2. Introduction

This Environmental Assessment Report (EAR) is submitted to the Minister for Planning pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The assessment has been prepared in response to the Requirements issued by the Director General in relation to a Concept Plan application for:

- The subdivision of Precinct 1, a 129 hectare portion of the Hunter Economic Zone (HEZ) for future industrial and employment generating developments;
- The construction and operation of a manufacturing facility within Precinct 1 for the production of wall and floor panels with acoustic–rated and fire-rated properties; and
- The construction of associated Precinct 1 infrastructure, including the Pelaw main by-pass as a two lane rural standard road and an extension to Station Street to provide access to the proposed manufacturing facility and the larger HEZ area beyond precinct 1.

The report has been prepared by HEZ Nominees the proponent for the development of the Estate.

The drawings and reports describing the Concept Plan and assessment of the various elements for which consent is sought are included within the Appendices of this assessment.

The Environmental Assessment Report and Appendices describes the site, its environs and the proposed development, and includes an assessment of the proposal in accordance with the Director-General's Environmental Assessment Requirements under Part 3A of the EP&A Act.

2.1 Overview to Design Approach

The Hunter Economic Zone's precinct plan is the result of a thorough master planning process that will ensure as much as possible the protection of the site's existing flora and fauna, including threatened species. Additionally, the plan includes detailed steps that will encourage the growth of the site's existing native species.

The environmental consideration of HEZ's precinct plan is considered a benchmark for future similar developments as it includes strict processes to regenerate numbers of the threatened Green-thighed frog, stormwater re-usage infrastructure that will reduce the site's stormwater wastage by more than 40 per cent and regeneration of barren land with topsoil and plants native to the area which are seeded and grown by an onsite nursery.

The plants used to regenerate existing barren or cleared areas will only include flora recognised to be endangered or local to the site, while additional bushland area, known as conservation corridors, above and beyond the site's requirements will be conserved. This decision has been made to ensure the development's impact on the site's natural environment is minimised and enhanced where possible.

It is important to note that HEZ's planning includes the following conservation measures:

- The site's major natural waterway, Chinaman's Hollow Creek will remain largely untouched, within a 200 metre wide riparian buffer which will conserve the Hunter Lowland Redgum Forest (HLRF) and its associated habitat values
- A 20 metre corridor of retained natural or reinstated bushland will be provided in the front setback area of all tenant lots, providing further habitat linkages for the residing fauna. These 20 metre setbacks are supported by an additional 10 metre vegetation reinstatement buffer providing an effective 30 metre vegetated setback on all lots
- The alignment of the roads have been deliberately laid out to preserve and contain endangered species on the site within the connecting conservation corridors, as outlined above
- All nature strips will be replanted with plants native to the site
- All bushland that remains on site, which is currently untended, will be 'bush

managed' meaning noxious weeds will be removed and monitored, allowing the native flora to thrive

- The 10 metre 'reinstatement buffer' that adjoins the conservation corridors on the site have been configured to accommodate space for water filtration infrastructure which will remove pollutants from site stormwater, while also providing a potential habitat for the Green-thighed Frog, one of the site's threatened species. These water management devices can also accommodate water storage for on-site water re-use by the site's tenants

HEZ has planned the site to ensure that where the natural bushland must be cleared, the cleared area is managed in such a way that the environmental integrity of the area is preserved. This will be ensured through the following action:

- All plants brought to the site and re-planted will be species native to the site
- The re-planted flora will be grown from locally sourced seed stock with the new plantings designed to reflect the way the natural bushland grows, in accordance with the planting required for Endangered Ecological Community regeneration
- Lot development will occur on the higher ground within each sub-catchment, with roads generally running along watersheds or forming bushland and bushfire management boundaries adjacent to watercourses or 7(b) Environmental Protection (conservation) zone edges
- The provision of roads along watersheds ensures that all lots are able to drain towards and in the road drainage system, minimising the need for inter-allotment drainage easements.
- Roads will run along the natural watercourses and the areas marked for conservation, acting as a bushfire management boundary, further protecting the site's flora and fauna
- Topsoil with low or nil weed seed banks will be stripped and re-laid to other areas of the same plant community type. This stripping and relocation of the topsoil will be undertaken as 'direct return' to previously prepared soil receiver sites as a first preference, which maximises the viability of the native seed bank within the soil. Where direct return is not possible 'intermediate return' involving on-site stockpiling for three to five months or 'long term' return involving stockpiling for six to eight months. The stockpiling and relating program has been designed and is being implemented by the Department of Environment and Climate Change
- The re-laid topsoil will be supplemented with a direct seeding program of native grasses and augmentation planting to provide an immediate landscaped effect

and to further enhance the viability of the flora regeneration program.

The benefits of this rigorous environmental and conservation management plan will be:

- Fifty two hectares of the site's Hunter Lowland Redgum Forest (HLRF) will be retained and conserved. This represents 40 per cent of the total HLRF within the Cessnock Local Government Area. The protection of this forest community will be further 'bush management' of the forest community in accordance with the Conservation Management Plans HEZ prepared for the site which satisfy Commonwealth Government approvals
- The conservation corridors and buffers along the road network and drainage lines protect substantial segments of the site's vegetation communities
- Both endangered flora and fauna will be contained in conservation corridors, further protecting their livelihood and natural habitat

Further environmental consideration is given to three of the site's key areas: water management, DECC Deferred Area Number 1 and Lot Planning, as follows.

2.1.1 Water Management

HEZ's water management system aims to preserve the site's existing watercourses and drainage patterns, with areas of the development sites being designed as islands within the watersheds.

The HEZ water cycle management strategy (Appendix J) seeks to encourage on-site stormwater re-use and reducing potable water demand where practical.

In the site's current undeveloped format it is calculated that stormwater would be conveyed in the existing watercourses on around seven to 10 days per year. If the site was developed without stormwater management and re-use practices, stormwater would be conveyed in the watercourses on 70 days annually. With HEZ's stormwater management strategy in place, this figure will reduce significantly to stormwater running in the existing watercourses on 20 to 30 days per year. This approach has been pursued to minimise the alteration to the natural regime around

which the ecosystems have developed and to minimise the potential for adverse erosion impacts.

