

PLANNING REPORT

Queensland Resources Common User Facility

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REPORT

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1 INTRODUCTION

This planning report has been prepared in support of an application to the Office of the Coordinator-General (OCG) for approval of a material change of use for a proposed research and technology industry use on land described as Lot 14 on SP338024, located at 109 Penelope Road, Stuart, within the Townsville State Development Area (TSDA).

Townsville City Council (TCC) have provided an early Referral Entity Response on 20 January 2025 (Council reference CAR25/0004). A copy of TCC's early referral response is attached to this State Development Area (SDA) application (Appendix E).

The subject site is located within the Cleveland Bay Industrial Park (CBIP), adjacent to Ron Mclean Drive within the suburb of Stuart, Townsville. The site is currently vacant, having been created as part of an industrial reconfiguring a lot / master plan approval establishing the CBIP.

The subject site is located within the Medium Impact Industry Precinct of the TSDA. The proposed development is assessable against the TSDA Development Scheme (May 2019).

The proposed development is the Queensland Resources Common User Facility (QRCUF), a critical minerals processing facility designed to accommodate trials of extraction of a range of critical minerals from various feedstocks, with the initial focus being vanadium. The State's overarching objective in developing the QRCUF is to accelerate the development of commercial projects, promote investment in advanced mineral manufacturing opportunities, enable development of supply chain and supporting industries and position Queensland's resources industry for long-term, sustainable growth over the next 30 years. Importantly, the QRCUF is intended to be a demonstration plant facility for trialling mineral production processes and is not intended to be a commercial scale operation producing product for market.

Whilst the primary activities will be undertaken within a main processing building, the use will include a range of ancillary facilities including an office and operations building, internal roads, car parking, storage and services.

The proposed QRCUF is defined as a research and technology industry use under Schedule 1 of the TSDA Development Scheme. Under the TSDA Development Scheme, material change of use for a research and technology industry within the Medium Impact Industry Precinct is 'SDA assessable development'. Research and technology industry is a defined use that supports the preferred development intent of the Medium Impact Industry Precinct, in accordance with Schedule 2 of the TSDA Development Scheme, the public consultation stage does not apply to the development.

There are no referral triggers associated with this SDA application, more specifically, there are no state interests which trigger referral under the *Planning Act 2016*. A pre-referral response has been obtained from Townsville City Council to expedite assessment of the SDA application.

There are no identified Environmentally Relevant Activity (ERA) triggers for the proposed use. An Environmental Authority (EA) would be sought as part of a future application should activities on site trigger ERA thresholds.

The proposed QRCUF is consistent with the preferred development intent for the Medium Impact Industry Precinct, and generally accords with the relevant standards and policies within the Townsville SDA Development Scheme and the Townsville City Plan (2022/02) as evidenced within this report.

On this basis, we request that the OCG approve this SDA application, subject to reasonable and relevant conditions.

2 SUBJECT LAND AND LOCALITY

2.1 Location

Table 1 describes key details of the subject site.

Table 1: Site Particulars

Site Particulars	
Site Address	109 Penelope Road, Stuart QLD 4811
Real Property Description	Lot 14 on SP338024
Easements	Easement P on SP338024 (adjoining to east) – benefiting Lot 14 on SP338024 Easement R on SP338024 (adjoining to north)
Site Area	35,480m ²
Landowner(s)	The State of Queensland (acting through the Office of the Coordinator-General, Major Projects Development)
SDA Development Scheme	Townsville State Development Area Development Scheme – May 2019
SDA Precinct	Medium impact industry precinct
Local Government	Townsville City Council
Planning Scheme	Townsville City Plan (2022/02)
Zone	Special purpose zone
Overlays	Airport environs overlay <ul style="list-style-type: none"> Operational airspace Wildlife hazard buffer zone: 8-13km Flood hazard overlay <ul style="list-style-type: none"> High hazard area Medium hazard area Natural assets overlay <ul style="list-style-type: none"> Environmental importance – very high and high
Supporting figures	Acid sulfate soils <ul style="list-style-type: none"> 0-5m AHD 5-20m AHD Flood modelling areas <ul style="list-style-type: none"> Lower Stuart Natural assets – ecological corridors <ul style="list-style-type: none"> Major ecological corridor
SPP mapping	Natural hazards, risk and resilience <ul style="list-style-type: none"> Flood hazard area – level 1 – Queensland floodplain assessment overlay Flood hazard area – local government flood mapping area Medium storm tide inundation area
SARA mapping	Coastal protection <ul style="list-style-type: none"> Coastal area – medium storm tide inundation area Native vegetation clearing <ul style="list-style-type: none"> Category X on the regulated vegetation management map Priority ports – Townsville master planned area <ul style="list-style-type: none"> Townsville priority port precincts – Port industry and commerce

The site location and its context are shown in Figure 1 and Figure 2.

2.2 Historic and current uses

The site is currently vacant, having been recently developed as part of the reconfiguring a lot / master plan approval creating the CBIP. It is understood that the site was previously utilised for agricultural purposes.

2.3 Surrounding development

The nearest sensitive receptors include:

- Big 4 Gateway Holiday Park (caravan park), located approximately 550m to the south-west of the site, between the Bruce Highway and Stuart Creek; and
- Low density residential dwellings, located approximately 800m to the west along Minehane Street.

Existing and emerging land uses within 2km of the Stage 1 CBIP include:

- North: Stuart Creek, low-lying rural land, tidal plains
- East: Ron McLean Drive (Southern Port Road) weighbridge and B-Double de-coupling area, Stage 2 CBIP (roadworks and site establishment underway), low-lying rural land, tidal plains and JBS Australia Abattoir.
- South: Bruce Highway, rural land, power station, Stuart Rail Yard and industrial uses.
- West: stormwater detention basin, low-lying undeveloped land, Stuart Creek, caravan park, transport depot / hardstand (under development), earthmovers yard and low-density residential estate.

Lot 14 is located at the northern end of the Stage 1 CBIP which comprises 23 serviced industrial lots ranging in size from 2ha to over 10ha. Whilst most of the industrial park is currently vacant, existing, emerging and approved land uses include:

- Lots 15-17 (immediately adjacent to the south of Lot 14): Development currently underway for approved warehouse, bulk storage (grain) and transport depot. Proposed bulk storage involves both grain silos and covered stockpiles on hardstand.
- Lot 20 (approximately 450m south of Lot 14): Current use as temporary hardstand for water pipeline components. Approved development comprises a concrete batching plant and precast shed.
- Lot 8 (approximately 355m south-east of Lot 14): Approved development for a warehouse.
- Lot 7 (approximately 490m south-east of Lot 14): Approved development for medium impact industry (plastic manufacturing).
- Lot 3 (approximately 620m south-east of Lot 14): Approved development comprises a transport depot and unmanned service station.
- Lots 4-5 (approximately 750m south of Lot 14): Approved development comprises a transport depot, service station (unmanned diesel service station), low/medium impact industry (tyre centre) and two warehouses.
- Lots 2 (approximately 750m south of Lot 14): Approved development comprises a freight terminal.

Figure 3 provides an overview of existing and approved land uses in the Stage 1 CBIP area.

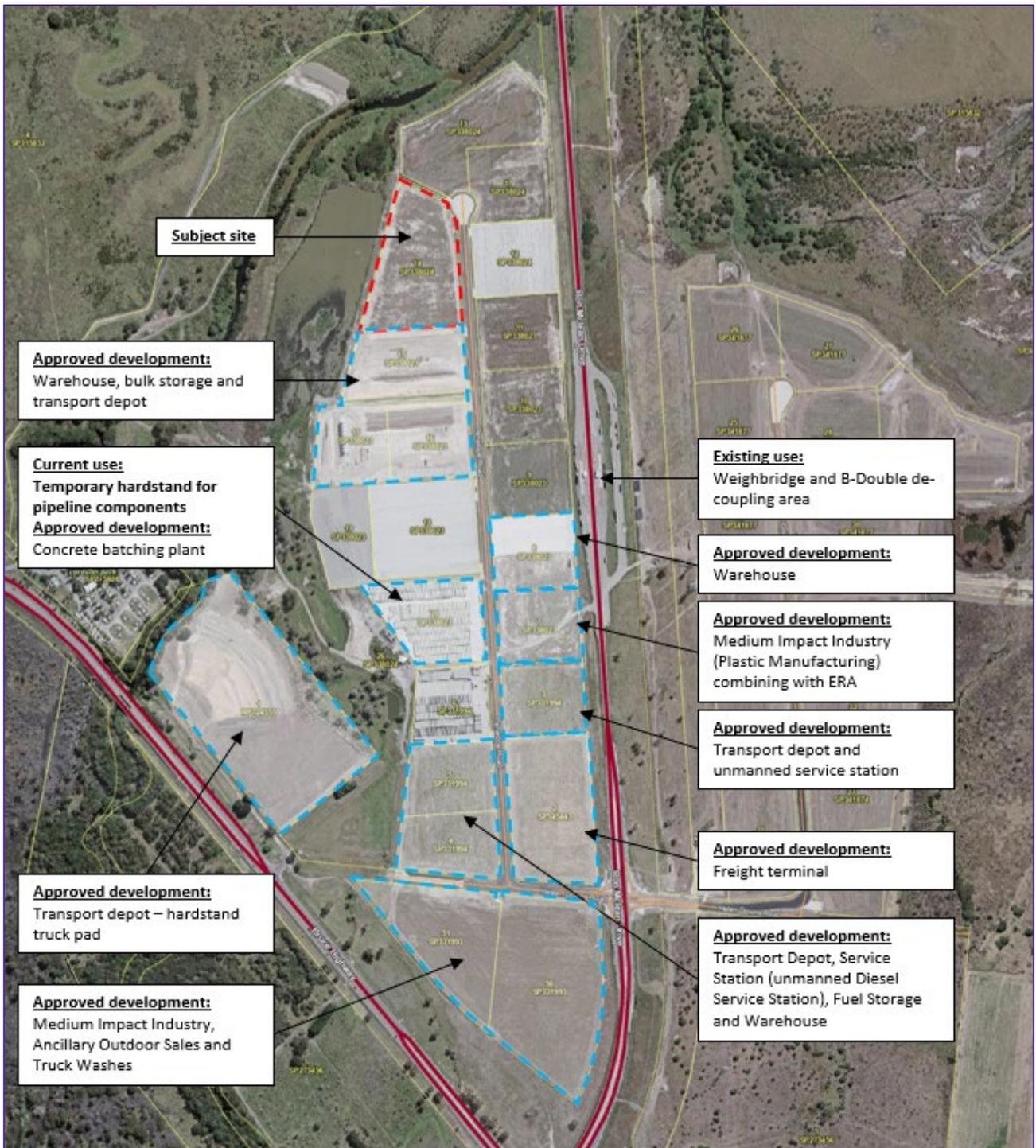


Figure 3: Existing and approved land uses

Source: Queensland Government, 2024

2.4 Physical characteristics

2.4.1 Topography & soils

The site is relatively flat, with recent bulk earthworks undertaken (Townsville City Council - OPW24/0060) to ensure the site and surrounding lots have positive drainage towards road reserves and/or drainage easements and that the site achieves flood immunity in a Q500 event. The earthworks were undertaken ahead of this SDA application to ensure they were completed prior to the North Queensland wet season.

The site is located within the Acid Sulfate Soil overlay under Townsville City Plan, with most of the site being identified as 0-5m AHD.

2.4.2 Contamination

The site is not listed on the Environmental Management Register (EMR) or Contaminated Land Register (CLR). A copy of the EMR/CLR certificate for the site is contained in Appendix C.

2.4.3 Flooding and drainage

Recent bulk earthworks (OPW24/0060) have filled the site to the defined Q500 (0.2% AEP) flood level.

2.5 Environmental values

2.5.1 Ecology

Although the northern-most part of the site is mapped as containing Natural Assets of Environmental Importance under the Townsville City Plan, the site is cleared of vegetation and thus this overlay mapping does not reflect the current site condition. There are no ecological values within the site.

2.5.2 Waterways

The subject site is located approximately 170m east of Stuart Creek. There are no waterway values identified within the site.

2.6 Cultural heritage

2.6.1 Indigenous

A search of the Aboriginal and Torres Strait Islander Cultural Heritage Database and Register did not identify any recorded sites within a 2 km buffer of the site. A copy of search results is contained in Appendix D.

2.6.2 Non-indigenous

The site is not listed on the Queensland Heritage Register and is not identified on the Townsville City Plan Scheme Heritage overlay and there are no heritage places (State or local) within 1.5km of the site.

The site is not identified as containing any national heritage matters.

The site is located 3.4km to the south-west of the Great Barrier Reef World Heritage Area (GBRWhA).

3 DEVELOPMENT PROPOSAL

3.1 Proposed use

The QRCUF will be a critical minerals processing facility designed to accommodate demonstration scale trials of extraction of a range of critical minerals from various feedstocks, with the initial focus being vanadium. The State's overarching objective in developing the QRCUF is to accelerate the development of commercial projects, promote investment in advanced mineral manufacturing opportunities, enable development of supply chain and supporting industries and position Queensland's resources industry for long-term, sustainable growth over the next 30 years.

It is important to note that the QRCUF is not intended to be a commercial scale operation producing product for market.

Whilst the primary activities of the QRCUF will be undertaken within a main processing building, the ancillary and supporting uses will extend across a range of site buildings and improvements, including an operations building, reagent storage shed, internal roads, car parking, storage and services provision.

