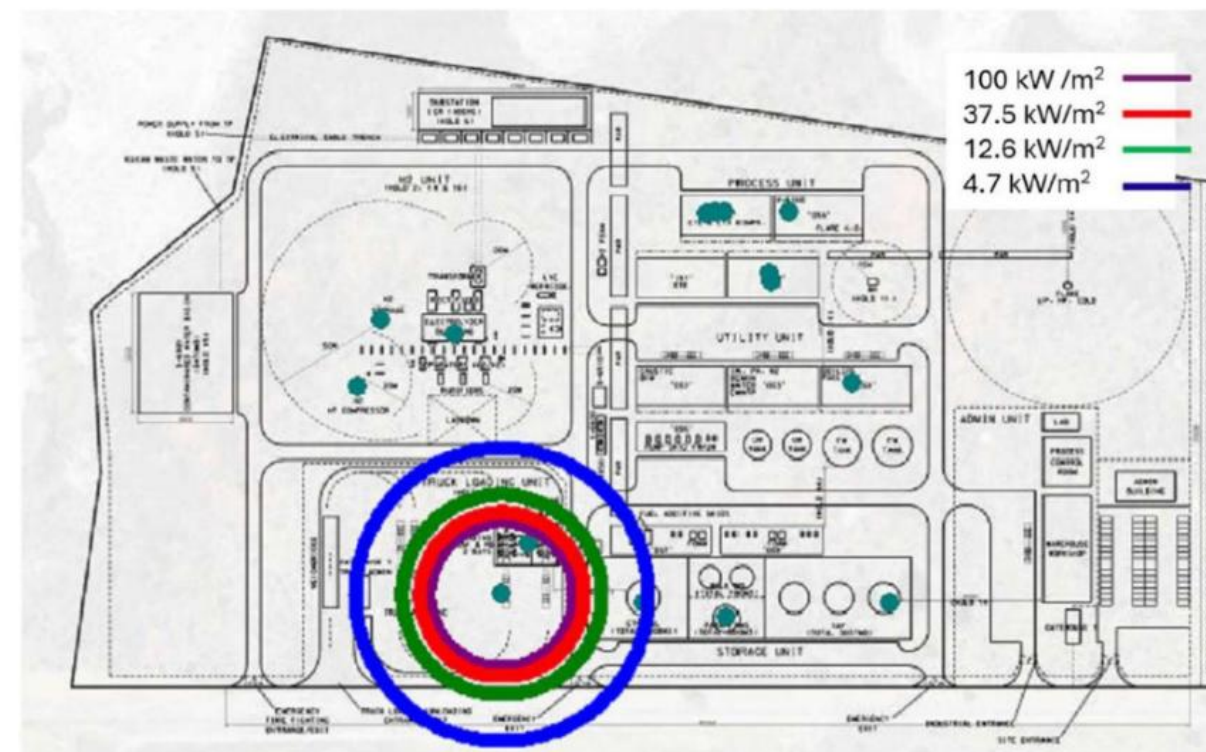


Figure 7-22: Tanker pool fire, 5D wind

7.7.4. Schedule 15 Chemicals

The Project utilises prescribed hazardous chemicals in a quantity that may exceed the 10 percent of the chemical's threshold quantity under schedule 15 of the *Work Health and Safety Regulation 2011*. These chemicals are utilised in various locations in the production of SAF and RD at the facility. To support the assessment of the facility and the storage related to the fire and explosion analysis report a map detailing the storage locations and quantities utilised in the assessment is provided in the WHS Reg, Schedule 15 Chemical Storage Plan (refer **Appendix N**).

7.7.5. Planning Assessment

The assessment undertaken for the fire and explosion report has assessed a range of credible scenarios related to the Project. A general assessment of the Project verifies the suitability of the facility for the manufacturing of the SAF and the RD in relation to the potential offsite impacts from the facility.

The overpressure contours identify that the scenarios assessed may cause minor structural damage (e.g. window breakage) but are not expected to result in fatalities for persons located outdoors. In addition, thermal radiation from certain pool fire scenarios (e.g. at the SAF storage tanks and tanker loading area) could extend beyond the southern site boundary near the plant access road. Toxic gas dispersion from Acetaldehyde releases may also reach off-site under certain atmospheric conditions, although concentrations are expected to remain below immediately dangerous thresholds and be of limited duration.

To mitigate these potential off-site impacts, the Project will implement multiple layers of risk reduction measures through the Project design life cycles. These include:

- Optimisation of site layout to increase separation distances between hazard sources and the site boundary;
- Use of blast-resistant buildings for critical infrastructure, if required;
- Implementation of automatic isolation and blowdown systems to reduce release duration;
- Strategic siting of emergency utilities upwind of major risk areas; and
- Firewater containment and drainage measures to manage firefighting runoff.

The Project is considered capable of complying with the performance outcomes of State Code 21, where the mitigation measures and design recommendations outlined in the analysis are implemented during detailed design and construction.

In addition, the Stormwater Management Plan (**Appendix G**) outlines drainage infrastructure designed to manage spills and firefighting runoff, further supporting containment and mitigation objectives.

Natural hazard risks, including flood and storm tide inundation, were addressed and approved through the Reconfiguration of a Lot (AP2023/013) and associated Operational Works (OPW24/0107) approvals relevant to the subject site. Accordingly, the site has been confirmed as suitable for future industrial development.

Detailed assessment against State Code 21 is provided at **Appendix Q**.

7.8. State Code 22: Environmentally Relevant Activities

The purpose of State Code 22 is to *ensure that environmentally relevant activities (ERAs):*

- (1) *are located and designed to avoid or mitigate environmental harm on environmental values of the natural environment, adjacent sensitive land uses and sensitive receptors;*
- (2) *are designed and located to avoid impacts or, where the matters of state environmental significance cannot be reasonably avoided, impacts are reasonably minimised and mitigated;*

- (3) *does not result in a significant residual impact on a matter of state environmental significance unless the significant residual impact is acceptable, and an offset is provided.*

The proposed development constitutes an ERA under the EP Act, specifically ERA 7(1)(b) – manufacturing a total of 200 t or more of chemicals in a year. The relevant threshold for the ERA is identified as 5(d) – manufacturing, in a year, more than 100,000 t of organic chemicals. Accordingly, the Project is subject to assessment against State Code 22 – Environmentally Relevant Activities.

The Project has been designed and sited to avoid or mitigate environmental harm across relevant environmental values, including air, acoustic, water, soil, and ecological values. The assessment demonstrates compliance with all applicable performance outcomes under State Code 22, supported by a suite of technical assessments. In particular:

- The Noise and Vibration Impact Assessment (**Appendix J**) confirms that predicted noise levels comply with the *Environmental Protection (Noise) Policy 2019* at all identified sensitive receptors, under both normal and adverse meteorological conditions.
- The Air Quality Assessment (**Appendix I**) demonstrates that emissions from operational scenarios, including worst-case conditions, comply with the relevant air quality objectives under the *Environmental Protection (Air) Policy 2019*. The modelling also confirms that odour emissions remain below guideline thresholds at all identified sensitive receptors.
- The Stormwater Management Plan (**Appendix G**) sets out a stormwater treatment system that includes hydraulic separation of contaminated and uncontaminated catchments, bunded hardstand areas, an oily water system, bioretention basins, and controlled discharge infrastructure to WWTP. The stormwater system is designed to achieve the relevant water quality objectives for the Sandfly Creek catchment and downstream estuarine receiving waters, in accordance with the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*. The baseline water quality sampling and MUSIC modelling has led to the development of water quality objectives that will inform the Project engineering design and updated SMP.
- An Ecological Assessment Report (**Appendix F**) has been prepared to support the assessment of potential impacts on ecological values. The report confirms that the development has been sited and designed to avoid and minimise environmental harm, with no significant residual impacts anticipated. Where relevant, mitigation measures have been identified to manage potential indirect impacts and maintain environmental values in accordance with the purpose and performance outcomes of State Code 22.
- The site's proximity to the Cleveland Bay estuarine environment, in particular to the Sandfly Creek catchment and the Great Barrier Reef World Heritage Area downstream was considered in the assessment of receiving water values. The development is not expected to result in significant residual impacts on water quality or ecological values, with stormwater treatment measures designed to achieve the objectives of the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* and in accordance with the purpose and performance outcomes of both State Codes 9 and 22 (refer **Section 7.4**).
- Hazardous substances and waste streams associated with the facility will be managed in accordance with applicable safety and environmental regulations. Firewater containment infrastructure and secondary containment systems will be designed and integrated in the site layout to mitigate risk of environmental release during emergency events.

Based on the site's separation from sensitive receptors, field-verified ecological constraints, and the application of avoidance and mitigation measures, the development is considered to comply with the purpose and performance outcomes of State Code 22. Detail assessment against State Code 22 is provided at **Appendix R**.

8. TOWNSVILLE SDA DEVELOPMENT SCHEME PLANNING ASSESSMENT

8.1. Strategic Vision for the Townsville SDA

The proposed development aligns with the strategic vision of the Townsville SDA by supporting industrial development of a regional, state and national significance. The proposed development will contribute to the advancement of sustainable fuel, in line with national decarbonisation objectives. The proposed development enhances Townsville SDA's role as a hub for high impact industries by introducing a state-of-the-art processing facility that integrates with existing industrial operations.

The proposed development is reliant on direct access to the Port of Townsville and major road networks, with this required for ethanol feedstock supply and SAF distribution. The strategic vision includes coordinated infrastructure planning, with the proposed development contributing to this objective by aligning with existing industrial land uses while minimising land use conflicts.

