

ENVIRONMENTAL REVIEW AND MANAGEMENT PROGRAMME WAGERUP REFINERY UNIT THREE

for Alcoa World Alumina Australia (“Alcoa”)

1. INTRODUCTION

1.1 BACKGROUND

Alcoa’s Wagerup Alumina Refinery (the refinery) is located 120 kilometres (kms) south of Perth, 2 kms north of Yarloop and approximately 7 km south of Waroona. The refinery is positioned close to the foot of the Darling Scarp and is separated from the Wagerup refinery Residue Drying Area (RDA) by the South West Highway and the Perth-Bunbury railway line (refer Figure 1).

Bauxite is supplied to the refinery by overland conveyor from Alcoa’s Willowdale bauxite mine located 15 kms to the east. Alumina produced at Wagerup refinery is transported by rail to Alcoa’s Bunbury shipping terminal and then exported to overseas markets or to Alcoa’s aluminium smelters in Victoria.

Under the requirements of the *Alumina Refinery Agreement Act*, a draft Environmental Review and Management Program (ERMP) for the Wagerup refinery was submitted to the Environmental Protection Authority (EPA) in 1978. The proposal was approved and the documentation formed the basis for Alcoa’s environmental management programme across its Western Australian bauxite and alumina operations. The Wagerup refinery has current environmental approval for a capacity of 3.3 million tonnes per annum (Mtpa), although its current capacity, with two production units, is approximately 2.6 Mtpa of alumina. Production is limited to 2.5 Mtpa by environmental licensing.

Alcoa considers its Wagerup refinery to be the most environmentally advanced alumina refinery in the world. Capital works in 2002 incorporating the most advanced available technology have resulted in significant reductions in refinery emissions, including a 90% drop in volatile organic compounds (VOCs) and odour emissions from the refinery’s liquor burning plant, reductions in noise levels at the refinery boundary and reduced emissions of oxides of nitrogen from the refinery’s power station.

