

# SIGNIFICANT DEVELOPMENT APPLICATION

## LIQUEFIED NATURAL GAS PLANT

AUGUST 2020



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Property Pty Ltd

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## Executive Summary

This development application proposes a Liquefied Natural Gas (**LNG**) Plant on lot 100 of Deposited Plan 220127 within the Shire of Mount Magnet. The proposed development site (**the site**) is located approximately 13 km south of the Mount Magnet Townsite at the intersection of Great Northern Highway and the Mid-West Gas Pipeline. The proposed LNG Plant will take natural gas from the Mid-West Gas Pipeline, remove impurities and then cool the gas to a liquid form prior to being transported via road network to the Mid-West and other regional areas of Western Australia.

The proposed LNG Plant is a significant development for the following reasons:

- It is in a regional location with an estimated cost of development of \$50m;
- The project has equity funding in place and is development-ready. Plant engineering and procurement of long lead items and supply of the balance of plant LNG equipment has begun, targeting commencement of site works in late 2020 with the first LNG available for supply to the Mid-West region in May/June 2021;
- The development will inject approximately \$100 million of investment into regional WA that would otherwise not occur;
- The project will create upwards of 70 jobs in the region and create new skills for the local workforce. This is significant in the context of Mount Magnet, which as at the 2016 Census had a total population of 470 people;
- Use of LNG from the Plant as a fuel source replacement for diesel will reduce CO<sub>2</sub>-e emissions from regional mine sites by approximately 90,000 tonnes per annum at full operation; and
- It will create a growth platform for future hydrogen technology leading to further regional investment and the opportunity to develop a fuel source that further reduces CO<sub>2</sub>-e emissions in association with the resources sector.

The proposed LNG Plant will have significant economic, environmental and social benefits for Mount Magnet and the broader Mid-West region without the potential to impact on local amenity or conflict with established land uses. The isolated location of the proposed development site ensures that any potential adverse impacts are mitigated by the sheer distance between the site and the nearest land use. Further, the LNG Plant will not prejudice the use of the site for rural or mining purposes with both the pastoral lease operator and the holder of the exploration license supportive of the proposal.

Development approval from the Western Australian Planning Commission (**WAPC**) is sought under the 'significant development' pathway due to the complex nature of the proposed land use and the timing imperative to commence construction. The timing to commence construction and targeted operating date of May/June 2021 combined with substantial investment and job creation will assist with Western Australia's economic recovery in the wake of COVID-19 and provide a platform for further technological advancements and investment in the future.

## Background

The proponent for the Mount Magnet LNG Plant, Clean Energy Fuels Australia Pty Ltd (ACN 140 345 482) (**CEFA**) in the name of Mid-West LNG Property Pty Ltd (ACN 639 456 812), are an established Perth-based company specialising in the design, delivery and operation of clean energy solutions for industrial and mining applications in Australia. Supported by I Squared Capital, CEFA's focus is on creating value for regional mining, industrial and community customers through long-term fuel cost savings, reduced pricing volatility and emissions reductions. I Squared Capital are an international infrastructure investor with US \$15bn of assets under management with approximately 50% invested in energy infrastructure assets including LNG operations.

CEFA and I Squared Capital selected the site as a suitable location to develop its first LNG Plant in Australia based on the following attributes:

- The sites location adjoining the Mid-West Gas Pipeline;
- It's significant separation from existing land uses but within relative proximity (13km) of an established town site (Mount Magnet);
- It's location directly abutting Great Northern Highway which provides direct access to the primary regional road network;
- The unconstrained nature of the site in terms of environmental considerations, land capability and topography;
- The full support of the Local Government and other potentially affected stakeholders; and
- Its proximity to the burgeoning Mid-West region for base metals including rare earths.

The site is owned by the State of Western Australia (Crown Land) who has signed the application Form 17B for the proposal. Whilst the land will remain in the ownership of the State, the proponent has signed a 25 year lease agreement for the use of the site as an LNG Plant, providing certainty regarding the tenure arrangement.

The lease agreement relates to a 5 hectare lot referred to as proposed lot 500 on Deposited Plan 411758. Whilst the certificate of title is yet to be issued for proposed lot 500, the 5 hectare site forms the basis of the proposed application and is depicted on all development plans.

## Prior Consultation

A pre-lodgement meeting was held with officers of the State Development Assessment Unit (**SDAU**) on 23 July 2020. CLE subsequently lodged a Form 17A 'pre-lodgement advice request' with the Department of Planning, Lands and Heritage (**DPLH**) on 31 July 2020. In response to our request, the DPLH has confirmed that the proposal does not require assessment by the State Design Review Panel and that the application may proceed to formal lodgement.