HEZ will establish on-site water management systems that:

- Capture stormwater then treat it so that it can be re-used by the site's tenants
- Water re-use will be shared across the tenants so that high water use sites can receive the water their operation requires, significantly reducing stormwater wastage and potable water demand
- Stormwater the tenants do not use will be treated and used to water the site's landscaped gardens and re-generated vegetation
- Stormwater pollutants will be filtered from the water in line with best practice regulations stipulated by the NSW Department of Environment and Climate Change
- The stormwater filtering will ensure the run off does not significantly alter natural pH and sediment levels
- Stormwater discharge flow from each site will be managed and reduced to ensure stormwater run off does not damage the existing ecological systems
- The stormwater management systems have been developed to ensure the management and conveyance of the run off will allow the endangered Green-thighed Frog to reside in its natural habitat without compromise

Additionally, HEZ will rebuild the banks of watercourses that are demonstrating signs of natural erosion, and all the vegetation planted in the bio-filtration and surface water treatment systems will be only plants already growing on the site.

2.1.2 DECC Deferred Area 1

HEZ and the Department of Environment and Climate Change worked together to identify a number of areas in the HEZ Estate to be deferred from development until further investigations were undertaken. One of these areas is known as 'Deferred Area 1' (DA1) and is located within Precinct 1.

PRECINCT ONE;

RETAINED MATURE TREES; 177 (FROM 1017 EXISTING) OR 17.40%

RETAINED C. MACULATA AND E. TERETICORNIS; 50 (FROM 159 EXISTING) OR 31.44%

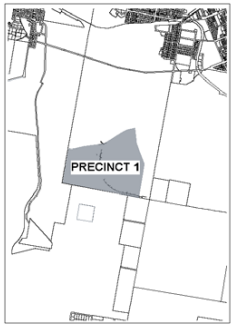
RETAINED HOLLOW BEARING; 110 (FROM 610 EXISTING) OR 18.03%

HUNTER LOWLAND REDGUM

TOTAL HUNTER LOWLAND REDGUM FOREST TO BE REMOVED
TOTAL 59396.15 sq m

TOTAL HUNTER LOWLAND REDGUM FOREST TO BE RETAINED
TOTAL 66881.14 sq m

KEYPLAN



LEGEND

- Indicative Lot Boundary
- Precinct One boundary
- Existing 2 metre contour
- Proposed sewer trunk main footprint
- Existing boundary for DEC Deferred Area 1
- 7(b) Environmental Protection Zone
- Hunter Lowland Redgum Forest (EEC)
- Lower Hunter Spotted Gum-Ironbark Forest/Hunter Lowlands redgum Forest
- Hunter Lowland Redgum Forest (EEC) to be retained in Precinct 1
- Hunter Lowland Redgum Forest (EEC) to be removed in Precinct 1
- Lower Hunter Spotted Gum-Ironbark Forest/Hunter Lowlands redgum forest to be retained in Precinct 1
- Lower Hunter Spotted Gum-Ironbark Forest/Hunter Lowlands redgum forest to be removed in Precinct 1
- Rutidosis heterogama to be retained
- Mature trees to be retained
- Mature trees to be potentially removed
- Hollow bearing trees to be retained
- Hollow bearing trees to be potentially removed
- Corymbia maculata to be retained
- Corymbia maculata to be removed
- Eucalyptus tereticornis to be retained
- Eucalyptus tereticornis to be removed
- Retained vegetation
- Reinstatement Zone
- Reinstatement Zone to unvegetated areas
- Potential drainage easement
- 20 metre IPZ
- 20 metre temporary APZ
- Waterway to be removed
- Waterway to be re-aligned
- Re-aligned waterway

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
HSO	23693_site_boundary_	20.12.06
HSO	23403_G_ parviflora p	19.12.06
HSO	Green-thighed Frog Ha	19.12.07
HSO	21489_Pipeline alignm	24.11.07
HSO	21489_Pipeline alignm	24.11.07
HSO	23909_Basedata_7.11.0	8.11.06
HSO	pelaw-main-bypass-ba	21.11.07
HSO	Hollow Bearing Tree_C	23.02.07
HSO	Mature Tree Combined	22.02.07
HSO	Threatened Fauna_Co	22.02.07
HSO	Threatened Fauna_Co	20.02.07
HEZ	DESIGN.dwg	22.11.07
HEZ	SURVEY.dwg	22.11.07
HEZ	WSP sheet 2 Layout1 (2	7.11.07

NOTES

1. Information relating to architectural, electrical, hydraulic, civil and other works as represented on EDAW documentation is for reference and EDAW co-ordination purpose only. All documentation to these and other works outside EDAW scope should be refered to the relevant consultants drawings and specification for details.
2. This drawing should be read in conjunction with EDAW prepared specification and details. Should a conflict exist advice and direction should be sought from EDAW prior undertaking any construction works.
3. All levels shown are in metres Australian Height Datum and dimensions in millimetres unless otherwise specified.

REV	DESCRIPTION	DATE	APPROVED
A	Client Issue	26.06.08	

EDAW | AECOM
2-14 MOUNTAIN STREET ULTIMO NSW 2007
T 02 9212 3666 F 02 9212 4499 E SYDNEY@EDAW.COM

Figure 2 Deferred Area 1 Location

HUNTER ECONOMIC ZONE
Where industry thrives

Project	HEZ PART 3A APPLICATION
Client	HEZ NOMINEES PTY LTD ATF THE HEZ UNIT TRUST
Drawing	CONCEPT PLAN - PRECINCT ONE East / South East Corner
Scale	1:2000 @ A1 / 1:4000 @ A3
Project No.	07502428.10
Drawn	CY

2297.10
SK29A

The detail diagram at Figure 2 identifies the proposed reconfiguration of Deferred Area 1 within Precinct 1. The original configuration of the deferred area is designated by the blue dashed Line. The deferred area has been reconfigured to provide retention of Hunter Lowland Redgum Forest along the alignment of the water course to the north of proposed lots 240, 250, 260 270 and 280, shaded light blue. The area of Hunter Lowland Redgum Forest that would become developable land and removed is shaded black. The area shaded light blue will become conservation land as an adjunct to the protected lands within the Chinamans Hollow Creek corridor.

