

Environmental Protection Authority

Environmental Protection Act 1986

Section 43A

NOTICE OF DECISION TO CONSENT TO AMEND A REFERRED PROPOSAL DURING ASSESSMENT

PERSON TO WHOM THIS NOTICE IS GIVEN

(a) Infinite Green Energy Pty Ltd (ACN: 80628842464)
Level 13/99 St Georges Terrace
PERTH WA 6000

PROPOSAL TO WHICH THIS NOTICE RELATES:

Arrowsmith Hydrogen Project
Assessment No. 2345

Pursuant to s. 43A of the *Environmental Protection Act 1986* (EP Act), the Environmental Protection Authority (EPA) gives approval to the assessment of the proposal being completed in respect of the proposal as amended in accordance with the proponent's request:

- Increase the maximum proposed hydrogen production by 19 tonnes per annum, from 23 tonnes per annum, totalling 42 tonnes per annum.
- Remove the maximum proposed annual groundwater abstraction volume, from the Yarragadee aquifer, of 464 ML per annum.
- Increase the proposed maximum groundwater abstraction rate, from the Yarragadee aquifer, by 1,068,748 litres per day, from 1,271,252 litres per day, totalling 2,340,000 litres per day (2,340 kL).
- Amend temporary construction accommodation facility to be "optional."
- Remove 10-15 contractor capacity from construction accommodation facility.
- Replace Site Facilities "above ground sewage treatment plant" with "necessary wastewater discharge infrastructure to ensure environmental compliance."
- Operational stormwater and wastewater capacity updated to specify wastewater discharges will accommodate up to 15 operational staff and stormwater management to align with stormwater and wastewater management plan.

The amended proposal content document and figures are attached.

SUMMARY OF REASONS:

- The increase in maximum production capacity is understood to be dependent on availability of energy, technological efficiency and is no greater than the

maximum proposed in 2022 when the EPA decided to assess the proposal. The EPA will consider the energy sources for associated environmental impacts during the assessment.

- Increasing the maximum draw rate from the Yarragadee aquifer updates the proposal to closely align with groundwater license application submitted to the Department of Water and Environmental Regulation. The amendment is appropriate to streamline considerations and input between Decision Making Authorities during assessment. The amendment is no greater than the proposal referred in 2022 when the EPA decided to assess the proposal.
- Removal of the maximum groundwater abstraction volume per annum allows for the increased abstraction rate per day. The amended abstraction rate will be considered by the EPA during assessment. The maximum abstraction rate is no greater than the proposal referred to the EPA in 2022 when the EPA decided to assess the proposal.
- Specifying temporary construction accommodation as optional is appropriate as the outcome of not developing construction accommodation may reduce short term impacts during the construction phase.
- Removing the 10-15 contractor limit from construction accommodation facility is understood to be correcting an error as greater than 15 contractors are likely required for construction. It is understood that the limit was intended for operational sewage/wastewater management considerations, as reflected in the amended operational wastewater extent.
- Replacing the above ground sewage treatment plant with “wastewater infrastructure” affords additional flexibility for wastewater and sewage management which allows for best practice options to be considered if design requirements vary based on geotechnical investigations. The EPA will consider wastewater and related environmental outcomes during assessment.
- No additional disturbance to native vegetation or habitat is proposed to accommodate the change.
- The amendments do not undermine any of the considerations or decisions made by the EPA in the previous s.43A amendment Notice.
- The EPA requested additional information on Flora and Vegetation, Terrestrial Fauna, Inland Waters and Social Surroundings in 2022 which will be considered during assessment within the context of the revised proposal.
- The effect of the amendment has been considered in the context of the existing proposal, cumulative and holistic impacts have been considered.
- The proposal will remain substantially the same character as the existing referred proposal. The EPA considers it will have enough information to reasonably proceed with assessment of the amended proposal without performing any additional functions at this stage.

EFFECT OF THIS NOTICE:

1. The assessment of the proposal is to be completed in respect of the proposal as amended in accordance with the decision set out in this notice.

2. The proposal as amended in accordance with this notice is taken to have been referred to the EPA under s. 38 of the EP Act.

