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Major Project Application Number 10_0039

Midal Cables International Pty Limited

**Tomago Aluminium Rod and Conductor
Manufacturing Facility**

Preliminary Environmental Assessment

March 2011



Contents

1.	Introduction	1
1.1	Midal Cables International as the Proponent	1
1.2	The Proposal	1
2.	Strategic Context and Need for the Proposal	3
2.1	Strategic Context	3
2.2	Lower Hunter Regional Strategy	3
2.3	Need for the Proposal	3
2.4	Alternate Sites	4
3.	Proposal Description	5
3.1	Regional Context, Site Location and Surrounding Land uses	5
3.2	Proposal Outline and Design Overview	11
3.3	Manufacturing Process	11
4.	Planning Framework	16
4.1	Approval Process	16
4.2	Environment Protection Licensing	16
4.3	Relevant Planning Instruments	17
4.4	Other Relevant Legislation	19
4.5	Consultation and Stakeholder Engagement	21
5.	Preliminary Environmental Assessment	23
5.1	Introduction	23
5.2	Issues Identification	23
5.3	Aboriginal Heritage	23
5.4	Geotechnical and Groundwater	24
5.5	Surface Water and Hydrology	25
5.6	Social and Economic Impacts	25
5.7	Landscape and Visual Amenity	26
5.8	Waste and Spoil Management	26
6.	Key Issues	28
6.1	Air Quality	28
6.2	Contamination and Acid Sulphate Soils	29
6.3	Noise	31
6.4	Flora and Fauna	32



6.5	Sustainability, Energy and Greenhouse	37
6.6	Traffic	38
6.7	Hazard and Risk	39
7.	References	40

Table Index

Table 1	Summary of other relevant Legislation	19
Table 2	Waste Generated during construction phase	26

Figure Index

Figure 1	Regional Context Plan	6
Figure 2	Local Context Plan	7
Figure 3	Existing Site Detail	8
Figure 4	Aluminium and Aluminium Alloy Rod Productions	14
Figure 5	Aluminium and Aluminium Alloy Conductor Production	15
Figure 6	Distribution of these Vegetation Communities within the Study Area	34



1. Introduction

This Preliminary Environmental Assessment (PEA) has been prepared by GHD on behalf of Midal Cables International Pty Limited (Midal). It accompanies a Major Project Application to the Department of Planning (DoP), for the proposed aluminium rod and conductor manufacturing facility to be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979*.

The proposed manufacturing facility will produce aluminium rods for export and will provide aluminium conductors to the Australian market which is presently supplied by imported product. This will value add to the aluminium product from the Tomago Aluminium Smelter.

The proposed site is located adjacent to the existing Tomago Aluminium Smelter at Tomago in Port Stephens, New South Wales (NSW). The purpose of this PEA is to:

- Provide a description of the project.
- Detail the need for the project.
- Describe the location of the site and the relevant planning provisions applying to the site.
- Provide a brief description of the existing environment including the surrounding land uses and sensitive receivers.
- Provide an environmental risk analysis of the project identifying key issues, an explanation of why the identified issues are either key issues or are of moderate or low significance, and an description of how these issues will be addressed/assessed in the Environmental Assessment.
- Seek the formal Director-General's Environmental Assessment Requirements from the Department of Planning.

1.1 Midal Cables International as the Proponent

Midal Cables International Pty Limited is an Australian registered company and forms part of the Midal Group of companies based in the Kingdom of Bahrain. Midal specialises in the manufacture and supply of aluminium and aluminium alloy rod, wires and conductors, aluminium clad steel, aluminium sections and tubes which are exported to a large number of countries including Australia. Midal uses only virgin molten metal sourced directly from smelters for the manufacture of their products.

1.2 The Proposal

Midal proposes to construct an aluminium rod and conductor manufacturing facility on a 2.8ha parcel of land adjacent to the Tomago Aluminium Smelter at Tomago in Port Stephens. This facility will process molten aluminium purchased and transported from the Tomago Aluminium Smelter, effectively value adding to the smelter's existing output. It will produce products not previously manufactured in Australia thus reducing imports into Australia of aluminium conductors for electricity transmission purposes and provide an export opportunity for aluminium rod.



Midal have entered into a long term supply contract with Tomago to supply molten metal to the proposed facility.

The facility will process 50,000 tonnes of aluminium per year. This aluminium will be cast into rods with half the production being exported and half being further processed into aluminium conductors.

The proposal includes;

- ▶ Construction of an approximately 150m long dedicated haul road from the Tomago Aluminium Smelter to the proposed facility.
- ▶ Two large buildings to accommodate the rod and conductor manufacturing processes and storage of finished products.
- ▶ Several smaller buildings providing workshop facilities and storage.
- ▶ Provisions for car parking.
- ▶ Provisions for efficient drainage, water reuse and sewage treatment.

A more detailed description of the proposal is provides in Section 3.2.



2. Strategic Context and Need for the Proposal

2.1 Strategic Context

Port Stephens Council released the *Port Stephens Economic Development Strategy Report* in October 2007. The report outlines the current economic condition of Port Stephens and outlines areas of focus to ensure that Port Stephens achieves its full potential as a place to live, work, to operate a business and to visit.

The report identifies that Port Stephens has experienced a steady growth of around 9% in the labour force between 2001 and 2006. Strong job performance is attributed largely to the growth of metals and engineering employment at Tomago, which has been driven by the recent resources boom. Manufacturing is considered a major employment activity for Port Stephens accounting for 17% of employment in the local government area (LGA). Tomago accommodates 73% of manufacturing activities within the Port Stephens' LGA.

Although recent records indicate consistent economic growth in Port Stephens, there is a concern regarding employment opportunities for a growing population. Statistics indicate that fulltime employment opportunities in Port Stephens will need to increase by 10,154 by 2031 to sustain the expected rate of population growth over the same period.

To ensure there are sufficient employment opportunities for the future residents of Port Stephens, and surrounding government areas, the expansion of manufacturing operations in Tomago is necessary and can be readily accommodated within the existing zoned industrial land.

2.2 Lower Hunter Regional Strategy

The NSW Government's Lower Hunter Regional Strategy 2006-2031 (LHRS) is a planning strategy that compliments and informs other relevant State planning instruments. Its purpose is to ensure that adequate land is available and appropriately located to sustainably accommodate the projected housing and employment needs, and associated support services and infrastructure, over the next 25 years. The LHRS works with the Government's Regional Conservation Plan to ensure that future growth of the Lower Hunter makes a positive contribution to the protection of sensitive environments and biodiversity.

The proposal complies with the directions in the Strategy through the provision of employment during construction and operation of the proposal as well as long-term economic benefits through the improved costs associated with producing aluminium conductors locally.

2.3 Need for the Proposal

Currently the Tomago Aluminium Smelter produces 530,000 tonnes per year of aluminium product and has recently gained approval to increase this production to 575,000 tonnes per year utilising the existing plant and infrastructure. Virtually all this production is exported and used for the manufacture of such items as conductors and aluminium shapes which are then imported back into Australia.



The proposal will reduce the amount of material exported from Tomago by approximately 10% and substantially reduce the amount of finished aluminium conductors imported into Australia.

2.4 Alternate Sites

The proposed manufacturing facility requires direct access to a molten metal source. The available sites providing this access, and the correct zoning and related infrastructure are severely limited. No alternate sites are known to be available.



3. Proposal Description

3.1 Regional Context, Site Location and Surrounding Land uses

The site of the proposed facility is on industrial land within the Tomago Industrial Area approximately 6 km from the Port of Newcastle and immediately adjacent to the Tomago Smelter (Figure 1, 2 and 3). This land comprises lots 5 and 6 in DP 270328 and has an area of approximately 2.8ha. While currently owned by the Tomago Aluminium Company, deeds for the sale of the land to Midal have been signed and the sale is expected to settle by the end of March 2011.

Previous land uses have included industrial and parts of the site have been subject to sand mining activities.

