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ASSESSMENT REPORT

DEVELOPMENT APPLICATION (DA 381-12-2001-i): PROPOSED REMEDIATION OF LOT 223, INDUSTRIAL DRIVE, MAYFIELD

File No: S01/01739

1. SUMMARY

BHP Billiton (the Applicant) is proposing to remediate part of the former Newcastle Steelworks site, Lot 223, which is located off Industrial Drive, Mayfield in the Newcastle local government area.

The Environment Protection Authority (EPA) has declared the site to be a "remediation site" under Section 21 of the *Contaminated Land Management Act 1997* (CLM Act). This means it considers the site to represent a significant risk of harm to human health and the environment.

Under Section 26 of the CLM Act, the Applicant has submitted a Voluntary Remediation Proposal to the EPA, and agreed to remediate the site.

On 20 December 2001, the Applicant submitted a Development Application (DA) for the proposed remediation of the site to the Department.

The proposal includes:

- Demolishing the Jubilee Shed and associated structures on the site;
- Removing stockpiles of concrete spares, storage racks, and a range of disused infrastructure from the site;
- Excavating and re-contouring about 67,500m^3 of contaminated material on the site;
- Capping the re-contoured site with a combination of coal washery reject (88,000m^3) from the Lake Macquarie region and clay (10,400m^3) from certain parts of the site;
- Upgrading the stormwater management system on the site; and
- Constructing a new entrance to the site at the current Industrial Drive/Vine Street intersection.

These works would take at least 22 months to complete, create 25 construction jobs, and cost about $8 million.

In addition, they would minimise the risk of harm to human health and the environment, and prepare the site for future industrial development.

Under the *Environmental Planning and Assessment Act 1979* (the EP&A Act), the proposal is classified as State significant, integrated, and designated development.

The Minister is the consent authority for the DA, however, the proposal requires additional approvals from the:

- EPA under the Protection of *the Environment Operations Act 1997*;
- Department of Land and Water Conservation (DLWC) under the *Water Act 1912*; and
- Roads and Traffic Authority (RTA) under the *Roads Act 1993*.

The Department exhibited the DA and EIS between 2 January and 15 February 2002, in accordance with the requirements for public consultation in Division 6 of Part 6 of the *Environmental Planning and Assessment Regulation 2000* (the EP&A Regulation).

During the exhibition period, the Department received 8 submissions on the DA: 1 from the Member for Port Stephens, Mr John Bartlett MP, 1 from Newcastle Council, and 6 from the general public, including the Mayfield Resident's Group and C.A.K.A.

These submissions were generally concerned about the potential visual (particularly those impacts associated with the removal of trees along Industrial Drive for the new intersection), air quality, noise, traffic, health, and water quality impacts of the proposal.

A number of submissions also questioned whether capping the contaminated soils was the best way to remediate the site.

The EPA and DLWC have provided their General Terms of Approval for the proposal, which have been incorporated into the proposed conditions of consent. However, the RTA has refused to provide its General Terms of Approval for the proposed entrance at the existing Industrial Drive/Vine Street intersection.

The Department has assessed the DA, EIS, and submissions on the DA, and recommends that the Minister approve the DA subject to conditions.

2. PROPOSED SITE AND SURROUNDING LAND USE

The site, Lot 223, is an irregularly-shaped block of land with frontages to Industrial Drive and Tourle Street, Mayfield about 5 kilometres north west of the Newcastle CBD (see Figure 1).

It forms part of the industrial area between Industrial Drive and the southern arm of the Hunter River, which used to form part of the former Newcastle steelworks site.

This industrial area is generally surrounded by the Steel River Industrial site, the Mayfield residential area - which includes the Phoenix Sports Club, Hunter Christian School, and the Hunter Women's Centre – and the Closure Area of the former steelworks site.

In April 2001, the Minister approved a DA from BHP (as it was then) to remediate the Closure Area, and construct and operate a multi-purpose shipping terminal on part of the site.

In the immediate surrounds of the site, there is the OneSteel Rod and Bar Mill (to the north); the OneSteel Pipe and Tube facility (to the east); and the ICI Australia and Koppers facilities (to the south). In addition, there is a separate allotment within the site, which is currently occupied by the Donhad manufacturing facility.