Environmental protection is central to the TSDA Development Scheme, and the proposed development incorporates mitigation measures to address potential impacts. The subject site is located within proximity to significant environmental features, with the construction and operation of the facility appropriately designed to avoid or minimise potential impact.

The proposed development involves a use that is consistent with the High Impact Industry Precinct of the Development Scheme, which is designated for industries requiring significant buffers from sensitive land uses and access to major infrastructure. The proposed development meets these criteria by operating within an industrial setting while maintaining the necessary environmental and safety controls.

Overall, the proposed development is consistent with the Townsville SDA Development Scheme's strategic vision by fostering economic growth, supporting infrastructure efficiency, and ensuring responsible environmental management.

8.2. Overall Objectives for Development in the Townsville SDA

The Project is consistent with the overall objectives and furthers the purpose of the Townsville SDA. Project Ulysses represents a regionally and nationally significant industrial development that supports the transition to low-emission fuels while capitalising on the Townsville SDA's proximity to the Port of Townsville and key transport corridors. The development aligns with the strategic vision by delivering a high-impact industrial facility that enhances economic growth, supports innovation in renewable energy production, and contributes to industrial diversification in North Queensland.

The Project has been sited and designed to avoid incompatible land use conflicts and ensure separation from sensitive receptors. Lot configuration and site layout are appropriate to the scale and function of the facility, supporting efficient use of land and infrastructure while protecting the integrity of adjacent precincts.

Accordingly, the Project is considered to be consistent with the overall objectives of the TSDA Development Scheme by enabling sustainable industrial development while avoiding or minimising environmental impacts to environmental values and ensuring compatibility with regional land use planning outcomes. In particular:

- The Project capitalises on the subject site's strategic location in proximity to transport infrastructure, with direct connection to major road network and the Port of Townsville.
- The Project provides for a use that is consistent with the High Impact Industry Precinct and is compatible with existing surrounding uses and anticipated future industrial uses to the surrounding land.
- The proposal does not involve significant adverse impact to sensitive land uses.
- The proposal avoids or minimises adverse impacts on environmental, cultural heritage and community values of surrounding land. The Ecological Assessment Report (refer **Appendix F**)

confirms that key environmental values, including regulated vegetation, wetland areas, and wildlife habitat, are largely avoided or appropriately managed through mitigation measures, noting impact to existing environmental values have previously been assessed in associated approvals AP2023/013 and OPW24/0107. No mapped cultural heritage sites are present on the subject land, and there is no direct interface with community facilities or sensitive social infrastructure.

- The proposed development will stimulate economic activity by creating jobs, fostering investment, and contributing to the renewable energy sector. Specifically, the Project will create approximately 1,000 direct construction jobs and approximately 100 operational roles, contributing significantly to the Townsville regional economy. Furthermore, it will strengthen supply chain connections with key domestic industries that collectively employ 350,000 workers, driving demand and employment growth across the agricultural, aviation, energy, defence, and logistics sectors.
- The subject development site is primarily located within the High Impact Industry Precinct of the TSDA Development Scheme, with the proposed development consistent with surrounding existing, and anticipated future, industrial land uses.
- The lot size of the subject site is appropriate for the proposed development and is suitable to accommodate the facility's operational needs avoiding or mitigating impacts on environmentally sensitive areas and without encroaching on incompatible areas.
- The subject site is centrally located within the Townsville SDA and benefits from substantial separation distances from residential and other sensitive land uses, thereby reducing the potential for land use conflict. The operational footprint of the facility is positioned more than 1 km from Ron McLean Drive and the Bruce Highway, being the nearest major public road corridors, ensuring that visual impacts on the public realm are negligible due to the site's setback and contextual industrial setting.
- The proposed development involves industry-leading SAF technology. Compliance with regulatory standards in the design, construction and operation of the facility will be maintained.
- The proposed development avoids or minimises environmental impacts through the implementation of targeted avoidance, mitigation, and management measures, as outlined in the Ecological Assessment Report (refer **Appendix F**). These include the protection of remnant vegetation and wetland values, and application of environmental controls during construction and operations to reduce potential impacts on adjacent high ecological value areas.
- Extensive community engagement has been undertaken to ensure transparency, communicate regional impacts, and provide meaningful opportunities for feedback. Engagement outcomes indicate that the proposed development aligns with community expectations and values. Further details of the consultation process are provided in **Section 3**.
- The proposed development maintains appropriate flood immunity and does not result in any adverse flood impact to urban areas (refer **Appendix L**).

8.3. High Impact Industry Precinct

The plant site is predominantly located within the High Impact Industry Precinct of the TSDA Development Scheme. Part of the subject site is located within the Environmental Management Precinct (see **Section 8.5**), with this limited to the outer edges of the west, north, and east extent of the plant site and the majority of the access handle. A small portion of the access handle to the west is located within the Medium Impact Industry Precinct (see **Section 8.4**), consistent with the zoning of adjacent industrial properties along Colinta Road.

The proposed development is for a SAF production facility, which is defined as *Special Industry* under the TSDA Development Scheme. While *Special Industry* is not expressly listed as a defined use that supports the preferred development intent of the High Impact Industry Precinct, it is recognised as a use that may be supported where it demonstrably aligns with the precinct's strategic purpose.

The development is considered appropriate within this precinct as it accommodates a large-scale, high-intensity industrial use that necessitates significant buffers from sensitive receptors and benefits from proximity to key logistics infrastructure. The High Impact Industry Precinct is specifically intended for industries that generate off-site emissions (including noise, odour, and atmospheric pollutants) or present elevated risks due to the storage and handling of hazardous substances, both of which are relevant characteristics of the proposed facility.

The facility has been strategically sited to ensure compatibility with surrounding land uses and to maximise separation from residential and community land uses, in accordance with the TSDA Development Scheme's intent to manage emissions and avoid land use conflict. Furthermore, the site has direct and efficient access to key transport infrastructure, including the Port of Townsville, Bruce Highway, and the Townsville Port Access Road (Ron McLean Drive), consistent with the precinct's emphasis on connectivity to regional freight and supply chain networks.

While a portion of the development footprint intersects the Environmental Management Precinct, this is limited to non-industrial functions (e.g. access and supporting infrastructure). These areas have been designed to avoid or minimise adverse environmental impacts and will be subject to management controls.

Accordingly, the proposal is considered to be consistent with the preferred development intent and land use outcomes of the High Impact Industry Precinct.

8.4. Medium Impact Industry Precinct

A small portion of the subject site falls within the Medium Impact Industry Precinct, limited to the westernmost extent of the site's access handle. This area is not intended to accommodate any core operational or processing functions of the Project, but rather serves as a transport and logistics function to support access to the plant site.

The Medium Impact Industry Precinct is intended for industrial uses that generate measurable environmental and amenity impacts, typically requiring buffering from sensitive land uses while maintaining strong connectivity to freight and infrastructure networks. The proposed use of the area for vehicle access is consistent with this intent, as it facilitates controlled industrial traffic movements and ensures appropriate separation from incompatible uses.

Importantly, the access infrastructure does not introduce any sensitive or non-industrial land uses into the precinct and will not generate emissions or impacts beyond those typical of anticipated industrial traffic. The design and alignment of the access handle have been informed by site constraints and existing industrial development patterns along Colinta Road, further supporting land use compatibility.

Accordingly, the development is considered to be consistent with the preferred development intent of the Medium Impact Industry Precinct by preserving its industrial function and facilitating efficient access to the High Impact Industry Precinct.

8.5. Environmental Management Precinct

The extent of the Environmental Management Precinct within the subject site is confined to peripheral areas along the western, northern and eastern boundaries of the plant facility area, as well as the majority of the access handle corridor. The TSDA Development Scheme designates this precinct to remain free of intensive industrial activities due to its identified flood risk, topographical constraints, and ecological sensitivity.

The approved Reconfiguring a Lot application that establishes the subject site (AP2023/013) and subsequent Operational Works approval (OPW24/0107) facilitates the construction of the access handle and the establishment of a fill pad across the operational footprint. The works will ensure that the development platform is elevated above the defined 1 % AEP flood level and storm tide inundation level.

As identified in the supporting Flood Impact Assessment (refer **Appendix L**), the development area maintains a minimum finished level of 3.9 m AHD, with earthworks and stormwater infrastructure designed to ensure flood resilience while minimising impact on downstream hydraulic conditions.

The proposed works within the Environmental Management Precinct are limited to essential infrastructure (e.g. access and services) and have been designed to avoid or minimise disturbance to ecological values. Flood and stormwater mitigation strategies, including bio-retention basins, controlled drainage networks, and setback buffers, will be implemented to manage water quality and maintain hydrological connectivity across the landscape. These measures align with the environmental protection objectives of the precinct and ensure that surrounding wetlands, remnant vegetation, and fauna habitat are not harmed.

Accordingly, the development does not conflict with the purpose or performance outcomes of the Environmental Management Precinct. Industrial activities are contained within appropriately zoned areas, and environmental values are maintained in accordance with the approved subdivision and development intent of the TSDA Development Scheme.

8.6. SDA Wide Assessment Criteria

8.6.1. Infrastructure and Services

The proposed development will be appropriately serviced by essential infrastructure, including reticulated water, wastewater, electricity and telecommunications. The subject site has been strategically selected to facilitate development of the nature proposed, and is supported by existing infrastructure.

8.6.2. Airshed Emissions

The proposed development has been designed to avoid or minimise adverse amenity and environmental impacts arising from air emissions during both construction and operation. Emission sources have been assessed to ensure they do not result in significant impacts on human health, environmental quality, or the surrounding industrial and ecological environments.