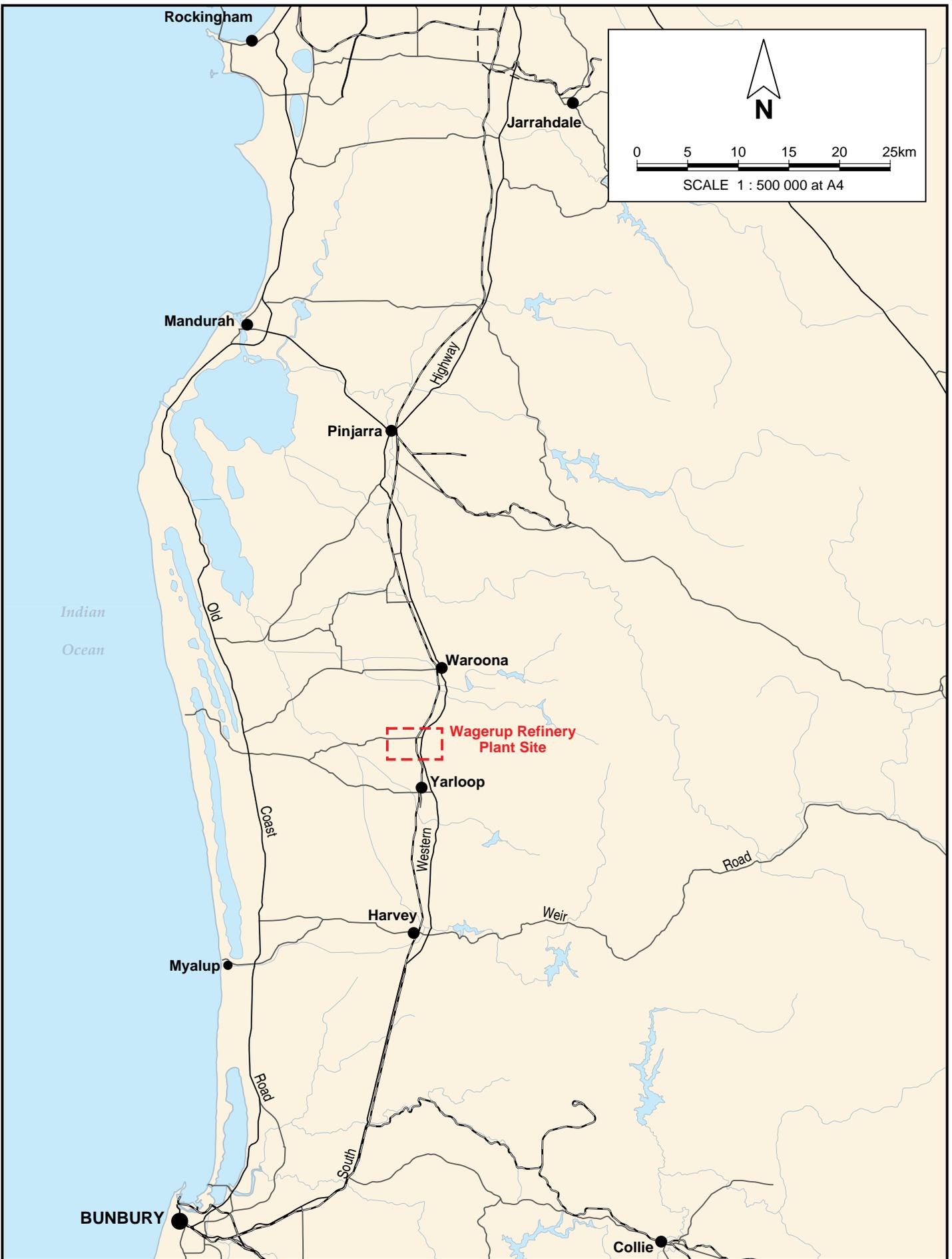
1.2 THE PROPOSAL

Alcoa proposes to expand the refinery through construction of a third production unit. Expansion at Wagerup is one of several world-wide options currently being considered by Alcoa to provide additional capacity to meet increased global demand for alumina. The proposed Wagerup expansion (the Proposal) will increase the capacity and efficiency of existing components in the refinery through the installation of new equipment and upgrades to some existing equipment. The additional new plant and modifications will occur across the refinery with a focus on the following areas:

- Precipitation;
- Calcination;
- Digestion;
- Milling;
- Power generation;
- Conveyor; and
- Residue storage area.

The new equipment and modifications to the refinery associated with the Proposal are further detailed in Section 5.

Alcoa developed and implemented a comprehensive community consultation process for the Proposal. Following an Open Space Forum in October 2004, five working groups were formed to enable consultation on detailed aspects of the Proposal. The existing Wagerup Community Consultative Network (CCN), established in 1994, monitored the process to ensure openness and transparency. This process enabled community members to participate in the identification, assessment and potential management of environmental factors associated with the Proposal, whilst also monitoring the consultation process. A broader range of stakeholders have been involved through regular communications, such as newsletters, press articles, a designated website and a public open day during the preparation of this ERMP.



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LOCATION MAP

Figure 1



Drawn: KP

Date: 04/05

1.3 THE PROPONENT

Alcoa of Australia Limited, trading as Alcoa World Alumina Australia, is the Proponent for the Proposal. The principal shareholders of Alcoa of Australia Limited are:

- Alcoa International Holdings Company (60%); and
- Alumina Limited (40%) (previously WMC Ltd).

Alcoa World Alumina Australia is one of 25 Alcoa Inc business units, and is the world's leading producer of alumina. Alcoa's alumina refineries at Kwinana, Pinjarra and Wagerup have a combined annual production capacity of 7.8 Mtpa, equivalent to some 15% of world demand.

Address of Proponent

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1.4 PROPOSAL SCHEDULE

It is anticipated that the engineering design phase of the Proposal will take approximately 6 to 12 months with preliminary design and feasibility work already underway. Construction is scheduled to commence in late 2005, subject to the Proposal receiving all necessary external and internal approvals. A 27 month construction period is expected, with the newly expanded Wagerup refinery reaching full production mid 2008.

