Holcim (Australia) Pty Ltd

Environmental Assessment

Proposed Minor Modification to Holcim Regional Distribution Centre (RDC), Rooty Hill, NSW

September 2010

Umwelt
Environmental Consultants

Environmental Assessment

Proposed Minor Modification to Holcim Regional Distribution Centre (RDC), Rooty Hill, NSW

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Holcim (Australia) Pty Ltd

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Executive Summary

Holcim (Australia) Pty Ltd (Holcim) is one of Australia's leading producers of aggregates, concrete, concrete pipe and other construction products. Holcim currently supplies the Sydney market with quarry products from the company's Penrith Lakes Development Corporation (PLDC) scheme. The PLDC resource is nearly depleted and the facility is approaching closure, however, construction materials remain in high demand within the Sydney region. Consequently Holcim has had to locate alternative sources of quarry products to meet the needs of its Sydney market. These quarry materials will be sourced from quarries outside the Sydney basin, including the new Lynwood Quarry near Marulan in the Southern Tablelands region of NSW. To facilitate the delivery of these materials throughout the Sydney market, Holcim requires a distribution centre for quarry materials. This role will be fulfilled by Holcim's Regional Distribution Centre (RDC) at Rooty Hill which was approved by the NSW Minister for Planning in April 2006.

Holcim was granted Project Approval to construct and operate the RDC under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (Approval No. 05_0051). The yet to be constructed RDC is approved to handle up to 4 million tonnes per annum (Mtpa) of quarry product.

Since approval was granted for the RDC, Holcim acquired CEMEX's (formerly Readymix) Australian holdings, including the approved RDC project. Since this recent change in ownership, Holcim has been reviewing the plans for the RDC and has identified a number of operational, capital and environmental benefits in modifying the approved RDC layout. Accordingly, Holcim is seeking to modify the 2006 Project Approval to provide for these minor changes to the approved RDC layout, optimising the project and allowing Holcim to progress the construction of the facility.

The proposed minor modifications include:

- changing from elevated steel storage bins to on-ground concrete storage bays, reducing the height of the storage facility by approximately 10 metres;
- changing the configuration and location of the rail unloader and rail sidings to accommodate shorter trains, for the initial phase of the development;
- reducing the payload capacity of trains, for the initial phase of development;
- removing the ground storage bins that were originally sited west of the elevated steel storage bins;
- closure of North Parade by Blacktown City Council rather than relocation of the road;
- increasing the ground storage area at the radial stacker; and
- minor changes the locations of the office, workshop and other internal facilities to improve operating efficiencies and in response to the layout changes outlined above.

Approval for the proposed modifications to the RDC is sought via a modification to the 2006 Project Approval under Section 75W of the EP&A Act. The NSW Minister for Planning will determine the modification application.

A detailed environmental and social impact assessment has been completed for the proposed modifications to the RDC, as documented in this Environmental Assessment (EA).

The EA also identifies where additional management and mitigation measures are required, building on the comprehensive measures already in place as part of the Project Approval conditions. **Table 1** provides a brief overview of the key outcomes of the environmental and social impact assessment.

Table 1 - Overview of Environmental and Social Assessment Findings

Environmental/Social Issue	Overview of Key Outcomes (After proposed Management and Mitigation)
Noise	• Construction and operation of the modified RDC will comply with the relevant noise criteria at all residential and recreational locations. • Overall noise impacts are reduced as a result of the proposed modification when compared to the approved RDC.
Air Quality	• The modified RDC is predicted to comply with all relevant air quality criteria. • The modified RDC will result in reduced overall dust generation when compared to the approved RDC. • The overall air quality impacts of the modified RDC are substantially the same as the approved RDC.
Ecology	• Minimal vegetation clearing is required as a result of the proposed modifications, however, the modifications will impact on an additional 0.02 hectares of Cumberland Plain Woodland Critically Endangered Ecological Community. • The project will not have a significant impact on listed threatened species and Threatened Ecological Communities. • A compensatory habitat package will be implemented to offset the impact of the RDC, including the proposed modifications, on Cumberland Plain Woodland, in accordance with the requirements of the Project Approval.
Water Resources	• The proposed modifications to the RDC are not predicted to have any additional impact on flooding, surface water or groundwater systems, when compared to the approved RDC. • Erosion and sediment control measures, as outlined for the approved RDC will be implemented during construction and operation of the RDC. • The proposed modifications to the RDC are expected to have negligible impacts on the approved water management system.
Greenhouse and Energy	• The modified RDC will not result in any additional greenhouse gas emissions when compared to the approved RDC. • The modified RDC will make a very small contribution to global greenhouse gas emissions. • The use of rail to transport the quarry product to the RDC results in a significant reduction in emissions when compared to road transport.
Visual Amenity	• The visual impact of the modified RDC will be less than the impact of the approved RDC, with the overall height of the main materials storage facilities being reduced by approximately 10 metres.
Hazard	• The RDC is not considered a hazardous development. • Construction activities within the Sydney to Newcastle High Pressure Natural Gas Pipeline easement can be mitigated and managed, such that the impacts would be negligible and the risk of propagation and cumulative impacts on surrounding land uses is negligible.

Environmental/Social Issue	Overview of Key Outcomes (After proposed Management and Mitigation)
Aboriginal and Historic Heritage	• The modified RDC will not impact on Aboriginal sites or historical archaeological sites.
Traffic	• No changes to the traffic volume or access arrangements are proposed as part of the modified RDC.
Aquatic Ecology	• The modified RDC will not result in any additional impacts on Angus or Eastern Creeks to that identified and assessed as part of the approved RDC.
Socio-economic Assessment	• Employment numbers for the construction and operational phases are unchanged as a result of the modified RDC. • There are no changes to the overall socio-economic impacts of the project, with the benefits of the project remaining unchanged and the environmental and social impacts either reduced or consistent with the approved RDC as identified above.

The impacts of the Modified RDC project have been kept to a minimum through:

- obtaining a detailed understanding of the issues and impacts by scientific evaluation;
- close consideration of environmental and community factors as part of an iterative design process to avoid or minimise impacts;
- development of proactive and appropriate strategies to avoid, minimise and mitigate or manage; and
- a thorough Statement of Commitments which details the measures that Holcim will implement as part of the modified RDC, building on the requirements of the existing Project Approval conditions, to minimise the potential environmental and social impacts of the modified RDC.

As detailed in the EA, the proposed modifications to the approved RDC will not result in any significant environmental impacts and will provide some environmental benefits when compared to the approved RDC. The proposed RDC modifications would result in improvements to the visual amenity of the facility, and will generally reduce the noise and air quality impacts of the project on surrounding areas when compared to the approved RDC.

The RDC will play a crucial role in the ongoing security of supply of construction materials to the Sydney market, given the approaching closure of the PLDC scheme that currently supplies a significant proportion of Sydney's construction materials. The implementation of the RDC project is part of Holcim's long-term strategy for supplying construction materials into Sydney from surrounding regional areas using the rail network, a more efficient transport option than road haulage. The proposed modifications to the RDC will optimise the project resulting in operational and economic efficiencies, and providing substantial benefits to Holcim.

The RDC will make a significant contribution to the local and regional economies through employment of approximately 250 people during operations at full capacity. During construction the project will also contribute to local employment, with peak construction phase employment of approximately 220 people. The capital expenditure during the construction phase of approximately $100M will also add significantly to the local and regional economies, further enhancing the economic benefits of the project. The project will also make an ongoing contribution during operations through the payment of wages, annual operating expenditure, and through payment of State and Commonwealth taxes and fees.

These significant benefits of the project and the need for the project were recognised by the NSW Minister for Planning when the project was approved in 2006.

This EA comprehensively addresses the potential environmental and social impacts associated with the proposed modifications to the RDC. The proposed modifications will not change any of the benefits of the project and as discussed above, will result in improved environmental outcomes when compared to the approved RDC.

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APPENDICES

1.0 Introduction

Holcim (Australia) Pty Ltd (Holcim) is one of the leading producers of aggregates, concrete, concrete pipe and other products in Australia and supplies concrete and quarry products to the building and construction industry. Holcim is a global company employing about 83,000 people in over 70 countries. From a network of over 200 concrete plants and 88 quarries in Australia, Holcim provides high-quality products for a diverse range of customers and applications. Quarry products include rail ballast, aggregates, gravels, road pavement materials, manufactured and natural sands. These basic materials are an essential part of making concrete, which helps to build schools, hospitals, roads, bridges, airports and other infrastructure as well as commercial buildings.

Holcim has been supplying construction materials in Australia since 1901 under well-known Readymix and later CEMEX and Humes brands. In October 2009, Holcim acquired CEMEX, including the approved Regional Distribution Centre (RDC) for quarry materials located at Rooty Hill in New South Wales (NSW) (refer to **Figure 1.1**).

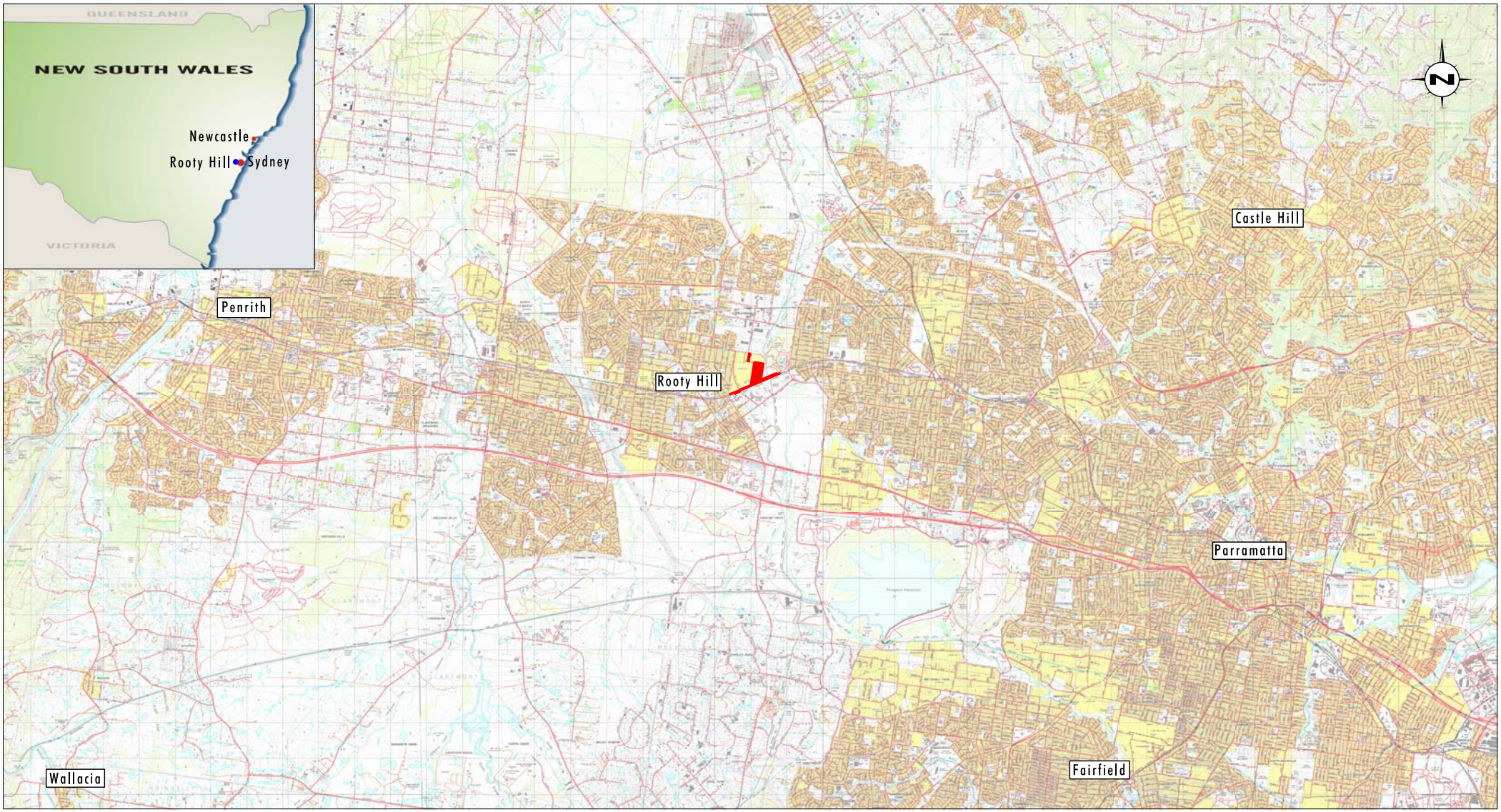
Holcim currently supplies the Sydney market with quarry products from the company's Penrith Lakes Development Corporation (PLDC) scheme. However this resource is nearly depleted and the facility is approaching closure. Construction materials are in high demand for the Sydney construction industry. Consequently Holcim has had to locate alternative sources of quarry products to meet the needs of its Sydney market. These quarry materials will be sourced from quarries outside the Sydney basin, including the new Lynwood Quarry near Marulan in the Southern Tablelands region of NSW. To facilitate the delivery of these materials throughout the Sydney market, Holcim requires a distribution centre for quarry materials. This role will be fulfilled by the RDC at Rooty Hill.

Project Approval was granted under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in April 2006 (Approval No. 05_0051) (hereafter referred to as the 2006 Project Approval), to construct and operate the RDC. The RDC is approved to handle 4 million tonnes per annum (Mtpa) of quarry product. The approved but not yet constructed RDC is strategically located close to the M7 Motorway and adjacent to the Main Western Railway Line, providing ready access to key components of the rail and road networks. Construction materials such as sand and aggregate will be transported by rail to the RDC where they will be blended, as required, and distributed by road to Sydney customers.

Holcim acquired CEMEX's Australian operations in October 2009. Prior to that, the approved RDC was owned by Readymix Holdings Pty Limited, a member of the Rinker Group. CEMEX acquired the Rinker Group Limited and its Australian business, Readymix Holdings Pty Limited, in 2007. To minimise confusion throughout this EA, Holcim will be used to describe ownership of the RDC and any associated approvals and/or management plans irrespective of timing.

Since the approval was granted and building on the recent change in ownership, Holcim has been reviewing the plans for the RDC and has identified operational, capital and environmental benefits in modifying the approved RDC layout. Accordingly, Holcim is seeking to modify the 2006 Project Approval to provide for these minor changes to the approved RDC layout. These proposed changes will improve the efficiency of Holcim's capital output for the project in addition to providing operational benefits throughout the life of the facility.

The project area, hereafter referred to as the RDC site, is located at Kellogg Road and Woodstock Avenue Rooty Hill, within an existing industrial area. The RDC site adjoins the existing Humes Concrete Products Factory and the OneSteel Mini Mill, to the east is Nurragingy Reserve, while the Main Western Railway Line forms the southern boundary of



Source: Department of Lands 2006

0 0.25 0.5 0.75km

1:150 000

Legend

Approved RDC Site Boundary

FIGURE 1.1

Locality Plan

File Name (A4): R02_V1/2802_003.dgn

the site (refer to **Figure 1.2**). Holcim owns approximately 26 hectares of the RDC site which includes a vacant block of approximately 16.6 hectares and the adjoining Humes site.

The proposed modified RDC layout is shown in **Figure 1.3**. The facility will initially commence handling of 2 to 2.5 Mtpa of quarry product, increasing to a projected full capacity of about 4 Mtpa as dictated by the construction materials market. An overview of the proposed minor modifications to the RDC is outlined in **Section 1.1** (refer to **Figure 1.3**). Construction of the modified RDC is planned to begin in 2011 and the RDC is expected to commence operations in 2013.

Holcim has consulted with the Department of Planning (DoP) in regard to the proposed modifications to the RDC and has confirmed that the 2006 Project Approval can be modified under section 75W of the EP&A Act. This Environmental Assessment (EA) has been prepared by Umwelt (Australia) Pty Limited (Umwelt) on behalf of Holcim to assess the potential environmental and social impacts of the Modified RDC. A statement of authorship for the EA is contained in **Appendix 1**.

1.1 Overview of the Proposed Modified RDC

As outlined in **Section 1.0**, since the granting of approval and building on the recent change in ownership, Holcim has been undertaking a review of the approved RDC design. This review has identified operational, capital and environmental benefits in modifying the approved RDC layout.

The proposed minor modifications include:

- Changing from elevated steel storage bins to on-ground concrete storage bays, reducing the height of the storage facility by approximately 10 metres;
- Changing the configuration and location of the rail unloader and rail sidings to accommodate shorter trains, for the initial phase of the development;
- Reducing the payload capacity of trains, for the initial phase of development;
- Removing the ground storage bins that were originally sited west of the elevated steel storage bins;
- Closure of North Parade by Blacktown City Council rather than relocation of the road;
- Increasing the ground storage area at the radial stacker; and
- Minor changes the locations of the office, workshop and other internal facilities to improve operating efficiencies and in response to the layout changes outlined above.

Current market analysis indicates that the RDC will commence operations handling 2 to 2.5 Mtpa of quarry materials, expanding to 4 Mtpa in line with market demand. During this initial phase material will be brought to the RDC in shorter trains than originally planned for the approved RDC. As a result, a shorter rail siding will be required and the rail unloading station will be constructed further to the east to be in the middle of the shorter siding. An average of approximately nine train deliveries will be required every two days in order to reach 4 Mtpa with the proposed smaller train size as opposed to an average of approximately four trains per day for the currently approved siding arrangement. Should Holcim be able to obtain sufficient train time slots on the Main Western Railway, the RDC will be able to reach 4 Mpta with this shorter rail siding arrangement. Should sufficient train time slots not be available, Holcim will construct the currently approved longer rail siding, with

Source: Holcim and Google Earth 2010

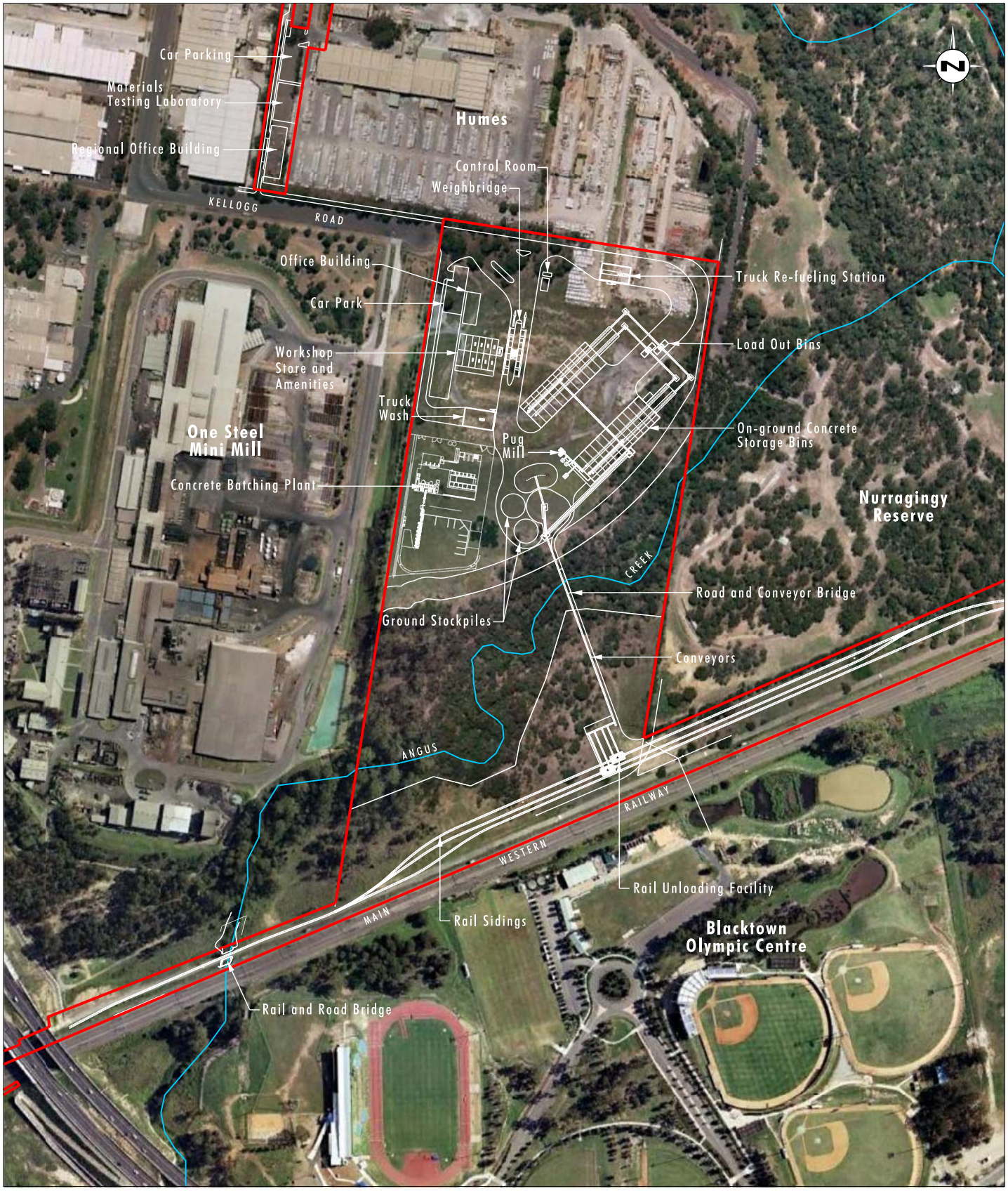
0 100 250 500m
1:10 000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout

FIGURE 1.2

RDC Site Context



Source: Holcim and Google Earth 2010

0 100 200 250m
1:5000

Legend
Approved RDC Site Boundary
Indicative Modified RDC Layout

FIGURE 1.3

Indicative Modified RDC Layout

some minor alterations to allow for longer trains as currently approved. As part of the proposed modification, Holcim is seeking approval for both the initial rail siding and unloader configuration and, if required, to construct the currently approved rail unloader and siding arrangement, with some minor alterations to cater for longer trains.

As Holcim is no longer proposing to relocate North Parade there has been a minor change in the alignment of the approved longer rail unloader and siding arrangement when compared to the original concept design. This minor change in alignment has resulted in the longer rail siding arrangement no longer requiring works on OneSteel land. The area of OneSteel land is therefore no longer required for the project and has been removed from the project area (refer to **Figure 1.2**). Further detail regarding the proposed rail sidings and unloading arrangements is provided in **Section 3.2**.

The indicative modified RDC layout is illustrated in **Figure 1.3**. The proposed minor changes to the RDC will not result in changes to overall components that make up the RDC project or to the approved RDC capacity of 4 Mtpa. The RDC will operate in much the same way as is currently approved. The following components of the approved RDC will remain as currently approved:

- Traffic and access arrangements;
- Numbers of vehicle movements;
- The Concrete Batching Plant (CBP);
- The rail and road bridge;
- The road and conveyor bridge;
- The Regional Office Building and associated car parking; and
- The materials testing laboratory.