An Air Quality Assessment was undertaken by Vipac Engineers and Scientists (refer **Appendix I**) to assess emissions from routine operations and emergency scenarios, including cooling water failure, power failure, and plant start-up. Using a comprehensive emissions inventory and TAPM-CALMET-CALPUFF dispersion modelling, the assessment demonstrates that predicted concentrations of key pollutants remain below applicable air quality objectives at all sensitive receptors. These receptors include residential areas and environmentally sensitive locations such as Sandfly Creek and adjacent wetland systems. Emissions from natural gas-fired boilers, fugitive sources, and storage systems are intermittent and of low magnitude, and are not expected to materially contribute to cumulative regional air pollutant loads.

Additionally, Vipac Engineers and Scientists prepared a Noise and Vibration Impact Assessment (refer **Appendix J**), addressing both construction and operational phases. Construction-phase noise modelling confirms compliance with the *Environmental Protection (Noise) Policy 2019*, with mitigation measures including restriction of high-noise activities to standard hours and provision for temporary noise barriers where required. Operational noise sources, such as compressors, pumps, and vehicle movements, have been modelled against relevant noise criteria, with outcomes indicating compliance at all property boundaries. Cumulative noise impacts were also evaluated, confirming that the proposal will not result in significant additional noise and vibration exposure to nearby industrial or sensitive receptors.

A Lighting Environmental Assessment Report was prepared by Rubidium Light (refer **Appendix H**), which outlines a lighting strategy aimed at minimising light pollution and protecting local ecological values, where possible. The strategy includes:

- Use of warm-spectrum (2200K) LED luminaires to reduce blue light emissions and minimise impacts on nocturnal fauna, including migratory birds and bats.
- Targeted luminaire placement and shielding to prevent unnecessary light spill into adjacent natural areas, including intertidal and wetland habitats.
- Integration of adaptive lighting controls such as motion sensors and dimming systems to reduce unnecessary nighttime illumination and improve energy efficiency.

Collectively, these assessments confirm that the proposed development incorporates appropriate mitigation and management measures to ensure emissions of air pollutants, noise, and light remain within acceptable limits and do not adversely affect environmental values or public amenity.

8.6.3. Contaminated Land

A detailed Baseline Soils Investigation has been undertaken by C&R Consulting (refer **Appendix O**), with this addressing potential contamination of the subject site. The site is not listed on the Environmental Management Register or the Contaminated Land Register, and no contamination has been identified.

Specifically, soil sampling and laboratory analysis were conducted to assess the presence of potential contaminants, including heavy metals, hydrocarbons, phenols, pesticides, and polychlorinated biphenyls. The results of this confirm that all samples from the 36 test pits were compliant with relevant environmental guidelines. Additionally, it is noted hydrocarbons and organic contaminants were below laboratory detection limits, further confirming that the subject site does not maintain legacy contamination.

8.6.4. Acid Sulfate Soils

The Baseline Soils Investigation (refer **Appendix O**) assesses the potential presence of Acid Sulfate Soils (ASS) and Potential Acid Sulfate Soils (PASS) across the subject site. The investigation confirms that while low levels of ASS and PASS are present, they are mostly confined to the upper 1 m of the soil profile and can be effectively managed through appropriate mitigation measures.

The preliminary site assessment includes a review of regional ASS mapping, which suggested that portions of the site may have a moderate to high probability of containing ASS. However, due to the limitations of broad-scale mapping, a detailed field investigation was undertaken, including 432 field screening tests and 113 laboratory-based chromium reducible sulphur tests. The results confirmed that while minor occurrences of ASS/PASS are present, the overall acid-generating potential is low compared to other sites in the region.

The field investigation identified an estimated 36,153 cubic meters of actionable ASS material, which would require treatment if disturbed. The estimated lime treatment requirement ranges from 1 to 3 kg per tonne, depending on the acidity levels. Given the site's planned industrial use, avoidance and neutralisation strategies will be implemented as the primary management approach. These strategies will be further refined in a site-specific ASS Management Plan to be included in the CEMP, ensuring compliance with the Queensland Acid Sulfate Soil Technical Manual.

The assessment concludes that with appropriate management measures in place, the Project will reduce the risk of acidification to surrounding land or water systems to a minimum.

8.6.5. Climate Change

As Australia's first ATJ facility, the Project will produce SAF and RD, reducing lifecycle GHG emissions by up to 48 % compared to conventional fossil fuels. This aligns with Queensland's net-zero emissions by 2050 target and broader national commitments to decarbonisation.

The facility incorporates low-carbon process technologies, including high-efficiency energy recovery systems, process heat integration, and emissions control mechanisms, to minimise direct operational emissions. Additionally, the Project is designed to support future energy transition opportunities, including potential renewable hydrogen integration and carbon capture technologies, ensuring long-term emissions reduction capabilities.

To enhance climate resilience, the facility will be designed to withstand projected climate change risks, including increased temperatures, extreme weather events and changes in precipitation patterns. The development will incorporate stormwater management strategies, heat-resistant materials and operational redundancy measures to maintain functionality under future climate scenarios.

8.6.6. Transport

Bitzios Consulting was engaged to prepare a Traffic Impact Assessment (TIA) to evaluate the proposed development's impacts on the surrounding road network, site access, and internal traffic movements (refer **Appendix K**). The assessment concludes that the proposed development is consistent with the industrial land use intent of the Townsville SDA and can be accommodated by the existing transport network without resulting in unacceptable impacts on traffic safety or operational efficiency.

The development is strategically located with direct access to Colinta Road, which links to Ron McLean Drive via Heleen Downs Road, and ultimately connects to the Bruce and Flinders Highways. The TIA includes an assessment of key intersections, including:

- Ron McLean Drive / Heleen Downs Road / Colinta Road; and
- Bruce Highway / Flinders Highway / Ron McLean Drive.

Traffic modelling undertaken for both construction and operational scenarios confirms that these intersections will continue to operate within acceptable capacity thresholds. Only minor increases in intersection delays are anticipated, and no upgrades are required to maintain existing levels of service.

The CBIP road network has been designed for high-capacity industrial traffic, and the development aligns with this function. The facility is expected to generate heavy vehicle movements primarily associated with inbound ethanol deliveries and outbound SAF and RD shipments. B-double trucks will be the primary transport vehicles, and swept path analyses confirm that the site access design and internal circulation layout can accommodate these vehicle types without operational constraints.

Vehicle access will be provided via a dedicated private roadway connecting the development to Colinta Road. Sight distance assessments confirm that safe ingress and egress can be achieved. Internal traffic management measures, including directional signage and separation of light and heavy vehicle movements, will be implemented to ensure safe and efficient circulation within the site.

Traffic safety assessments indicate that the proposed development will not exacerbate existing road safety risks. Key intersection risk ratings remain unchanged with or without the Project, and no additional mitigation measures are required. The site will also provide adequate on-site parking to support workforce requirements, including peak operational periods. 70 on-site parking spaces are recommended, with 60 currently provided with the concept site layout. Sufficient area is available within the subject site to accommodate the full requirement, with this to be addressed in detail design phase.

Overall, the Project is compatible with the existing and planned transport infrastructure in the Townsville SDA and does not necessitate any major upgrades to the surrounding road network.

8.6.7. Environment, Cultural Heritage and Community

The proposed development does not result in unacceptable impacts on surrounding environmental, cultural heritage, or community values. The site has been selected and the Project designed to avoid significant environmental impacts where practicable. Where impacts are unavoidable, appropriate mitigation and management measures will be implemented in accordance with applicable legislative requirements.

Engagement has been undertaken with the Bindal People #2 to identify and manage Aboriginal cultural heritage values in accordance with the ACH Act. Meetings were held with representatives of the Bindal People to discuss the Project, its potential impacts, and the framework for cultural heritage management. A draft CHMA was prepared, including provision for archaeological survey and mitigation measures. Finalisation of the CHMA is currently on hold due to internal governance changes within the native title applicant group, with negotiations to recommence upon resolution.

Simultaneously, broader community engagement has been undertaken to inform stakeholders, identify potential issues, and ensure alignment with community expectations. Feedback received through this process has been considered in the Project's planning and design to minimise impacts on community values and inform responsible development outcomes.

8.6.8. Engineering and Design Standards

The proposed development aligns with the engineering and design standards of the TSDA Development Scheme, ensuring that relevant engineering and design standards are achieved. In particular:

- The subject site will be connected to Council's reticulated water and sewer network.
- Erosion and sediment control measures will be implemented in accordance with the *International Erosion Control Association – Best Practice Erosion and Sediment Control* guidelines and will be incorporated into future site-based environmental management plans.
- All earthworks associated with the Project will be designed and certified by a Registered Professional Engineer of Queensland (RPEQ) and will be subject to a future Operational Works application.
- Stormwater management for the Project is designed to comply with the requirements of the TSDA Development Scheme, and requirements included with a SMP. The system incorporates bio-retention basins and treatment measures to achieve pollutant load reduction targets of 80 % total suspended solids (TSS), 60 % total phosphorus, 40 % total nitrogen, and 90 % gross pollutants greater than 5 mm, consistent with dry tropics regional and specific site based water quality objectives.
- The private access road within the access handle is facilitated under Operational Work approval OPW24/0107. The approved design includes a 14 m wide unsealed private road approximately 1,100 m in length. It is designed to accommodate up to 40 B-triple road train (Class 12) movements per day and is located above the 1 % AEP flood and storm tide level.
- The subject site is afforded direct access to existing formed Colinta Road, with the access suitably designed for vehicles anticipated by the proposed development.
- On-site car parking will be designed in accordance with relevant standards, with sufficient on-site car parking provided to meet the demand generated by the proposed development (refer **Appendix K**).