In addition to the overarching objectives, the State's intent for the facility is that it will:

- operate in campaigns, likely 2-3 months in length, with full process operations likely to be approximately 2 weeks in length within a specific campaign.
- contain a base set of processing equipment, with a target nominal capacity of up to 750kg of feed ore per hour.
- accommodate trials of extraction of a range of critical minerals from various feedstocks, with the initial focus being vanadium.
- be adapted to accommodate different user processes.
- be capable of future expansion.
- consider future customer objectives, which may include:
 - pilot material sample production processes to validate commercial and technical viability.
 - carry out metallurgical and process chemistry research of intermediate and end products to optimise unit operations.
 - train staff on equipment, production processes and hazardous material handling.
 - produce samples for customer testing.
 - assess potential by-products, waste streams and recyclable materials.

Figure 4 shows the proposed site layout.

Whilst the initial focus of the QRCUF design will be for vanadium processing, the facility is intended to be flexible and adaptable to allow for the processing of other ores and materials, such as cobalt, molybdenum/rhenium and rare earth elements. Subject to change management, equipment and processes will be adaptable and able to be modified and reconfigured to meet operating conditions specified by different proponents and validate flowsheets at scale.

The facility will permit process simulations and produce trial products to assist future customers of the QRCUF to test and demonstrate the commerciality of their processes. The QRCUF's buildings will provide a controlled environment for on-site chemical/product testing, process control and monitoring, process optimisation, and safe storage and handling of ores and chemicals.

The QRCUF will be utilised by proponents through individual campaigns, approximately 2-3 months in length. However, campaigns may vary in length depending on the individual needs of each proponent. During campaigns, the facility will undertake mineral processing operations, as required, for approximately 2 weeks at a time. During these processing operations, 24-hour operation can be expected.

By-products will also be stored in suitable weather-protected conditions, such as within self-bunded intermediate bulk containers (IBCs) or open top containers capable of being covered when required. Arrangements will be made to remove waste products from the site regularly in accordance with relevant

regulatory requirements. A Waste Management Plan has been developed (Appendix J) which details the frequency of waste removal.

Air emissions will be captured directly from the source and directed to handling units with relevant treatment capabilities to ensure regulatory requirements are met. Air quality modelling has been undertaken (refer to Appendix F) to identify possible emissions from the site.

The site layout includes areas for ore receipt/storage, product storage and dispatch, sample storage and minor testwork, processing equipment and spares holding, an equipment/mechanical workshop, and chemical and reagents storage.

The QRCUF will accommodate a range of ancillary uses, such as offices, reception areas, meeting rooms and control rooms and uses that support or have a nexus to mineral processing and trials, such as the potential to provide for academic or vocational training.

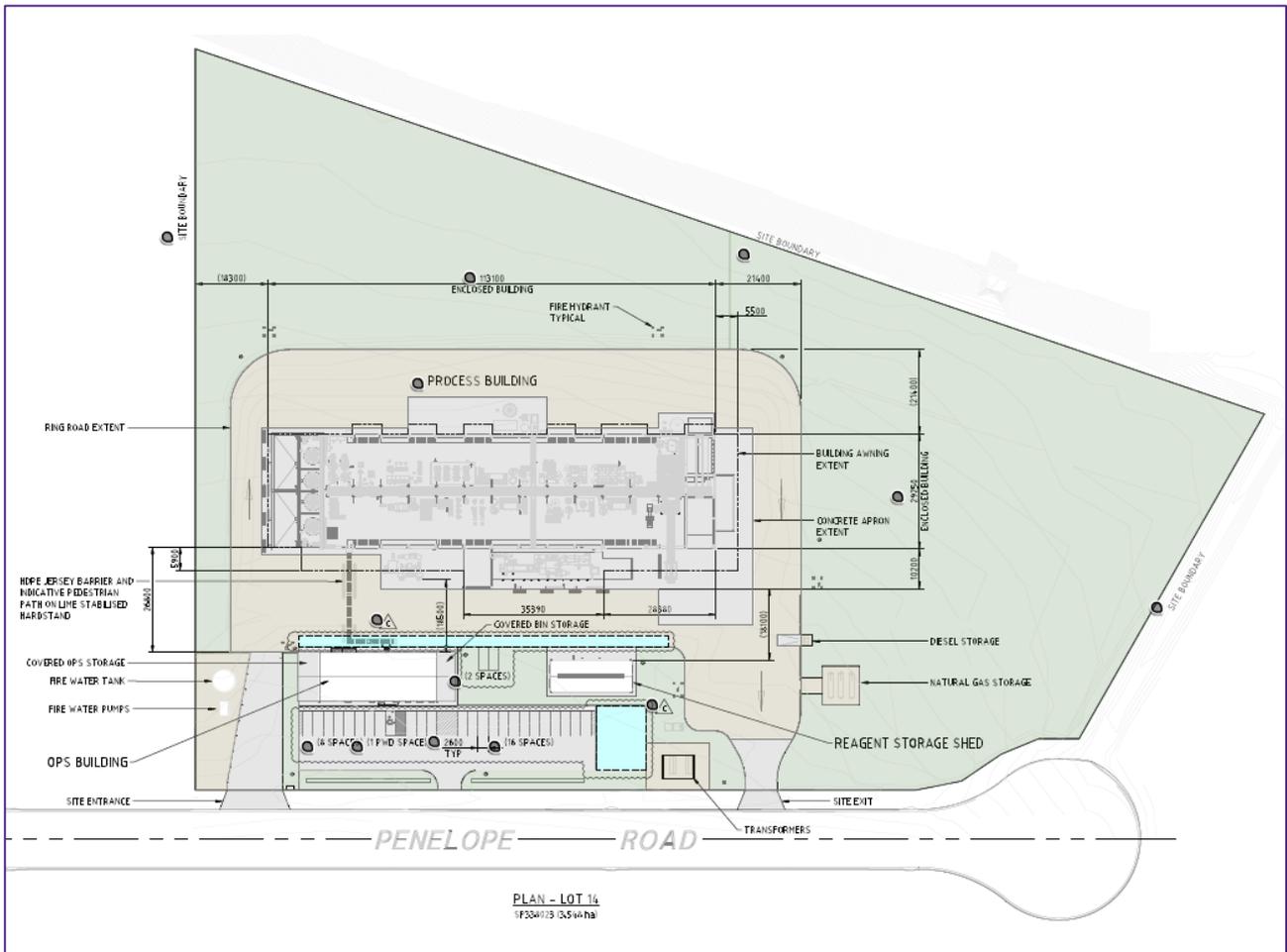


Figure 4: Site layout with overflow parking areas (in blue)

Source: Sedgman, 2024

3.1.1 Target critical minerals/mineralogy

The initial basis of design for the QRCUF targets a vanadium product from oxidized shale and clay ore. This aside, the QRCUF will be designed to permit flexibility in operation to allow for the processing of other ores and materials, such as cobalt, molybdenum/rhenium and rare earth elements.

Most of the anticipated feedstock for the QRCUF will come from the area around Julia Creek/Richmond, which contains large deposits of vanadium-bearing oxidized oil shale.

Other potential critical minerals projects which could utilise the QRCUF are located across north-west Queensland around Cloncurry, Selwyn Range and Mount Isa. These projects encompass a variety of

mineralisation holding cobalt, rare earth elements and molybdenum-rhenium in addition to copper, iron, gold and other trace elements.

3.1.2 Intended uses and services at the QRCUF

3.1.2.1 General use

General user requirements for the QRCUF are to:

- test operating parameters;
- optimise system operating conditions to improve recovery;
- determine the most suitable economic operating conditions depending on the characteristic of the ore;
- confirm design characteristics for full-scale plant design requirements;
- obtain final product samples to determine if commercial specifications are met;
- recover and analyse by-products for potential commercial value;
- assist in the preparation of reliable economic evaluation; and
- gain operating experience and utilise the QRCUF as a training facility for personnel.

3.1.2.2 Additional support services

Provision will be made for a range of ancillary and supporting uses commonly associated with demonstration plant / research facilities. These uses will include:

- office;
- staff area;
- hazardous materials storage shed;
- covered waste storage area;
- fuel storage;
- sample preparation;
- mechanical workshop;
- equipment warehouse; and
- chemicals storage.

3.1.2.3 Flexibility and adaptability

A common point raised during proponent engagement and in discussions with operators of similar facilities operating internationally, is the need for flexibility and adaptability to allow for adaptation of the process and plant equipment to meet or trial a range of different minerals, customer requirements and processes.

Buildings must not only be suitable for the anticipated commencement use, but be capable of adaptation, expansion or extension over time, to accommodate the ability to adapt to new mineral types.

Areas in which this flexibility is principally required are in the main processing building and will involve the use of machinery and equipment which can readily be adapted, relocated, or replaced to accommodate the new mineral stream being investigated by the proponent. Areas outside the main processing building exist in a supporting function and their location and size will remain appropriate for future anticipated mineral streams.

3.1.3 Process description

The objective of the facility is to enable the trialling and refinement of different processing methods. However, the high-level process will include the following key steps:

- Ore material is delivered to site via truck and stored in an enclosed area of the facility.
- A front-end loader will retrieve the ore from the stockpile and load it into a hopper that will feed a conveyor.
- The conveyor feeds the material into a scrubber as the first step of the metal separation process. Oversized material will be discharged and the remaining material will continue through the process where it will go through classification, dewatering, flotation and finally concentrate thickening and filtering. Tailings will be collected through this stage, thickened and sent to tailing storage.
- The metal extraction phase includes concentrate dryer and roasting, regrind, leaching, neutralisation, and solvent extraction. Off-gas is created during drying and roasting, and also during the leaching process. The off gas is sent to a gas scrubbing system.
- The product then enters the hydro purification stage to remove impurities.
- The product then enters the thermal purification process, where the product is precipitated out of solution, dried, and roasted. Off-gas is produced during drying and roasting. The off gas is sent to a gas scrubbing system.
- Throughout the process waste product is collected and sent to effluent treatment. Effluent treatment produces solid and liquid waste. Waste product is sent to waste storage where it is collected by a licensed waste contractor for disposal.

It is expected the actual throughput of the QRCUF will differ from one campaign to another. The capacity of the front-end process will be determined by the amount of ore to be processed, while the capacity of the metal recovery and final product refining areas (i.e. hydrometallurgy and pyrometallurgy sections) will be defined by the amount of metal to be recovered. For example, in the case of low-grade ore, the flow rates in the last sections will generally be very small and the sections will be designed for intermittent operation, storing the stripped product liquor and intermediate stream that is to be recycled to other parts of the process. The equipment in other parts of the process, particularly in the beneficiation process, will be designed so that the system can operate continuously.

A variety of process reagent chemicals will be used within the QRCUF during its operational phase. A dedicated area for storage and preparation of reagents required for the critical minerals recovery process will be provided. Table 2 outlines the chemical classification of reagents that could potentially be stored and handled in the facility for the initial vanadium stream process.

Table 2: Chemical classification of potentially stored reagents

Chemical Classifications of potentially stored reagents	
• De-aromatised diluent (ShellSol D70);	• Oleic Acid;
• Hydrochloric Acid;	• Sodium Silicate / Waster Glass;
• Isopar M;	• Melamine;
• Alamine 336;	• Pine Oil;
• Lorol C8;	• Sodium Oleate;
• ShellSol D80;	• Sulphuric Acid;
• Vivasol D80;	• Sodium Carbonate;
• LIX 63;	• Phosphoric Acid Esters;
• Mextral 984H;	• Kemtec X600B;
• DEPHA;	• Purolite.

It is anticipated that the hazardous materials may vary for each mineral processing stream. It is possible that future proponents may need to introduce additional hazardous storage areas within the site, depending on the detailed process to be trialled. Provision has been made within the site to accommodate additional storage areas, if required.

The proposed development is likely to trigger an Environmentally Relevant Activity (ERA) for Chemical Storage (ERA 8), as well as potentially ERAs for:

- ERA 31 – Mineral processing;
- ERA33 – Crushing, grinding and screening;
- ERA50 – Mineral and bulk material handling.

An application for an ERA for the initial site operations (vanadium) will be lodged separately from the SDA application for research and technology industry once sufficient supporting information is available following detailed design development. Future applications for additional ERAs or changes to ERA thresholds may be required as the facility transitions to other critical minerals processes following completion of the initial phase vanadium operations.

3.1.4 Efficiency activities

Whilst not included in the current facility design and layout, the building design and site layout of the QRCUF can accommodate energy efficient infrastructure and activities.

3.2 Built form

The built form of the QRCUF is summarised as follows:

- Main processing building:
 - Floor area: 4,355m²
 - Approximate dimensions: 113.1m by 29.25m
 - Height: 15.51m
- Main office and Operations building:
 - Floor area: 380m²
 - Height: 3.44m
- Reagents store shed:
 - Floor area: 160m²
 - Height: 6.14m
- Bin storage (unenclosed):
 - Floor area: 52m²
- OPS Building storage (unenclosed):
 - Floor area: 65m²
- Car parking area:
 - Standard: 26 spaces
 - PWD: 1 space
 - Total: 27 spaces

3.3 Access and parking

3.3.1 Access

The proposed development is accessed via three crossovers to Penelope Road, comprising:

- Two heavy vehicle crossovers to the north (8m wide, out only) and south (14m wide, in only) to allow vehicles to enter and leave the site in a forward motion, utilising the internal ring road.
- One light vehicle crossover (6m-wide, two-way), central to the site frontage, providing direct access to the main car park area. This access will also be utilised for a refuse collection vehicle (RCV).

The heavy vehicle crossovers and internal ring road have been designed to accommodate a 25m B-double. No speed controls (i.e. speed bumps) are proposed for the heavy vehicle exit as an access control gate will limit vehicle speed when entering Penelope Road.