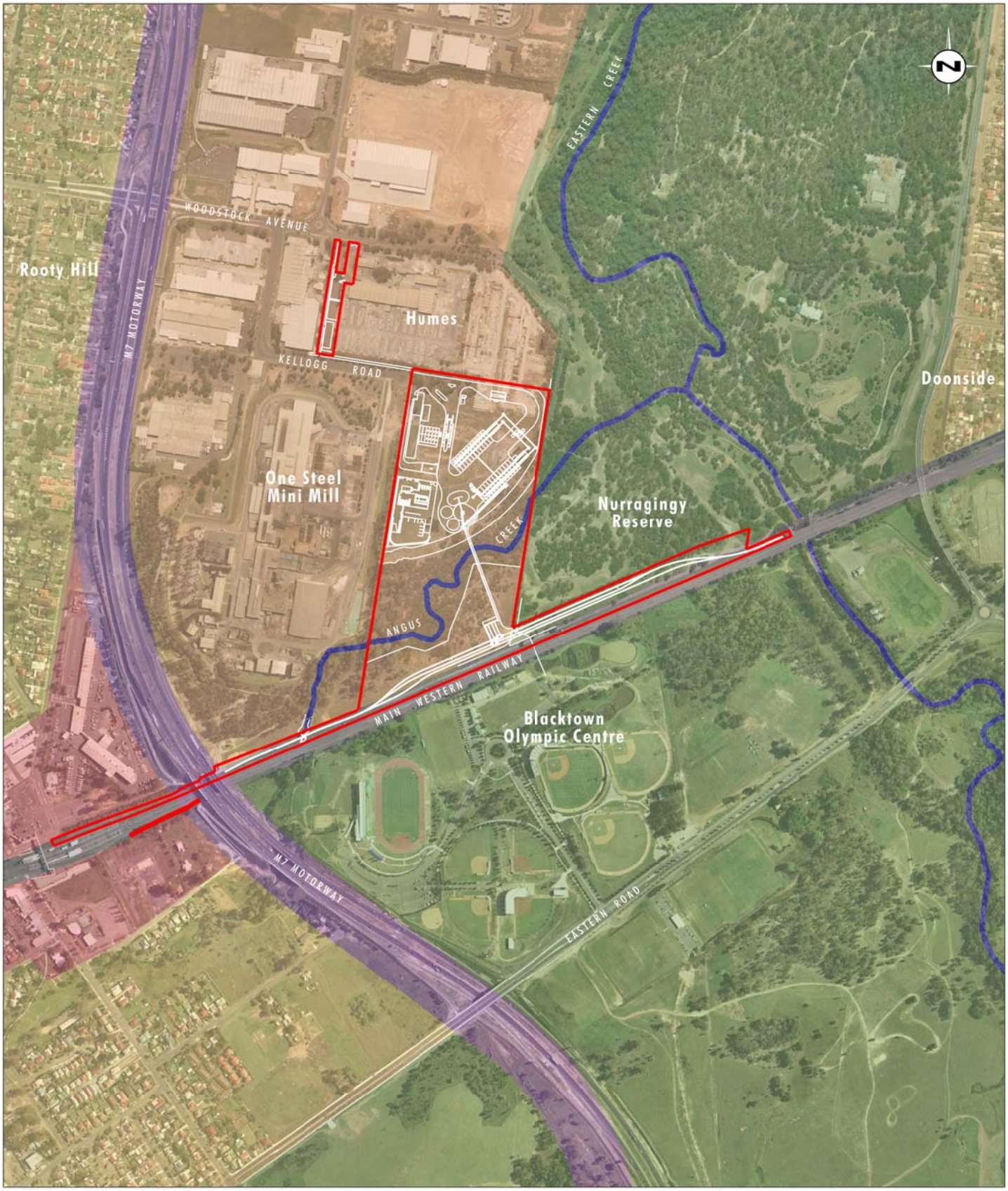
As indicated above, there will be no change to the number, size or tonnages of heavy vehicles accessing the facility during construction or operation of the modified RDC. Traffic arrangements and volumes will not change from the currently approved RDC design. A detailed description of the proposed modified RDC is provided in **Section 1.0**.

1.2 Overview of the Existing Environment

1.2.1 RDC site and Surrounding Land Use

The RDC site is located at Kellogg Road and Woodstock Avenue, in the suburb of Rooty Hill, NSW (refer to **Figure 1.2**). The site is situated in the Blacktown Local Government Area (LGA) approximately 35 kilometres to the west of the Sydney Central Business District (CBD).

Land use directly adjacent to the RDC site includes general industry such as the OneSteel Mini Mill and the Humes Concrete Products Facility located immediately to the west and north of the RDC site respectively. A passive recreation area called Nurragingy Reserve adjoins the eastern boundary of the RDC site (refer to **Section 1.2.1.1**). The Main Western Railway Line forms the southern boundary of the RDC site and the M7 Motorway is located to the west (refer to **Figure 1.2** and **Figure 1.4**).



Source: Holcim and Google Earth 2010

0 100 250 500m
1:10 000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Residential Zone
- Industrial Zone
- Open Space, Reserve and Recreation
- Town Centre
- M7 Motorway
- Main Western Railway Line
- Creekline

FIGURE 1.4

Surrounding Landuse

As discussed above, the site is well serviced by the regional road network with the M7 Motorway located approximately 500 metres to the west. Other land use types in the surrounding area include the Rooty Hill residential area located west of the M7 Motorway, and the Doonside residential area located to the east of Nurragingy Reserve. South of the main western railway line is the Blacktown Olympic Centre (in Aquilina Reserve). The RDC site is located approximately 600 metres from the nearest residents on Station Street to the west, with existing industrial facilities and the M7 Motorway located in the intervening distance. To the east, the RDC is approximately 800 metres from the nearest residents on Knox Road, with Nurragingy Reserve located between the RDC and this urban area.

The RDC site has not previously been developed, however, there are large amounts of fill on the central part of the site. This fill came from the construction of the adjacent OneSteel Mini Mill. Previous testing of these stockpiles has indicated that they do not contain contaminated material (NECS, 2005).

1.2.1.1 Nurragingy Reserve

The Nurragingy Reserve adjoins the eastern boundary of the RDC site. Nurragingy Reserve is a natural bushland reserve consisting of approximately 90 hectares of passive recreational space. The reserve offers a number of facilities including picnic and barbeque areas, walking tracks, playgrounds and formal garden areas (refer to **Figure 1.5**). The Nurragingy Reserve falls under the State Environmental Planning Policy (Western Sydney Parklands) 2009. Under this SEPP the Western Sydney Parklands Trust is responsible for the management of the Reserve.

The Colebee Centre is located in the north east of Nurragingy Reserve (refer to **Figure 1.5**). The Centre is a fully serviced function and entertainment centre, offering seating for up to 200 guests. Entry into the Reserve is available from 9.00 am Monday to Friday (7.15 am on Saturdays and Sundays) and closes between 4.30 pm and 6.30 pm, depending on daylight savings.

The majority of facilities are located within the north and eastern parts of the Reserve in and around the Colebee Centre, however, there are picnic areas throughout the reserve including in proximity to the RDC site. The Main Western Railway Line and existing nearby industry impact on the visual and noise amenity of the southern part of the reserve (refer to **Figure 1.5**).

1.2.1.2 Blacktown Olympic Centre

The Blacktown Olympic Centre is a sports and leisure venue that was established to cater for a variety of events, including the Sydney 2000 Olympic Games. The centre is located on the southern side of the Main Western Railway Line and the south of the RDC site (refer to **Figure 1.4**), and currently occupies approximately 50 hectares of previously developed parklands.

1.2.2 Property Description and Land Ownership

The RDC site comprises the lots and ownership as shown in **Table 1.1** and **Figure 1.6**. The approved RDC site also included part of Lot 3 DP1042577 owned by OneSteel, however, this land is no longer required for the project and has therefore been omitted from the Project Area.

Source: Holcim and Google Earth 2010

0 100 200 250m
1:5000

Legend

Approved RDC Site Boundary

FIGURE 1.5

Features of Nurragingy Reserve

Source: Holcim and Google Earth 2010

0 100 200 400m
1:8000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Lot 1 DP 582388 owned by Holcim (Australia) Pty Ltd
- Lot 1 DP 1150066 owned by Holcim (Australia) Pty Ltd
- Lot 1 DP 607084 owned by Railcorp
- North Parade
- Main Western Railway

FIGURE 1.6

Land Ownership

Table 1.1 – Rooty Hill RDC Land Ownership

Lot	DP	Owner	Existing Use
1	1150066	Holcim	Vacant land
1	582388	Holcim	Humes Concrete Products Facility
1	607084	RailCorp	Part of Main Western Railway Line
Main Western Railway Line Corridor		RailCorp	Main Western Railway Line
Road Reserve - North Parade		Holcim is in the process of finalising a contract for sale of North Parade with Blacktown City Council	Sealed road with grassed/gravel verge

1.2.2.1 North Parade

North Parade is located directly south of the site and runs parallel to the Main Western Railway Line. North Parade is a Council Road that services the Nurragingy Reserve and the general public.

Blacktown City Council has prepared a deed for the closure of North Parade. Therefore Holcim will no longer relocate North Parade. Holcim is currently in the process of finalising a contract for sale for purchasing the land occupied by North Parade from Blacktown City Council.

1.2.2.2 Humes Site

The Humes site is to the north of the main RDC facilities and is owned by Holcim. The site will contain the RDC regional office building and materials testing laboratory and associated car parking. The site is currently being utilised for an operational concrete pipe and precast concrete manufacturing complex, vehicle parking and storage. The complex operates 24 hours per day on week days, and 6.00am to 5.30pm Saturday.

1.2.2.3 Main Western Railway Line

The Main Western Railway Line is operated by Railcorp and is considered the major western arterial for rail transport, operating 24 hours per day. The railway line is located along the southern boundary of the RDC site. Holcim has approval to use the Main Western Railway Line for the delivery of quarry product to the RDC. Holcim will build portions of the rail sidings within the existing Main Western Railway line corridor.

1.2.3 Overview of Environmental Features

The topography of the RDC site is generally characterised by flat to gently sloping alluvial plain with occasional terraces or levees providing low relief. Slopes are generally less than 5% in gradient and the local relief is less than 10 metres (Bannerman et al, 1990). The north western part of the RDC site will be levelled out as part of the construction phase, primarily by using the One Steel fill that is currently mounded within the RDC site.

The RDC site is located within the Angus Creek catchment, adjacent to the confluence of Angus Creek and Eastern Creek. Angus Creek flows in a west-east direction through the southern half of the RDC site. The riparian zone surrounding Angus Creek is heavily vegetated with a native mid and upper story. The north-west and south east parts of the site

are highly disturbed and have been cleared of native vegetation (refer to **Figure 1.7**). The approved RDC was designed to minimise impacts on the native vegetation within the RDC site.

During the 2005 ecological assessment, four vegetation communities were identified within the RDC site. The communities were cleared / disturbed areas, poor and moderate quality Cumberland Plain Woodland (CPW) and poor quality River-flat Eucalypt Forest (refer to **Figure 1.7**). As discussed in **Section 6.4**, CPW is a critically endangered ecological community and River-Flat Eucalypt Forest is an endangered ecological community.

1.3 Overview of Planning and Approval Process

Holcim is seeking to modify its 2006 project approval (Approval No. 05_0051) pursuant to Section 75W of the EP&A Act to provide for the proposed minor modifications to the RDC. The Minister for Planning is the determining authority for the proposed modifications. A detailed discussion of the planning context for the proposed RDC modifications is included in **Section 1.0**.

If approval is granted for the proposed modifications, various approvals, licenses and permits will be required prior to the commencement of certain activities associated with the proposed modified RDC. These include:

- An Environment Protection Licence (EPL) under the *Protection of the Environment Operations Act 1997* (PoEO Act); and
- Approval under Part 5 of the *Water Act 1912* for the interception of groundwater during excavation of the rail unloading facility.

1.4 Environmental Assessment Team

Umwelt prepared this EA on behalf of Holcim. The following organisations undertook specialist studies as part of the EA process:

- PAE Holmes Air Sciences – Air Quality Assessment;
- Heggies Australia Pty Ltd – Noise Assessment; and
- CONTEXT Landscape Design – Visual Impact Assessment.

In addition to the above, Umwelt specialists undertook an ecological assessment, greenhouse gas and energy assessment and a preliminary risk screening.

1.5 EA Structure

The purpose of this EA is to assess the potential environmental and social impacts associated with the proposed minor modifications to the approved RDC. The EA has been prepared in accordance with the EP&A Act and Regulations (refer to EA Statement of Authorship in **Appendix 1**). An overview of the layout of this EA is provided below.

The Executive Summary provides a brief overview of the proposed modified RDC, the major outcomes of the environmental assessment, and an outline of the key project commitments to mitigate potential impacts.

Source: BIOSIS Research PTY Ltd

FIGURE 1.7

Vegetation Mapping - Biosis 2005

Section 1.0 provides the background and context for the Proposed RDC modifications, an overview of the approval process and the EA project team involved in producing the EA.

Section 2.0 contains an overview of the approved Rooty Hill RDC operation.

Section 3.0 provides a detailed description of the Proposed RDC modifications, the justification for the RDC modifications and other alternatives considered.

Section 4.0 describes the consultation process undertaken as part of the environmental assessment process and the environmental and community issues identified as part of this process for detailed assessment in this EA.

Section 5.0 describes the planning context for the proposed RDC modifications, including the applicability of Commonwealth and State legislation.

Section 6.0 contains a comprehensive analysis and assessment of the environmental impacts of the proposed RDC modifications, including the project specific and cumulative impacts.

Section 7.0 details Holcim's Statement of Commitments proposed to be adopted for the modified RDC to mitigate potential environmental and social impacts.

Section 8.0 contains a discussion of how the proposed modified RDC meets the principles of ecologically sustainable development and provides a conclusion.

Section 9.0 and **Section 10.0** provide a list of references referred to in the EA and a list of abbreviations and glossary of technical terms.

2.0 Approved Operations

2.1 Development Approval History

The RDC was approved in April 2006 by the Minister for Planning. Following the granting of approval by the Minister, Blacktown City Council exercised its right of appeal against the decision in the Land and Environment Court.

The Land and Environment Court handed down its decision on 24 November 2006 approving the proposal but requiring some amendments to the conditions of approval imposed by the Minister. As a result of the amended approval conditions Holcim, was required to:

- contribute $177,844.00 to Blacktown City Council for infrastructure enhancement within the Blacktown LGA;
- up-grade the Kellogg Road/Woodstock Avenue intersection with a roundabout or traffic signals;
- develop noise, dust and traffic monitoring management plans;
- operate all shunting to and from the RDC by groups of rigidly-connected wagons (rakes) or other appropriate technology approved by DoP to minimise sleep disturbance;
- nominate a suitable environmental representative that must be approved by the DoP;
- provide a compensatory habitat package for the vegetation that would be removed during construction of the RDC (the approval conditions require at least three hectares of Cumberland Plain Woodland be conserved for every one hectare to be removed from the RDC site);
- develop and implement a vegetation management plan (VMP) for the RDC site. This plan must include weed control measures and vegetation regeneration activities;
- develop and implement an aquatic monitoring program for Angus Creek and Eastern Creek;
- collect baseline data for a period of at least 6 months prior to commencement of construction. Prepare and implement separate Environmental Management Plans for both the construction and operational phases of the RDC for approval by the DoP; and
- obtain an independent environmental audit of the operation in 6 months, and again 2 years after commencement of operation, to be submitted to the DoP.

Since the granting of the Project Approval Holcim has progressed works to meet the requirements of the approval conditions and commitments made in the original EA in addition to undertaking detailed design studies to assist project implementation. Holcim has established the aquatic ecology monitoring program for Angus Creek in accordance with Condition 2.28A and the commitment made in the original EA. The aquatic ecology monitoring program has been in place since early 2009. In accordance with Condition 5.1, Holcim has identified and nominated a suitably qualified and experienced environmental representative to be employed on-site during the RDC operation. The Operational Monitoring Plan has been submitted for approval by the Director-General in accordance with Condition 3.1. Holcim is continuing to progress the remaining plans and monitoring

programs that need to be developed and implemented before construction of the RDC can commence.

2.2 Description of Approved Operations

Holcim currently supplies the Sydney market with quarry products from the company's PLDC operations. However this resource is nearly depleted and the facility is approaching closure. Consequently Holcim has had to locate alternative sources of quarry products to meet the needs of its Sydney market. These quarry products will be provided from quarries outside the Sydney basin, including the new Lynwood quarry near Marulan, Southeast of Sydney.

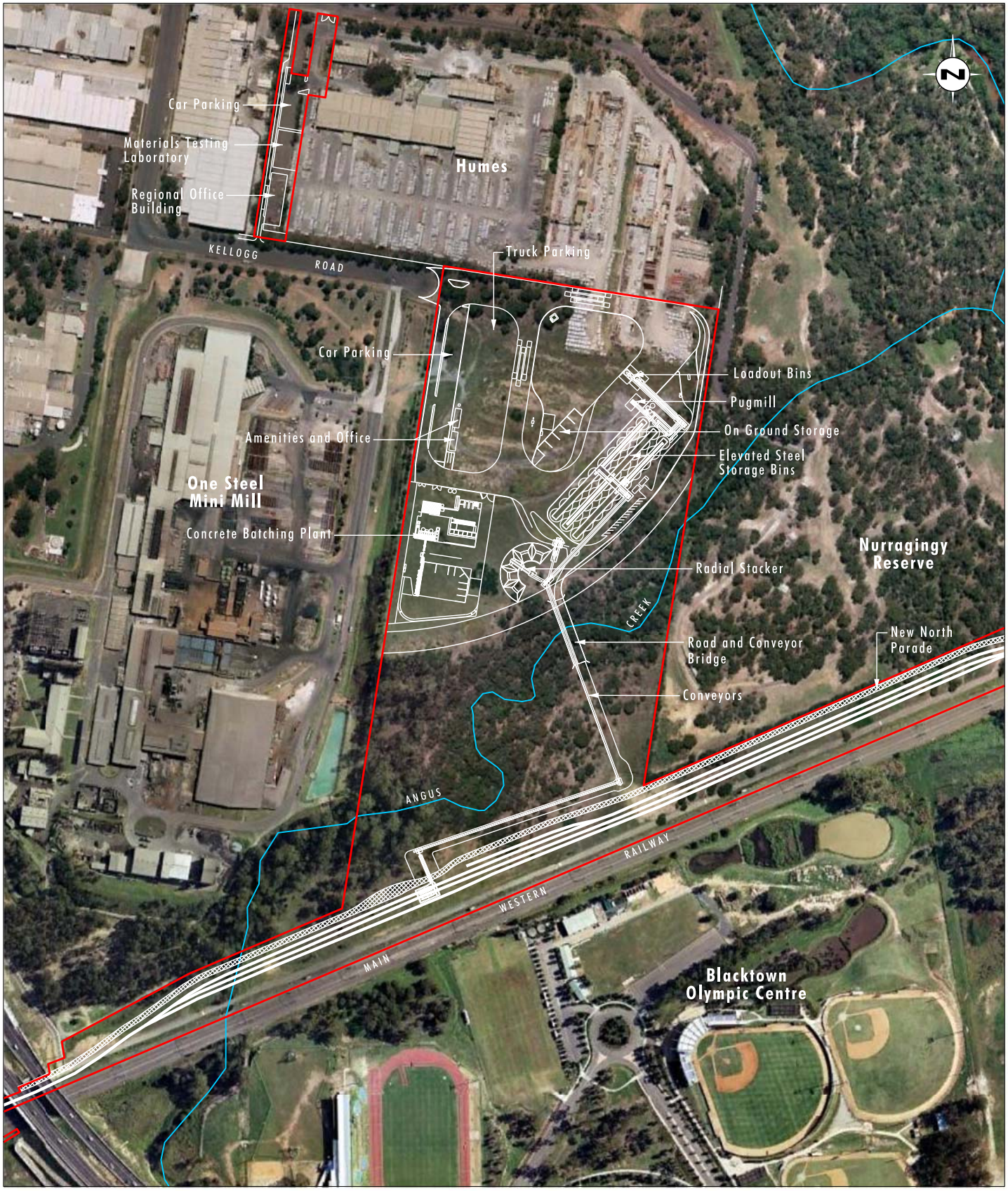
Holcim will transport these quarry products to Sydney by train, where they will be received at the RDC and transferred to the main storage bins via a series of conveyors. The quarry products will then be loaded into the main storage bins; products may then be blended (if applicable) and will then be loaded into trucks for distribution to the Sydney market.

The quarry products to be received and distributed from the modified RDC will include single size crushed aggregates, blended crushed aggregates, and natural or manufactured sands. The product sizes that would normally be stored are 20 mm, 14 mm, 10 mm, 7 mm, 5 mm and natural or manufactured sands. Based on current market demand, the RDC is expected to commence operation handling 2 to 2.5 Mtpa increasing to a projected full capacity of up to 4 Mtpa depending on demand. The approved RDC also includes a CBP that will allow Holcim to make concrete on-site for distribution to Sydney construction sites.

The RDC has approval to operate 24 hours per day, seven days a week. The RDC will take approximately two years to build and at its peak will employ approximately 220 people during construction. During operation of the approved RDC, approximately 250 people will be employed on-site.

The layout of the approved RDC is shown on **Figure 2.1** and includes the following:

- Rail siding;
- Rail unloading facility;
- Level crossing;
- Rail cross-overs;
- Rail and road bridge over Angus Creek;
- Realignment of existing North Parade and creation of New North Parade;
- Transfer conveyors;
- Road and conveyor bridge;
- Radial stacker and associated stockpiles;
- Elevated steel storage bins;
- Raw material load out facility;
- Blending Plant/Pug Mill;
- On ground storage stockpiles;
- Workshop and store;
- RDC control room and office;
- Truck wash bay;
- Truck refuelling area;
- Truck and car parking;
- Regional office and materials testing laboratory;
- Concrete batching plant;
- Weighbridges;
- Site access and internal roadworks; and
- Noise walls



Source: Holcim and Google Earth 2010

0 100 200 250m
1:5000

Legend
Approved RDC Site Boundary
2006 Approved RDC Layout

FIGURE 2.1

2006 Approved RDC Layout

At 4 Mtpa the approved RDC will dispatch approximately 400 heavy vehicles from the site on an average day. Heavy vehicles will typically use a truck and dog configuration and have a 33 tonne payload capacity. All traffic to the RDC will access the site via Kellogg Road, with the exception of some minor laboratory traffic. Those vehicles accessing Kellogg Road to/from the south will do so via Woodstock Avenue direct from the M7. Heavy vehicles accessing Kellogg Road to/from the north will do so via Glendenning Road and Power Street direct from the M7 (refer to **Figure 2.2**).

2.2.1 Rail Siding and Unloading Station

The approved RDC includes the construction and operation of four rail sidings to be located adjacent and parallel to the Main Western Railway Line (refer to **Figure 2.1**). The overall length of the approved rail siding will be approximately 1500 metres in length. The first two sidings will allow trains to arrive at the approved RDC from either the east or west and can accept two trains of approximately 805 metres in length at any one time. The third siding will allow locomotives to be transferred from one end of the train to the other without entering the existing RailCorp network.