HEZ is proposing to reconfigure this deferred area, based on the following criteria:

- Most of the land HEZ proposes to remove from DA 1 is Lower Hunter Spotted Gum – Ironbark Forest (LHSGIF), which is by far the most common tree type present on the site
- The reconfiguration of Deferred Area 1 includes the protection of Hunter Lowland Redgum Forest (HLRF) outside the original Deferred Area 1 along a tributary water course which will also act as a link from the Estate lands back into the central conservation corridor
- The removal of the LHSGIF buffer to the original Deferred Area 1 is substantially compensated for by the retention of the HLRF along the tributary watercourse, and the perimeter road which provides a managed edge to the bushland
- The endangered tree type on the HEZ site, the HLRF will be protected within the central conservation corridor that is dedicated and is located between the two main watercourses on the site through to the 7B corridor. This conserved land is additional to the DA1 area. The HLRF is not present on DA 1. This provides the area and its inhabitants additional protection from bushfire threat and weed invasion, as well as being a high quality visual resource for the estate
- The stormwater that runs into the conserved areas will be managed for quality and quantity providing further protection for the flora and fauna in the area and long term conservation outcomes for the site
- The stormwater treatment train elements that adjoin the conservation areas are known as ‘soft invert’, which include complementary Green-

thighed Frog habitat, supporting the species' regeneration on the site

- The revised configuration of the conservation corridors also provides:
  - Protection for the threatened species of *Callistemon linearifolius (*netted bottle brush)
  - An additional protected area for the Green-thighed Frog habitat
  - A large area of mature feeding trees suitable for koalas and yellow-bellied gliders
  - Concentrated areas of hollow and fallen timber, which play an important role in providing habitat for many of the site's residing fauna.

The additional conservation area is greater in size than the area by which DA1 Is proposed to be reduced, and is of greater importance to the site's flora and fauna. The additional conservation area will provide a managed web between roads and major watercourses, while providing protection for more of the site's threatened species. Moreover, this plan also will ensure the ecological integrity of the 7(b) Environmental Protection (Conservation) zoned corridor.

2.1.3 Lot Planning

HEZ has dedicated considerable time and resources to planning the plant-regeneration of the sites cleared for tenants' use. A 30 metre conservation frontage will be dedicated to every tenant lot on the site. Fundamental elements of HEZ's lot planning are:

- All plants in the conservation frontages will be existing species on the site grown from the dedicated on-site nursery
- The planting in the conservation frontages will follow the natural regeneration process that occurs in bushland, while also incorporating rejuvenated topsoil to ensure seed bank generation is maximised
- The plants used will reflect where the different species naturally grow across the site. For example, if a conservation area is located where Lower Hunter Spotted Ironbark trees grow, this species will be planted
- Wetland planting will be done from an approved list of species and the plants will be of local provenance
- The only construction that will take place in the 20 metre 'Conservation

Corridor' area on each lot will be essential, 'soft invert' infrastructure, such as the drainage swales that carry stormwater run off and site access driveways

- The 10 metre reinstatement buffer adjoining the 20 metre conservation corridor on each lot will be managed for conservation, soft water quality infrastructure and Green-thighed Frog habitat
- In the car parking areas, 10 per cent of the bays reserved for additional plantings comprising trees, low shrubs and groundcovers

The key areas of water management, conserved land, the Deferred Area Number 1 and lot planning will ensure that at every point possible, HEZ will manage and minimise its environmental impact.

HEZ recognises that valuable species of flora and fauna reside on the site, and has ensured large conservation areas exist to ensure the preservation of their natural habit. Additionally, the residing species' habitat will be proactively managed to encourage regeneration of their numbers.

The contractors HEZ will appoint to manage these areas are specialists in establishing infrastructure for environmentally sustainable developments.
Further detail regarding all HEZ's Environmental assessment and management is enclosed in the attached plan (Environmental Assessment of Concept and Project Plan).

2.2 Background to the Development of HEZ

The subject land was rezoned to permit industrial development under Cessnock LEP 1989 (Amendment No.60). This amendment was gazetted on 28 March 2002. The aims of Amendment No. 60 were stated as:

This plan aims:

(a) to create new zones under Cessnock Local Environmental Plan 1989, including the Hunter Employment Zone, so as to facilitate major industrial or employment-generating development and to provide for environmental protection, national parks and nature reserves and special uses of land, and

(b) to regulate development in the Hunter Employment Zone and the other new

zones, and

(c) to rezone certain land to those new zones, and

(d) to allow development for the purposes of environmental facilities to be carried out with consent in certain zones, and

(e) to add certain items of the environmental heritage to Schedule 3 to Cessnock Local Environmental Plan 1989.

The submission prepared and subject to this Environmental Assessment does not propose any use or development not contemplated under the applicable objectives or land use provisions to the zones that apply to the subject site. The submission does seek to set aside the provisions of the Cessnock LEP that preclude subdivision of land unless in conjunction with an approved use.

The provisions of Cessnock LEP 1989 include clause 56(2) which states:

(2) Consent must not be granted to the subdivision of land within Zone No 4 (h) or 5 (a) to which this clause applies unless the subdivision specifically relates to the use of the land for which consent has previously been or will concurrently be granted.

The effect of precluding subdivision unless related to a specific land use unacceptably hinders the efficient design of the estate to incorporate best practice design in road layouts, bushfire management initiatives, water management strategies and habitat conservation management and retention measures.

That is, the efficient planning of the estate to accommodate and address the varied constraints and considerations is stymied. This is a poor planning outcome that hinders the implementation of broad scale protection and management strategies that can and should be integrated into a whole of Precinct design as now proposed under the current Concept plan application.

The provision and implementation of a road and lot layout not only allows these Environmental management measures to be incorporated into the Precinct 1 layout but facilitates the efficient forward planning and provision of essential services such as sewer and water supply, and planning of utility provisions such as communications and energy supply.

Precluding this ability to efficiently plan and accommodate the various environmental and construction considerations for the estate hinders the provision of employment generating lands for development in conjunction with Environmental management initiatives contrary to the original aims of Cessnock LEP 1989 (Amendment No.60).

The Concept Approval seeks to relax the provisions of clause 56(2) of Cessnock LEP 1989 to accommodate the declared Major Project for the construction of wall and floor panel manufacturing facility and the implementation of an efficient and high quality Precinct 1 layout which addresses and accommodates the various site considerations.

2.3 Site Location and Planning Framework

The site is located off Leggetts Drive and is located to the south of the townships of Neath, Abermain, Weston, Kurri Kurri and Pelaw Main, within the Local Government area of Cessnock. (see figure 3) To the south of the site the subject to the Concept Plan application is the Aberdare State Forest and Werekata National Park.