Our Client, CEFA, has also undertaken extensive stakeholder consultation which is summarised as follows:

- Liaison with the DPLH (Land Use Management) to secure a lease over five hectares of Crown Land to accommodate the proposed development;
- Liaison with the operators of the pastoral lease with a letter of support received;
- Liaison with the holders of an exploration license over the development site (Adaman Resources) with a letter of support received;
- Liaison with the Shire of Mount Magnet with a letter of support received in accordance with the Council Resolution passed on 25 September 2019 to support the proposed LNG Plant; and
- Liaison with APA Group as the owner of Mid-West Gas Pipeline with a letter of support received.

Copies of the letters of support from the key stakeholders listed above are provided at **Appendix 1** of this report.

## Proposal

### Land Use

The proposed development application is for a small-scale, state-of-the-art LNG Plant at the intersection of Great Northern Highway and the Mid-West Gas Pipeline within the Shire of Mount Magnet. The land use will involve taking natural gas from the Mid-West Gas Pipeline, removing impurities and then cooling the gas to a liquid form (LNG) to allow for easy and safe storage and transportation. The LNG will be transported via road network predominantly to the Mid-West region of Western Australia as well as other regional locations, providing a lower emission fuel for power generation and mobile equipment. Operation of the LNG Plant is expected to generate approximately eight road train movements per day (four in and four out) with the design vehicle being a 53.5 metre long triple tanker road train.

## Development

In association with the use of the site as an LNG Plant, the following structures and improvements are proposed:

- An access point onto Great Northern Highway (**GNH**) designed for RAV 10 access;
- A car park located adjacent the front boundary so as to be easily accessible to staff and visitors. The car park will be sized to accommodate approximately 15 standard passenger vehicle bays (2.5m wide x 5.5m long) with a standard 6 metre aisle width. The car park will be made trafficable for passenger vehicles but will not be sealed;
- An internal circulation area designed to allow for RAV 10 vehicles to safely enter the site, be loaded with LNG and then safely exit the site in forward-gear onto GNH;
- A designated tanker parking area set back from GNH to accommodate tanker parking as and when required;
- Six LNG storage tanks measuring approximately 31 metres long x 4.9 metres high set back from GNH so as to minimise their visibility from the road. The tanks will be used to store LNG prior to it being loaded onto trucks for distribution;
- A cluster of buildings located towards the front boundary with a minimum setback of 9.3 metres from the western boundary and 80 metres from the edge of the GNH carriageway, alleviating any potential safety implications with GNH traffic. This grouping of structures includes a workshop for maintaining machinery used in the operation of the LNG Plant, a storeroom, staff office and ablution facilities. The structures are typically three metres in height with the storeroom approximately five metres;
- Four gas power generators and associated infrastructure to generate the electricity needed to power the LNG Plant;
- Water storage tanks to provide water for the LNG Plant in the absence of a reticulated water supply; and
- An LNG refining facility that will convert natural gas from the Mid-West Gas Pipeline into LNG. This facility is located in closest proximity to the Mid-West Gas Pipeline at the southern boundary of the site where natural gas will be taken from the pipeline before being converted into LNG.

All buildings and improvements can be easily accommodated within the 5 hectare lot area whilst maintaining suitable setbacks from the boundaries, particularly with regards to GNH whereby all efforts have been made to maximise the setbacks from the road.

## Project Benefits

The proposed LNG Plant will deliver numerous economic, social and environmental benefits for Mount Magnet and the broader Mid-West region of WA. These are summarised as follows and outlined in further detail below:

- Inject approximately \$100 million of investment into regional WA;
- Create upwards of 70 jobs in the region and create new skills for the local workforce;
- Reduce CO<sub>2</sub>-e emissions from regional mine sites by approximately 90,000 tonnes per annum at full operation;
- Reduce regional energy costs leading to further investment;
- Increase utilisation of the Mid-West Gas Pipeline;
- Create a growth platform for future hydrogen technology;
- Increase fuel security in WA; and
- Construction commencement is planned to occur within 3 months of development approval being obtained.

### Initial Investment of approximately \$100 million into regional WA

The proposed LNG Plant has a total capital budget of close to \$100 million and will contribute approximately \$50 million per annum to the Australian economy. The LNG plant will be a state-of-the-art facility and produce approximately 250 tonnes of LNG per day, enough to supply nearly 1,000 West Australian homes for a year.

### Creation of upwards of 70 jobs and new skills

Over 70 direct and indirect jobs will be created during project construction, with additional jobs generated during the 25 year operation of the project. Many of these jobs will be based locally and will bring new skills to the region.

