Hanson
HEIDELBERGCEMENT Group

Section 75W Planning Assessment Report
Modified Concept and Project Plan

Wallgrove Redevelopment

Eastern Creek NSW

Prepared By: Andrew Driver and John Lardis
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Date: June 2012

	Submission of Wallgrove Redevelopment Prepared under the State Environmental Planning Policy No. 59 – Central Western Sydney Employment Area (SEP 59)
Report prepared by Name Qualifications Address In respect of	 Andrew Driver and John Lardis B.Eng (Civil), MBA (PM) and B.Bus Level 5, 75 George Street Parramatta NSW
Development application Applicant name Applicant address Land to be developed Lot number DP/MPS vol./fol. Etc of Proposed development	The subdivision and redevelopment of the Hanson Wallgrove Processing site. DOP Reference CP 06_0225. Hanson Construction Materials Pty Ltd 75 George Street, Parramatta NSW 2150 Archbold Rd, Eastern Creek NSW Area is defined as Lot 5 in DP1145808 City of Blacktown Parish of Melville County of Cumberland
Planning Assessment Report	☑ Planning Assessment Report
Certificate	I certify that I have prepared the contents of this Statement and to the best of my knowledge. This submission has being prepared as the mandated environmental assessment under the provisions of Section 75W of the EP&A Act 1979. It contains all available information that is relevant to the environmental assessment of the development to which the statement relates It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.
Signature	
Name	Andrew Driver and John Lardis
Date	12/06/2012

PROPONENT AND GOALS

THE PROPONENT

Hanson Construction Materials Pty Ltd (Hanson) operates over 50 quarries in Australia with total sales of over 20 million tonnes per annum. Hanson runs twelve quarry operations in NSW, ranging from small sand and gravel quarries, to larger hard rock quarries. Hanson has international backing and high-level local expertise.

Hanson and its associated companies also operate over 200 premixed concrete plants and 10 building products operations throughout Australia. Hanson directly employs more than 3,000 people in Australia.

Hanson operates an integrated risk management system that covers health and safety, environmental management systems, and quality issues based on Australian Standards.

PROJECT OVERVIEW

Hanson Construction Materials Pty Ltd (Hanson) has prepared this submission under the Section 75W Planning Assessment Report which accompanies an application made pursuant to Section 75W of the Environmental Planning and Assessment Act 1979 to modify Concept and Project Approval CP 06_0225. According to a Fact Sheet entitled "Arrangements for projects remaining under Part 3A pending its repeal", of May 2011 (Source: Department of Planning & Infrastructure website, 16 November 2011):

"Projects which have been determined under Part 3A can continue to be modified under section 75W of the EP&A Act."

This Concept and Project Approval was issued by the Minister on the 3rd June, 2010 under Section 75J of the Environmental Planning and Assessment Act 1979 in respect to a project known as Hanson Asphalt and Concrete Facility. Also issued concurrently was a project approval for the continued operation of the existing asphalt and concrete production and recycling facilities, ancillary infrastructure, the construction of a road through the site and a subdivision.

The Concept Approval allowed for the following elements:

- Concrete batching plant with a production capacity of up to 144,000m3 per annum
- Office and laboratory
- Logistics/Fuel depot and workshop
- Materials storage depot (with import of up to 36,000 tonnes of material per annum)
- Asphalt/Emulsion plant with a production capacity up to 360,000 tonnes per annum
- Office and plant
- Subdivision of the site
- Bulk earthworks across the site

- Provision of a precinct plan collector road through the site
- Provision of a range of associated infrastructure to provide essential services to the development site.

The Project Approval allowed for the following elements;

- Construction of the Precinct Rd *(Attachment 8 – Original Approved Precinct Road Alignment)*
- Demolition of the current site structures
- Continued use of the existing asphalt and concrete production and recycling facilities and ancillary infrastructure

THE SITE

The Project approval accompanying the Concept Approval enabled the subdivision of the site that effectively created the parcel of land to which the Concept Approval relates. This is known as Lot 5 in DP1145808.

The site is located within the Eastern Creek precinct of the Central Western Sydney Employment Area. It is located at the end of a newly formed Honeycomb Rd that links with Wonderland Drive, which intersects with Wallgrove Road at Eastern Creek. The site is approximately 900m west of Wallgrove Road which provides access to the M7 Sydney Orbital and the M4 motorways.

The site was part of a larger 60ha holding which was originally developed as a hard rock quarry with associated facilities which are largely contained on the current development site. The quarry void is located on an adjacent parcel of land that was owned by Hanson until it completed quarrying activities on the site in 2005. In 2006, Hanson subsequently sold the land containing quarry void to 'ThaQuarry', which has since gained a separate approval for a non-putrescible landfill and resource recovery facility referred to as the Eastern Creek Waste Facility. Via the Concept and Project approvals issued in June 2010, Hanson began consolidating its operations on the remaining 25.95 hectares of the site to which the Concept Approval relates.

The development site is depicted in Figure A on the following page.

Figure A: Wallgrove Development Site

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1 INTRODUCTION

This Section 75W Planning Assessment Report which accompanies an application made pursuant to Section 75W of the Environmental Planning and Assessment Act 1979 to modify Concept and Project Approval CP 06_0225. According to a Fact Sheet entitled "Arrangements for projects remaining under Part 3A pending its repeal", of May 2011 (Source: Department of Planning & Infrastructure website, 16 November 2011):

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- Concrete batching plant with a production capacity of up to 144,000m3 per annum
- Office and laboratory
- Logistics/Fuel depot and workshop
- Materials storage depot (with import of up to 36,000 tonnes of material per annum)
- Asphalt/Emulsion plant with a production capacity up to 360,000 tonnes per annum
- Concrete Recycling Facility importing and processing up to 100,000 tonnes per annum.
- Office and plant
- Subdivision of the site
- Bulk earthworks across the site
- Provision of a precinct plan collector road through the site
- Provision of a range of associated infrastructure to provide essential services to the development site.

Component	**Concept Plan**
Concept Plan Summary	Demolish and relocate existing facilities, construct a new concrete batching and asphalt plant, subdivision and allowance for future expansion
Industrial Facilities	• Demolition and relocation of existing plant to develop • Concrete Batch Plant with a production capacity up to 144,000m3 per annum • Logistics Centre / Fuel Depot and Workshop; • Concrete Recycling Facility with capacity to import and processing up to 100,000 tonnes per annum; • Materials Storage Depot (with import of up to 36,000 tonnes of materials per annum); • Asphalt / Emulsion Plant with a production capacity up to 360,000 tonnes per annum; and

	• Office, Laboratory, Plant and associated infrastructure
Infrastructure	Provision of a new drainage/detention basin and associated storm water infrastructure
Access road	Provision of a Precinct Road through the site and dedication to Council
Subdivision	Subdivision defining the alignment of the Precinct Road through the site
Potential future expansion	The southern portion of the site is identified for future expansion subject to a separate application and assessment
Capital value	$49 million
Jobs	195 employees and 16 permanent contractors, representing an additional 64 jobs over the existing operations
Component	**Project**
Project Summary	Continued uses of the existing facilities for 3 years, subdivision and implementation of the precinct road through the site
Industrial Facilities	• Continued use of the existing industrial facilities, offices, laboratory, workshop and associated infrastructure, with production rates limited as follows; • Concrete Batch Plant with a production capacity up to 108,000m3 per annum; • Concrete Recycling Facility importing and processing up to 75,000 tonnes per annum / • Materials Storage Depot (with import of up to 27,000 tonnes of materials per annum); and • Asphalt / Emulsion Plant with a production capacity up to 270,000 tonnes per anum.
Subdivision & Implementation of Precinct Road	Subdivision and implementation of the Precinct Road through the site, with dedication of the road to Council
Operating hours	24 hours, 7 days

Table 1: Concept Plan and Project Proposals

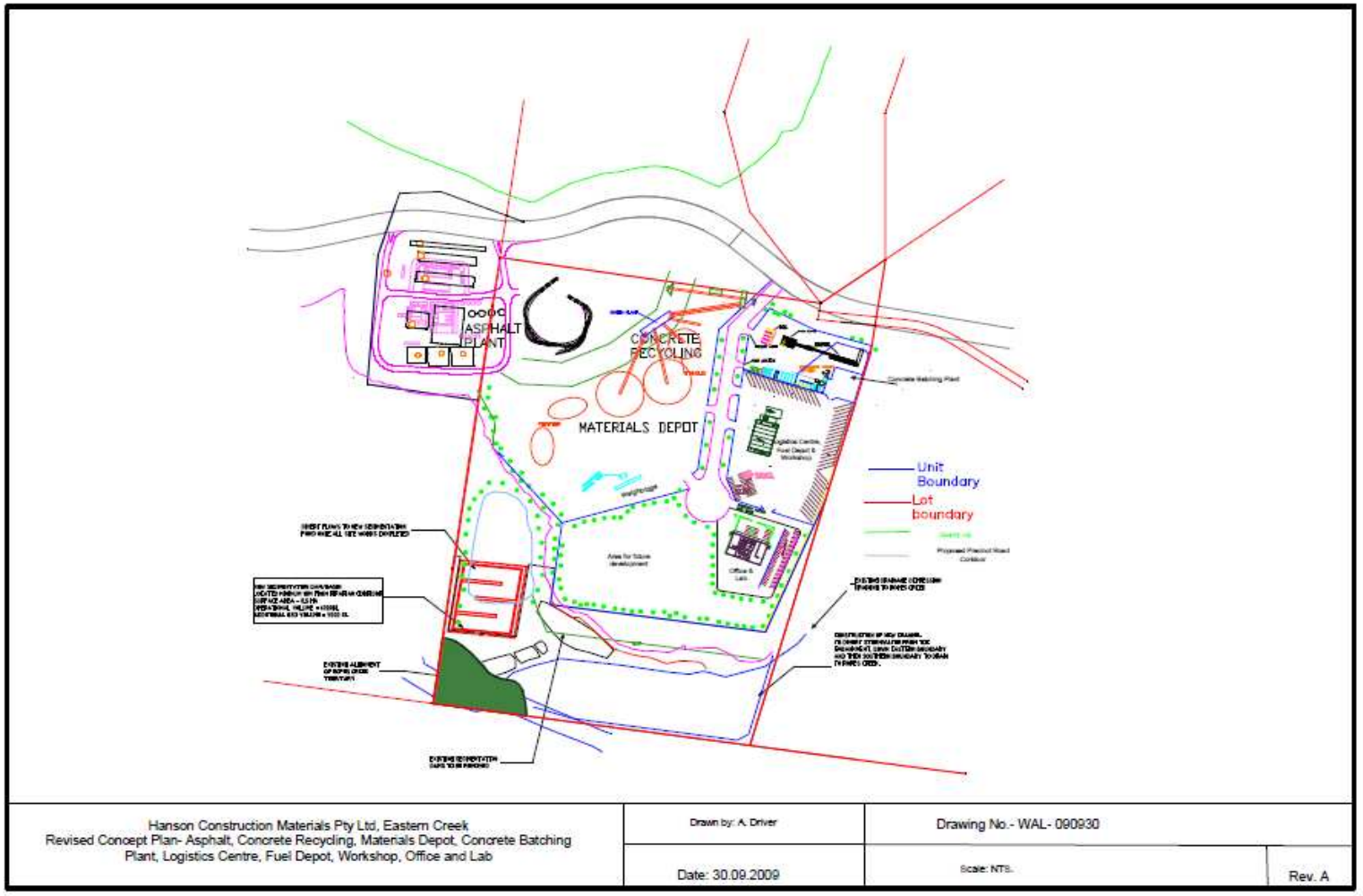

Figure 1: Approved Concept Plan

1.1 PROPOSED MODIFICATION TO EXISTING APPROVALS

This modification application has been triggered following detailed commercial investigations which have resulted in a need to amend the Concept Masterplan. The result of this redesign of the Concept Masterplan being a more efficient and economic use of the land for future industrial purposes as approved by the Concept Approval.