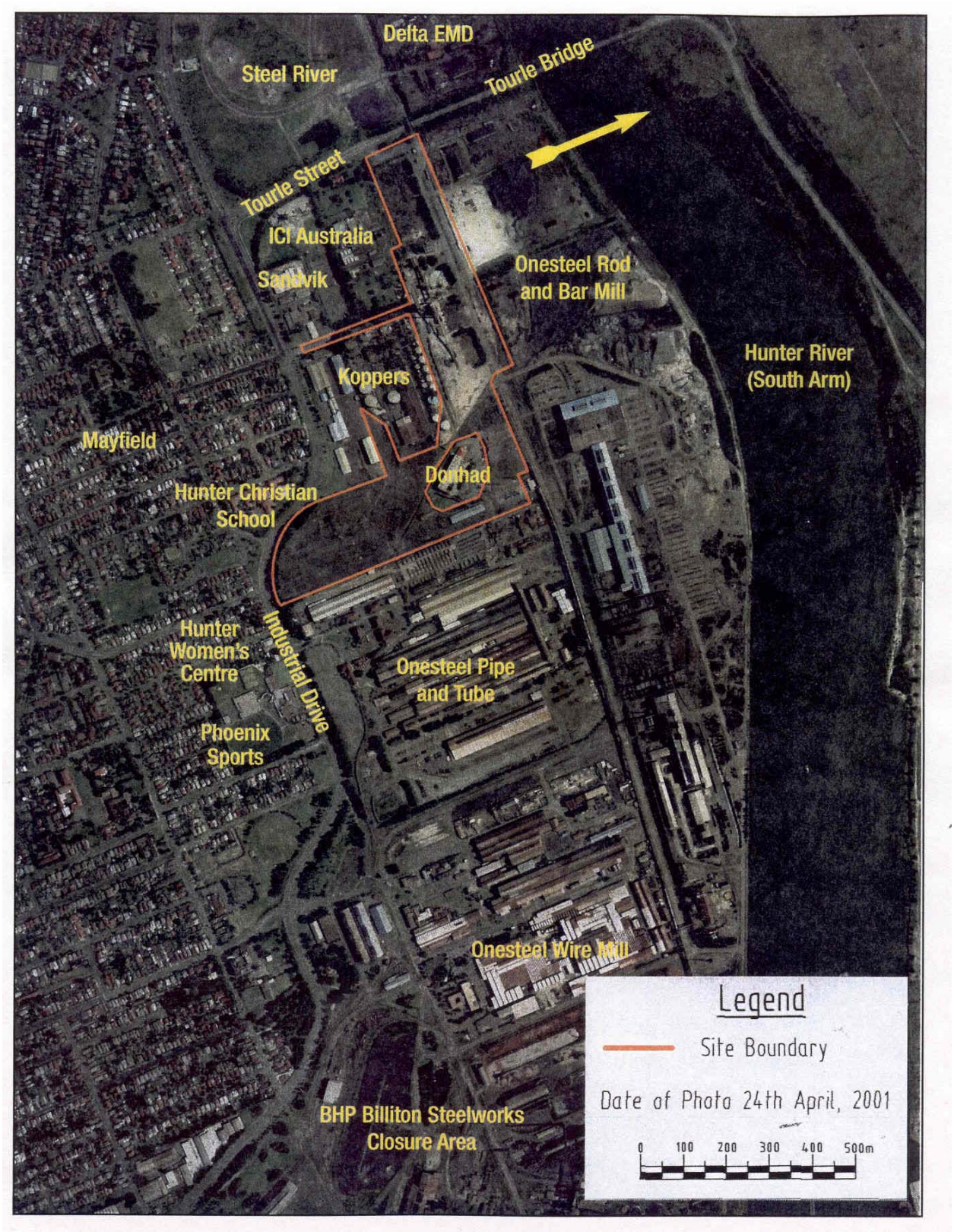

Figure 1: Regional Context

The site covers an area of about 24.4 hectares, and used to contain the Rotary Lime Kiln, Storage Area, and part of the Supply Area for the former steelworks.

Since the closure of the steelworks, however, the site has been mostly disused, although part of the north-eastern corner of the site is currently being used as the OneSteel car park.

In early 2001, Newcastle Council approved the demolition of the former Lime Kiln buildings, and these works began in September 2001.

The site is relatively flat, with slightly elevated areas on the south-western corner, which slope to the north-east and fall to the lower areas to the west.

The depth to bedrock varies across the site, but ranges from 4 metres (in the naturally elevated areas on the south-western corner of the site) to around 20 metres (on the northern part of the site).

This bedrock is covered with natural soils, predominantly brownish grey silty clay, that are, on average, 6 metres below the surface.

At present, the natural soils are covered with a range of fill material, mostly from the former steelworks operations. This fill ranges in depth from 0.5 to 9.7 metres, and includes:

- Blast furnace, Basic Oxygen Steelmaking (BOS), and Brecketts fines slag;
- Coke ovens by-products;
- Coal washery slurry;
- Grease and oils;
- Industrial waste (including sheet metal and wire rope); and
- Refractory, bottom and fly ash.

In the past few years, the Applicant has commissioned several studies to investigate the scale and nature of soil and groundwater contamination on the site.

These investigations found levels of Manganese and Polycyclic Aromatic Hydrocarbons exceeding National Environmental Health Council (NEHC) criteria across most of the site, and high levels of several other contaminants at isolated locations on the site.

After examining the results of these studies, the EPA declared the site to be a "remediation site" under Section 21 of the CLM Act.

Under Section 26 of the CLM Act, the Applicant has submitted a Voluntary Remediation proposal to the EPA, and agreed to remediate the site.

3. THE PROPOSED DEVELOPMENT

The Applicant is proposing to:

- Demolish the remaining structures on the site;
- Re-contour and cap it with a combination of coal washery reject and clay; and
- Prepare the site for future industrial development.

These works can be split up into four distinct stages.

Demolition Works

The proposed demolition works include:
- Demolishing the Jubilee Shed and associated structures on the north western part of the site;
- Demolishing the light towers within the former Spares Area;
- Removing the stockpile of concrete spares storage racks;
- Removing the disused rail lines and associated signage;
- Removing some minor infrastructure; and
- Removing 5 trees along the southern boundary of the site.

Site Remediation Works

The proposed site remediation works include:
- Excavating and re-contouring about 67,000m^3 of contaminated material on the site;
- Excavating about 10,400m^3 of clay from the "plateau area" on the southern part of the site;
- Importing about 88,000m^3 of coal washery reject from the Oceanic Coal/Macquarie Coal Preparation Plant at Teralba; and
- Capping the re-contoured site with coal washery reject and clay to varying depths:
  - ⇒ The general surfaces and minor drains would be capped with 400mm of compacted coal washery reject and by 100mm of uncompacted coal washery reject;
  - ⇒ The sediment basins and main drains would be capped with 500mm of compacted coal washery reject; and
  - ⇒ The southern area of the site would be capped with 400mm of clay and 300mm of coal washery reject.

These works would be done in stages to minimise the surface area disturbance at any one time.

Certain parts of the site would not be re-contoured or remediated because they are already covered in asphalt or paving. This includes Woodstock Street, the Koppers site, the One Steel car park; George Bishop Drive, and the area to the north of George Bishop Drive.