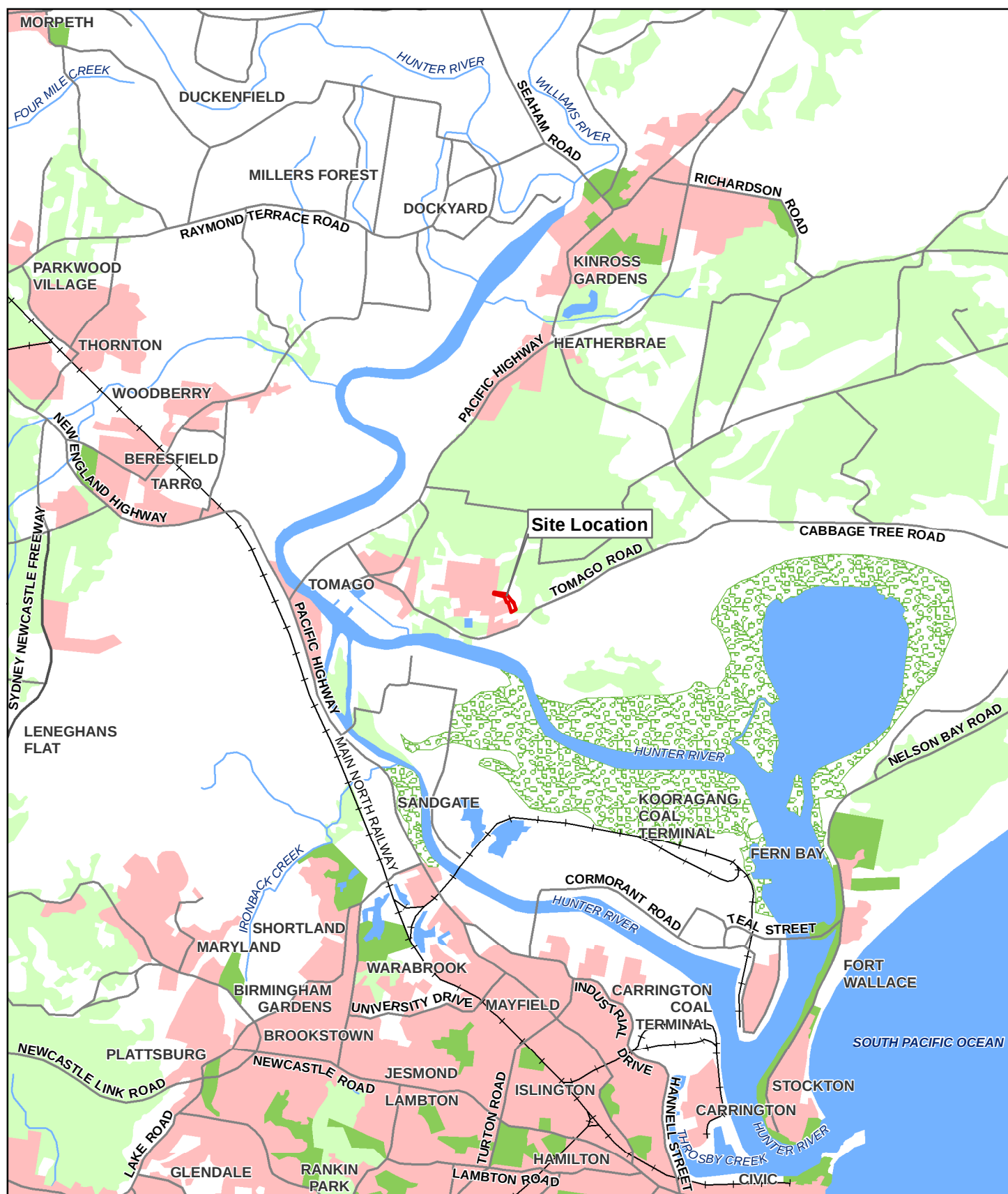
The site is zoned 4(a) Industrial - General under Port Stephens Councils Local Environmental Plan 2000 and forms part of the wider Tomago Industrial Area. The proposal is permissible in this zone with consent.

The surrounding development comprises a wide range of Industrial activities dominated by the Tomago Aluminium Smelter. In all cases the surrounding activities are compatible with the existing industrial environment and, in a large number of cases, comprise substantial buildings similar in scale to that proposed for the Midal facility.

The site is located within the Tomago Aluminium Corporation (TAC) Buffer Zone. The buffer zone was established as a condition of consent for the development approval of the Tomago Aluminium facility. The zone acts as an environmental management zone which aims to reduce land uses that are incompatible with the operations of the smelter through controlling the uptake of land. The provisions of the zone also delineate permissible ambient emission levels which exceed DECCW limits.

Photos 1 to 4 show the site and the surrounding development. As can be seen, Lots 5 and 6 have been cleared and previously used for manufacturing activity. The existing building on the site will be demolished as part of the construction activities.

Access to the south of the site is provided by a sealed road of School Drive and the existing gravel roads will be reformed and sealed as part of the proposal. The haul road will be constructed from the smelter and enter the site on its northern boundary. This haul road will be constructed on land owned by the Tomago Aluminium Company but maintained by Midal. The existing industrial buildings to the west are similar in size to those proposed on the Midal site.



LEGEND

- | | | | |
|----------|------------------|------------------|-----------------|
| Freeway | Watercourse | Recreation Areas | Mangrove |
| Roads | Watercourse Area | Forestry Reserve | Forest Or Shrub |
| Railways | Built Up Areas | Extent of Works | |

1:100,000 (at A4)
0 365 730 1,460 2,190 2,920
Metres
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

0



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Midal Cables International Pty Ltd
Tomago Rod and Conductor Manufacturing Facility
Preliminary Environmental Assessment

Job Number	22-15280
Revision	A
Date	17 FEB 2011

Regional Context Plan

Figure 1

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntmail@ghd.com.au W www.ghd.com.au

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Data Source: Geoscience Australia: 250k Topographic Data Series 3 - 2006. Created by: fmacKay



LEGEND

Extent of Works

1:25,000 (at A4)
 0 95 190 380 570 760
 Metres
 Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia (GDA)
 Grid: Map Grid of Australia 1994, Zone 56

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Midal Cables International Pty Ltd
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Revision	A
Date	04 MAR 2011

Local Context Plan

Figure 2

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E entl@mail@ghd.com.au W www.ghd.com.au

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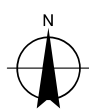
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 Data Source: Nearmap: Imagery - 2011. Created by: fmackay, tmorton



LEGEND

- Proposed Carpark
- Proposed Building Footprint
- Proposed Haul Road
- Extent of Works
- Cadastre

1:2,500 (at A4)
0 5 10 20 30 40
Metres
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56



Midal Cables International Pty Ltd
Tomago Rod and Conductor Manufacturing Facility
Preliminary Environmental Assessment

Job Number 22-15280
Revision A
Date 04 MAR 2011

Preliminary Overall Layout

Figure 3

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntmail@ghd.com.au W www.ghd.com.au

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Data Source: NearMap: PhotoMap - 2011; LPMA: DTDC - 2007. Created by: fmackay, tmorton



Photo 1 Proposed Site looking north showing the existing building



Photo 2 Existing industrial development adjacent to the site to the west



Photo 3 Existing gravel roads to be rebuilt and sealed



Photo 4 Location of proposed haul road looking east from Tomago Smelter.



3.2 Proposal Outline and Design Overview

The proposed facility design has been progressed to a preliminary stage to ensure the land being purchased can accommodate the required facilities. This is shown in Figure 3. Further design refinements would be made during development of the detailed design. While refinements would be made to the facility's overall design, key features would include:

- A dedicated haul road from the Tomago Smelter to the northern end of the proposed facility (approximately 150m long) for the safe and efficient transport of the molten metal.
- A building approximately 98m by 38m and 8m high holding the gas fired furnace and rolling mill for the manufacture of aluminium rod, plus associated gas fired furnace and rolling mill control rooms and undercover rod storage.
- Cooling towers and infrastructure associated with the gas fired furnace and rolling mill.
- A building approximately 124m by 46m and 8m high holding wire drawing machines, stranding machines and associated facilities.
- Laboratories and administration buildings.
- Stores building, electrical and mechanical workshops.
- Hardstand movement, loading areas, and car parking.
- Detention and nutrient control facilities associated with extensive water recycling facilities to maximise water reuse in the manufacturing process.
- On site sewage treatment plan.
- All required utility upgrades and connections.

It is proposed that the facility will operate 24 hours a day, seven days a week. At its maximum capacity this operation will involve two, 12 hour shifts comprising 42 employees per shift with 35 administration staff for a total employment of approximately 119 persons.

The site is part of a Community Title subdivision with all lots within the subdivision being serviced by a private road on Community Land. Minor upgrading of this road may be required as a result of the proposed development.

3.3 Manufacturing Process

There will be three associated manufacturing activities undertaken within the facility. These are the formation of aluminium rod within Building No 1 and aluminium wire and aluminium conductors within Building No 2. The location of both of these buildings is shown in Figure 3. Approximately 50,000 tonnes of aluminium rod will be produced every year with half being exported. The other half will be further processed into wire which will be stranded into conductors.

Figures 4 and 5 show flow charts of the production process within both buildings and the various steps in production are discussed below.



3.3.1 Rod production

Liquid aluminium is to be received from the Tomago smelter in crucibles of approximately 10 tonnes mounted on specialised small articulated trucks. These are the same trucks and crucibles used in operations at the smelter. Each crucible is accompanied by an analysis certificate. Once the certificate is checked and the quality of the molten metal is found to be within the desired limits, the crucible is lifted from the truck and the metal is poured into the Holding Furnace. All furnaces will be gas fired.

When the holding furnace is full, the temperature of the metal is maintained at between 650°C and 820°C.

The metal in the furnace is degassed if required, and any floating oxides removed.

After the metal is cleaned, samples are taken from the two furnace doors for spectro-analysis.

When the analysis is found to be as per specification, the metal is transferred to the tilt furnace. During transfer the alloying elements are added and further analysis of the metal is undertaken.

When the tilt furnace is full the metal is maintained at between 700°C and 820°C and is further degassed and drossed.

From the tilt furnace, the liquid metal is transferred to the casting wheel where the metal is cast at a maximum temperature of 715°C. The incoming cooling water for the casting wheel is maintained between 20°C and 40°C. Following this the bar is rolled through the rolling mill where gradual reduction in the cross-section of the bar occurs until finally the bar is transformed to a 9.5mm rod. The rod is coiled by automatic coilers onto drums of approximately 2000kg each.

Once the rod is produced, it is checked and tested for quality, weighed and packed in with shrinkable polyethylene sheets and palletised. The finished product is either transported by truck to either domestic markets or to the Newcastle port for export, or moved into the wire drawing and stranding building for production of conductors.