The key timing constraints are:

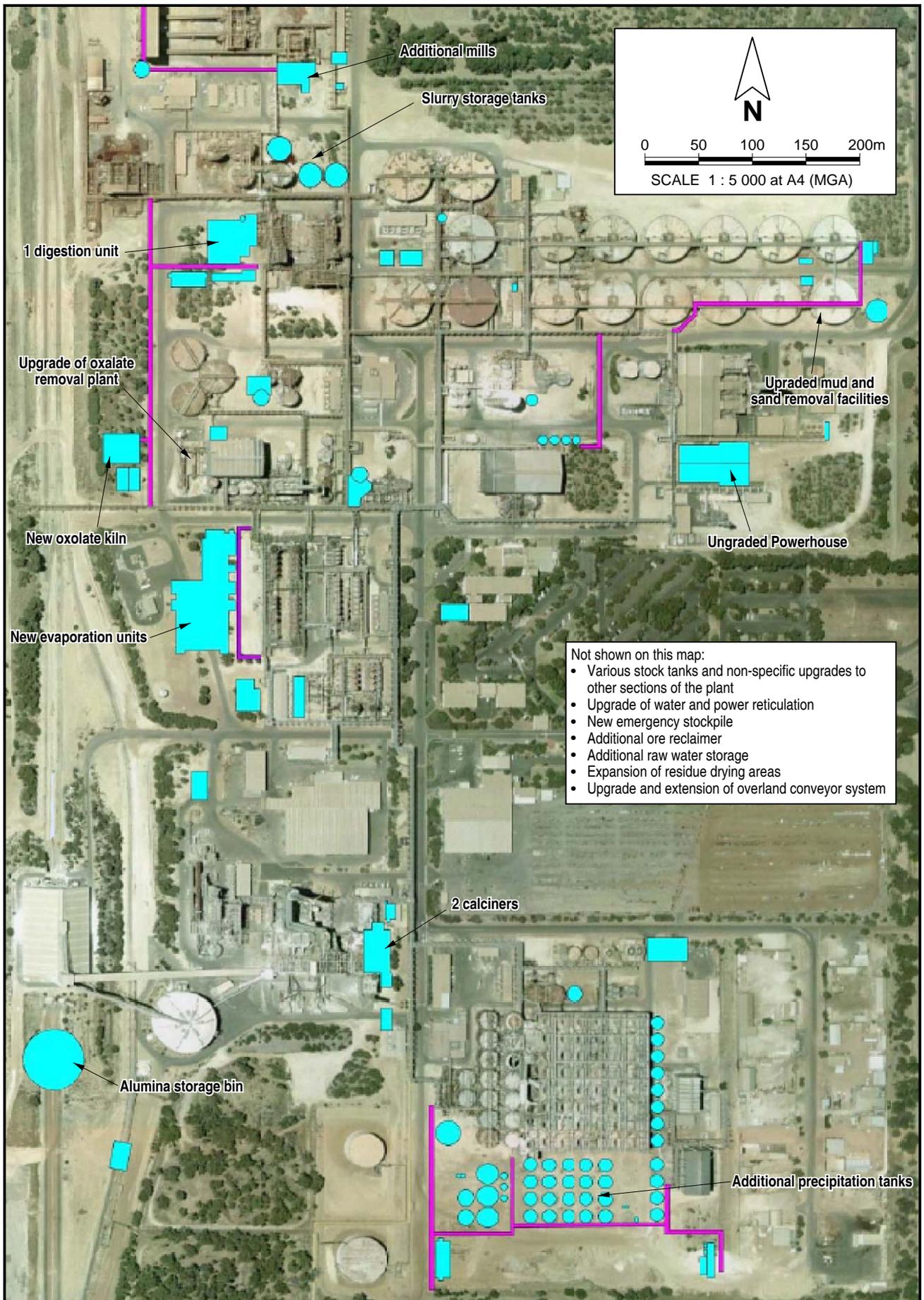
- Environmental assessment of the Proposal, in particular addressing issues raised during the stakeholder consultation period;
- Availability of construction skilled labour, materials, supplies, plant and equipment; and
- Efficiency of construction and commissioning phases (dependent on equipment and personnel availability, weather, environmental constraints, etc.).

1.5 PROPOSAL AREA

The Wagerup refinery and associated residue drying area (RDA) is located on Alcoa owned industrial-zoned land. Surrounding the refinery is approximately 6,000 ha of Alcoa freehold property, which is predominately operated as a beef farming enterprise by “Alcoa Farmlands”. The surrounding landuse is predominantly rural, with most of the region cleared for agriculture.