A preliminary analysis estimates that the Mid-West LNG Plant will generate approximately 50 direct jobs and 20 indirect jobs during the construction phase. Once operational, the Mid-West LNG Plant will support around 30 full-time positions encompassing a wide range of skill sets. These diverse roles will include plant operators, managers, technicians, drivers and administrative positions. Only a small number of these positions will be based on-site with the drivers and logistics roles only on site periodically, typically at the beginning and end of deliveries. Where possible, CEFA intends for all roles to be filled locally and will provide training programs and apprenticeships for local residents.

In addition to the direct jobs outlined above, the project will rely on a number of local service providers for day to day operations including fleet maintenance, accommodation, security, water supply and waste disposal.



### Reduced emissions from mines and remote towns

Replacing diesel with LNG to fuel power generation can reduce a power station's greenhouse gas emissions by around 25% and deliver a significant improvement in local air quality. The Mid-West LNG Plant operating at full capacity could enable regional mine sites to reduce their CO<sub>2</sub>-e emissions by around 90,000 tonnes per annum.

### Reduced regional energy costs leading to further investment

LNG can offer a significant cost benefit over diesel as pricing is typically long-term and stable, providing certainty for investment decisions on new projects. End users will also be able to budget more effectively based on stable LNG energy costs as compared to the fluctuating and highly volatile price of diesel fuel.

In addition, the operational flexibility of the LNG supply chain when compared to a gas pipeline allows projects to plan for integration of renewables during the life of the project, removing barriers to advancing renewable penetration.

### Increased utilisation of the Mid-West Gas Pipeline

The Mid-West Gas Pipeline runs between the Dampier to Bunbury Natural Gas Pipeline (**DBNGP**) and the Windimurra Vanadium mine. The State of Western Australia originally contributed over \$30 million to the construction of the Pipeline however, it has been underutilised since the closure of the mine in 2003, generating little revenue for its owners APA and Horizon Power.

In its initial stages, the Mid-West LNG Project is expected to generate approximately \$5 - 7 million per annum in revenue for the Mid-West Gas Pipeline which could increase to \$12 – 14 million per annum in later years.

### Growth platform for hydrogen technology

The Mid-West LNG Plant intends to integrate green hydrogen into the regional supply chain as hydrogen technology advances. Experience gained in the processing, storage and transport of LNG as a pressurised, liquefied flammable gas can be directly transferred to the generation, storage and handling of hydrogen which has similar operational challenges to LNG.

CEFA is actively investigating the opportunity to generate renewable Hydrogen at the Mid-West LNG Plant and is hopeful that an LNG / renewable hydrogen fuel blend could be transported efficiently to remote mine sites and further reduce CO<sub>2</sub>-e emissions in the region. CEFA also believe that Mount Magnet is ideally located on GNH to become a strategic hydrogen refuelling point on a future 'Hydrogen Highway' between Perth and Newman.



## Site Context

### Ownership

The development site is owned by the State of Western Australia who has entered a lease agreement with CEFA for a 25 year period. The DPLH has signed the application form on behalf of the State, providing its consent for the development to proceed subject to the necessary statutory approvals being obtained.

### Location, Area and Land Use

The site is located approximately 13 km south of the Mount Magnet Townsite and approximately 560 km north of Perth. It is approximately 5 hectares in area and situated north-east of the GNH's intersection with the Mid-West Gas Pipeline. An existing above-ground APA gas compound on GNH demarcates the southern boundary of the site.

The development site is currently vacant with no improvements or structures. A pastoral lease exists over the land however, the operator (Yoweragabbie Station) supports the proposed LNG Plant and is satisfied that the operation will not affect their current or future pastoral activities. This is confirmed in their letter of support dated 26 September 2019 which is appended to this report (refer **Appendix 1**). The process for the surrender of the pastoral lease has commenced and will be completed prior to development commencing.

A mining tenement also exists over the land, granted to Adaman Resources who also support the LNG Plant. A letter of support from Adaman Resources is appended to this report (refer **Appendix 1**).

### Landform and Soils

The site is flat with minimal variation in topography. The site grades approximately 0.2 metres from east to west over a distance of 173 metres and approximately 0.4 metres from north to south over a distance of 240 metres. Levels are therefore not a constraint to development and site works required to accommodate development will be minimal and mostly confined to the buildings pads.

The soil profile of the site comprises a shallow layer of red sandy clay overlaying a hardpan clayey sand which is impermeable and acts as an aquiclude.