The site the subject of the Concept and Project application is currently subject to a number of zones under the provisions of Cessnock Local Environmental Plan 1989. The applicable zones include:

- 1(a) Rural "A";
- 4(h) Hunter Employment Zone;
- 5(b) Special Uses (Railways); and
- 7(b) Environment Protection (Conservation); and

The Greater HEZ Estate is subject to zones including

1(a) Rural "A";
1(f) Rural (Forestry);
4(h) Hunter Employment Zone;
5(a) Special Uses;
5(b) Special Uses (Railways);
7(b) Environment Protection (Conservation); and
8(a) National Parks and Nature Reserve.

Assessment and consideration of the future development of the land has been required to have regard to The Hunter Regional Environmental Plan 1989, The Lower Hunter Regional Strategy 2006-2031 and Cessnock DCP 2007.

In addition the Concept plan design has sought to accommodate existing approvals granted for the use and development of Lots 210 and 410, and applications lodged with Cessnock City Council and as yet undetermined for lots 110 and 90.

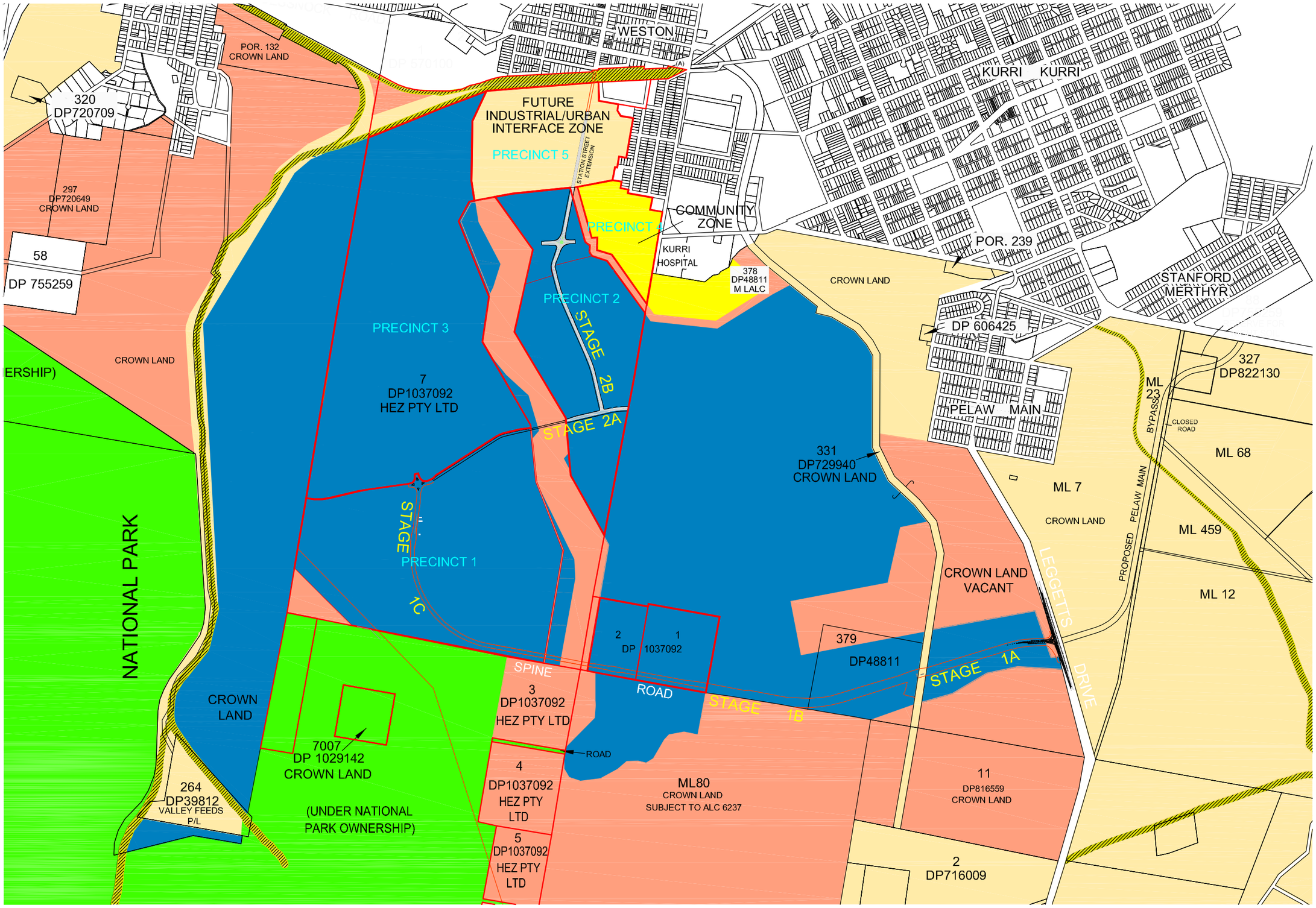


Figure 3 HEZ zoning plan and precinct 1 location

REV	DESCRIPTION	DATE	APPROVED
B	REMOVE PRECINCT 1 NOTATION FROM UTCA LAND	2.05.08	BJH

PLAN PRODUCED BY:
HARPER SOMERS O'SULLIVAN
241 DENISON STREET
BROADMEADOW NSW 2292
PO BOX 428
HAMILTON NSW 2303
ABN 11 093 343 858
T: (02) 4961 6800
F: (02) 4961 6794
E: survey@hso.com.au
W: www.hso.com.au

HUNTER ECONOMIC ZONE
Where industry thrives

Project	HEZ CONCEPT APPROVAL PLAN HEZ MASTER PLAN
Client	HEZ NOMINEES PTY LTD ATF THE HEZ UNIT TRUST
Drawing	HEZ MASTER PLAN 21.2.07

Contour Interval	N/A	Datum	A.H.D.
Scale	1:10 000 (A1)	Job Number	23175
Date	2ND MAY 2008		
Drawn	E.CHESTERSON		

2.4 Legal Description

The land the subject of the Concept Plan application comprises land owned by HEZ Pty Ltd with a legal description of Part Lot 7 DP 1037092 at Weston. Within Lot 7 are the proposed lots and roads comprising Precinct 1 as well as the Station Street extension. The residual of Lot 7 will be subject to separate assessment for development.