Swept path diagrams have been developed to demonstrate sufficient turning ability for vehicles entering and exiting the site.

Further detail regarding access arrangements, including swept paths, sight lines and internal vehicle movements is provided in Section 4.2 of the Engineering Report, prepared by Northern Consulting Engineers (Appendix H).

3.3.2 Parking

Schedule 6.10 (Parking rates planning scheme policy) of the Townsville City Plan (the Parking Policy) prescribes a parking rate of one (1) space per 80m². As the proposed use involves a total GFA of 4,895m², across the process building, operations building and reagent storage shed, this would prescribe 62 car parking spaces. Parking has been provisioned to provide 26 spaces plus provision for one persons with disability (PWD) space (a total of 27 car parking spaces), which is less than prescribed by the Parking Policy.

As a specialist facility, those travelling to the QRCUF will either be staff or others having a specific reason to be there, for example, representatives of the proponents for campaigns. Access by members of the general public will not occur, meaning that vehicle demand for parking will be known and can be regulated during site operation.

The GFA of the QRCUF is largely founded on the dimensions of the main processing building which is designed to house large and highly specialised equipment, machinery and associated controls. Operation of this machinery is largely automated, with staff being on site to monitor the equipment and assist in moving material in and out of the facility through the various stages of processing.

In practical application, operation assumes an average of 25 persons will be on the site during testing campaigns, allowing for overlapping shifts. As such, the car parking provision proposed is considered sufficient for the site at full operation with supporting administrative activities, including provision for visitor parking.

The proposed car parking rate will generally be sufficient to cater to the demand generated by the development and avoid overflow of car parking on Penelope Road. In the event additional provision for parking is required, there is sufficient area within the site which can accommodate "overflow parking" during occurrences of increased demand. Refer to Figure 4 for the location of overflow parking.

Whilst operational parking can be entirely accommodated within the site, it is anticipated that street parking will be required during the construction phase of the project, where personal and site safety risks and concerns must be considered. This may come as a result of a lack of suitable on-site car parking, away from work areas, during the construction phase. The site is located towards the northern end of Penelope Road, which is an industrial standard road with a wide reserve. Only three properties are located north of the site, and thus there are few properties that might be affected by on-road parking. On-road parking during construction would be temporary and not unusual, and can be managed through appropriate construction management measures. Importantly, once operations commence, all parking will take place on-site.

3.4 Flooding

Engineering input developed during the creation of the CBIP identified that the 1% AEP (defined flood level) for the subject site varies along the western boundary from 5.36m AHD at the south-west corner to 5.3m AHD at the north-western corner.

The site was filled and levelled as part of the creation of the CBIP, resulting in the site being predominately immune from flooding during a 1% AEP event. Additional earthworks have since been undertaken (OPW24/0060) which have filled the operational areas of the site to the Q500 (0.2% AEP) level.

The Engineering Report developed for the QRCUF (refer to Appendix H) recommends that the proposed buildings adopt a minimum finished floor level (FFL) of 5.76m AHD, which will provide approximately 100mm freeboard to the probably maximum flood level. If needed, specific areas of QRCUF could adopt a minimum floor level of 5.5m AHD, which is equal to a 0.2% AEP flood event.

3.5 Operational details

Given its nature and purpose, the QRCUF is expected to operate intermittently, with planned campaigns of approximately 2-to-3-month duration, followed by periods of downtime either due to future customer change-over, waiting for future customers or no demand. During the campaigns, operation is expected to be 24 hours per day, with the majority of the processing operations being undertaken inside the main processing facility. Operations external to the building will comprise use of mobile plant for carting and loading of raw materials. External activity during night-time will be reduced to minimise adverse impacts upon surrounding sensitive land uses.

The QRCUF has been initially designed to accept up to 750kg of ore per hour for processing. A number of chemical reagents, including those listed in Table 2, will be used within processing stream.

The operation of the QRCUF will typically involve daily worst-case 1-hour vehicle movement scenarios as follows:

- **Carpark:** Noise will be generated by activities associated with cars arriving and leaving the site (opening/closing of doors, starting and moving), sources are broken down into:
 - 27 light vehicle movements per hour in the car parking area (assumed frequent use at any time of day/night), located in the car parking section indicated in the drawings. Each movement is assumed to be 30 seconds.
 - Additional door closure events per hour linked to the movement of vehicles are modelled as a point source.
- **Truck movements:** Up to five (5) articulated trucks (vehicles up to B double size) per hour (during day and evening period only) to account for deliveries/pickup undertaken as part of the operations at the development. These movement will follow a full path around the development site. No truck movements are expected during the night (10pm to 7am).
- **Truck idling:** One (1) truck idling continuously for any given hour (day and evening). No truck idling at night-time.
- **Front End Loader:** Average 3 movements per hour (day and evening) and 2 movements per hour (night). Each movement \leq 5 minutes.
- **Forklifts:** Five (5) LPG forklift operating continuously throughout the external loading area during Day and Evening periods. Night-time 1 movement per hour for Concentrate, 1 movement per hour for Scrubber Oversize, 1 movement per hour for Leach Neutralisation and 1 movement per night for Impurity Product and Resin. Each night-time movement has a 5-minute duration.
- **Plant Feeder Hopper to conveyor:** Continuous during day, evening and night. Nominal 1.5kW conveyor drive unit and 750kg/hour feed rate.
- **Skip:** Solid waste is to be collected in skip bins to be collected one time a day on average and only between the times of 7 am and 10 pm.
- **Emergency vehicles:** As necessary.

3.5.1 Waste streams

Waste produced from the QRCUF can be placed within one of two categories, being solid and liquid waste, which are summarised in Table 3. It is highlighted that waste will only be generated when processing operations are undertaken.

Table 3: Anticipated Waste Streams (Prudentia, 2024)

Waste	Indicative Composition	Daily Flow Estimate
Continuous Solids Waste		Total = 30.9 tonne/ day
1. Leach Residue	pH: 2-4 60% solids containing: <ul style="list-style-type: none"> • 30% alumina, • 30% limestone, • 30% silica, • balance carbon, Na₂O and K₂O 30% liquid, <ul style="list-style-type: none"> • ~15g/L of sulphate salt (including K, Na, Al, V) 	8.1 tonne/ day
2. Impurity Removal Residue	pH: 2-4 60% solids containing: <ul style="list-style-type: none"> • 40% calcium silicate, • 40% gypsum, • balance iron oxide 30% liquid, <ul style="list-style-type: none"> • ~5g/L vanadyl sulphate, 	0.3 tonne/day
3. Reject Filter Residue	pH: 6-8 60% solids containing various concentrations of: <ul style="list-style-type: none"> • Metal sulphate salt (K, Mn, Fe, Na, Al, Va) • Gypsum, • silica, • carbon, • Na₂O, K₂O and gypsum 40% liquid containing <ul style="list-style-type: none"> • 80g/L sulphate salt including Fe, Na, Al, 1000 ppm D70 SX diluent • trace non-aqueous hydrocarbon solvents (kerosene like) 	0.7 tonne/day
4. Tailings	60% solids, containing various concentration of <ul style="list-style-type: none"> • silica ~26% w/w • limestone ~47% w/w • balance, iron oxide, alumina, organic material found with shale ore 40% liquid, <ul style="list-style-type: none"> • Water with a composition similar to Townsville town water supply 	20.8 tonne/day
5. Drum Scrubber Oversize	80% solids, containing various concentration of <ul style="list-style-type: none"> • silica ~26% w/w • limestone ~47% w/w • balance, iron oxide, alumina, organic material found with shale ore 20% liquid, <ul style="list-style-type: none"> • Water with a composition similar to Townsville town water supply 	1 tonne/day

Waste	Indicative Composition	Daily Flow Estimate
Continuous Liquid Waste		Total = 20.9m³/day
6. Neutralised liquid waste	80g/L sulphate salt including Fe, Na, Al, 1000 ppm D80 SX diluent (kerosene like)	20.9m ³ per day *
Intermittent Waste		
7. Sampling waste	General lab wastes containing various metal salt, organics, and solids residue	1 x 1000L IBC per week

Note: Includes 3.1m³/day of Neutralisation Reagent, in addition to the 17.8m³/day liquid waste generation documented under Section 4.1 (Appendix J).

Waste will be removed from the site by a third-party waste collection contractor on an as-need basis, generally as identified within the attached Waste Management Plan (Appendix J). Notably, the feed and waste stock from operations will not require “full” enclosure of refuse containers to prevent release of air contaminants. Appendix J provides further detail on management measures to control the release of air contaminants without the need for full enclosure of refuse containers. Importantly, the continuous operational nature of the facility does not allow for the enclosure of refuse containers, as they will be subject to a constant feed of materials during processing.

In addition to the above process plant, general waste (some recyclable) will be generated through operations such as deliveries (packaging waste) and the general use of the administration, operations buildings. This waste will be removed from the small vehicle parking area by third-party waste contractors.

3.5.2 Regulated Waste streams

The initial operation of the QRCUF for the vanadium process stream will likely result in the creation of regulated waste. The *Environmental Protection Regulation 2019* specifies waste categories as summarised below:

- Category 1 regulated waste (highest risk)
- Category 2 regulated waste (moderate risk)
- Non-regulated waste/general waste

Some examples of Category 1 and 2 wastes relevant to the QRCUF are identified in Table 4.

Table 4: Regulated Waste Categories (Prudentia, 2024)

Category 1 (highest risk)	Category 2 (moderate risk)
<ul style="list-style-type: none"> • Filter cake, other than filter cake waste generated from the treatment of raw water for the supply of drinking water; • Oxidising agents. 	<ul style="list-style-type: none"> • Acidic solutions and acids in solids form; • Basic (alkaline) solutions and bases (alkalis) in solid form; • Non-toxic salts, including, for example, saline effluent; • Oil and water mixtures or emulsions, or hydrocarbons and water mixtures or emulsions; • Organic solvents, other than halogenated solvents, including, for example, ethanol; • vanadium compounds.

Regulated wastes require more stringent management requirements than unregulated wastes. It will be the responsibility of the various proponents to identify, categorise and track the wastes as part of their campaign proposals and documentation, to ensure that they are correctly stored, handled and disposed.

3.5.3 Air emissions

The primary source of air emissions from the QRCUF will originate from the exhaust stacks and operations conducted within the main processing building. Other air emissions are also anticipated from material handling and storage and vehicle operations within the site, however these emissions can be managed through site procedure.

An Air Quality Impact Assessment has been developed for the site (refer to Appendix F) which has detailed assumptions of key pollutants which will be emitted by the QRCUF during operation. Notably, the QRCUF is not yet operational and thus findings within this Air Assessment have been developed using assumed emission and dispersion models derived from information available at the time of assessment.

Air quality objectives for nearby sensitive receivers have been identified within the *Queensland Environmental Protection Act 1994* and the *Queensland Environmental Protection (Air) Policy 2019*. Modelling applied to the assumed emissions has found that QRCUF will produce air emissions well below the relevant air quality objections for nearby sensitive receivers.

Although emissions are below the relevant air quality objectives, the Air Quality Impact Assessment provides operational suggestions for mitigation of air impacts associated with the operation of the QRCUF.

3.5.4 Acoustic emissions

Available baseline noise monitoring information for the site is described as 38 dBA during the day, 40 dBA in the evening period and 35 dBA at nighttime (SLR, 2024b).

Acoustic quality in the area of the site is currently considered below the Environmental Protection (Noise) acoustic quality objectives (Table 5).

Table 5: EPP (Noise) Acoustic Quality Objectives (SLR, 2024)

Sensitive Receptor	Time of day	Acoustic Quality Objectives			Environmental Value
		LAeq,adj,1hr	LA10,adj,1hr	LA1,adj,1hr	
Residence (for outdoors)	Daytime and evening	50	55	65	Health and wellbeing
Residence (for indoors)	Daytime and evening	35	40	45	Health and wellbeing
	Nighttime	30	35	40	Health and wellbeing, in relation to the ability to sleep

Baseline noise monitoring at the site was undertaken as part of noise modelling undertaken for the project. The results were described as 38 dBA during the day, 40 dBA during the evening and 35 dBA during the night (SLR, 2024). This aligned with acoustic monitoring previously undertaken by SEG in 2023 (SLR, 2024).

In order to achieve the nominated environmental noise criteria limits for the area, a number of recommendations were made (Appendix G) which can be summarised as follows:

- restrictions on vehicle movements at various times of day (day, evening, night);
- training on vehicle handling and management (i.e. prevent engine idling, etc.);
- use of specific surface treatments to minimise noise of vehicle passing over them;
- utilise specific building materials and treatment to reduce acoustic emissions.

Overall, noise predictions as part of the assessment show that noise intrusive activities from the development are expected to comply with the noise criteria during day, evening and night periods with the implementation of the noise control recommendations.

Should complaints be made pertaining to noise emissions from the site, it is expected that a subsequent noise impact assessment will be warranted to confirm if additional noise mitigation measures are required. In the event that additional noise mitigation is required, it should be undertaken within a timeframe suitable for the works required and at the agreement of Townsville City Council and the Coordinator-General.

3.5.5 Landscaping

A Landscape Concept Plan has been prepared (refer to Appendix I) for the QRCUF generally in accordance with criteria identified within the Townsville City Plan (Schedule 6.4.12) and Townsville SDA Development Scheme, and in response to pre-lodgement advice obtained from Townsville City Council on 25 May 2023.

The landscaping layout incorporates native species planting within the following locations:

- frontage planting at a minimum depth of 2m;
- planting along the southern side boundary of the site;
- planting within the car parking area and between supporting buildings visible from the site frontage.