3.3.2 Wire Production

The 9.5mm aluminium rod coils from the automatic coilers are accompanied by a work order which states the tensile and conductivity of the rods. The wire diameter to be drawn is determined from the information stated in the work order and programmed into the suitable wire drawing machine. Wire drawing involves the rod being pulled through varying sizes of die series which reduces the diameter of the rod to the desired size. Once the rods are drawn to the prescribed diameter, the wire is then drawn onto bobbins.

Temperature of the coiled rods during the drawing process should not exceed 70°C for aluminium and 55° for alloy. Lubricant temperature should not exceed 130°.

Quality Assurance processes sample every tenth bobbin for failure of wire. In the event of identifying a failure of wire, failed wires are removed and rejected tags are attached.

Alloy wires are taken to the heat ageing oven to receive thermal treatment. Ageing parameters of time and temperature depend on the diameter and quantity of wire charged into the oven in a single batch.



Once aluminium wire has been drawn and alloy wire has received thermal treatment, the wire is tested to ensure it meets specified values and then is taken for stranding.

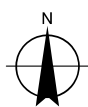
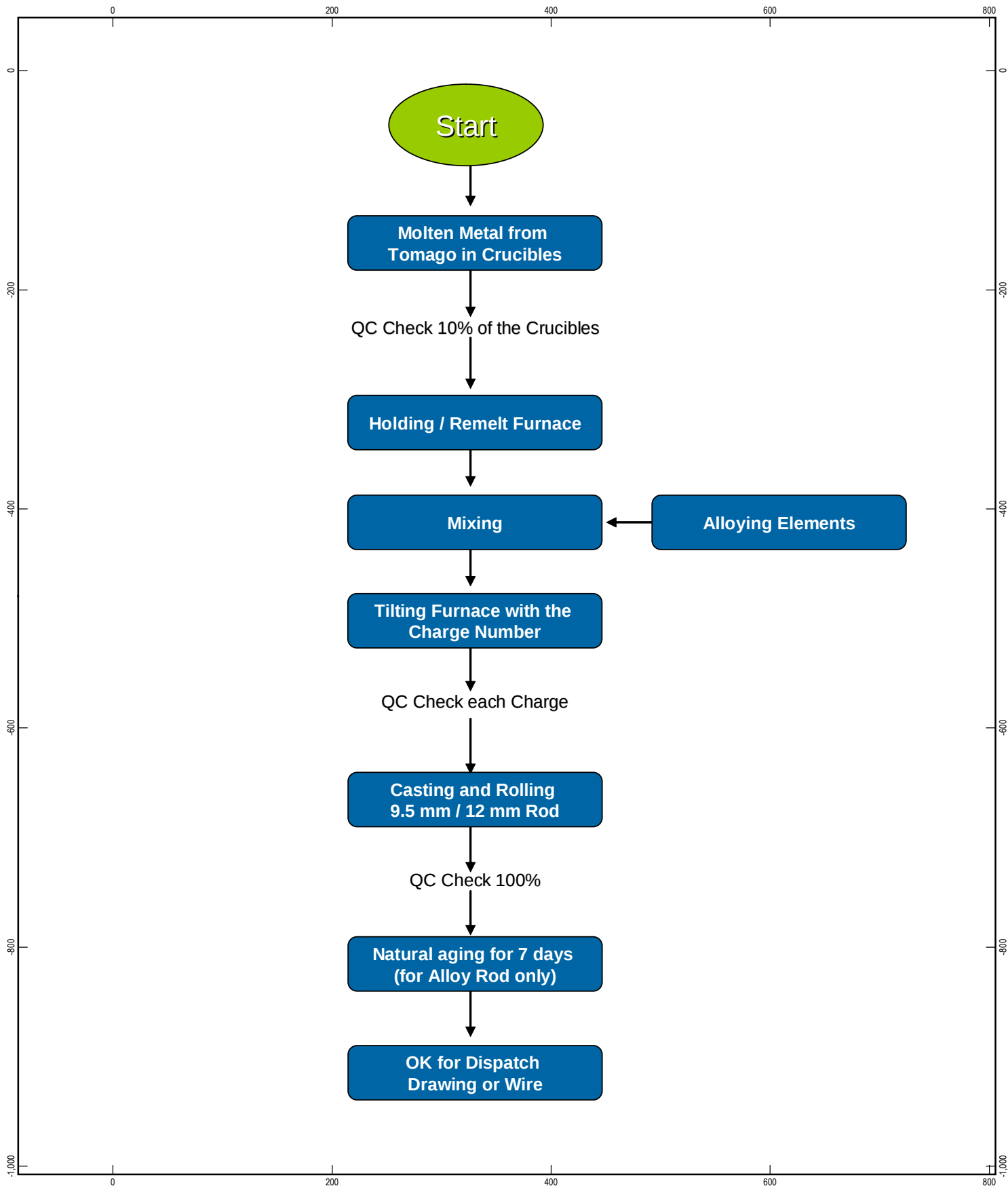
3.3.3 Conductor Production

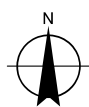
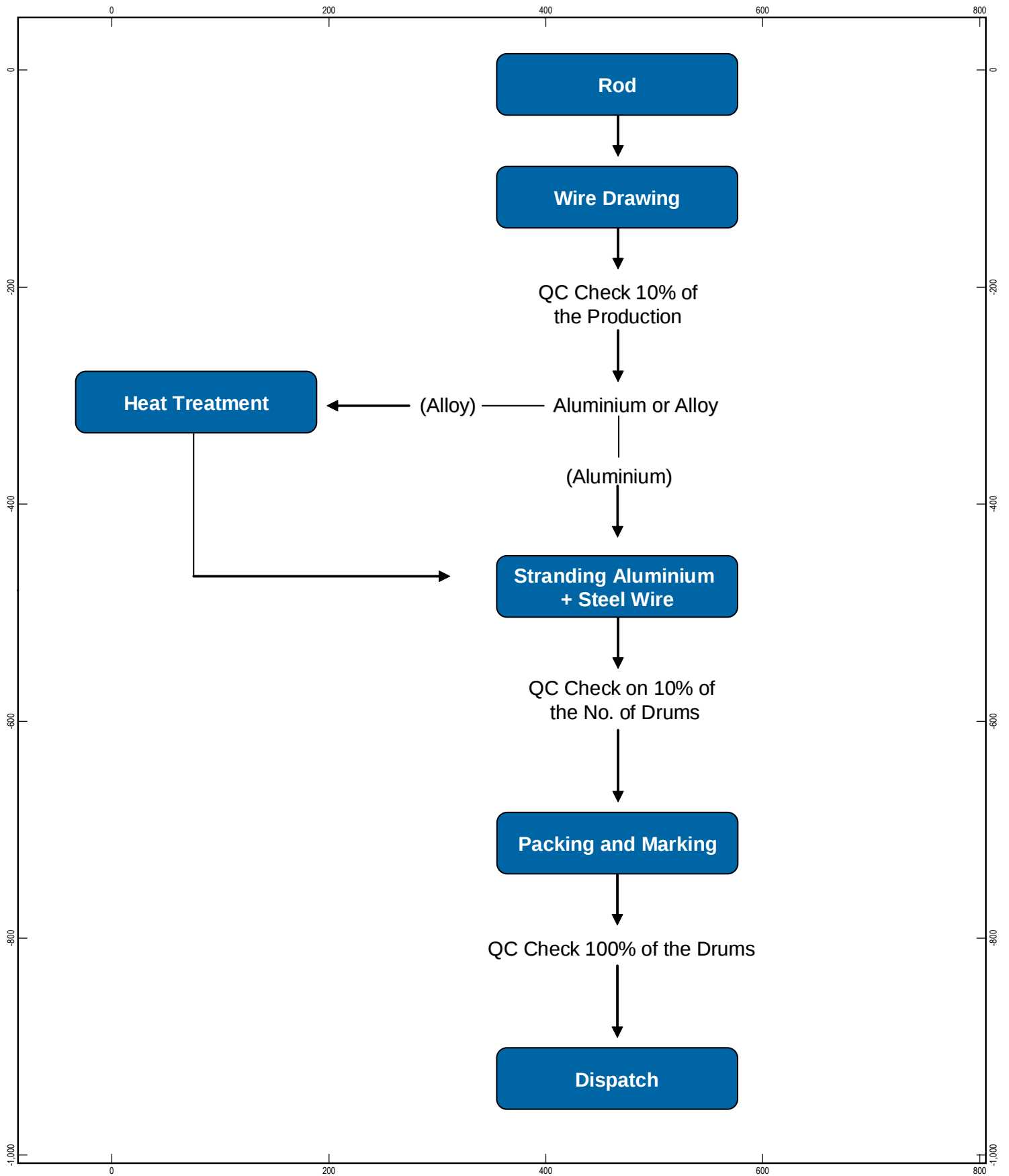
The accepted bobbins from the wire production process described in Section 3.3.2 are loaded into stranding carriages. The stranding carriages within the stranding machine are rotated in an alternate direction in such a way that the wires are stranded in a close helix. Tension between the stranding carriages must be kept uniform to maintain a uniform circular surface.