Drainage Works

The proposed drainage works include:
- Constructing major drains to the south and east of the site with a 1:3 batter and 500mm of compacted coal washery reject below the water level, and 400mm of compacted coal washery reject covered by 100mm of uncompacted coal washery reject above water level;
- Constructing minor drains to the north and west of the site with a 1:2 batter and 400mm of compacted coal washery reject covered by 100mm of uncompacted coal washery reject;
- Constructing two new sediment basins on the site on the northern and south eastern parts of the site with a 1:3 batter and 500mm of compacted coal washery reject below the water line, and 400mm of compacted coal washery reject and 100mm of uncompacted coal washery reject above the water line; and
- Install drainage pipes to connect these proposed works to the wider stormwater system.

Road Works

The proposed road works include:
- Constructing a new entrance to the site off the existing Industrial Drive/Vine Street intersection; and
- Upgrading the existing 3-way intersection to a 4-way intersection with new left-turn lanes into the site and traffic signals.

In general, the proposal would:
- Reduce the human health and environmental risks associated with the site by providing an impermeable surface over the contaminated material, improving surface water drainage, and reducing infiltration to groundwater;
- Allow the site to be used for future industrial development;
- Create at least 25 construction jobs;
- Cost about $8 million to carry out; and
- Take about 22 months to implement.

4. STATUTORY PLANNING FRAMEWORK

Contaminated Land Management Act 1997

The CLM Act provides the general framework for remediating land in NSW, and is administered by the EPA.

Under Section 21 of the CLM Act, the EPA has declared Lot 223 to be a remediation site. This means it considers the site to represent a significant risk of harm to human health and the environment.

Under Section 26 of the CLM Act, the Applicant has submitted a Voluntary Remediation Proposal to the EPA, and agreed to remediate the site.

Before carrying out this proposal, however, the Applicant requires development consent under the *Environmental Planning & Assessment Act 1979*.

Environmental Planning & Assessment Act 1979

Permissibility

The site is zoned 4(b) General Industrial under *the Newcastle Local Environmental Plan 1987*, and 4(b) Port and Industry under the draft *Newcastle Local Environmental Plan 2000*.

The proposal is permissible with development consent in both these zones.

State Significant Development

Under Clause 11 *of State Environmental Planning Policy No. 55 – Remediation of Land*, remediation work is classified as State significant development if it is classified as designated development on land that has been declared to be a remediation site under the CLM Act.

Since the proposal is classified as designated development (see below), and is located on land that has been declared as a remediation site under the CLM Act, it is classified as State significant development under Section 76A(7)(b) of the EP&A Act.

Consequently, the Minister is the consent authority for the DA.

Integrated Development

The proposal requires additional approvals from the:
- EPA under the *Protection of the Environment Operations Act 1997*;
- DLWC under the *Water Act 1912*; and
- RTA under the *Roads Act 1993.*

Consequently, it is classified as an integrated development under Section 91 of the EP&A Act.

Designated Development

Under Schedule 3 of the EP&A Regulation, contaminated soil treatment works are classified as designated development if they:

> *"treat contaminated soil originating exclusively from the site on which the development is located and:*
> *(i) …*
> *(ii) treat otherwise than by incineration and store more than 30,000m^3 of contaminated soil; or*
> (iii) *disturb more than an aggregate area of 3 hectares of contaminated soil."*

The proposal would store more than 30,000m^3 of contaminated soil originating exclusively from the site on the site **and** disturb more than 3 hectares of contaminated soil.

Consequently, the proposal is classified as designated development under Section 77A of the EP&A Act, and requires an Environmental Impact Statement.

Relevant Planning Instruments/Policies

The following planning instruments are relevant to the proposal:

- *State Environmental Planning Policy No. 11 – Traffic Generating Developments;*
- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *Hunter Regional Environmental Plan 1989;*
- *Newcastle Local Environmental Plan 1987;*
- *Draft Newcastle Local Environmental Plan 2000;*
- *Newcastle DCP No. 20 – Guidelines for Industrial Development;*
- *Newcastle DCP No. 43 – Contaminated Land Management and Remediation;*
- *Newcastle DCP No. 50 - Stormwater Management;* and
- *Newcastle DCP No. 56 – Waste Minimisation.*

The Department has assessed the proposal against the relevant provisions in these planning instruments (see Section 6 and Appendix A), and concludes that the proposal is generally consistent with the relevant aims, objectives, and requirements of these instruments.

5. CONSULTATION

The Applicant lodged a DA for the proposal with the Department in December 2001.

The Department subsequently:
- Notified Council, the surrounding landowners and the relevant State Government agencies;
- Advertised the exhibition of the DA in the Newcastle Herald on the 2 and 23 of January 2002;
- Displayed public notices about the proposal on the site; and
- Exhibited the DA and EIS at 6 locations between 2 January 2002 and 19 February 2002.

This satisfies the requirements for public participation in Division 6 of Part 6 of the EP&A Regulation.

During the exhibition period, the Department received 8 submissions on the DA: 1 from the Member of Port Stephens, 1 from Newcastle Council, and 6 from the general public, including submissions from the Mayfield Resident's Group and C.A.K.A.

The issues raised in these submissions are summarised below, and considered in more detail in Section 6 of this report.

Submission from the Member for Port Stephens

The Member for Port Stephens, Mr John Bartlett MP, made a representation on behalf of one of the local Mayfield residents, and strongly opposed the proposal to remove some of the mature trees along Industrial Drive to make way for the proposed new entrance to the site. He says " *to take out these historical trees would be wanton destruction of what little greenery is left. The trees are … of significant value to Newcastle, and part of BHP's history*."

Submission from Newcastle Council

Newcastle Council put in a detailed submission on the DA, claiming the EIS did not provide sufficient information to enable the proposal to be fully assessed under Section 79C of the EP&A Act.

In summary, Council raised concerns about the following potential impacts of the proposal:
- Visual;
- Traffic;
- Parking (during construction);
- Stormwater management;
- Air quality; and
- Odour.