This arrangement visually softens the setting of the QRCUF when viewed from Penelope Road and the adjoining site to the south. The balance area of the site will consist of open turf area to maximise pervious areas and reduce heat island effects.

Street trees will be planted along Penelope Road to break up the façade of the site and provide shading to the Penelope Street verge and carriageway. It is proposed for QRCUF to maintain these trees during an on-maintenance period of 12 months before they become the responsibility of Townsville City Council. Preferred species for street tree planting include:

- Cupaniopsis Anacardioides
- Grevillea Baileyana

3.5.6 Lighting

Although subject to detailed building design, the QRCUF will provide outdoor lighting in accordance with the relevant Australian Standards and Townsville City Plan policies. It is anticipated that this will manage light to minimise spill into sensitive uses.

3.6 Infrastructure requirements

3.6.1 Stormwater

As part of previous estate works for the CBIP, a stormwater pit and outlet pipe (600mm diameter RCP) have been constructed within Easement P on SP338024 at the site's northern (downstream) boundary, discharging into the stormwater basin located on Lot 26 on SP338024. The existing pit and pipe within Easement P on SP338024 are the lawful point of discharge (LPOD) to which the proposed development's internal stormwater system can connect.

The site is currently free draining in a western direction towards the stormwater basin located within Lot 26 on SP338024.

The proposed development will maintain the existing stormwater management strategy by draining west towards the stormwater basin within Lot 26 on SP338024.

Stormwater discharge methodology is addressed within the Engineering Report (Appendix H) and involves water being treated via a combination of underground cartridge systems; i.e., Atlan Stormsacks, Vault and Filter treatment train before leaving the lot and prior to entering the open drain to the west, which is a lawful point of discharge.

The development does not exceed the fraction impervious previously addressed as part of the CBIP subdivision design and therefore no mitigation is required for stormwater quantity.

Fuel and hazardous storage area will be bunded to allow capture and treatment prior to discharge.

Further detail regarding stormwater assessment, modelling and treatment options are provided in Section 2 of the Engineering Report Prepared by Northern Consulting Engineers (Appendix H).

3.6.2 Water

The proposed development will provide a connection and water meter to the existing 200mm diameter water main located at the site frontage along Penelope Road.

Further detail regarding the water network is provided in Section 3.1 of the Engineering Report, prepared by Northern Consulting Engineers (Appendix H).

3.6.3 Sewer

The sewer strategy for the CBIP is for each lot to be serviced by its own private pump station which will discharge to a connection point and sewer pressure main located in the road reserve to convey wastewater to a Council-owned centralised pump station. It has been assumed that there is sufficient capacity in the sewer network to accommodate future development within the CBIP.

The proposed development will include a private pump station as required, which will connect to an existing pressure main which runs along the western side of Penelope Road, terminating 1.5m north of the common boundary between Lot 14 on SP338024 and Lot 15 on SP338023.

Further detail regarding sewer services is provided in Section 3.2 of the Engineering Report, prepared by Northern Consulting Engineers (Appendix H).

3.7 Compatibility with existing and potential future surrounding uses

The site of the proposed QRCUF is within the TSDA. The vision for the TSDA is to *be the preferred location in North Queensland for the establishment of industrial development of regional, State and national significance, including supporting infrastructure, which is reliant on direct access to one or more of the Port of Townsville, national freight rail and major road networks.*

The proposed QRCUF provides a facility for the research and development of mineral extraction practices, which in turn supports the regionally and nationally significant resources sector within North Queensland. As such, the proposed use of the site assists in facilitating the vision of the Townsville SDA.

The QRCUF is located within the Medium Impact Industry Precinct, which is to accommodate medium impact industry development that:

- includes the manufacturing and processing of products that are associated with identifiable and measurable impacts;
- requires buffers from sensitive land uses;
- is reliant on and maximises the use of key transport and supply chain infrastructure.

The QRCUF is best categorised as a research and technology use, which notably, is a defined use that supports the preferred development intent of the precinct.

The CBIP consists of a mix of existing and emerging industrial uses to the north, east and south. The site adjoins a drainage basin to the west and the nearest sensitive uses are noted as approximately 570m to the south-west of the site.

Specialist reporting has been developed to identify potential amenity impacts and development mitigation strategies to ensure that nearby sensitive areas are not adversely impacted by the proposed QRCUF. Key findings include:

- noise predictions show that noise intrusive activities from the development are expected to comply with the noise criteria during day, evening and night periods with the implementation of noise mitigation recommendations.
- air quality predictions were undertaken which identified that with appropriate mitigation measures in place, development operations would be of “neutral significance” upon the nearest sensitive received to the site.
- a holistic Environmental Assessment Report has identified key environmental values within and surrounding the site and identified mitigation strategies to manage potential impacts.

3.8 Pre-lodgement activities

Pre-lodgement engagement has been undertaken with the Office of the Coordinator-General (OCG), Townsville City Council and the Department of Environment and Science via both formal meetings and email correspondence. Table 6 provides a summary of key engagement activities, participants and outcomes.

Table 6: Pre-lodgement meetings

Date	Agency	Participants	Summary / outcomes
9 May 2023	Office of the Coordinator-General	Richard Alarcon (OCG) Adam Jones (OCG) Stephen Smith (OCG) Simon Gatley (QT) Kirsty Elliot (QT) Danyelle Kelson (QT) Frances Tupea (QT) John Armstrong (QT) Jessica Wu (QT) Simon Pollock (RPS) Megan Davis (RPS) Brian Gibbs (RPS)	<ul style="list-style-type: none"> Initial meeting to discuss proposed QRCUF, design development progress, proposed application approach and proposed engagement with Townsville City Council. OCG provided details of TCC contact for SDA pre-lodgement engagement.
25 May 2023	Townsville City Council	Dale Armbrust (TCC – Senior Development Engineer) Melanie Percival (TCC – Senior Planner) Sam Rang (TCC – Planning Support Officer) Brian Gibbs (RPS)	<ul style="list-style-type: none"> Initial meeting to discuss proposed QRCUF, proposed application approach and key issues for TCC referral assessment. Confirmed general acceptability of proposal. Application can be either assessed by Council via early referral (pre-SDA application) or via referral by Office of the Coordinator-General.
28 July 2023	Department of Environment and Science	Calvin Quick (DES) Danyelle Kelson (QT) Megan Davis (RPS)	<ul style="list-style-type: none"> Initial meeting to discuss proposed QRCUF, potential ERAs and application requirements / timing. Potential ERAs required for operation of the facility may include: <ul style="list-style-type: none"> ERA 8 – Chemical storage ERA 31 – Mineral processing ERA33 – Crushing, grinding and screening ERA50 – Mineral and bulk material handling Detailed design information required to support application for ERAs and site-specific Environmental Authority. Initial site operations may not exceed ERA thresholds. Applicant will be required to obtain new ERA approvals to facilitate changes to site processes / operations (e.g. transition from vanadium to other rare earth elements)
19 December 2023	Office of the Coordinator-General & Townsville City Council	Melanie Percival (TCC) Shelly Sharma (TCC) Stephen Smith (OCG) Chandler Walker (OCG) Felicity Tait (OCG) Catherine O’Neill (OCG) Simon Gatley (QT) John Pelagio (IPS) Jordan Gooch (Sedgman) Brian Gibbs (RPS)	<ul style="list-style-type: none"> Meeting with OCG and TCC to discuss updated design and technical assessments undertaken (air and noise baseline monitoring). Overview of contractor engagement and design development. Confirm application approach and timing (deferred ERA application). Confirm key specialist assessments (air, noise, civil infrastructure, services, traffic and access).

Date	Agency	Participants	Summary / outcomes
10 December 2024	Office of the Coordinator-General	Danyelle Kelson (QT) Felicity McCann (OCG) Catherine O'Neill (OCG) Brian Gibbs (RPS) Stewart Owen (RPS)	<ul style="list-style-type: none"> Meeting with OCG to discuss updated design and operation parameters. Confirm key specialist assessments (air, noise, civil infrastructure, services, traffic and access). Confirm pre-referral responses required for OCG assessment. Confirm application approach and timing.

3.9 Townsville City Council Early Referral Response

Prior to lodgement of this SDA application, an early referral response was sought from Townsville City Council to expedite the SDA assessment process by the OCG. A copy of the early referral response is attached to this application (Appendix E) and includes recommended conditions of approval which are consistent with the guidance materials for the CBIP.

Notwithstanding the consistency between the early referral response and the guidance materials, the OCG imposes development conditions for an SDA approval and has the authority to include conditions relevant to the proposal, even if they amend or differ from the recommended conditions within the TCC early referral response. We are proposing a number of minor amendments to the recommended conditions for the OCG's consideration to ensure that the conditions of approval imposed are relevant to the development outcome sought and will not impede the construction of or complicate or diminish the intended operation of the proposed QRCUF facility.

Table 7 identifies the alterations sought to the TCC recommended conditions:

Table 7: Proposed amendments to recommended TCC conditions (deletions / insertions)

Condition	Proposed Amendment	Proposed Timing
Condition x – Approved Plans Reports		
Plan Reference	Drawing Number	Revision Number
Site Plan	B071-D1-01-0001_01	J
		05-09-2024

Rationale:

It is proposed to remove this plan has been superseded by plan B071-D1-01-0002_01, which was included in the lodgement package to Townsville City Council. Plan B071-D1-01-0001_01 is no longer relevant to this application.

Landscape Concept Plans, Reference 1.1 Queensland Resources Common User Facility, Drawing number AU213005687, Version G, dated 04 December 2024 and 1.2 Planting Palette, Drawing number AU213005687, ~~Version D~~ Version G, dated 04 December 2024

Rationale:

The suggested alteration above rectifies a reference error in the recommended conditions of approval, ensuring that the correct and most current Landscape Concept Plan is referenced within the approval.

Condition x – Complaints

x.x *In the event a complaint is received in relation to noise from the use, the developer / operator must engage a suitably qualified consultant to undertake an assessment addressing noise emanating from the site for this use in accordance with the provisions of the Environmental Protection Act 1995.*

The assessment must be accompanied by a report, inclusive of supporting calculations and site investigations. The report must provide recommendations of noise mitigation measures.

The developer / operator must provide a copy of the report to Townsville City Council and the Coordinator-General and undertake any works within ~~3-months of supplying the report~~ a timeframe as agreed to by the regulator and the developer/operator.

Rationale:

The proposed change will allow a timeframe to be negotiated based on the specific complaint and related factors (e.g. severity of the impact, complexity of the solution).

Condition	Proposed Amendment	Proposed Timing
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Condition x – Vehicle crossovers

x.x	All parking is to occur on site.	At all times Following commencement of use
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Rationale:
It is anticipated that street parking will be required during the construction phase of the project. The site is located towards the northern end of Penelope Road, which is an industrial standard road with a wide reserve. Only three properties are located north of the site, and thus there are few properties that might be affected by on-road parking. On-road parking during construction would be temporary and not unusual. Importantly, once operations commence, all parking will take place on-site.

Condition x – Air contaminants

x.x	Materials that are capable of generating air contaminants are wholly enclosed in storage bins.	At all times
x.x	All external areas containing the above storage bins must be sealed (impervious).	Prior to commencement of use and to be maintained

Rationale:
The Air Quality Assessment submitted confirms that feed and waste stock from the operations building does not require "full" enclosure to prevent release of air contaminants, subject to implementation of other management measures. This will be of particular relevance to the use and operation of the run of mine (feed stock) bunker at the end of processing building.

Condition x – Landscaping

x.x	Maintain landscaping and replace any failed or failing trees or shrubs.	At all times Up to 12 months after commencements of use.
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Rationale:
The requirement to maintain or replace failed or failing trees should be limited to a reasonable "on-maintenance" or establishment period. It is unreasonable to require maintenance and replacement in perpetuity for plantings within the road reserve.

4 STATUTORY CONSIDERATIONS

4.1 State Development and Public Works Organisation Act 1971

The *State Development and Public Works Organisation Act 1971* (SDPWO Act) regulates development within State Development Areas (SDA). Under Sections 79 of the SDPWO Act, all SDAs require a development scheme for the regulation of development. Each SDA development scheme prevails over local and state government instruments for development that is regulated by the SDA development scheme.

Part 2 of the *State Development and Public Works Organisation (State Development Areas) Regulation 2009* declares the Townsville State Development Area Development Scheme as being the relevant instrument for assessment of development within the TSDA.

4.2 Definition of use

The proposed development is best categorised as a research and technology industry use, as defined in Schedule 1 of the TSDA Development Scheme:

Research and technology industry means the use of premises for an innovative or emerging industry that involves designing and researching, assembly, manufacturing, maintaining, storing or testing machinery or equipment.

4.3 Assessment Manager

In accordance with the provisions of the TSDA Development Scheme, the proposed development constitutes a Material Change of Use – Research and technology industry for which the Office of the Coordinator-General is assessment manager.

4.4 Categories of assessment

The category of assessment for the proposed development is:

- Material Change of Use for Research and Technology Industry:
 - SDA assessable development within the Medium Impact Industry Precinct – Table 3, Column 2.

4.5 Public consultation

Schedule 2, Sections 2.1 and 2.3 of the TSDA Development Scheme sets out the applicability and requirements associated with public consultation for development applications within the TSDA.

Development for a defined use that supports the preferred development intent of the relevant precinct does not require public consultation. Section 2.4.3 (1) (f) of the TSDA Development Scheme states that research and technology industry is a use which supports the preferred development intent of the Medium Impact Industry Precinct.

Public notification is therefore not required for this application.

4.6 Potential Referrals and State interests

Based on the nature of the proposed development and review of SARA DA Mapping (refer Table 1), there are no referral triggers under the *Planning Act 2016*.