The land covered by the Concept plan application comprises an area of approximately 129ha.

The Land to be traversed by the proposed Pelaw Main by-pass is a combination of Crown Lands, comprising lot descriptions ML7 and ML 23 and Lot 88 DP 755259, and Lot 237 DP 822130 owned by Mindaribba LALC.

2.5 Proponent

The proponent is HEZ Nominees Pty Ltd (as trustee for the HEZ Unit Trust).

2.6 Consultants

The Project team that has been assembled to prepare and undertake the Environmental Assessment comprises:

Applicant/Development Manager	HEZ Nominees Pty Ltd
OVERALL ESTATE ISSUES	
Urban Planning	HEZ Nominees Pty Ltd
Landscape and Precinct Design	EDAW AECOM
Flora and Fauna	RPS HSO
Bushfire Assessment	RPS HSO
European Heritage	RPS HSO and HBO + EMTB
Aboriginal Heritage	HLA ENSR
Water Quality and Water Quantity	EDAW (Ecological Engineering)
Traffic and Transport	PB's

Noise, vibration Energy and Lighting	SKM
Energy Efficiency	SKM
Air Quality Management	SKM
FACILITY ISSUES	
Architect	Justin Long Design
Urban Planning	Caladines Town Planning
Flora and Fauna	RPS HSO
Bushfire threat Assessment	RPS HSO
Subdivision	RPS HSO
Landscape	Verge
Aboriginal Cultural Heritage	RPS HSO
Traffic and Parking	PB's
Air quality	SKM
Greenhouse gas assessment	SKM
Soil and water quality	PB's
Noise and Vibration	SKM
Mine Subsidence	PB's
Geotechnical	PB's
Chemical Storage risk assessment	PB's
Water Management	PB's
Civil Works design	PB's
Photomontage	Digital Line

2.7 Consultation

HEZ has consulted extensively with many government agencies over the past two to three years. More recently however, HEZ consulted with the following agencies and local community inviting them to raise any issues that should be addressed in the environmental assessments for the concept and project plan application:

- Commonwealth Department of the Environment and Water Resources;
- NSW Department of Environment and Climate Change;
- NSW Roads and Traffic Authority;
- NSW Department of Water and Energy;

- NSW Department of Primary Industries;
- NSW Rural Fire Service;
- Hunter-Central Rivers Catchment Authority;
- Mine Subsidence Board;
- Cessnock City Council;
- Mindaribba Local Aboriginal Land Council and Wonnarua Tribal Council ; and
- The local community.

HEZ placed an advertisement in five newspapers including the Maitland Mercury, Cessnock Advertiser, Singleton Argus, Lower Hunter Star and the Lower Hunter Weekend Star and setup a website with relevant information. Additionally, HEZ sent letters, emails and made several calls to each government agency.

The key issues raised by each stakeholder are summarised below with a brief response and reference in the EA to find further information. Copies of each correspondence are provided in Appendix R.

Commonwealth Department of the Environment and Water Resources (DEWR)

Issues: DEWR is interested in the concept plan application as it requires a variation to the EPBC approval conditions for the Precinct 1 subdivision design. They have advised it is most prudent to wait for the Part 3A determination of the proposed subdivision before submitting an EPBC variation request.

NSW Department of Environment and Climate Change (DECC)

Issues: DECC previously provided comments to the Department of Planning on 22 January 2008 and these are still relevant. No further comments were provided by DECC. The key issues are:

- Insufficient description and justification of measures to avoid, mitigate and then offset the impacts on areas of high biodiversity value;
- Insufficient description of how adequate conservation outcomes will be achieved;

- Reference to Werakata National Park as forming buffer lands or offsets should be removed from the EA; and
- Location, design and mitigation / offset measures for the Pelaw Main Bypass.

Comment: The matters raised by DECC have been addressed in Section 7 of the EA for the concept plan and the supporting documentation in Appendices C, D and E.

NSW Roads and Traffic Authority (RTA)

Issues: The RTA is currently preparing a draft Deed Containing Agreement (DCA) that defines the required road works on the classified (State) road network for Precincts 1 and 2 of the HEZ, with provision for including future development beyond Precinct 2 to be included in future deeds, requiring additional traffic assessment.

Comment: The RTA has completed this draft deed and the specific requirements for road upgrading works are included in the Statement of Commitments for the Concept and Project Plan application.

NSW Department of Water and Energy (DWE)

Issues: DWE wrote to the Department of Planning on 24 January 2008 and requested that Section 9 of the Concept Plan EA address groundwater resources at the site.

Comment: HEZ has addressed this in detail in Section 11 of the EA for the concept plan. DWE provided no additional comments in response to the later consultation.

NSW Department of Primary Industries

Forests NSW responded saying that it *has no comment as it does not effect our Forest estate*.

NSW Rural Fire Service (RFS)

Issues: The RFS is interested in the concept plan application as the site has significant bushfire issues and has been identified as bushfire prone land. The RFS advises that this type of proposal should satisfy the broad aims and objectives of *Planning for Bush Fire Protection 2006* and the performance criteria for the various proposed bush fire protection measures.

Comment: The concept plan incorporates appropriate bushfire mitigation measures into the subdivision design including asset protection zones, access roads and infrastructure in the estate to satisfy the RFS requirements.

Hunter-Central Rivers Catchment Authority

The CMA in their response to the consultation requested four matters to be considered. These issues are considered in the following section.

Issue 1. Consideration of vegetation losses proposed and the suitability of like for like offsets at an acceptable ratio.

Comment: The assessment and consideration of the vegetation removal and protection measures has been addressed in detail within the environmental assessment and within Appendices C, D and E to the application submission.

Issue 2. The proposal layout design should seek to protect existing native vegetation and improve the connectivity through the provision of corridors.

Comment: The design layout for precinct 1 provides for an extensive network of wildlife corridors and habitat retention and connectivity. The flora and fauna assessment

Issue 3. There are a number of other developments in train in the Lower Hunter. The context of this development to cumulative impacts from other developments should be assessed. In particular, vegetation loss and corridor disruption.

Comment: These matters have been addressed within the Environmental

Assessment and the Appendices C, D and E submitted with the application.

Issue 4(a). The EA should specify the effect of the proposal on the CAP's Management targets in a credit - debit balance for each target.