Following a commercial review of the Concept Approval it was determined that a more efficient and economic use of the land was possible and as a consequence the Concept Masterplan has been reviewed and modified as per *Attachment 6 – Revised Concept/Project Masterplan and Proposed plan of subdivision*. Changes following the review of the Concept Masterplan are as follows:

- Estate Road - The access road connecting to the collector road running along the northern boundary of the site has been realigned closer to and parallel with the eastern boundary.

- Concrete Batching Plant - The internal site layout of the concrete batching plant has been modified, it is otherwise generally in the same location and contains roughly the same site area and is to be located on proposed lot 1.

- Office and Laboratory – This facility has been moved to the north along the eastern boundary and is now adjacent to the concrete batching plant and is to be located on proposed lot 2.

- Logistics Centre (Fuel Depot and workshop) – This facility has swapped locations effectively with the Office and Laboratory facility so has been shifted south along the eastern boundary and is to be located on proposed lot 3.

- Concrete Recycling Facility – This facility has been relocated from the northern/central part of the site to the southern boundary of the site in an area that was previously identified for "future development" on the approved Concept Masterplan. This facility is proposed to be located on lots 4 and 5.

- Asphalt Plant – This facility is proposed to be relocated from the north western corner of the site (its existing location) to a central location on the site on proposed lot 6

The Precinct Collector Road remains as unchanged with the same alignment as the original project approval.

The stormwater management facility located in the south western corner of the site remains generally as approved. Also the approved drainage channel at the south-eastern corner of lots 4 & 5 remains the same. The surface water management has been revised to account for the changes while maintaining the system's performance objectives for both Blacktown City Council and the NSW EPA.

Redesign of the subdivision results in a large portion of land in the central and north to north western part of the site, with an area of approximately 10.5ha. It is

proposed that this area be subdivided into a further 6 development lots – lots 7 –to 12.

Two additional lots 13 and 14, will also be created, one containing the collector road that will ultimately be constructed and dedicated to Blacktown City Council, and a residue lot along the northern boundary. Estate Road will also be dedicated to Council.

The following figure illustrates the major changes in the concept between the original approved Concept Plan (*Attachment 7*) and the Modified Proposed Concept/Project Plan (*Attachment 6*).

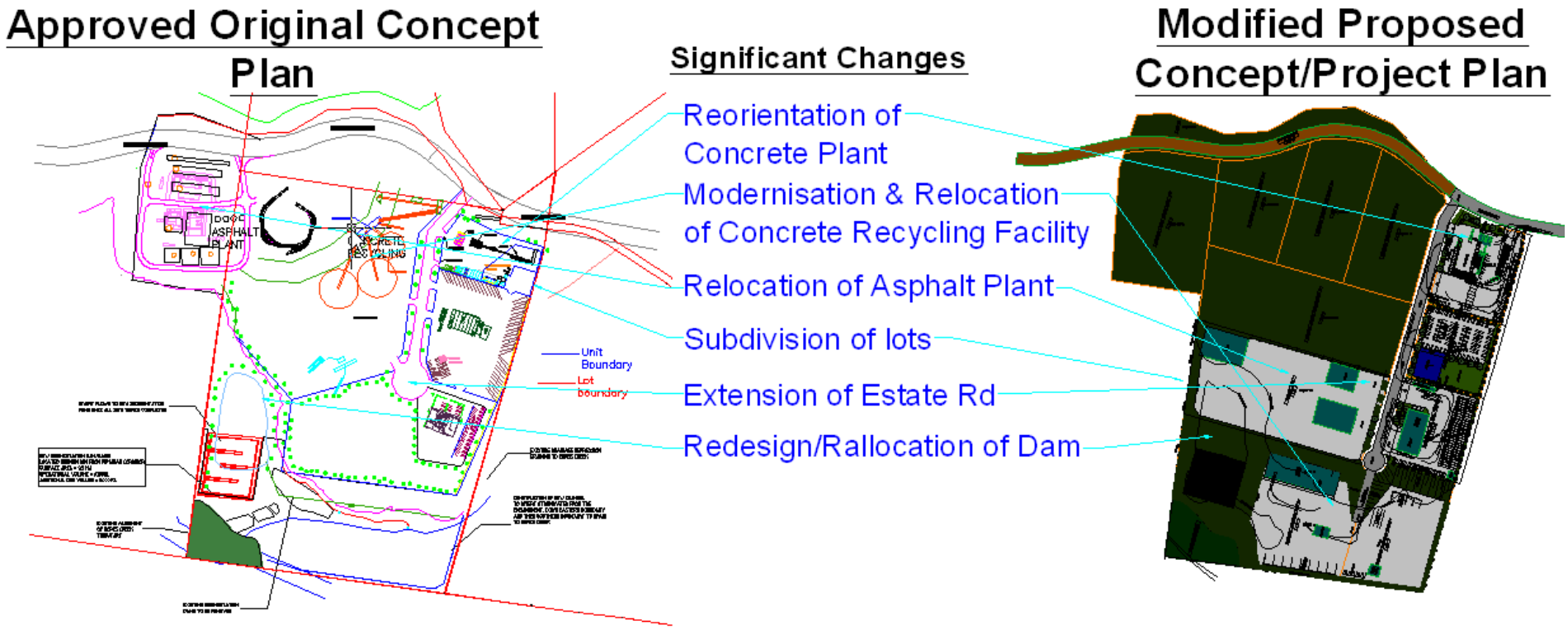

Figure 2: Approved Original Concept Plan Vs Modified Proposed Concept/Project Plan

It is proposed that the Minister's Project Approval of 3rd June 2010, be amended as follows:

Remove the Concept Masterplan (shown in *Attachment 7* of this report) from Appendix 1 of the Concept Plan Approval.

Insert in Appendix 1 the following plans:

- The revised Concept/Project Masterplan (*Attachment 6*).
  Including the following allocation of lots for the proposed operations:
    - Concrete Batching Plant on Lot 1
    - Office Building and Laboratory Building on Lot 2
    - Maintenance and Fuel Facility on Lot 3
    - Concrete Recycling Facility on Lots 4 & 5
    - Asphalt Plant on Lot 6
- Concept Stormwater Management Layout Plan (*Attachment 6A*)
- Conceptual Sewage Management Layout Plan (*Attachment 6B*)
- Conceptual Water Services Layout Plan (*Attachment 6C*)
- Electrical Services Site Plan Power Reticulation Layout (*Attachment 6D*)
- Communication Reticulation Layout (*Attachment 6E*)
- Conceptual Contour Plan- Bulk Earthworks (*Attachment 6F*)
- Proposed Industrial Subdivision Roads Plan Set (Attachment 6G)
- Proposed Plan of Subdivision (*Attachment 6H*)

In Schedule 1 at Project, insert:

- Construction of a Precinct Road (Collector Road) through the site
- Construction of an Estate Road
- Subdivision into 14 lots
- Bulk earth works
- Construction of utility services for subdivision
- Demolition of the existing structures on site
- Construction of the following on the proposed plan of subdivision:
    - Concrete Batching Plant on Lot 1
    - Office Building and Laboratory Building on Lot 2
    - Maintenance and Fuel Facility on Lot 3
    - Concrete Recycling Facility on Lots 4 & 5
    - Asphalt Plant on Lot 6

Under Section 75V of the EP&A Act, these approvals cannot be refused, and must be substantially consistent with the Part 3A approval.

1.2 DEVELOPMENT OVERVIEW

The development comprises a redevelopment of the current site operations and includes the creation of 12 industrial lots, collector and estate roads and industrial land uses as summarised in Table 2. The development is proposed to be staged, with the site roads and Lots 1 – 5 developed initially, with Lots 6 – 12 developed at a later stage.

Lot	Area (ha)	Proposed Site Use
1	1.326	Concrete Batching Plant
2	1.058	Office and Laboratory
3	1.248	Maintenance and Fuel Facility
4	1.833	Concrete Recycling Facility
5	3.902	Concrete Recycling Facility
6	3.335	Future Industrial
7	2.853	Future Industrial
8	1.676	Future Industrial
9	1.794	Future Industrial
10	1.463	Future Industrial
11	2.344	Future Industrial
12	1.697	Future Industrial

Table 2: Summary of proposed lots and land uses.

The proposed development also includes the provision of site services including (but not limited to) potable water, sewer, stormwater, electricity and telecommunications. Existing buildings, stockpiles, dams and sedimentation basins on the site shall be removed / reconfigured as part of the works.

Figure 3: Location of subject site within the local context (source: www.nearmap.com.au, 23/11/2011).

1.3 TIMING OF DECOMMISSIONG OF CURRENT OPERATIONS AND PROJECT APPROVAL SUBMISSIONS

The below table outlines the estimated period the Project Approvals will be submitted for the individual projects construction certificate. Timing of the decommissioning of the current operations is also detailed below.

Project	**Estimated Submission of Project Plan for Construction Certificate**	**Decommissioning of Current Operation**	**Description**
Subdivision	INCLUDED IN THE CONCEPT PLAN	N/A	Bulk Earth Works, Road Construction, Retaining Walls, Installation of services, Retaining Wall construction
Concrete Recycling Facility	September 2012	August 2012	Construction of concrete recycling facility consisting of mobile plant & site buildings and hardstand structures
Asphalt Plant	September 2012	On commissioning of Asphalt Plant on proposed lot 6	Construction of asphalt facilities consisting of fix plant & site buildings and hardstand structures
Transport Depot	December 2012	June 2012	Construction of Workshop, Transport Offices, Wash Down pits and hardstand areas
Concrete Plant	December 2012	June 2012	Construction of concrete batch plant with associates structures such as water storage tanks, hardstand areas and open yard sheds
Office	December 2012	N/A	Construction of double story office structure and parking for employees

Table 3: Project Approval (Construction Certificate) Submission Timing

2 STATUTORY CONTEXT

2.1 STRATEGIC PLANNING

A review of the Concept Plan against relevant strategic planning instruments is provided below.

2.1.1 Metropolitan Strategy

The Metropolitan Strategy (currently under review) presents a plan for managing growth in the Sydney region over the next 25 years. The strategy sets out key aims for employment, housing, infrastructure and service provision. One of the objectives of the strategy is to protect and enhance employment lands in the M7 motorway corridor.

The broad aims of the strategy are to be implemented through ten sub-regional plans, ensuring that the aims are translated at a local level. The Hanson site is located within the north-west sub-region which incorporates Blacktown, Baulkham Hills, Blue Mountains, Penrith and Hawkesbury local government areas.

In relation to economic and employment growth, the draft North-West Sub-Regional Strategy seeks to plan for an additional 130,000 jobs, protect strategic employment land and strengthen existing industry clusters. The Hanson proposal involves consolidation of operations and a more efficient use of valuable employment land. The proposal also creates a spare land parcel on site for future employment generating uses.

Further, the strategy identifies infrastructure and service provision as critical to orderly and economic development of employment lands. The Hanson proposal incorporates adequate contributions for development of infrastructure and services in the WSEA area.

The objectives of the Metropolitan Strategy and North-West Sub-Regional Strategy are further reflected in State Environmental Planning Policies, as discussed below.

2.1.2 State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP)

The WSEA SEPP replaces SEPP 59. The WSEA SEPP covers a large area of central western Sydney centred on the intersection of the M7 and M4 motorways (see Figure 4). The WSEA SEPP identifies nine precinct areas, including Eastern Creek where the Hanson proposal is located. The primary objectives of the WSEA SEPP are to protect and enhance land for employment purposes and provide for coordinated development of the WSEA.

Like SEPP 59, the aims of the WSEA SEPP are to be implemented through more detailed Precinct Plans or Development Control Plans (DCPs). The site falls within the Eastern Creek Precinct, located within the Blacktown Local Government Area.