The applicant has undertaken early consultations with Townsville City Council, who have provided an early referral response, including proposed conditions. Section 3.9 of this report details the response obtained from TCC and makes recommendations for updated proposed conditions.

As outlined in Section 4.7, the proposed development will likely involve one or more Environmentally Relevant Activities (ERAs) under Schedule 2 of the *Environmental Protection Regulation 2019*.

Pre-lodgement engagement with the Department of Environment and Science (now DETSI) undertaken in July 2023 confirmed that operation of the proposed QRCUF may involve the following ERAs:

- ERA 8 – Chemical storage
- ERA 31 – Mineral processing
- ERA33 – Crushing, grinding and screening
- ERA50 – Mineral and bulk material handling

Applications for relevant ERAs will be sought separately to the SDA application as the level of information required by DETSI is not available at this time. Referral to DETSI is therefore not required for this application. DETSI will have the opportunity to consider matters relevant to an ERA at the appropriate time when the full suite of relevant supporting information is available to support an ERA. Referral to DETSI during this SDA application would be premature due to the level of detail available at this time and would produce uninformed feedback, complicating the SDA assessment process.

Previous feedback from the OCG suggested that engagement with the Office of Industrial Relations (OIR) would be required to determine if the proposed development constituted a “hazardous chemical facility” as defined within the *Planning Regulation 2017*. Based on review of Schedule 15 of the *Work Health and Safety Regulation 2011*, it has been confirmed that the proposed QRCUF will not involve the storage of chemicals in a quantity exceeding 10% of the listed threshold quantities. On this basis, the proposed QRCUF would not meet the definition of a hazardous chemical facility and referral to the Office of Industrial Relations is therefore not required.

It is noted that certain entities will retain responsibility for assessment of applications and requests in addition to development assessed under the TSDA Development Scheme. Section 4.7 outlines the further permits, approvals and compliance requirements for the project.

4.7 Further permits, approvals and compliance requirements

In addition to the approval under the TSDA Development Scheme, development of the QRCUF will need to consider the further permits, approvals and compliance requirements summarised in Table 8.

Table 8: Further permits, approvals and compliance requirements

Item	Administering authority	Commentary
Commonwealth		
<i>Environment Protection and Biodiversity Conservation Act 1999</i> Approval for Controlled Action	Department Agriculture, Water and the Environment	A self-assessment assessment and controlled action determination request will be required to confirm whether the proposed development constitutes a controlled action.
State		
<i>Planning Regulation 2017</i> , Schedule 10, Part 5, Part 6, Division 2, Item 8 Material change of use for an environmentally relevant activity	State Assessment and Referral Agency / Department of Environment and Science	<p>The proposed development is likely to involve activities, materials and processes which trigger one or more of the following:</p> <ul style="list-style-type: none"> • ERA 8 – Chemical storage • ERA 31 – Mineral processing • ERA33 – Crushing, grinding and screening • ERA50 – Mineral and bulk material handling <p>An application for an ERA for the initial site operations (vanadium) will be lodged separately from the SDA application for research and technology industry once sufficient supporting information is available following detailed design development.</p> <p>Future applications for additional ERAs or changes to ERA thresholds may be required as the QRCUF transitions to other critical minerals processes following completion of the initial phase vanadium operations. It will be the responsibility of the Department of Resources and Mines, Manufacturing, and Regional</p>

Item	Administering authority	Commentary
<i>Aboriginal Cultural Heritage Act 2003</i> Compliance with Duty of Care.	Department of Aboriginal and Torres Strait Islander Partnerships	and Rural Development to obtain these ERAs as the ultimate operator of the proposed facility. Cultural heritage assessment is not required as the subject site likely constitutes a Category 4 area (areas previously subject to significant ground disturbance) for the purposes of the Duty of Care Guidelines. This aside, where items of archaeological importance are identified during construction of the project, the proponent must comply with its duty of care under the Aboriginal Heritage Act 2003 and the Department of Environment and Heritage Protection (2014) Guidelines: Archaeological investigations.
Local		
Townsville City Plan Operational work	Townsville City Council	Required for filling and excavation (depth exceeding 1m or 100m ³ volume) or works associated with the material change of use.
<i>Plumbing and Drainage Act 2018</i> Compliance permit to carry out plumbing and drainage work	Townsville City Council	Required prior to commencement of sanitary drainage works.
<i>Building Act 1975</i> Building work	Private certifier	A development permit for building works is required prior to building works commencing on site.
Townsville City Council <i>Subordinate Local Law 1.15 (Carrying Out Works on a Road or Interfering with a Road or its Operation) 2011</i> Approval to Construct (and Maintain) a Driveway (Vehicle Crossover)	Townsville City Council	Establishment of a new driveway crossovers onto Penelope Road will require approval.
Water Supply (Safety and Reliability) Act 2008 Liquid trade waste approval / agreement	Townsville City Council	Required for the discharge of any waterborne waste associated with proposed use.

5 TOWNSVILLE STATE DEVELOPMENT AREA DEVELOPMENT SCHEME

5.1 Introduction

This section provides an assessment against the TSDA Development Scheme (May 2019) provisions comprising the following:

- Strategic Vision and Overall Objectives
- Intent for the Medium Impact Industry Precinct
- SDA Wide Assessment Criteria

5.2 Strategic Vision

Table 9 provides commentary regarding the proposed development against the Strategic Vision outlined in Section 2.2 of the TSDA Development Scheme.

Table 9: TSDA Strategic Vision

Strategic Vision	Commentary
1. The vision for the Townsville SDA is to:	
a. be the preferred location in North Queensland for the establishment of industrial development of regional, State and national significance, including supporting infrastructure, which is reliant on direct access to one or more of the Port of Townsville, national freight rail and major road networks	<p>Complies</p> <p>Resources are a nationally significant asset, and the proposed development provides a research facility to assist proponents within the extractive industry sector to research and develop improved methods for the extraction of metals and minerals from ore. The QRCUF will encourage prospectors and mining organisations to base themselves within North Queensland and utilise the existing facilities available, including the Port of Townsville, and national rail and road networks.</p>
b. ensure development of the Townsville SDA occurs in a logical sequence and is equally focused on the short and long-term economic benefits to the region and State	<p>Complies</p> <p>The development makes use of a recently completed industrial subdivision and thus is taking part in the orderly development of the SDA. Resource extraction is an important industry at a regional, state and national level and thus the proposed QRCUF will provide benefits to the region by allowing proponents to improve upon existing techniques and develop new extraction methods.</p>
c. facilitate the continued operation and future expansion of existing industrial operations and regionally significant extractive resources	<p>Complies</p> <p>The proposed QRCUF directly supports regionally significant extractive resources by providing proponents with Townsville based facilities to develop ore processing methods. The proposed development makes use of a new industrial estate, supporting industrial operations planned within the SDA.</p>
d. facilitate a coordinated approach to the delivery of infrastructure, and maximise the efficient use of existing and future port, road, rail and ancillary infrastructure	<p>Complies</p> <p>The development will be established in an industrial estate created for the SDA, and therefore utilises planned and recently delivered infrastructure. Notably, this industrial estate is located within close proximity of the Bruce Highway and Ron Mclean Drive to allow efficient access to existing road, rail and port infrastructure.</p>
e. recognise and protect environmental, cultural heritage and community values	<p>Complies</p> <p>The development is taking place within an industrial estate created within the Townsville SDA. The site has no significant environmental values and environmental emissions can be sufficiently contained and mitigated, protecting the community</p>

Strategic Vision	Commentary
	values of surrounding sensitive areas. The site is not identified as containing any cultural heritage values.
f. contribute to maintaining the outstanding universal value of the Great Barrier Reef World Heritage Area.	<p>Complies</p> <p>The development is proposed within a serviced industrial estate which does not contain significant environmental values. The environmental values of the Great Barrier Reef World Heritage Area will not be affected by the development noting appropriate stormwater treatment will be undertaken prior to discharge to lawful point of discharge and all waste streams, including regulated waste, will be stored and collected for off-site disposal by licensed contractors.</p>
2. The strategic vision is supported by the overall objectives for development and preferred development intents of development precincts within the Townsville SDA.	<p>Complies</p> <p>As a research and technology industry use, the development is a defined use that supports the preferred development intent for the Medium impact industry precinct and the strategic vision of the TSDA.</p>

5.3 Overall objectives

Table 10 provides commentary regarding the proposed development against the Overall Objectives outlined in Section 2.3 of the TSDA Development Scheme.

Table 10: TSDA Overall Objectives

Overall Objectives	Commentary
1. Development within the Townsville SDA:	
a. capitalises on the Townsville SDA’s strategic location, supports the role and function of the Port of Townsville and stimulates economic growth	<p>Complies</p> <p>The proposed QRCUF supports the innovation of extractive industry which is a regionally and nationally significant industry for North Queensland. The proposed development is strategically located near the Bruce Highway and Ron Mclean Drive, providing efficient access to road, rail, and port infrastructure.</p>
b. ensures lots are appropriately sized to accommodate preferred development	<p>Complies</p> <p>The proposed development is located within a new industrial estate on an existing lot which is appropriately sized to accommodate the range of buildings and facilities associated with the use.</p>
c. ensures the integrity and functionality of the Townsville SDA is maintained and protected from incompatible development	<p>Complies</p> <p>The proposed development is considered compatible as it is characterised as research and technology industry, a preferred use within the Medium impact industry precinct.</p>
d. avoids or minimises adverse impacts on sensitive land uses	<p>Complies</p> <p>Air and noise impact assessments have been undertaken and mitigation methodology identified to minimise adverse impacts on the nearest sensitive land uses.</p> <p>Notably, the proposal achieves acceptable noise levels against the adopted <i>Environmental Protection (Noise) Policy 2019</i> in accordance with the outcomes sought by the Townsville City Plan and the Townsville SDA Development Scheme.</p> <p>Air quality objectives can be maintained through a combination of dust control devices and emissions scrubbers.</p>
e. ensures design, construction and operation is consistent with current best practice	<p>Complies</p> <p>The design, construction and intended operation of the QRCUF will be consistent with current best practices.</p>
f. avoids adverse impacts on environmental, cultural heritage and community values, or minimises,	<p>Complies</p>

Overall Objectives	Commentary
mitigates or offsets impacts where they cannot be avoided	The development is taking place within an industrial estate created within the TSDA. The site has no significant environmental values and environmental emissions can be sufficiently contained and mitigated, protecting the community values of surrounding sensitive areas. The site is not identified as containing any cultural heritage values.
g. uses water and energy efficiently and minimises potential impacts on water quality and climate change	Complies The design of the QRCUF can accommodate water and energy efficiency infrastructure.
h. manages impacts of air quality on the capacity of the Townsville airshed	Complies An air quality impact assessment has been undertaken and mitigation methodology identified to achieved necessary air quality standards. Acceptable air quality can be maintained through a combination of dust control devices and emissions scrubbers.
i. uses land and infrastructure efficiently and does not compromise or adversely impact on infrastructure, infrastructure corridors and future development opportunities	Complies The QRCUF makes efficient use of the site, providing a research and technology facility which is commensurate to the size and shape of the land. The proposed use is consistent with infrastructure assumptions for the area and is sufficiently serviced through public utility. The use of the site is preferred for the precinct and thus does not compromise future development opportunities within the SDA.
j. is adequately serviced by infrastructure, generally in accordance with established infrastructure planning	Complies The proposed use is consistent with infrastructure assumptions for the area and is sufficiently serviced by established utility infrastructure created specifically for the SDA. An engineering assessment (Appendix H) has been prepared which identifies key infrastructure arrangements for the use (stormwater, water, sewerage).
k. manages the risks associated with natural hazards, to protect people and property	Complies The site has been previously filled and levelled to achieve flood immunity. Furthermore, the site is not flagged as being subject to risk from bushfire, coastal hazard or landslide. There are no natural hazards risks that require mitigation.
l. achieves appropriate levels of flood immunity consistent with current best practice	Complies The site has been previously filled and levelled as part of the creation of the Cleveland Bay Industrial Park to achieve a minimum level of flood immunity, and has been further augmented to ensure operational areas of the site are above the Q500 flood event.
m. ensures no net worsening of flood levels on land for existing and potential urban uses and on environmental values.	Complies The site has been previously filled and levelled to achieved flood immunity. As the proposal will not take place within land affected by flooding, there will be no direct flooding impacts upon the catchment.