The fourth short siding will connect to the northern siding adjacent to the unloading station and will be used as a holding area for locomotives and temporary minor maintenance. A shunting siding will extend to Rooty Hill Station to enable all the wagons to be unloaded. Two new crossovers will be installed within the RailCorp network to enable trains to enter and leave the RDC with minimal interference to RailCorp services.

The sidings and main rail lines will be accessed and serviced via a level crossing constructed across the RDC sidings. A rail and road bridge will be constructed across Angus Creek and North Parade will be relocated and remain open. The relocated North Parade will remove the need for local vehicle and pedestrian traffic to cross the path of the RDC. Safety fencing and noise walls will be constructed in conjunction with the sidings.

The trains will comprise 4 locomotives and 42 to 50 wagons, with each train capable of delivering between 3150 and 3750 tonnes of product to the RDC. To achieve full capacity of 4 Mtpa, approximately four train deliveries to the RDC will be required per day. A single rail unloading station will be constructed comprising two bins with a capacity to hold a minimum of two wagons each (150-200t). The bins will be designed and built to span below both unloading tracks (with one bin per track). Unloading of train wagons will involve wagons being sequentially placed in turn over the hopper for unloading. Trains would move forward by one wagon length and then stop for the next wagon to be unloaded.

The rail unloading facility will be enclosed on three sides and have rubber curtains at either end to fit around the wagons. The rail unloading facility would have a louvre system to minimise the escape of air (and associated dust) from the hopper during wagon unloading. All buildings and enclosures (including the rail unloading facility) will be fitted with a dry dust capture system. The rail unloading facility will be designed to operate at a nominal 2,500 t/hr capacity unloading a train in approximately 2-3 hours.

2.2.2 Aggregate Storage and Truck Loading Facility

Quarry product will be moved from the rail unloading facility to the steel storage bins via a series of conveyors. The conveyor system will be located above ground and be supported by steel columns to maintain a clear area underneath that allows the passage of Angus Creek floodwaters. Once at the storage bins the product will be deposited in the appropriate closed storage bin. All conveyors outside a building or tunnel will be enclosed and all transfer points will be enclosed to reduce potential dust emissions.

Source: Holcim and Google Earth 2010

0 250 500 750m
1:15 000

Legend

- Approved RDC Site Boundary
- Southern Entry
- Northern Entry
- Southern Exit
- Northern Exit

FIGURE 2.2

Traffic and Access Routes

The radial stacker will be a contingency mechanism that allows trains to be unloaded and return to the rail system in the event that there is a malfunction with the loading of the main storage bins. A diversion gate will direct materials from the transfer conveyors to the radial stacker where product can be stored in an on-ground stockpile area. When in use these stockpiles will be subjected to dust suppression sprays. From the radial stacker ground storage area, quarry product will be fed to trucks by front end loader or back into the main storage bins via the reclaim hopper.

The reclaim hopper is designed to enable material to be fed back into the main storage bins from the radial stacker stockpiles or enable other road delivered products to be held in the main storage system. The reclaim hopper will be enclosed on three sides to minimise potential dust emissions.

The elevated steel storage bins that will store the quarry products will be located in three rows of 10 bins with a total capacity of 60,000 tonnes (2,000-2200 t/bin). This is a storage capacity of approximately two to three days of sales for the Sydney region. In order to cater for special orders or periods of peak demand some of the bins may have internal dividing walls fitted to enable storage of more than one product type per bin. The storage bins will be 33.5 metres high extending to the top of the main transfer tower that will feed material to the bin system.

The approved RDC includes two truck loading stations, each of which has two truck loading points. Quarry product will be transferred from the elevated steel storage bins to the truck loading points via conveyors and discharged to trucks via a chute. Each load point will have the capacity to load 15-20 trucks/hr and can be assisted by front end loader during peak periods. The FEL would transfer quarry product from the ground storage bays or radial stacker to the trucks.

The Blending Plant and Pug Mill will allow the production of stabilised road base products at the approved RDC. The Blending Plant and Pug Mill mix road base material with cement/lime and water. The cement and lime storage silos will have a 100 tonne storage capacity. Road base material will be supplied to the Blending Plant and Pug Mill via conveyors from the elevated steel storage bins. Stabilised road base products will be loaded into trucks via a specialised truck loading point.

Within the approved RDC there will be five on ground storage bays with a capacity of approximately 500 tonne each. The on-ground storage bays will be enclosed on three sides by concrete walls separating the different materials. The bays will largely be used for storage of special materials or temporarily during times of malfunction.

2.2.3 Concrete Batching Plant

The approved concrete batching plant (CBP) is a dual alley dry concrete batching plant. In this type of plant the concrete is mixed within the truck agitators with the required materials loaded into the agitators from silos. The CBP is approved to produce up to 200,000m^3 of concrete per annum.

The CBP consists of:

- four 23 metre high silos, each with the capacity to store 120 tonnes of cement, flyash, micro silica or other cementitious products as required;
- parking for 20 agitators;
- amenities building which contains a lunchroom and toilets; and
- eight open on ground aggregate storage bins with a combined capacity of 1740 tonnes.

The silos are fitted with a reverse pulse dust filter system, pressure release valves and an automatic overfill protection system to DECCW standards. These controls along with water management system design will ensure that the CBP does not impact on the surrounding environment.

No changes to the CBP are proposed as part of the modified RDC.

2.2.4 Other Facilities

The RDC approved in 2006 also included a number of other ancillary facilities being:

- **The materials testing laboratory:** the laboratory will undertake mechanical testing of concrete and quarry products using light plant and equipment;
- **Regional office:** four levels (plus parking), catering for up to 120 employees;
- **Truck wash bay:** wash water will be collected and treated prior to discharging to the sewer;
- **Truck refuelling area:** construction of a 100,000 litre storage facility bunded and roofed in accordance with ASNS 1940 and DECCW guidelines;
- **Truck parking:** a sealed area for 38 trucks (truck and dog configuration);
- **Main car park:** a sealed area for 110 cars;
- **Drivers amenities / lunch room / site office:** training room and transport area office; and
- **Car parking:** 189 spaces adjacent to the regional office.

The above facilities will be retained as part of the modified RDC. With the exception of the materials testing laboratory, regional office and associated car parking, the location of these facilities has been altered in response to the modified RDC configuration (refer to **Figure 1.3**).

3.0 Description of Proposed Modification

3.1 Project Overview

Following the granting of Project Approval for the RDC in 2006 and the recent change in ownership, Holcim has been undertaking a detailed review of the approved design and has identified operational, capital and some environmental benefits in modifying the approved layout of the RDC.

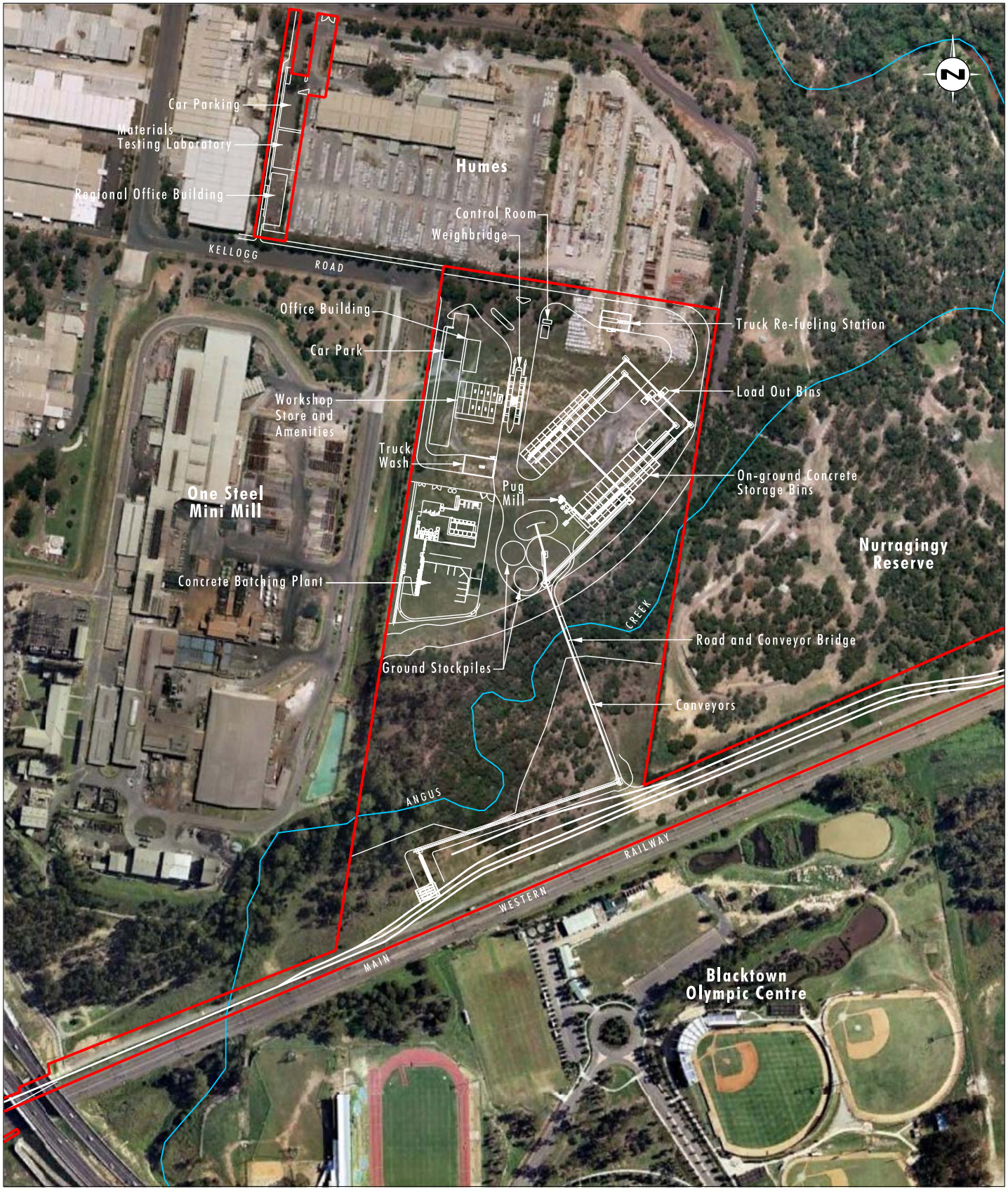
The key elements of the proposed modifications include:

- Changing from elevated steel storage bins to on-ground concrete storage bays, this will reduce the height of the storage facility by approximately 10 metres;
- Changing the configuration and location of the rail unloader and rail sidings to accommodate shorter trains, for the initial phase of the development;
- Reducing the payload capacity of trains, for the initial phase of the development;
- The removal of the ground storage bins that were originally sited west of the steel storage bins;
- Closure of North Parade by Blacktown City Council rather than relocation of the road;
- An increased ground storage area at the radial stacker; and
- Minor changes to the locations of the office, workshop and other ancillary facilities to improve operating efficiencies and in response to the layout changes outlined above.

The Concrete Batching Plant is not proposed to change as part of the proposed minor modifications. The Regional Office Building, materials testing laboratory and associated car parking will also remain unchanged.

The proposed minor changes to the RDC will not result in changes to overall components that make up the RDC project or to the approved RDC capacity of 4 Mtpa. The RDC will operate in much the same way as is currently approved. There will be no change to the number, size or tonnages of heavy vehicles accessing the facility during construction or operation of the modified RDC. Traffic arrangements and volumes will not change from the currently approved RDC design.

In regard to the proposed changes to the train unloading facility arrangements, current market analysis indicates that the RDC will commence operations handling 2 to 2.5 Mtpa of quarry materials, expanding to 4 Mtpa in line with market demand. During this initial phase material will be brought to the RDC in shorter trains than originally planned for the approved RDC. As a result, a shorter rail siding will be required and the rail unloading station will be constructed further to the east to be in the middle of the shorter siding. Should Holcim be able to obtain sufficient train time slots on the Main Western Railway, the RDC will be able to reach 4 Mpta with this shorter rail siding arrangement using a greater number of the smaller payload trains. Should sufficient train time slots not be available, Holcim will construct the currently approved rail siding, providing for longer, larger payload trains as currently approved (refer to **Figure 3.1**). As part of the proposed modification, Holcim is seeking approval for both the initial rail siding and unloader configuration and, if required, to construct the rail unloader and siding arrangement currently approved to cater for longer trains. In this event, Holcim would construct the rail sidings and unloading facility as outlined in the 2005 EA, including all relevant environmental controls such as the approved noise walls.



Source: Holcim and Google Earth 2010

0 100 200 250m
1:5000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout with altered Long Rail Siding Arrangement

FIGURE 3.1

Indicative Modified RDC Layout with altered Long Rail Siding Arrangement

Construction

Construction will be undertaken 7am to 6pm Monday to Friday and 8am to 1pm Saturday. No work on Sunday or Public Holidays. The modifications to the RDC do not result in any significant change to the construction equipment fleet or activities. The construction activities are typically divided into the following series of phases being:

- Site establishment;
- Site mobilisation;
- Construction; and
- Demolition.

The equipment will typically consist of mobile plant such as truck excavators and hand tools.

It is expected that construction of the RDC will take approximately two years.

3.2 Details of Proposed RDC Modifications

A comparison between the approved RDC and the proposed modifications is provided in **Table 3.1**. As illustrated in **Table 3.1**, many of the key features of the RDC remain unchanged.

Table 3.1– Comparison of Currently Approved RDC and the Proposed Modifications

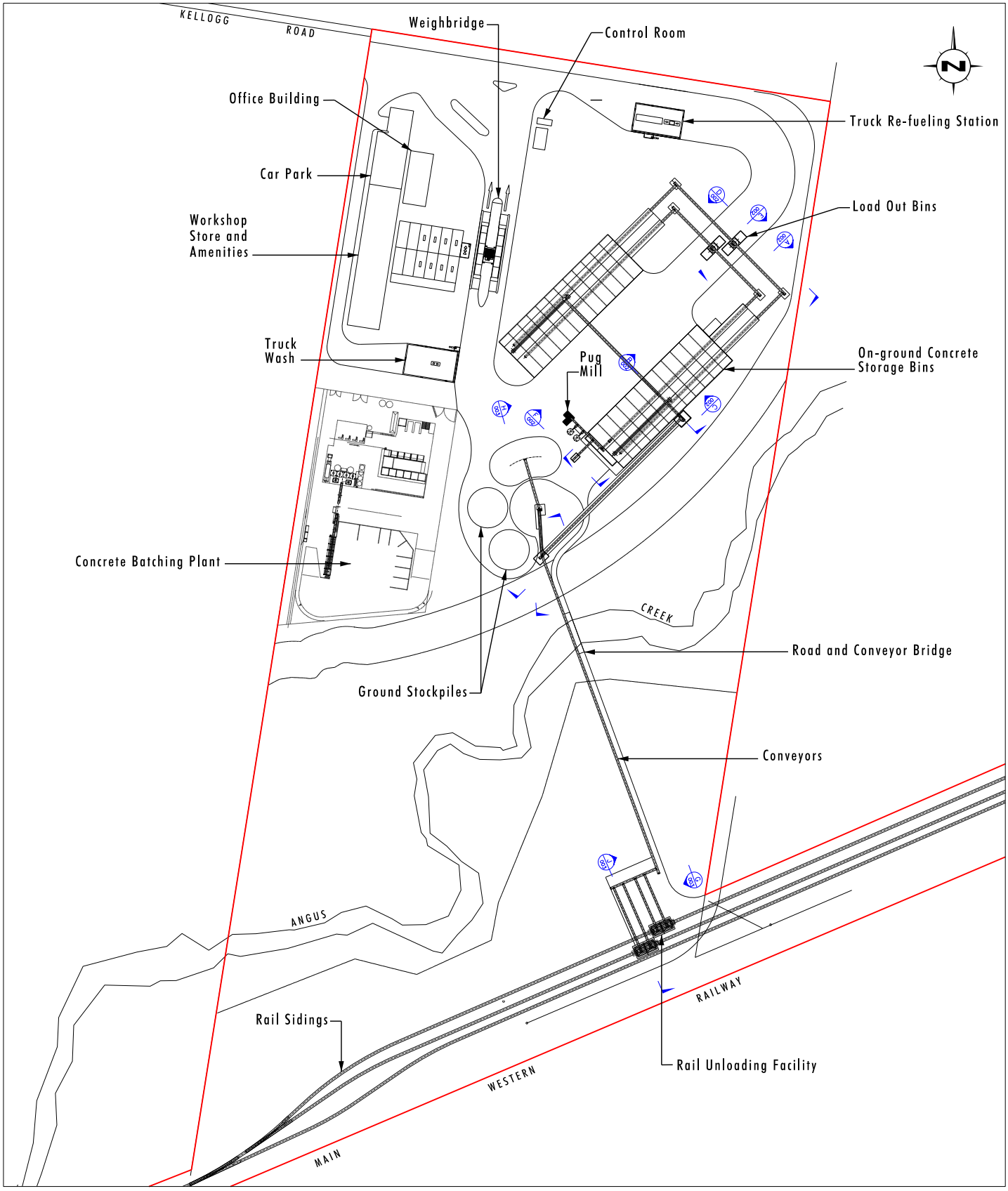
Major Project Components/Aspects	Currently Approved RDC	Proposed Modifications
Production Capacity	4 Mtpa saleable product.	No change
Mode of Transport	Receive up to 4 Mtpa of quarry product by rail and distribute up to 4 Mtpa of product by road.	No change
Hours of Operation	24 hours per day, 7 days per week. Restrictions on some operations to minimise potential noise impacts.	No change
Hours of Construction	Construction activities for the RDC will occur between the hours of 7.00 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm on Saturdays.	No change
Employment	Employment at maximum production of approximately 250 people	No change
Construction Phase	Approximately two years of construction. Employment of approximately 220 construction personnel.	No change
Infrastructure	As shown on **Figure 1.3**.	Changes to infrastructure layout as shown on **Figure 3.1** and design changes as specified in **Table 3.2**.

Major Project Components/Aspects	Currently Approved RDC	Proposed Modifications
Traffic	400 heavy vehicles dispatched from the site on average a day Traffic and access routes specified in the EA	No change

As indicated in **Table 3.1** and **3.2**, the proposed changes to the RDC relate to the site infrastructure layout and some minor changes to the plant and equipment (refer to **Figures 3.2** to **3.5**). The proposed changes have resulted from Holcim's detailed review of the approved RDC layout that identified economic, operational and some environmental benefits in modifying the approved RDC. The proposed changes to the approved RDC infrastructure and other project components are detailed below in **Table 3.2**. Additional detail on the key changes proposed is provided in **Sections 3.2.1** to **3.2.4**. As the project is implemented, some further minor refinements of the layout of the indicative site infrastructure may occur as part of the final engineering and construction processes, however, these minor refinements will not result in changes to the components, overall footprint or impacts of the site infrastructure.

Table 3.2 – Proposed Modifications to the Approved RDC

Approved RDC Component	Proposed Modifications
Rail Siding (Initial Phase)	• Reduce length of rail siding during initial phase rail siding will not extend to Rooty Hill station (refer to **Section 3.2.1**) • Reduced number of sidings (from 4 to 3) in initial phase • Minor change to layout during initial phase • Reduction in train payload capacity during initial phase • No requirement for Noise walls at Rooty Hill Station during the initial phase
Rail Unloader (Initial Phase)	• Change configuration of unloading bins (refer to **Section 3.2.1**) • Reduced depth and extent of excavation • Change in location – move to the east as indicated on **Figure 1.3**
Conveyors and Transfer points	• Adjusted location to suit new plant layout
Radial Stacker	• Increased capacity of on ground storage from 5000 tonnes to 7500 tonnes • Remove reclaim hopper
Materials Storage and reclaim	• Change from elevated steel bins to on ground concrete storage bins (height reduced from 33.5 metres to approximately 23 metres and a reduced length from approximately 126 metres to approximately 73 metres) refer to **Section 3.2.2**) • Replace above ground reclaim conveyor with below ground system • Remove ground storage bins that were located west of the bins
Concrete Batching Plant	No change
Truck Loadout	• Minor change in location
Pugmill	• Change in location



Source: Holcim (2010)

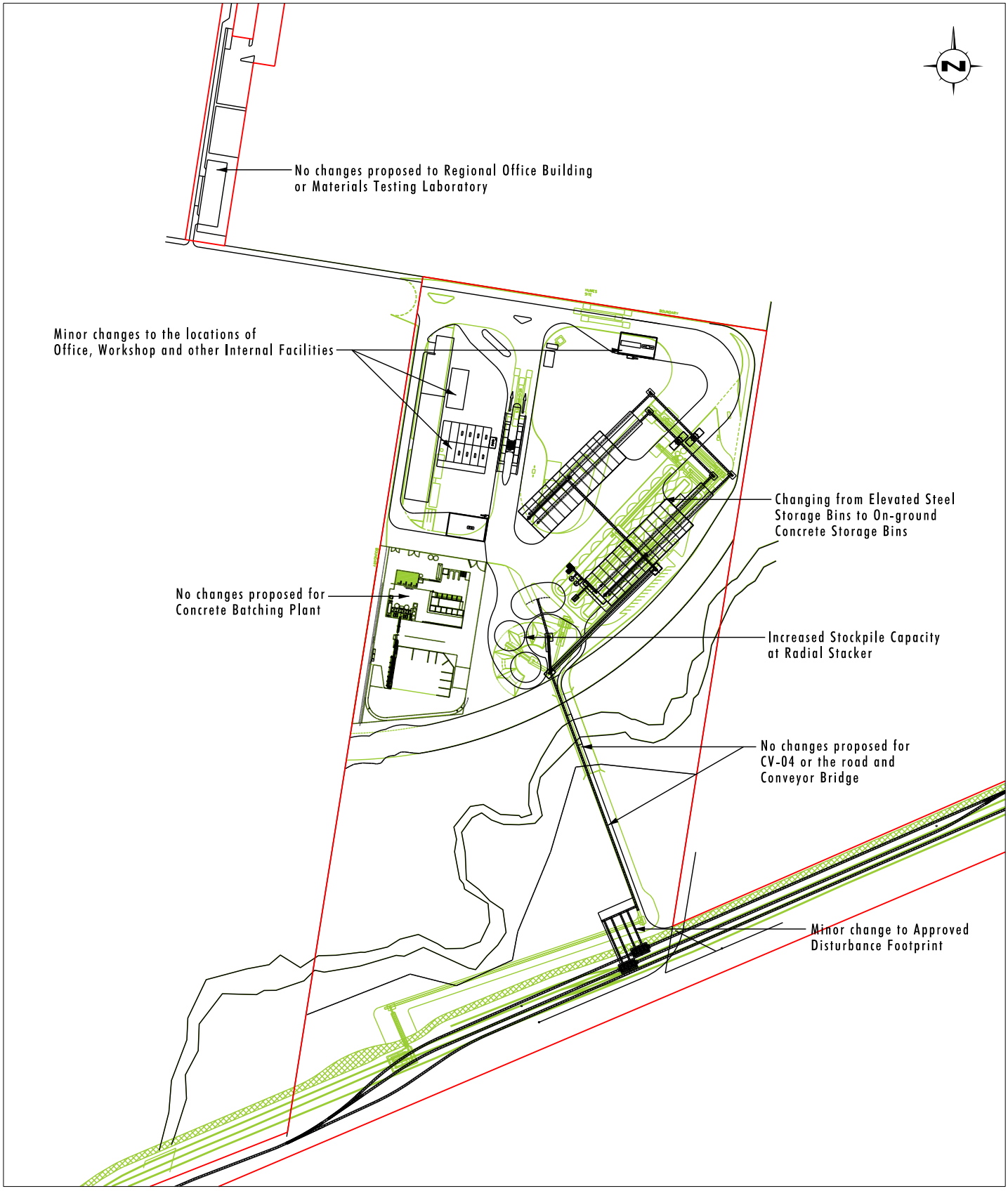
0 50 100 150m
1:3000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout

FIGURE 3.2

Schematic of Indicative Modified RDC showing Cross Section Locations



Source: Holcim (2006, 2010)

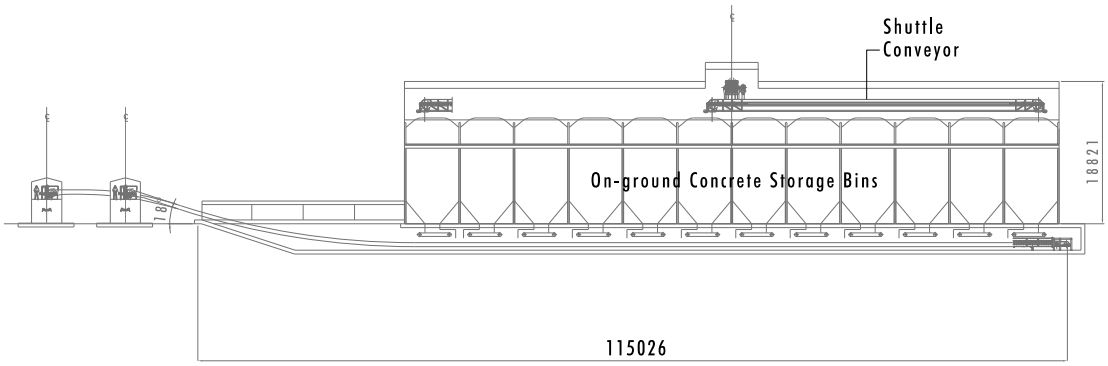
0 50 100 200m
1:4000

Legend

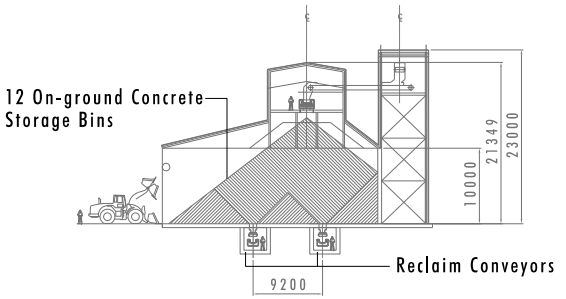
- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Approved RDC Layout

FIGURE 3.3

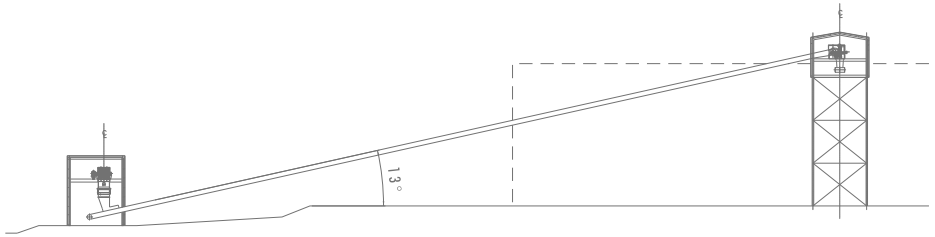
Approved RDC Layout Compared to Indicative Modified RDC



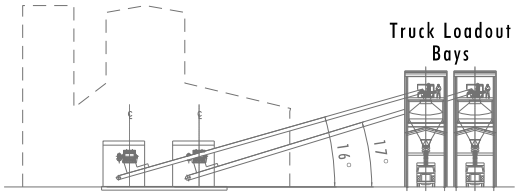
Section A



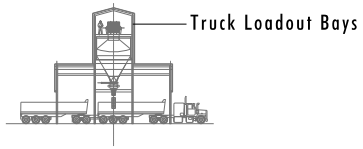
Section B



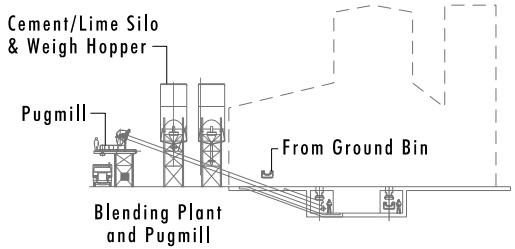
Section C



Section D



Section E



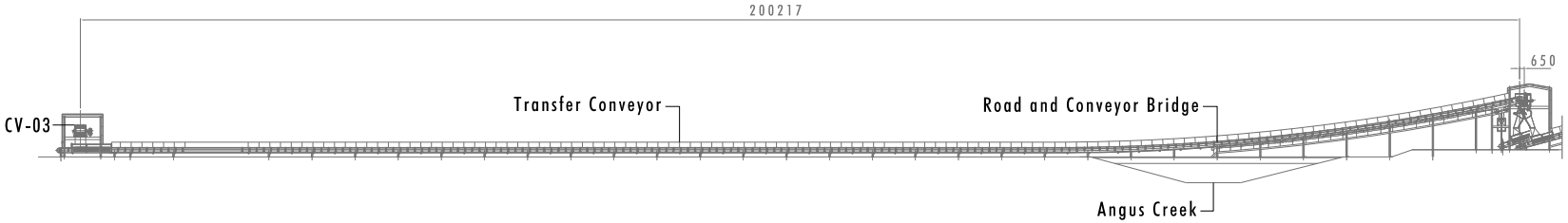
Section F

FIGURE 3.4

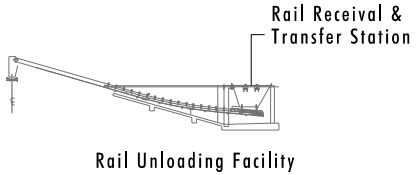
Indicative On-ground Concrete Storage Bin and Truck Loadout Bay Sections

Note: Not to scale, dimension are in millimetres

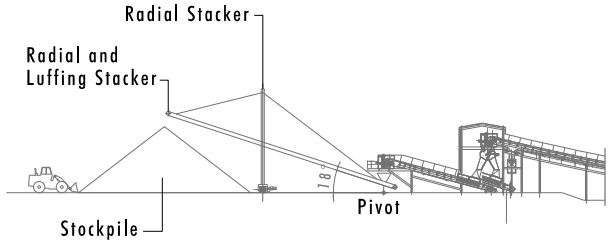
File Name (A4): R02_V1/2802_037.dgn



Section G



Section J



Section H

FIGURE 3.5

Indicative RDC Rail Unloading and Radial Stacker Sections

Note: Not to scale, dimension are in millimetres

File Name (A4): R02_V1/2802_038.dgn

Approved RDC Component	Proposed Modifications
	• Additional ground bin
Weighbridges, Workshop, Offices, Re-fuelling, Truck Wash Bay	• Change in Location
Regional Office Building, Materials Testing Laboratory and car parking	No Change
Road and Rail Bridges	No change
North Parade	• Blacktown City Council is closing North Parade and has a contract for sale with Holcim for Holcim to purchase this land. The road will no longer be relocated.
Car, Truck Parking, and other Services	• Changed to match new layout

3.2.1 Rail Siding and Unloading Station

During the initial phase of the Modified RDC project it is proposed to shorten the rail sidings to 1100 metres in length. The shortened rail siding would not extend down to Rooty Hill station as currently approved and would commence to the east of the M7 underpass. The rail siding would comprise three rail tracks running parallel to and on the northern side of, the Main Western Railway Line.

It is proposed to connect the rail sidings to the existing rail network on the eastern side of the M7 Motorway and at the currently approved eastern Angus Creek rail crossing location. The proposed shortened rail sidings would require Holcim to reduce the train payload capacity for this initial phase of the project. The proposed sidings will cater for two trains on the siding at any given time, each with approximately 36 wagons. Each Wagon will be capable of carrying approximately 77.5 tonnes of quarry product. The trains would have two locomotives. The trains are proposed to have a reduced total pay load capacity of approximately 2,780 tonnes of quarry product per train.

With the approved larger train payload capacity it was anticipated that an average of four train deliveries would be required per day to reach 4 Mtpa. During the initial phase of the Modified RDC it is proposed to reduce the train payload capacity. An average of approximately nine train deliveries will be required every two days in order to reach 4 Mtpa with the proposed smaller train size. Should Holcim not be able to achieve 4 Mtpa with the smaller payload trains due to a limited number of rail line slots then it will construct the currently approved rail unloader and rail siding configuration in order to accommodate larger trains (refer to **Figure 3.1**).

As Holcim no longer needs to relocate North Parade due to it being closed by Blacktown City Council, there has been a minor change in the alignment of the approved longer rail unloader and siding arrangement when compared to the original concept design. This minor change in alignment has resulted in the longer rail siding arrangement no longer requiring any construction on OneSteel land. The revised longer rail siding is shown on **Figure 3.1**.

As part of the proposed modification, Holcim is seeking approval for both the initial rail siding and unloader configuration and, if required, to construct the rail unloader arrangement currently approved with the longer siding to cater for longer trains. In this event, Holcim would construct the rail sidings and unloading facility as outlined in the 2005 EA, with a minor change in the alignment, including all relevant environmental controls such as the approved noise walls.

Under the initial configuration, the rail unloading station will be located further east of the currently approved location approximately in the middle of the shortened rail siding to allow for train unloading. This change in location would result in a very minor change to the approved disturbance footprint (of approximately 0.09 hectares). The unloading station will remain enclosed on three sides and be open at either end to allow trains access. The shortened siding would comprise two rail unloading points within the rail unloading enclosure. The provision of two rail unloading points is a necessary contingency measure, should there be a malfunction with one of the unloading points the second point will enable continued unloading of trains. Only one of these unloading points will be used at any one time.

The rubber curtains on either end of the rail unloading enclosures are proposed to be removed. This is due to further investigation indicating that the curtains will not function as originally planned and would be quickly damaged by trains making this ineffective. The curtains were originally planned to reduce dust and will be replaced with water-sprays that will be used when unloading. The reduced size of the trains will allow a reduction to the excavation depth of the rail unloader from 9 metres to less than 4 metres in depth during construction. The holding capacity of each bin will be reduced to approximately 78 tonnes (1 wagon) per bin.

The dry dust capture systems approved for use in the rail unloading facility and all building enclosures on-site are proposed to be removed as part of the RDC modifications and replaced with water sprays throughout. That is, within the rail unloading facility and building enclosures water sprays will be used to minimise potential dust emissions associated with the unloading process and materials handling.

3.2.2 Aggregate Storage and Outload Facilities

As part of the Modified RDC it is proposed to change from the approved elevated steel materials storage bins to on-ground concrete material storage bins. The two rows of bins will have a combined capacity of 60,000 tonnes. The storage capacity will be approximately 3 - 4 days sales for the Sydney Metropolitan area.

Each bin would have a 2,500 tonne capacity depending on the material being stored. The storage bins would stand approximately 23 metres in height, which is approximately 10 metres less than the steel storage bins that form part of the approved RDC design.

As part of the Modified RDC, the concrete storage bins would store blended products rather than all single sized products. In addition it is proposed to operate a below ground reclaim conveyor system. The below ground system would feed material from the concrete storage bins to the truck loading facility for load-out to road trucks for delivery to customers. The ground storage bins that were located west of the bays are no longer required and will not be constructed.

3.2.3 Radial Stacker

The radial stacker is a contingency measure and will only be used if there is a malfunction with the loading of the main storage bins. For assessment purposes it has been assumed that the radial stacker will be operating for 10% of the time.

During a loading malfunction, quarry product would be diverted to the radial stacker where it would be stockpiled in the ground storage area. Water sprays would be used while the radial stacker is operating as a dust suppression measure. The stockpiled quarry product will then be loaded by front end loader into trucks for distribution to customers.

3.2.4 North Parade

As part of the approved RDC, Holcim proposed to relocate North Parade and build New North Parade. At the time of approval Blacktown City Council desired to maintain access to North Parade, accordingly Holcim proposed to relocate it so that it could continue to be used. Since approval of the RDC Holcim has held ongoing discussions with Blacktown City Council regarding the future of North Parade. As an outcome of these discussions, Blacktown City Council is in the process of closing North Parade. As Blacktown City Council has elected to close the road, North Parade would not be relocated as part of the modified RDC. Holcim and Blacktown City Council are in the process of finalising an agreement for Holcim to purchase the land occupied by North Parade.

3.3 The Need and Justification for the Modified RDC

Aggregates, concrete, sands, road base and other products used in the construction industry will be supplied from the RDC to Sydney customers. About half of the construction materials produced in NSW is used in the Sydney-Wollongong-Newcastle region (DPI, 2007). The continued high demand for construction materials in the Sydney region is due to the increasing population growth and need for ongoing construction of infrastructure such as roads, buildings and other facilities.

The primary sources of coarse aggregates for the Sydney region are river gravel from PLDC scheme, basalt from the Peats Ridge-Kulnura area and latite from the Kiama-Shellharbour region. The largest producer of coarse aggregates and medium to coarse grained sand is the PLDC scheme; this is where Holcim currently source much of its construction materials for supplying the Sydney market. The PLDC scheme is approaching closure due to the exhaustion of quarry product from the site and is expected to cease operation in the next few years. The nearing exhaustion of quarries near Sydney in the short to medium term has led to Holcim and other suppliers of the construction industry to search farther afield to identify alternative sources.

Holcim has identified significant deposits of suitable geological material in the Southern Tablelands region of NSW and in 2005 gained approval to construct and operate the new Lynwood Quarry, near Marulan. The new Lynwood Quarry will be a significant contributor of quarry product to the RDC and is expected to be operational by 2013.

The positioning of new quarries outside of the immediate Sydney area necessitates that quarry products be transported to Sydney for distribution to customers. The RDC provides a facility that will receive, store, blend and distribute these bulk construction materials (sand /aggregate) to the Sydney market.

The use of the rail system is the preferred solution for the bulk transport of quarry product to the RDC, as it allows for the use of the existing rail infrastructure, is cost effective and has less potential safety and environmental impacts when compared to road transport. The approved Rooty Hill site for the RDC provides a unique opportunity to access both the rail infrastructure and the Sydney M7 Motorway for product distribution and is located in an existing industrial area proximate to local markets, making it an ideal location for the RDC. In selecting the location of the RDC at Rooty Hill, key criteria were considered in the site selection process. Key site selection criteria include:

- Land size large enough to accommodate a RDC;
- Appropriate zoning of site i.e. industrial;

- Direct access to a main railway line;
- Near to a major transport route within Sydney region, ideally with direct road links to the Sydney Motorway network;
- Non-residential road links between the RDC site and a Motorway network to avoid potential impacts to residents;
- An RDC site with similar surrounding land use i.e. industrial; and
- The ability to manage likely environmental impacts resulting from building the RDC at a particular site.

The approved site of the RDC at Rooty Hill meets each of these criteria.

The RDC will also make a significant contribution to the local and regional economies through employment of 250 people during operations which at full capacity. During construction the project will also contribute to local employment, with peak construction phase employment of approximately 220 people. The capital expenditure during the construction phase of approximately $100M will also add significantly to the local and regional economies, further enhancing the economic benefits of the project.

3.3.1.1 Alternatives

A detailed assessment of alternatives to the approved RDC was undertaken as part of the original development assessment and approval process and document in the 2005 EA (NECS, 2005).

The key alternative that requires consideration in regard to the proposed modifications is the 'do nothing' alternative, that is, proceeding with the RDC as currently approved and not proceeding with the proposed modifications. This alternative is not considered desirable as the review process has identified opportunities to optimise the project resulting in operational and economic efficiencies, and also providing some improved environmental outcomes as indicated in **Section 6.0**. The RDC could proceed without the proposed modifications, however, the changes provide substantial benefits to Holcim and as demonstrated in **Section 6.0**, can be undertaken without resulting in significant environmental impacts and will provide some environmental benefits. In these circumstances, it is considered that the 'do nothing' alternative is not an appropriate alternative.

3.3.1.2 Justification for the Proposed Modification

As detailed in **Section 6.0**, the proposed modifications to the approved RDC will not result in any significant environmental impacts and will provide some environmental benefits when compared to the approved RDC. The proposed RDC modifications would result in improvements to the visual amenity of the facility, and will generally reduce the noise and air quality impacts of the project on surrounding areas when compared to the approved RDC.

The RDC will play a crucial role in the ongoing security of supply of construction materials to the Sydney market, given the approaching closure of the PLDC scheme that currently supplies a significant proportion of Sydney's construction materials. The implementation of the RDC project is part of Holcim's long-term strategy for supplying construction materials into Sydney from surrounding regional areas using the rail network, a more efficient transport option than road haulage. The proposed modifications to the RDC will optimise the project resulting in operational and economic efficiencies, and providing substantial benefits to Holcim.

The RDC will make a significant contribution to the local and regional economies through employment of 250 people during operations which at full capacity. During construction the project will also contribute to local employment, with peak construction phase employment of approximately 220 people. The capital expenditure during the construction phase of approximately $100M will also add significantly to the local and regional economies, further enhancing the economic benefits of the project. The project will also make an ongoing contribution during operations through the payment of wages, annual operating expenditure, and through payment of State and Commonwealth taxes and fees.

These significant benefits of the project and the need for the project were recognised by the NSW Minister for Planning when the project was approved in 2006.

The proposed modifications to the RDC will not change any of the benefits of the project and as discussed above, will result in improved environmental outcomes when compared to the approved RDC.

4.0 Stakeholder Consultation and Issues

4.1 Original Approval Process

4.1.1 Consultation during Original Approval Process

A high level of consultation was undertaken as part of the original development assessment and approval process. The consultation program is outlined in detail in the 2005 EA (NECS, 2005) and involved three key phases:

- **Phase 1:**
  - Planning Focus Meeting; and
  - Identification of stakeholders.
- **Phase 2:**
  - Website information;
  - State government presentations;
  - Community Newsletters;
  - Phone survey of community attitudes to the project;
  - Briefing and site inspection for key stakeholders;
  - Identification of stakeholder issues and concerns; and
  - Community information office in Rooty Hill.
- **Phase 3:**
  - Management of consultation database.

4.1.2 Issues Raised by Stakeholders during Original Approval Process

Consultation with stakeholders undertaken as part of the original development assessment and approvals process identified a number of issues that stakeholders felt needed to be addressed for the RDC project. These issues included:

- transport and traffic generation;
- increased train movements near Rooty Hill and Doonside Stations;
- surface water runoff and stormwater impacts;
- flooding and floodway issues;
- stormwater management;
- air quality impacts;
- noise impacts;

- land use conflicts including proximity of the RDC to the Nurragingy Reserve, the picnic areas and Blacktown Olympic Centre;
- ecological impacts;
- visual amenity; and
- economic benefits.

These previously raised issues have been considered in the preparation of this EA assessing the Modified RDC project.

4.2 Proposed Minor Modification Consultation

4.2.1 Consultation Methods

The consultation program for the proposed Modified RDC aimed to inform stakeholders about the project and provide opportunities for feedback and involvement in the assessment process. The first phase of consultation was undertaken to inform stakeholders about the proposed modifications, seek their feedback, provide them with contact details should they wish to be involved in the assessment process and to identify any issues of concern to be investigated and addressed as part of this process. The second phase of consultation involves providing stakeholders with an overview of the findings of the EA and again providing opportunities for feedback and to contact key personnel to discuss the project or any identified issues.

The consultation program included the distribution of two community newsletters. The first community newsletter was distributed to all residents within a 1 kilometre radius of the RDC site (approximately 1000 residences) in early August 2010. This first newsletter described the proposed modifications, the environmental assessment process, provided contact details and provided an opportunity for feedback through a feedback form. The newsletter also offered an opportunity for individual meetings if residents wanted more information on the proposed RDC modifications. Nine feedback forms were received from Rooty Hill and Doonside residents. An overview of the issues raised is provided in **Section 4.2.2**. The newsletter was also distributed to BCC, local businesses and other relevant stakeholders.

The second newsletter will be distributed to the same recipients as the first newsletter during the adequacy review process. This newsletter will outline the assessments undertaken as part of the EA process, summarise the results of these assessments and provide an opportunity for further feedback, including another offer for individual meetings

Government authority consultation was also undertaken for the proposed modifications including meetings with the Department of Planning (DoP), meetings with Blacktown City Council and individual agency meetings or discussions. This consultation included:

- a meeting with DoP on 7 June 2010 to present an overview the proposed RDC modifications, the planned approval path and approach to the environmental assessment;
- a meeting with BCC on 7 July 2010 to present an overview the proposed RDC modifications, the planned approval path and approach to the environmental assessment;
- a further meeting with BCC on 27 August 2010 to present an overview of the assessment findings; and

- a meeting with the Western Sydney Parklands Trust on 8 September 2010 to discuss the proposed modifications and the assessment findings, and specifically the management of issues relevant to Nurragingy Reserve.

An offer was also made to meet with Blacktown Olympic Centre to discuss the proposed modifications and the assessment findings, however, Blacktown Olympic Centre representatives advised that they did not require a meeting at this time but would like to be kept updated regarding progress of the project.

Holcim has also consulted with the relevant infrastructure owners regarding the proposed modifications and plans for implementation of the RDC project including Alinta and Railcorp and has briefed the adjoining businesses to the RDC site (OneSteel and Humes).

4.2.2 Issues Raised by Stakeholders

The key issues raised by the community during the consultation process for the modified RDC include the following:

- Concerns the modification will result in an increase in truck numbers and will result in damage to local roads;
- Concern that the noise associated with an increased number of heavy vehicles, operation of the RDC and rail (particularly from shunting at night) will impact negatively on local residents;
- Potential contamination of groundwater;
- Concerns that air quality (dust) will impact negatively on the Nurragingy Reserve and local residents;
- Concerns regarding health impacts to local residents (from noise and dust); and
- the 24 hour 7 days per week operation of the facility.

The consultation undertaken by Holcim did not identify any further specific issues to be addressed in the EA other than the issues identified in the risk assessment process discussed in **Section 6.1** and assessed in the balance of **Section 6.0**. As discussed in **Sections 3.0** and **6.1**, the proposed modifications will not result in any changes to the approved traffic arrangements or volumes.

In summary, the key environmental aspects to be considered in this EA are ecology, greenhouse gas, water resources, air quality, noise, visual amenity and hazard. These issues are addressed in **Section 6.0**.

5.0 Planning Context

The following sections assess the applicability of the relevant Commonwealth and State legislation and planning provisions to the proposed modified RDC.

5.1 Commonwealth Legislation

A summary of the Commonwealth legislation potentially relevant to the Modified RDC is provided below.