Council also raised general concerns about the proposed remediation strategy, and the consideration of the proposal against the principles of ESD in the EIS.

Submissions from the General Public

The submissions from the general public raised concerns about the following potential impacts of the proposal:
- Air quality, particularly the dust;
- Noise;
- Traffic, particularly the heavy vehicles;
- Visual; and
- Health.

In particular, several people argued that the proposed capping of the site is not an appropriate long-term solution to the remediation of the site, claiming it is inconsistent with the hierachy of options for remediation in the ANZECC guidelines. They say alternative technologies should have been considered in more detail.

Finally, several submissions were strongly opposed to the proposed changes to the existing Industrial Drive/Vine Street intersection on a range of grounds, including loss of significant vegetation, traffic generation, noise, and traffic safety.

General Terms of Approval

The Department sent copies of all the submissions to the integrated approval bodies – the EPA, DLWC, and RTA.

The EPA and DLWC have subsequently granted their General Terms of Approval for the proposal, which have been incorporated into the proposed conditions of consent.

In its General Terms of Approval, however, the EPA notes that:

> *"Development is limited to re-contouring and capping the site and continuation of the existing groundwater monitoring program. Specific measures to remediate contaminated groundwater are not proposed. While the EPA has issued General Terms of Approval for this work, if the capping strategy proves to be ineffective in preventing contaminants in the soil and grounwater from migrating from the site the EPA may require specific groundwater treatment measures to be implemented under the provisions of the Contaminated Land Management Act 1997."*

After considering the proposal, the RTA has refused to grant its General Terms of Approval for the proposed new entrance off Industrial Drive.

In its submission, the RTA provided the following reasons for this refusal:

> *"With all site access associated with the remediation being provided via Ingall Street, there is no genuine need at this time for the provision of a fourth leg to the Industrial Drive-Vine Street intersection. As proposed access and road facilities should relate to the proposed development, the proposed fourth leg at the intersection is considered premature and is not to be included in this development consent. The RTA appreciates the Applicant's desire to secure access arrangements for the future development of this site, however in the absence of actual development of the site, securing access via development consent is considered inappropriate.*
>
> *As indicated in previous correspondences regarding development on the BHP Newcastle closure site, the identification of future access points on the State Road network should be undertaken through an access management strategy or through a masterplan process for the entire closure site. In absence of any such direction, access requests will be considered by the RTA on a development-by-development basis with the intent being to minimise the number of roads and property accesses joining the State Road network.*

The Applicant is to be advised however, that the RTA is prepared to give in principle agreement to a fourth leg of the Industrial Drive/Vine Street intersection in the form of a public road to serve the future subdivision of the site. This in principle agreement is subject to the closure of the existing site access point to Tourle Street.

The Department has incorporated this refusal into the proposed conditions of consent, which prohibits the Applicant from:

- Carrying out the proposed alterations to the layout of the existing Industrial Drive/Vine Street intersection; and
- Constructing the proposed new entrance off Industrial Drive.

6. CONSIDERATION OF ISSUES

The Department has assessed the DA, EIS, submissions on the DA, and the General Terms of Approval from the integrated approval bodies, and believes that the following issues require further consideration.

SOIL AND GROUNDWATER QUALITY

The assessment of soil and ground water quality is intricately related in this proposal.

The Applicant is proposing to cap the contaminated soils on the site, but is **not** proposing to carry out any groundwater remediation at this stage, even though the groundwater is also contaminated.

Under its Voluntary Remediation Proposal with the EPA, the Applicant has agreed to continue monitoring groundwater on the broader steelworks site, which includes Lot 223, until February 2004.

Future decisions about groundwater remediation on the site would only be made once this monitoring is completed.

Long-Term Sustainability of the Proposal

Several submissions, including the submission from Council, questioned the Applicant's decision to cap the site, rather than remediate its soils, and argued that the Applicant's consideration of alternatives was biased towards capping because it was the simplest and cheapest of the options available.

Notwithstanding these claims, the Department is satisfied that the proposal would:

- Reduce the site's risk to human health by minimising the potential for humans to come into contact with the contaminated soils; and
- Reduce its risk to the environment by minimising the potential for contaminated stormwater to leave the site.

However, there is no doubt that the proposal involves some risk because the contaminated soils would remain on the site, and could leach into the groundwater and eventually the Hunter River.

The Applicant claims this is unlikely to occur, as the cap would reduce surface water infiltration to the groundwater, and consequently reduce the risk of contaminants leaching into the groundwater and river.

In theory, this is correct. However, it will be necessary to monitor the effectiveness of the cap closely for several years to check this claim fully.

To complicate matters, the groundwater under the site is already contaminated, and may need to be remediated in the future.

The EPA has made it clear that if the capping proves to be ineffective in preventing contaminants in the soil and groundwater from migrating from the site, then the Applicant would be required to implement additional measures to remediate the groundwater under the CLM Act.

So the proposal also contains some risk for the Applicant. The cheaper option of capping the site may end up being more costly in the long run if it proves ineffective, and the EPA requires additional measures to be implemented.

Notwithstanding these risks, the Department is confident that the proposal would reduce the existing risks to human health and the environment. However, strict controls would need to be implemented to ensure that the capping is effective.

In its submission, Council raised concerns about who would be responsible for the on-going management and monitoring of the site, and indicated that it did not want to be involved in the future management and monitoring of any contaminated land on the site.

Under the proposed conditions of consent, the Applicant will be responsible for the on-going management and monitoring of the site until it is redeveloped (see below), and the EPA and the Department will be responsible for regulating this on-going management and monitoring.

Capping Thickness

In the EIS, the Applicant indicated that it would cover most of the site with 400mm of compacted and 100mm of uncompacted coal washery reject to reduce the permeability of the cap to less than 10^{-7}m/s.