5.4 Precinct intent

Table 11: TSDA Medium Impact Industry Precinct Intent

Precinct Intent	Commentary
<p>1. The preferred development intent for the Medium Impact Industry Precinct is described below.</p>	
<p>a. This precinct is to accommodate medium industrial development that:</p> <ul style="list-style-type: none"> i. includes the manufacturing and processing of products that are associated with identifiable and measurable impacts ii. requires buffers from sensitive land uses iii. is reliant on and maximises the use of key transport and supply chain infrastructure. 	<p>Complies</p> <p>Research and technology industry is a preferred use within the Medium impact industry precinct. The QRCUF has been designed to ensure potential air and noise emissions achieve relevant standards. The close proximity to existing transport networks is important to the operation of the QRCUF, in particular for the movement of ore and waste materials before and after processing.</p>
<p>b. Transport, freight and logistics industries are accommodated in locations with key rail and road linkages, including the section of the precinct adjoining the existing intermodal facility south of Marrett Street.</p>	<p>Not Applicable</p> <p>The proposal does not involve the transport, freight or logistics industries.</p>
<p>c. The scale, intensity and bulk of industrial development is appropriate for the location having regard to its proximity to adjacent sensitive land uses, e.g. the residential areas of Cluden and Wulguru.</p>	<p>Complies</p> <p>The proposed use is defined as research and technology industry which is a preferred use within the Medium impact industry precinct. The footprint of the proposed development is commensurate with the size of the site, allowing room for future expansion and a reasonable buffer from adjacent land uses. The size, intensity and bulk of the facility reflects and is consistent with its nature of a research and technology use, which is not intended to be a commercial scale operation producing product for market. On this basis, the proposed development is consistent with the scale and intensity anticipated for the site.</p> <p>The nearest sensitive receivers are noted as being 800m to the south-west of the site within Cluden, providing sufficient visual separation to minimise the perceived bulk of the facility.</p> <p>Potential air and noise emissions have been identified and mitigation measures proposed as part of design and operational controls to ensure appropriate air quality and acoustic levels are achieved at the nearest sensitive receptors.</p> <p>In particular, the proposal achieves acceptable noise levels against the adopted <i>Environmental Protection (Noise) Policy 2019</i> in accordance with the outcomes sought by the Townsville City Plan and the TSDA Development Scheme. Therefore, there are no anticipated adverse noise impacts upon nearby sensitive receivers.</p> <p>Air quality standards can be maintained through a combination of dust control devices and emissions scrubbers.</p>

Precinct Intent	Commentary
<p>d. The expansion of existing uses within the precinct will be supported where appropriate.</p>	<p>Not Applicable The proposal is for a new facility and does not seek the expansion of an existing use.</p>
<p>e. Only one intersection from the Townsville Port Access Road to this precinct will be supported.</p>	<p>Not Applicable The proposal does not propose any major roadworks and will utilise the recently improved road network associated with the development of the CBIP.</p>
<p>f. Defined uses that support the preferred development intent are:</p> <ul style="list-style-type: none"> i. freight terminal ii. infrastructure facility iii. medium impact industry iv. research and technology industry v. transport depot vi. utility installation vii. warehouse. 	<p>Complies The proposed QRCUF is defined as a research and technology industry use.</p>
<p>g. Defined uses that may be supported where it can be demonstrated that they satisfy the preferred development intent include:</p> <ul style="list-style-type: none"> i. correctional facility ii. food and drink outlet, where required to service the immediate employment catchment iii. office, where ancillary to an industrial use iv. renewable energy facility v. service station vi. substation vii. telecommunications facility viii. wholesale nursery 	<p>Not Applicable The proposed QRCUF is defined as a research and technology industry use.</p>

5.5 SDA wide assessment criteria

The following sections provide an assessment of the proposed development against SDA wide assessment criteria outlined in Section 2.5 of the TSDA Development Scheme.

5.5.1 Infrastructure and services

Table 12: SDA Wide Assessment Criteria – Infrastructure and Services

Criteria	Commentary
1. Development maximises the use of and minimises the cost for infrastructure associated with telecommunications, transport, water, wastewater, recycled water and energy networks.	<p>Complies</p> <p>The proposed development utilises existing infrastructure created as part of an industrial subdivision undertaken within the SDA. The proposed Research and Technology Industry use is commensurate with the infrastructure assumptions for the area. Where upgrades to infrastructure are required, they will be undertaken to maximise efficient and reduce cost.</p>
2. Development plans for and manages impacts on existing and future known telecommunications, transport, water, wastewater, recycled water and energy networks.	<p>Complies</p> <p>The proposed development utilises existing infrastructure created as part of an industrial subdivision undertaken within the SDA.</p> <p>An Engineering Report has been prepared (refer to Appendix H) which has confirmed that the proposal is commensurate with infrastructure available to the area.</p> <p>A private sewer pumping station will be required within the site to service the proposed use. Pre-lodgement meetings undertaken with Townsville City Council have confirmed support for this arrangement.</p>
3. Development is adequately serviced by telecommunications, transport, water, wastewater, recycled water and energy networks as relevant.	<p>Complies</p> <p>The proposed development utilises existing infrastructure created as part of an industrial subdivision undertaken within the SDA. Additional information is available within an Engineering Report prepared for the proposed development (Appendix H).</p>
4. Development incorporates waste minimisation practices and considers refuse collection or disposal.	<p>Complies</p> <p>Waste minimisation practices have been identified through a Waste Management Report (refer to Appendix J) which will be implemented within the proposed development.</p>
5. Development avoids or minimises adverse impacts on existing or proposed State or local government infrastructure and services.	<p>Complies</p> <p>The development is taking place within a recently established SDA industrial subdivision. Local infrastructure and services have been provided at a capacity consistent with the intended use of the site. An Engineering Report has been prepared (Appendix H) which confirms proposed servicing arrangements.</p> <p>The QRCUF is a preferred use within the Medium impact industry precinct. Based on the consistent nature of the use, it is not anticipated that the use would generate adverse impacts on surrounding infrastructure networks and capacity.</p>
6. Development provides for and protects the safety, functionality and efficiency of the Bruce Highway, North Coast rail line, TPAR and Flinders Highway (Stuart Bypass) and the Townsville Eastern Access Rail Corridor (TEARC).	<p>Complies</p> <p>The QRCUF is consistent with the infrastructure assumptions on which the CBIP was developed. It is not expected that the development will affect the functionality and operation of the surrounding Council and State-controlled road networks.</p> <p>The proposed use will not compromise the function of rail corridor infrastructure, which is approximately 1.8km south-west of the subject site.</p>

5.5.2 Emissions

Table 13: SDA Wide Assessment Criteria – Emissions

Criteria	Commentary
<p>1. Development is designed to avoid or minimise:</p> <ul style="list-style-type: none"> a. adverse impacts from air, noise and other emissions that will affect the health and safety, wellbeing and amenity of communities and individuals b. conflicts arising from (but not limited to), spray drift, odour, noise, dust, light spill, smoke or ash emissions with sensitive and/or incompatible land uses. 	<p>Complies</p> <p>The proposal achieves acceptable noise levels under the adopted <i>Environmental Protection (Noise) Policy 2019</i> or the <i>Environmental Protection (Air) Policy 2019</i> in accordance with the outcomes sought by the Townsville City Plan and the TSDA Development Scheme. Therefore, no adverse impacts upon nearby sensitive receivers are anticipated.</p> <p>Air quality standards can be maintained through a combination of dust control devices and emissions scrubbers. Lighting will be in accordance with the relevant Australian Standards to avoid spillage into surrounding sensitive uses.</p>
<p>2. Development supports the achievement of the relevant acoustic and air quality objectives of the Environmental Protection (Noise) Policy 2008 and the Environmental Protection (Air) Policy 2008.</p>	<p>Complies</p> <p>The proposal achieves acceptable noise levels against the adopted <i>Environmental Protection (Noise) Policy 2019</i> (refer to Appendix G) and acoustic requirements under the <i>Environmental Protection (Air) Policy 2019</i> (refer to Appendix F).</p>
<p>3. Development with the potential to impact on the air quality of Townsville will be expected to conduct air shed modelling, in accordance with current best practice, to demonstrate compliance with air quality standards.</p>	<p>Complies</p> <p>Air quality modelling has been undertaken (refer to Appendix F) which determined that regulatory limits can be achieved through the implementation of dust control measures and emissions scrubbing.</p>

5.5.3 Contaminated land

Table 14: SDA Wide Assessment Criteria – Contaminated land

Criteria	Commentary
<p>1. Development on land likely to be contaminated or recorded on the Environmental Management Register or Contaminated Land Register does not adversely impact on human health or the environment by exposure, management, or movement of contaminants.</p>	<p>Not Applicable</p> <p>The site is not listed on the Environmental Management Register (EMR) or Contaminated Land Register (CLR).</p>
<p>2. Where required, develop a strategy to manage any existing contamination and the potential for additional contamination such that human health and the environment are not adversely affected.</p>	<p>Not Applicable</p> <p>The site is not listed on the Environmental Management Register (EMR) or Contaminated Land Register (CLR). The operation of the QRCUF will include appropriate storage and handling of hazardous materials to reduce the likelihood of contamination.</p>

5.5.4 Acid sulfate soils

Table 15: SDA Wide Assessment Criteria – Acid sulfate soils

Criteria	Commentary
<p>1. Development, in accordance with current best practice, is to:</p> <ul style="list-style-type: none"> a. avoid the disturbance of acid sulfate soils (ASS) or b. ensure that the disturbance of ASS avoids or minimises the mobilisation and release of acid and metal contaminants. 	<p>Complies</p> <p>The development utilises an existing industrial allotment which has been filled and levelled. No additional earthworks are proposed that would result in the disturbance of acid sulfate soils (ASS). Notwithstanding this, where disturbance occurs, it is anticipated that development will be undertaken in accordance with an ASS Management Plan.</p>

5.5.5 Climate change

Table 16: SDA Wide Assessment Criteria – Climate change

Criteria	Commentary
1. Development minimises its emission of greenhouse gases and demonstrates how it will adapt to projected climate change conditions.	<p>Complies</p> <p>It is anticipated that water and energy efficiency measures will be adopted where possible as part of the detailed design phase. Although not currently proposed, the QRCUF can accommodate energy efficient infrastructure.</p>

5.5.6 Transport

Table 17: SDA Wide Assessment Criteria – Transport

Criteria	Commentary
1. Increased traffic arising from development is either able to be accommodated within existing road networks or works are undertaken to minimise adverse impacts on existing and future uses and road networks.	<p>Complies</p> <p>The development is taking place within a recently established industrial estate. It is anticipated that the traffic generation associated with QRCUF has been considered and catered for in the design layout of the industrial estate and associated local road network.</p>
2. Local road networks within the Townsville SDA are to be designed to accommodate the proposed vehicle type and predicted traffic volumes associated with the development and the precinct/s.	<p>Not Applicable</p> <p>The proposed development does not propose any new roads. The development will utilise existing local roads created as part of the CBIP subdivision. As such, anticipated that the local road network can accommodate the proposed use.</p>
3. Development is designed to facilitate safe and efficient vehicular ingress and egress and does not unduly impact on the safe and efficient operation of transport infrastructure.	<p>Complies</p> <p>The proposed development includes access driveways and crossovers designed in accordance with the Townsville City Plan and Department of Transport and Main Roads (DTMR) standards to provide safe and efficient ingress and egress for vehicle.</p> <p>The proposed QRCUF separates access and egress points for vehicle classes. A single, two-way driveway is provided for light vehicles, such as employee and visitor car parking. Two additional one-way crossovers are provided, adjacent to each side boundary, to facilitate access for heavy vehicles. This separation of vehicle classes improves the safety and efficiency of the operation of the site by avoiding conflict between vehicle classes.</p>
4. Adequate car parking for the number and nature of vehicles expected are provided on site.	<p>Complies</p> <p>TCC Planning Scheme SC6.10 - Parking Rates indicate one (1) parking space per 80m² GFA (gross floor area) for research and technology industry. The calculated gross floor area for the proposed development is around 4,895m², encompassing various structures like the process building, main office building and reagent shed. Consequently, a minimum of 62 parking spaces, including at least 1 designated for disabled parking, is required for compliance with Council's planning scheme and the specifications outlined in Table D3.5 of the National Construction Code (NCC) – Building Code of Australia (BCA_2019).</p> <p>The end user has assumed an average of 25 people will be on site during campaigns (allowing for overlapping shifts). Based on this assumed staffing rate, it is considered that the proposed 27 spaces provide sufficient on-site capacity to mitigate the risk of car parking overflow onto Penelope Road.</p>

Criteria	Commentary
	<p>Given the unique nature of the use (research and technology industry) with high levels of automation and internalised storage of materials and equipment, staffing levels are likely to provide a reasonable indication of car parking demand.</p> <p>Noting the site will not be open to the public, provision of 62 spaces in accordance with Council parking rates would significantly exceed the parking demand generated by proposed staffing and is considered excessive and unnecessary, therefore the current proposal of 27 spaces is considered adequate service the development.</p> <p>Should a shortfall of parking result, there are areas of the site that can be utilised for temporary or overflow car parking, ensuring that car parking on Penelope Road does not result.</p>

5.5.7 Environment, cultural heritage and community

Table 18: SDA Wide Assessment Criteria – Environment, cultural heritage and community

Criteria	Commentary
<p>1. Environmental values, cultural heritage values, and community values of the premises on which the development is undertaken, and immediate surrounds, are identified and managed, consistent with current best practice.</p> <p>Note: Duty of Care under Section 23 of the Aboriginal Cultural Heritage Act 2003 should be considered a minimum requirement for all development.</p>	<p>Complies</p> <p>The northern-most part of the site is mapped as containing Natural Assets of Environmental Importance under the Townsville City Plan. It is noted however that the site is cleared of vegetation and thus this overlay is not reflective of the current site condition (fully cleared site).</p> <p>State Planning Policy Mapping and Townsville City Council mapping do not identify any state or local level cultural heritage values within the site.</p> <p>Air and noise impact assessments have been undertaken to identify potential community amenity impacts and provide mitigation methodology to maintain the community values of nearby sensitive receivers.</p> <p>A summary of environmental impacts and mitigation methods has been provided within Appendix K.</p>
<p>2. Development is designed and sited to:</p> <ul style="list-style-type: none"> a. avoid adverse impacts on environmental values including matters of local, State and national environmental significance, or where adverse impacts cannot be avoided, impacts are minimised, mitigated or offset b. maintain ecological connectivity and processes c. maintain the outstanding universal value of the Great Barrier Reef World Heritage Area d. avoid adverse impacts on cultural heritage and community values, or where adverse impacts cannot be avoided, impacts are minimised, mitigated or offset. 	<p>Complies</p> <p>The northern-most part of the site is mapped as containing Natural Assets of Environmental Importance under the Townsville City Plan. Notably, the site has been cleared of vegetation as part of a previous industrial subdivision and thus this overlay is not reflective of the current site condition. There are no ecological values within the site to consider and no ecological links which can be maintained.</p> <p>The environmental values of the Great Barrier Reef World Heritage Area will not be affected by the development noting appropriate stormwater treatment will be undertaken prior to discharge to lawful point of discharge and all waste streams, including regulated waste, will be stored and collected for off-site disposal by licensed contractors.</p> <p>State Planning Policy Mapping and Townsville City Council mapping do not identify any state or local level cultural heritage values within the site.</p>
<p>3. Environmental offsets are provided in accordance with the relevant commonwealth or State environmental offset framework.</p>	<p>Not Applicable</p> <p>No environmental offsets are required.</p>
<p>4. Environmental offsets should be accommodated within the Environmental Management Precinct before seeking solutions external to the Townsville SDA.</p>	<p>Not Applicable</p> <p>No environmental offsets are required.</p>

Criteria	Commentary
5. Where the development requires a buffer to mitigate the impacts of the development, that buffer must be accommodated within the development site.	Complies Noise mitigation recommendations can be implemented within the development site.