Once the bobbins are in place, the wires are strung up to the forming die. Roller settings are adjusted to minimise the spring back of the wire when the conductor is cut. During the stranding process, care is taken to ensure that the forming die is set so that the conductor is tight and not loose in the groove of the forming die. During multiple layer stranding, care is taken to ensure that the direction of each lay is in accordance with the requirements of the work order.

Once the wire has been stranded to the completed length stated in the attached work order, the completed conductor drum is removed.

- ▶ In All Aluminium Conductor (AAC), all the wires in all layers will be of Electrical Conductor (EC) Grade Aluminium.
- ▶ In Aluminium Conductor Steel Reinforced (ACSR), the core of the conductor will be of high tensile galvanized steel wire. The outer layer will always be aluminium.
- ▶ In Aluminium Conductor Aluminium Clad Steel Reinforced (ACSR AS), the core of the conductor will be of aluminium clad steel wire. The outer layer will always be of EC Grade Aluminium.
- ▶ In All Aluminium Alloy Conductor (AAAC), all the wires of the conductor are of aluminium alloy wires.
- ▶ In Aluminium Conductor Alloy Reinforced (ACAR), the inner core of the conductor will be of aluminium alloy wires and the outer layers will be of EC grade aluminium wires.







4. Planning Framework

This section provides a discussion of the relevant Acts, environmental planning instruments and approvals applicable to the proposal.

4.1 Approval Process

4.1.1 State Approval

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) establish the statutory planning context for assessment and approval of the proposal.

Part 3A of the EP&A Act consolidates the assessment and approvals process for all major projects requiring approval of the Minister for Planning.

State Environmental Planning Policy (Major Development) 2005

Schedule 1 of SEPP Major Development outlines 'classes of development' which trigger assessment under Part 3A of the Environmental Planning and Assessment Act 1979, for which the Minister will be the consent authority.

Clause 9a of Schedule 1 states:

Development that has a capital investment value of more than \$30 million or employs 100 or more people for any of the following purposes:

(a) metal or mineral refining or smelting; metal founding, rolling, drawing, extruding, coating, fabricating or manufacturing works; metal or mineral recycling or recovery,

As outlined in section 3.2 of this report, the project is expected to employ 161 people and have an estimated capital investment of \$40 million. The proposed cable manufacturing facility therefore meets the criteria of schedule 1, clause 9a of SEPP Major Projects.

Declaration as Part 3A

The Minister for Planning has declared the proposal to be a major project and thus assessed under Part 3A of the EP&A Act, through the application of section 75B(2) of that Act. Consequently, the Minister for Planning is the consent authority for this proposal.

4.2 Environment Protection Licensing

The *Protection of the Environment Operations Act 1997* (POEO Act) establishes the NSW environmental regulatory framework, and includes licensing requirements for certain activities.

Environment protection licences (EPLs) are a central means to control the impacts of pollution in NSW. In particular they aim to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following:

- ▶ Pollution prevention and cleaner production.



- ▶ The reduction to harmless levels of the discharge of substances likely to cause harm to the environment.
- ▶ The reduction in the use of materials and the re-use or recycling of materials.
- ▶ The making of progressive environmental improvements, including the reduction of pollution at source.
- ▶ The monitoring and reporting of environmental quality on a regular basis.

The POEO Act contains a list of activities that require an environmental protection licence (under Schedule 1 of the POEO Act). Item 26 of Schedule 1, refers to Metallurgical Activities being:

'Metal processing, meaning the processing of metals by heating, rolling, melting or casting metal'

and states that any activity involving aluminium production which has the capacity to process more than 10,000 tonnes of alumina per year will require a license.

The proposal meets this definition and is expected to process approximately 50,000 tonnes of alumina per year. Therefore, the proposal is to be considered a scheduled activity. Accordingly, a licence under the POEO would be required.

4.3 Relevant Planning Instruments

4.3.1 State Environmental Planning Policy

In addition to the SEPP Major Development, there are numerous other SEPPs that apply to the proposal. These would be analysed for their relevance and applied appropriately in the environmental assessment process. SEPPs of relevance include:

- ▶ State Environmental Planning Policy No 14 – Coastal Wetlands.
- ▶ Hunter Regional Environmental Plan 1989 (Heritage).
- ▶ State Environmental Planning Policy No 33 – Hazardous and Offensive Development.
- ▶ State Environmental Planning Policy No 44 – Koala Habitat Protection.
- ▶ State Environmental Planning Policy (Infrastructure) 2007.

4.3.2 Local Environmental Planning

The proposal would be located entirely within the Port Stephens Local Government Area (LGA), and therefore the Port Stephens Local Environmental Plan 2000 (PSLEP 2000) is relevant. However, subject to Clause 5 of SEPP Major Development, any inconsistencies between SEPP Major Development and another environmental planning instrument, SEPP Major Development prevails. Nonetheless, the land use zoning of the site and the surrounding land would be considered in the environmental assessment.



The site is zoned 4(a) Industrial – General under the Port Stephens Local Environmental Plan. The objectives of this zoning are:

- (a) to enable the development of a wide range of industrial, service and storage activities and a limited range of business and retail activities, and*
- (b) to allow industrial development only after comprehensive hazard analysis and risk assessment provide adequate safeguards designed to protect the surrounding environment and ecological balance, and*
- (c) to regulate industries in proximity to urban localities and to ensure that adequate buffers are provided in the vicinity of adjacent zones, so that activities near the boundary of an adjacent zone will not have a significant detrimental effect on the amenity of that zone, and*
- (d) to enable the most efficient and effective industrial development of waterfront industrial land by encouraging associated waterfront land uses sympathetic to the environment and ecology of the waterfront lands, and*
- (e) to allow commercial, retail, residential, or other development only where it is associated with, ancillary to, or supportive of, industrial development, and*
- (f) to limit development for the purpose of bulky goods salesrooms or showrooms, and*
- (g) to encourage a high standard of design and amenity in industrial areas.*

The proposed manufacturing facility is consistent with the objectives of the Port Stephens LEP.

Permissibility of development on land zoned 4(a) Industrial – General is outlined in clause 23 of the Port Stephens LEP. Prohibited development within this zone includes:

- bed and breakfast establishments,*
- boarding-houses,*
- camp or caravan sites,*
- commercial premises,*
- dual occupancy housing,*
- dwellings, other than those ancillary to and on the same land as other development permissible in this zone,*
- hospitals,*
- restricted premises,*
- roadside stalls,*
- shops,*
- tourist facilities,*
- urban housing.*

The proposal is not considered to be classified as any of the developments listed and is therefore permissible with Council consent.



The subject site falls under class 4 land as shown on the acid sulphate soils maps referred to in the LEP. Therefore any:

Works more than 2 metre below the natural ground surface; or
Works likely to lower the watertable to a depth of more than 2 metres below the natural ground surface

will require the preparation and submission of an acid sulphate soil assessment and management plan.

Additionally, maps showing bushfire prone areas indicate that the site falls partially within the '100m vegetation buffer zone'. Therefore any future industrial development of the site will be required to adhere to the aims and objectives of the NSW Rural Fire Service's *Planning for Bushfire Protection* (2006).

4.4 Other Relevant Legislation

Table 1 Summary of other relevant Legislation

Legislation	Key Requirements	Relevance to the Project
Native Title Act 1993 (Cwth)	The Native Title Act 1993 administers processes relating to the recognition, protection and determination of native title and dealings with native title land.	There is no known Native Title application applicable to the subject site.
Contaminated Land Management Act 1997 (CLM Act)	Section 60 of the CLM Act requires landowners to report any contamination that represents a significant risk of harm to human health or the environment to the Department of Environment, Climate Change and Water.	Due to the heavy industrial activity associated with the locality, the subject site may contain contaminated land. Relevant contaminated land assessments would be conducted within the site.
Crowns Lands Act 1989 (CL Act)	Governs the use of Crown land.	Crown land is not expected to be impacted by the proposal.
Environment Protection and Biodiversity Conservation Act 1999 (Cwth) (EPBC Act)	Assessment is required under the EPBC Act when an action may have a significant impact on a matter of national environmental significance.	The results of flora and fauna studies currently being undertaken will determine whether impacts on matters protected under the EPBC Act are likely.
Fisheries Management Act 1994 (FM Act)	Under the FM Act, approval is required from the Industry and Investment NSW (Fisheries), for activities involving dredging and reclamation (section 219) and harming of certain marine vegetation in a protected area (section 205).	Pursuant to section 75U of the EP&A Act, permits under section 201, 205 or 219 of the FM Act are not required for an 'approved project' under Part 3A.

Legislation	Key Requirements	Relevance to the Project
	A license is required under section 220Zw of the FM Act for activities likely to harm or damage threatened species, populations or ecological communities.	
Heritage Act 1977 (Heritage Act)	A consent is required under Part 4 of the Heritage Act for development which alters, moves or damages any part of a listed heritage item. An excavation permit is required under section 139 of the heritage Act to 'damage, despoil, move or alter' relic.	Pursuant to section 75U of the EP&A Act, an approval under Part 4 of the Heritage Act is not required for an approved Part 3A Project. Pursuant to section 75U of the EP&A Act, an excavation permit under section 139 of the Heritage Act is not required for an approved Part 3A Project.
National Parks and Wildlife Act 1974 (NPW Act)	Under section 90 of the NPW Act, a consent is required to destroy, deface or damage an Aboriginal object or Aboriginal Place.	Pursuant to section 75U of the EP&A Act, an approval under section 90 of the NPW Act is not required for an approved Part 3A Project.
Noxious Weeds Act 1993 (NW Act)	Noxious weeds are to be managed in a way to restrict their dispersal and establishment.	The environmental assessment would identify any noxious weeds on the site that require management.
Roads Act 1993	Section 138 of the Roads Act requires that a person obtain the consent of the appropriate roads authority for the erection of a structure, or the carrying out of a work in, on or over a public road, or the digging up or disturbance of the surface of a public road.	Work may be required on surrounding roads and the appropriate consents obtained when the extent of work is determined.
Rural Fires Act 1997 (RF Act)	The RF Act manages bushfire within the State and regulates development in bushfire prone areas.	The site is designated as bush fire prone land by Port Stephens Council and an appropriate fire management plan will be prepared.