The Proposal boundary is defined as the existing Wagerup refinery boundary (located on the east side of the South Western Highway) and the residue operations (located on the west side of the South Western Highway), as shown on Figure 1. The additional infrastructure required for the Proposal will all be located within the existing refinery boundary and will occupy an area less than 10% of its total size (refer Figure 2).

The existing residue area will be expanded in accordance with the Wagerup refinery Long Term Residue Management Strategy (LTRMS) to accommodate increased residue production. Further modification to the residue area over the life of the Proposal will be considered and assessed through future reviews of the LTRMS. Currently, the total area designated to the bauxite residue and associated facilities is approximately 546 hectares (to the outer drain). The residue drying areas are contained within an area bordered by McClure Road in the north, Somers Road to the west and Bancell Road in the south.



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PROJECT LAYOUT - PRELIMINARY DESIGN

Figure 2

ENVIRON

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Alcoa presently exports all alumina from the Wagerup refinery through its Bunbury Port facilities. Worsley Alumina presently shares some of Alcoa's port facilities, but is in the process of constructing its own shiploader to handle the transfer of its own product. Some modifications will be made to the existing port facilities to improve loading and unloading efficiencies.

On referral of the Proposal to the EPA, the EPA advised that bauxite mining is not considered within the scope of this ERMP. Mining approval in Mineral Lease 1SA was granted under a State Agreement Act in 1961. The environmental acceptability of mining within the lease is approved by the Minister for Resource Development via the Mining and Management Program Liaison Group. Further details on the environmental approvals for mining are outlined in Section 3.