However, after assessing the proposal, the EPA believes a greater level of protection is required, and that the Applicant should be required to cover the site with at least 500mm of compacted coal washery reject.

The Department has reflected this in the proposed conditions of consent.

Suitability of Coal Washery Reject

In its submission, Council claims there is little information in the EIS to support the use of coal washery reject as a capping material.

However, the EIS clearly indicates that coal washery reject was chosen because:

- It does not contain any contaminants or other chemicals that would generate adverse environmental impacts;
- It would provide a high level of permeability; and
- It is a readily available and cost-effective material that would generally be treated as waste.

The Department is satisfied with these reasons, and notes that the Minister has approved the use of coal washery reject as a capping material on the adjoining Closure Area.

Potential Disturbance During Future Development

The capped site would be suitable for future industrial development. However, future development could require excavation below the cap into contaminated material.

This should be explicitly considered during any development assessment of future proposals on the site.

Recommendations

To minimise the potential soil and groundwater impacts of the proposal, the Department believes the Applicant should be required to:

- Ensure the site has a properly designed and engineered seal-bearing layer, consisting of a material that is at least 500mm thick with a permeability of less than K = $10^{-7}ms^{-1}$;
- Ensure that the seal-bearing layer is constructed and maintained to permit free drainage and prevent surface water ponding;
- Get a qualified geo-technical engineer to certify that the seal-bearing layer meets the required standards for at least five years;
- Prepare and implement a Contaminated Site Remediation Management Plan;
- Prepare and implement a Capping Maintenance Plan to deal with the on-going maintenance of the site;
- Report any free-phase contamination (or any contamination not identified in the EIS) that is encountered on the site during construction to the EPA;
- Conduct regular groundwater monitoring on the site;
- Prepare and implement a detailed Groundwater Monitoring Plan for the site;
- Obtain the EPA's approval for the proposed parameters for monitoring groundwater contaminants.

SURFACE WATER QUALITY

The site currently drains via various stormwater channels to the south arm of the Hunter River, which is about 400 metres from the site.

The proposal could pollute the river during and after construction.

Construction Impacts

During construction, the main sources of water pollution would be the:

- Exposed soils during the re-contouring and capping works; and
- Fuel and chemicals used in association with the construction machinery on site.

To minimise water pollution during construction, the Applicant is proposing to:

- Use standard erosion and sediment controls to seal off the exposed soils from the rest of the site;
- Divert any surface water run-off from these areas to temporary sediment basins where the water would be assessed, treated (if necessary), and reused for dust suppression; and
- Ensure that any fuel or chemical spills are cleaned up immediately by construction staff.

With good management, the Department is satisfied that these measures should be effective. However, the Department believes the Applicant should be required to:

- Prepare and implement a detailed Erosion and Sediment Control Plan for the proposed works in accordance with the Department of Housing's publication *Managing Urban Stormwater: Soils and Construction*; and
- Conduct regular monitoring of the water in the stormwater detention basins during the proposed works, in accordance with the EPA's requirements.

Post-Construction Impacts

After construction, the new cap would reduce the permeability of the site, and increase surface water flows across the site.

The Applicant is proposing to upgrade the stormwater infrastructure on the site to accommodate these increased flows.

In its submission, Council raised a number of concerns about this proposed upgrade.

Council's main concerns, however, are that the proposal could:
- Compromise the integrity of its existing drainage easements on the site, as its drainage lines currently discharge through the site to the Hunter River; and
- Discharge stormwater onto adjoining sites during 100 year flood event.

The Department has noted these concerns, and believes the Applicant should be required to prepare and implement a detailed Soil and Water Management Plan for the whole site **in consultation with Council**. Among other things, this plan should be required to:
- Accurately establish the likely volume, velocity, and general quality, of stormwater flows leaving the site during a 100 year flood event;
- Ensure that the integrity of Council's easements on the site is maintained;
- Describe the detailed design of the proposed system; and
- Describe how this system would be maintained until the site is redeveloped.

These conditions would ensure that Council's concerns are addressed during the detailed design of the proposed stormwater management system, and that the performance of the system is adequately monitored and maintained over time.

AIR QUALITY

The proposal could generate dust and odour impacts during construction.

Dust

The major source of air pollution would be the dust generated during the proposed remediation works.

HLA Envirosciences has conducted a detailed air quality assessment of the proposal, using dispersion modelling and local data, in accordance with the EPA's *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW*.

For this assessment, it assumed the work would be carried out in three stages:
- Stage 1: Demolition and Re-contouring (3 months);
- Stage 2: Re-contouring and capping (At least 16 months); and
- Stage 3: Capping (3-4 months)

It then predicted the likely impacts of the proposal against the relevant criteria for particulate ground level concentrations:

- Annual Total Suspended Particulates (TSP);
- Annual and 24-hour PM10; and
- Annual Dust Deposition Rates.

The modelling suggests that the proposal would comply with all the relevant criteria during Stages 1 & 3 of the proposal, but would exceed the TSP and 24-hour PM10 criteria on certain occasions at the Hunter Christian School during Stage 2 of the proposal (see Table 1 below).

Sensitive Receptor	**TSP**	**PM10**		**DDR**
	Annual ug/m^3	**24 Hour ug/m^3**	**Annual ug/m^3**	**Annual g/m3/mth**
Mater Hospital	45.6	25.9	20.4	0.1 (1.3)
Warabrook Retirement Village	53.7	32.8	20.8	0.4 (1.6)
Mayfield Nth Primary School	54.5	39.9	21.6	0.4 (1.6)
Hunter Christian School	**98.2**	**63.8**	25.3	1.6 (2.8)
Waratah West Primary School	46.2	23.8	20.4	0.1 (1.3)
Nursing Home, Alfred Street	44.8	23.8	20.3	0.1 (1.3)
Waratah Technology School	44.7	23.8	20.2	0.1 (1.3)
Clemente Catholic High School	60.9	38.4	21.5	0.5 (1.7)
St Andrews Ang Primary School	52.3	29.6	20.8	0.3 (1.5)
Mayfield East Primary School	64.6	44	22	0.8 (2)
TAFE, Newcastle Campus	45.9	24.4	20.3	0.1 (1.3)
Criteria	**90**	**50**	**30**	**2(4)[1]**

Bold entries denote exceedances
1. First entry denotes limit for increase in DDR, while the second entry denotes the maximum cumulative concentration.