Legislation	Key Requirements	Relevance to the Project
Threatened Species Conservation Act 1995 (TSC Act)	The TSC Act requires any threatened species, populations or ecological communities associated with a proposed development to be identified and that acceptable recovery and management strategies are implemented when a likely significant impact would occur.	The proposal would potentially affect threatened species and/or ecological communities. These impacts will be assessed in the environmental assessment.
Waste Avoidance and resource Recovery Act 2000 (WARR Act)	This act provides a framework to identify and implement the most efficient use of resources in order to reduce the potential for environmental harm arising from the generation of waste.	During construction and operation, the Resource Management Hierarchy Principles of Avoidance, Resource Recovery and Disposal would need to be applied.
Water Management Act 2000 (WM Act)	Under the WM Act, an access license is required for water extraction	No water extraction is proposed as part of the proposal.
	The WM Act provides that certain types of development and activities that are carried out in or near a river, lake or estuary are “controlled activities” and require a controlled activity approval under section 91.	The site is outside of the prescribed maximum distance for waterfront land.
	Approval is required for interception of groundwater.	Excavation is proposed as part of the proposal. Requirement for approval under the WM Act will be determined following geotechnical investigations of groundwater impacts.

4.5 Consultation and Stakeholder Engagement

A Communications and Stakeholder Engagement Strategy is being developed to provide the local community, statutory and industry stakeholders with information about the proposal and identify clearly defined opportunities to provide informed feedback.

The Communications and Stakeholder Engagement Strategy is being designed to pro-actively seek stakeholder input in the proposal and build effective and sustainable relationships between Midal and the various stakeholders.

Community and stakeholder consultation would commence prior to submission of the environmental assessment so that stakeholder requirements are accurately captured and considered in the detailed design and mitigation measures.



Midal propose to undertake an appropriate level of consultation with the relevant community and stakeholders including, but not limited to:

- The Department of Planning.
- Department of Environment, Climate Change and Water.
- Port Stephens Council.
- Roads and Traffic Authority.
- Relevant servicing authorities.
- Local industries and affected parties.

The objectives of the consultation program will be to:

- Provide project information to assist the various stakeholders in understanding the proposal and its likely impact on the community and the environment.
- Ensure regulatory requirements associated with the proposal are met.
- Provide all stakeholders an opportunity to have input into the relevant social, economic and environmental issues affecting them and resulting from the proposal.
- Ensure any issues resulting from the consultation are addressed in development of the proposal and where necessary, addressed in the environmental assessment report.
- Ensure appropriate relationships are established and maintained throughout the life of the project.



5. Preliminary Environmental Assessment

5.1 Introduction

This section provides a preliminary assessment of the main environmental issues associated with the proposal. Key features of the existing environment, potential environmental issues resulting from the proposal, and proposed assessment methodologies have been presented.

5.2 Issues Identification

The general environmental issues associated with the proposal have been identified based on existing data and knowledge of the site held by Midal International, preliminary investigations undertaken by the project team and understanding of the statutory framework and general approvals requirements. These include in no specific order:

- Presence and proximity of threatened flora and fauna adjacent to and within the study area.
- Previously unidentified Indigenous and non-Indigenous heritage items located within and adjacent to the study area.
- Noise and air quality impacts on proximate properties resulting from construction and operation of the cable manufacturing plant.
- Disturbance of soil during bulk earthworks.
- Traffic impacts associated with construction and transportation of aluminium to the site.
- Visual impacts of the manufacturing facility from adjacent locations.
- Geotechnical conditions and groundwater.
- Contamination and acid sulphate soils.
- Sustainability, energy and greenhouse.
- Landscape and visual amenity.
- Waste and spoil management.
- Hazard and risks.

Of these some have been identified as Key issues warranting further detailed investigations and these are discussed in Section 6. General issues of less significance are discussed below.

5.3 Aboriginal Heritage

5.3.1 Existing Environment

The site has been subject to extensive disturbance from both previous industrial uses and sand mining. There are no known aboriginal objects or places within the site however a number of items of aboriginal significance have been previously identified within the wider Tomago area.



5.3.2 Potential Impacts

Potential impacts on items of Aboriginal heritage significance would be associated with ground surface disturbance to excavate footings.

5.3.3 Methodology for Environmental Assessment

A desktop assessment will be prepared based on an Aboriginal Heritage Information Management System (AHIMS) site register search, a review of previous projects in the area and review of the soil landscape setting which helps determine the potential for site preservation.

The assessment will adhere to the consultation process as prescribed by the DECCW 2010 Consultation Guidelines. A field assessment will be carried out with at least one representative of the Aboriginal community.

An Aboriginal Cultural Heritage assessment will be prepared that addresses the potential for the site and the impacts of the proposed development. Management strategies will also be developed for inclusion in the environmental assessment.

5.4 Geotechnical and Groundwater

5.4.1 Existing Environment

The geology of the site is understood to be characterised by quaternary sands to a depth of 4.5m overlaid in areas by a thin layer of gravel fill.

Groundwater varies across the site and recent test pits have shown groundwater depth to vary between approximately 2m to greater than 4m.

No information on groundwater quality has been obtained at this stage but will be included in the Environmental Assessment.

5.4.2 Potential Impacts

Although detail design is yet to be carried out, it is envisioned that construction of building pads will be primarily cut and fill with the only material likely to be imported being material for the haul road. Some deeper pits associated with the machinery and the associated cooling systems may require to be excavated and it is likely the invert levels of these will be below the water table. Accordingly some dewatering during construction may be required.

All construction associated with the proposal will require significant compaction and detailed information of the bearing capacity of the soils to enable foundation and slabs to be design to ensure no differential settlement occurs.

5.4.3 Methodology for Environmental Assessment

A geotechnical assessment will be undertaken and consist of field investigation and laboratory testing.

Field investigations will involve drilling boreholes (six in total), cone penetrometers testing (CPT) (10 in total) and excavation of test pits (11 in total) followed by laboratory testing to assess the



physical and chemical characteristics of the site soils. The results of the test pits and boreholes will also provide extensive information on the groundwater levels across the site.

5.5 Surface Water and Hydrology

There are no water bodies or water courses on, or adjacent to, the site.

The site is above flood prone lands identified on the Port Stephens Council Flood Prone Land Maps.

Due to the relatively deep sands of the site and surrounding areas it is anticipated that very little overland flow will occur across the site.

Although the impervious area of the site will increase following construction it is proposed that stormwater harvesting will be utilised to provide cooling water to the plant.

5.6 Social and Economic Impacts

The area surrounding the site is characterised by heavy industrial and rural residential land holdings. Immediately adjacent land uses include the Tomago Aluminium Smelter which will supply the proposed cable manufacturing plant with molten aluminium. Mature vegetation buffers the closest residential building, which is located approximately 200m southeast of the site.

A Communications and Stakeholder Engagement Strategy is being developed to provide the local community, statutory and industry stakeholders with information about the proposal and identify opportunities to provide informed feedback. Community and stakeholder consultation would commence prior to submission of environmental assessment so that stakeholder requirements are accurately captured and considered in the detailed design and mitigation measures.

The proposal is located within the Port Stephen's LGA and lies within the Tomago Aluminium Buffer Zone which precludes all rural and residential activity and allows 24 hour industrial activity, seven days a week. The *NSW Lower Hunter Regional Strategy* identifies the site as employment land. Additionally, there is proposed employment land planned to be located adjacent the site on the southern side of Tomago Road.

The *Port Stephen's Council Economic Development Strategy* identifies the expansion of the Tomago industrial precinct as crucial to the economic viability of the Port Stephen's LGA. During operation, the proposal is expected to employ approximately 150 persons and operate 24 hours a day, seven days a week. As the aluminium will be sourced locally, the proposal will contribute to the long term prosperity of Tomago Aluminium, one of the largest employers in the area. Economic benefits are also expected to be felt at a national level; approximately 50,000 tonnes of aluminium rod will be produced every year with half being exported to international markets.

The proposal is expected to generate significant economic benefits for the Lower Hunter Region. Mitigation measures would be developed to minimise negative social impacts on residents and agricultural activities situated along Tomago Road.



5.7 Landscape and Visual Amenity

5.7.1 Existing Environment

The site has previously been used for industrial purposes and is located within a large industrial area that includes building similar in size and height to those proposed by Midal.

The site is not visible from any public roads.

5.7.2 Potential Impacts

The proposal is likely to have minimal visual impact on adjacent development and the area in general as there are no sensitive receivers, such as residences, that would have views of the site.