5.1.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC ACT)

Under the Commonwealth EPBC Act, approval from the Commonwealth Minister for Environment Protection, Heritage and the Arts (Commonwealth Minister) is required for any action that may have a significant impact on matters of national environmental significance. These matters are:

- World Heritage properties;
- National heritage places;
- Ramsar wetlands of international significance;
- Cetaceans, migratory species, threatened species, critical habitats or ecological communities listed in the EPBC Act;
- Commonwealth land, marine areas or reserves; and
- Nuclear actions.

If a proposal is likely to have an impact on a matter of national environmental significance then it may be a controlled action and should be referred to the Commonwealth Minister for consideration.

The original RDC project was referred in March 2005 to the Commonwealth Minister for assessment under the EPBC Act. The original RDC project was referred due to the impacts associated with clearing 1.4 hectares of Cumberland Plain Woodland (CPW) a Critically Endangered Ecological Community (CEEC). This referral resulted in the RDC being deemed not to be a controlled action.

The provisions of the EPBC Act which are potentially relevant to the modified RDC are those which relate to migratory species, threatened species, and ecological communities listed under the EPBC Act.

Threatened species and ecological communities

There is one Critically Endangered Ecological Community (CEEC), being Cumberland Plain Woodland (CPW), listed in the Schedules of the EPBC Act which has been recorded in the RDC site. The 2005 EPBC referral for the original RDC project resulted in the RDC being deemed not to be a controlled action associated with impacts on this community.

A total of 13 listed EPBC Act migratory species were found to have the potential to occur within the RDC site. Of the 13 migratory species listed, none were recorded during the ecological survey (refer to **Section 6.4**). Assessments were undertaken for threatened and

migratory species listed under the EPBC Act with the potential to occur in the study area. The assessment concluded that the proposed minor modifications to the RDC are not likely to have a significant impact on these matters of national environmental significance listed under the Schedules of the EPBC Act (refer to **Section 6.4**).

In addition, the RDC site is not situated within, or adjacent to any Commonwealth land, marine areas or reserves. The proposed minor modifications to the RDC will not impact on any Ramsar wetlands and the proposal does not include nuclear actions.

On this basis, the Modified RDC is not considered likely to have a significant impact on any matters of NES and therefore will not require approval from the Commonwealth Minister.

5.1.2 Native Title Act 1993

The Commonwealth *Native Title Act 1993* (Native Title Act) is administered by the National Native Title Tribunal. The Tribunal is responsible for maintaining a register of native title claimants and bodies whom native title rights have been granted. The Act prescribes that native title can be extinguished under certain circumstances, including the granting of freehold land. Areas of land within the RDC site where native title may not have been extinguished include public road reserves and Crown land.

A search of the National Native Title Tribunal register was undertaken on 9 July 2010 for the Blacktown Local Government Area (LGA). The results of the search show that there is one active native title application in the Blacktown LGA. Certain activities, including the granting of freehold land extinguish native title. In regard to the RDC site, the majority of the land is freehold land and therefore native title is extinguished. There are, however, areas of Crown land associated with the main western railway and the North Parade road reserve. The appropriate processes under the Native Title Act will need to be considered in relation to these areas.

5.2 New South Wales Legislation

5.2.1 Environmental Planning and Assessment Act 1979

As outlined in **Section 1.0,** a modification to the 2006 Project Approval is sought under Section 75W of the EP&A Act. The 2006 Project Approval was granted under Part 3A of the EP&A Act as it is of a class of development listed in Schedule 1 of the State Environmental Planning Policy (SEPP) (Major Projects) 2005. As the 2006 Project Approval was granted under Part 3A of the EP&A Act, Section 75W is the appropriate statutory path to provide for the proposed minor modifications to the RDC.

Section 75R(1) of the EP&A Act provides that environmental planning instruments, other that SEPPs, do not apply to Major Projects under Part 3A of the Act, except as regards to permissibility. A discussion of the permissibility of the project is therefore included below.

Permissibility under Blacktown Local Environmental Plan 1988

The Blacktown Local Environmental Plan 1988 (the LEP) is relevant to the permissibility of the proposed modified RDC. Section 75J(3)(b) of the EP&A Act and clause 8O of the Environmental Planning & Assessment Regulation 2000 provide that the Minister cannot approve the carrying out of a project that would be wholly prohibited under an environmental planning instrument.

Under the LEP the RDC is zoned Industrial 4(a) (refer to **Figure 5.1**). Part of the Rail Sidings fall within the Main Western Railway Line that is zoned 5(a) - Special Uses.

The Modified RDC is consistent with the objectives of the Industrial 4(a) and Special uses 5(a) zones and is permissible with development consent. In addition, a portion of the rail sidings to the east fall within land covered by the State Environmental Planning Policy (Western Sydney Parklands) 2009. Under this SEPP the Modified RDC may be carried out in the Western Parklands but only with development consent.

Other Approvals

In addition to approval under Part 3A of the EP&A Act, the Modified RDC may also require approvals under a number of additional Acts or assessment under State Environmental Planning Policies.

Under Section 75U of the EP&A Act, if the Modified RDC is granted project approval under Part 3A of the EP&A Act, the following approvals, which may otherwise have been relevant, will not be required to carry out the project (refer to **Table 5.1**).

Table 5.1 - Approvals Legislation which does not apply

Act	Approval
Fisheries Management Act 1994 (FM Act)	Permit for works or structures within a waterway
Heritage Act 1977 (Heritage Act)	Disturbance to an item listed on State Heritage Register or Interim Heritage Order; Excavation permit
National Parks & Wildlife Act 1974 (NP&W Act)	Preliminary research permit; consent to destroy relics
Water Management Act 2000 (WM Act)	Water use approval, water management work approval or activity approval

If the Modified RDC is granted approval under Section 75W of the EP&A Act, the following approvals, which will be required for the Modified RDC, must be issued in a manner that is substantially consistent with the terms of the Project approval (refer to **Table 5.2**).

Table 5.2 – Approvals/Legislation to be applied consistently

Act	Approval	Authority
Protection of the Environment Operations Act 1999 (PoEO Act)	Environmental Protection Licence	Department of Environment and Climate Change (DECCW)
Roads Act 1993 (Roads Act)	Permit to impact on a public road	Local roads – Blacktown Council

5.2.2 Other Legislation

The provisions of the following Acts relating to the environment and planning are potentially relevant to the RDC.

5.2.2.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is administered by DECCW and establishes the procedures for issue of licences for environmental protection including waste, air, water and noise pollution control. The owner or operator of a premises

Source: Holcim and Google Earth 2010

0 100 200 400m
1:8000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- 2(a) - Residential
- 3(a) - General Business
- 4(a) - General Industrial
- 5(a) - Special Uses
- 6(a) - Public Recreation
- State Environmental Planning Policy (Western Sydney Parklands) 2009

FIGURE 5.1

Zoning

that is engaged in scheduled activities is required to hold an Environment Protection Licence (EPL) and comply at all times with the conditions of that licence.

The RDC is a scheduled activity and therefore requires an EPL.

Holcim has not yet applied for the required EPL for the RDC. It will apply to DECCW for the EPL prior to construction of the RDC, with the EPL application incorporating the proposed modifications, if approved.

5.2.2.2 Roads Act 1993

The *Roads Act 1993* is administered by either the Roads and Traffic Authority (RTA), local Council or the Department of Lands. The RTA has jurisdiction over major roads, the local Council over minor roads and the Department of Lands over Crown Roads. Under Section 138 of Part 9, Division 3 of the Act, a person must not undertake any works that impact on a road, including connecting a road (whether public or private) to a classified road, without approval of the relevant authority.

As discussed in **Section 3.0**, Blacktown City Council now proposes to close North Parade. An approval under this Act will be not required from Blacktown City Council to undertake the works associated with the RDC once the closure of the road is finalised.

As discussed in **Section 2.0**, as part of the approved RDC project Holcim will be undertaking works on Kellogg Road and Woodstock Avenue. These works will require approvals under the Roads Act, however there are no changes to these works proposed as part of the proposed modifications to the RDC.

5.2.2.3 Water Act 1912

As part of the construction of the RDC groundwater is expected to be intercepted during excavation of the rail unloader and underground conveyors. A licence under Part 5 of the *Water Act 1912* will be required for groundwater interception and management as part of construction activities for the RDC. As discussed in **Section 3.0**, the location of the unloading facility and associated conveyors are proposed to be moved further east. As discussed in **Section 6.5**, this change in location is not expected to change the impact on groundwater resources.

5.2.2.4 Crown Lands Act 1989

The *Crown Lands Act 1989* provides for the administration and management of Crown land in the eastern and central divisions of the state. Crown land may not be occupied, used, sold, leased, dedicated, reserved or otherwise dealt with unless authorised by this Act or the *Crown Lands (Continued Tenures) Act 1989*.

The Minister may grant a 'relevant interest', such as a lease, licence or permit, over Crown land for the purpose of any infrastructure, activity or other purpose that the Minister thinks fit. The Main Western Railway Line is defined as Crown Land and it is currently managed by RailCorp. Holcim will continue to progress discussions with RailCorp regarding access to the Main Western Railway Line.

5.2.2.5 Environmentally Hazardous Chemicals Act 1985

The DECCW is granted power under the *Environmentally Hazardous Chemicals Act 1985* to assess and control chemicals and declare substances to be chemical wastes. Part 3 Division 1 Clause 10(1) defines chemical wastes as:

> '…any chemical substance (including any mixture) is or is likely to be stored in accumulating deposits or dumped or abandoned or otherwise dealt with as chemical waste, the Authority, by order published in the Gazette, may declare that substance to be a chemical waste for the purposes of this Act.'

As the input streams to the modified RDC are not waste products and the by-products from the modified RDC are proposed to be reused either within the facility or transported off site for reuse, the *Environmentally Hazardous Chemicals Act 1985* is not applicable.

5.2.3 State Environmental Planning Policies

5.2.3.1 State Environmental Planning Policy (Major Projects)

As discussed in **Section 5.2.1,** the Major Projects SEPP establishes that development for the purposes of distribution and storage facilities is development to which Part 3A of the EP&A Act applies. Therefore with the permission of the Minister for Planning, the proposed modifications to the RDC can be assessed as a under Section 75W of the EP&A Act.

5.2.3.2 State Environmental Planning Policy (Western Sydney Parklands)

The rail sidings to the east of the RDC are located on land covered by the State Environmental Planning Policy (Western Sydney Parklands) 2009. The aim of this SEPP is to put in place planning controls that will enable the Western Sydney Parklands Trust to develop the Western Parklands into a multi-use urban parkland for the region of western Sydney by:

> (a) …
> (b) allowing for a range of commercial, retail, infrastructure and other uses consistent with the Metropolitan Strategy, which will deliver beneficial social and economic outcomes to western Sydney, and …

Transport is a critical element of the Metropolitan Strategy. The Metropolitan Strategy identifies that as Sydney grows and new industries and resources are developed, the transport of raw materials and finished goods will need to be supported by efficient and appropriate freight transport. The Metropolitan Strategy specifically encourages the greater use of rail for construction materials via the development of freight strategies for the movement of construction materials (section D6.1.1).

The use of rail as the means of transporting construction material to the RDC and by association the construction of the siding is consistent with the Metropolitan Strategy and therefore the Western Sydney Parklands SEPP.

5.2.3.3 State Environmental Planning Policy 33 Hazardous and Offensive Development

SEPP No. 33 – Hazardous and Offensive Development requires the consent authority to consider whether an industrial proposal is a potentially hazardous industry or a potentially offensive industry. A hazard assessment was completed for the 2005 EA to assist the consent authority to determine acceptability. The hazard assessment identified that the modified RDC is not potentially hazardous. Subject to Project Approval being granted, Holcim will apply for an EPL from DECCW. Given the modification relates to an already approved project, it is considered that an EPL will be obtained and the modified RDC does not constitute an 'offensive industry' as defined by SEPP 33. On this basis, the Modifications to the RDC are not expected to result in the RDC facility being classed as hazardous or offensive facility (refer to **Section 6.9**).

5.2.3.4 State Environmental Planning Policy 44 Koala Habitat Protection

SEPP 44 applies to the extent that in any LGA which is listed in the SEPP, the relevant council is restricted from granting development consent for proposals on land identified as core koala habitat without preparation of a plan of management. Blacktown is not listed on Schedule 1 of the SEPP and therefore the SEPP is not relevant to the modified RDC.

5.2.3.5 State Environmental Planning Policy 55 (Remediation of Land) 1998

SEPP No. 55 requires the consent authority to consider whether the land on which the proposal will be undertaken is contaminated. Furthermore, if the land is contaminated, whether it is suitable for the purpose of the proposed development and if the land requires remediation to be made suitable for the purpose of the proposed development.

The RDC site is not subject to any remediation orders and SEPP 55 does not place any restrictions on the project.

5.2.3.6 Regional Environmental Plans

As of July 1 2009, regional environmental plans (REPs) are no longer part of the hierarchy of the environmental planning instruments in NSW (NSW DoP, 2010). The removal of REPs is intended to simplify the planning system in NSW. All existing REPs, including the Sydney REP detailed below, are now deemed to be SEPPs. DoP is reviewing all remaining REPs as part of the NSW planning system reforms.

Sydney Regional Environmental Plan No 20 – Hawkesbury-Nepean River (No 2 – 1997)

This REP applies to land within nine LGAs in the Greater Metropolitan Region of Sydney; this includes land within the Blacktown LGA. The aim of this plan is to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context.

The relevant consent authority, in this case the Minister for Planning must take into account general planning considerations, specific planning policies and recommended strategies listed under Part 2 of the REP. Specific planning policies to be considered are:

1) Total Catchment Management

   Total Catchment Management is to be integrated with environmental planning for the catchment.

2) Environmentally Sensitive Areas

   The environmental quality of environmentally sensitive areas must be protected and enhanced through careful control of future land use changes and through management and (where necessary) remediation of existing uses.

3) Water Quality

   Future development must not prejudice the achievement of the goals of use of the river for primary contact recreation (being recreational activities involving direct water contact, such as swimming) and aquatic ecosystem protection in the river system. If the quality of the receiving waters does not currently allow these uses, the current water quality must be maintained, or improved, so as not to jeopardise the achievement of the goals in the future. When water quality goals are set by the Government these are to be the goals to be achieved under this policy.

4) Water Quantity

   Aquatic ecosystems must not be adversely affected by development which changes the flow characteristics of surface or groundwater in the catchment.

5) Cultural Heritage

   The importance of the river in contributing to the significance of items and places of cultural heritage significance should be recognised, and these items and places should be protected and sensitively managed and, if appropriate, enhanced.

6) Flora and Fauna

   Manage flora and fauna communities so that the diversity of species and genetics within the catchment is conserved and enhanced.

7) Riverine Scenic Quality

   The scenic quality of the riverine corridor must be protected.

8) Agriculture/aquaculture and fishing

   Agriculture must be planned and managed to minimise adverse environmental impacts and be protected from adverse impacts of other forms of development.

9) Rural residential development

   Rural residential development should not reduce agricultural sustainability, contribute to urban sprawl, or have adverse environmental impacts (particularly on the water cycle or on flora or fauna).

10) Urban Development

    All potential adverse environmental impacts of urban development must be assessed and controlled.

11) Recreation and tourism

    The value of the riverine corridor as a significant recreational and tourist asset must be protected.

12) Metropolitan Strategy

    Development should complement the vision, goal, key principles and action plan of the Metropolitan Strategy.

The approved RDC project is consistent with these planning policies and has been designed to limit the impact of the project on environmental values. The proposed minor modifications are not predicted to change this outcome (refer to **Section 6.0**).

Part 3 of the REP sets out the development controls applicable to specified items or types of development. Under Clause 11 of the REP development that is classified as hazardous and offensive development, as defined in SEPP 33, is prohibited. Assessment under SEPP 33 has been undertaken for both the approved RDC and for the modified RDC as outlined in this EA. Based on these assessments the RDC is not classified as a hazardous or offensive development under SEPP 33 (refer to **Section 6.9**). Therefore, the Modified RDC is not *"Prohibited"* development under Clause 11 of the REP.

6.0 Environmental Assessment

6.1 Identification of Key Environmental Assessment Issues

An environmental risk assessment was undertaken for the modified RDC to identify the key issues that required updating and/or additional detailed assessment as part of EA process. The method used for the environmental risk assessment encompassed the following key steps:

1. Identify the modifications to the RDC ;

2. Identify environmental and community aspects and potential risks associated with the modifications;

3. Analyse risks; and

4. Evaluate risks to determine the key issues requiring further assessment.

The primary aim of the risk assessment was to determine which environmental aspects require updated or additional assessment during this EA process.

6.1.1 Identification of Key Environmental Assessment Issues

Identification of the key environmental issues that would require assessment as part of this modification were based on consideration of:

- the findings of the 2005 EA;
- the scale and potential impact of the modifications;
- outcomes of the previous and current stakeholder consultation; and
- the planning and environmental context for the modified RDC .

6.1.2 The Risk Analysis

The outcomes of the risk assessment identified that no further assessment is required for the following aspects for the following reasons:

- **Aboriginal Archaeology:** The aboriginal archaeological assessment undertaken for the 2005 EA included:
  - literature and databases searches; and
  - a survey of the entire RDC site with Aboriginal representatives.

  No sites were identified as during the searches and RDC site survey and the Aboriginal stakeholders did not identify any cultural issues on the RDC site. No further assessment is therefore required;
- **Traffic:** Traffic volumes and access arrangements are consistent with the approved RDC. The modified RDC does not result in any changes to the traffic arrangements or volumes of the approved RDC;
- **Aquatic Ecology:** The creek crossings will be undertaken as per the approved RDC and therefore there will be no changes to impacts on the riparian zones; and

- **Waste:** there will be negligible if any change to the volume of waste generated during the construction or operation of the modified RDC.

The risk assessment however, identified that further assessment was required for the following aspects for the following reasons:

- **Noise:** The predicted noise levels associated with the approved RDC were close to the allowable levels nominated in the 2006 project approval at some locations. Any change to the operational methodology and / or equipment and / or layout used could change the noise levels generated by the RDC and as such, an updated detailed noise assessment has been undertaken.

- **Air:** Any change to the operational methodology and / or equipment used and / or layout could adversely impact the air quality levels generated by the RDC and as such, an updated detailed air quality assessment has been undertaken.

- **Ecology:** Cumberland Plain Woodland a Critically Endangered Ecological Community (CEEC), River-flat Eucalypt Forests an Endangered Ecological Community (EEC), *Grevillia Juniperina (*listed as venerable under the *Threatened Species Conservation Act 1995* (TSC Act)) and the Cumberland Land Snail (listed as threatened under the TSC Act) are present on the RDC site. Modification to the disturbance footprint may potentially impact these values and therefore a detailed ecological assessment of the proposed modification has been undertaken.

- **Water Resources:** Design changes to the rail sidings and the rail unloading facility have the potential to impact on groundwater and/or surface water, including flooding. Therefore, an updated assessment of the potential flooding, groundwater and surface water impacts was undertaken.

- **Greenhouse Gas Emissions:** Significant changes to the greenhouse gas assessment methodology have occurred since the approval of the RDC in 2006. A revised assessment has therefore been undertaken.

- **Visual Amenity:** Significant design changes are proposed, including the relocation of the rail unloader and the use of on ground concrete storage bins in lieu of the elevated steel storage bins which will reduce the maximum height of these facilities by approximately 10 metres. The potential visual impact of the modified RDC may be significantly different, as such, a revised visual assessment has been undertaken.

- **Hazard:** The 2005 EA identified that the construction of the RDC has the potential to impact the operation of the Sydney to Newcastle High Pressure Natural Gas Pipeline. The project approval conditions require Holcim to undertake a Final Hazard Analysis for the project to assess potential hazards. A hazard analysis was therefore undertaken to identify the potential hazards and the safeguards to be implemented.

- **Socio economic:** the modification does not result in any change to the construction or operational workforces or the expenditure expectations detailed in the 2005 EA, however, the overall socio economic impacts of the RDC project incorporating the proposed modifications has been undertaken.

6.2 Noise

A comprehensive noise assessment has been undertaken by Heggies Pty Ltd (Heggies). This section provides a summary of the key findings of the assessment, with the full assessment included in **Appendix 2**.

6.2.1 Existing Acoustic Environment

The 2005 EA determined the background noise levels at two potentially affected residential locations, being Station Street, Rooty Hill (daytime LA90 of 47 dBA) and Crawford Road, Doonside (daytime LA90 of 40 dBA) (refer to **Table 6.1**). Operator attended noise measurements were undertaken during the daytime at the residential locations and Nurragingy Reserve. This monitoring was undertaken before the M7 motorway came into operation and is therefore considered to be conservative as the traffic on the M7 is expected to have increased noise levels in areas surrounding the motorway.

Table 6.1 – Background Noise Levels

Location	Period	Background L_{A90} Noise Level	Measured L_{Aeq} (period)	Estimated Existing Industrial Contribution L_{Aeq}
		Rating Background Level		
54 Station Street, Rooty Hill	**Morning Shoulder**	42	61	44
	Day	47	60	<54
	Evening	43	57	48
	Night	38	55	44
11 Crawford Road, Doonside	**Morning Shoulder**	39	54	<39
	Day	40	57	<54
	Evening	40	60	<44
	Night	38	49	<39

This monitoring indicated that traffic is the main contributor to ambient noise levels at each residential location. The results also indicate that noise from existing rail operations and local traffic contribute significantly to ambient noise in the Nurragingy Reserve.

As there are no proposed changes to the road movements to or from the RDC as a result of the RDC modification, these were not reassessed as part of this assessment. In regard to rail movements, should there be sufficient train slots available on the rail line for Holcim to reach the approved RDC capacity of 4 Mtpa using the shorter train arrangement, there will be in average daily train movements from 4 to 4.5 trains per day. With the longer train arrangement, there will be no change. The noise assessment in the 2005 EA (NECS 2005) found that in the increase in rail traffic as a result of the RDC would result in a negligible increase in noise impacts from rail traffic, with the predicted increase to the $L_{Aeq(24\ hr)}$ being <0.5 dBA. This increase was assessed as not being discernible. The increase in average daily movements with the shorter siding arrangement of 0.5 trains per day would not change this outcome and would not result in significant noise impacts.

6.2.2 Assessment Criteria

The noise assessment was prepared in accordance with the NSW Industrial Noise Policy (INP), and with reference to the Environmental Noise Control Manual (ENCM) and the Interim Construction Noise Guideline.

6.2.2.1 Construction Noise Criteria

The potential noise impacts associated with the construction of the modified RDC have been assessed in accordance with the Interim Construction Noise Guideline, DECCW 2009.

The construction phase is expected to continue for a period of up to 2 years. It is recognised that noise levels could be higher during the construction phase than during normal operational phase, due to differing activities. As described in **Section 3.0** the construction activities for the modified RDC will occur during the standard daytime hours in accordance with Project Approval condition 2.2. The construction criteria from the Interim Construction Noise Guideline are presented in **Table 6.2**.

Table 6.2 – DECCW Construction Noise Criteria, dB(A)

Construction Time	Construction Noise Criterion LAeq, 15 minute
Recommended standard hours Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	RBL + 10 dB
Outside recommended standard hours	RBL + 5 dB

Based on the background noise levels and the Interim Construction Noise Guidelines the project specific noise goals for the construction of the RDC at residential areas are presented in **Table 6.3**.