## Environmental Features

Environmental consultants, Botanica Consulting, undertook a flora / vegetation and fauna survey of the site in January 2020. The outcomes of the survey are discussed in detail within the 'Flora / Vegetation & Fauna Survey' (the Survey) enclosed in full with this application (refer **Appendix 2**). The key findings of the Survey are summarised as follows:

- No Threatened Flora, Threatened Fauna, Migratory Fauna or Threatened Ecological Communities as listed under the State *Biodiversity Conservation Act 2016* or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* were identified within the survey area;
- No Priority Ecological Communities as listed by the Department of Biodiversity, Conservation and Attractions (**DBCA**) were identified; and
- No Priority Flora or Fauna taxa as listed by the DBCA were identified within the survey area.

The Survey concludes that no fauna of conservation significance is likely to be impacted by the proposed development based on the lack of suitable habitat, the known local extinction of certain species, the relatively small size of the impact footprint and the extensive habitat connectivity with adjoining areas. The Survey considers that impacts on fauna and fauna habitat will be localised, minimal and consequently manageable.

Whilst the environmental values of the site are considered to be negligible, a clearing permit will need to be obtained by the proponent in relation to the clearing of native vegetation on site. This is a separate approval process unrelated to the development application but will be required prior to clearing works commencing and has been initiated by the proponent with Department of Water and Environmental Regulation (**DWER**).

## Groundwater and Surface Water

As outlined above, the underlying clayey soils act as an aquiclude which effectively prevents any interaction with groundwater. Rainfall that does not runoff the site is expected to pond and infiltrate partially into the shallow layer of top soil before evaporating rapidly due to the high rate of evaporation in the region.

There are no defined streamlines or surface water features within the site nor are there any wetlands within or adjacent. Runoff from the site and the local upstream catchment is expected to be slowly conveyed through the site as overland flow. A minor swale is located to the west of the site running parallel to GNH, flowing in a southerly direction. This swale is not expected to impact the overall hydrology of the site and is likely a result of drainage from GNH.

A floodplain approximately 250 m wide is located approximately 300 m east of the site. Hydrological consultants Emerge Associates conducted a floodplain assessment as part of the 'Stormwater Management Plan' that supports this application and is included in full at **Appendix 3**. In summary, the floodplain assessment confirmed that under the 1% Annual Exceedance Probability (**AEP**) event (the least likely and therefore most conservative 'worst case' scenario) that flooding could potentially exceed the capacity of the floodplain. Under this scenario, the extent of the floodplain would terminate approximately 170 m east of the site thereby not constraining development.

### Bushfire

The site is identified as 'bushfire prone' under the Department of Fire and Emergency Service's (**DFES**) *Map of Bushfire Prone Areas*. Further discussion regarding the management of bushfire risk is outlined in the proceeding sections.

### Native Title

A desktop investigation using the Department of Mines, Industry Regulation and Safety's 'Quick Appraisal' report facility confirmed that native title does not exist over the site. A further review of the National Native Title Tribunal database revealed that in the case of *CG (Deceased on behalf of the Badimia People v State of Western Australia (No2) [2015] FCA 507 (25 May 2015)*, the Supreme Court of Australia ordered that native title does not exist in relation to any part of the land or water within the boundary subject to the proceedings (which included the site). Native title therefore does not form a consideration in the determination of the subject development application.

## Planning Framework

### Strategic Planning Framework

#### *Shire of Mount Magnet Local Planning Strategy (2013)*

The Shire of Mount Magnet's Local Planning Strategy (the Strategy) establishes the long-term strategic direction for the Shire, providing the planning rationale for the zones and provisions of the local planning scheme. In general terms, the proposed LNG Plant is consistent with the Strategy which encourages mining and mining-related activities in appropriate locations.

A key element of the Shire's vision as expressed in the Strategy is to "*promote the creation of new industries, businesses and jobs based on economically sustainable principles.*" The proposed LNG Plant is consistent with this vision statement as will generate employment opportunities and investment within the Shire that would otherwise not occur.

The location of the LNG Plant will also assist to reinforce the primacy of the Mount Magnet town site due to its relative proximity (13km). It is expected that some employees of the LNG Plant will require accommodation within the Mount Magnet Townsite which, combined with the more general increase in demand for goods and services, will assist to generate additional custom and turnover for local businesses.