8.6.9. Other Government Matters

The proposed development is considered to be consistent with other government matters to the extent practicable, including:

- State Planning Policy – the proposed development has been assessed against relevant state interests, including natural hazards, biodiversity, and water quality (refer **Section 6.2.3**).

- North Queensland Regional Plan – the proposed development aligns with regional land use and economic development objectives (refer **Section 6.2.4**).
- State Development Assessment Provisions – where applicable, the proposed development is assessed against relevant state code provisions (refer **Section 6.2.6**).

8.6.10. Energy and Water Efficiency

The proposed development primarily consists of an operational plant. Areas designed for staff use and key functional spaces, located in the southeast portion of the site (including the laboratory, process control room, administration building, warehouse, and workshop), will be designed to maximise energy efficiency. This will be achieved through appropriate design considerations such as building orientation, the inclusion of awnings, and measures to enhance natural cross-ventilation.

8.6.11. Visual Impact

The plant site is located approximately 1.5 km from Ron McLean Drive and 2 km from the Bruce Highway. At this distance, visual exposure from public road corridors is limited, and potential visual impact to the general public is considered negligible. The development is situated within an established industrial area, with visibility from public viewpoints largely confined to the access handle crossover connecting to Colinta Road.

Lighting associated with the development has been designed to minimise visual intrusion while maintaining operational requirements. The Lighting Environmental Assessment Report (refer **Appendix H**) includes lighting strategies involving advanced luminaire distribution and directional shielding to ensure precise light control and prevent spill into publicly accessible areas, including road corridors, open space, and Cleveland Bay. These measures support compliance with visual amenity and environmental protection objectives under the TSDA Development Scheme.

8.6.12. Built Form

The proposed development is located in excess of 1 km from a publicly accessible road and will be secured with restricted access. Accordingly, the proposed development inherently supports the built form objectives of the TSDA Development Scheme, particularly noting the proposal involves an industrial use that aligns with the surrounding existing industrial uses.

8.6.13. Reconfiguring a Lot

The proposed development does not involve Reconfiguring a Lot.

8.6.14. Landscaping

The proposed plant site is located in excess of 1 km from the road frontage, with minimal visual amenity impact to publicly accessible areas. Where vegetation is incorporated within the development site, this can be established utilising native, low-maintenance plant species.

8.6.15. Natural Hazards – Flooding, Including Storm Tide Inundation

The Project is located within a flood-affected area as identified by Council flood mapping. A FIA has been prepared by Northern Consulting Engineers to assess flood risk and storm tide vulnerability associated with the proposed development (refer **Appendix L**). This assessment confirms that the site can achieve the required flood immunity with minimal off-site impacts and is suitable for the proposed industrial use.

The finished ground and building levels across the site have been designed to ensure immunity from the 1 % AEP flood event, with critical infrastructure, including the fuel storage and process areas, set at or above the 0.5 % AEP flood level and the defined storm tide level of 3.9 m AHD, in accordance with the Planning Scheme's Flood Hazard Overlay Code (refer **Section 9.8**). The modelling demonstrates that flood impacts are contained within the site boundary, with any afflux or hazard

remaining highly localised and negligible. The development will not worsen upstream or downstream flood conditions nor impact surrounding properties or the state-controlled transport network.

Stormwater management for the site has been designed in accordance with the *Queensland Urban Drainage Manual* and the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (refer **Appendix G**). The system incorporates a combination of underground and overland flow paths, supported by bio-retention basins designed to capture and treat runoff. The stormwater strategy ensures that discharge is directed to natural drainage lines at pre-development flow rates, and pollutant loads are managed in line with water quality objectives.

In addition, erosion and sediment control measures will be implemented during construction to maintain site stability and prevent off-site sedimentation.

Accordingly, the development achieves the flood immunity, hazard avoidance, and environmental protection outcomes required under section 2.5.15 of the TSDA Development Scheme and does not increase flood risk to surrounding land or infrastructure.

8.6.16. Natural Hazards – Other

The subject site is identified as being within a bushfire prone area under both SPP mapping and Council's Planning Scheme overlay mapping. The proposed development has been designed to appropriately respond to this constraint in accordance with section 2.5.16 of the TSDA Development Scheme.

The site has previously been primarily cleared of vegetation, with further clearing works and earthworks approved and progressing in accordance with Reconfiguring a Lot approval AP2023/013 and Operational Works approval OPW24/0107. These works involve filling of the site and construction of access infrastructure, reducing on-site fuel loads.

8.6.17. Water Quality

The Project is located, designed, and will be constructed and operated to avoid or minimise adverse impacts on the environmental values of receiving waters (surface and groundwater).

Stormwater management has been addressed through a site-specific SMP prepared by GHD for Technip Energies (refer **Appendix G**), which incorporates water quality treatment measures to manage altered hydrology and pollutant loads. A surface and groundwater water quality monitoring programs will continue during Project design phase to enhance the baseline knowledge.

The Project does not involve the discharge of untreated wastewater, nor does it involve the creation or expansion of non-tidal artificial waterways. All wastewater and process water will be managed through internal treatment systems and containment infrastructure in accordance with applicable EA conditions.

9. LOCAL PLANNING SCHEME PLANING ASSESSMENT

9.1. Healthy Waters Code

The purpose of the Healthy Waters Code is to *ensure development manages stormwater and wastewater as part of the integrated total water cycle and in ways that help protect the environmental values specified in the Environmental Protection (Water) Policy 2009.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *environmental values of receiving water are protected from adverse development impacts arising from altered stormwater quality and altered stormwater flow;*
- b) *environmental values of receiving water are protected from waste water impacts;*
- c) *environmental values of receiving water are protected from development impacts arising from the creation or expansion of non-tidal artificial waterways such as urban lakes;*
- d) *potential adverse impacts on the natural and built environment, including infrastructure and human health as a result of acid sulfate soils are avoided;*
- e) *public health and safety are protected and damage or nuisance caused by stormwater is avoided;*
- f) *stormwater is designed to maintain or recreate natural hydrological processes and minimise run-off;*
- g) *whole of lifecycle costs of infrastructure are minimised; and*
- h) *well-designed developments are responsive to receiving water quality*

The Project is considered to further the purpose and overall outcomes of the Healthy Waters Code.

Stormwater generated from hardstand areas and operational surfaces associated with the Project will be effectively managed through a site-based stormwater management system designed to achieve applicable water quality objectives prior to discharge. The system has been configured to prevent degradation of downstream environmental values, particularly in relation to sensitive estuarine and wetland areas associated with the Sandfly Creek catchment.

As identified in the SMP (refer **Appendix G**), stormwater from the developed area is proposed to be conveyed through four independent systems that will be further refined during FEED, namely:

- Clean water diversion swale – A clean water diversion swale will be constructed along the southern boundary of the site to divert approximately 11.2 m³/s of runoff from a 76.5 ha external catchment. The swale will be a key element in the site grading design and is preliminarily proposed as a rock-lined trapezoidal channel, with additional roadside drainage potentially required along the eastern portion.
- General site drainage – Site drainage has been designed to direct runoff to a bio-retention basin for treatment and detention to pre-development peak discharge levels. The drainage network layout, including roads, pipe grades, pit spacing, and erosion control measures, has been developed based on preliminary design assumptions, with the basin positioned on the western side of the site to optimise grading and hydraulic performance.
- Oily Water System – The OWS is a separate underground drainage network that captures runoff from designated operational areas and conveys the initial portion of rainfall to a contaminated water tank for treatment. Runoff is directed via open channels and sump pits to the tank, where it undergoes treatment through an oily water separator before being discharged to either the bio-retention basin or the site's wastewater system, with separated oil collected for off-site recycling.
- Bunded area – The storage tank farm will be enclosed within a self-contained bund designed to retain runoff from a 1 % AEP 24-hour rainfall event plus the full volume of the largest tank, with additional freeboard. Water collected within the bund will be either pumped out for off-

site disposal by a licensed contractor or released to the OWS if testing confirms it meets water quality requirements.

The proposed development is considered to further the purpose and overall outcomes of the Healthy Waters Code, noting the following:

- A 12-month surface and groundwater baseline monitoring program is underway and will contribute to design the water monitoring program for the construction and operation phases.
- Stormwater first flush runoff will be treated in a bio-retention basin designed to achieve pollutant load reductions consistent with water quality objectives.
- Wastewater will be treated on-site in a dedicated wastewater treatment plant, with reuse for non-potable purposes where feasible.
- Process water from the facility is to be re-used or recycled within the plant where possible.
- Uncontaminated stormwater from soft stand areas within the site will maintain discharge to the environment.
- The stormwater system detains flows to match pre-development peak discharge rates, reducing the risk of downstream hydraulic impacts.
- A clean water diversion swale isolates external catchment flows from developed areas, supporting the integrity of on-site treatment infrastructure.
- Areas generating hydrocarbon-affected runoff will discharge to a separate OWS, capturing the first flush for treatment prior to discharge.
- The OWS includes sump pits and lined channels designed to contain and direct potentially contaminated runoff with appropriate freeboard and conveyance capacity.
- The bunded tank farm is sized to contain rainfall and tank volumes, ensuring containment of hazardous substances and preventing uncontrolled release.
- Wastewater from process operations will be treated on-site, with reuse for non-potable purposes and discharge to Council's sewer network under trade waste approvals.
- Erosion and sediment control will be implemented during construction using methods consistent with IECA guidelines to prevent off-site sediment transport.
- Site grading and stormwater infrastructure have been designed to function within local flood constraints and avoid adverse impacts on flow paths or flood storage.
- The stormwater and wastewater systems are designed to integrate with existing and planned infrastructure, minimising off-site impacts and supporting orderly development.