Comment: The consideration of the Management Targets for the Catchment Action Plan have been considered in the following table.

MANAGEMENT TARGET	RESPONSE
MANAGEMENT TARGET: MT01 By 2016, protect an additional 31,000 ha of native vegetation.	Within Precinct One 35.8 ha of native vegetation is protected and managed under the requirements of the HEZ Conservation Lands Conservation Management Plan (CLCMP) arising from the EPBC Approval granted for the HEZ Pty Ltd lands. This comprises 25ha within the central 7(b) Environmental Protection (Conservation) corridor covering Chinamans Hollow Creek, 4.2ha in the south west corner of the precinct and a 6.6ha buffer adjacent to the central creekline corridor. In addition to these protected areas all proposed roads are to be buffered by 20m deep setbacks of retained or reinstated bushland to contribute to the network of vegetation corridors created throughout the Precinct.

MANAGEMENT TARGET: MT02 By 2016, regenerate 25,500 ha of native vegetation.	Native regeneration as defined by target MT02 is not proposed as part of the development. The approach to the management of the estate has been to define areas for protection and management which are supplemented by environmental corridors throughout the Estate. These outcomes are detailed within the assessment prepared by RPS HSO that supports the Concept Plan. However, regeneration of native vegetation will occur via leading edge topsoil re-use procedures. Such procedures involve the stripping of topsoil and sub-horizons in their natural layers for reuse in landscaping and rehabilitation works. This procedure utilises the existing natural soils and seed bank to enhance the significant proposed vegetation retention.
MANAGEMENT TARGET: MT03 By 2016, treat 2,400 ha of weed affected lands.	The 35.8 ha of protected and managed lands within Precinct 1 are to be weed managed in accordance with the CLCMP. This is in addition to the balance of the 7(b) Environmental Protection (Conservation) lands within the HEZ Pty Ltd holding that are also weed managed in accordance with this CLCMP.

MANAGEMENT TARGET: MT04 By 2016, implement priority recovery actions on 800 ha of threatened species habitat.	No priority recovery plans are proposed as part of the application or deemed necessary as a result of the environmental considerations undertaken. The preparation and utilisation of the Constraints Masterplan data set has contributed significantly to the knowledge base for the occurrence and spread of a diversity of flora and fauna species in the local region.
MANAGEMENT TARGET: MT05 By 2016, manage an additional 52,000 ha of landscapes having physical, cultural or spiritual significance to Aboriginal people.	An assessment of the (Appendix F) of Precinct 1 has been undertaken for the proposal. No protection of additional sites has been identified as necessary. On-going participation and investigations will be required for development within the Precinct consistent with the criteria recommended and included within the Draft Statement of Commitments (Appendix A). HEZ Nominees have an existing strong relationship with the Land Councils whose lands are affected or are included within the HEZ LEP area.
MANAGEMENT TARGET: MT06 By 2016, protect an additional 4,600 ha of wetlands.	Not Applicable to the HEZ site. No significant wetlands occur within the HEZ Nominees land. The most significant waterbody and its related habitats, Hebburn Dam, is to be incorporated and protected as part of the future development of the Estate.
MANAGEMENT TARGET: MT07 By 2016, enhance 2,600 ha of wetlands.	Not Applicable to the HEZ site.

MANAGEMENT TARGET: MT08 By 2016, treat animal pests over 31,000 ha.	Feral animal pest eradication programs are on-going the estate and surrounding lands in a cooperative and coordinated effort with NPWS and the Department of Lands. These management programs have been undertaken for 2007 and 2008 and will continue in accordance with the management requirements of the CLCMP.
MANAGEMENT TARGET: MT09 By 2016, 200 km of roads that affect sensitive areas are managed using current best practice erosion and sediment control.	All new roads will be designed and constructed using best practice erosion and sediment control measures consistent with the Soil and Water Cycle Management Strategy (Appendix J) prepared for the estate. In addition the numerous informal tracks through out the estate are to be closed and revegetated consistent with the provisions of the CLCMP.
MANAGEMENT TARGET: MT10 By 2016, revegetate 8,400 ha of highly erodible soils.	The site is underlain by soils that are prone to erosion when the topsoil is removed. The Soil and Water Cycle Management Strategy (Appendix J) has been prepared to address the management of this potential risk and to ensure best practice revegetation techniques are utilised during construction and site disturbance. No specific revegetation of highly erodible soils is required or proposed. However, in areas such as existing tracks where erosion exists as a result of illegal use by trail bikes, closure will occur and natural regeneration be allowed to address this issue.

MANAGEMENT TARGET: MT11 By 2016, stabilise 800 ha of actively eroding soils.	The site and existing watersheds are stable and are generally not actively eroding, despite evidence of historic erosion. The Soil and Water Cycle Management Strategy (Appendix J) prepared for the estate has addressed the management of the current water regime to avoid significant alterations to existing stream flows to minimise the potential of creating erosion within Chinamans Hollow Creek.
MANAGEMENT TARGET: MT12 By 2016, revegetate 1,200 ha of salinity recharge areas with deep-rooted vegetation.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT13 By 2016, improve nutrient management on 500 ha of land.	The Soil and Water Cycle Management Strategy (Appendix J) prepared for the estate proposes to implement a best practice WSUD regime for development within the estate which includes treatment management and capture of nutrient loads prior to discharge into the Creek system
MANAGEMENT TARGET: MT14 By 2016, stabilise 150 ha of salt affected areas.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT15 By 2016, implement sustainable grazing management practices on an additional 19,000 ha of grazing land.	Not Applicable to the HEZ site.

MANAGEMENT TARGET: MT16 By 2016, develop and implement property plans for an additional 25,000 ha of agricultural land.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT17 Protect an additional 1,100 km of native riparian vegetation by 2016.	The zoning regime adopted for the estate includes the protection of the Chinamans Hollow Creek within a 200m wide corridor that is zoned 7(b) Environmental Protection (Conservation). This protects a length of creek of approximately 4km. The vegetation and land within the creek is located is managed in accordance with the CLCMP.
MANAGEMENT TARGET: MT18 By 2016, regenerate 550 km of degraded native riparian vegetation.	The riparian vegetation of Chinamans Hollow Creek is protected by the 7(b) Environmental Protection (Conservation) corridor and will be managed in accordance with the CLCMP, which includes restoration of weed-affected riparian areas on an ongoing basis.
MANAGEMENT TARGET: MT19 By 2016, restore native fish passage to 60 instream barriers.]	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT20 By 2016, stabilise 125 km of unstable or degraded stream channels and estuarine shorelines.	Not Applicable to the HEZ site.