Table 1: Predicted Increase in Pollutant GLC at Sensitive Receptors – Stage 2

Several submissions expressed concern about these potential exceedances.

Nevertheless, it should be noted that these exceedances are fairly marginal, and would only occur when re-contouring **and** capping are carried out concurrently in close proximity to the school. In other words, the Applicant could quite easily reduce the intensity of operations on the site during these times to ensure that the proposal complies with the relevant criteria.

It should also be noted that the chance of inhaling contaminated dusts from the site as a result of the proposal is considered to be negligible.

Based on this assessment, the Department is satisfied that the potential dust impacts of the proposal could be mitigated or managed to comply with the relevant criteria. Nevertheless, it believes the Applicant should be required to:
- Minimise the dust generated on the site;
- Prepare and implement a detailed Air Quality Management Plan for the proposed works; and
- Conduct regular ambient air quality and meteorological monitoring during the proposed works.

Odour

The excavation of soils during the proposed works could generate odours on site.

While the EIS does not specifically identify or assess the potential odour impacts of the proposal, the EPA has included a condition in its General Terms of Approval for the proposal to control the emission of odours from the site, which has been incorporated into the proposed conditions of consent.

This condition stipulates that no offensive odour, as defined in Section 129 of the *Protection of the Environment Operations Act 1997*, may be emitted from the premises.

NOISE

During construction, the proposal would generate general and traffic noise impacts.

Construction Noise

During construction the main sources of noise would be machinery used during the proposed demolition, excavation, re-contouring, and capping works.

HLA-Envirosciences has conducted a detailed noise assessment of these works, using the RTA's Environmental Noise Model and local data, in accordance with the EPA's *Industrial Noise Policy* and *Environmental Noise Control Manual.*

In this assessment, it measured ambient noise levels at four locations around the site and set intrusive and amenity noise planning goals for the proposal (see Table 2 below).

Location	Measured Ambient Noise Levels		Noise Planning Goals	
	L90	Leq	Intrusive Leq(15min)	Amenity Leq(Period)
Cnr Bull & Woodstock Street, Mayfield	47	58	52	56
27 Groongal Street, Mayfield West	54	72	59	62
75 Fullerton Street, Stockton	43	53	48	51
78 Crebert Street, Mayfield	45	55	50	58

Table 2: Measured Ambient Noise Levels & Noise Planning Goals

It then assumed a range of scenarios including the worst case scenario, which involves re-contouring and capping occurring simultaneously, operating all the machinery on site on exposed areas, and winds of 3m/s from the north-east.

Under most scenarios the proposal would comply with the relevant noise goals. However, under the worst case scenario construction noise from the site is predicted to marginally exceed the relevant noise goals for the proposal at the playground of the Hunter Christian School, and at certain residences close to the site (see Figure 2 below).

Several submissions raised concerns about these potential noise impacts on the school.

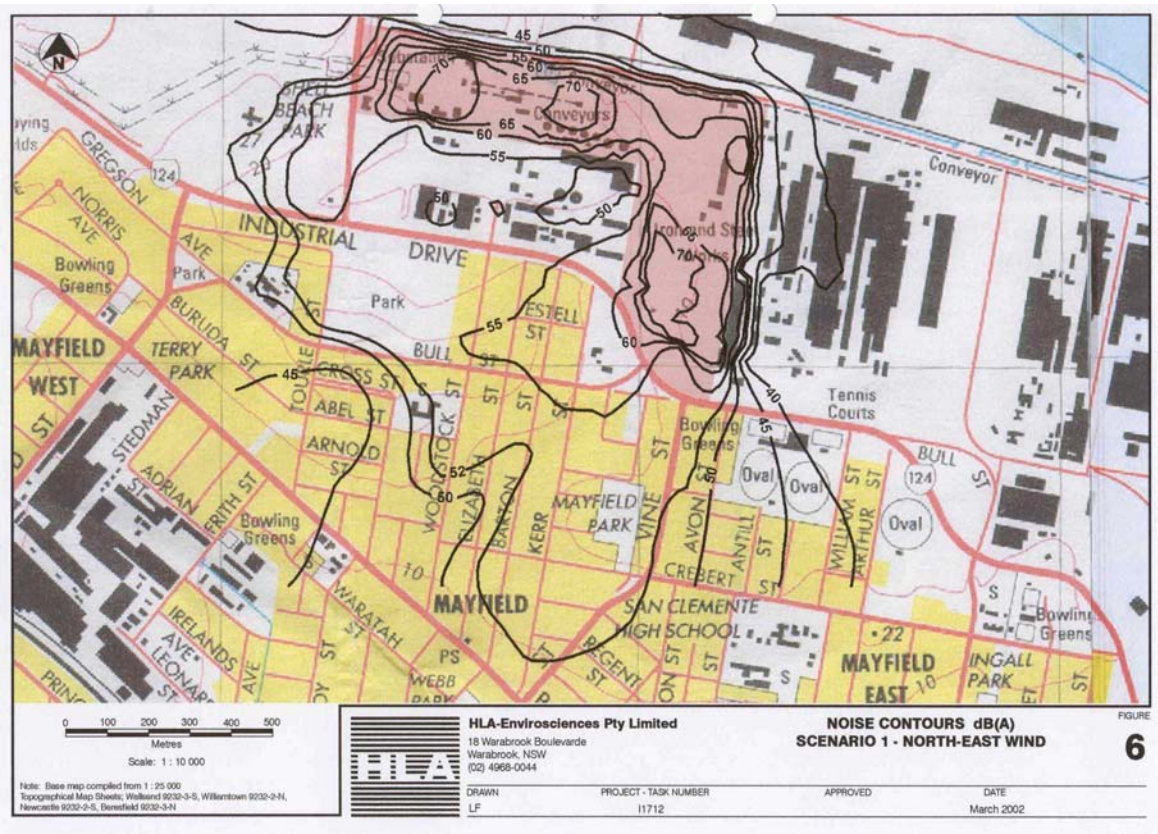

Figure 2: Results of Noise Modelling – Worst Case Scenario

However, it must be noted that:

- Under the worst case scenario:
  - ⇒ The predicted noise level at the Hunter Christian School (58dB(A)) would be only 2dB(A) higher than the background noise level and up to 6dB(A) below the existing amenity level; and
  - ⇒ The maximum predicted noise exceedance for residential receivers close to the site would be 2-3 dB(A);
- The worst case scenario would only occur on a limited number of occasions over the two year construction period (at most 6% of the time); and that
- During these conditions, the Applicant would have considerable scope to reduce the intensity of work on the site to reduce the noise impacts of the proposal to acceptable limits.

In other words, through good construction management, the Applicant should be able to comply with the relevant noise goals for the proposal during **all** weather conditions

Consequently, the Department has set noise criteria for the proposed construction works, and believes the Applicant should be required to:

- Carry out all the proposed works during regular construction hours;
- Prepare and implement a detailed Construction Noise Management Plan for the proposed works; and
- Conduct regular noise monitoring during the proposed works.

Road Noise

The main sources of traffic noise would be:

- The trucks bringing coal washery reject to the site, and removing waste from the site; and
- The cars used by construction workers.

The volume of traffic generated by the proposal would be extremely small in relation to the traffic already using Industrial Drive, and would not generate anything close to the 2dB(A) allowed under the EPA's *Environmental Criteria for Road Traffic Noise*.

WASTE MANAGEMENT

The proposed works would generate a range of waste, including asbestos-bearing material.

The Applicant is proposing to reuse and recycle as much of this waste as possible.

Most of the soil would be reused on site; the concrete, brick, tile, timber, steel, and glass waste from the various demolition works would be collected and recycled; and the non-recyclable waste would be taken to the Summerhill Waste Management Centre for disposal.

The asbestos-bearing material would be removed and transported to the Summerhill Waste Management Centre for disposal by licensed contractors.

The Department is generally satisfied with this approach to waste management, but believes that the Applicant should be required to:

- Minimise the disposal of construction waste during the proposed works;
- Comply with all the requirements of WorkCover NSW with respect to any activities associated with handling asbestos or materials containing asbestos;

- Prepare and implement a detailed Construction Waste Management Plan for the proposed works.

TRAFFIC AND TRANSPORT

The proposal would change the access arrangements to the site, and generate traffic and parking impacts during construction.

Access

The Applicant is proposing to change the external road network by converting the existing 3-way intersection at Industrial Drive/Vine Street into a 4-way intersection, and creating a new entrance to the site off Industrial Drive.

This proposal requires the RTA's approval under Section 138 of the *Roads Act 1993*.

The Member for Port Stephens, John Bartlett MP, Council and several members of the general public are strongly opposed to the proposal because it would:
- Disrupt the stand of mature fig and eucalyptus trees along Industrial Drive, and create adverse visual impacts;
- Increase the traffic moving through the Mayfield residential area;
- Increase traffic congestion at the intersection; and
- Reduce traffic safety in the local area.

After detailed consideration, the RTA refused to provide its General Terms of Approval for the proposal.
The main reasons for this refusal can be summarised as follows:
- The RTA has consistently advised the Applicant to prepare a master plan or access management strategy for the former steelworks site that would clearly outline the future access arrangements for the **entire** site;
- The Applicant has not prepared such a master plan or strategy;
- In the absence of such a master plan or strategy, the RTA will consider applications for access to the State Road network on their merits with a view to minimising the access points to this network;
- This proposal would use the existing Ingall Street access, and does not generate any need for a new access at this stage;
- Consequently, the application for the new access should be denied, and reconsidered if and when the site is redeveloped against any master plan or strategy outlining access arrangements for the broader site.

The Department supports the RTA's assessment, and believes the Applicant should not be allowed to:
- Carry out the proposed alterations to the layout of the intersection of Vine Street and Industrial Drive;
- Construct the proposed site access off Industrial Drive; and
- Remove any of the trees along the southern boundary of the site along Industrial Drive.

Notwithstanding its refusal to provide its General Terms of Approval for the proposed new access, the RTA has agreed in principle to allow a fourth leg of the Industrial Drive/Vine Street intersection to be constructed in the future, subject to the closure of the existing Tourle Street entrance.

Despite this in principle approval on traffic grounds, it should be noted that the Applicant would need to obtain development consent for this new access road. During the assessment of any development application for this proposal, the

consent authority would need to consider several other factors in addition to potential traffic impacts of the proposal, such as the potential visual impacts associated with the removing the mature trees along Industrial Drive.

External Road Network

The proposal would generate heavy and light vehicle traffic.

The heavy traffic would mainly be associated with the delivery of coal washery reject to the site, and should peak at around 13 trucks a day. However, heavy vehicles would also be used to remove waste from the site.

The light vehicle traffic would be generated by the construction workers, and should peak at around 25 vehicles a day.

The volume of this traffic is considered to be insignificant in relation to the volume of traffic already using Industrial Drive, and so the traffic impacts of the proposal are considered to be negligible.

After discussions with the RTA, Newcastle Council and Lake Macquarie Council during the assessment process the Applicant decided to vary the proposed traffic routes between the site and the Summerhill Waste Management Centre, and the Macquarie Coal Preparation Plant and the site.