Blacktown City Council developed and adopted the Eastern Creek Precinct Plan (Precinct Plan) on 14 December 2005.

The key objectives of the Precinct Plan are to promote economic growth and employment opportunities, provide adequate and efficient infrastructure and services and ensure positive environmental and community outcomes. In summary, the proposal is consistent with the WSEA SEPP objectives as it provides for a more efficient use of valuable employment land, provides adequate infrastructure contributions and will lead to an improved level of environmental performance of the facility.

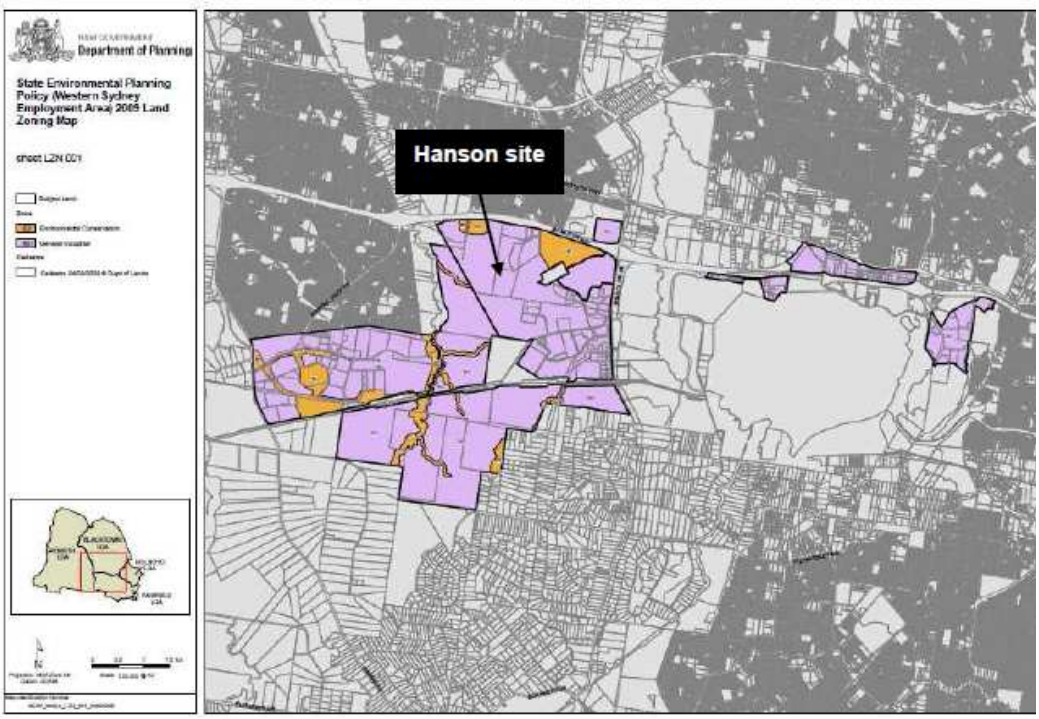

Figure 4: State Environmental Planning Policy - Western Sydney Employment Area Zoning Map

2.1.3 Permissibility

The site is zoned IN1 General Industrial under the WSEA SEPP. Industries (other than offensive or hazardous industries) are permitted with consent in the zone. The proposal is permissible with consent in the zone.

2.1.4 Other Approvals

In addition to the Part 3A Project approval for continued uses, and the Concept approval, Hanson is required to obtain:

Project approval to implement subsequent stages of the Master Concept Plan;
Variations to its two existing EPLs for the facility;

2.1.5 Objects of the Environmental Planning and Assessment Act 1979

The Minister is required to consider the objects of the EP&A Act when he makes decisions under the Act. These objects include:

'The objects of this Act are:

(a) to encourage:

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,
(ii) The promotion and co-ordination of the orderly and economic use and development of land,
(iii) The protection, provision and co-ordination of communication and utility services,
(iv)The provision of land for public purposes,
(v) The provision and co-ordination of community services and facilities, and
(vi)The protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and
(vii) Ecologically sustainable development, and
(viii)The provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.'

The objects of most relevance to the Minister's decision on whether or not to approve this project are those under Section 5(a)(i), (ii), (iii) and (vii).

With respect to ecologically sustainable development (ESD), the EP&A Act adopts the definition in the Protection of the Environment Administration Act 1991. Section 6(2) of that Act states that ESD 'requires the effective integration of economic and environmental considerations in decision-making processes' and that ESD 'can be achieved through' the implementation of the principles and programs including the precautionary principle, the principle of inter-generational equity, the principle of conservation of biological diversity and ecological integrity, and the principle of improved valuation, pricing and incentive mechanisms. In applying the precautionary principle, public decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment and an assessment of the risk-weighted consequences of various options.

The proposal fully considered the objects of the EP&A Act, including the encouragement of ESD. The proposal represents an efficient economic use of the site and would lead to an overall improvement of the environmental performance of the facility. In addition, the proposal allows for adequate provision and coordination of community and utility services as the proposed contribution to regional

infrastructure is satisfactory, stormwater would be managed on site at no cost to Council and Hanson has also agreed to contribute toward the provision of the local road network (both the local Quarry link road and the Precinct Road through the site).

2.2 CONSIDERATION OF OTHER ENVIRONMENTAL PLANNING INSTRUMENTS

2.2.1 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) commenced in January 2008, consolidating and updating a number of State planning instruments. The Infrastructure SEPP details planning provision and development controls for infrastructure works and development located adjacent to particular types of infrastructure development.

However, the Infrastructure SEPP does not apply to project applications which were lodged but not determined before the commencement of the policy. As the project application was lodged prior to the commencement of the Infrastructure SEPP, the provisions of this SEPP do not apply to the project.

2.2.2 State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and/ or offence (odour, noise etc). A development is defined as potentially hazardous and/ or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/ or offence impact, on off-site receptors.

There are two Environment Protection licences that pertain to the current Hanson operations on site, in addition OEH have indicated they have the ability to licence the proposal into the future.

2.2.3 State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 applies to the project. SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application. A desktop contaminated site assessment was undertaken and further site investigation and analysis was recommended in the original EA to identify areas requiring remediation. More detailed assessment is to be undertaken at subsequent Project approval stages.

2.2.4 Blacktown Local Environmental Plan 1988

Clause 8 (2) of the WSEA SEPP indicates that Blacktown Local Environmental Plan 1988 does not apply to land within the Blacktown Local Government Area that is covered by the WSEA SEPP. Therefore, Blacktown LEP does not apply to the project.

2.2.5 Strategic Justification

The land comprising the WSEA is progressively developing to achieve the strategic objectives of employment and economic growth for Sydney and the state of NSW. Approved and constructed developments in the Eastern Creek and Erskine Park Precincts comprise high employment generating, light industrial uses including warehousing, distribution and freight logistics centres. Both the approved non-

putrescible landfill & recycling facility immediately north of the site, and the existing Hanson operations are the exceptions to this general development pattern.

The Hanson proposal has been considered in the context of development in the WSEA and the strategic planning documents that substantially govern development in the area.

3 INFRASTRUCTURE CONTRIBUTIONS

The Department further considered the proposed contributions in the context of:

- the strategic objectives of facilitating infrastructure and service provision in the WSEA;
- the State government's position on infrastructure contributions; and
- agreed contributions by other developments in the WSEA.

CONTRIBUTION ITEM DETAILS	DETAILS
Regional Road Infrastructure Including but not limited to: • the upgrade of Old Wallgrove Rd; • the upgrade of Archbold Rd; signalisation of intersections along Old Wallgrove Rd; and • the upgrade of the intersection of Old Wallgrove Rd and Wallgrove Rd.	Monetary contribution of $3,675,000 payable to the Minister for Planning toward the provision of regional road infrastructure. • Calculated at a rate of $150,000 per hectare (ha) for Lots 1-12 of developable land part of the proposal. • Payable at construction certificate stage for project components.
Local Road Infrastructure Precinct (collector) Road through the project site Estate Road	Construction of a precinct (standard collector) road by Hanson, to Council's standard. Dedication of the road corridors for lot 13 and 14, (which equates to 17,277m2 of land), by Hanson, to Council.
Local Road Infrastructure The Quarry Link Road	• Monetary contribution by Hanson payable to Council toward the provision of the Precinct (local) Road known as 'The Quarry Link Road'. • In the absence of a Section 94 Plan, the final level of contribution shall be to the satisfaction of the Director General, having regard to what other landowners in the precinct have paid, the value of the relevant land under the Land Acquisition (Just Terms Compensation) Act 1991, an independent quantity surveyor's report on the cost of the works and the level of contribution relative to the area of developable land part of the proposal. • Payable within 3 years of the project approval, or when a Section 94 Contributions Plan that covers the site is made, whichever is sooner.

Table 4: Details of proposed Infrastructure Contributions.

3.1 STORM WATER INFRASTRUCTURE

With regard to stormwater infrastructure, the indicative regional stormwater scheme depicted in the approved Precinct Plan places a regional basin on Hanson's land, in the position of Hanson's existing stormwater basin.

The proposed regional basin depicted in the Precinct Plan can't function as a regional basin in that particular location, due to topography and the inability of overland flows from some adjoining properties to reach the basin.

In addition, it is unreasonable to require Hanson to contribute to any future regional Stormwater scheme when they have demonstrated (both under existing operations and into the future) that they can manage water on their site sufficiently, without cost to Council.

As a result, Hanson's proposed on-site stormwater management scheme, at no cost to Council, is the best stormwater regime for the proposal.

4 Response to Blacktown City Council's submission

On 30 January 2012 Blacktown City Council (BCC) made a submission to the NSW Department of Planning and Infrastructure on the modification of the concept Plan. In their submission BCC made no objection in principle to the proposal provided that Conditions in Schedule 4 and 5 of the Project Approval dated 3 June 2010 are met.

4.1 SCHEDULE 4

Item	**Comment**
1. Noise Limits	No change
2. Hours of Operation	No change
3. Monitoring	No change
4. Odour	No change
5-8. Dust	No change
Item	Comment
9. Greenhouse Gas Emissions	No change
10. Metrological Monitoring	No change
11-18 Soil, Water and Wastewater Management	Martens Consulting Engineers' Master Plan for Stormwater and Sewage Management (see *Attachment 6A & 6B*) will apply to the Project.
19-25. Traffic	No change.
26. Visual Amenity	No change.
27. Flora and Fauna Management	Refer to the Biodiversity section of this report.
28. Heritage	Development in areas identified as 'High Sensitivity' in the Precinct Plan have been assessed as being low or nil risk to Aboriginal heritage items. Refer to *Section 2* of this report Aboriginal Heritage Assessment.
29. Fire & Risk	No change.

Table 5: Conditions of Schedule 4 in the Project Approval.

4.2 SCHEDULE 5

Item	Comment
1-2. Environmental Management	No change.
3-4. Reporting	No change.

Table 6: Conditions of Schedule 5 in the Project Approval.