MANAGEMENT TARGET: MT21 By 2016, improve habitat to 200 km of stream channels.	The Chinamans Hollow Creek stream channel is an intermittent stream with only periodic flows. The protection of the creekline within a 200m wide corridor will retain the habitat potential of the creek in close to its current state with the exception of the regeneration regime provided for in the CLCMP.
MANAGEMENT TARGET: MT22 By 2016, maintain 420 Lower Hunter Valley Flood Mitigation Scheme structures.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT23 By 2016, retrofit 620 ha of existing developed areas with current best practice urban stormwater management.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT24 By 2016, improve the management of 120 sewage management systems.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT25 By 2016, manage 75 estuarine floodgates to increase tidal movement.	Not Applicable to the HEZ site.

MANAGEMENT TARGET: MT26 By 2016, treat an additional 5000 ha of acid sulfate soils that are generating acid drainage.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT27 By 2016, revegetate 240 ha of degraded dune systems with native species.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT28 By 2016, protect an additional 21,000 ha of priority marine habitat	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT29 By 2016, 60 industry groups develop, adopt and audit an Environmental Management System (EMS).	The management of the estate intends for operators to adopt best practice water management and reuse, flora and fauna habitat management. A range of strategies have been prepared for the Estate to support the concept plan in relation to the management of the impacts of uses to establish within the HEZ Estate. Detailed consideration is relevant for EMS reporting when industries are establishing within the site and the scope and nature is fully understood.

MANAGEMENT TARGET: MT30 By 2016, enhance 130 km of vegetation along coastal lake shorelines.	Not Applicable to the HEZ site.
MANAGEMENT TARGET: MT31 By 2016, enhance 250 km of marine shorelines.	Not Applicable to the HEZ site.

Issue 4(b) The EA should specify how the guiding principles from the CAP are being met through this proposal.

Comment: The Guiding Principles from the Catchment Action plan have been addressed and considered in the following table.

Guiding Principle	Comment
Minimising habitat destruction and improving the condition of habitat	Habitat impacts have been assessed and management of retained habitat proposed.
Managing pests and weeds	Pests and weeds managed via the Conservation Management Plans (CMP's) for the estate.
Increasing landholder capacity to protect natural resources	Natural resources not extracted by the proposal. Environmental and habitat resources managed by CMP's and Statement of Commitments.
Bushfire management	Bushfire protection planning addressed by the submission documentation. (Appendix N)

Minimising soil erosion	Soil and water Cycle Management Strategy (Appendix J) addresses soil erosion.
Improving soil health	Primary Agricultural production not proposed, and soil management addressed by Soil and Water Cycle Management Strategy. (Appendix J)
Managing potential acid sulfate soil (pass) areas	No known potential Acid Sulfate Soils mapped within the estate.
Managing salinity	No known salinity occurrences in the estate. Water quality to be managed by the Soil and Water Cycle Management Strategy. (Appendix J)
Maintaining or improving water quality	Addressed by the Soil and Water Cycle Management Strategy (Appendix J).
Maintaining or improving riparian vegetation	Managed by the CMP's prepared for the estate.
Maintaining or improving aquatic habitat	Managed by the CMP's prepared for the estate.
Maintaining or improving floodplain connectivity and functioning	Addressed by the Soil and Water Cycle Management Strategy. (Appendix J)
Managing water extraction	No water extraction proposed.
Improving urban stormwater management	Addressed by the Soil and Water Cycle Management Strategy. (Appendix J)
Reducing the impact of thermal pollution	No large storage Dam proposed.
Managing point source pollution	Addressed by the Soil and Water Cycle Management Strategy (Appendix J) and air quality and noise management strategies for the estate.
Maintaining or improving the quality of groundwater	Addressed by the Soil and Water Cycle Management Strategy (Appendix J).
Managing recharge to groundwater	Addressed by the Soil and Water Cycle Management Strategy. (Appendix J)

Managing the extraction of groundwater	No ground water extraction proposed.
Identifying and protecting groundwater dependent ecosystems	No ground water dependant ecosystems have been evident on the site from site investigations and addressed by the Soil and Water Cycle Management Strategy. (Appendix J)
Maintain or improve water quality	Addressed by the Soil and Water Cycle Management Strategy. (Appendix J)
Maintain or improve aquatic habitat	Addressed by CMP's.
Manage estuary and marine shorelines	Addressed by CMP's.
Manage pests and weeds	Addressed by CMP's.
Manage water flow	Addressed by the Soil and Water Cycle Management Strategy.
Manage recreational activities	N/A
Manage coastal and foreshore development	N/A
Biodiversity	Management and protection of biodiversity addressed in the flora and fauna assessments undertaken in support of the proposal.
Prime agricultural land	No Agricultural land proposed to be developed.
Protection of water sources	Water supply catchments no affected by the proposal.
Conserving water	Addressed by the Soil and Water Cycle Management Strategy. (Appendix J)
Reusing effluent	Effluent re-use not proposed in current submission. Nothing precludes the consideration of effluent re-use by future occupants of the estate.
Water sensitive urban design	WSUD a fundamental principle of the Soil and Water Cycle Management Strategy. (Appendix J)

Environmental trading schemes or markets	Not proposed in current submission. Nothing precludes the consideration of or implementation of trading schemes by future occupants of the estate.
Offset schemes	No offset schemes proposed under the Native Vegetation Act.
Conservation covenants	No conservation Covenants proposed but a Conservation Agreement has been entered into with the Commonwealth Minister for The Environment and CMP's prepared and endorsed to manage the conserved lands within the estate.
Considering the impact of global warming on the success of on ground Catchment work	N/A
Appropriate planning for the greenhouse effect	No direct sea level change impact anticipated for the estate.
Aboriginal cultural values and landscapes	Investigations and recommendations included for the management of Aboriginal cultural values.
Places of European significance	Investigations and recommendations included for the management of European heritage.

Mine Subsidence Board (MSB)

Issues: The MSB provided feedback to HEZ based on an Integrated Development referral and raised issues about the level of documentation required prior to gaining MSB approval for each project.