9.2. Landscaping Code

The purpose of the Landscape Code is to *ensure landscaping in both the private and public domains is designed and constructed to a high standard, provides a strong contribution to the city image, is responsive to the local character, site and climatic conditions and remains fit for purpose over the long-term.*

The purpose of the code will be achieved through the following overall outcomes:

- a high quality streetscape and on-site landscape enhances the character of the city;*
- landscape design is used to integrate the natural and built form elements of the site and the locality;*
- landscape elements create a legible and attractive street frontage, and enhance the continuity of the streetscape;*
- screening is used to soften built form, mitigate adverse aesthetic impacts and provide privacy and character;*
- plant species and landscaping materials are suited to the Dry Tropics' cyclone prone climate;*

- f) *plant species, landscape materials and surface treatments are suited to their intended function and user requirements;*
- g) *plant species, landscaping materials and surface treatments are designed to remain attractive, fit for purpose and be cost effective to maintain over the long-term;*
- h) *landscape design facilitates an accessible, safe and comfortable environment for all users; and*
- i) *significant on-site vegetation is retained, protected and integrated into the site design wherever practicable*

The proposed development is considered to further the purpose and overall outcomes of the Landscape Code. Particularly noting the following:

- The proposed development involves industrial development within the CBIP and is consistent with the established industrial amenity of the precinct.
- The proposed subject site comprises a 39 m wide frontage to the Colinta Road frontage, of which 18.2 m involves a constructed open drain way. Within the context of the surrounding locality, particularly land parcels fronting Colinta Road, the proposed subject site involves a narrow road frontage and does not significantly contribute to the existing or future intended streetscape.
- Given the setback of the developable site from the road frontage, visual impact is inherently reduced, limiting the need for screening treatments.
- The proposed development is sufficiently setback from sensitive social receptors, particularly noting no direct interface with sensitive land uses which require buffering.
- The proposed development will integrate landscaping where appropriate, while maintaining accessibility and operational efficiency of the site.
- The subject site is currently vacant cleared land, holding limited environmental value.
- The proposed development does not involve the removal or alternation to any street tree.

Given the nature of the development, further detail assessment against the Landscape Code is not considered necessary.

9.3. Transport Impact, Access and Parking Code

The purpose of the Transport Impact, Access and Parking Code is to *ensure appropriate provision for transport and end of trip facilities, and to facilitate, as far as practicable, an environmentally sustainable transport network.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *the function, safety and efficiency of the transport network are optimised;*
- b) *pedestrians (including people with a disability) and cyclists are provided with a high level of accessibility, safety, amenity and convenience within a development site and on-site facilities are integrated with external walking and cyclist networks and public transport nodes;*
- c) *the use of public transport is facilitated wherever appropriate;*
- d) *access, parking, servicing and associated manoeuvring areas are designed to be safe, functional and meet the reasonable demands generated by the development;*
- e) *access, parking, servicing and associated manoeuvring areas do not detract from streetscape character, and are designed to discourage crime and antisocial behaviour; and*
- f) *adverse impacts on the environment and the amenity of the locality are avoided.*

A TIA prepared by Bitzios Consulting (**Appendix K**) confirms there are no traffic engineering constraints that preclude approval of the Project, subject to reasonable and relevant conditions. The assessment addresses site access, internal circulation, parking demand, traffic generation, and pavement impacts, consistent with the Transport Impact, Access and Parking Code.

The prescribed parking rate pursuant to Schedule 6.10 of the Planning Scheme is one space per 100 m² GFA for Special Industry use. As the final GFA is not yet confirmed, a first-principles assessment was undertaken based on operational staffing. Anticipated operational staffing is outlined in **Table 13**.

Table 13: Operational Parking Demand

User Type	Timing	Yield
Staff	Morning Shift (6am-2pm)	34 Staff
	Afternoon Shift (2pm-10pm)	34 Staff
	Night Shift (10pm-6am)	34 Staff
Visitors	Anytime during operational hours	1-2 visitors

The TIA identifies a peak demand of 70 car parking spaces to accommodate shift overlaps and limited visitor parking. 60 car parking spaces are currently shown on the concept layout; however, the site can readily accommodate the required 70 car parking spaces, to be resolved during detailed design.

Site access is via a 14 m wide private access road connecting to Colinta Road, constructed in accordance with Council standards and designed to accommodate B-double vehicles (refer approved Operational Works at **Appendix D**). Swept path analysis confirms all expected vehicle types can access and manoeuvre within the site in accordance with relevant Australian standards.

SIDRA modelling confirms the development will operate within the capacity of the surrounding road network under all assessment scenarios, with no intersection upgrades required. A pavement impact assessment identifies sections of Ron Mclean Drive as requiring mitigation due to haulage traffic, and contributions can be conditioned accordingly.

Given the nature of the development, further assessment against the Transport Impact, Access and Parking Code is not considered necessary. Refer to detailed assessment within the TIA at **Appendix K** for further information regarding traffic movement and management in relation to the Project.

9.4. Works Code

The purpose of the Works Code is to *ensure development is provided with a level of infrastructure which maintains or enhances community health, safety and amenity and which avoids or minimises impacts on the natural environment*.

The purpose of the code will be achieved through the following overall outcomes:

- premises are provided with a level of service which is appropriate to the intended character and function of the zone;*
- risk to life and property is avoided;*
- development does not detract from environmental values, including the quality of receiving waters;*
- development does not detract from the desired character and amenity of the locality;*
- the integrity and quality of existing infrastructure is maintained;*
- access, parking, streets and pedestrian and cycle paths are provided to standards that ensure safe, convenient and efficient operation of movement networks;*
- development facilitates an efficient provision of infrastructure and use of resources; and*
- whole of life cycle costs for infrastructure are minimised.*

The proposed development is considered to further the purpose and overall outcomes of the Works Code.

As outlined in **Section 3.2** of this report, the subject site is the result of subdivision approval AP2023/013, approved on 11 September 2024. The associated Operational Work approval

OPW24/0107 (refer **Appendix D**) was decided on 20 March 2025 and includes the delivery of key site infrastructure, including internal access roads, water and sewer connections, stormwater drainage infrastructure, and bulk earthworks. These works were assessed and conditioned against the applicable benchmarks of the Works Code as part of the subdivision process and provide the necessary servicing to support subsequent development on the subject site.

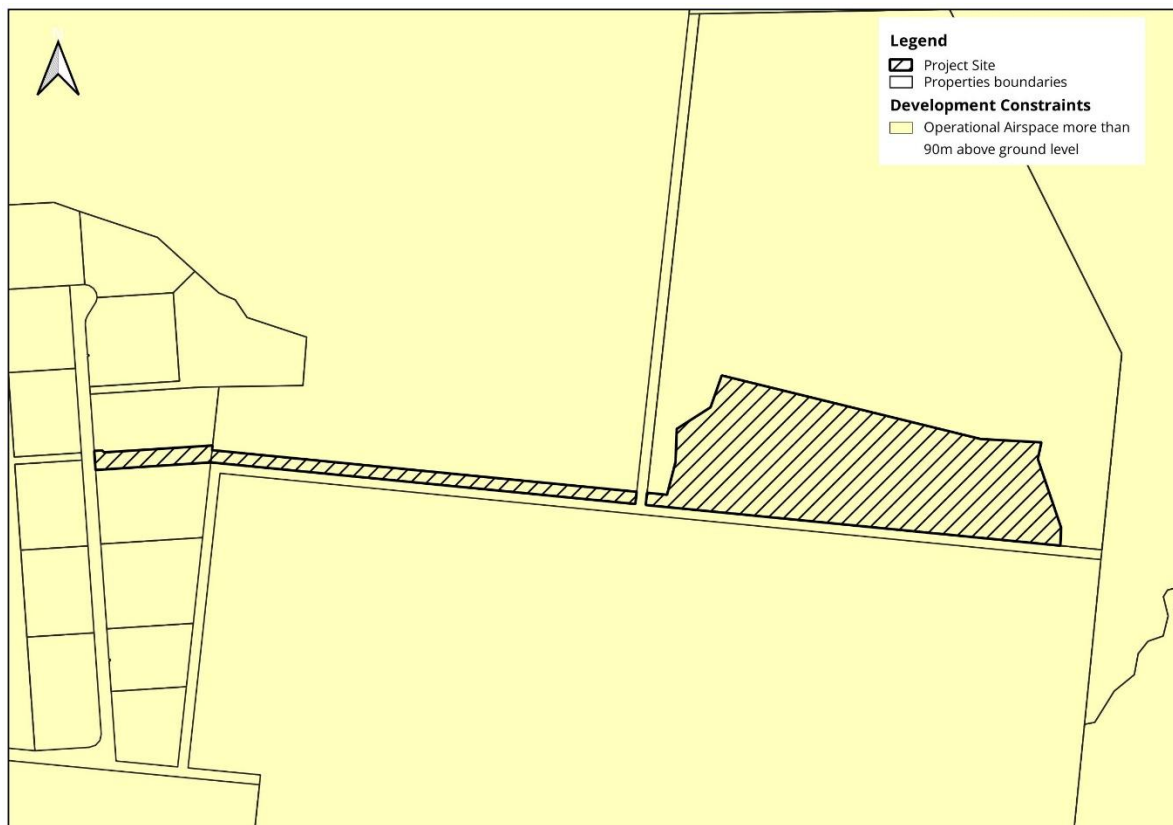
The Project includes additional site-specific infrastructure required to support the operational layout and function of the facility, including the construction of internal driveways, hardstand areas, on-site drainage systems, bunding, the OWS, and stormwater quality treatment infrastructure.