5.5.8 Engineering and design standards

Table 19: SDA Wide Assessment Criteria – Engineering and design standards

Criteria	Commentary
1. Development is designed and constructed in accordance with the relevant engineering and design standards (and any subsequent revisions to the relevant standards) stated in Section 2.5.8 of the TSDA Development Scheme. Alternative innovative solutions that demonstrate compliance with the relevant standards are encouraged.	Complies Where applicable to the proposed QRCUF, the development will be designed in accordance with the standards identified within Section 2.5.8 of the TSDA Development Scheme. Where alternative solutions are sought, they will be responsive to site conditions or will utilise adopted local or national standards.

5.5.9 Other government matters

Table 20: SDA Wide Assessment Criteria – Other government matters

Criteria	Commentary
1. Development is to demonstrate consistency with any other relevant legislative requirements for the development to proceed and operate. Development, to the extent practicable, is to be consistent with regional plans, the State Planning Policy, and the State Development Assessment Provisions where the State interests articulated by these instruments are likely to be affected by the development.	Complies In undertaking this assessment, consideration has been given, where applicable, to the Townsville City Plan (2022/02) and State and regional assessment and policy frameworks (refer to Section 6.0 of this report). A response to the relevant Townsville City Plan (2022/02) codes has been provided within Appendix B.

5.5.10 Energy and water efficiency

Table 21: SDA Wide Assessment Criteria – Energy and water efficiency

Criteria	Commentary
1. Building, site design and layout maximises energy efficiency having regard to: <ol style="list-style-type: none"> building orientation and passive solar design maximising opportunities for cross ventilation appropriate shade treatments landscaping treatments to the western side of the building. 	Complies The proposal is designed, where possible, to maximise energy efficiency through building layout. Notably: <ul style="list-style-type: none"> The proposed buildings are on a north-south or east-west orientation, maximising solar energy. The main processing facility is provided with large roller doors which can be opened for ventilation. Shading is provided to storage areas and some work areas. The site adjoins open space and an open water body to the west, providing a natural setting that can mitigate thermal impacts from the west. Therefore, landscaping on the western boundary would provide no benefit to the site.
2. Water efficiency is optimised through the use of alternative water supply sources, including: <ol style="list-style-type: none"> rainwater harvesting systems recycled water source. 	Complies Provision has been made for future installation of rainwater harvesting systems to increase water efficiency. No access to recycled water is provided within Penelope Road.

5.5.11 Visual impacts

Table 22: SDA Wide Assessment Criteria – Visual impacts

Criteria	Commentary
1. Visual impacts of buildings, retaining structures or other development are minimised through building design, landscaping or other mitigation measures when viewed from a publicly accessible view point such as major roads, public parks or Cleveland Bay.	<p>Complies</p> <p>The only publicly accessible view point is from Penelope Road. A 2m wide landscaping strip is proposed along the site frontage (refer to Appendix I) to soften the built form within the site. The site is not immediately visible from major roads, public parks or Cleveland Bay.</p> <p>The proposal is visually separated from the nearest sensitive receiver by a distance of 570m, and contains only open space within this separation distance. As such, visual impact mitigation is not required for this sensitive receiver.</p>
2. Development incorporates high quality urban design and landscape treatments particularly for those areas highly visible from public roads.	<p>Complies</p> <p>The proposal provides an industrial premises of a height, bulk and scale consistent with the intent of the zone and precinct. The built form will be screened from Penelope Road through 2m wide landscaping. Large separation (570m) to existing sensitive receivers will contribute to a high standard of amenity.</p>

5.5.12 Built form

Table 23: SDA Wide Assessment Criteria – Built form

Criteria	Commentary
1. The scale, character and built form of development contributes to a high standard of amenity.	<p>Complies</p> <p>The proposal provides an industrial premises of a height, bulk and scale consistent with the intent of the zone and precinct. The built form will be screened from Penelope Road through 2m wide landscaping. Large separation (570m) to existing sensitive receivers will contribute to a high standard of amenity.</p>
2. Development must incorporate crime prevention through environmental design (CPTED) principles.	<p>Complies</p> <p>CPTED principles are adopted as follows:</p> <ol style="list-style-type: none"> a. Building and activity layout areas provide opportunity for casual surveillance of public spaces. b. The exterior of buildings allows for easy removal or cleaning of graffiti or repair of the consequences of vandalism c. Private (access restricted for secure areas) and public spaces are defined through fences and gates. d. Lighting will be provided in accordance with the relevant Australian Standards. e. Signage and wayfinding will be provided. f. The site remains generally open, minimising entrapment areas. Areas where entrapment could occur are usually activity spaces, minimising the likelihood of unsocial activity. g. Buildings will be lockable to prevent unauthorised access outside of operating hours.

5.5.13 Reconfiguring a lot

Table 24: SDA Wide Assessment Criteria – Reconfiguring a lot

Criteria	Commentary
1. Development provides lawful, safe and practical access.	Not Applicable The development does not involve a reconfiguring a lot.
2. Infrastructure is provided generally in accordance with established infrastructure planning.	Not Applicable The development does not involve a reconfiguring a lot.
3. Lot sizes are adequate to accommodate a development footprint consistent with the preferred development intent of each precinct. A range of lot sizes is preferred to accommodate development in each precinct. Minimum lot sizes for development precincts are generally consistent with the following: <ul style="list-style-type: none"> a. Low Impact Industry Precinct – 1 hectare (ha) b. Medium Impact Industry Precinct – 2 ha c. High Impact Industry Precinct – 25 ha d. Port Industry Precinct – 2 ha. 	Not Applicable The development does not involve a reconfiguring a lot.
4. Further subdivision of the Environmental Management, Infrastructure Corridors, and Resources Precincts is not supported, unless being undertaken for operational, management or regulatory purposes, or if there is an overriding need.	Not Applicable The development does not involve a reconfiguring a lot.

5.5.14 Landscaping

Table 25: SDA Wide Assessment Criteria – Landscaping

Criteria	Commentary
1. Development provides landscaping that: <ul style="list-style-type: none"> a. minimises the visual impacts of the development b. incorporates at least 50% local species c. maintains and enhances significant vegetation d. is low maintenance. 	Complies A Landscape Concept Plan has been prepared (refer to Appendix I) which: <ul style="list-style-type: none"> a. Minimises visual impacts of the QRUCF through planting along the frontage and southern side boundary; b. Utilises exclusively native species; Vegetation utilisation is low maintenance. The site is currently cleared and thus there is no significant vegetation to be retained.

5.5.15 Natural hazards – flooding, including storm tide inundation

Table 26: SDA Wide Assessment Criteria – Natural hazards – flooding, including storm tide inundation

Criteria	Commentary
<p>1. Development, in accordance with current best practice:</p> <ul style="list-style-type: none"> a. achieves an appropriate level of flood immunity b. does not adversely affect existing flow rates, flood heights or cause or contribute to other flooding impacts on upstream, downstream or adjacent properties or the State transport network. This includes potential impacts from changes to stormwater flows and local flooding c. avoids, minimises or mitigates adverse impacts from flooding to protect people and property, and enhances the community’s resilience to flooding d. supports, and does not hinder disaster management capacity and capabilities e. avoids risks to public safety and the environment from the location of the storage of hazardous materials and the release of these materials as a result of a natural hazard. 	<p>Complies</p> <p>The creation of the CBIP resulted in the majority of the subject site being immune in a 1% AEP flood event. The Engineering Report (Appendix H) recommends a minimum finished floor level (FFL) of 5.76m AHD to achieve a suitable balance for flood compliance.</p> <p>The resulting QRCUF will be elevated above inundation levels for the site, meaning that its presence will not compromise flows through the site. For this reason, there are no anticipated impacts upstream, downstream, or adjoining the property.</p> <p>The filled and levelled nature of the site means that valuable equipment and machinery will not be subject to inundation, minimising the expense of recovery. The QRCUF is a largely open industrial building, and will be sufficiently designed to remain resilient in the flood event. Hazardous materials within the site will be sufficiently stored and banded such that they are not released during a flood event.</p>
<p>2. Where development includes flood mitigation works:</p> <ul style="list-style-type: none"> a. development may consider flood mitigation works within the Environmental Management Precinct where it cannot otherwise be accommodated within the development precinct. Development will demonstrate that the extent of such works must be proportional to the total flood balance and must not restrict the development of other land b. any flood mitigation works are to integrate environmental, cultural heritage and stormwater management outcomes. 	<p>Not Applicable</p> <p>No flood mitigation works are required.</p>

5.5.16 Natural hazards – other

Table 27: SDA Wide Assessment Criteria – Natural hazards

Criteria	Commentary
<p>1. Development, in accordance with current best practice:</p> <ul style="list-style-type: none"> a. identifies relevant natural hazards that may impact upon the development b. appropriately manages risk associated with identified hazards c. avoids increasing the severity of the natural hazard d. for coastal hazards, avoid erosion prone areas wherever possible. 	<p>Complies</p> <p>The site is identified within Townsville’s Flood Hazard Overlay mapping, however mitigation works were undertaken during the subdivision which established the CBIP. Filling and levelling of the site was undertaken to predominately achieve immunity during a 0.2% AEP event. The proposed QRCUF will provide floor levels which further increase immunity from flooding during higher order inundation event, managing risk and reducing the severity of a flood event. The site is not identified as being within an erosion prone area under state or local mapping.</p> <p>It is anticipated that the facility will be constructed to a standard resilient to North Queensland weather patterns (i.e. cyclones and tropical storms).</p>

5.5.17 Water quality

Table 28: SDA Wide Assessment Criteria – Water quality

Criteria	Commentary
<p>1. Development is located, designed, constructed and operated to avoid or minimise adverse impacts on environmental values of receiving waters arising from:</p> <ul style="list-style-type: none"> a. altered stormwater quality and hydrology b. wastewater (other than contaminated stormwater and sewage) c. the creation or expansion of non-tidal artificial waterways d. the release and mobilisation of nutrients and sediments. 	<p>Complies</p> <p>An Engineering Report has been prepared (refer to Appendix H) which provides a Site Based Stormwater Quality Management Plan to maintain the quality of stormwater leaving the site.</p> <p>Wastewater will discharge to the Townsville City Council reticulated network. The development does not create or expand non-tidal artificial waterways.</p>
<p>2. Development encourages a precinct-wide stormwater management approach that achieves an improved water quality outcome.</p>	<p>Complies</p> <p>An Engineering Report has been prepared (refer to Appendix H) which provides a Site Based Stormwater Quality Management Plan to maintain the quality of stormwater leaving the site. The site-based stormwater treatment approach is consistent with the intent for each lot within the industrial estate.</p>

6 OTHER GOVERNMENT MATTERS

Part of the SDA Wide assessment criteria (Section 2.5.9) require that development is, to the extent practicable, consistent with regional plans, the State Planning Policy, and the State Development Assessment Provisions where State interests articulated by these instruments are likely to be affected by the development.

The following sections provide a commentary and assessment regarding the consistency of the development with respect to other plans, policies and requirements.

6.1 State Development Assessment Provisions

The State Development Assessment Provisions (SDAP) comprises State Codes which are the assessment benchmarks for assessable development and referral triggers under Schedules 10 and 20 of the *Planning Regulation 2017*. Based on review of the State Assessment and Referral Agency (SARA) DA Mapping System (DAMS), there are no referral triggers identified for the proposed use.

6.2 State Planning Policy

The State Planning Policy (SPP) expresses the State’s interests in land use planning and development across the following themes which are applicable to plan making and development assessment:

- Planning for liveable communities and housing
- Planning for economic growth
- Planning for the environment and heritage
- Planning for safety and resilience to hazards
- Planning for infrastructure

Table 29 provides commentary regarding applicability of State interests articulated under each overarching theme.

Table 29: State Planning Policy - State interest applicability

State interest	Intent	Commentary
Economic growth		
Development and construction	Employment needs, economic growth, and a strong development and construction sector are supported by facilitating a range of residential, commercial, retail, industrial and mixed use development opportunities.	<p>Complies</p> <p>The site is located within the Townsville State Development Area. The proposed development supports the intent of the State interest and relevant policies as it will support the established and emergent mining industry within North Queensland, delivering employment and economic growth.</p> <p>There are no assessment benchmarks for development assessment associated with this State interest.</p>
Safety and resilience to hazards		
Natural hazards, risk and resilience	The risks associated with natural hazards, including the projected impacts of climate change, are avoided or mitigated to protect people and property and enhance the community’s resilience to natural hazards.	<p>Complies</p> <p>Refer to Table 30 for commentary regarding applicable assessment benchmarks associated with this State interest.</p>
Infrastructure		
Strategic airports and aviation facilities	The operation of strategic airports and aviation facilities is protected, and the growth and development of	<p>Complies</p> <p>The proposed development will not intrude into the operational airspace of Townsville Airport.</p>

State interest	Intent	Commentary
	Queensland's aviation industry is supported.	
Priority Ports & Strategic Ports	The operation of strategic ports and priority ports is protected and their growth and development is supported.	Applicable Refer to Section 6.3 for commentary regarding development within the priority port area for the Port of Townsville under the <i>Sustainable Ports Development Act 2015</i> .