Comment: The site has been subject to geotechnical investigations on the stability of the workings. More detailed investigations on each development site will be carried out for each development proposal.

Cessnock City Council

Two letters, emails and several telephone calls were made seeking a response from Council but none has been provided.

Local Aboriginal Groups and Land Councils

No responses were received from either aboriginal group despite two letters, emails and several phone calls. The local aboriginal groups have been consulted with and participated in the site investigations by HLA – ENSR.

Local Community

No responses were received from the local community.

3. Environmental Risk Analysis

The Director General's requirements include the need for an environmental risk analysis to identify potential environmental impacts associated with the project. The analysis is to address the construction and operational elements of the proposal.

The rezoning of the HEZ lands was the result of a significant level of environmental assessment and investigation over a diverse range of disciplines.

These investigations have included:

- Flora and Fauna impacts;
- Water Cycle and Water Quality Management;
- Geotechnical and Mine Subsidence;
- Noise, Vibration Electrical Interference and Lighting impacts;
- Air Quality impacts;
- Bushfire Hazard;
- Traffic and Transport impacts;
- Aboriginal Heritage impacts; and
- European Heritage impacts;

The management and integration of solutions to potential environmental impacts has been a fundamental basis for the design approach to the Precinct 1 subdivision pattern and road layout. Some elements of the proposal were not altered from the existing situation, namely the configuration of the existing HEZ Drive which provides access from Leggetts Drive through the site and which currently terminates approximately 900m from Station Street in Weston to the north of the site.

The investigations and studies undertaken since the inception of the HEZ Estate have been relied upon and augmented where necessary. This approach has been adopted to utilise the information data base collated for the site and conforms to Cessnock City Council's suggestion that the investigations undertaken to date not be discarded.

Further consultation has been undertaken to supplement the existing site investigations inviting the community and relevant government agencies to provide input into the Environmental Assessment reporting. The results of the previous

investigations and the additional input from Council, the community and government agencies have been addressed in the preparation of the Concept Plan.

Fundamental to the approach to the site layout design for precinct 1 has been the Ecological Constraints Masterplan (ECMP RPS HSO 2004) for the HEZ Study Area.

The ECMP is a comprehensive ecological database and the primary guiding document for the on going development of the HEZ industrial estate.

Detailed ecological investigations, using high accuracy DGPS (Differential Global Positioning System), were undertaken within the HEZ estate. This work culminated in the creation of an ecological data base that has been mapped for all of the various flora and fauna identified across the site.

The implementation of Water Sensitive Urban Design (WSUD) approach for the estate has been pursued. This has resulted in the estate design prepared by EDAW being fundamentally driven by the inputs from RPS HSO, the Ecological engineering practice area of EDAW and EDAW Landscape Architecture practice area. This has ensured that the basis of the design is driven by the site topography and ecological considerations.

The identification and response to the potential Environmental risks are summarised in the following table.

Issue	Risk	Consideration
Flora and Fauna	Impact upon flora and fauna communities, waterways, aquatic ecosystems, riparian zones.	Key issue in the assessment requirements and addressed at section 7 and appendices C, D and E.
Aboriginal Heritage	Impact upon Aboriginal Heritage.	Key issue in the assessment requirements and addressed at section 8.1 and Appendix F.

European Heritage	Impact upon European Heritage.	Key issue in the assessment requirements and addressed at section 8.2 and appendices G and H.
Road and Traffic Impacts	Traffic impact assessment of the development.	Key issue in the assessment requirements and addressed at section 9 and appendix I
Air Quality	Air quality Impact assessment	Key issue in the assessment requirements and addressed at section 10 and appendix J.
Soil and water Quality	Stormwater and water cycle management.	Key issue in the assessment requirements and addressed at section 11 and appendix L. The Statement of Commitments includes the implementation of the Water Cycle Management Strategy prepared by EDAW that is applicable across the whole of the HEZ Pty Ltd lands.
Water use reduction	Consider means of reducing potable water use.	The water cycle management strategy (Appendix L) includes requirements for the implementation of stormwater reuse to reduce the demand upon potable water use.
Noise and Vibration	Noise and Vibration impact assessment	Key issue in the assessment requirements and addressed at section 12 and appendix K

Noise and Vibration Strategy	Implementation of a comprehensive strategy for the Estate.	The Statement of Commitments includes the implementation of comprehensive Noise and vibration strategy that is applicable across the whole of the HEZ Pty Ltd lands.
Bushfire Risk	Consideration of bushfire hazard management	Addressed at Section 13 of the Environmental assessment and Appendix N. The Precinct design has been developed in conjunction with Bushfire hazard management advice and input.
Electrical Interference and Lighting impacts	Implementation of a comprehensive strategy for the Estate.	The Statement of Commitments includes the implementation of a comprehensive Electrical interference and Lighting Impact strategy (Appendix K) that is applicable across the whole of the HEZ Pty Ltd lands.
Geotechnical and Mine subsidence	Impact of subsidence and geotechnical risk on development.	The rezoning of the land to permit development was supported by investigations into the suitability of the land to support development. The Project Application is supported by detailed site investigations into the stability of the site and the underground mine workings.

Greenhouse Gas	Impact of development upon greenhouse gas production.	The assessment of the accompanying project Application for the WIPS Facility includes consideration of potential Greenhouse Gas impacts. It is anticipated that future considerations may be required depending upon the scale and nature of land uses that seek to establish within the estate.
Catchment management	Impact of development upon Catchment Action Plan.	The consultation raised the requirement for the development to have regard to the Catchment Action Plan and the Management Targets. The response to the matters raised by the Catchment Management Authority (CMA) are provided at section 2.7
Air Quality Risks	Construction emissions predominantly consisting of dust due to clearing and earthworks and small volumes of vehicle exhaust	The assessment of air quality impacts from construction has been addressed in the accompanying Project Application for the WIPS facility.

Noise and Vibration impacts	Equipment used during construction of the roads and associated infrastructure may generate significant noise emissions	Impacts on noise and vibration were assessed by SKM (2007) and results indicated that noise from the construction can be appropriately managed (Appendix O). In addition, effective use of the tools provided in the Noise, Vibration Electrical Interference and Lighting (NoVEL) Strategy will help to minimise the impact on surrounding receivers and reduce the levels to which noise must be attenuated.