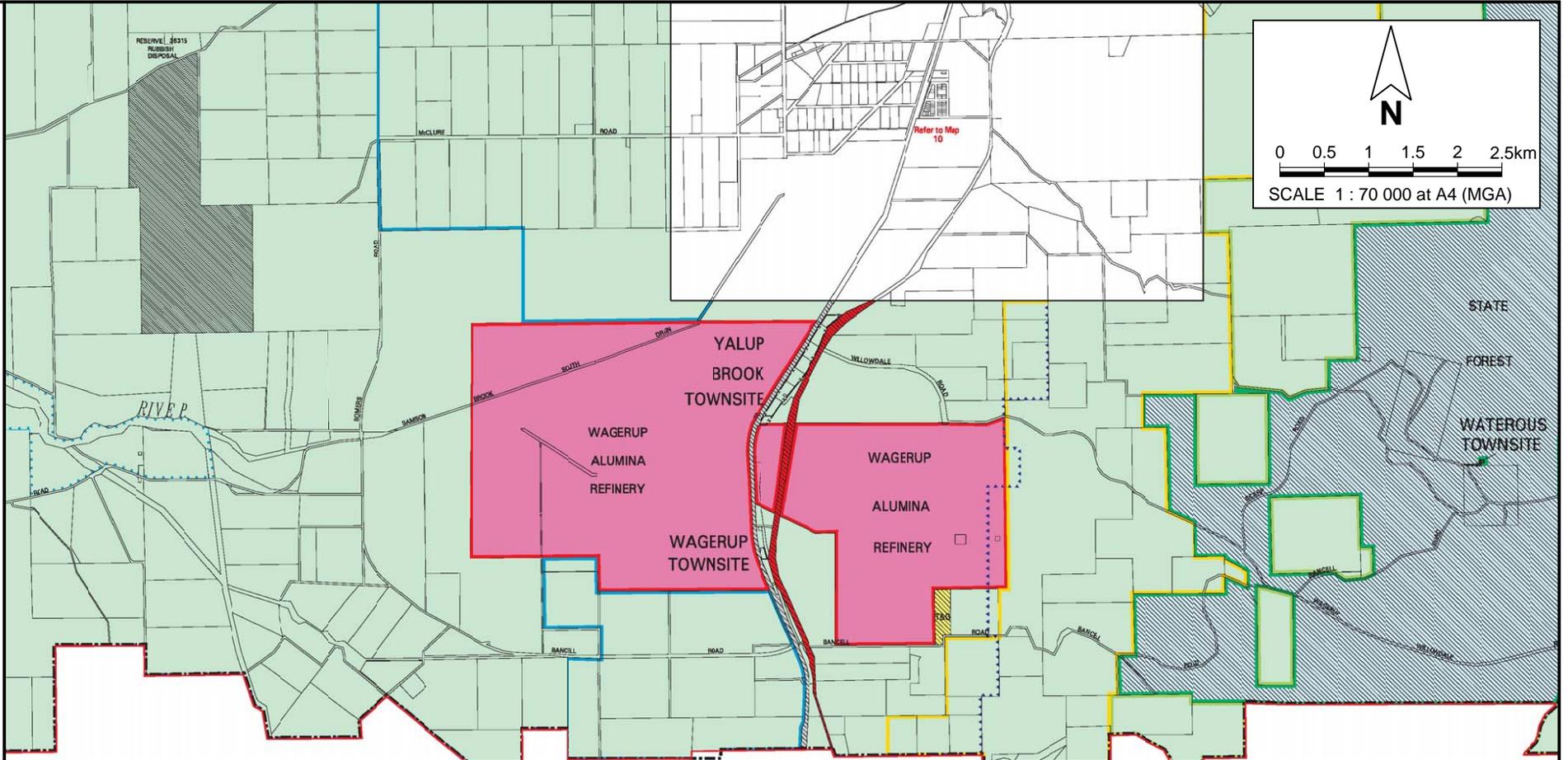
1.6 LAND USE ZONING

At the State Government level or the West Australian Planning Commission level there are Regional Town Planning Schemes. The Wagerup refinery is contained within the Peel Region Scheme (PRS), which reserves the refinery site for "Industrial" purposes, with the majority of adjoining land uses being reserved for "Rural" purposes.

The Shire of Waroona Town Planning Scheme No.7 is known as the District or Local Planning Scheme and is controlled by the Shire Council. The Wagerup refinery and residue area is zoned 'Special Industry Zone' under the Waroona Shire Town Planning Scheme. This zone enables or permits the refining operations and also enables agricultural use where refinery uses may not be in operation. There are agricultural uses immediately north, west and south of the refinery, and to the east is the Hills Face Zone, a conservation area with large rural holdings (refer Figure 3).

The Proposal lies wholly within the existing "Special Industry" zone of the Wagerup Alumina refinery and the intended land use for the Proposal is consistent with the land's current zoning of 'industrial'. Therefore, planning approval is not considered necessary as part of the environmental approvals process.

LAND USE ZONING
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LEGEND

LOCAL SCHEME RESERVES

	CONSERVATION		PUBLIC PURPOSES DENOTED AS FOLLOWS:
	CONSERVATION & RECREATION		T&G
	HIGHWAY		RAILWAY
	MAJOR ROAD		RECREATION
	NATIONAL OR PROPOSED NATIONAL PARK		WATER PRODUCTION, MINING RECREATION
	PUBLIC PURPOSES DENOTED AS FOLLOWS:		
	C CEMETERY		
	D DRAINAGE		
	S SCHOOL SITE		

ZONES

	URBAN 4 - RESIDENTIAL		URBAN 7 - INDUSTRIAL
	URBAN 5 - SPECIAL RESIDENTIAL		RURAL 1 - GENERAL FARMING
	URBAN 6 - RURAL LIVING		RURAL 2 - IRRIGATED AGRICULTURE
	URBAN 8 - HAMLET		RURAL 3A - COASTAL
	URBAN 9 - PRESTON BEACH		RURAL 3B - COASTAL HIGHWAY
	URBAN 1 - TOWN CENTRE		RURAL 4 - HILLS FACE
	URBAN 3 - SERVICE COMMERCIAL		RURAL 5 - DARLING RANGE
	SPECIAL USES		RURAL 6 - RURAL RESIDENTIAL
	URBAN 2 - COMMUNITY & CIVIC		
	SPECIAL INDUSTRY		

OTHER

	R20 R CODES		SPECIAL DESIGN PRECINCT
	SCHEME BOUNDARY		PEEL INLET MANAGEMENT AUTHORITY BDY
	LOCAL GOVERNMENT BOUNDARY		RURAL RESIDENTIAL AREAS (SEESCHEME TEXT)
	TOWNSITE - LAND ACT		SPECIAL USES AREAS (SEESCHEME TEXT)
	PEEL HARVEY COASTAL PLAIN		
	CATCHMENT BOUNDARY		

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ENVIRON

Figure 3

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SOURCE: Shire of Waroona, Town Planning Scheme No. 7.