Table 6.3 – Construction Noise Goals - Residential Areas

Construction Period	Construction Noise Goal (LAeq(15minute))[1]	
	Location 1 (Station Street)*	Location 2 (Crawford Road)
Noise affected	57 dBA	50 dBA
Highly noise affected	75 dBA	75 dBA

1. Applicable between the hours of 7.00 am and 6.00 pm Monday to Friday, and 8.00 am to 1.00 pm Saturdays.

* These criteria have also been adopted at Mavis Street residences.

The relevant construction noise goal for the Nurragingy Reserve is LAeq(15minute) 60 dBA and for Blacktown Olympic Centre is 65 dBA.

6.2.2.2 Operational Noise Criteria

The project specific noise criteria identified as part of the previous noise assessment have been used as part of this assessment and are reproduced in **Table 6.4** and **Table 6.5**.

Table 6.4 – RDC Project Specific Noise Criteria

Location	Period	Intrusiveness Criteria LAeq(15minute)	Amenity Criteria LAeq(Period)	Project Specific Noise Criteria
Location 1 (Station Street)	Morning Shoulder	47 dBA	52 dBA	47 dBA
	Day	52 dBA	60 dBA	52 dBA
	Evening	48 dBA	46 dBA	46 dBA
	Night	43 dBA	45 dBA*	43 dBA
Location 2 (Crawford Road)	Morning Shoulder	44 dBA	52 dBA	44 dBA
	Day	45 dBA	60 dBA	45 dBA
	Evening	45 dBA	50 dBA	45 dBA
	Night	43 dBA	45 dBA	43 dBA
Nurragingy Reserve	When in use - day and evening periods only	N/A	Acceptable 50 dBA Recommend Max. 55 dBA	50 dBA 55 dBA max.
Colebee Centre	When in use	N/A	Acceptable 50 dBA Recommend Max. 55 dBA	50 dBA 55 dBA max.
Blacktown Olympic Centre	When in use	N/A	Acceptable 55 dBA Recommend Max. 60 dBA	55 dBA 60 dBA max.

*This criterion was determined as per the INP for assessment in areas of high traffic noise.
Day 7.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night 10.00 pm - 7.00 am; Morning Shoulder 6.00 am - 7.00 am
On Sundays and Public Holidays, Day 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night 10.00 pm - 8.00 am

DECCW has not developed a specific criteria to address sleep disturbance. However, in a noise guide for local government, DECCW identified that sleep may be disturbed if the $L_{A1,60\ seconds}$ or L_{Amax} noise level exceeds the L_{A90} background noise level by more than 15 dBA when measured outside the bedroom window. Further guidance on the potential for 'awakening reactions' is provided in DECC's Environmental Criteria for Road Traffic Noise (EPA, 1999), which states that internal maximum noise levels below 50-55 dBA are unlikely to cause awakening reactions. Based on the adopted night time RBL, the sleep disturbance for the Project at residential locations is detailed in **Table 6.4**.

Table 6.5 – Sleep Disturbance Noise Goals

Location	Period	Measured Background Noise Level (LA90)	Sleep Disturbance Noise Goal
Station Street*	Morning Shoulder	40 dBA**	55 dBA
	Night	38 dBA	53 dBA
Crawford Road	Morning Shoulder	43 dBA	58 dBA
	Night	38 dBA**	53 dBA

*Sleep disturbance noise goals for Station Street were adopted at Mavis Street residences.
** These background noise levels are the *lowest* LA90 recorded during the noise monitoring survey and thus provide a conservative assessment of the likelihood of sleep disturbance.

Notwithstanding the preceding, the noise criteria specified in the Project Approval are the criteria imposed on the Approved RDC. These criteria take into consideration the Project Specific Noise Criteria, however, in most cases they are lower, that is, they are more stringent (refer to **Table 6.6**).

Table 6.6 – Operational Noise Criteria

Location	Morning Shoulder 6am -7am Monday to Saturday and 6 am – 8am Sundays and Public Holidays	Day 7am-6pm Monday to Saturday and 8 am – 6pm Sundays and Public Holidays	Evening 6 pm- 10pm Monday to Sunday	Night 10pm -7am Monday to Saturday and 10pm – 8am Sunday	
	LAeq(15minute) dBA	LAeq(15minute) dBA	LAeq(15minute) dBA	LAeq(15minute) dBA	LA1(1minute) dBA
Any residences in Station Street	39	44	44	39	53
Any residences in Crawford Road	40	40	39	39	53
Any residences in Mavis Street	35	35	35	35	53
Nurragingy Reserve	When the reserve is in use – LAeq 50 dBA				
Colebee Centre	When the centre is in use – LAeq 50 dBA				
Blacktown Olympic Centre (Active recreation areas)	When active recreation areas of the centre are in use – LAeq 55 dBA				

6.2.3 Noise Modelling Methodology

6.2.3.1 Noise Modelling

Noise levels for the modified RDC have been calculated using the Environmental Noise Model (ENM). This model has been endorsed by DECCW for environmental noise assessment. ENM takes account of noise attenuation due to geometric spreading, atmospheric absorption, shielding and the effect of acoustically soft ground. It can also be used to predict noise levels under various meteorological conditions, defined by a combination of temperature gradient, wind speed and wind direction. The model has been used to determine the level of noise at nominated locations i.e. point sources and generate noise level contours using sound power level data for all relevant items of plant and equipment as detailed in the noise impact assessment (refer to **Appendix 2**). The sound power levels adopted are based on currently feasible, reasonable and achievable noise

emissions levels. Data from the Mamre Road, St Marys weather stations was used to derive the various meteorological conditions used in the model. This station is located approximately 8 kilometres from the RDC site and was used for the noise assessment in the 2005 EA (NECS, 2005).

Temperature inversions are an important atmospheric factor that influences noise impacts. This results from variations in temperature occurring in layers in the atmosphere that can increase noise impacts. The INP includes a methodology for estimating the effect of inversions, however the noise modelling for the modified RDC has considered existing temperature inversion conditions. As a result, the calculated noise levels more accurately reflects expected noise impacts, in comparison to the default industrial noise policy temperature inversion assumptions which would otherwise apply.

Single point noise predictions have been made with and without the radial stacker as the radial stacker will only be used in the event of equipment malfunction, expected to be less than 10 per cent of the time. It has been assumed that the main storage bins will not be loaded when the stacker is in operation.

6.2.4 Noise Impact Assessment

6.2.4.1 Construction Noise Impacts

Construction of the modified RDC will be undertaken over a period of approximately 2 years. The predicted noise levels from the construction activities at representative receiver locations are provided in **Table 6.7**. These noise levels were predicted assuming all noise barriers associated with the rail siding and along the northern boundary of the RDC site are in place.

Table 6.7 – Construction Noise Predictions - Residential Areas

Construction Plant and Equipment Location	Highest LAeq Noise Level Expected at Nearest Residential Area	Construction Noise Goal (LAeq(15minute))	
		Noise Affected	Highly Noise Affected
Eastern boundary RDC	40 dBA at Crawford Road	50 dBA	75 dBA
Western boundary RDC	30 dBA at Station Street	57 dBA	75 dBA
Southern boundary RDC	39 dBA at Station Street	57 dBA	75 dBA
Eastern end of rail siding	40 dBA at Crawford Road	50 dBA	75 dBA
Western end of rail siding	51 dBA at Mavis Street	57 dBA	75 dBA

All of the predicted construction noise levels are below the relevant assessment criteria for each residential location, assuming the proposed noise walls are in place. There may be short periods of time, while noise barriers are being constructed where construction noise levels exceed the Noise Affected goals at residential receivers, however, the predicted construction noise levels will be below the Highly Noise Affected goals at all times.

The Nurragingy Reserve and Blacktown Olympic Centre are predicted to experience construction noise levels below the relevant assessment criteria, with the exception of when heavy construction equipment is operating on the eastern boundary of the RDC (which adjoins the reserve boundary) where the noise level at Nurragingy Reserve is predicted to

potentially exceed the criteria by up to 1 dBA. This exceedance of the noise criteria is considered minor and a change in noise level of 1 dBA is highly unlikely to be detectable by the human ear.

6.2.4.2 Predicted Operational Noise Levels

The predicted noise levels for the modified RDC (with and without the radial stacker operating) have been modelled for calm and prevailing weather conditions, (temperature inversion, easterly and south-south-westerly meteorological conditions) The predicted $L_{Aeq(15minute)}$ and $L_{Aeq\ (9\ hour)}$ noise levels from the operation of the modified RDC with and without the radial stacker operating have been assessed against the project specific and project approval criteria for the shoulder, day, evening and night time periods. The radial stacker is a contingency measure and will only be used if there is a malfunction with the loading of the main storage bins. It is assumed that the radial stacker will be operating for 10% of the time.

The predicted $L_{Aeq(15\ minute\ )}$ noise levels associated with night time operation of the modified RDC (with and without the radial stacker operating) are shown in **Table 6.8**. For comparison purposes predicted noise levels from the previous noise assessment have been provided in brackets ( ). While **Figure 6.1** shows the predicted night-time $L_{Aeq(15\ minutes\ )}$noise contours. The $L_{Aeq(15\ minutes\ )}$ noise levels represent the worst case scenario as they are associated with night time temperature inversions and the most stringent criteria thus these predictions have been presented in the main text. Results for all scenarios modelled are provided in **Appendix 2**.

Table 6.8 – Predicted modified RDC night time Noise Levels – With and Without Radial Stacker

Predicted Night Time Noise Level LAeq(15 Minutes) (dBA)				
Temp. Inversion				
	Without Radial Stacker	With Radial Stacker	Project Specific Noise Criteria (LAeq	Consent Conditions - PA 05_0051 (LAeq)
Location 1 (Station St)	36 (39)	36 (39)	43 dBA	39 dBA
Location 2 (Crawford Rd)	36 (37)	36 (37)	43 dBA	39 dBA
Mavis Street	33 (33)	33 (33)	43 dBA	35 dBA
Nurragingy Reserve	n/a	n/a	50 dBA	50 dBA
Colebee Centre	46 (47)	46 (47)	50 dBA	50 dBA
Blacktown Olympic Centre	51 (52)	51 (52)	55 dBA	55 dBA

n/a: the meteorological condition is not relevant during this period

Operational noise levels are predicted to meet both the project specific and project approval noise criteria at all residential locations, Nurragingy Reserve, the Colebee Centre and Blacktown Olympic Centre under all modelled meteorological conditions.

The predicted noise impacts for the modified RDC are in most cases less than, and in some cases equal to, the noise impacts for the approved RDC at all residential locations surrounding the site (refer to **Figure 6.2**). The predicted noise impacts for the modified RDC are generally below or similar to the impacts predicted for the approved RDC at the Nurrangingy Reserve, Colbee Centre and Blacktown Olympic Centre.

Source: Holcim and Google Earth 2010

0 100 250 500m
1:10 000

Legend
- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Noise Contour
- Noise Wall

FIGURE 6.1

Predicted Night Time Amenity (LAeq[15minute])
Noise Contour - Temperature Inversion
(without Radial Stacker)

Source: Holcim and Google Earth 2010

0 100 200 400m
1:9000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Noise Contours for the Approved RDC
- Noise Contours for the Modified RDC
- Noise Wall

FIGURE 6.2

Comparison of Predicted Night Time (LAeq[15minute]) Temperature Inversion Noise Contours for Approved RDC and Proposed Modified RDC

6.2.4.3 Cumulative Noise Impact Assessment

As discussed in **Section 1.0**, there are a number of industrial land uses in close proximity to the RDC site that have been considered in the assessment of potential cumulative noise impacts, via their inclusion in the measured backgrounds noise levels.

Since the background noise levels were determined in 2005, the adjacent OneSteel operation has been granted a modification to its 1994 consent. The modification involves increasing the maximum production rate of steel billet from 570,000 tonnes per annum (tpa) to 750,000 tpa, increasing the maximum production rate of rolled product from 310,000 to 400,000 tpa and increasing the maximum number of daily truck movements from 500 to 600 movements.

The increase in production is a result of improvements in the efficiency of steel making on the site with only minor changes to the production process. Any additional noise due to the modification of the OneSteel facility is therefore expected to be primarily associated with the additional on site truck movements. As OneSteel operates 24 hours per day, seven days a week, this equates to an additional four truck movements per hour.

The background noise levels measured as part of the 2005 EA found that

> "…traffic was the main contributor to ambient noise levels at the sampled residential areas. Nurragingy Reserve is currently affected by existing rail noise and local traffic. Some existing industrial operations also contributed to the current noise levels of the area in the vicinity of the RDC site."

The 2005 measures background noise levels therefore incorporated the OneSteel operations. The addition of four additional truck movements per hour as a result of the 2008 approval would provide a minimal contribution to the backgrounds noise levels, as the majority of the background noise sources have already been taken into account in the 2005 measurement. It is also noted that the noise levels of the modified RDC are generally 2-4 dBA below the project approval noise criteria and therefore the modified RDC in combination with other industrial sources is not expected to result in cumulative impacts, despite the inclusion of the additional truck movements per hour from OneSteel.

6.2.4.4 Sleep Disturbance

The major noise sources used at the RDC were used as inputs to the ENM acoustic model and predictions were made at the nearest residential areas in Station Street, Mavis Street[1] and Crawford Road under adverse weather conditions at night.

The highest LAmax noise level at any residential area is predicted to occur when trains are manoeuvring at the extremities of the rail siding in the presence of a temperature inversion. External noise levels up to LAmax 47 dBA may occur at some Station Street residences, up to 52 dBA at residences in Mavis Street and up to LAmax 50 dBA at Crawford Road residences in this situation. These noise levels are below the sleep disturbance noise goal for each location. The maximum noise levels produced during operation of the RDC are therefore not likely to cause sleep disturbance at the surrounding residential areas.

6.2.5 Noise Mitigation and Management

Holcim will prepare and implement an Operation Noise Management Plan (ONMP) in accordance with Condition 5.5 (a) of the Project Approval. The ONMP will form part of the

[1] Sleep disturbance criteria determined for Station Street residences has been adopted at Mavis Street, as per the original assessment in 2005 (NECS, 2005).

Operation Environmental Management Plan (OEMP) for the modified RDC and will incorporate the noise management controls to be implemented as part of the project including those outlined below.

Noise modelling of the modified RDC has identified that operation of the modified RDC will comply with the project approval noise criteria at all locations during the day, evening and night time periods, with the following design controls in place:

- all conveyor drives and transfer points will be enclosed or mitigated;
- the most eastern side of the truck load-out facility will be enclosed;
- noise walls will be constructed during the site establishment phase of construction (refer to **Figure 6.1** for noise wall locations); and
- plant design, specification and implementation to achieve the relevant noise criteria (see **Appendix 2**).

In addition to the above modelling, the following construction noise mitigation measures have been incorporated into the ENM and will be implemented as part of the project:

- During construction noisy equipment is to be situated behind structures that act as barriers or at distance from the noise-sensitive areas, where possible;
- Construction plant and equipment is to be maintained in good working order;
- During construction 'quiet' practices are to be employed when operating equipment e.g. unloading of trucks away from noise sensitive areas;
- Preparation and implementation of a Construction Noise Management Plan (CNMP) in accordance with Condition 5.3 (b) of the Project Approval. The CNMP will form part of the Construction Environmental Management Plan (CEMP) for the modified RDC; and
- Holcim will liaise with Blacktown City Council and the Western Sydney Parklands Trust regarding the management of construction noise impacts on Nurragingy Reserve.

Holcim is committed to achieving the noise mitigation outcomes achieved by the above management controls. As technological advances occur and through implementing operational management controls, Holcim may be able to achieve the same noise mitigation outcomes through alternative means. Holcim may therefore modify the above management controls in response to these technological advances or operational controls, provided that the same overall noise management outcomes are achieved.

6.3 Air Quality

A comprehensive air quality assessment has been completed for the Project by PAE Holmes and is provided in **Appendix 3**. A summary of the key findings is provided below.

6.3.1 Air Quality Assessment Criteria

The following section summarises the current air quality assessment criteria specified by DECCW for assessing impacts from proposed developments. These criteria relate to dust deposition and dust concentration.

Dust concentration refers to airborne dust and is measured in micrograms per cubic metre (µg/m³). Relevant criteria for dust concentration are defined in terms of two classes, total suspended particulates (TSP) and PM_{10}. TSP relates to all suspended particles which are usually in the size range of zero to 50 micrometres (µm). Particle sizes larger than 50 µm are typically measured in dust deposition levels. The human respiratory system has in-built defensive systems that prevent particles larger than approximately 10 µm from reaching the more sensitive parts of the respiratory system. PM_{10} refers to particulate matter with a diameter less than 10 µm. TSP measurements include PM_{10} particles.

Criteria for dust concentration are referred to as long term (annual average) and short term (24 hour maximum) criteria. The air quality criterion (excluding 24-hour PM_{10} which is project specific) relate to the total dust in the air and not just the dust from the Project. Therefore, background levels need to be considered when using these criterion to assess impacts.

Relevant TSP and PM_{10} criteria for are outlined in **Table 6.9**.

Table 6.9 – Air Quality Assessment Criteria for Particulate Matter Concentrations

Pollutant	Standard/ Criterion	Averaging Period	Agency
Total suspended particulate matter (TSP)	90 µg/m^3	Annual mean	National Health & Medical Research Council (NHMRC)
Particulate matter <10 µm (PM_{10})	50 µg/m^3	24-hour maximum	DECCW
	30 µg/m^3	Annual mean	DECCW
	50 µg/m^3	(24-hour average, 5 exceedances permitted per year)	National Environment Protection Measures (NEPM)

Dust deposition levels refer to the quantity of dust particles that settle out of the air as measured in grams per square metre per month (g/m²/month) at a particular location. In addition to health impacts, airborne dust also has the potential to cause nuisance impacts by depositing on surfaces. DECCW expresses dust deposition criteria in terms of an acceptable increase in dust deposition over the existing background levels and a total allowable cumulative level, as shown in **Table 6.10**.

Table 6.10 – DECCW Criteria for Dust Deposition

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

6.3.2 Existing Air Quality

The DECCW operate air quality monitoring stations at St Marys and at Prospect. Concentrations of PM_{10} are measured continuously at these sites using a Tapered Element Oscillating Microbalance (TEOM) and these data are available from the DECCW website. The Prospect monitoring station was commissioned in 2007.

The annual average PM_{10} concentration recorded for the years 2003 to 2009 at the St Marys site was 19, 17, 19, 20, 17, 15 and 23 µg/m^3 respectively. This is below the DECCW air quality criterion of 30 µg/m^3. The annual average PM_{10} concentration recorded for the years 2007 to 2009 at Prospect was 18, 18 and 26 µg/m^3 respectively. The 2009 data from St

Marys have been used in the dispersion modelling as this dataset was the most contemporary and complete dataset available.
Maximum 24-hour concentrations were above the DECCW 50 µg/m^3 criterion on a number of occasions at both the St Marys and Prospect sites. The highest 24-hour PM_{10} concentrations were generally measured in the warmer months of the year. It should be noted that during September 2009 a dust storm engulfed Sydney causing a maximum abnormally high reading (of 1661 µg/m^3 at the St Marys Station) when compared to the preceding years. This dust storm is also likely to be a key contributor to the elevated annual background dust levels measured in 2009.

The 2009 annual average PM_{10} value recorded at DECCW's St Marys site was adopted as the background concentration for the assessment, i.e. 23 µg/m^3.

Annual average TSP concentrations can be estimated from measured PM_{10} concentrations by assuming that 40% of the TSP is PM_{10}. The use of this relationship indicates that annual average TSP concentrations are in the order of 58 µg/m^{3,} which is less than the DECCW assessment criterion of 90 µg/m^3.

Annual average dust deposition levels can be estimated in a similar process to the method used to estimate TSP concentrations by assuming a TSP concentration of 90 µg/m^3 will have a corresponding dust deposition of 4 g/m^2/month. The use of this relationship indicates an annual average dust deposition of 2.6 g/m^2/month for the surrounding area.

From the review of monitoring data it has been assumed that the following background concentrations apply at the nearest residences:

- Annual Average TSP of 58 µg/m^3;
- Annual Average PM10 of 23 µg/m^3; and
- Annual Average dust deposition of 2.6 g/m^2/month.

6.3.3 Assessment Methodology

The Air Quality Impact Assessment (refer to **Appendix 3**) is based on procedures outlined in the 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW' (DEC, 2005). The assessment included the use of a Gaussian dispersion model AUSPLUME (version 6.0) to predict the off-site dust concentration and dust deposition levels, due to the proposed modified RDC and the existing background levels. AUSPLUME is a 'state of the art' model used throughout Australia and this is the model required for use by DECCW unless project characteristics dictate otherwise (DECCW, 2005).

All dust sources have been modelled assuming 24-hour per day operation with the plant and equipment operating at full capacity. The modelling has been performed using local meteorological data (and the dust emission estimates as outlined in **Appendix 3**).

For the purposes of this assessment it has been assumed that 10% of the 4 Mtpa would pass through the radial stacker. This assumption is considered to be conservative in estimating dust emissions as the use of the radial stacker is a contingency measure that would only be used on the rare occasion that there was a problem with the conveyors transporting material to the proposed on ground concrete storage bays.

The CBP has been assumed to operate at an annual production of 200,000 m^3/y, which is the approved maximum capacity of this facility.

As per Holcim's previous commitments for the RDC project a street sweeper will be employed to minimise dust emissions from vehicles travelling on-site. However, the calculated dust emissions for this assessment have not taken into account any reduction in dust emissions with the operation of a street sweeper due to the scientific uncertainty of the reduction achieved. Again, this is a conservative assumption.

Other project design controls included in the modelling assumptions are outlined in **Section 6.3.6.2**.

6.3.4 Air Quality Impact Assessment

6.3.4.1 Construction

The modified RDC will not result in any significant changes to the way the RDC would be constructed or the associated dust emissions, from what is already approved. Routine construction management techniques will be utilise to effectively minimise dust emissions, such that their impact is expected to be negligible.

6.3.4.2 Operation - Residential Area

The results of the predictive air quality modelling have identified that the Project will meet the relevant air quality criteria at all residential receiver locations. A summary of the predicted maximum air quality emissions for the operation of the modified RDC is as follows:

- the maximum annual average TSP concentration contribution from the modified RDC at the nearest residential area is less than 2 $\mu g/m^3$. Taking into account a background TSP concentration of 58 $\mu g/m^3$, the predicted cumulative TSP concentrations are significantly less than the DECCW criterion of 90 $\mu g/m^3$ at the nearest residential areas;

- the maximum 24-hour PM_{10} concentration contribution from the modified RDC predicted at the residential areas to the west and east are less than 10 $\mu g/m^3$.;

- the maximum annual average PM_{10} concentration contribution from the modified RDC predicted at the nearest residential areas is less than 2 $\mu g/m^3$, significantly less than the DECCW criterion of 30 $\mu g/m^3$;

- taking into account a background PM_{10} concentration of 23 $\mu g/m^3$, the predicted cumulative annual average PM_{10} concentrations are significantly less than the DECCW criterion of 50 $\mu g/m^3$ at the residential areas to the west and east of the modified RDC; and

- the maximum annual average dust deposition contribution from the modified RDC predicted at the nearest residential area is less than 0.1 g/m^2/month. Taking into account a background dust deposition level of 2.6 g/m^2/month this is significantly less than the DECCW criterion of 4 g/m^2/month.