RIGHTS OF APPEAL:

There are no rights of appeal under the EP Act in respect of this decision.

A handwritten signature in black ink, appearing to be 'Darren Walsh', written in a cursive style.

Darren Walsh
Delegate of the Environmental Protection Authority
CHAIR

17 February 2025

Attachment 1- Amended proposal content document and figure/s showing the new approved proposal

Arrowsmith Domestic Hydrogen Project PCD (Final)

Proposal Content Document (PCD)

Table 1 General Proposal Content Description

Proposal Title	Arrowsmith Hydrogen Project (AHP)
Proponent Name	Infinite Green Energy Limited
Short Description	<p>IGE is proposing to construct and operate a Green Hydrogen Production Facility (GHPF) and associated infrastructure (the Proposal), to be located at Arrowsmith, approximately 30 kilometres south of Dongara in the Shire of Irwin, Western Australia.</p> <p>The Proposal will utilise combined onshore wind and solar energy of approximately 225 (MW) capacity to produce Green Hydrogen which will be compressed and transported to various emerging green energy markets.</p> <p>The Proposal comprises the following major components:</p> <ul style="list-style-type: none">- PV Solar Array (Approx Maximum 85 MW)- Wind Farm (18 X 7.2 MW wind turbines)- GHPF (Anticipated Hydrogen Output to a Maximum of 42 tpd)- A multi-layered backup power strategy combining battery storage, hydrogen-powered turbines, and grid connection (Renewable Energy) ensures that the AHP remains operational under all conditions, including extended periods of low renewable energy availability- Associated AHP Infrastructure
Date	February 2025

Table 2: General Proposal Content Description

Proposal element	Location / Description	Maximum extent, capacity or range	Current hectares
Physical Elements			hectares
Development Envelope (IGE Property Extent Lot 703)	Figure 3 Project Development Envelope	Maximum Extent	1904.48 ha
Development Envelope (Road verge widening and AHP Site Access)	Figure 4	Maximum Extent	1.68 ha
Solar Farm (PV Solar Array)	Figure 2 (Eastern Boundary)	Maximum Extent	140.70 ha
		Previously Disturbed Area	74.83 ha
		Clearing Required	65.87 ha
Green Hydrogen Production Facility (GHPF) <ul style="list-style-type: none">- Alkaline Electrolyser units- Water Treatment plant: RO Filtration units, demineralisation units, and water storage tanks- Battery Storage units- Grid Connection- Hydrogen powered Turbine- Energy Storage Systems (e.g., batteries)- Optional Temporary Accommodation facilities- Compressed Gas Storage tanks.- Cryogenic Liquid Storage: Cooled Hydrogen- Hydrogen Compression Unit- Cooling Systems- Power Management System- Oxygen Management- Hydrogen Liquefaction System- Control and Monitoring Systems- Hydrogen Dispensing System- Pipelines and Distribution Networks- Safety and Ventilation Systems- Waste Management Systems- Office Control Centre and switch room Note: Clearing Extents include GHPF Entry Road and proposed Gate Widening	Figure 2 Located near the Northern Boundary	Maximum Extent	22.19 ha
		Previously Disturbed Area	1.53 ha
		Clearing Required	20.66 ha