The proposed development complies with the Works Code, noting:

- The Project involves an industrial use within an established industrial area.
- As demonstrated within the TIA the proposed development is considered to generally align with the operational thresholds of existing transport infrastructure, with no future upgrades considered necessary to facilitate the development.
- Internal roads and accessways are designed to accommodate B-double vehicles and ensure safe forward entry and exit to the subject site.
- The proposed crossover to Colinta Road will be constructed in accordance with relevant Council standards.
- Site drainage includes an underground pit and pipe network and surface flow paths that achieve lawful point of discharge and prevent adverse impacts to adjoining land.
- Stormwater runoff is treated and detained on-site via a bio-retention basin and OWS system to meet stormwater quantity and quality objectives.
- External catchment flows are diverted around the development via a dedicated clean water swale.
- The development will be afforded connection to Council's reticulated water supply and sewer network, which is being delivered under Operational Works approval OPW24/0107.
- Bunded storage areas and the OWS system manage hazardous liquids in accordance with containment and separation requirements.
- Refuse storage, vehicle washdown areas, and utility connections will be appropriately incorporated within the Project.

9.5. Airport Environs Overlay Code

The Project is identified within the Airport Environs Overlay as containing operational airspace more than 90m above ground level, as illustrated in **Figure 20** below.

Figure 20: Airport Environs Overlay

The purpose of the Airport Environs Overlay Code is to *ensure the safe and efficient operations of the airport, RAAF base and aviation facilities are protected.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *development avoids adversely affecting the safety and efficiency of an airport's operational airspace or the functioning of aviation facilities;*
- b) *large increases in the numbers of people adversely affected by significant aircraft noise are avoided; and*
- c) *development does not increase the risk to public safety near airport runways.*

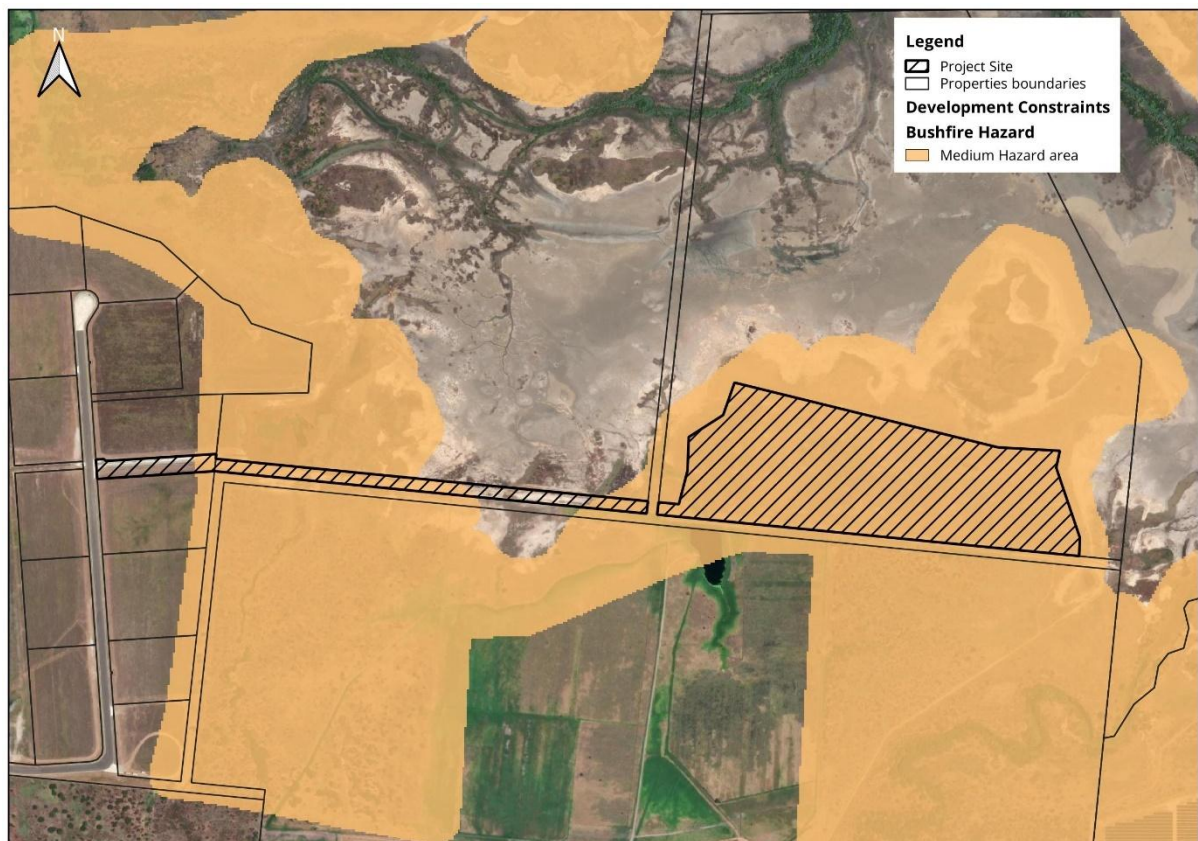
The subject site is located within operational airspace; however, this lower surface commences at approximately 90 metres above natural ground level. The maximum proposed structure height, inclusive of process equipment and flare stack, is approximately 50 m AHD, and therefore remains wholly below the applicable operational airspace threshold.

The Lighting Environmental Assessment Report (**Appendix H**) informs that the development has been designed to minimise the potential for upward light spill, glare, and sky glow through the use of controlled luminaires, targeted colour temperature selection, and dimming technologies.

Accordingly, the proposed development does not give rise to any conflict with aviation operations and satisfies the relevant performance outcomes of the Airport Environs Overlay Code. No further detailed assessment under the overlay is considered necessary.

9.6. Bushfire Hazard Overlay Code

The Project is identified within the Bushfire Hazard Overlay as containing area of medium bushfire hazard, as demonstrated in **Figure 21** below.

Figure 21: Bushfire Hazard Overlay

The purpose of the Bushfire Hazard Overlay Code is to *ensure that development does not:*

- a) *increase the extent or the severity of bushfire hazard; or*
- b) *increase the risk to life, property, community and the environment.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *development is compatible with the nature of the bushfire hazard except where there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal;*
- b) *where development is not compatible with the nature of the bushfire hazard and there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal; and*
- c) *wherever practicable, facilities with a role in emergency management and vulnerable community services are located and designed to function effectively during and immediately after bushfire hazard events.*

The proposed development is consistent with the purpose and overall outcomes of the Bushfire Hazard Overlay Code. The subject site is identified as predominantly containing area of medium bushfire hazard; however, the site is generally cleared of vegetation and does not contain significant bushfire-prone vegetation within the development footprint. The proposed subject site is an outcome of subdivision approval AP2023/013, which includes conditions allowing the further vegetation clearing as part of site preparation and civil works.

Given the limited vegetation, the industrial nature of the proposed use, and the implementation of approved clearing and earthworks under the associated Operational Works approval OPW24/0107, the development does not result in increased bushfire risk and is considered to comply with the relevant benchmarks of the overlay code.

9.7. Coastal Environment Overlay Code

The Project is identified within the Coastal Hazard Overlay as containing area of high storm tide inundation and erosion prone area, as demonstrated in **Figure 22 & 23**.

Figure 22: Storm Tide Inundation Hazard Area

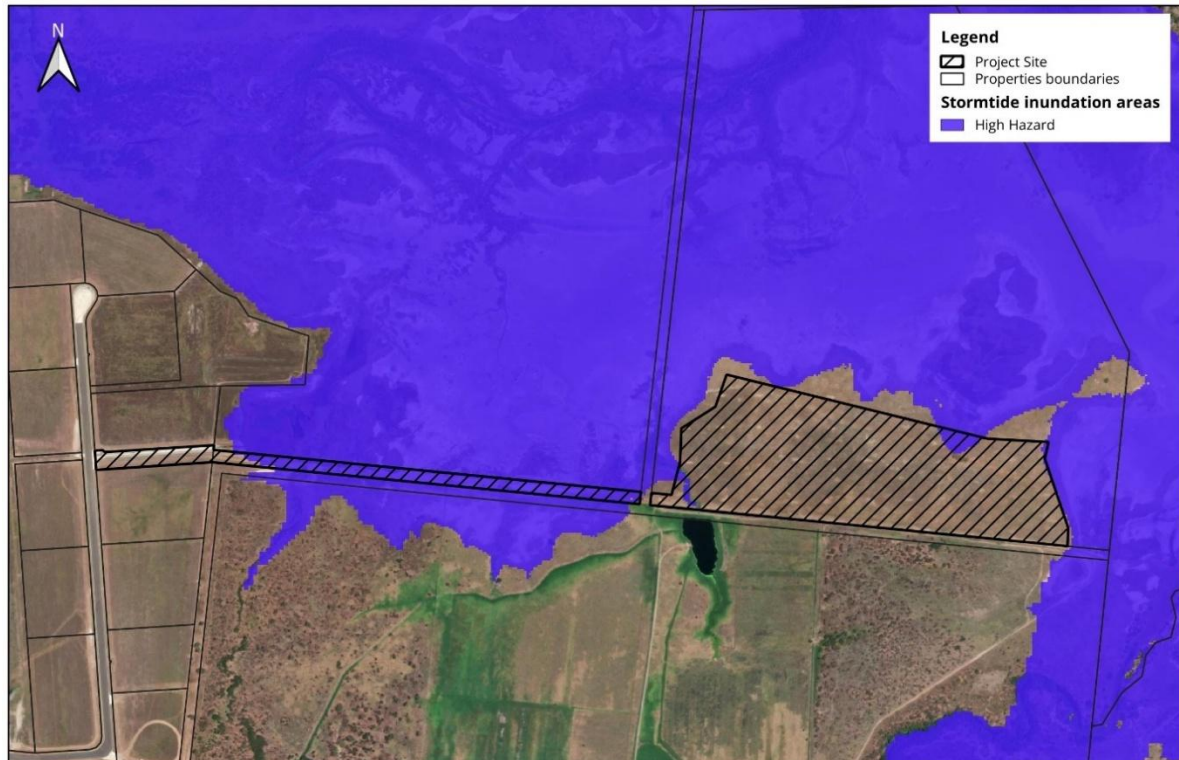


Figure 23: Erosion Prone Area



The purpose of the Coastal Environment Overlay Code is to *ensure development in the coastal zone is planned, designed, constructed and operated to:*