4.3 OTHER ISSUES RAISED BY BCC

Item	Comment
a) The proposed additional lots need to have typical pad levels to determine the extent and height of retaining walls and how these will interact between lots.	Refer to Martens Consulting Engineers' Concept Contour Plan- Bulk Earthworks in *Attachment 6F*
b) Details need to be provided to demonstrate how each of the individual lots will drain their stormwater and what drainage easements are required.	Refer to Martens Consulting Engineers' Concept Stormwater Management Layout in *Attachment 6A*

c) Water quality and conservation needs to be provided on each lot in accordance with Council's current Integrated Water Cycle Management standard in Part R of the Blacktown DCP 2006.	Martens Consulting Engineers' Master Plan for Stormwater and Sewage Management (*see Attachment 6A & 6B*) will apply to the Project.
d) The intended permanent use of the proposed Sedimentation Basin needs to be made clear. Council will not accept ownership or maintenance of a detention basin at this location however it could be privately owned. Council is intending to maintain the proposed regional basins further downstream to be developed as part of the whole catchment.	The proponent intends to rely on the proposed Sedimentation basin on a permanent basis. The basin will be privately owned. Notwithstanding this should Council proceed with a regional basin further downstream then the possibility of adopting the use of this basin and contributing towards the use can be investigated with Council.
e) The proposed easement through lots 4 and 5 draining a number of upstream lots above does not follow the natural grade of the land and needs to be designed to capture and carry the 1 in 100 year upstream flows.	The drainage channel will be adequately engineered in conjunction with the Bulk Earthworks to ensure drainage requirements meet the 1 in 100 year upstream flows. See attachment 6A.
f) Splay corners 8m x 8m will be required at the intersection of the Estate Road and the collector road.	The Estate Road alignment design and pavement construction will incorporate the 8m x 8m splayed corners. Refer Attachment 6G
g) Sensitive receivers including neighbouring warehouse operations at Best & Less and the like should be considered as part of any future Environmental Management Plan.	A revised Air Quality Management Plan has been submitted to NSW EPA. This Plan now includes neighbouring warehouse operations as receivers.
h) A Vegetation Management Plan and positive covenant needs to be provided over the riparian area to ensure full restoration and ongoing maintenance of this area.	The Riparian Area will be managed in accordance with *Attachment 5C* of this report *"Construction Environment Management Plan" Vegetation Clearing and Grubbing Protocols*.

5 SURFACE WATER MANAGEMENT

The surface water management strategy has been prepared by Martens and Associates on behalf of Hanson Pty Ltd to detail requirements for updated site development Masterplan for a proposed industrial sub-division and development of existing Lot 5, D.P. 1145808, Old Wallgrove Road, Eastern Creek. The report provides advice regarding stormwater and sewage management requirements for the proposed development.

Indicative layout plans have been provided by MSK Architects and have been relied on for the purposes of determining site stormwater quality and quantity modelling. For design purposes, proposed lots 1 – 5 and 12, adjacent collector road and estate roads are to be managed through proposed stormwater quantity and quality control infrastructure. Proposed lots 6 – 11 are to be developed at a later stage with site specific water quantity and quality controls to address future site development.

Surface water management objectives are broadly outlined as follows:

- Provide preliminary recommendations including Site Storage Requirement (SSR) and Permissible Site Discharge (PSD) with respect to on-site detention of stormwater (OSD) for the proposed development. Provide preliminary recommendations for on-site stormwater quality measures to ensure development compliance with identified performance objectives. Provide preliminary details of stormwater infrastructure to transfer site stormwater to proposed water quantity and quality control structures.

- Performance objectives are specified to comply with Council's Engineering Design Specifications (2005) and Development Control Plan (2006) and the principles of WSUD and Ecologically Sustainable Development (ESD) as follows:

- In accordance with Council's Engineering Guide (2005), the post-development discharge rate from the site is not to exceed the rate of runoff for pre-development conditions for all storms ranging from the 1 in 2 year ARI up to and including the 1 in 100 year ARI. In accordance with the objectives of *Council's Development Control Plan (2006)* stormwater pollutant retention rates for the development are to be as given in Table 7.

Pollutant	Minimum Required Retention Rate (%)
Gross Pollutants	90
Total Suspended Solids	85
Total Phosphorus	65
Total Nitrogen	45

Table 7: Minimum stormwater pollutant retention rates (BCC, 2006).

5.1 PROPOSED STORMWATER MANAGEMENT SYSTEM – OVERVIEW

The components of the proposed stormwater management system for the development include the following:

- Stormwater drainage network including pits and pipes to convey surface flows from site roads and lot areas to proposed stormwater quantity and quality control measures.
- OSD Basin which shall be located within proposed Lot 5 as shown on the attached plans and shall control flows from all site lots and roads (collector and estate).
- Constructed Bio-filtration which shall be incorporated into the site OSD basin and will treat stormwater from site roads and proposed lots.
- Gross Pollutant Traps (GPTs) to treat stormwater from site roads and lots.
- Rainwater tank(s) adjacent to proposed site buildings for the purposes of providing non-potable water for on-site re-use purposes. Combined capacity of rainwater tanks is to be not less than 220 KL.

Preliminary sizing of the above stormwater management measures is achieved through iterative hydrological, hydraulic and water quality modelling detailed in the following sections.

Figure 6: Location of subject site within the local context (source: www.nearmap.com.au, 23/11/2011).

5.2 STUDY METHODOLOGY AND ASSUMPTIONS

The study used the following computer models to determine preliminary recommendations for OSD and water quality measures for the development:

- DRAINS hydrological and hydraulic modelling package to determine preliminary requirements for OSD. Design rainfall intensity data used in the model were consistent with figures given in Blacktown City Council's (2005) Engineering Design Specification.
- MUSIC 5.00.11 water quality modelling package to determine requirements for water quality treatment measures for the site.

Models used a conceptual development layout provided by MSK Architects. Site roofs, road reserves, hardstand areas and landscaping were based on the layout provided in *Attachment 6 – Revised Concept/Project Masterplan*. Key assumptions used in the modelling included the following:

5.3 DRAINS MODEL

Runoff from all lots and site road reserves (collector road and estate road) upslope of the proposed OSD basin are assumed to drain to the OSD basin. Areas on proposed Lot 5 which are downslope of the OSD basin were assumed to bypass the OSD basin. It is noted that some runoff from proposed Lot 12 may be directed to the north of the site, however for the purposes of this assessment, all runoff from Lot 12 is assumed to be directed to the road reserve drainage and subsequently to the OSD basin.

All pre-development catchments have been combined into two sub-catchments with 100% pervious area.

Initial and continuing losses have been determined based on Council requirement for the adjacent Dial-a-Dump site.

Impervious fraction for site roads was set to be 95% in accordance with Blacktown City Council (2005) Engineering Guide. Impervious fractions for site lots was measured off the proposed layout plan where available. Impervious fractions used for proposed lots 7 – 12 are based on typical impervious fractions for industrial lots. Details of all catchments used in modelling are given in Table 8.

Site stormwater pits and mains have been sized based on anticipated flows from catchments. Pits and pipes have been combined to minimise modelling inputs.

Proposed wetland within the OSD basin is assumed to be full at the start of all rainfall events and provides no additional storage volume for OSD.

5.4 MUSIC MODEL

The MUSIC model used 6 minute pluviograph rainfall and monthly evaporation data provided by Blacktown City Council. The period used was between January 1967 and December 1976.

All runoff from site roads and lots is assumed to be directed to proposed GPTs and site wetland, excepting areas of Lot 5 downslope of the proposed wetland. It is noted that some runoff from proposed Lot 12 may be directed to the north of the site, however for the purposes of this assessment, all runoff from Lot 12 is assumed

to be directed to the road reserve drainage and subsequently to the water quality control measures.

Pollutant generation rates and catchments used in the model are summarised in Table 11 below.

The proposed wetland is incorporated into the proposed OSD basin. The OSD storage component of the basin was assumed to have no effect on stormwater quality.

All runoff from proposed site roofs is to be directed to a series of rainwater tanks. Stormwater from these tanks was assumed to be re-used for non-potable purposes at a rate of 18.5 KL/day, based partly on previous demand figures given in *Martens and Associates report P0601396JR05_v2 (October 2006)* and an assumed re-use rate of 2 KL/lot/day for proposed lots 7 – 12.

Stormwater from the proposed site wetland is to be re-used for processing, dust suppression and other non-potable uses. Nominal demand rate was set at 127.5 KL/day, based on previous demand figures given in Martens and Associates report P0601396JR05_v2 (October 2006).

Exfiltration rates used in the model for the wetland treatment node were set to 0 mm/hr as a conservative approach.

5.5 SITE OSD REQUIREMENTS

The DRAINS model was run for the 1 in 2 year, 1 in 10 year, 1 in 20 year and 1 in 100 year ARI storms for durations of between 25 minutes and 9 hours to determine preliminary OSD requirements for the development. Catchments used in the modelling are summarised in Table 8. Results of the modelling are summarised in Table 9.

General comments on the modelling results are recommendations for the proposed site OSD are as follows:

- The site post-development peak discharge is limited to pre-development peak discharges for all storm events modelled. This requirement is combined with the pre-development peak flow rates to determine the development's Permissible Site Discharge (PSD).

- Probable Maximum Precipitation (PMP) storms and effects of climate change have not been modelled as these are beyond the scope of this assessment.

- Results indicate that the minimum Site Storage Requirement (SSR) is 174.2 KL/ha, based on the catchment draining to the proposed OSD basin. PSD (1 in 100 year ARI) from the basin is 293 L/s/ha, based on a pre-development peak flow rate of 7.68 m3/s for the 2 hour 1 in 100 year ARI storm event.

- The required OSD basin is modelled as having a detention depth of 1.15 m from base of outlet pipe orifice to spillway (total depth to embankment level

of 2.15 m), with a volume of 4,561 m3. Proposed OSD basin outlet consists of a 890 mm diameter orifice placed over a 1050 mm diameter outlet pipe through the wall of the basin which then discharges to a headwall upslope of the watercourse in the south-western corner of proposed Lot 5. OSD spillway is modelled with a length of 10 m.

Preliminary stormwater mains sizes are provided in the attached plans *(Attachment 6A).*

Catchment	Area (ha)	Fraction Impervious (%)	Fraction Pervious (%)
Collector Road 1	0.61	95[1]	5[1]
Collector Road 2	0.19	95[1]	5[1]
Collector Road 3	0.10	95[1]	5[1]
Collector Road 4	0.26	95[1]	5[1]
Estate Road	0.86	95[1]	5[1]
Lot 1	1.33	84[2]	16[2]
Lot 2	1.06	60[2]	40[2]
Lot 3	1.25	87[2]	13[2]
Lots 4 – 5	5.15	71[2]	29[2]
Lot 5 Bypass	1.12	0[2]	100[2]
Lot 6	3.34	88[2]	12[2]
Lot 7	2.85	90[3]	10[3]
Lot 8	1.68	90[3]	10[3]
Lot 9	1.79	90[3]	10[3]
Lot 10	1.46	90[3]	10[3]
Lot 11	2.34	90[3]	10[3]
Lot 12	0.81	90[3]	10[3]

Table 8: Catchments used in DRAINS modeling.

Recurrence Interval (years)		Duration (mins)								
		25	30	60	90	120	180	270	360	540
Q_2	Pre-development peak flow (m^3/s)	1.21	1.34	2.33	2.70	2.47	1.83	2.35	1.98	1.76
	Developed peak flow (m^3/s)	1.21	1.18	1.35	1.41	1.37	1.25	1.30	1.23	1.19
	Difference (m^3/s)	0.00	-0.16	-0.98	-1.29	-1.10	-0.58	-1.05	-0.75	-0.57
Q_{10}	Pre-development peak flow (m^3/s)	3.08	3.48	4.57	4.77	4.82	3.81	3.86	3.03	2.64
	Developed peak flow (m^3/s)	2.08	2.05	3.07	3.61	3.49	2.27	2.71	2.10	1.91
	Difference (m^3/s)	-1.00	-1.43	-1.50	-1.16	-1.33	-1.54	-1.15	-0.93	-0.73
Q_{20}	Pre-development peak flow (m^3/s)	4.07	4.66	5.76	5.65	6.01	4.90	4.65	3.64	3.21
	Developed peak flow (m^3/s)	3.32	3.25	4.57	4.98	5.23	3.63	3.74	3.17	2.68
	Difference (m^3/s)	-0.75	-1.41	-1.19	-0.67	-0.78	-1.27	-0.91	-0.47	-0.53
Q_{100}	Pre-development peak flow (m^3/s)	6.21	6.78	7.55	7.40	7.68	6.22	5.48	4.27	3.76
	Developed peak flow (m^3/s)	5.89	5.55	6.84	7.40	7.67	5.35	5.02	4.13	3.60
	Difference (m^3/s)	-0.32	-1.23	-0.71	0.00	-0.01	-0.87	-0.46	-0.14	-0.16

Table 9: Summary of DRAINS modeling results.