## Statutory Planning Framework

### *Shire of Mount Magnet Local Planning Scheme No.2*

The site is zoned 'Rural/Mining' under the Shire of Mount Magnet's Local Planning Scheme No.2 (**LPS 2**). The objectives of the Rural/Mining zone are:

- To provide for a range of rural pursuits which are compatible with the capability of the land and retain the rural character and amenity of the locality.
- To protect land from urban uses that may jeopardise the future use of that land for other planned purposes that are compatible with the zoning.
- To protect the land from closer development which would detract from the rural character and amenity of the area.
- To prevent any development which may affect the viability of a holding.

The Rural/Mining zone objectives can be summarised as primarily seeking to address two key matters:

1. The preservation of rural amenity; and
2. The protection of land zoned for rural and mining purposes from encroachment by urban uses and other uses that may impact the function of the land for rural and / or mining purposes.

Given the isolation of the site and its significant separation from any sensitive land uses, the proposed LNG Plant does not have the potential to impact on rural amenity. Noting that mining activities are acceptable within the zone, the physical form of the LNG Plant will involve structures that are of similar appearance to those associated with mining activities, albeit on a much smaller scale. The proposed LNG Plant is therefore considered to be consistent with the type of development envisaged within the 'Rural/Mining' zone. Further, the proposal is compatible with its location directly abutting the Mid-West Gas Pipeline and the gas pipeline meter station which currently exist and are visible from GNH.

The proposed LNG will not prejudice the pastoral or mining exploration activities over the site due to its small scale and contained development footprint. This is confirmed by letters of support received from the operator of the pastoral lease (Yoweragabbie Grazing Co) and the holders of the mining tenement (Adaman Resources), both confirming that the LNG Plant will not jeopardise their operations or interests.

### *State Planning Policy 2 – Environment and Natural Resources Policy (SPP 2)*

SPP 2 is primarily concerned with the sustainable management of natural resources and the protection and conservation of the natural environment.

The proposed LNG Plant is consistent with the above-stated objectives, seeking to reduce greenhouse gas emissions in the Mid-West region by providing a cleaner fuel alternative as compared to diesel which is typically used in mining and power generation applications. Whilst the supply of LNG to the Mid-West will achieve reduced greenhouse gas emissions in the short-term, CEFA are already in the process of investigating the opportunity to generate renewable hydrogen at the Plant to blend with LNG, providing an even cleaner fuel source to power the WA resource sector.

Whilst some clearing of native vegetation is required in order to facilitate development, the Flora and Fauna Survey confirms that the site is not constrained by any environmental factors that would preclude development. A separate application for a Clearing Permit will be lodged in relation to the clearing of native vegetation. As part of that process, an assessment of the potential environmental impacts on native vegetation will be undertaken however, we do not foresee any issues arising in this regard.

### *State Planning Policy 2.5 – Rural Planning (SPP 2.5)*

The primary role of SPP 2.5 is to protect rural land and encourage a diversity of compatible rural land uses. Protection of rural land is especially pertinent in instances where the land is considered to be high quality agricultural land. Other relevant objectives of SPP 2.5 are to avoid and minimise land use conflicts and provide investment security for future primary production activities. The intent and objectives of SPP 2.5 are generally consistent with the objectives for 'Rural/Mining' zone under LPS 2 albeit LPS 2 explicitly provides for mining and mining-related activities.

SPP 2.5 acknowledges the principle for WAPC decision-making to be guided by “*the need to provide economic opportunities for rural communities and to protect the State’s primary production and natural resource assets.*”

The proposed LNG Plant is consistent with the objectives and intent of SPP 2.5 as it:

- Will not create any opportunities for land use conflict due to its significant separation distance from other land uses;
- Will not jeopardise the operation of the existing pastoral lease due to its small scale and confined development footprint;
- Will contribute to the Mount Magnet economy and that of the broader Mid-West region by creating employment opportunities and generating investment;
- Will reduce greenhouse gas emissions by providing a cleaner fuel alternative to diesel for use in mining operations and power generation; and
- Will not have a detrimental impact on any environmental or natural resources.

### *State Planning Policy 3.7 – Planning in bushfire prone areas (SPP 3.7)*

As outlined above, the development site is mapped as 'bushfire prone' under the Department of Fire and Emergency Service's *Map of Bushfire Prone Areas*. As such a Bushfire Management Plan (**BMP**) has been prepared by Emerge Associates to address the potential risk of bushfire (refer **Appendix 4**).

Whilst the bushfire construction standards of AS 3959 '*Construction of buildings in bushfire-prone areas*' do not apply to the types of buildings associated with the proposed LNG Plant, development should not occur within areas that have a bushfire attack level (**BAL**) of BAL- 40 or greater. Further, the proposed LNG Plant use is considered to be 'high-risk' as defined by SPP 3.7. This triggers the need for a Bushfire Risk Management Plan in addition to a standard BMP, which has been prepared by Emerge Associates and is appended to the BMP (refer **Appendix 4**). Further discussion regarding the management response to bushfire risk is provided under the planning assessment section below.