As indicated in the above findings, the predicted dust emissions from the RDC will meet all relevant criterion, including considerations of existing dust levels.

6.3.4.3 Operation - Nurragingy Reserve

The modified RDC is predicted to exceed the maximum 24-hour PM_{10} concentration criterion of 50 $\mu g/m^3$, with the 50 $\mu g/m^3$ encroaching within a small area of Nurragingy Reserve to the north east of the RDC site (refer to **Figure 6.3**). The maximum 24-hour PM_{10} concentration are below the 50 $\mu g/m^3$ criterion for the majority of the Nurragingy Reserve including the

Source: Holcim and Google Earth 2010

0 100 200 400m
1:7500

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- 24 Hour PM_{10} Concentration Contours for the Modified RDC
- 24 Hour PM_{10} Criteria Contour for the Modified RDC

FIGURE 6.3

24 Hour PM_{10} Concentration Modified RDC

Colebee Centre. Visitors to Nurragingy Reserve can spend up to 12 hours in the in the area, as the reserve is closed at night. The dispersion model was, therefore, re-run to predict maximum 12 hour average PM_{10} concentrations, to show the likely concentrations during daytime hours when there would be visitors at the Nurragingy Reserve (refer to **Figure 6.4**). PM_{10} concentrations during the day time period peak at approximately 20 $\mu g/m^3$ in the areas adjacent to the RDC site which is below 50 $\mu g/m^3$ criterion, which is considered acceptable.

6.3.4.4 Operation - Blacktown Olympic Centre

No exceedences of air quality are predicted at the Blacktown Olympic Centre.

6.3.5 Comparison with Approved RDC Operations

Estimated dust emissions rates have been used to compare the performance of the approved and proposed modified RDC. Total dust emissions have been estimated by analysing the activities taking place at the RDC when operating at maximum capacity. These results are provided in full in **Appendix 5**.

The largest potential source of dust emissions from the RDC is from truck movements on-site (sealed roads). As part of the modified RDC, Holcim has reduced the total paved/asphalt area, thereby reducing the distance that heavy vehicles travel whilst on site and therefore emissions. Importantly, the RDC modifications will not alter the number of heavy vehicle movements on-site.

The proposed modification to the operational layout of the approved RDC results in a significant reduction in the total estimated dust emissions when operating at full capacity from 38,585 kg/yr to 33,126 kg/yr, this equates to a reduction of 5,459 kg/yr in dust emissions or 14.15% less when compared to the approved RDC. This reduction in total dust generation has resulted in minor reductions in the 24-hour PM_{10} concentrations, annual average PM_{10} concentrations, annual average TSP concentrations and annual dust deposition levels when compared to the approved RDC as shown on **Figures 6.5** to **6.8**. Therefore in summary, the predicted air quality impacts are similar to or slightly less than those of the approved RDC.

6.3.6 Conclusions and Mitigation Measures

6.3.6.1 Construction

Holcim will implement the following controls during construction of the modified RDC to minimise dust emissions associated with the modified RDC:

- Prepare and implement a Dust Management Plan in accordance with Condition 5.3 (d) of the Project Approval, to minimise and manage air quality impacts during construction of the modified RDC;
- minimising all disturbed areas and stabilisation by progressive rehabilitation/stabilisation as soon as practicable;
- clearly identifying and delineating areas required to be disturbed and ensuring that disturbance is limited to those areas;
- minimising the area of disturbance by restricting vegetation clearing ahead of construction activities;

Source: Holcim and Google Earth 2010

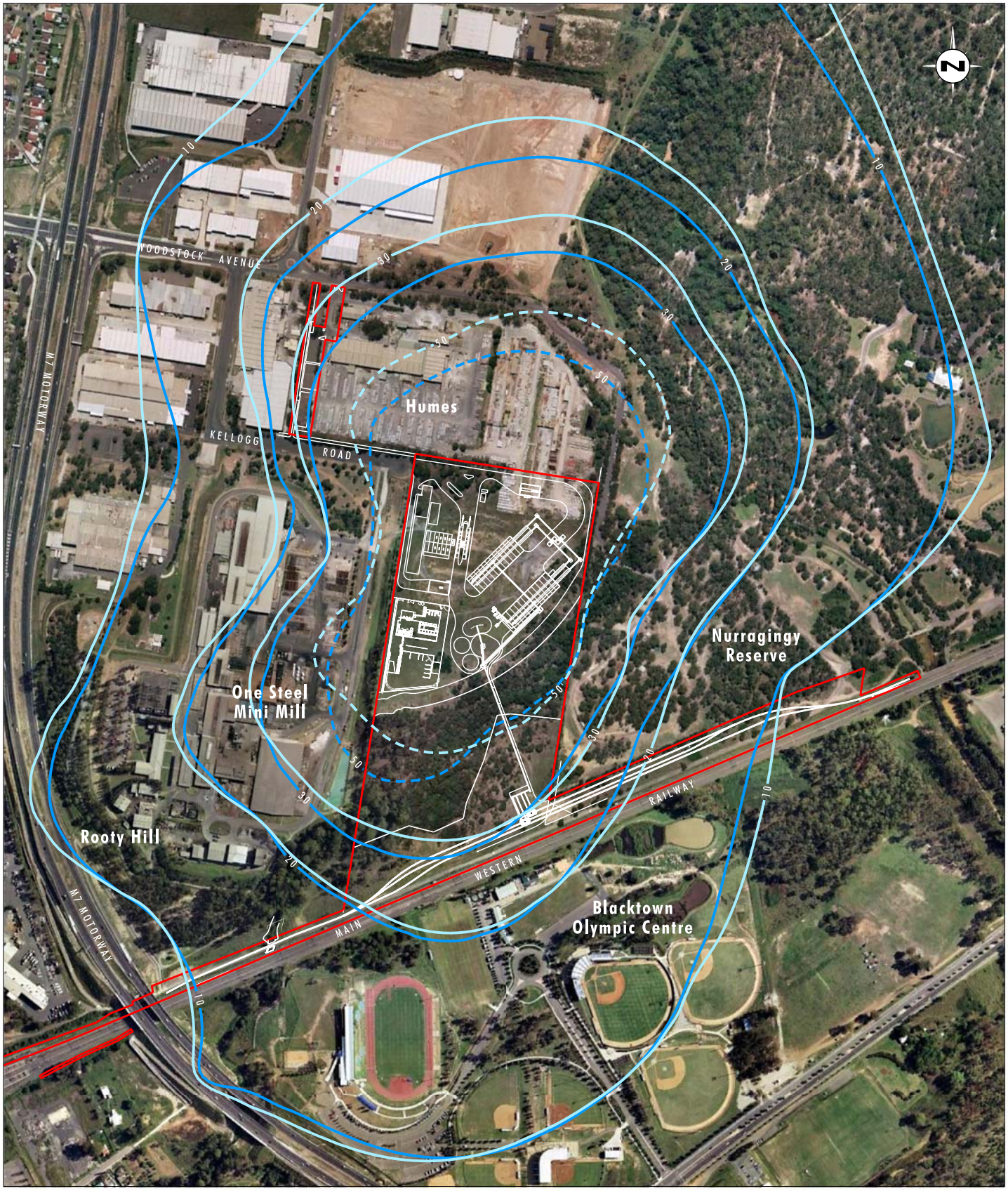
0 100 200 400m
1:7500

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- 12 hour PM_{10} Concentration Contours for the Modified RDC

FIGURE 6.4

12 Hour PM_{10} Concentration Modified RDC



Source: Holcim and Google Earth 2010

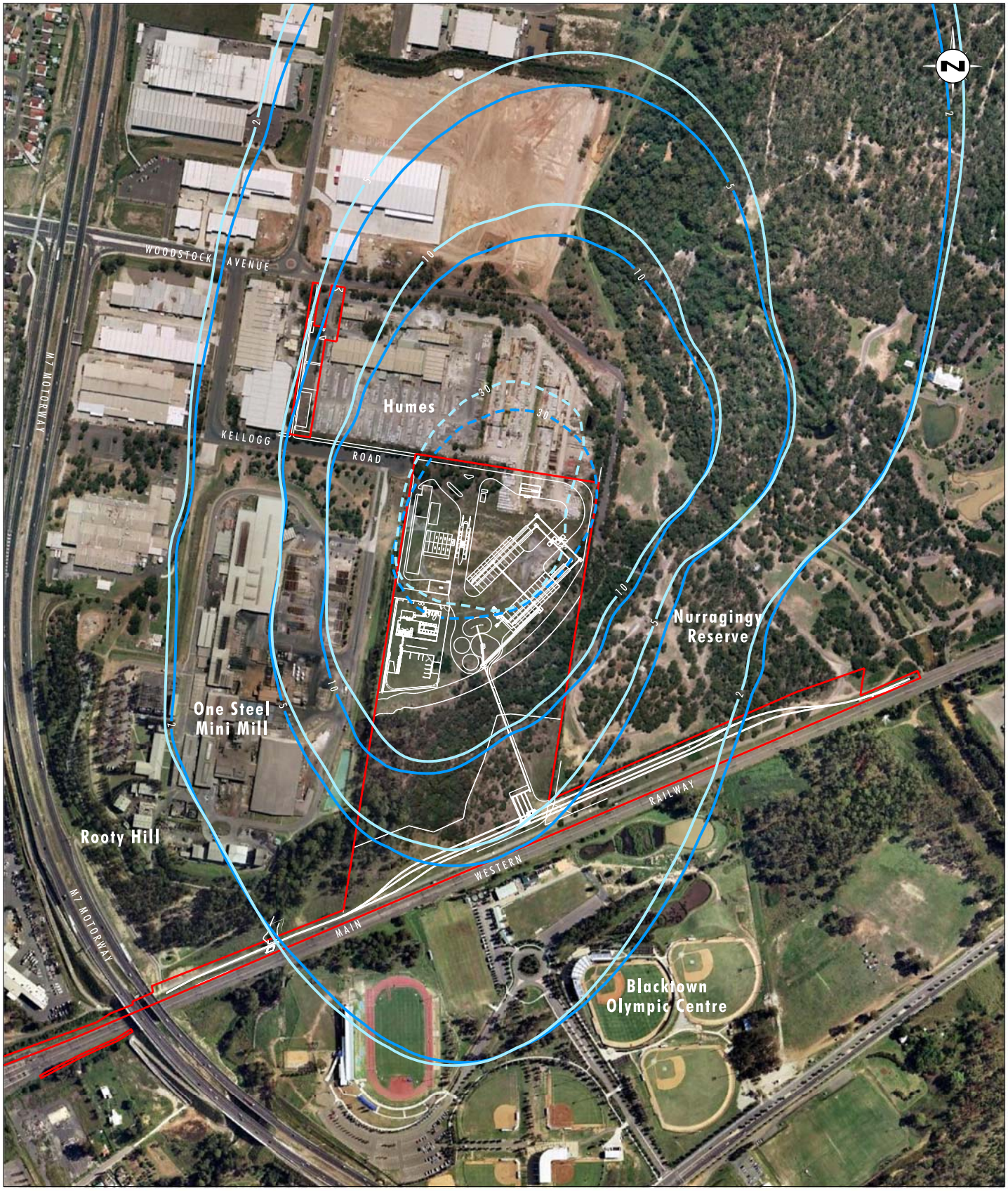
0 100 200 400m
1:7500

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- 24 Hour PM_{10} Concentration Contours for the Approved RDC
- 24 Hour PM_{10} Concentration Contours for the Modified RDC
- 24 Hour PM_{10} Criteria Contour for the Approved RDC
- 24 Hour PM_{10} Criteria Contour for the Modified RDC

FIGURE 6.5

Comparison of Approved and Modified RDC 24 Hour PM_{10} Concentrations



Source: Holcim and Google Earth 2010

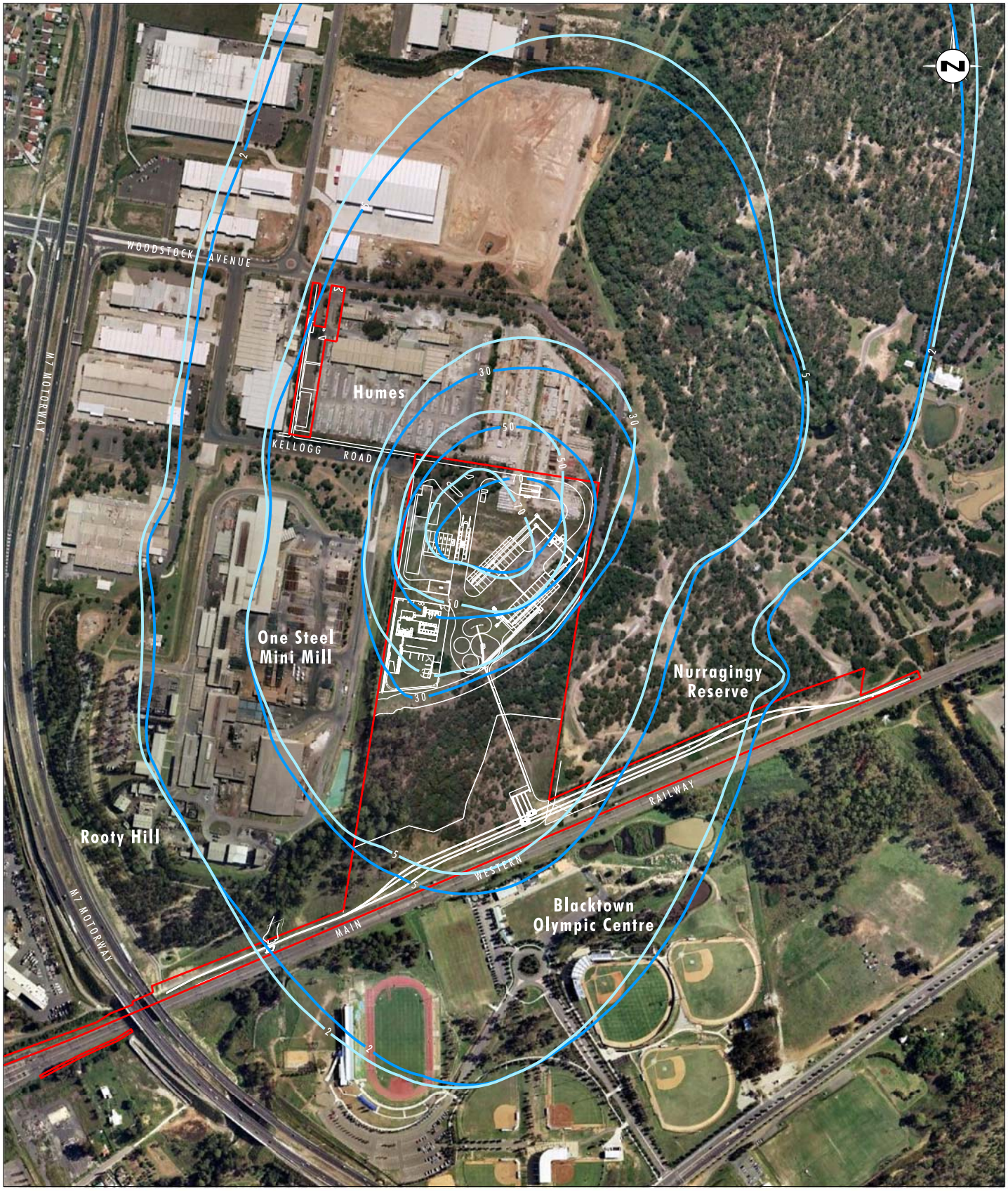
0 100 200 400m
1:7500

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Annual Average PM_{10} Concentration Contours for the Approved RDC
- Annual Average PM_{10} Concentration Contours for the Modified RDC
- Annual Average PM_{10} Criteria Contour for the Approved RDC
- Annual Average PM_{10} Criteria Contour for the Modified RDC

FIGURE 6.6

Comparison of Approved and Modified RDC Annual Average PM_{10} Concentrations



Source: Holcim and Google Earth 2010

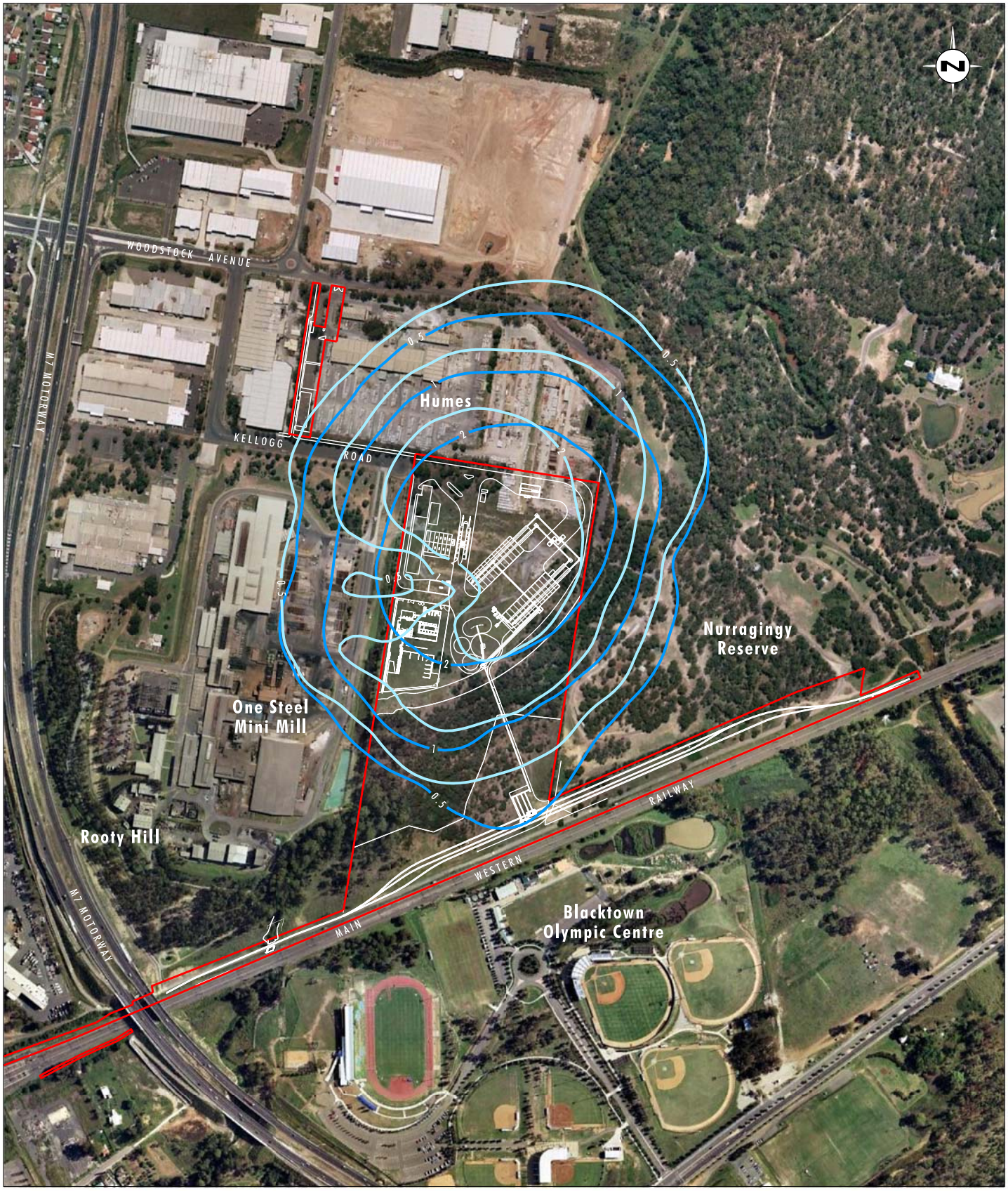
0 100 200 400m
1:7500

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- TSP Concentrations Contours for the Approved RDC
- TSP Concentrations Contours for the Modified RDC

FIGURE 6.7

Comparison of Approved and Modified RDC TSP Concentrations



Source: Holcim and Google Earth 2010

0 100 200 400m
1:7500

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Annual Dust Deposition Contours for the Approved RDC
- Annual Dust Deposition Contours for the Modified RDC

FIGURE 6.8

Comparison of Approved and Modified RDC Annual Dust Deposition Levels

- removal of any material which is tracked onto pavement surfaces at the end of each working day;
- place hardstand material or install rumble grids at exit points to minimise the tracking of soil onto pavement surfaces;
- all trafficable areas on the site will be maintained in a condition that will minimise the generation or emission of windblown or traffic generated dust from the site at all times;
- vegetation will be established on soil stockpiles if they will be undisturbed for a period longer than three months;
- topsoil stripping will be undertaken when there is sufficient moisture content in the soil to minimise dust generation;
- Plant and equipment will not be left idling when not in use;
- Restricting or ceasing dust-generating activities on extremely windy or dry days; and
- Ensuring that all equipment used on site will be maintained in good working order and in accordance with manufacturers specifications to minimise emissions.

6.3.6.2 Operation

The modified RDC is not predicted to exceed the relevant air quality criteria at the nearest residential areas. However, Holcim will implement the following controls to minimise dust emissions associated with the operation of the project:

- Prepare and implement a Dust Management Plan in accordance with Condition 5.5 (d) of the Project Approval, to minimise and manage air quality impacts during operation of the modified RDC;
- all conveyor transfer points will be enclosed;
- conveyors will be covered on at least 3 sides;
- water sprays will be used within the transfer point enclosures, rail unloading facility and in other enclosures as required to further minimise dust;
- water spray systems will be installed to service all stockpiles;
- the rail unloading area will be enclosed within a building;
- all paved trafficable areas shall be swept as required by a permanently stationed street sweeper to minimise dust;
- all trafficable areas on the site will be maintained in a condition that will minimise the generation or emission of windblown or traffic generated dust from the site at all times;
- plant and equipment will not be left idling when not in use;
- the radial stacker and associated stockpiles will have water sprays which will be used when material is being loaded out to the stockpile and when loading vehicles, as required, to suppress dust;

- vehicle movements will be confined to designated areas, and vehicles will only travel on sealed roads; heavy vehicles entering and leaving the site that are carrying loads shall be covered at all times, except during loading and unloading activities; and

- ensuring that all equipment used on site will be maintained in good working order and in accordance with manufacturers specifications to minimise emissions.

6.4 Ecology

A comprehensive ecological survey and assessment has been undertaken by Umwelt to assess the impacts of the modified RDC and is provided in **Appendix 4**. A summary of the key findings is provided below.

Vegetation mapping of the RDC site was undertaken by Biosis during the 2005 assessment (refer to **Figure 1.7**). This vegetation mapping identified two Threatened Ecological Communities (TECs) (*Cumberland Plain Woodland* and *River-flat Eucalypt Forest*) within the RDC site. The approved RDC project was designed to minimise impacts to existing vegetation and to utilise the cleared portions of the RDC site as much as possible.