- a) *avoid risk to people and property from coastal hazards, including storm tide inundation and coastal erosion, and taking into account the predicted effects of climate change; and*
- b) *manage the coast to protect coastal resources and allow for the natural fluctuations of coastal processes as far as possible.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *The foreshore and foreshore ecosystems are protected and managed to maintain their protective functions and allow for natural fluctuations to continue as far as possible.*
- b) *the exposure of communities and development to coastal hazards is minimised;*
- c) *urban and rural residential development does not expand into coastal hazard areas beyond areas zoned for urban and rural residential purposes;*
- d) *in areas zoned for urban and rural residential purposes and located in a coastal hazard area, the risks of storm tide inundation and erosion are avoided, or are mitigated and managed;*
- e) *opportunities for sustainable coastal-dependent development are protected;*
- f) *coastal-dependent development is undertaken in a manner that minimises impacts on coastal resources;*
- g) *public access to the foreshore is maintained and enhanced for current and future generations; and*
- h) *wherever practicable, facilities with a role in emergency management and vulnerable community services are located and designed to function effectively during and immediately after coastal hazard events.*

The proposed development is consistent with the purpose and overall outcomes of the Coastal Environment Overlay Code. The Project site is predominantly outside of the mapped high storm tide inundation area. Only a relatively small extent of the site's western and southern boundaries intersect with the high hazard extent, and this overlap is limited to narrow edge areas along the boundary. The majority of the development footprint, including the core operations areas, is unaffected by storm tide inundation, with no significant encroachment of storm tide risk within the primary development area. It is noted the stormwater inundation area within the access handle will be improved above storm tide inundation height in accordance with Operational Works approval OPW24/0107.

The proposed development is considered to be consistent with the purpose and overall outcomes of the Coastal Environment Overlay Code, specifically given:

- The proposed development has been sited to avoid mapped high coastal hazard areas, with the primary development footprint located outside the extent storm tide inundation area and erosion prone area.
- The development involves a Special Industry use within a planned industrial precinct, consistent with the intended land use pattern for the area.
- Access and service infrastructure will be constructed to relevant standards, with formed access established along the full length of the access handle to ensure site functionality and safety during extreme weather events.
- The site layout has been designed to minimise encroachment into areas subject to coastal processes, with no excavation, reclamation, or shoreline modification proposed.
- The nature and scale of the proposed works are not expected to exacerbate coastal erosion, with no direct interface with erosion-prone land or coastal features.
- Storm tide hazard is mitigated through the implementation of a site-based stormwater management system, including a bioretention basin and diversion swales, designed to

manage surface flows and maintain hydrological function during major rainfall and inundation events.

- Earthworks and finished surface levels will be designed to ensure operational resilience and avoid ponding or runoff impacts under coastal hazard scenarios.
- The development does not involve sensitive land uses, vulnerable populations, or community infrastructure and therefore does not increase risk to life or essential services during a coastal hazard event.

9.8. Flood Hazard Overlay Code

The Project is identified within the Flood Hazard Overlay as containing area of low, medium and high flood hazard. However, more recently released updated Council flood risk mapping identifies very low and low flood risk across the site. Refer to **Figure 24 & 25** below for Flood Hazard Overlay extent and the recent flood risk mapping.

Figure 24: Flood Hazard Overlay

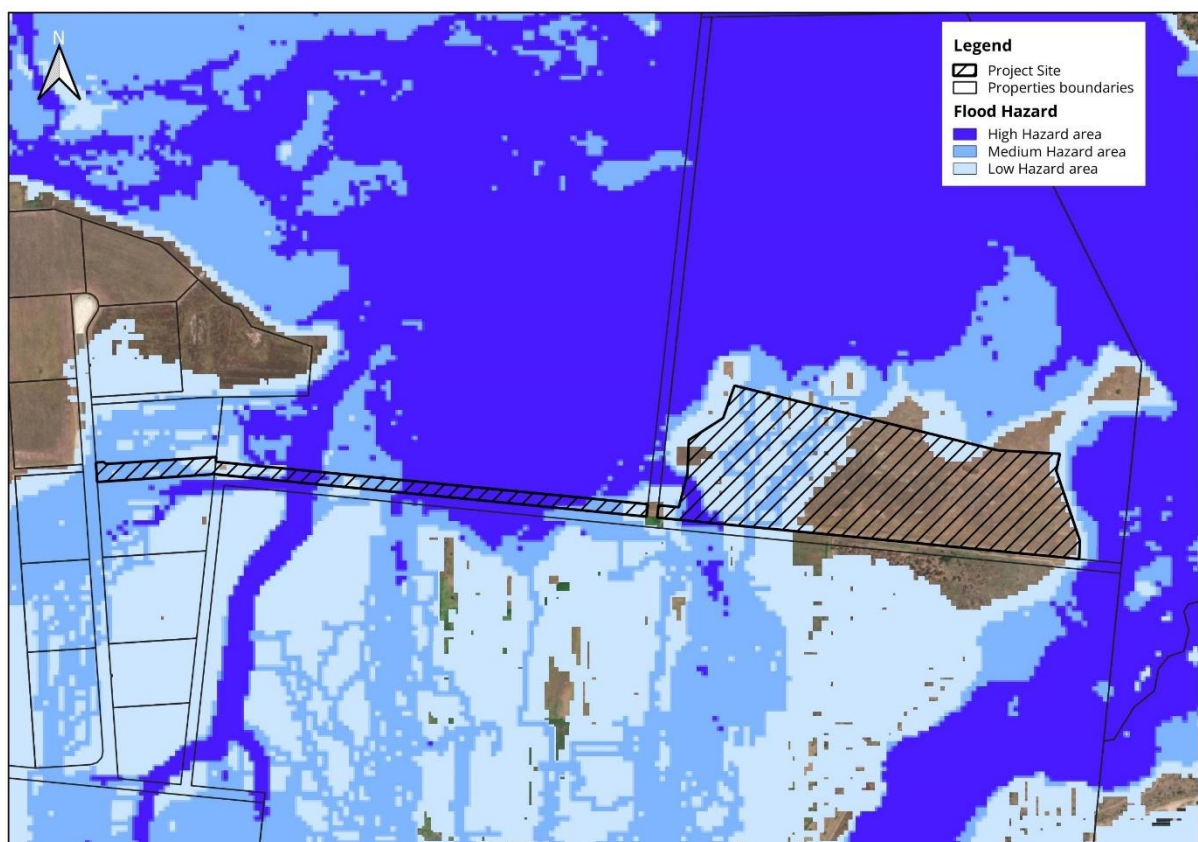
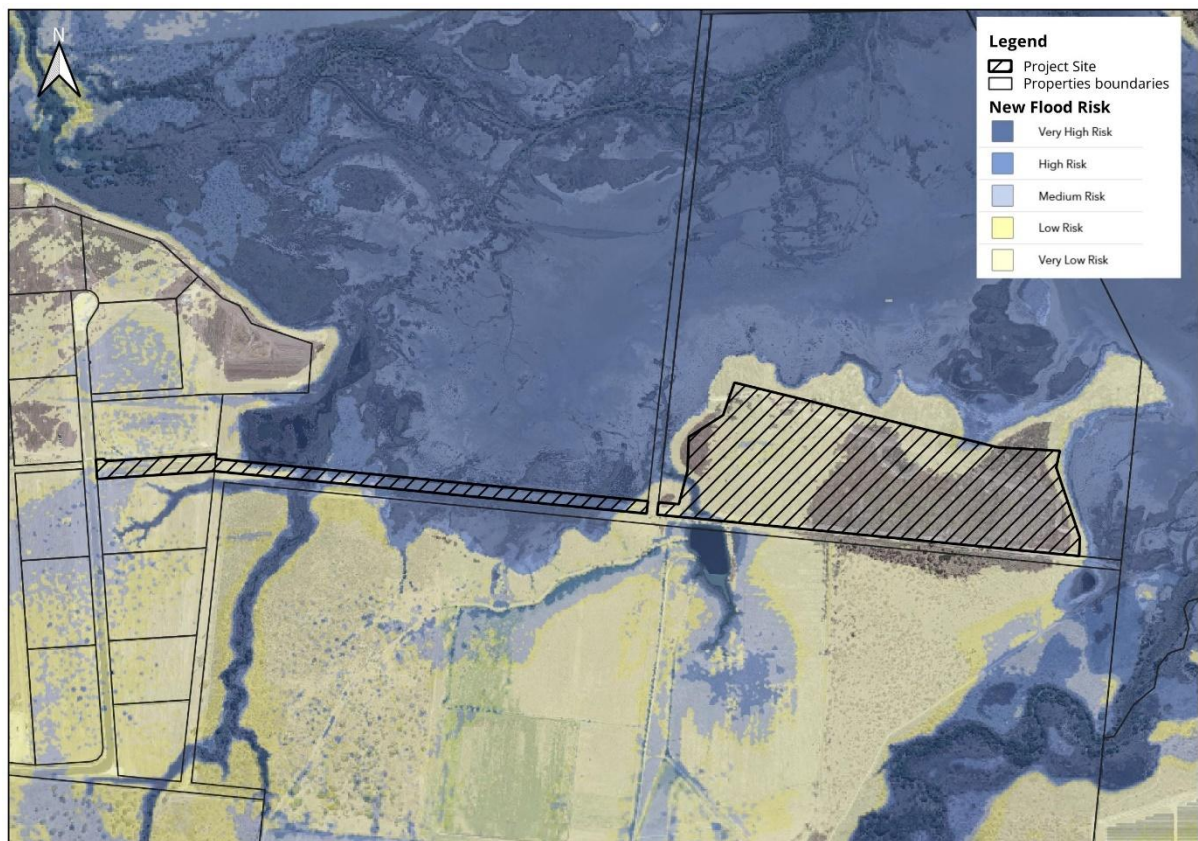