The route between the site and the Summerhill Waste Management Centre would now be: Ingall Street, Industrial Drive, Pacific Highway, Wallsend Road, Sandgate Road, Newcastle Inner City Bypass, Newcastle Road, Longworth Avenuew and Minmi Road. And the route between the Macquarie Coal Preparation Plant and the site would now be: Rhondda Road, Wakefield Road, Plamers Road, Sydney-Newcastle Freeway, John Renshaw Drive, New England Highway, Pacific Highway, Industrial Drive and Ingall Street.

The Applicant should be required to use these alternative routes.

Parking

To provide parking for the construction workers, the Applicant should be required to provide at least 25 parking spaces, either on or in close proximity to the site during the proposed works.

VISUAL IMPACTS

The biggest visual impact of the proposal would have been the removal of the mature trees along Industrial Drive associated with creating the new entrance off Industrial Drive.

However, the RTA has refused to approve these works at this stage, so there is no need to remove the trees.

The only other visual impacts of the proposal would be:

- The hard black surface of the capping surface, which would dominate the site; and
- The external lighting, which would be used during regular construction hours during winter.

To minimise these impacts, the Applicant is proposing to plant grass on the coal washery reject, and to use the lighting for short periods on a limited number of occasions.

Nevertheless, the Department believes the Applicant should be required to:
- Plant and maintain grass on the coal washery reject until the site is redeveloped; and
- Ensure that all new external lighting complies with the relevant standards, and is mounted, screened, and directed to minimise any nuisance to surrounding areas.

HUMAN HEALTH IMPACTS

During construction, the proposal could generate human health impacts.

Advitech Pty. Ltd. has conducted a detailed assessment of these potential impacts in the EIS.

This assessment, which uses conservative assumptions, concludes that:
- Workers on site would be exposed to health risks, but that these risks could be minimised with the use of protective equipment such as respiratory masks and clothing to protect the skin, and filters on construction machinery; and
- The off-site health impacts would be negligible.

The Applicant has indicated that the contractor would be required to prepare an Occupational Health and Safety Plan for the workers before it starts the proposed remediation works.

The Department is satisfied with this approach, and believes that the health and safety of the workers on site would also be protected by Workcover NSW requirements.

HAZARDS

There are currently no dangerous goods stored on the site, and the Applicant is not proposing to store or handle any dangerous goods on the site.

Nevertheless, the Department believes the storage or handling of dangerous goods should be expressly prohibited on the site.

FAUNA AND FLORA

The proposal is not expected to generate any fauna or flora impacts.

HERITAGE

The proposal is not expected to generate any heritage impacts.

SECTION 79C CONSIDERATIONS

Section 79C of the Act sets out the matters that a consent authority must take into consideration when it determines a DA.

The Department has assessed the DA against these matters (see Section 6 and Appendix A), and is satisfied that:
- The proposal is generally consistent with the provisions of the relevant planning instruments;

- The potential impacts of the proposal could either be mitigated or managed; and
- The proposal is generally in the public interest.

7. RECOMMENDED CONDITIONS OF CONSENT

The Department has prepared a set of recommended conditions of consent for the proposal.

These conditions are required to:
- Modify details of the proposal;
- Minimise any adverse environmental impacts associated with the proposal;
- Provide for the on-going environmental management of the development; and
- Provide for the regular monitoring, auditing, and reporting on the development.

Under these conditions, the Applicant is required to:
- Prepare and implement a Remediation Management Plan for the proposed works;
- Prepare and implement a Site Maintenance Plan for the ongoing maintenance of the site;
- Establish a Community Consultative Committee with representatives from the Applicant, Council, and the local community to oversee the environmental performance of the proposed works;
- Submit an Annual Environmental Report to the Director-General providing an update on the current status of the proposal, a record of any complaints received, and the results of any monitoring; and
- Commission an Independent Environmental Audit of the proposed works for the Director-General within 6 months of completing these works.

These conditions would establish a comprehensive framework for monitoring and managing the implementation of the proposed works.

The Applicant has reviewed, and is satisfied with, the proposed conditions of consent.

8. CONCLUSION

The Department has assessed the DA, EIS, submissions on the DA, and the General Terms of Approval from the integrated approval bodies, and is satisfied that the proposal would reduce the existing human health and environmental risks on the site.

By capping the site with coal washery reject and clay, the Applicant would:
- Reduce the opportunity for people or surface water run-off to come into direct contact with the contaminants; and
- Reduce the permeability of the site, which would in turn reduce the potential for the contaminants to leach into the groundwater and migrate to the Hunter River.

However, these benefits should be considered against the potential impacts of the proposal.

There is undoubtedly some risk associated with the proposal, because the contaminated soils would remain on the site, and could leach into the groundwater and eventually the Hunter River.

The Applicant claims this is unlikley to occur, and in theory, this is correct. However, it will be necessary to monitor the effectiveness of the cap closely for next few years to check this claim fully.

To complicate matters, the groundwater under the site is already contaminated, and may need to be remediated in the future.

The EPA has made it clear that if the capping proves to be ineffective in preventing contaminants in the soil and groundwater from migrating from the site, then the Applicant would be required to implement additional measures to remediate the groundwater under the CLM Act.

Notwithstanding these outstanding concerns, the Department is confident that the other potential impacts of the proposal can be mitigated or managed, and that with good environmental management, the proposal would be able to comply with all the relevant environmental standards and criteria.

Consequently, the Department believes the Minister should approve the DA subject to conditions.

9. RECOMMENDATION

It is RECOMMENDED that the Minister:
(1) Consider the findings and recommendations of this report;

(2) Approve the DA subject to conditions under Section 80 of the Act; and
(3) Sign the attached Instrument of Consent.

Gordon Kirkby
Team Leader

Sam Haddad
Executive Director

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