Table 30: Assessment benchmarks – natural hazards, risk and resilience

Assessment benchmarks	Commentary
The following requirements are assessment benchmarks for the development:	
Bushfire, flood, landslide, storm tide inundation, and erosion prone areas outside the coastal management district:	
3. Development other than that assessed against (1) above, avoids natural hazard areas, or where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level.	Complies The site has been filled and levelled as part of an earlier subdivision to avoid flood hazard risk. Subsequent earthworks have been undertaken to improve flood immunity, prior to the wet season occurring.
All natural hazard areas:	
4. Development supports and does not hinder disaster management response or recovery capacity and capabilities.	Complies The site has been filled and levelled to avoid flood hazard risk. As such, it is not anticipated that development will hinder disaster management response or recovery capacity and capabilities, as the development will not result in any additional damage.
5. Development directly, indirectly and cumulatively avoids an increase in the severity of the natural hazard and the potential for damage on the site or to other properties.	Complies The site has been filled and levelled to avoid flood hazard risk. As the development is not taking place within a flood affected area, there are no anticipated impacts, directly, indirectly or cumulatively, upon other land.
6. Risks to public safety and the environment from the location of hazardous materials and the release of these materials as a result of a natural hazard are avoided.	Complies The site has been filled and levelled to avoid flood hazard risk. As such, storage of hazardous materials will not be taking place within a flood affected area.
7. The natural processes and the protective function of landforms and the vegetation that can mitigate risks associated with the natural hazard are maintained or enhanced.	Not Applicable The development is taking place on a filled and levelled industrial site. No opportunity exists to utilise natural processes and functions to mitigate flood risk.

Table 31: Assessment benchmarks – Infrastructure

Assessment benchmarks	Commentary
The following requirements are assessment benchmarks for the development:	
Strategic Airport and Aviation Facilities	
1. Development and associated activities do not create a permanent or temporary physical or transient intrusion into a strategic airport’s operational airspace, unless the intrusion is approved in accordance with the relevant federal legislation.	Complies The proposed height of the QRCUF will not create a permanent or temporary physical or transient intrusion into the operational airspace of a strategic airport.
2. Development and associated activities do not include light sources or reflective surfaces that could distract or confuse pilots within a light restriction zone or lighting area buffer.	Complies The QRCUF is not taking place within a light restriction zone.
3. Emissions do not significantly increase air turbulence, reduce visibility or compromise the operation of aircraft engines in a strategic airport’s operational airspace.	Complies Emissions from the QRCUF will not significantly increase air turbulence, reduce air visibility or compromise the operation of aircraft engines.
4. Development and associated activities do not attract wildlife or increase wildlife hazards within a wildlife hazard buffer zone.	Not applicable The QRCUF will not undertake activities or produce waste which would attract wildlife.
5. Development and associated activities within a building restricted area do not interfere with the function of aviation facilities.	Not Applicable The QRCUF is not taking place within a building restricted area.
6. Development does not increase the risk to public safety within a public safety area.	Not Applicable The QRCUF is not taking place within a public safety area.
7. Development within the 20 ANEF contour or greater is appropriately located and designed to prevent adverse impacts from aircraft noise.	Not Applicable The QRCUF is not taking place within the 20 ANEF contour or greater.

6.3 Sustainable Ports Development Act 2015

The Port of Townsville is identified as a Priority Port under Part 2 of the *Sustainable Ports Development Act 2015* (Ports Act). The *Master Plan for the Priority Port of Townsville* (master plan) was prepared and approved in accordance with the requirements of the Ports Act.

The *Port overlay for the priority Port of Townsville* (port overlay) has been prepared in accordance with the Ports Act and implements the master plan. The port overlay regulates development by exception and operates in addition to existing planning and environmental legislative requirements, where further requirements are necessary to implement the master plan.

The Office of the Coordinator-General must consider whether the development scheme is inconsistent with the port overlay however is not bound by a requirement under a port overlay. The port overlay does not regulate development that is regulated by the TSDA Development Scheme. The proposed development therefore does not constitute assessable development under the *Planning Regulation 2017*, Schedule 10, Part 13, Division 4, Subdivision 1, Section 19 (development in a priority port’s master planned area).

6.4 Townsville City Plan

The following Townsville City Plan assessment benchmarks are applicable to the proposed development:

- Medium impact industry zone code
- Healthy waters code
- Landscaping code
- Transport impact, access and parking code
- Works code

Responses to the above codes are contained in Appendix B and key issues are summarised in the following sections.

Medium impact industry zone code

The proposed QRCUF is consistent with the Medium Impact Industry Zone Code, providing a use, scale, height, and built form consistent with the intent of the Medium impact industry zone. Emissions from the site, namely air and noise, are commensurate with the expectation of the surrounding area and impacts upon nearby sensitive receivers can be mitigated.

Healthy waters code

Stormwater within the site will be effectively managed for both quantity and quality, ensuring no actionable nuisance results upon the stream network. Stormwater treatment will maintain the quality of surrounding watercourses.

Landscaping code

A landscape concept plan has been developed for the site incorporating landscaping treatments in accordance with the Townsville City Plan and pre-lodgement advice obtained from Townsville City Council. Planting species for both on-site and street trees have been selected in accordance with the Development manual planning scheme policy no. SC6.4.12.

Landscaping within the site will remain the responsibility of the QRCUF. Street trees planted within Penelope Road will be maintained by QRCUF for a 12-month period, before becoming a public asset and the responsibility of Townsville City Council.

Transport impact, access and parking code

The design and layout of vehicle access, parking and manoeuvring will be generally in accordance with the relevant Australian Standards (AS2890) referenced within the Townsville City Council planning scheme policies.

TCC Planning Scheme SC6.10 - Parking Rates indicate one (1) parking space per 80m² GFA (gross floor area) for research and technology industry. The calculated gross floor area for the proposed development is around 4,895m², encompassing various structures like the process building, main office and operations building and the reagent shed. Consequently, a minimum of 62 parking spaces, including at least 1 designated for disabled parking, is required for compliance with Councils planning scheme and the specifications outlined in Table D3.5 of the National Construction Code (NCC) – Building Code of Australia (BCA_2019).

Given the unique nature of the use (research and technology industry) with high levels of automation and internalised storage of materials and equipment, staffing levels are likely to provide a reasonable indication of car parking demand, noting the site will not be open to the public and that non-staff access to the site will be limited to proponents or providers having business on the site and thus demand for parking will be known and can be regulated during site operation.

The end user has assumed an average of 25 people will be on site during campaigns (allowing for overlapping shifts). Based on this assumed staffing rate, it is considered that the proposed 27 (including 1

space for PWD) spaces are sufficient, noting that there is sufficient capacity on site for temporary, short term overflow parking, to thereby mitigate the risk of car parking overflow onto Penelope Road.

The provision of 62 spaces in accordance with Council parking rates would significantly exceed the parking demand generated by proposed staffing and likely visitor demand is considered excessive and unnecessary, therefore the current proposal of 27 spaces is considered to adequately service the development.

Works code

The subject site is afforded access to urban infrastructure, including reticulated water and sewer and existing underground stormwater networks. The proposed use is consistent with infrastructure assumptions for the area, being an industrial use within a purpose made industrial park. The filled and levelled nature of the site means that minimal earthworks will be required to accommodate the proposed QRCUF, with earthworks recently occurring to fill the site to the Q500 level.

The design and layout of the QRCUF does not result in entrapment points and maintains casual surveillance throughout the site. Wayfinding and designated paths will assist in maintaining pedestrian safety.

The QRCUF gives regard to the standards of the Townsville City Plan and accords with the planning scheme at every opportunity.

7 ENVIRONMENTAL IMPACT AND MANAGEMENT

To better understand the overall environmental risk associated with the proposed QRCUF, an Environmental Assessment Report (EAR, Appendix K) has been prepared to identify the Key Environmental Values (KEV's) which could have a potential or realised effect from the operation of the QRCUF.

Project area KEV's and identifiable environmental factors are outlined in Table 32 below.

Table 32: Project area KEV's and identifiable environmental factors (Source: Sedgman, 2024)

KEV	Environmental Factors
Land	Soils, flora and vegetation, weeds and pests, fauna, flooding, sedimentation and erosion, waste generation
Air	Noise, dust, emissions, odour, lighting
Water	Surface water, groundwater, aquatic ecology / wetlands, sedimentation, erosion
Social	Traffic, Indigenous heritage, European heritage

The EAR identifies environmental values within and around the site, desired outcomes associated with these values, and an assessment of the risk presented by the QRCUF upon these values. Mitigation methods are then put forward (sourced from the relevant specialist input for this application) to identify if risks can be minimised through the operation of the QRCUF.

The summary of findings for the risk assessment are as follows:

Land:

- **Soil** contamination through spills of hazard materials onsite presents a moderate risk and can be managed through appropriate storage and bunding of materials and stormwater/surface water flows.
- **Flora and vegetation** and **weeds and pests** presents a low risk due to the cleared and sealed nature of the site. Vegetation controls can be implemented through an Environmental Management Plan to ensure to further minimise vegetation related risks.
- **Fauna** getting entrapped or injured presents a low risk due to the lack of vegetation within and surrounding the site. Fauna control (i.e. fences) will restrict access to the site to minimise risk of entrapment or injury.
- **Sedimentation and erosion** present a low risk due to the cleared and sealed nature of the site. Sediment control and stormwater quality measures can be utilised to minimise risks of sedimentation and contamination of water.
- **Waste generation** presents a moderate risk and will be managed through a site specific waste management strategy. This strategy will need to adapt to varying proponent waste streams.

Air:

- **Noise** presents a low risk as noise impacts to nearby sensitive uses will be mitigated through a combination of screening, construction materials and operational restrictions.
- **Dust** presents a moderate risk, but can be managed through process filtering and landscaping.
- **Emissions** from mineral processing presents a low risk as it can be managed through scrubbing and dust bags. Notably, site emissions are regulated through the Environmental Protection (Air) Policy Act (EPP Air).

Water:

- **Surface Water** presents a low risk as stormwater which falls within the site can be controlled and treated before discharge, avoiding negative impacts to water quality and flow velocities.
- **Groundwater** presents a low risk as hazardous materials can be appropriately stored and banded to avoid contamination from spills. Stormwater which falls within the site can also be controlled and treated before discharge.

Social:

- **Visual amenity** presents a low risk as the site is separated from nearby sensitive uses, minimising clear view of the facility. Landscaping is also provided which can further soften the visual impacts of the facility, which we note is occurring within an established industrial park.
- **Odour** presents a low risk as emissions will be managed through scrubbing and dust bags. Notably, site emissions are regulated through the Environmental Protection (Air) Policy Act (EPP Air). It is not anticipated that nearby sensitive receivers will be subject to adverse odorous emissions.
- **European and Indigenous heritage** presents a low risk as the site is already developed. The development maintains a duty of care obligation for future stages of development.

To address and manage Key Environmental Values for the QRCUF, the EAR recommends the creation of an Environmental Management Plan (EMP) to identify and describe management and mitigation strategies targeting behavioural and activity aspects of the QRCUF operations. This EAR will be an evolving document that is responsive to individual proponent needs and will be informed by specialist input for various KEV's. In line with the recommendations of the EAR, the applicant will prepare an EMP prior to site works occurring.

8 SUMMARY

This planning report demonstrates that the proposed research and technology industry within the Townsville State Development Area (TSDA) warrants support on the following basis:

- The proposed development is consistent with the preferred development intent of Medium Impact Industry Precinct, being a defined use within the Development Scheme.
- The development is consistent with the TSDA Development Scheme strategic vision, overall objects, medium impact industry precinct intent and SDA wide assessment criteria.
- The development is generally consistent with the provisions of the Townsville City Plan (2022/02) in terms of design, operation, infrastructure and servicing and landscaping.
- Townsville City Council have provided an early referral response supporting the proposal in principle.
- The proposal provides a car parking rate which is responsive to the operational intent of the site and thus will be able to accommodate the anticipated workforce without overflowing onto Penelope Road. Furthermore, access, egress, and manoeuvring areas within the site can accommodate the intended design vehicles in accordance with local and national standards.
- Environmental emissions, namely noise and air quality, have been identified and mitigation recommendations made to ensure that the operation of the QRCUF will not adversely impact the nearest sensitive receivers.
- Waste streams produced by the QRCUF can be safely stored within the site and removed in a safe and orderly manner.
- Hazardous reagents used within the QRCUF can be safely stored and handled to avoid environmental damage. This will be further investigated during a subsequent Environmentally Relevant Activity assessment.
- The facility is located to avoid flood inundation, further reducing environmental risk.
- The site is clear of vegetation and thus has no environmental significance to consider. Site amenity will be improved through landscaping.

The site has access to reticulated utilities, namely water and sewer infrastructure. Stormwater will be effectively treated and discharged from the site. On the basis of the assessment contained within this report, it is requested that the Office of the Coordinator-General approve the development, subject to reasonable and relevant conditions.