5.7.3 Methodology for Environmental Assessment

Photomontages will be prepared from sensitive receptors and viewpoints.

5.8 Waste and Spoil Management

5.8.1 Existing Environment

The existing landuse pattern in the general area of the site is industrial. The waste generated from the existing industrial activities is managed by each individual operation.

5.8.2 Potential Impacts

Construction

Possible waste streams generated during the construction phase are presented in Table 2.

Table 2 Waste Generated during construction phase

Waste Source	Composition	Classification per DECCW Waste Classification Guidelines
Site clearing and ground preparation. Site excavation and bulk earthworks.	Foliage, excess fill materials, excavated material such as soil or rock.	General Solid Waste (Non Putrescible).
Construction of the cable manufacturing facility and associated structures. Demolition of existing structures. Erection of security fencing along the boundaries of the site and the installation of safety measures.	Scrap wood, metals and concrete spills. Packaging from materials received at facility, such as foam, strapping and lumber. Concrete, metal rods/pipes and timber.	General Solid Waste (Non Putrescible).



Waste Source	Composition	Classification per DECCW Waste Classification Guidelines
Construction phase liquid waste from plant and machinery maintenance.	Fuels, oils, paints and chemicals.	Could be hazardous or non-hazardous.
Wastewater from various construction activities.	Water from concrete mixing and curing, site clean up, etc.	Non-hazardous.
Site office.	Used paper, boxes, cartridges, toners.	General Solid Waste (Non Putrescible).

Operation

The site is currently not sewered and it is intended that onsite sewerage treatment will be undertaken as part of a comprehensive water treatment and reuse strategy. Careful consideration will be given to onsite treatment relative to water quality and possible impacts on groundwater.

Water service is available in Tomago Road.

Wastes from the operation of the proposal will be limited to include:

- ▶ Atmospheric emissions from the furnaces.
- ▶ Minor volumes of treated liquid which cannot be used for manufacturing processes.
- ▶ Minor volumes of oil removed during the water treatment process. This will be collected and stored on site until being collected and trucked by a licensed contractor to an appropriately licensed disposal facility.
- ▶ Waste hydrocarbons and domestic waste will be removed from site and disposed of by licensed contractors.

5.8.3 Methodology for Environmental Assessment

The *Waste Avoidance and Resource Recovery Act 2001*, the *POEO Act 1997* and relevant regulations and applicable industry guidelines would be used to classify the wastes and where possible, determine measures to handle, store and appropriately dispose of the waste. Proposed waste handling and management minimises the risk of causing harm to or loss of vegetation, animal, aquatic or human life or contamination of the environment.

Mitigation measures would be developed to minimise issues associated with waste management.



6. Key Issues

6.1 Air Quality

6.1.1 Existing Environment

Sensitive receptors in the vicinity of the site include residential dwellings located adjacent Tomago Road. The nearest residential dwelling is located approximately 200 metres south east of the site. Industrial activity is the greatest source of air pollution in the area.

A search of the National Pollution Inventory for a 5 km radius around the site indicated that there are 5 reporting facilities in the area resulting in the emission of various substances including Volatile Organic Compounds (VOCs), particulate matter (dust), carbon monoxide (CO), oxides and nitrogen (NO_x) and hydrogen fluoride (HF).

The largest single source of pollutants near the site is the Tomago Aluminium Smelter, which produces significant fluoride emissions. An environmental buffer zone has been developed as a condition of consent for the aluminium smelter which identifies a special environmental management zone where ambient levels of pollutants may be above DECCW guideline limits. The site is entirely within the buffer zone as is the residential property previously mentioned.

Other less significant sources of air pollution in the area are motor vehicles utilising the surrounding road network and the Newcastle International Speedway.

6.1.2 Potential Impacts

As with all large scale industrial development, there is the potential for air quality impacts during both the construction and operation phases of the project.

Construction

The likely impacts on air quality during construction would be related to earthworks and the subsequent generation of dust. The movement of machinery and vehicles around the site may also result in dust generation as well as low levels of emissions from combustion engines.

As several residential properties are positioned in reasonably close proximity to the study area, there is potential for dust generation and vehicle emissions issues to impact on surrounding residential development.

Cumulative impacts on air from construction are an important issue for consideration given the existing pollution sources in the area.

Operation

During operation, there is potential for air quality impacts as a result of emissions generated by the proposal, as well as the movement of site vehicles. Based on the proposed operation process, emissions are likely to consist of CO₂, Sulphur Dioxide (SO₂), NO_x, VOCs and particulate emissions.



The rod manufacturing process is considered to provide the greatest potential for atmospheric omissions as well as vehicles on site. No fluoride emissions are anticipated to be produced from this proposal as these are produced during the initial smelting process at the Tomago smelter.

Cumulative impacts on air from operations are an important issue for consideration given the existing pollution sources in the area.

6.1.3 Methodology for Environmental Assessment

The assessment of air quality impacts would be undertaken with consideration to the relevant guidelines and legislation, with the aim of protecting the air quality amenity of local residences by ascertaining appropriate air pollution mitigation measures for the proposal. The air quality impact assessment would:

- ▶ Take into account the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DECCW).
- ▶ Consider the existing and future environment of the site, including land uses surrounding the site, particularly those subject to current development applications and approvals.
- ▶ Consider existing air quality and surrounding sensitive receptors.
- ▶ Consider the meteorological conditions of the area, particularly prevailing wind directions and stable atmospheric conditions.
- ▶ Establish air quality and odour performance criteria for the proposal.
- ▶ Consider the potential for air quality impacts during the construction of the proposal.
- ▶ Model the potential air quality impacts associated with the operations of the proposal using published emission rate data and information supplied by Midal. The potential for cumulative impacts will also be assessed.
- ▶ Provide recommendations for mitigation measures to minimise the potential for air quality

6.2 Contamination and Acid Sulphate Soils

6.2.1 Existing Environment

GHD have conducted a Phase I Contaminated Site Assessment. Review of historical data indicates that the site was part of a larger farming property which has been subdivided a number of times. Title deeds acquired from 1878 to present suggest that the site was largely used for farming purposes between 1878 and 1968 and for industrial uses from the 1970s to present.

The Section 149 certificates for Lot 5 and Lot 6 DP 270328 indicate that Port Stephens Council is aware of potential site contamination that may restrict development on the land.

No records relating to specific contamination or remediation were identified within DECCW searches.



GHD undertook a review of a Phase II Environmental Site Assessment (ESA) completed in 1999 (ERM Group) for an area of land including the midal site. The ESA revealed that there were elevated levels of lead in the soil and elevated levels of copper and chromium in the groundwater at measuring points close to the site. Soil composition found within the study area consisted of quaternary sands to a depth of 4.5m overlayed in areas by gravel fill to a depth of 0.5m.

An investigation of the Midal site revealed that the majority of the site was overlayed with scattered shrubs, grasses and trees. Small amounts of waste dumping were observed along the chain wire fence in the northern portion of the site. Other portions contained hardstand areas and scattered debris from previous industrial uses including metal scrap, timber, fibreglass and metal castings/ weld fragments. Improvements on the site included a colorbond shed with associated storage areas and structures which may have been utilised for storage of oil drums.

Several point sources of surface contamination were identified in the field investigations including within the areas of hardstand in the central western, central and southern portions of the site. Potential subsurface sources were identified as buried waste, chemicals and underground storage tanks, however these could not be verified through a site inspection alone.

Port Stephens Council Acid Sulfate Soil mapping indicates that the subject site is classified as *Class 4 Potential Acid Sulfate Soil*.

There was no significant visual evidence of contamination during the walk over apart from blue discolouration of the ground surface north of the shed.

6.2.2 Potential Impacts

Historically, potentially contaminating activities undertaken either in, or within the vicinity of, the site may have included agricultural and industrial activities. Potential contaminants arising from these activities would generally be confined to specific locations and may have included the use and storage of oil; machinery use, storage and maintenance; foreign fill materials; weed and pest control; and potential acid sulphate soils.

The potential for the contamination of surface water flowing offsite would need to be addressed. Potential groundwater impacts from hydrocarbons would also need to be identified and mitigated.

If contamination is present it may pose a health risk to several sensitive receivers, including:

- ▶ Site workers/subcontractors/employees.
- ▶ Site visitors.
- ▶ Flora and fauna on the site and surrounding land.
- ▶ Nearby residents.
- ▶ Groundwater beneath the site.

It is possible that contaminated soil could be present on site in areas of previous sand blasting or welding and also adjacent to and down hydraulic gradient from areas where oil products have been used/stored and resulting from imported fill materials or the past use of pesticides for weed control.



6.2.3 Methodology

GHD's Phase I Contaminated Site Assessment concluded that it is unlikely that any significant contamination of the site has occurred as a result of past industrial and agricultural activity. Further investigations would take place to determine the suitability of the site for continued industrial use. The Phase II Contaminated Site Assessment would be in accordance with NSW DECCW guidelines and legislation. These investigations would take place as part of the geotechnical investigations.

A sampling and analytical program has been developed to sample the Areas of Environmental Concern (AECs) within the site. A combination of a targeted and systematic sampling strategy is proposed with 16 locations. Data retrieved will indicate whether there is a presence of significant contamination which may trigger further detailed studies. AECs include locations of former sand blasting, welding, metal storage and oil storage. Other locations will be selected to provide a general broad grid across the site (systematic sampling). This sampling will also test for potential acid sulphate soils.