Site Storage Requirement (KL/ha)	Permissible Site Discharge from Basin (L/s/ha)
174.2	293.0

Table 10: Summary of minimum SSR and PSD requirements.

5.6 SITE WATER QUALITY REQUIREMENTS

5.6.1 MUSIC Model Set-up

The MUSIC model was set-up with sub-catchments and treatment structures as detailed in the following tables. Assumptions used in the model are detailed in Section 3.3. Sub-catchments were assigned event mean and baseflow pollutant generation rates based on the catchment usage and soil parameters based on site sub-surface investigations. Details of the pollutant generation rates are given in Table 12. Details of soil parameters used are given in Table 13. These rates are based on Sydney Catchment Authority (2010) guidelines and figures provided by Council.

Model Catchment	Catchment Area (ha)	Impervious Area (% of Total Area)	Pervious Area (% of Total Area)	Adopted Catchment Usage
Site Roof	7.819	100	0	Roof
Site Hardstand	8.178	100	0	Road
Site Landscaped	3.874	0	100	Industrial
Site Roads	1.909	100	0	Road
Concrete Recycling Plant	3.289	0	100	Quarry
Lot 4 – 5 Bypass	1.119	0	100	Industrial

Table 11: Catchments used in MUSIC modelling.

Land-use	Parameter	Storm Flow (SF)	Standard Deviation	Base Flow (BF)	Standard Deviation
Industrial	Total suspended Solids (mg/L)	141.00	2.089	15.80	1.479
	Total phosphorus (mg/L)	0.251	1.778	0.141	1.549
	Total nitrogen (mg/L)	2.000	1.519	1.290	1.318
Quarry	Total suspended Solids (mg/L)	1000.00	2.089	15.80	1.479
	Total phosphorus (mg/L)	0.501	1.778	0.141	1.549
	Total nitrogen (mg/L)	2.190	1.519	1.290	1.318
Road	Total suspended Solids (mg/L)	269.00	2.089	15.80	1.479
	Total phosphorus (mg/L)	0.501	1.778	0.141	1.549
	Total nitrogen (mg/L)	2.190	1.549	1.290	1.318
Roof	Total suspended Solids (mg/L)	20.00	2.089	15.80	1.479
	Total phosphorus (mg/L)	0.129	1.778	0.141	1.549
	Total nitrogen (mg/L)	2.000	1.549	1.290	1.318

Table 12: Event mean and baseflow concentrations used in MUSIC modelling based on catchment usage (Sydney Catchment Authority, 2010).

Modelling Parameter	Value Adopted
Rainfall Threshold (mm/day)	1.4
Soil Storage Capacity (mm)	170
Initial Storage (% of Capacity)	18
Field Capacity (mm)	70
Infiltration Capacity Coefficient - a	210.0
Infiltration Capacity Coefficient - b	4.70
Initial Depth – Groundwater (mm)	10.0
Daily Recharge Rate – Groundwater (%)	50.0
Daily Baseflow Rate – Groundwater (%)	4.0
Daily Deep Seepage Rate – Groundwater (%)	0.0

Table 13: Soil parameters used in MUSIC modelling.

Treatment Node	Parameters Adopted for MUSIC model
Constructed Wetlands	Low Flow By-pass – 0 m^3/s
	High Flow By-pass – 5 m^3/s
	Inlet Pond Volume – 0 m^3
	Surface Area – 3481.6 m^2
	Extended Detention Depth – 1.00 m
	Permanent Pool Volume – 3104.7 m^3
	Exfiltration Rate – 0 mm/hr
	Evaporative Loss – 100% of Potential Evapotranspiration
	Daily Demand Rate for Non-potable re-use[1] – 127.5 KL/ha/day
Constructed Bioremediation Basin	Low Flow By-pass – 0 m^3/s
	High Flow By-pass – 0.5 m^3/s
	Surface Area – 585.3 m^2
	Extended Detention Depth – 0.3 m
	Filter Area – 465.2 m^2
	Filter Depth – 0.3 m
	Exfiltration Rate – 0 mm/hr
	Saturated Hydraulic Conductivity – 100 mm/hr
CDS	Total Suspended Solids retention rate – 70%
	Total Phosphorus retention rate – 30%
	Total Nitrogen retention rate – 0%
	Gross pollutant retention rate – 98%
Rainwater Tank	Volume – 100 KL
	Overflow Pipe Diameter – 100 mm
	Daily re-use demand[1] – 6.5 KL/day

Notes: 1. Based on demand rates given for site in MA report P0601396JR05_v2 (October 2006).

Table 14: Parameters used in treatment nodes for post-development conditions.

5.6.2 Model Results

Results of the MUSIC model are summarised in Table 15. Results indicate that post-development water quality objectives will be met by the proposed stormwater treatment train.

It is noted that further refinement of the model at later development stages may slightly alter the sizes of proposed treatment structures.

MUSIC Model	Total Suspended Solids (kg/year)	Total Phosphorus (kg/year)	Total Nitrogen (kg/year)	Gross Pollutants (kg/year)
Pollutant Generated	45,700	58.30	344.0	4,040
Residual Pollutants in site discharges	5,480	16.00	188.0	0
Change	-40,220	-42.30	-156.0	-4,040
Pollutant Retention Rate (%)	88.0	72.6	45.3	100.0

Table 15: Results of MUSIC model for post-development conditions.

5.6.3 Design Parameters

For final design of the future stormwater management system, the general design parameters given in Table 10 and Table 14 are to be adopted for site stormwater quantity and quality control structures.

6 BIODIVERSITY IMPACTS ON PROPOSED LOTS 4 AND 5

6.1 BACKGROUND

In June 2008 Geoff Cunningham Natural Resources Consultants Pty Ltd (GCNRC) was commissioned to determine the nature and condition of the vegetation on the southern section of the land namely Lots 4 and 5. In July 2011 GCNRC carried out another site assessment for the purposes of updating the status of the condition of the vegetation and to provide advice on the management of weeds and vegetation on the site,

The reports took into consideration among other things the re-routing of the current drainage flows around the eastern and southern boundaries of Lots 4 and 5, and the potential impacts that this may cause to the local biodiversity.

The section of the Wallgrove site subject potential impacts from clearing vegetation comprises a drainage depression and a series of detention basins that hold water emanating from the activities in the northern part of the site.

The northern part of the site is taken up with the former Eastern Creek Quarry and buildings and other infrastructure associated with Hanson's current activities at the site.

Since the 2008 flora assessment, urban development on the eastern side of the Hanson site has resulted in the upper section of the drainage line being filled and levelled for building construction.

GCNRCC [2008] determined that there was only one remnant vegetation community present at the site. This was a Swamp Oak [Casuarina glauca] – Forest Red Gum [Eucalyptus tereticornis] community.

This community is associated with the drainage line that passes through the south-west corner of the Hanson property. Parts of the community support a dense growth of Swamp Oak spaced one to two metres apart on average with a scattered occurrence of Forest Red Gum [including possible hybrids] and an occasional Grey Box [Eucalyptus moluccana]..

Some small open areas exist and these are associated with the detention basins and an area that has been used as a soil borrow pit in the past. There have been some artificial channel works constructed in the past to accommodate overflow from the Hanson detention basins to the north of the actual natural flow line.

The drainage channel itself contained free water and supported a dense growth of Sharp Rush [Juncus acutus*] along with some plants of Cumbungi [Typha sp.] and Umbrella Sedge [Cyperus eragrostis*]

Native shrub species were absent at the study area although a group of Native Blackthorns [Bursaria spinosa] were noted to the east.

The main shrub species are African Boxthorn* [Lycium ferocissimum] that occurs as scattered plants and in dense clumps, Swan Plant* [Gomphocarpus fruticosus] and Briar Rose* [Rosa rubiginosa] [a form].

Two introduced vines were common. These were Moth Plant* [Araujia sericiflora] and Baby Smilax* [Asparagus asparagoides].

Ground cover species that were recorded were dominated by introduced plants, including a wide selection of weed species. There were few native ground cover species present.

6.2 Summary of Key Findings from the GCNRC Vegetation Assessment

The GCNRC studies of the Hanson property has revealed that:

- There are no records of threatened flora species being found at the site in the past;
- There a re no records of threatened flora populations occurring at the site in the past;
- There is no critical habitat present at the site;
- No threatened flora species were recorded at the site during the field survey
- The vegetation community at the site has been mapped in a number of publications as the endangered River-flat Eucalypt Forest on Coastal Floodplains ecological community [or its equivalent];
- After detailed consideration of the NSW Scientific Committee's Determination in relation to this community and those relating to three other endangered ecological communities that are associated with floodplains it has been determined that the community present at the study area is not an endangered ecological community
- The vegetation community present at the site is a highly degraded one in which the shrub and ground cover layers are highly invaded by introduced weed species and the native small tree, shrub and ground cover species that would have been present in the pristine state have largely disappeared.
- The remnant is located in a landscape where corridor linkages are poor and urban development is encroaching.

6.3 Vegetation Community Present

The field study showed that there was only one remnant vegetation community present at the site. This was a Swamp Oak [Casuarina glauca] – Forest Red Gum [Eucalyptus tereticornis] community.

This community is associated with the drainage line that passes through the southwest corner of the Hanson property. Parts of the community support a dense growth of Swamp Oak spaced one to two metres apart on average with a scattered occurrence of Forest Red Gum [including possible hybrids].

Some small open areas exist and these are associated with a dam and an area that has been used as a soil borrow pit in the past. There appear to have been artificial channel works constructed in the past to accommodate overflow from the Hanson detention basins to the north of the actual natural flow line.

The drainage channel itself contained free water and supported a dense growth of Sharp Rush [Juncus acutus*] along with some plants of Cumbungi [Typha sp.] and Umbrella Sedge [Cyperus eragrostis*].

Native shrub species were absent at the study area although a group of Native Blackthorns [Bursaria spinosa] were noted to the east.

The main shrub species are African Boxthorn* [Lycium ferocissimum] that occurs as scattered plants and in dense clumps, Swan Plant* [Gomphocarpus fruticosus] and Briar Rose* [Rosa rubiginosa] [a form].

Two introduced vines were common. These were Moth Plant* [Araujia sericiflora] and Baby Smilax* [Asparagus asparagoides].

Ground cover species that were recorded were dominated by introduced plants, including a wide selection of weed species. There were few native ground cover species present.

The ground cover species recorded are listed in Table 16. An asterisk after the name denotes an introduced species.

To the north of the area that was the subject of this study, and associated with the drainage depression that enters the Hanson property from the east [and its associated channel, the community is similar but contains less eucalypts.