Figure 25: Flood Risk Mapping



The purpose of the Flood hazard overlay code is to *manage development outcomes in flood hazard areas so that risk to life, property, community, economic activity and the environment during future flood events is minimised, and to ensure that development does not increase the potential for flood damage on-site or to other property.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *development is compatible with the nature of the flood hazard except where there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal; where development is not compatible with the nature of the flood hazard and there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal: development minimises as far as practicable the adverse impacts from the hazard; and does not result in unacceptable risk to people or property; wherever practicable, facilities with a role in emergency management and vulnerable community services are located and designed to function effectively during and immediately after flood hazard event;*
- b) *development maintains the safety of people and minimises the potential damage to property from flood events on the development site; and*
- c) *development does not result in adverse impacts on people's safety, the environment or the capacity to use land within the floodplain.*

The Project is consistent with the purpose and overall outcomes of the Flood Hazard Overlay Code.

A FIA has been prepared by Northern Consulting Engineers (refer **Appendix L**) to assess the potential flood impacts associated with the development. The assessment was based on the *Townsville City Council Ross River Flood Study (2021)* and supported by a refined, site-specific TUFLOW hydraulic model incorporating updated terrain and design information.

The FIA confirms that the majority of the site is located outside the mapped 1 % AEP flood extent, with only a small portion of the site intersecting the defined flood hazard overlay area. The development has been strategically located and designed to avoid high flood hazard areas, and no built infrastructure is proposed within areas identified as high or very high flood risk.

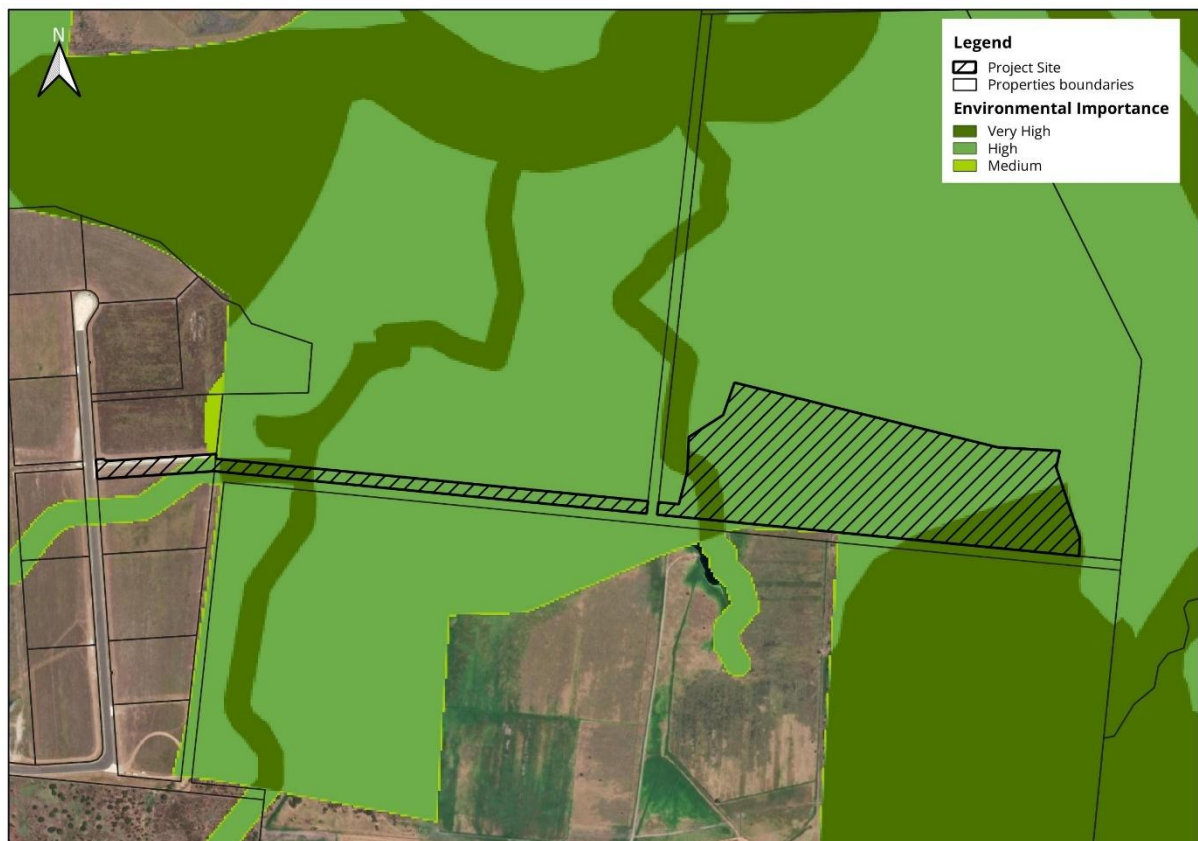
Finished surface levels for operational areas will be designed to provide immunity to the defined flood event in accordance with Council’s minimum flood planning levels. The development does not result in a loss of flood storage, does not obstruct major flow paths, and does not cause an increase in flood levels or velocities on adjoining land.

The assessment concludes that the proposed development can be accommodated within the flood-affected context of the site without increasing risk to people, property, or infrastructure. The proposed design supports the safe and resilient operation of the development and does not adversely impact surrounding land.

9.9. Natural Assets Overlay Code

The Project is identified within the Natural Assets Overlay Code as containing area of high and very high environmental importance, as demonstrated in **Figure 26** below.

Figure 26: Natural Assets Overlay



The purpose of the Natural Assets Overlay code is to:

- protect areas of environmental significance, and the ecological processes and biodiversity values of terrestrial and aquatic ecosystems;*
- maintain ecosystem services and other functions performed by Townsville’s natural areas; and*
- protect water quality, ecosystem health and the natural hydrological functioning of waterways, wetlands and their riparian areas.*

The purpose of the code will be achieved through the following overall outcomes:

- a) *development avoids or minimises direct and indirect impacts on areas of environmental significance and their associated ecological functions and biophysical processes;*
- b) *development provides for the protection or enhancement of a linked network of habitat areas, including maximising opportunities for rehabilitation and restoration of degraded ecosystems, ecological communities, remnant vegetation and connecting corridors wherever possible;*
- c) *development, including infrastructure, is located and designed to maintain or enhance ecological functions including facilitation of wildlife movement for native terrestrial and aquatic species and native and migratory avian species;*
- d) *the water quality values and ecological functions of wetlands, waterways and their riparian areas and buffers are protected or enhanced;*
- e) *development maintains, protects or enhances the natural hydrological regime and functioning of waterways and wetlands, including surface and ground waters and their interaction;*
- f) *fragmentation of remnant vegetation and habitat areas is avoided to maintain ecological function and biodiversity values, and to maintain or increase the resilience of natural assets to threatening processes, including climate change; and*
- g) *development incorporates appropriate buffering and mitigation strategies to avoid or minimise potential damage to natural areas and other environmental assets.*

The proposed development is consistent with the purpose and overall outcomes of the Natural assets overlay code, noting the following:

- The Ecological Assessment Report (refer **Appendix F**) confirms the development site is predominantly cleared and does not contain mapped MNES or MSES from on-site studies.
- No remnant vegetation or regulated regional ecosystems are located within the proposed development footprint.
- Vegetation clearing associated with the Project is limited to non-remnant, previously disturbed land and is consistent with subdivision approval AP2023/013.
- No known habitat for threatened species or significant fauna movement corridors are present within the site.
- The development incorporates a site-wide stormwater management system, including bio-retention and diversion infrastructure, to avoid indirect impacts on nearby natural wetlands.
- Erosion and sediment control measures will be implemented during construction in accordance with IECA guidelines, minimising risk to downstream ecological receptors.
- The Ecological Assessment Report concludes that the proposed development will not result in significant residual ecological impacts.

10. CONCLUSION AND RECOMMENDATIONS

This town planning report has been prepared in association within a Development Application for Material Change of Use – Special Industry located at 46 Colinta Road, 63 Heleen Downs Road and 249E Heleen Downs Road, Stuart and formally described as (part) Lot 31 on SP341877 and (part) Lot 36 on SP341877.

The subject site is located within the High Impact Industry Precinct, Medium Impact Industry Precinct and Environmental Management Precinct of the TSDA Development Scheme. An assessment against the relevant benchmarks has been undertaken and is outlined in detail in this planning report.

The proposal is consequently considered appropriate development in the context in which it is located and has been suitably demonstrated to comply with the relevant benchmarks. It is therefore recommended the Project is approved, subject to reasonable and relevant conditions.