6.3 Noise

6.3.1 Existing Environment

The nearest sensitive receivers are residential dwellings located adjacent to Tomago Road, the closest of which is approximately 200 metres south of the site. Noise levels in the vicinity of the site are dominated by existing industrial activity and vehicular movement, particularly along Tomago Road. Due to the concentration of industrial uses, heavy vehicle movement is common on surrounding road networks.

Under the licence conditions of neighbouring industrial sites, ambient noise monitoring is undertaken regularly at surrounding sensitive receivers.

6.3.2 Potential Impacts

The potential noise generated by the construction and operation of the proposal would occur in an environment already subject to background noise generated by existing industrial land uses. The operation of machinery during construction and operation may contribute to noise levels experienced by surrounding receivers.

Increased truck movement as a result of the construction and operation of the proposal would potentially result in an increase of noise levels within the locality.

Night time noise is also a potential issue as a result of the 24 hour operations of the proposal.

Cumulative noise impacts from construction and operation are an important issue for consideration given the existing noise sources in the area.

6.3.3 Methodology for Environmental Assessment

The following key tasks would be undertaken to assess the noise and vibration impacts associated with the proposal:



- ▶ Take into account the following NSW Department of Environment, Climate Change and Water (DECCW) guidelines:
 - Industrial Noise Policy (INP).
 - Environmental Criteria for Road Traffic Noise (ECRTN).
 - Interim Construction Noise Guideline.
- ▶ Consider the existing and future environment of the site, including land uses surrounding the site, including those subject to current development applications and approvals.
- ▶ Consider the existing noise environment and sensitive receivers.
- ▶ Conduct background noise monitoring at sensitive receivers potentially affected by the proposal to establish existing levels of industrial noise and develop project specific noise criteria.
- ▶ Model the potential noise impacts associated with the construction and operation of the proposed facility and assess potential impacts against the adopted noise goals. The potential for cumulative impacts will also be considered. Modelling would utilise noise level measurements supplied by Midal from an existing aluminium rod and conductor manufacturing facility in Bahrain.
- ▶ Develop a construction noise management plan for construction of the proposal and identify noise amelioration options for the operations of the proposed facility.
- ▶ Impacts off site.

6.4 Flora and Fauna

6.4.1 Existing Environment

The information contained within this section has been based on a review of information available from:

- ▶ DECCW Atlas of NSW Wildlife records for threatened species, endangered populations and endangered ecological communities listed under the Threatened Species Conservation Act 1995 (TSC Act).
- ▶ Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) listed under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- ▶ Lower Hunter and Central Coast Regional Extant Vegetation Map 2003 (LHCCREMS 2003).
- ▶ Hunter, Central and Lower North Coast Vegetation Classification Mapping Project (Somerville 2009).
- ▶ Port Stephens Council Comprehensive Koala Plan of Management (CKPoM) –2002 (Port Stephens Council 2006).
- ▶ Vegetation of the Tomago and Tomaree Sandbeds, Port Stephens: Management of Groundwater Dependant Ecosystems – Part 1 Vegetation Classification (Bell and Driscoll 2006).



The results of the literature review and database searches were used to guide the field surveys and assessment of ecological values across the site.

Vegetation Communities

Two vegetation communities were confirmed within the study area:

- Coastal Sand Apple–Blackbutt Forest.
- Exotic grassland.

Coastal Sand Apple-Blackbutt Forest

LHCCREMS vegetation mapping depicts one vegetation community (Coastal Sand Apple-Blackbutt Forest) within the study area. The presence of this vegetation community within the northwest corner of the site was confirmed by the field investigation. This community is not listed as an endangered ecological community (EEC) on the TSC or EPBC Acts. It is an open forest to woodland with a shrubby understory. It occurs on freely draining Quaternary Pleistocene Sand deposits.

Within this patch of vegetation the majority of the canopy trees have died off and remain standing as stags, many of which have hollows. Where the canopy is still present it is dominated by young *Angophora costata* (Smooth Barked Apple) to 10 metres tall with the occasional *Corymbia gummifera* (Red Bloodwood).

The condition of this community varied across the study area from good in the northwest corner to moderate within areas of the site that have previously been disturbed by sandmining. The canopy layer within this disturbed area has not regenerated following the past disturbance. Weed invasion is also high within this disturbed area with the groundlayer being dominated by *Andropogon virginicus* (Whiskey Grass). There are also several patches of *Lantana camara* (Lantana) throughout the site.

This vegetation community is also consistent with Bell and Driscoll's description of Blackbutt-Apple-Bloodwood Open Forest and Somerville's description for Smooth-barked-Blackbutt-Old Man-Banksia Coastal Sands Woodland (Bell and Driscoll 2006, Somerville 2009).

Exotic Grassland

The southern portion of the site consists of cleared land with areas of concrete hardstand, old industrial sheds, associated infrastructure and industrial waste (wire, litter, timber, scrap metal and plastics). Vegetation within this area consists of exotic closed grassland dominated by introduced grasses and herbs.

The distribution of these vegetation communities within the study area is shown in Figure 6.

Flora

Within 10 km of the study area there are Atlas of Wildlife records for:

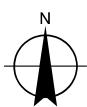
- Seven flora species that are listed as threatened under the NSW TSC Act
- Six species that are listed as threatened under the Commonwealth EPBC Act (DECCW 2011).



LEGEND

- | | |
|-----------------------------|---|
| Proposed Haul Road | Vegetation Communities |
| Proposed Building Footprint | Coastal Sand - Apple Blackbutt Forest |
| Investigation Area | Disturbed Coastal Sand - Apple Blackbutt Forest |
| Cadastre | Exotic Grassland |

1:2,500 (at A4)
 0 12.5 25 50 75 100
 Metres
 Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia (GDA)
 Grid: Map Grid of Australia 1994, Zone 56



CLIENTS | PEOPLE | PERFORMANCE

Midal Cables International Pty Ltd
 Tomago Rod and Conductor Manufacturing Facility
 Preliminary Environmental Assessment

Job Number	22-15280
Revision	A
Date	04 MAR 2011

Vegetation Communities

Figure 6

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E entlmail@ghd.com.au W www.ghd.com.au

G:\2215280\GIS\Maps\Deliverables\PEA\2215280_PEA_008_Vegetation_20110221_A.mxd

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 Data Source: Nearmap: Photomap - 2011; LPMA: DCDB - 2007. Created by: fmackay, tmorton



In addition to these known records, the PMST shows that an additional four threatened flora species listed under EPBC Act have the potential to occur within the study area. These species are also listed under the TSC Act.

A total of 68 flora species were identified in the field survey of the study area, however, given the seasonal limitations of the survey the total number of flora present is likely to be higher. Of the species identified approximately 27% were introduced species.

No threatened flora species were recorded in the study area during the field survey. An assessment of the potential for threatened flora species, examining the habitat values of the study area in combination with threatened species habitat requirements, identified that the following species could potentially occur within the study area:

- ▶ *Grevillea parviflora subsp parviflora* (Small Flowered Grevillea) - Listed as vulnerable on the TSC Act and as vulnerable under the EPBC Act.
- ▶ *Tetradlea juncea* (Black Eyed Susan) – Listed as vulnerable on the TSC Act and as vulnerable under the EPBC Act.

Fauna

Sixty species of threatened fauna are known or predicted to occur within 10 km of the study area. Sixteen of these species are listed under the EPBC Act, 60 are listed under the TSC Act and three are listed under both the EPBC and TSC Acts.

The majority of these threatened species records are wetland birds that are likely to have been recorded at the nearby Kooragang wetlands.

Thirty-six species listed as Migratory and 46 species listed as Marine under the EPBC Act are either known or predicted to occur within 10 km of the study area. Given the site's proximity to the coast line it is unlikely that any of these bird species would utilise the study area.

It is unlikely that Koalas would be using the area as a corridor between habitats as the site is on the edge of an area of preferred vegetation and does not provide any connectivity between patches.

A habitat assessment was undertaken within the study area. Fauna habitat types and resources recorded within the study area include:

- ▶ Coastal sand forest.
- ▶ Hollow bearing trees.
- ▶ Exotic grassland.
- ▶ Constructed features.

No threatened fauna species were recorded in the study area during the field survey. However, there is suitable habitat within the study area for a number of threatened species. These would be investigated at the Environmental Assessment phase.

A brief description of each of the broad habitat types occurring within the study area is provided below.



Coastal Sand Forest

Corresponding vegetation community: Coastal Sand Apple–Blackbutt Forest

Coastal Sand Forest within the study area occurs within the northwestern lot where the proposed haul road would be located.

The majority of the canopy layer is dead or dying and although these trees are unlikely to provide feeding resources to local fauna, they may provide roosting and nesting resources suitable for common local diurnal and nocturnal birds as well as arboreal mammals.

The sedgy shrubby understorey is dense and floristically variable, offering foraging resources for many native fauna species. Species likely to use this habitat include the Bush Rat, and Brown Antechinus, with more disturbed conditions providing habitat for the Black Rat and House Mouse. In sections, this habitat type also contains a dense layer of leaf litter and fallen logs etc. This provides suitable habitat for a range of reptiles and some small mammals.

Exotic Grassland

Corresponding vegetation community: Closed Exotic Grassland

Most of the study area is characterised by cleared exotic grassland, a legacy of past land use practices. Generally exotic grasslands support a low fauna diversity, and few, if any, species depend on these habitats for their survival.