Table 16: Ground Cover Species Recorded

*Anagallis arvensis** [Scarlet Pimpernell]
*Aster novi-belgii** [Michaelmas Daisy]
*Aster subulatus** [Bushy Starwort]
Atriplex sp. [possibly Atriplex semibaccata or hybrid]
*Bidens pilosa** [Cobblers Pegs]
Bothriochloa macra [Red Grass]
*Chloris gayana** [Rhodes Grass]
Chloris ventricosa [Tall Chloris]
*Cirsium vulgare** [Spear Thistle]
Conyza sp.* [Fleabane]
*Cortaderia selloana** [Pampas Grass]
*Cynodon dactylon** [Couch Grass]
*Cyperus eragrostis** [Umbrella Sedge]
Dichondra sp. A [Kidney Weed]
*Ehrharta erecta** [Panic Veldtgrass]
Eragrostis trachycarpa [Lovegrass]
Eriochloa pseudoacrotricha [Early Spring Grass]
Glycine clandestina [Silky Glycine]
*Gnaphalium americanum** [Cudweed]
*Lotus suaveolens** [Hairy Birdsfoot Trefoil]
*Meliotus indicus** [Hexham Scent]
Microlaena stipoides [Weeping Grass]
*Paspalum dilatatum** [Paspalum]
*Pennisetum clandestinum** [Kikuyu Grass]
Phalaris sp.* [probably *Phalaris canariensis** [Canary Grass]]
*Plantago lanceolata** [Ribwort]
Ranunculus sp. [possibly *Ranunculus lappaceus*]
*Reseda luteola** [Wild Mignonette]
*Rumex crispus** [Curled Dock]
*Senecio madagascariensis** [Fireweed]
*Senecio pterophorus**
Senecio quadridentatus [Cotton Fireweed]
*Setaria gracilis** [Slender Pigeon Grass]
*Sida rhombifolia** [Paddy's Lucerne]
*Solanum nigrum** [Black Nightshade]
*Solanum pseudocapsicum** [Madiera Winter Cherry]
Solanum sp.
*Sonchus oleraceus** [Common Sowthistle]
*Taraxicum officinale** [Dandelion]
*Verbena bonariensis** [Wild Stattice]
*Vicia sativa** [Common Vetch]

6.4 RECORDS OF PREVIOUS COLLECTIONS

Prior to inspecting the study area, details of past collections of threatened flora species within the general vicinity of the study area were obtained from the Department of Environment and Climate Change's 'Atlas of NSW Wildlife' database. [date of search 30th May, 2008].

The search area was fixed as a 10km X 10km square surrounding the study area. The search revealed that there are 3078 records of 47 species listed as threatened under the NSW Threatened Species Conservation Act [TSC Act] have been recorded in the vicinity of the study area in the past.

These species are listed in Table 17 along with a note on their presence / absence in the study area itself. Inspection of the 'Atlas of NSW Wildlife' data indicates that there are no records of threatened flora species from the study area.

After a thorough field study of the Hanson site, none of the threatened flora species listed in Table 18 was recorded.

Table 17: Threatened Flora Species Recorded from the Vicinity of the Study Area

SPECIES	STATUS [TSC Act]	PRESENCE / ABSENCE
Acacia bynoeana	endangered	**absent**
Acacia gordonii	endangered	**absent**
Acacia pubescens	vulnerable	**absent**
Acrophyllum australe	vulnerable	**absent**
Allocasuarina glareicola	endangered	**absent**
Ancistrachne maidenii	vulnerable	**absent**
Caesia parviflora var. *minor*	endangered	**absent**
Cynanchum elegans	endangered	**absent**
Darwinia biflora	vulnerable	**absent**
Dillwynia tenuifolia	vulnerable	**absent**
Diuris aequalis	endangered	**absent**
Epacris purpurascens var. *purpurascens*	vulnerable	**absent**
Epacris sparsa	vulnerable	**absent**
Eucalyptus benthamii	vulnerable	**absent**
Eucalyptus nicholii	vulnerable	**absent**
Eucalyptus scoparia	endangered	**absent**
Eucalyptus sp. Cattai	endangered	**absent**
Grammitis stenophylla	endangered	**absent**
Grevillea juniperina subsp. juniperina	vulnerable	**absent**
Grevillea parviflora subsp. parviflora	vulnerable	**absent**
Grevillea parviflora subsp. supplicans	endangered	**absent**
Hibbertia superans	endangered	**absent**
Hypsela sessiliflora	endangered	**absent**
Kunzea rupestris	vulnerable	**absent**
Lasiopetalum joyceae	vulnerable	**absent**
Leucopogon exolasius	vulnerable	**absent**
Leucopogon fletcheri subsp. fletcheri	endangered	**absent**
Melaleuca deanei	vulnerable	**absent**
Micromyrtus blakelyi	vulnerable	**absent**
Micromyrtus minutiflora	endangered	**absent**
Olearia cordata	vulnerable	**absent**
Persoonia acerosa	vulnerable	**absent**
Persoonia hirsuta	endangered	**absent**
Persoonia mollis subsp. maxima	endangered	**absent**
Persoonia nutans	endangered	**absent**
Pimelea curviflora var. *curviflora*	vulnerable	**absent**
Pimelea spicata	endangered	**absent**
Pterostylis saxicola	endangered	**absent**
Pultenaea parviflora	endangered	**absent**
Pultenaea pedunculata	endangered	**absent**
Syzygium paniculatum	vulnerable	**absent**
Tetratheca glandulosa	vulnerable	**absent**

6.5 ENDANGERED FLORA POPULATIONS

Listing of Populations Occurring / Likely to Occur in the Study Area
The 'Atlas of NSW Wildlife' data records the following endangered flora populations as occurring or likely to occur in the search area.

Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield Dillwynia tenuifolia Sieber ex D.C. in the Baulkham Hills local government area Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas Pultenaea villifera Sieber ex DC. population in the Blue Mountains local government area Dillwynia tenuifolia, Kemps Creek Keraudrenia corrolata var. denticulata in the Hawkesbury Local Government Area Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas Pomaderris prunifolia in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas

Following the field survey at the study area it has been determined that none of these endangered flora populations occur at the site.

6.6 CRITICALLY ENDANGERED ECOLOGICAL COMMUNITIES

Listing of Critically Endangered Ecological Communities Occurring / Likely to Occur in the Study Area

The 'Atlas of NSW Wildlife' data records the following critically endangered ecological community as occurring, or likely to occur, in the search area.

Blue Gum High Forest in the Sydney Basin Bioregion

Following the field survey at the study area it has been determined that this endangered ecological community does not occur at the site.

6.7 ENDANGERED ECOLOGICAL COMMUNITIES

Listing of Endangered Ecological Communities Occurring / Likely to Occur in the Study Area

The 'Atlas of NSW Wildlife' data records the following endangered flora populations as occurring or likely to occur in the search area. Many of the predicted communities are highly unlikely to occur within the study area. Those that were most likely to be present are discussed in detail in Table 18.

Table 18: Endangered Ecological Communities Occurring/Likely to Occur at the Study Area

Endangered Ecological Community	Assessment of Occurrence / Absence
Hunter Valley Weeping Myall Woodland of the Sydney Basin Bioregion	absent
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	this community rarely occurs at elevations >10m ASL; the community is known from Blacktown LGA but contains no eucalypts; the community at the study area contains Forest Red Gum trees; it is concluded that this community is not present at the site [Scientific Committee [2005a]
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	absent
Mount Gibraltar Forest in the Sydney Basin Bioregion	absent
Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions	absent
Cumberland Plain Woodland	possible occurrence but Swamp Oak is the dominant tree species; it is concluded that this community is not present at the site [NSW Scientific Committee, 1997]
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	absent

Table 18: *Endangered Ecological Communities Occurring/Likely to Occur at the Study Area Continued*

Endangered Ecological Community	Assessment of Occurrence / Absence
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	absent
Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion	absent
Warkworth Sands Woodland of the Sydney Basin Bioregion	absent
Kurnell Dune Forest in the Sutherland Shire and City of Rockdale	absent
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	absent
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	absent
Robertson Rainforest in the Sydney Basin Bioregion	absent
Moist Shale Woodland in the Sydney Basin Bioregion	absent
Sydney Freshwater Wetlands in the Sydney Basin Bioregion	absent
Melaleuca armillaris Tall Shrubland in the Sydney Basin Bioregion	absent
Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion	absent
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	absent
Southern Highlands Shale Woodlands in the Sydney Basin Bioregion	absent
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	this community is characterised by an open to dense cover of eucalypts and paperbarks; it is not recorded from the Blacktown LGA; it is concluded that this community is not present at the site [NSW Scientific Committee, 2005b]
Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion	absent
Shale/Sandstone Transition Forest	absent
Illawarra Subtropical Rainforest in the Sydney Basin Bioregion	absent

Table 18: *Endangered Ecological Communities Occurring/Likely to Occur at the Study Area Continued*

Endangered Ecological Community	Assessment of Occurrence / Absence
Western Sydney Dry Rainforest in the Sydney Basin Bioregion	absent
Agnes Banks Woodland in the Sydney Basin Bioregion	absent
Quorrobolong Scribbly Gum Woodland in the Sydney Basin Bioregion	absent
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	absent
Sydney Coastal River-Flat Forest	absent
White Box Yellow Box Blakely's Red Gum Woodland	absent
Lower Hunter Spotted Gum - Ironbark Forest in the Sydney basin Bioregion	absent
Castlereagh Swamp Woodland Community	absent
Kurri Sand Swamp Woodland in the Sydney Basin Bioregion	absent
Milton Ulladulla Subtropical Rainforest in the Sydney Basin Bioregion	absent
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	possible occurrence: Swamp Oak is the dominant tree species rather than the eucalypts that characterise this community [NSW Scientific Committee, 2005c] – **see separate discussion below**
Duffys Forest Ecological Community in the Sydney Basin Bioregion	absent
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	absent
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion	absent
Bangalay Sand Forest of the Sydney Basin and South East Corner bioregions	absent
Elderslie Banksia Scrub Forest	absent
Robertson Basalt Tall Open-forest in the Sydney Basin Bioregion	absent
Sydney Turpentine-Ironbark Forest	absent
O'Hares Creek Shale Forest	absent
Shale gravel Transition Forest in the Sydney Basin Bioregion	absent
Sutherland Shire Littoral Rainforest	absent

6.8 IDENTITY OF THE COMMUNITY PRESENT AT THE STUDY AREA

The vegetation community described by GCNRC [2008] is present in much the same condition as it was three years ago. The dominant tree species are native [Swamp Oak and Forest Red Gum]. The former is present as a large number of individual plants. while the Forest Red Gums are very much in the minority and occur as

scattered trees and saplings. Scattered Grey Box [Eucalyptus moluccana] trees and saplings occur near the south eastern corner of the site.

Apart from a couple of clumps of Native Blackthorn [Bursaria spinosa] in the southeast corner, no native shrub species were recorded within the major part of the community. The shrub layer was occupied by introduced relatively large numbers of plants of African Boxthorn*, Pampas Grass* [Cortaderia selloana] and Swan Plant* [Gomphocarpus fruticosus] and two introduced vines - Moth Plant* [Araujia hortorum] and Baby Smilax* [Myrsiphyllum asparagoides]. One plant of Broad-leaf Privet* [Ligustrum lucidum] was noted on the western embankment of the most northerly detention basin. A small number of plants of African Olive* [Olea europea subsp. africana] were noted near the southeast corner.

There continues to be a dearth of native ground cover species present but some are present in very small numbers and are often difficult to locate. Some plants of Kangaroo Grass [Themeda australis] were recorded in the southeastern sector. These were not observed at the 2008 inspection.

In contrast, the introduced weed species comprised almost 100% of the ground cover.

6.9 Occurrence of Critical Habitat

No critical habitat occurs at the site.

6.10 Condition, or Health, of the Vegetation within the Study Area

The dominant tree species are native [Swamp Oak and Forest Red Gum] and the former is present as a large number of individual plants. The Forest Red Gums are very much in the minority and occur as scattered trees and saplings.

No native shrub species were recorded. The shrub layer was occupied by introduced African Boxthorn*, Briar Rose* and Swan Plant* and two introduced vines – Moth Plant* and Baby Smilax*. The presence of these species is an indication of the poor health or condition of the community.

6.11 Condition of the Ground Cover

During the GCNRC survey some forty two ground cover plants were recorded. Of these, only eight [and possibly nine] were native species. Not only was there a dearth of native ground cover species present but they were present in very small numbers and were difficult to locate. In contrast, the introduced weed species comprised almost 100% of the ground
Cover It is worth noting that the Scientific Committee's Final Determination in relation to the River-flat Eucalypt Forest on Coastal Floodplains notes that this community has a prominent ground cover of soft-leaved forbs and grasses. The community at the Hanson property is far removed from this situation.