Property Fire Roads Including Boundary (Shire of Irwin/Dfes)	Figure 2	Maximum Extent	28.12
		Previously Disturbed Area	26.46
		Clearing Complete	0.00
		Clearing Required	0 ha
Windfarm (Wind Turbines)	Figure 2	Maximum Extent	15.03 ha
		Previously Disturbed Area	0.25 ha
		Clearing Required	14.78
Turbine Blade laydown area revegetated after assembly	Figure 2 Located adjacent to the access road	Maximum Extent	4.21 ha
		Revegetated after use	4.21 ha
		Clearing Required	4.21ha
Met Mast and Sodar	Figure 2	Maximum Extent	1.69 ha
		Previously Disturbed Area	1.69 ha
		Clearing Complete	0.00
Project Roads to Install	Figure 2	Maximum Extent	19.02 ha
		Previously Disturbed Area	0.00 ha
		Clearing Required	19.02
Vegetation Disturbance: Gate widening for AHP site access (MRWA Verge Side)	Figure 4	Maximum Extent	0.001
		Previously Disturbed Area	0.00
		Clearing Required	0.001
Road Widening (Brand Highway)	Figure 4	Maximum Extent	1.68 ha
		Previously Disturbed Area	0.78 ha
		Clearing Required (Ground Disturbance)	0.9 ha
Proposal Clearing Extent			127.13
Proposal Extents			
Proposal Maximum Extent, (Development Envelope Lot 703)	1904.48 ha		
Proposal Maximum Extent (Development Envelope, Road verge widening and Site Access)	1.68 ha		
Combined DE Extents	1906.16		
Previously Disturbed Vegetation	105.5 ha		
Post Construction Rehabilitation	4.21ha		
Permanent Site Disturbance Footprint	232.63 ha		

Proposal Element	Location / description	Maximum Extent, Capacity or Range
Construction Elements		
Site Facilities	GHPF	Optional: On-site accommodation facility equipped with the necessary wastewater discharge infrastructure to ensure environmental compliance.
Salt and Brine Emissions	GHPF	<p>Salt solids volumes are dependence on further engineering analysis and infrastructure equipment design, to a maximum of 1100 kg per day</p> <p>Liquid Emission Volumes are based on current Geotechnical investigations and engineering solutions and are subject to change dependent on engineering outputs.</p> <p>Options are being considered to discharge processed brine onsite to:</p> <ul style="list-style-type: none"> - Leach Drain System, - A Zero Liquid Discharge System - Reverse Osmosis (RO) and Brine Minimisation - Advanced Filtration and Treatment conforms to groundwater discharge criteria - Hybrid System: Above-Ground Treatment with Leach Drain Discharge - Stock dams for Discharge and evaporation - Groundwater, or Soil Infiltration Basins, <p>Discharge options as required will be based on further geotechnical investigations and ongoing engineering solutions.</p> <p>Discharge and engineering options will be included within the Wastewater Management Plan</p>

Road Widening	Brand Highway	0.9 ha (Ground Disturbance)
AHP Site Gate Access Widening	Brand Highway	0.001 ha (Vegetation Clearing)
Operational Elements		
Wind turbines	Wind Farm	18 Turbines x 7.2 MW, maximum rating of 129.6 MW
Solar farm	PV Solar Array (Adjacent to Brand HWY)	85MW maximum rating
Groundwater Water Abstraction	GHPF	A maximum of 2,340 kL per day will be extracted from the Yarragadee Aquifer via the three proposed groundwater production bores.
Hydrogen Production Electrolysis	GHPF	Hydrogen Production up to a maximum of 42 tonnes per day.
Stormwater and Wastewater	GHPF/AHP	<p>Stormwater management will align with the impending stormwater and wastewater management plans.</p> <p>Wastewater discharge will accommodate up to 15 operational staff.</p>

Proposal Elements with Greenhouse Gas Emissions

Construction Elements: Note Scope 3 Not Required.

Scope 1:	Not expected to be greater than 14,364t CO ₂ -e per annum
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Scope 2:	N/A
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Operation elements:

Scope 1:	Not expected to be greater than 632t CO ₂ -e -per annum
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Scope 2:	N/A
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Decommissioning and Rehabilitation

The decommissioning plan for the Arrowsmith Hydrogen Project will detail the required actions for safely dismantling and restoring the site at the end of its projected 25-year lifespan. It will also include provisions for asset life extensions or rehabilitation if the project does not proceed beyond this period.