Exotic grassland within the study area provides potential habitat for common and adaptable open country fauna, including generalist species of birds such as Australian Magpie, Common Starling and Willy Wagtail, as well as mobile and wide-ranging birds, such as raptors and owls foraging from nearby woodland areas. Small ground dwelling mammals, most likely comprising introduced species such as the House Mouse (*Mus musculus*) and Black Rat (*Rattus rattus*) may also use the area for habitat.

It is considered unlikely that exotic grasslands within the study area provide suitable foraging or nesting habitat for threatened fauna

Hollow Bearing Trees

Corresponding vegetation community: None

Within the study area there are a large number of dead trees containing hollows. These hollows range in size from small (< 5 cm) to large (> 30 cm). These hollow bearing trees are likely to provide perching sites for raptors and potential nesting and roosting habitat for small, wide-ranging, mobile hollow-dependent fauna such as parrots, cockatoos and microchiropteran bats.

Constructed Features

Corresponding vegetation community: None

Constructed features within the study area include human-made structures such as tracks, fences, buildings, powerlines and power poles. On occasions, these structures may be used as perching sites, or locations for foraging (e.g. buildings). A range of species (e.g. small birds and microchiropteran bats) often nest in old fence posts and buildings, however, generally, this habitat has little value for most native fauna species.



6.4.2 Potential Impacts

The proposal has the potential to impact ecological values within and surrounding the study area, in the following way:

- Loss of native vegetation and fauna habitat types resulting from the clearing of approximately 4,000m² of vegetation of varying quality.
- Direct mortality or injury to ground-dwelling fauna species by machinery, vehicles or other activities during the construction process.
- Erosion and runoff.
- Introduction and spread of weeds.

6.4.3 Methodology for Environmental Assessment

A detailed ecological assessment would be undertaken as part of the environmental assessment in accordance with the Draft Guidelines for Threatened Species under Part 3A of the EP&A Act. This will identify appropriate management and mitigation measures to minimise the Project's impacts on the ecology of the site.

6.5 Sustainability, Energy and Greenhouse

A greenhouse gas (GHG) and climate change assessment will be carried out as part of the environmental assessment and will include:

- An estimate of the annual GHG emissions from fuel usage, electricity usage, the extraction of major raw materials, waste disposal, water consumption and transportation of the final product.
- A high level climate change risk assessment associated with a limited number of climate change variables.

The greenhouse gas assessment will be prepared in accordance with the general principles of:

- The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard developed by the World Business Council for Sustainable Development (GHG Protocol); and
- The Department of Climate Change and Energy Efficiency (DCCEE) National Greenhouse Accounts (NGA) Factors, June 2009.

The assessment will be limited to:

- Fuel consumption at the site.
- Electricity consumption at the site.
- Water consumption at the site.
- The acquisition of major raw materials.
- Waste disposal.
- Transportation of the final product.



It is likely that the emissions associated with the operation of the proposal will contribute the majority of the life cycle emissions and therefore emissions associated with construction and decommissioning activities will not be estimated.

The GHG assessment will:

- Identify and apply appropriate emission factors from the current DCCEE NGA Factors workbook.
- Outline the calculation procedures used to create the GHG emissions inventory.
- Convert energy consumption data into quantities of carbon dioxide equivalent emissions for each emissions source, and sum these values to estimate the total GHG emissions attributable to the proposal.
- Estimate the overall accuracy of the GHG assessment.
- Identify possible mitigation measures.

A high level climate change risk assessment will be undertaken to identify variables with the potential to impact on operations and decommissioning. The desktop study will be based on publicly available information and be restricted to climate change variables that could have a significant impact at the site (e.g. ground water, rain water and bush fires).

6.6 Traffic

6.6.1 Existing Road Infrastructure

The existing industrial development within the Tomago Industrial Area is serviced principally by Tomago Road along its southern boundary and the Pacific Highway along its western boundary. A number of minor roads are located within the area formed by Tomago Road and the Pacific Highway.

Tomago Road carries traffic from the Port Stephens and Williamstown Airport area to the Pacific Highway as well as local Industrial Traffic.

The Pacific Highway, through Tomago forms part of the main transport route between Brisbane, Newcastle and Sydney. Currently Tomago Aluminium transports their entire aluminium product via their northern access road onto the Pacific Highway and then south towards the port. B-doubles are used for this transport.

Access to the Midal site is via a private road, of School Drive which in turn joins Tomago Road.

6.6.2 Potential Impacts

During both construction and operation heavy and light vehicle movements will be increased on the private access road and School Drive and to a much lesser extent on Tomago Road. As a result of the Midal development, heavy vehicle traffic from Tomago Aluminium will be reduced with a correspondingly decrease in heavy vehicular traffic on the Pacific Highway north of the Tomago Road intersection. The reduction will occur due to molten metal being delivered directly to the proposal rather than the product being delivered to market. Heavy vehicle traffic along the Pacific Highway south of the intersection with Tomago Road will increase as Midal will be using semi trailers, instead of the B-doubles used by Tomago, to deliver product to market.



6.6.3 Methodology for Environmental Assessment

The assessment will generally be in accordance with the RTA Guide to Traffic generating Developments (2002), relevant Austroads Guidelines and Australian Standards. The study tasks to be carried out include:

- Visit the site to assess existing road and traffic conditions.
- Conduct peak period turn count surveys at Tomago Dr/ McIntyre Rd, McIntyre Rd/ School Dr and School Dr/ Private Rd intersections.
- Estimate the existing peak period level of service of Tomago Dr/ McIntyre Rd, McIntyre Rd/ School Dr and School Dr/ Private Rd intersections using SIDRA 3.2.
- Estimate the volume of traffic generated by the development based on data provided by Midal.
- Estimate the likely volume of development traffic during commuter peak periods.
- Assign development traffic on the road network.
- Assess the post-development peak period level of service of Tomago Dr/ McIntyre Rd, McIntyre Rd/ School Dr and School Dr/ Private Rd intersections using SIDRA 3.2.
- Recommend any safety and capacity improvements.
- Assess on-site parking and truck movement provisions based on AS 2890.2 (2002).

6.7 Hazard and Risk

The design and operation of the proposal will be subject to a comprehensive risk assessment and safety protocols.

A Safety in Design process will be undertaken during the design process to ensure risks to the public, employees and contractors are reduced to a level as low as reasonably practical.

During construction and operations, a wide range of measures and protocols will be implemented to again minimise risk to employees and contractors. These will include the relevant safety, health and environmental protection systems relevant to a manufacturing process of this type.

Midal have a comprehensive system in place in their existing facility in Bahrain including hazard identification and assessment and job safety practice. Where necessary this will be updated to conform to Australian Standards and incorporate any addition requirements sourced from Tomago's safety practices.

A site-specific Safety Management Plan along with Safe Work Method Statements will be prepared and implemented to apply to all construction personnel and site visitors. The Plan will identify hazards associated with work on the site and the hazard control measures or controls to be implemented to ensure that people are adequately protected from risk of injury or illness.

A preliminary hazard analysis (PHA) will be prepared as part of the environmental assessment in accordance with the current circulars or guidelines published by the Department of Planning.



7. References

Port Stephens Council, 2007. *Economic Development Strategy*. Prepared by Port Stephens Council.

<http://www.portstephens.nsw.gov.au/planning/89002.html>

Port Stephens Council, Local Environmental Plan, 2000.

<http://www.portstephens.nsw.gov.au/planning/219282.html>

Department of Planning, 2006. *The Lower Hunter Regional Strategy*.

<http://www.planning.nsw.gov.au/StrategicPlanning/Regionalplanning/HunterRegion/tabid/187/language/en-US/Default.aspx>

Department of Natural Resources, 2007. Acid Sulfate Soils Risk maps (GIS data).

NSW Rural Fire Service, 2009. Bushfire Prone Land maps.

NSW Rural Fire Service, 2006. *Planning for Bushfire Protection*.

http://www.rfs.nsw.gov.au/dsp_content.cfm?CAT_ID=900

GHD, 2011. *Phase I Contaminated Site Assessment*. Prepared March 2011.

DEC, 2006. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2006.

Environmental Protection Authority, 2000. *NSW Industrial Noise Policy*.

<http://www.environment.nsw.gov.au/noise/industrial.htm>

Environmental Protection Authority, 1999. *Environmental criteria for road traffic noise*.

<http://www.environment.nsw.gov.au/noise/traffic.htm>

Department of Environment and Climate Change, 2009. *Interim Construction Noise Guideline*.

<http://www.environment.nsw.gov.au/noise/constructnoise.htm>

GHD, 2011. *Noise Assessment*. Prepared March 2011.

GHD, 2011. *Air Quality Assessment*. Prepared March 2011.

DEC, 2007. *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*.

<http://www.environment.nsw.gov.au/air/appmethods.htm>

World Business Council for Sustainable Development & World Resources Institute, 2004. *The Green House Gas Protocol: A Corporate Accounting and Reporting Standard*.

<http://www.ghgprotocol.org/standards/corporate-standard>

Department of Climate Change and Energy Efficiency, 2010. *National Greenhouse Accounts Factors*.

<http://www.climatechange.gov.au/en/publications/greenhouse-acctg/national-greenhouse-factors.aspx>



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