6.12 Extent of Disturbance by On-Site Earthworks

The study area has been disturbed in the past by earthworks associated with the construction and maintenance of detention basins and channels that direct, store and discharge water from the site. There are soil stockpiles and an excavation within the study area.

Extent of Disturbance in the Landscape Surrounding the Study Area
It is evident that the amount of remnant vegetation is gradually being diminished as a consequence of urban development to the east and south of the Hanson property. Earthworks – presumably including some clearing have occurred on the drainage line in question immediately upstream and downstream of the Hanson property.

Other relatively large segments of the remnant native vegetation that have been mapped as the endangered Cumberland Plain Woodland by Maunsell [2007] have also disappeared to make way for development. There is also a lack of proper connectivity with Ropes Creek and, should the proposed road network be constructed in the area this situation will be further exacerbated by the extension of Archbold Road

In the broader locality context, it would appear that the remnant vegetation of the precinct is gradually being reduced in value and isolated from contiguous areas by roads and building construction. This further reduces the habitat value of the remnant on the Hanson property.

6.13 RIPARIAN HABITATS

The Riparian habitats located in the south-western corner of the proposed lot 5 as shown on the Modified Proposal Concept/Project Plan (Attachment 6) will be retained and enhanced. The project development will undertake the following measures to ensure that the riparian vegetation is suitable as habitat and as a movement corridor for native species:

(a) the native tree canopy will be retained and, where necessary, enhanced with the aim of developing a continuous canopy linking the corridors lands to the western of the Precinct with the Western Sydney Regional Parklands to the east;

(b) a continuous understorey link will be maintained and enhanced;

(c) weed control measures will be implemented to remove noxious and environmental weeds from the creek corridor and only native species shall be used in any landscaping; and

(d) landscaping of passive recreation areas will complement the native landscapes

6.14 MANAGEMENT STRATEGIES

Specific management strategies must be prepared to mitigate and prevent adverse impacts from development of the Precinct on the conservation values within and adjoining the Precinct. These management strategies should include:

(a) weed management;

(b) feral and domestic animal management;

6.15 WEED MANAGEMENT

6.15.1 Objectives

(a) Control the spread and intensification of existing weed species within the Precinct.

(b) Prevent the introduction of new weed species to the Precinct.

(c) Reduce the existing weed populations within the Precinct.

6.15.2 Controls

(a) Landscaping in accordance with an approved landscaping plan must be established as soon as practicable following completion of construction to prevent weeds from infesting disturbed ground.

(b) All mulch and topsoil utilised in landscaping must be certified weed free.

(c) Any plant species identified as a noxious weed within the Noxious Weeds Act 1993 is not permitted for inclusion in any landscaping scheme.

6.16 FERAL AND DOMESTIC ANIMAL MANAGEMENT

Feral and domestic animals have substantial potential to impact on native flora and fauna by predation, competition, grazing and land degradation.

6.16.1 Objectives

(a) Minimise the potential for domestic animals within the Precinct to impact on native flora and fauna values.

(b) Ensure that development of the Precinct does not increase populations of, or improve habitats for, feral animals.

(c) Encourage dense plantings of native vegetation, fostering shelter for native woodland birds.

(d) Ensure that development of the Precinct does not proceed in such a way as to be recognised as a "Key Threatening Process" under the

Threatened Species Conservation Act 1995 or the Environmental Biodiversity and Conservation Act 1999.

6.16.2 Controls

(a) Covered bulk rubbish bins are to be used during construction to ensure that there are not uncovered stock or rubbish piles.

(b) Development must incorporate refuse storage areas that are designed to prevent feral animals entering..

(c) Landscaping of all development sites, particularly those located adjacent to biodiversity conservation areas is to include native shrubs and trees.

6.17 CONCLUSION

According to Geoff Cunningham Natural Resources Consultants Pty Ltd in the broader locality context, it would appear that the remnant vegetation of the precinct is gradually being reduced in value and isolated from contiguous area by roads and building construction. Further more, the vegetation community present at the site is a highly degraded one in which shrub ad ground cover layers are highly invaded by introduced weed species and the native small tree, shrub and ground cover species that would have been present in the pristine state have largely disappeared.

It is therefore concluded that the removal of vegetation from the proposed lots 4 and 5 would have minimal to no impact on the sites' biodiversity.

7 ABORIGINAL HERITAGE ASSESSMENT

7.1 BACKGROUND

Hanson Construction Materials Pty Ltd (the Proponent) proposes to modify the concept master plan for the Hanson Asphalt and Concrete Facility, which currently has approval (and Project Approval) under Part 3A of the Environmental Planning and Assessment Act (CP 06-0225).

The modification includes undertaking works in an area that includes land;

- established as an area of high Aboriginal archaeological sensitivity in *State Environmental Planning Policy 59 – Eastern Creek Precinct (Stage 3) Precinct Plan (SEPP 59);* and
- subject to Condition 28 of the Project Approval of January 2010, which requires that 'the proponent shall not disturb those areas identified as 'High Sensitivity' in the Precinct Plan'.

In early 2012, Hanson Construction Materials engaged Archaeological & Heritage Management Solutions Pty Ltd (AHMS) to undertake an Aboriginal archaeological assessment of the subject land.

Due to the heritage status of the land, the SEPP, the current Project Approval condition, and to ensure the applicability of the assessment in the event further modifications and/or proposed developments might be subject to a local approval, AHMS was engaged to undertake an Aboriginal Cultural Heritage Assessment (ACHA).

The ACHA is generally consistent with the Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC 2005) as well as those required for an ACHA - Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, April 2011), Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, April 2010), and Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, September 2010).

7.2 ABORIGINAL CULTURAL HERITAGE

- One previously registered Aboriginal site is located within the subject area (site #45-5-0556).
- No new Aboriginal sites or areas of archaeological potential were identified during the survey.
- An archaeological (scientific) significance assessment is included in the Archaeological Report (*Attachment 2B*). Aesthetic, Historic and Social significance assessments are included in Section 6 of the ACHA.

7.3 POTENTIAL CULTURAL HERITAGE IMPACT

- The proposed development includes bulk earthworks for the construction of roads, the creation of building lots and the installation of services;
- The registered site #45-5-0556 will be retained within a Riparian Corridor/Conservation Area. The proposed modifications do not include impacts that would affect the Riparian Corridor/Conservation Area.
- High levels of previous land use disturbance have removed the potential for archaeological deposits to remain elsewhere in the subject area. Consequently, there is no potential impact to Aboriginal heritage in the subject area outside the Riparian corridor/Conservation Area.

7.4 CONSERVATION AREA

One registered Aboriginal site is situated within the subject area. This site will be protected from all potential impacts of the proposed development as it is located within the riparian/conservation area. The location of the riparian/conservation area, including the registered Aboriginal site, is shown on **Figure 7.**

Hanson will be managing the conservation area according to the following protocols:

- The riparian corridor will be cordoned off on the Hanson boundary with a "cyclone style" galvanised fence that will prevent from any un-authorised pedestrian or vehicle access from Lot 5. A pedestrian gate will be included on the fence for "authorised access only";
- The fence will be commissioned prior to construction works to Lot 5; and
- The fence will remain on site for the duration of the works and will remain erected for the continued operations on site following completion of the subdivision.

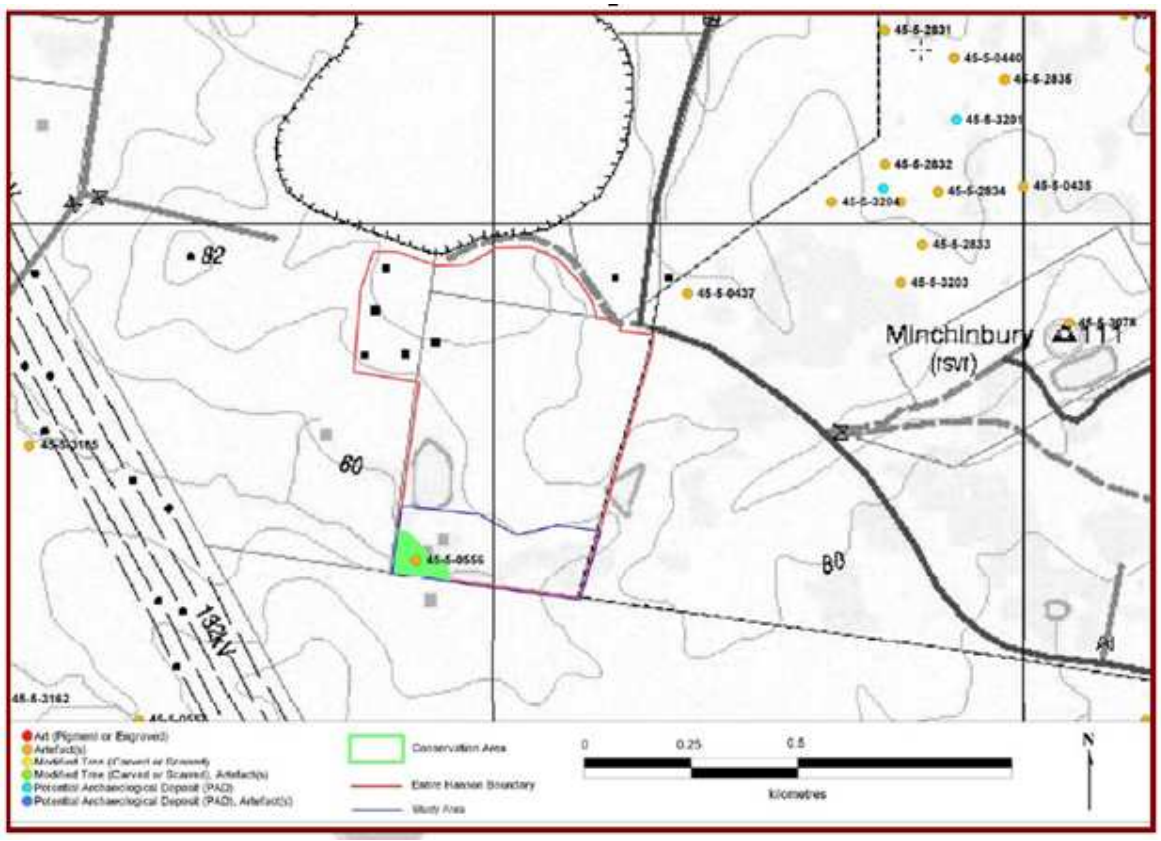

Figure 7: Location of the Riparian Corridor/Conservation Area including the registered Aboriginal site. (*Data source: OEH AHIMS 26.03.12, Hanson Construction Material Pty Ltd*).

7.5 ABORIGINAL COMMUNITY CONSULTATION

7.5.1 General

Consultation with the Aboriginal communities within the subject area has been undertaken in accordance with procedures set out in the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (the Guidelines), developed by OEH. A complete log of actions and correspondence regarding Aboriginal community consultation is included in *Appendix 2* of this report.

The consultation process for this project has two aims. Firstly, to comply with the OEH notification and consultation procedures to obtain input on our proposed assessment methodology and comment on our assessment report and management recommendations. Secondly, to identify cultural places and values that may be affected by the proposed future development of the site through consultation with knowledge holders.

7.5.2 Pre-Notification Stage

The initial stage of the consultation process consists of the identification of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and places. On 27 March 2012 the following organisations were contacted with a request for information about Aboriginal people who may hold a cultural interest in the area:

- Office of Environment and Heritage;
- Deerubbin Local Aboriginal Land Council (LALC);
- Office of the Registrar, Aboriginal Land Rights Act 1983;
- National Native Title Tribunal;
- NTSCorp;
- Blacktown City Council;
- Hawkesbury Nepean Catchment Management Authority.