## Planning Assessment

### Land Use Permissibility

The proposed land use does not reasonably fall within any of the use classes listed under Table 1 – 'Zoning Table' of LPS 2. The use should therefore be considered in accordance with clause 4.4 of LPS 2 as a 'use not listed' – LNG Plant.

We understand that the process for 'significant development' applications under Part 17 of the *Planning and Development Act 2005* (as amended) requires advertising for all applications and so the LNG Plant will require public consultation regardless of any provisions listed under LPS 2. Given the isolated nature of the proposed development site and its negligible potential to impact on surrounding landowners, we request that the application is advertised for the minimum timeframe so as to not unnecessarily delay the application.

### Development Controls

The Shire's LPS 2 does not contain any clear development standards that would apply to the proposed LNG Plant nor are there any adopted local planning policies that provide guidance in this regard. Table II of LPS 2 provides basic development standards for a range of uses however, given that the proposal is a 'use not listed' none are directly applicable.

In considering the development standards outlined at Table II, the greatest front setback requirement for any land use is 9.0 metres (motels and educational establishments). The closest structure to the front boundary as part of the proposed LNG Plant is the workshop which will be set back 9.3m, thereby complying with the most onerous front setback requirement under Table II.

The most relevant parking standard listed under Table II is considered to be a ratio of 1 bay per 2 employees which applies to a range of industrial uses, most of which would attract customers to the site thereby generating a higher demand for parking than the proposed LNG Plant. Notwithstanding, 15 car bays are proposed on site to accommodate the staff expected to be employed as part of the LNG Plant operations. It should be noted that not all staff will be on site at the same time and that some will only be on site infrequently, further reducing the demand for parking.

Clause 5.7.1 'Development Requirements' of LPS 2 states that where no development standards are applicable to a particular use (as is the case with the proposed LNG Plant) that the local government shall determine the applicable development standards. As outlined above, the Shire has been consulted and confirmed its support of the proposed LNG Plant and did not raise any specific design elements that would need to be addressed. We appreciate that the Shire may not have considered the detailed site layout and physical aspects of the development as part of its resolution to support the LNG Plant and that the application will be referred to them for comment. Should any fundamental issues be identified by the Shire as part of their assessment, aspects of the design may be able to be modified in order to accommodate the Shire's comments.

## Traffic and Parking

### *Traffic*

Other than the need to obtain access to and from GNH, the proposed LNG Plant does not have the potential to impact the existing road network due to the minimum number of truck movements. Operation of the LNG Plant is expected to generate approximately eight road train movements per day (four in and four out) with the design vehicle being a 53.5 metre long triple tanker road train. This number of movements will not impact the capacity of GNH and does not necessitate any upgrades to the pavement or cross section.

Traffic consultants Greenfield Technical Services were commissioned by CEFA to undertake an analysis of the proposed access onto GNH which is enclosed with this application (refer **Appendix 5**). The purpose of the analysis was to confirm that appropriate sightlines can be achieved for vehicles entering GNH as well as recommend an appropriate access design to ensure that trucks entering and exiting the LNG Plant will not cause safety issues on GNH. Greenfields analysis confirms the following key findings:

- The vertical and horizontal curvature of GNH in the location of the proposed intersection is likely to meet the relevant technical design criteria. The proposed access point is 420m north of the tangent point of the left-hand horizontal curve on GNH. This distance easily satisfies the minimum sight distances required for stopping, approaching and for safe intersections;
- There are no issues with RAV 10 vehicles obtaining access to the LNG Plant in this location;



- In accordance with Main Roads WA's (**MRWA**) *Supplement to Austroads Guide to Road Design Part 4* and *Austroads* more generally, a Basic Right-Turn (**BAR**) and Basic Left-Turn intersection treatment will be required. The BAR treatment will involve widening the shoulder of the north-bound lane on GNH to allow for north-bound traffic to veer around slowing or stationary vehicles making a right-turn in to the site. A Basic Left-Turn treatment will involve the widening of the south-bound lane of GNH adjacent of the development site to the extent necessary to accommodate the design vehicle's swept path; and
- There is adequate width within the GNH road reserve to accommodate the recommended BAR and Basic Left-Turn intersection treatments.

Greenfield's analysis demonstrates that safe access in accordance with the relevant standards can be obtained to the site in the location proposed. It is acknowledged that a separate approval process will need to be undertaken directly with MRWA in order to obtain legal access to GNH which is a primary regional road under the control of MRWA. Design drawings will be submitted to MRWA as part of the development process with the ultimate design to be negotiated with, and approved by, MRWA.