The decommissioning plan includes:

- Removal of all vehicles, machinery, and buildings: All equipment, vehicles, and infrastructure utilised during the project's operation will be dismantled and removed from the site.
- Removal from site and recycling or appropriate disposal of all infrastructure and waste: This step involves the proper disposal or recycling of all infrastructure components and waste generated during the project's lifespan, ensuring minimal environmental impact.
- Decommissioning of water bores: Any water bores or wells drilled for the project's operations will be decommissioned, ensuring they are properly sealed to prevent contamination and pose no hazards.
- Remediation of any contaminated soil: If soil contamination has occurred during the project's operation, remediation measures will be implemented to restore soil quality, following regulatory requirements.
- Rehabilitation and revegetation of disturbed areas: Disturbed areas of the site will undergo rehabilitation, including revegetation efforts using native vegetation consistent with that from the local area to restore natural habitats and ecosystems. This aims to mitigate the environmental impact caused by construction activities.
- Vegetation reinstatement: In the event that the project does not continue beyond its 25-year lifespan and rehabilitation is initiated, vegetation reinstatement will commence. This involves replanting native vegetation to restore the landscape.
- Rehabilitation management procedures: The rehabilitation process will be conducted in accordance with established management procedures, ensuring that activities are carried out efficiently and effectively to achieve restoration goals.
- Monitoring: Monitoring activities will be undertaken annually to assess the progress of rehabilitation efforts. Quantitative completion criteria will be established, and monitoring will continue until these criteria are met, indicating successful rehabilitation.
- Reporting and Compliance:
 - Detailed documentation of all decommissioning activities to ensure compliance with regulatory standards.
 - Regular progress reports submitted to environmental regulators, documenting rehabilitation success and adherence to closure requirements.

By implementing these decommissioning and rehabilitation measures, the Arrowsmith Hydrogen Project (AHP) aims to minimise its environmental disturbance footprint and ensure the responsible management of the project site following the conclusion of operations.

Commissioning

The commissioning process of the AHP will be methodically executed in stages, with systems commissioned incrementally as they reach completion. A comprehensive commissioning plan will be devised to prioritise the commissioning of systems utilising non-hazardous products before transitioning to hydrogen production.

Upon the conclusion of construction activities, the construction contractor will formally hand over the site at 'construction completion' to the commissioning team designated by the Proponent. This commissioning team is envisioned to encompass a blend of contracting engineers, engineers from the Proponent, operational personnel, and specialized commissioning subcontractors.

Given the inherently hazardous properties of hydrogen and oxygen, coupled with the intricate nature of the facility's infrastructure, a robust commissioning and completions management system will be employed. The development of this system will be meticulously undertaken during the detailed engineering phase, ensuring meticulous planning and execution of the commissioning process to guarantee safety, operational efficiency, and regulatory compliance throughout the facility's lifecycle.

Critical Containment Infrastructure Report

A Critical Containment Infrastructure Report (CCIR) may be required for premises that include containment infrastructure (e.g. for the purpose of storage and containment of liquid hydrogen). The purpose of the CCIR is to confirm that the environmental controls regarding containment infrastructure are constructed to the correct engineering specifications before materials are deposited within the containment cell.

Facility Commissioning and activation will be staged; The anticipated order is as follows (subject to change):

- Power Generation – PV Solar Array, Wind Turbines, Battery Energy Storage System (BESS) and Hydrogen turbines
- Green Hydrogen Production Facility (GHPF) Utilities
- Hydrogen Production
- Hydrogen Liquefaction and Storage
- Liquid Hydrogen Offloading and transporting

Activation will commence when completion assurance is complete, and each area is approved "Ready for Start-Up" (RFSU). The commissioning team will begin with a mark-up of the key deliverables such as Piping and Instrumentation Diagrams to define the system boundaries. IGE will identify the subcontractors and vendors required for commissioning and develop the detailed scopes of work.