The responses received are reproduced in Attachment of the Aboriginal Heritage Assessment *(Attachment 2 of this report)*. In summary, the following groups and individuals were identified as possibly having an interest in the subject area:

- Darug Custodial Aboriginal Corporation;
- Darug Tribal Aboriginal Corporation;
- Darug Aboriginal Cultural Heritage Assessments
- Darug Land Observations;
- Darug Aboriginal Land Care Inc;
- Deerubbin Local Aboriginal Land Council;
- Gunjeewong Cultural Heritage Aboriginal Corporation; and
- Scott Franks.

7.5.3 Notification and Registration of Interest

On 12 March 2012, a notice was placed in the Penrith Star, containing notification of the project, and an invitation to register an interest. Notifications and invitations to register were also sent to the Aboriginal Parties identified in the first stage of consultation, listed above.

Registrations of interest were received from the following Aboriginal Parties:

- Darug Custodial Aboriginal Corporation;
- Darug Tribal Aboriginal Corporation;
- Deerubbin Local Aboriginal Land Council;
- Gunjeewong Cultural Heritage Aboriginal Corporation;
- Tocomwall (Scott Franks).

In accordance with Section 4.1.6 of the Guidelines, details of the Registered Aboriginal Parties were provided to OEH and the Deerubbin LALC on 9 May 2012.

7.5.4 Presentation of Information and Proposed Methodology

On 20, 23 and 30 April 2012, in accordance with Sections 4.2 and 4.3 of the Guidelines, project information and the proposed ACHA methodology were distributed to the RAPs. The cover letter and report provided information about the proposal, the proponent, the intended approval approach, assessment approaches and processes, timeframes and the proposed field investigation. In addition the letter sought information from the RAPs about how they wished to be consulted, how they wished cultural information to be managed and other relevant matters. No meetings were undertaken during this process, although all RAPs were advised that meetings could be arranged if required.

7.6 MITIGATION AND MANAGEMENT

7.6.1 Recommendations

The following recommendations are based upon:

The results of the assessment detailed in the Aboriginal Cultural Heritage Report (ACHA) and this Archaeological Report;

The recommendations are as follows:

All impacts to the Aboriginal site #45-5-0556 should be avoided through conservation of the site within the designated Riparian Corridor/Conservation Zone as shown on **Figure 7** of the assessment.

- The Riparian Corridor/Conservation Area should be managed as described in **Section 1.4.1** of the Aboriginal Assessment Report *(Attachment 2)* of this report. No pedestrian or vehicle access to the conservation area should occur

at any stage during the construction works in order to avoid all potential impacts to the site #45-5-0556.

- No Aboriginal heritage constraints have been identified within the areas not marked as a conservation zone on **Figure 7** of this assessment. As such, no further investigation or assessment is required in relation to Aboriginal heritage in this area.
- Should the location and/or method of the proposed works be altered, including the boundary of the conservation area, further investigation and assessment may be necessary.
- Consultation between Hanson and the Registered Aboriginal Parties should be maintained as appropriate throughout the construction of the project;
- In the event that previously undiscovered Aboriginal objects, sites or places (or potential Aboriginal objects, sites or places) are discovered during construction, all works in the vicinity of the find should cease and Hanson should determine the subsequent course of action in consultation with a heritage professional, relevant Registered Aboriginal Parties and/or the relevant State government agency as appropriate;
- Should suspected Aboriginal skeletal material be identified, all works should cease and the NSW Police and the NSW Coroner's office contacted. Should the burial prove to be archaeological, consultation with a heritage professional, relevant Registered Aboriginal Parties and/or the relevant State government agency, should be undertaken by Hanson;
- Consideration should be given to amending the extent of the area identified as high Aboriginal archaeological sensitivity in State *Environmental Planning Policy 59 – Eastern Creek Precinct (Stage 3) Precinct Plan* (SEPP 59) as it affects the subject area; and The Project Approval application for the proposed modification works should seek, among other things, to delete Condition 28 of the Project Approval of January 2010, which requires that 'the proponent shall not disturb those areas identified as 'High Sensitivity' in the Precinct Plan' except as it applies to the Riparian/Conservation Area.

8 Fauna Assessment

8.1 INTRODUCTION

As part of the environmental assessment for the proposed works, a fauna appraisal was commissioned to determine the range of vertebrate species that utilise the site, and in particular, to assess the presence of threatened species in or near the site, particularly the Cumberland Land Snail *Meridolum corneovirens* and the Eastern Bent-wing Bat *Miniopterus schreibersii oceansis*.

In early April 2012, Dr Arthur White from Biosphere Environmental Consultants Pty Ltd commenced the fauna assessment.

8.2 STUDY SITE

The Wallgrove (Eastern Creek) site occupies a heavily modified unit of industrial land at Eastern Creek, a western suburb of Sydney (Figure 8). The total area of the site is approximately 26 Ha and most of this comprises consolidated hard stand or unconsolidated gravel surfaced work spaces. The site receives sand, gravel and aggregate from various locations and sorts the sands, and gravels through separators before stockpiling the separated materials in outside pits. Trucks receiving sand or gravel are loaded either by a large excavator or by an overhead loader.

Approximately 2 Ha of the site contains vegetation and this lies along the southern and western margins of the site, at a level 5 metres below the quarry work surfaces. Gravel and waste rock embankment demarcate the quarry and stockpile area from the vegetated areas below. The vegetated areas are associated with sediment ponds and settling ponds that receive surface run-off from the higher quarry areas.

Figure 8: Location of Wallgrove Quarry

Figure 9: Bushland and Ponds in Southern Portion of site

8.3 THREATENED SPECIES

A search was carried out of the New South Wales Wildlife Atlas for records of threatened species within a five kilometre radius of the study site. Two threatened species were recorded on the Atlas within this area, they were:

Cumberland Land Snail Meridolum corneovirens

Eastern Bent-wing Bat Miniopterus schreibersii oceansis

No endangered ecological communities (EEC) occur on the site (Cunningham 2008). The area historically may have supported Cumberland Plain Woodland but the highly degraded nature of the remaining vegetation and the loss of native ground cover plants do not satisfy the requirements of this EEC.

8.4 FAUNA DIVERSITY

Only a modest selection of animal species were detected on the survey site. The relative paucity of species is undoubtedly due to the extensive clearing of the site and surrounding areas, the ongoing industrial activities in the neighbourhood and the highly disturbed nature of the remaining vegetated areas. The Southern Bushland area is dominated by Grey She-oak and the understorey contains few native plants. This area will be lost during the re-development of the site. The Riparian strip is unfortunately also dominated by Grey She-oaks and the understorey has also been suppressed. As a consequence there are no areas where the vegetation remains in an intact state.

An example of the paucity of wildlife reflecting the disturbed nature of the habitat is best illustrated by the lack of water birds on the site. The area contains three sizable ponds, each with ample fringing vegetation yet only two species of water birds are using these ponds. The lack of small passerine birds is also understandable given the isolation of the woodland area and their easy access by birds of prey.

Feral mammals and birds are quite common on the site, again indicative of the disturbed nature of the site. No small native mammals appear to be present.

8.5 THREATENED SPECIES

No threatened animal species were detected on site. Two species of microbat were detected about the ponds in the bushland areas but neither species appeared to be roosting on site. The bats were detected for a short time only each night and departed the site to the south.
The Cumberland Land Snail was not detected and this was not unexpected given the lack of ground cover and native vegetation in the area. The leaf waste from the Grey She-oaks had suppressed most ground covers in the vegetated areas and few snails of any species were found.

8.6 POTENTIAL HABITAT FOR THREATENED ANIMAL SPECIES

The dominance of Grey She-oaks in the vegetated areas of the sites has greatly diminished the potential habitat value for both the Cumberland Land Snail and the Eastern Bent-wing Bat. The loss of most of the native ground cover vegetation and the suppression of the remaining vegetation by the leaf-mats from the She-oaks means that little (if any) habitat still remains) in this area. She-oaks also have diminutive flowers and are not a noted attractant of small flying insects. In addition, the small size of the woodland in the Southern Bushland Area and Riparian Strip means that bats are unlikely to be drawn to this site when foraging. Furthermore, the extensive night-lighting of the industrial sites nearby would be a major deterrent to bats that are travelling over large distance sin search of feed. Overall, the woodland areas at the Wallgrove site contain a very small area of potential habitat but the external factors probably would prevent Bent-wing bats from being able to exploit it.

8.7 SITE PROTECTION

The proposed changes to the structure and operation of the former quarry site will not impact on the Riparian strip but the Southern Bushland area will be lost. The concrete batching plant, asphalt plant and concrete recycling area and associated infrastructure have been designed to be separated from the riparian corridor. The system of sediment ponds will be replaced by one dam, however this will remain to continue to trap sediment before it can enter local waterways.

8.8 CONCLUSION

The Wallgrove site contains remnant and highly disturbed vegetation areas that support relatively little wildlife. There are no threatened fauna species on the site and there does not appear to be any habitat that could support threatened species (namely the Cumberland Land Snail and the Eastern Bent-wing bat) on site. The proposed changes to the former quarry site will not impact on the remnant bushland areas.

9 Potential Amenity Impact

9.1 NOISE

In its assessment report the Department concluded in respect to noise:

Overall, the Department considers noise contributions from the proposal would be minimal at residences. Similar to the adjoining Eastern Creek
Waste Facility, the site is separated from the nearest resident by the M4, a six lane motorway which would dominate the noise environment for residents.
Both the Department and DECCW are satisfied the noise goals would be achieved at the nearest residents in Erskine Park and Minchinbury.

The proposed noise criteria for the proposal are actually more stringent than the criteria in the existing EPL(s) for the facility. Both DECCW and the Department consider it is appropriate to move to more stringent criteria that are generally consistent with surrounding development, and reflect the fact that noise generating quarry activities (such as blasting and excavating), no longer take place.

In addition, the Department has recommended that existing production rates at the facility be capped at levels below those sought in the Concept Plan, and that Hanson be required to demonstrate continued compliance with the noise criteria at subsequent project application stages.

Further, the Department has recommended a noise monitoring program be established to evaluate compliance with the noise criteria, which is consistent with the approval for the Eastern Creek Waste Facility.

Given the modified Concept Masterplan for the site moves the Asphalt Plant and the Concrete Recycling Plant a further 300m away from the nearest residence, it is logical to conclude that any potential risk of impacts from noise will be further reduced.

9.2 AIR QUALITY

In respect to its assessment of impacts on air quality the Department concluded as follows:

The Department is satisfied the recommended monitoring program would ensure Hanson promptly respond and manage any short-term dust events from their operations. In doing so, Hanson, consistent with the adjacent waste facility, can minimise their Project's contribution to short-term dust events in the broader area. The Department is satisfied that the recommended conditions would ensure dust and particulate emissions from the project can be effectively managed. Further, the Department predicts improved air quality in the area as elements of the Concept Plan are implemented, including substantial hard stand areas.

Given the modified Concept Masterplan for the site moves the Asphalt Plant and the Concrete Recycling Plant a further 300m away from the nearest residence, it is logical to conclude that any potential risk of impacts on air quality will be further reduced.

9.3 TRAFFIC

Operational traffic for the proposal is generated by deliveries of concrete waste for recycling, materials delivery, along with dispatch of recycled products, asphalt / emulsion and concrete. In addition, general site deliveries would occur along with the light vehicle movements of staff and contractors. The vehicle type split is approximately 32% small vehicles and 68% heavy vehicles (including 2% B-double). Vehicle movements would be spread over a 24 hour period with some slight 'peaking' in the normal morning and afternoon peak periods.

The proposal (as originally submitted) is anticipated to generate up to 300 vehicles in the peak periods, which is considerable. However, the Concrete Masonry Plant was deleted from the proposal at the Preferred Project stage. As a result, the associated traffic impacts of the proposal have already been reduced, as there will be up to 25,000 less heavy vehicle trips per annum than originally proposed.

Whilst Hanson is, and will continue to be a substantial traffic generator, the vehicle movements can be accommodated into the surrounding road network, subject to the upgrades envisaged in the revised Master Concept Plan for the regional road network occurring.

10 Attachments