#### *Parking and Circulation*

As outlined earlier, on site car parking is provided at a rate of 1 bay per 2 staff members. The 15 bays will comfortably accommodate the 30 staff members, not all of whom will be on site at the same time. The size of the carpark and dimension of the bays will be in accordance with the Australian Standards for off-street parking. The car park will be made trafficable for passenger vehicles but will not be sealed due to the increased development cost and unnecessary nature of the works. The infrequent use of the car park area means that bitumen sealing is not necessary to maintain the car park in good order. The unsealed nature of the carpark will also reduce the impervious surface area on site allowing for more stormwater to be infiltrated at source within the soil top layer.

#### **Bushfire**

As outlined above, a BMP has been prepared by bushfire consultants Emerge Associates to demonstrate that the potential risk of bushfire can be appropriately managed so as to not constrain development (refer **Appendix 4**). In order to suitably manage the potential risk of bushfire for the LNG Plant, the BMP proposes the following measures:

- The site will be cleared of vegetation, thereby removing potential bushfire hazards from within the site. Vegetation external to the site and adjacent the site boundary will therefore pose the only potential bushfire risk;
- All key infrastructure will be located in areas subject to a low or moderate bushfire hazard in order to achieve a bushfire attack level (**BAL**) rating of BAL-29 or less. This will effectively involve setting the infrastructure in from the boundary the required distance to achieve separation from the external bushfire hazard, combined with an 8 m wide fire break along the boundary;

- Egress from the site via a two-way driveway onto GNH which provides access in two directions (north and south); and
- Water will be stored on site within three 60,000 litre water tanks that can be accessed for fire-fighting purposes. A minimum of 10,000 litres of water will be retained at all times within the water tank closest to the entry point for fire-fighting purposes in the event of a bushfire emergency.

The proposed LNG Plant is classified as a 'high-risk land use' under SPP 3.7 which is defined as a use that may potentially ignite a bushfire, prolong its duration and/or increase its intensity. In accordance with SPP 3.7, a separate Bushfire Risk Management Plan (**BRMP**) has been prepared in support of this application to demonstrate that the level of risk associated with the proposal can be managed within an acceptable risk range. The key strategies that will be implemented to ensure the level of risk is suitably managed are as follows:

- Material selection and quality assurance in the selection of equipment to minimise the risk of failure;
- Where appropriate, bunding around the individual components of the LNG Plant to minimise the spread of a leak and reduce the potential for material to exit the site;
- The installation of trips to cut the release of material in the event of a failure;
- Regular inspection and maintenance of all tanks and equipment in accordance with the relevant Australian Standards;
- Separation of all tanks and vessels from the surrounding areas of classified vegetation external to the site; and
- Comprehensive training and education of all operators in relation to the use and maintenance of equipment as well as emergency response procedures.

Further discussion regarding the management of the LNG Plant as a high-risk land use is contained within the BRMP which is included in full as part of the BMP (refer **Appendix 4**).

### Stormwater Management

A Stormwater Management Plan has been prepared by project hydrologists Emerge Associates in support of the proposed LNG Plant (refer **Appendix 3**). Based on the existing hydrological characteristics of the site, the Stormwater Management Plan establishes a development response to manage stormwater within the site, demonstrating that the maximum rainfall event can be suitably managed under the post-development scenario.

The following stormwater design criteria are proposed in the development of the site:

- Maintain the hydrological regime of the site and surrounds;
- Provide adequate drainage to achieve 300 mm freeboard from the 1% AEP level; and
- Protect key infrastructure within the site from inundation due to regional flooding.

Notwithstanding the findings of Emerge Associates floodplain assessment discussed above - that flooding is unlikely to constrain development of the site – a conservative approach to flood protection is proposed. The following strategies will be implemented to protect the LNG Plant from the potential risk of flooding:

- Protection from external flooding risks via construction of an open excavated drainage swale and bund (nominally 500 mm deep) along the northern and eastern site boundaries. The drains and bund will intercept potential flooding from the north and east and redirect flows to the natural low points to the south and west;
- Protection from flooding as a result of rainfall within the 5 ha development site by constructing a small open drainage swale network within the site that conveys flows to the natural low points located at the southern boundary of the site. These discharge points will maintain the existing pre-development hydrological regime; and
- Sensitive infrastructure will be designed with a 300 mm freeboard above the 1% AEP flood depth of 54.5 mm i.e. approximately 354.5 mm above ground level. This clearance above the 'worst case' flood level will be achieved through the use of localised fill and the thickness of the concrete slabs. Other 'non-sensitive' infrastructure that may be susceptible to flooding will be set with a 100 mm freeboard above the 1% AEP flood depth i.e. 154.5 mm above ground level.