This will include:

- Leak Testing
- Testing, Cleaning and Drying Services
- Specialist Package Commissioning Engineers (e.g., Wind turbines, Electrolysers, LH2 and H2 Production)

Other Elements that Impact Extent of Effects on The Environment

Proposal time*	Maximum project life	Preliminary 25 years Every 25 years asset life extension review and possible extension works to be conducted.
	Construction phase	Approximately 24 months
	Commissioning phase	Approximately 6 months
	Operational phase	25 years
	Decommissioning	Approximately three years




	<p>Arrowsmith Hydrogen Project (AHP) Indicative Layout and Clearing Extents Regional Context</p>	 <p>Author : Peter Galloway Date : December 2024</p>
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Figure 1 Proposed Site, Regional Location

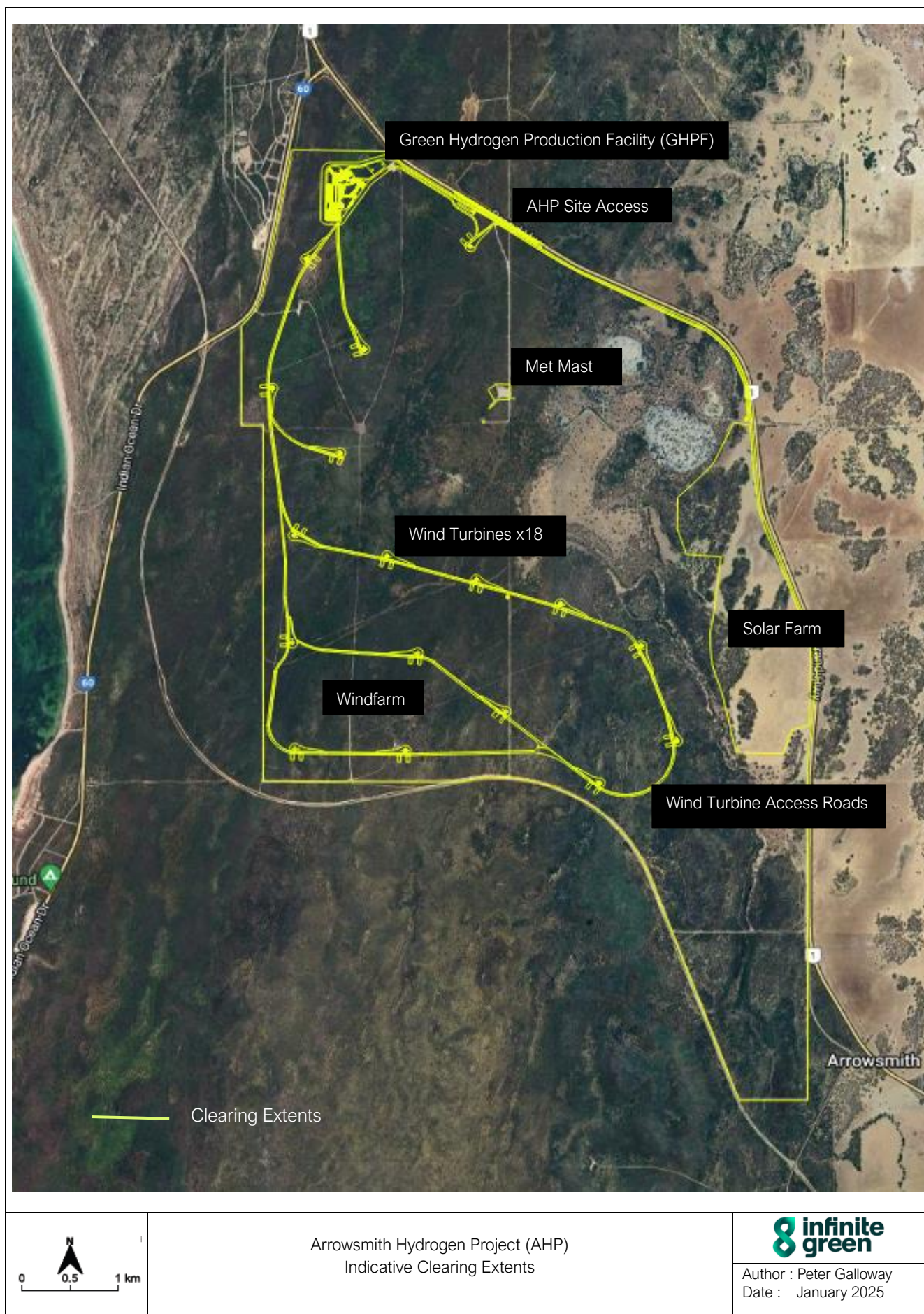


Figure 2 Indicative Project Infrastructure Layout

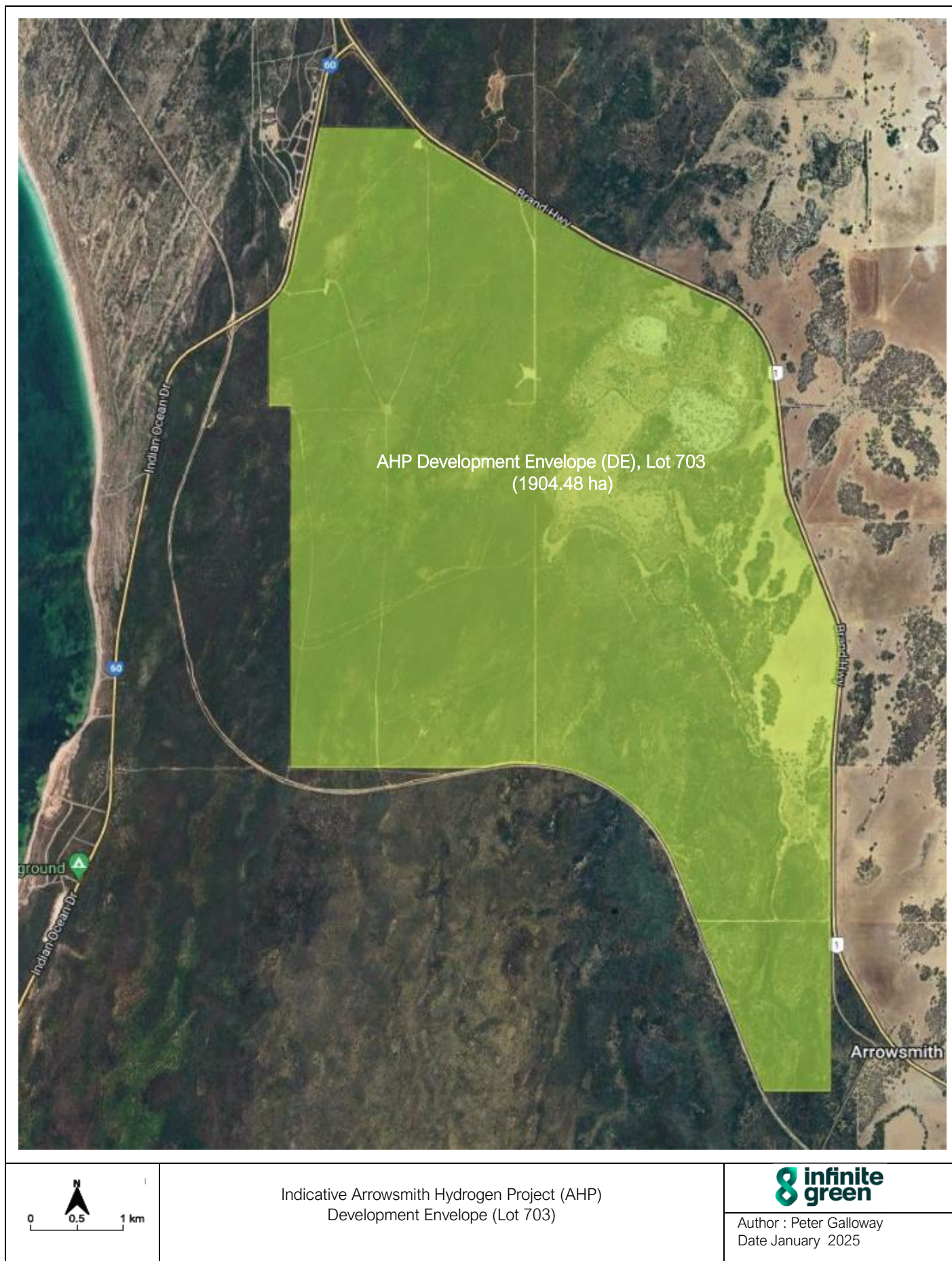


Figure 3 Indicative Development Envelope Lot 703



Figure 4 Indicative Development Envelope Road widening and Access

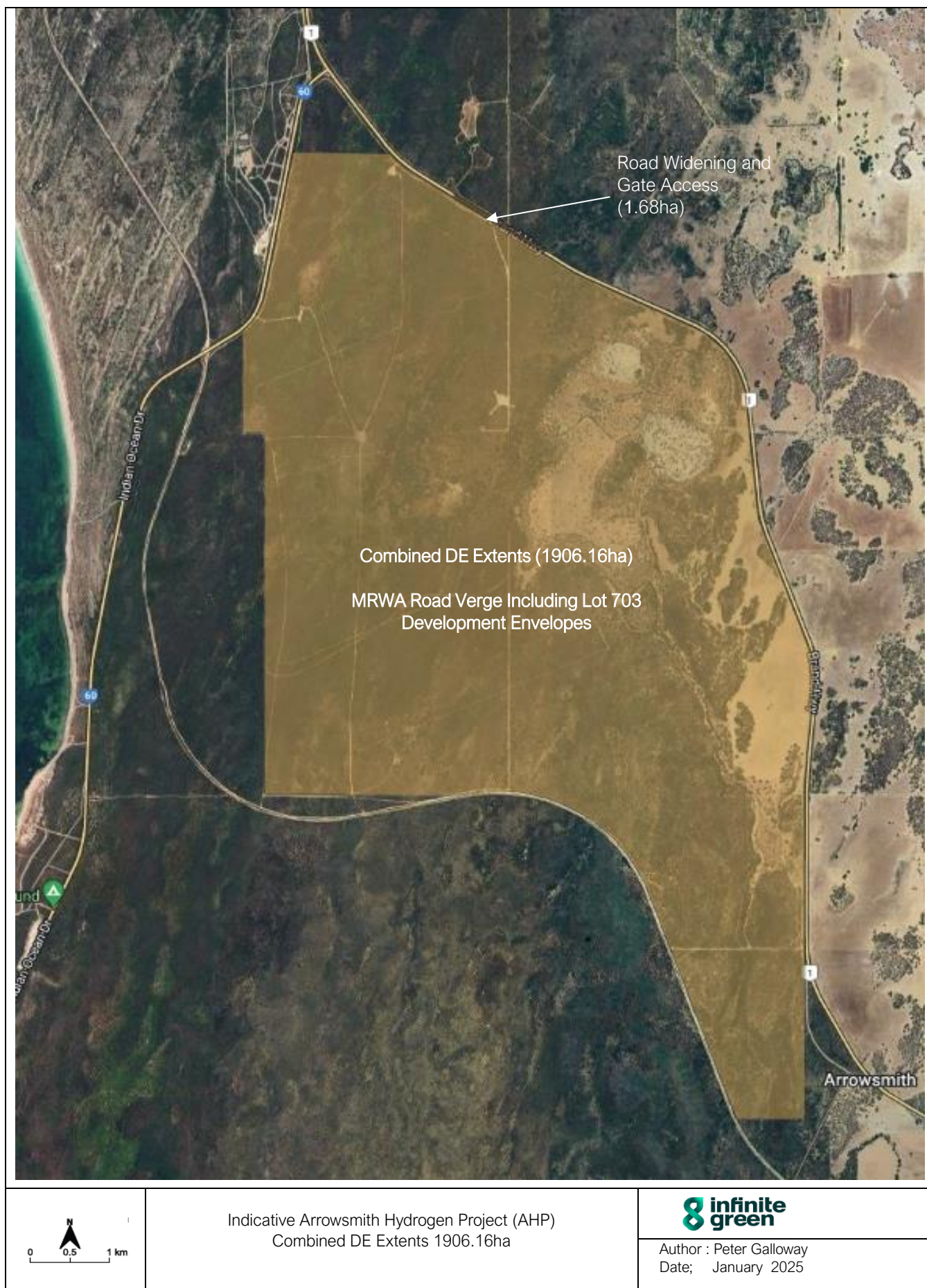


Figure 5 Indicative Development Envelope Including, Road widening and Site Access