The stormwater management strategy described above is illustrated at Figure 5 of the Stormwater Management Plan (refer **Appendix 3**).

## Services

Given its remote location, the site is not serviced by standard public utilities nor is it planned to be connected to services in association with the proposed development. The LNG Plant will be entirely self-sufficient in this regard and will be serviced as follows:

- Power will be generated on site via a gas power station supplemented by a diesel generator for use in emergency situations to provide emergency lighting and minimum power to backup control and monitoring systems should there be an issue with the gas power station;
- Potable water will be trucked to the site and stored in water storage tanks; and
- Waste water will be disposed of onsite via suitably sized and designed Aerobic Treatment Units (**ATUs**).

### *Water*

The LNG Plant does not require large quantities of water to operate and whilst the demand for water will still largely be associated with the LNG Plant there will be a smaller requirement for human use. Accordingly, water storage tanks will be filled with potable water and are therefore suitable to accommodate all human water demands including those of the LNG Plant as well as emergency firefighting. Proposed tank storage will provide circa 45-days of supply excluding (as mentioned above) 10,000 litres reserved at all times for firefighting purposes.

Further discussion regarding the supply of water is contained within the Stormwater Management Plan (refer **Appendix 3**).

### *Wastewater*

Clause 5.7.3 of LPS 2 provides guidance on the acceptable volume of waste water that may be disposed of on-site in the absence of a reticulated sewer connection. LPS 2 prescribes a maximum daily limit of 540 litres per 1,000m<sup>2</sup> of site area. Based on the 5 hectare area of the site, this equates to a maximum daily effluent volume of 27,000 litres. As a general guide, a high domestic rate of effluent generation is 900 litres per day for a standard residential dwelling with an occupancy of six persons. An assumed 900 litres per day is therefore a conservative estimate that could be generated by the maximum of four employees that will be on site at any one time. A daily volume of 900 litres is well within the 27,000 litre maximum for the site prescribed at clause 5.7.3 of LPS 2.

A suitably sized and designed ATU will be installed to treat and manage wastewater, subject to a separate approval being obtained from the Department of Health (**DOH**) prior to installation. The operation of the ATU and ongoing maintenance will need to be in accordance with the conditions prescribed on the DOH approval. In the case of the subject site and its restrictive soil profile, secondary treated effluent from the ATU is expected to be suitably disposed of through application to a raised earthen mound comprising imported fill. This will be followed by the subsequent evaporation of the secondary treated effluent that will occur due to the favourable climatic conditions and the associated high and consistent rate of evaporation.

Further discussion regarding the management of wastewater is contained within the Stormwater Management Plan (refer **Appendix 3**).

### **Industrial Wastewater Management**

The LNG Plant will generate small quantities of wastewater from industrial processes. Any industrial wastewater that is produced will be captured, stored and transported off-site for disposal at an approved receiving facility.

Equipment wash down is expected to have low to no pollutant load as wash down activities will be associated with the need to remove accumulated dust from the equipment. On this basis, wash down water is proposed to be treated as stormwater and allowed to infiltrate or drain from the site.

## Summary

As demonstrated above, all potential site constraints can be appropriately managed as part of the construction and operation of the proposed LNG Plant. A comprehensive suite of technical reports are included with the application that consider and responds to a broad range of technical matters.

The proposed LNG Plant will have significant economic, environmental and social benefits for Mount Magnet and the broader Mid-West region without the potential to impact on local amenity or conflict with established land uses. The isolated location of the proposed development site ensures that any potential adverse impacts are mitigated by the sheer distance between the site and the nearest land use. Further, the LNG Plant will not prejudice the use of the site for rural or mining purposes with both the pastoral lease operator and the holder of the exploration license supportive of the proposal.

The proposed LNG Plant is 'development-ready', with construction targeted to commence by the end of 2020 and a targeted operating date of May/June 2021. Construction and operation of the LNG Plant will generate investment and job creation in the region, assisting with Western Australia's economic recovery in the wake of COVID-19 and providing a platform for further technological advancements and investment in the future.



# APPENDICES

Appendix 1	Stakeholder letters of Support
Appendix 2	Flora / Vegetation & Fauna Survey
Appendix 3	Stormwater Management Plan
Appendix 4	Bushfire Management Plan
Appendix 5	Great Northern Highway Access Assessment