6.4.1 Disturbance Footprint of the Modified RDC

With the exception of 0.09 hectares (900 m^2) of land associated with the modified rail unloading facility and the associated conveyors located immediately to the north, the modified RDC does not result in any change to the disturbance footprint of the approved project. The vegetation communities which will be disturbed in this 0.09 hectares are cleared/disturbed areas (0.07 ha – 700 m^2) and Cumberland Plain Woodland (0.02 hectares – 200 m^2) (refer to **Figure 6.9**).

The modification of the rail unloader and its associated rail sidings layout will slightly alter the disturbance footprint of the originally approved RDC development. The location of the proposed modified rail unloading facility 0.12 hectares (1200 m^2) was targeted during the ecological survey (hereafter referred to as the study area). The area encompasses the minor additional disturbance area of 0.09 hectares associated with the modified RDC (i.e. part of the 0.12 hectare study area is approved to be impacted by the Approved RDC project). There are no other changes to the disturbance footprint compared to the Approved RDC project.

6.4.2 Flora Results

6.4.2.1 Vegetation Communities

Two vegetation communities were identified within the additional disturbance footprint associated with the modified RDC being cleared/disturbed areas and regenerating Cumberland Plain Woodland; these communities are shown in **Figure 6.9**.

The majority of the study area is characterised by disturbed/cleared areas, which are dominated by exotic groundcover species including Rhodes grass, African lovegrass, kikuyu, fireweed, lamb's tongues, paspalum and flaxleaf fleabane. Temporary wet areas within disturbed grassland are characterised by sharp rush. Native species such as kangaroo grass were also recorded in these areas but only in low densities.

Cumberland Plain Woodland is listed under the *Threatened Species Conservation Act 1995* (TSC Act) and EPBC Act as a Critically Endangered Ecological Community (CEEC). The area of Cumberland Plain Woodland is dominated by native groundcover species and some

Source: Holcim and Google Earth 2010

0 10 25 50m
1:1000

Legend

- Approved RDC Site Boundary
- Study Area
- Indicative Modified RDC Layout
- Cumberland Plain Woodland
- Cleared/Disturbed Area
- Approved Disturbance Area

FIGURE 6.9

Vegetation Communities within the Modified RDC Disturbance Footprint

File Name (A4): R02_V1/2802_027.dgn

exotic species, is characteristics of a regenerating community and is of low quality. Mature stands which contain the characteristic dominant canopy species of forest red gum and grey box (*E. moluccana*) occur outside the study area

6.4.2.2 Threatened Flora

Grevillea juniperina subsp. Juniperina has been recorded within the RDC site (NECS, 2005); however this species was not recorded within the disturbance footprint associated with the modified RDC. No other threatened species were recorded in the study area.

6.4.2.3 Fauna Results

A total of 13 vertebrate fauna species were identified via opportunistic observations during the field survey including 12 bird species and one amphibian species. No mammal species were recorded. No threatened fauna species were identified within the additional disturbance footprint associated with the modified RDC. The Cumberland Land Snail *(Meridolum corneovirens)* has, however, been previously recorded within the Cumberland Plain Woodland located on the RDC site (Biosis, 2005). It is considered that suitable habitat for the species occurs within the study area.

6.4.3 Ecological Impact Assessment

The modified RDC will result in an additional 0.09 hectares (900 m^2) of vegetation disturbance, which consists of 0.07 hectares (700 m^2) of vegetation identified as cleared/disturbed areas and 0.02 hectares (200 m^2) of vegetation identified as Cumberland Plain Woodland (refer to **Figure 6.9**). Assessments of significance under the TSC Act and EPBC Act have been undertaken for Cumberland Plain Woodland. The assessments conclude that the proposed Modifications to the RDC will not result in a significant impact on this community (refer to **Appendix 4**). The modified RDC will not result in additional impacts to the River-flat Eucalypt Forest EEC that occurs on the RDC site.

Assessments significance for threatened species under the TSC Act and threatened and migratory species listed under the EPBC Act with the potential to occur in the study area were also undertaken. These assessments concluded that the proposed Modifications to the RDC will not result in a significant impact on these species (refer to **Appendix 4**).

The modification of the RDC is not expected to result in a significant impact on any threatened flora species, populations and EECs at risk of extinction or result in significant fragmentation or isolation of threatened flora species, populations and EECs, due to the poor quality and small quantity of vegetation to be disturbed and the mitigation measures proposed.

6.4.4 Proposed Management and Mitigation Measures

As part of the approved project Holcim has committed to and/or is required by approval conditions to:

- In accordance with Condition 2.27 of the Project Approval, prepare a compensatory habitat package which is to include one or more of the following compensatory measures:

    a) provision of no less than 3 hectares of compensatory habitat comprising of Cumberland Plain Woodland, whether new or restored, for every 1 hectare of "Core Habitat" or "Support to Core" habitat impacted; or

    b) equivalent financial contribution to a rehabilitation project in the Blacktown local government area; or

c) any other form of compensatory habitat agreed by the DECCW.

- preparing and implementing a Vegetation Management Plan (VMP) prior to the commencement of construction activities in accordance with Condition 2.24 of the Project Approval. The overall aim of the VMP is to improve the quality of the significant vegetation that would remain on the RDC site. The VMP will be prepared in consultation with DECCW and will include details of weed management and replanting/revegetation to be undertaken within the project area. The management of the additional ecological impacts associated with the Modified RDC will be addressed and mitigated within the VMP.

In addition to the existing commitments the following mitigation measures will be implemented to further reduce the impact of the modified RDC:

- prior to any clearing operations being undertaken, the limits of clearing will be clearly marked;

- native logs and bark removed during construction will be retained and reused in areas of Cumberland Plain Woodland, during regeneration and revegetation to provide sheltering habitat for the Cumberland land snail;

- sedimentation and erosion control measures will be put in place and maintained during construction to ensure that soil material does not enter surrounding woodland and waterways;

- the post-construction rehabilitation program will use local native plant species and incorporate a weed control program to prevent the spread of weed species into the surrounding woodland landscape; and

- Condition 5.5(c) of the Project Approval requires the preparation and implementation of a Soil and Water Management Plan (SWMP) as part of the OEMP for the RDC. The SWMP will detail the erosion and sediment conrol measures to be to ensure soil material does not enter surrounding woodland and waterways.

6.5 Water Resource Assessment

The 2005 EA (NECS, 2005) assessed the surface water and groundwater impacts of the approved RDC. Of the various components that are included in the modified RDC only the staged construction of the rail siding and the reduced excavation depth associated with the construction of the rail unloading facility have the potential to change the impact on groundwater and/or surface water, including flooding when compared to the approved RDC. These potential impacts are assessed in the following sections.

6.5.1 Potential Water Resource Impacts

The proposed modifications will not alter the overall footprint for the rail siding except for a reduction in length during the initial phase of the development. The road/rail bridge and the road/conveyor bridge crossing of Angus Creek will be constructed as approved (i.e. no modifications are proposed). Therefore, the modification of the RDC will not result in a reduction to available floodplain area or impact on flow conveyance and therefore flooding impacts will remain unchanged from those identified in the 2005 EA (NECS, 2005) for the approved RDC.

The groundwater assessment undertaken for the approved RDC indicated that there was limited potential for impact on the groundwater systems, including water quality. The only

potential impacts were associated with excavations during construction of the rail unloading facility and associated conveyors. The only changes in this regard as part of the Modified RDC relate to its location and the depth of the excavation which has been reduced from 9 metre to 6 metres. These modifications will not result in any further impacts or management requirements relating to groundwater to that detailed in the 2005 EA (NECS, 2005).

Erosion and sediment control measures, as outlined for the approved RDC will continue to be incorporated into detailed construction and operational plans for the RDC. Typical erosion and sediment control measures are outlined in **Section 6.5.3**.

6.5.2 Site Water Management System

The proposed Water Management System (WMS) for the approved RDC includes both dirty and clean water systems. The dirty and clean water systems were designed to be isolated from each other to minimise the chance of contamination of the surrounding water bodies. The WMS will remain unchanged by the proposed modifications. The previously approved WMS includes:

- the interception and diversion of runoff entering the site from external catchments;
- silt traps and Humeceptors for the treatment of runoff from hardstand areas; and
- sediment basins that overflow into Angus Creek via level spreaders.

The separation of the clean and dirty water systems provides the opportunity to reuse the captured dirty water on site and therefore further minimising the potential impacts on the surrounding environment and reducing potable water demand.

The proposed modifications are expected to have negligible impacts on the operation of the approved water management system.

6.5.3 Erosion and Sediment Controls

During both the construction and operation of the Modified RDC, erosion and sediment controls will be used to protect the surrounding environment. Operational controls, which are outlined in the 2005 EA (NECS, 2005) are included within the WMS in the form of silt traps, Humeceptors and sediment basins. Regular inspections and maintenance of these facilities will be undertaken to ensure that they are functional for the life of the Modified RDC.

All erosion and sediment control measures will be carried out in accordance with relevant guidelines for erosion and sediment control, including *Managing Urban Stormwater: Soils and Construction* (the Blue Book):

- *Volume 1* (Landcom, 2004); and
- *Volume 2D Main road construction* (DECC, 2008).

The controls covered in Volume 2D of the Blue Book relate to large disturbed areas for works programs greater than 6 months and as such are relevant to the construction of the RDC.

Soil and Water Management Plans (SWMP) will be prepared for the construction and operational phases and will be incorporated in the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) respectively. The construction phase SWMP will be prepared in accordance with Condition 5.3(a) of the Project Approval whilst the operational phase SWMP will be in accordance with Condition 5.5(c). The ESCPs will detail the specific inspection, maintenance and revegetation

requirements for each works area based on the construction schedule and operational works requirements.

The erosion and sediment control measures that will be incorporated during construction of the modified RDC include:

- construction of erosion and sediment controls prior to the commencement of any substantial construction or earthworks;
- constructing diversion drains upslope of areas to be disturbed to convey clean runoff away from disturbed areas;
- clearly identifying and delineating areas required to be disturbed and ensuring that disturbance is limited only to those areas, clearing vegetation only as required to achieve the works and minimising machinery disturbance outside of these areas;
- limiting the number of roads and tracks established;
- construction and regular maintenance of sediment fences downslope of disturbed areas, including the construction sites for sediment dams, diversion drains and catch drains;
- applying gypsum, where required, to reduce the dispersibility of the subsoils that will be disturbed and to minimise the potential for tunnel erosion and surface rilling of disturbed or reshaped areas. The application rate to be determined by site specific soil testing as required;
- seeding and controlled fertilising of disturbed areas to provide for rapid grass cover establishment. Areas will be seeded with a grass mix specific to the needs of the area to be revegetated;
- inspection of all works daily and immediately after storm events to ensure erosion and sediment controls are performing adequately;
- regular maintenance of erosion control works and rehabilitated areas;
- provision for the immediate repair or redesign of erosion and sediment controls that are not performing adequately;
- the placement and maintenance of oil management systems downslope of key infrastructure and high traffic hardstand areas; and
- prompt revegetation of areas as soon as practicable.

6.6 Greenhouse Gas and Energy Assessment

Since approval of the RDC in 2006, the process for assessing greenhouse gas impacts has evolved significantly. The proposed modifications to the approved RDC also have some potential to alter energy usage and greenhouse gas emissions. As such, a detailed greenhouse gas and energy impact assessment (GHGEIA) has been undertaken to consider the potential impacts of constructing and operating the modified RDC (as opposed to just considering the impacts of the modifications).

The detailed GHGEIA has been undertaken by Umwelt, with the full assessment report included as **Appendix 5**. The assessment quantifies the Scope 1, 2 and 3 emissions and qualitatively assesses the impacts of these emissions (refer to **Appendix 5**).

This section provides a summary of the detailed analysis along with a qualitative assessment of impacts of the greenhouse gas emissions and details of the mitigation and management strategies associated with the Modified RDC.

6.6.1 Assessment Context and Methodology

The objective of the GHGEIA was to evaluate the environmental impacts of the modified RDC's greenhouse gas emissions and energy use and compare these results with those of the approved RDC.

The scope of the GHGEIA includes the following:

- estimating greenhouse gas (GHG) emissions and energy use associated with constructing the modified RDC;
- estimating GHG emissions and energy use associated with operating the modified RDC;
- estimating the impact of the modified RDC's emissions on atmospheric concentrations of carbon dioxide;
- estimating the impact of the modified RDC's emissions on local, state, national and international greenhouse gas emission targets;
- evaluating whether the modified RDC aligns with the principles of ESD;
- identifying management and mitigation options to reduce the impact of the modified RDC; and
- comparing the approved RDC GHG emissions and energy usage results with those of the modified RDC.

There are a number of policies in place that outline the methodologies for undertaking a greenhouse gas emissions assessment as part of the preparation of an EA. The primary guidelines include:

- World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI) Greenhouse Gas Protocol 2004 (GHG Protocol); and
- National Greenhouse Accounts (NGA) Factors, Australian Government Department of Climate Change (DoCC), June 2009.

The GHG Protocol establishes an international standard for accounting and reporting of GHG emissions by entities. Under the GHG Protocol the establishment of operational boundaries involves identifying emissions associated with an entity's operations, categorising them as direct or indirect emissions, and identifying the scope of accounting and reporting for indirect emissions. Three 'scopes' (Scope 1, Scope 2, and Scope 3) have been defined for GHG accounting and reporting purposes, These scopes are briefly outlined below:

- Scope 1 (direct) emissions – GHG emissions which occur as a direct result of activities at a facility, for example, the operation of front end loaders and trucks owned by Holcim.
- Scope 2 (energy indirect) emissions – GHG emissions from the generation of purchased electricity, steam, heating or cooling consumed by a facility.

- Scope 3 emissions – all indirect GHG emissions that are not included in Scope 2. Scope 3 emissions are a consequence of the activities of the facility/entity, but occur at sources or facilities not owned or controlled by the entity. Sources of Scope 3 emissions include:
  - Energy used by contractors in the delivery of raw materials to the modified RDC for operation;
  - Energy used by contractors in the delivery of the bulk construction materials (sand/aggregate) to the Sydney market;
  - Upstream emissions associated with materials used at the RDC (e.g. concrete and steel for construction, cement for concrete); and
  - Emissions associated with waste disposal.

As such, the detailed GHGEIA assessment has included the quantification of Scope 1, 2 and 3 emissions associated with activities within the project area and the transportation of material to and from the modified RDC.

6.6.2 Minimising Upstream Emissions

Holcim plans to continue to service the Sydney region using quarry products extracted from quarries outside the Sydney region including, the new Lynwood Quarry near Marulan. Compared to existing operations, sourcing quarry products from Lynwood will increase upstream transport emissions due to the additional fuel required to haul longer road distances. To minimise the greenhouse gas impacts of the additional road transport distance, Holcim will transport quarry products to the RDC via rail. Rail transport is significantly more fuel efficient than road transport and integrating rail into the design of the modified RDC will mitigate new upstream emissions as construction materials for the Sydney market will increasingly need to be sourced outside the Sydney region due to development patterns. **Table 6.13** demonstrates how rail will mitigate upstream transport emissions.

Table 6.13 – Fuel savings using rail

Transport mode	Materials (T)	Payload (T)	Route (Km)	VKT (Million Km)	Fuel consumption (L/Km)	Fuel use (kL)
Road	4,000,000	40	380	38.0	0.521	19,798
Rail	4,000,000	2,790	380	0.54	12.0	6,538
Annual Savings						13,260

6.6.3 GHGEIA Emissions Results

The assessment was undertaken for the construction and operational phases of the modified RDC. In addition to the construction and operational assessment, the modified RDC was considered in relation to its contrition to GHG emissions on national and global levels.

6.6.3.1 Construction Phase

The modified RDC's construction will only generate Scope 3 emissions as all construction related activity will be under the operational control of a construction company. The Scope 3 emissions are primarily associated with the embodied energy of the building materials and are estimated at 14,770 TCO_2-e. The Scope 3 emissions are primarily generated upstream via the purchasing of steel and concrete. The construction phase was not considered during the original assessment in the 2005 EA (NECS, 2005) and it is therefore not possible to make a comparison.

6.6.3.2 Operation Phase

The modified RDC will produce approximately 6,978 TCO_2-e Scope 1 emissions per annum from burning diesel. The majority of Scope 1 emissions will be generated by fleet trucks delivering products to customers.

The modified RDC is forecast to consume 7,576 MWh p.a. of electricity, which will generate approximately 6,742 TCO_2-e Scope 2 emissions per annum.

Approximately 155,218 TCO_2-e Scope 3 emissions per annum can be attributed to the modified RDC. Scope 3 emissions are predominately generated upstream via transporting quarry products to the RDC and purchasing cement.

The modified RDC will consume approximately 127,246 GJ per annum. The majority of energy will be sourced from diesel oil and offsite electricity.

The operation of the modified RDC (Scope 1 emissions) will contribute less than 0.0013 per cent to national annual GHG emissions and less than 0.001 per cent to international annual GHG emissions. Given the very small contribution that the modified RDC will make to global climate change, it is reasonable to conclude that there will be no measurable environmental effects resulting from the emission of greenhouse gas from the modified RDC. However, it is recognised that global warming is the result of the cumulative effect of many such small contributions.

6.6.4 Comparison with Approved RDC

The modified RDC will not alter the operational demands for diesel and/or electricity when compared to the approved RDC. If the greenhouse gas assessment uses the same assessment methodology for the approved and modified RDC, then the overall greenhouse gas emissions are identical. Given greenhouse gas assessment methodologies have changed since the approval of the RDC in 2006 there is a strong case to complete the assessment of the modified RDC using the current assessment methodology.

To allow a direct comparison of greenhouse gas emissions associated with the approved and modified RDC, the modified RDC's greenhouse gas assessment was completed using the same reporting boundary and emission factors (refer to **Table 6.14**). **Table 6.14** demonstrates that the modified RDC has the same total greenhouse gas emissions as the approved RDC, when the assessment is completed using a common assessment methodology.

To acknowledge the change in greenhouse gas emission factors, **Table 6.14** includes the results of a hybrid assessment that is based on the approved RDC reporting boundaries, but includes the latest emission factors. The hybrid assessment also assumes that contractors will deliver 25% of building products to customers (an important change in operating assumptions since the approved RDC assessment). The hybrid assessment estimates that the modified RDC will produce 1,244 T/CO_2-e per annum more than the approved RDC (refer to **Table 6.14**). The increase in emissions is due to small increases in the emission factors for diesel and electricity.

Table 6.14 – A comparison between the greenhouse gas impacts of operating the approved RDC and the modified RDC

Emission Source	Approved RDC Assessment[2]	Modified RDC using the approved project assessment methodology	Modified RDC using a hybrid methodology[3]
	T/CO_2-e per annum	T/CO_2-e per annum	T/CO_2-e per annum
Transport Fuel	23,942	23,942	24,413
Electricity	7,333	7,333	8,106
Total	**31,275**	**31,275**	**32,519**

In developing a more comprehensive assessment, the GHGEIA identified a number of additional emission sources which were not included in the initial assessment that are considered relevant including:

- on-site fuel use (i.e. non transport fuel) (Scope 1);
- embedded emissions in purchasing cement (Scope 3); and
- waste management (Scope 3).

The three additional emission sources are not new sources, as these activities formed part of the approved RDC.

Contemporary GHG assessment methodology also requires a comprehensive assessment of Scope 3 emissions.

The comprehensive assessment also reviewed the fuel use estimates for the approved RDC assessment. Fuel use modelling found that both the approved and modified RDC would require approximately 9.64 million litres of diesel per annum to operate (an increase on the 8.86 million litres per annum used for the approved RDC assessment).

The inclusion of the additional emission sources, the updated emissions factors and the updated fuel use estimates increases the total emissions of the modified RDC by 137,663 T/CO_2-e per annum (refer to **Table 6.15**).

Table 6.15 – The comprehensive modified RDC assessment

Emission scope	Comprehensive modified RDC Assessment[4]
	T/CO_2-e per annum
Scope 1	6,978
Scope 2	6,742
Scope 3	155,218
Total	**168,938**

[2] Holmes Air Sciences, (2005) *Air Quality Impact Assessment: Readymix Regional Distribution Centre at Rooty Hill*
[3] Utilises revised emission factors but retains the approved project reporting boundaries
[4] Utilises a contemporary GHGEIA methodology

The total emissions calculated by the comprehensive assessment are significantly higher than the approved RDC assessment. The majority of the increases in emissions captured by the comprehensive assessment are attributable to purchasing cement (134,000 TCO_2-e). As the volume of cement used is consistent with the approved RDC, the greenhouse gas emissions from the modified RDC are expected to be comparable. The residual additional greenhouse gas emissions from the modified RDC when compared to the approved RDC, being 3,663 TCO_2-e, is due to the revised emission factors and the inclusion of waste management, on site fuel usage and additional fuel usage estimates within the contemporary assessment.

Scope 1 emissions for the modified RDC assessment have declined when compared to the approved RDC due to assumptions made about the use of contract transport services. The approved RDC assumed that all road transport would utilise company vehicles and generate Scope 1 emissions. The modified RDC assessment assumes (based on discussions with Holcim) that 25% of transport services will be outsourced and therefore generate Scope 3 emissions.

Scope 2 emissions have increased due to a change in emission factors.

Scope 3 emissions for the modified RDC have increased due to the inclusion of a number of upstream and downstream emission sources. 96% of the increase is due to the inclusion of cement usage in the CBP which contributes an extra 134,000 TCO_2-e. The remaining 4% is due to the use of revised emission factors and the inclusion of emissions associated with waste management.

6.6.5 Greenhouse and Energy Mitigation Management

Holcim recognises the future will be a carbon constrained world and is committed to playing its part in the international collaborative effort to implement solutions to the challenge of climate change. Holcim also acknowledges that climate change is a major challenge and that accelerated action is required to stabilise greenhouse gas concentrations in the atmosphere at levels guided by the research of the United Nations Intergovernmental Panel on Climate Change. To assist the government in meeting its targets Holcim, as noted in its Environment Policy, Safety, Health and Environment (SHE) management system and Corporate Sustainable Development Report (2009), is committed to identifying and implementing measures to minimise GHG emissions from its operations.

Holcim has committed to reducing its net emissions from cementitious products by 25% by 2015 (from 1990 levels) by:

- reducing the clinker content in cement production by substituting with slag, fly ash, and pozzolans; and

- improving the energy efficiency of its operations. Holcim's Environment Policy requires the modified RDC to identify and evaluate opportunities to conserve energy and resources. This will be undertaken via the implementation of an Energy Saving Management Plan (ESMP) as part of the operational environmental management plan. The ESMP will review energy usage, identify energy savings opportunities, and based on this will implement viable energy saving measures. Diesel usage is the dominant source of Scope 1 emissions and therefore investigations will initially focus on this aspect.

The modified RDC will seek to maximise transport efficiency of bulk construction materials to the Sydney market and maximise materials handling efficiency on the RDC site. Holcim will also assess and consider implementation, where feasible, of GHG and energy management and mitigation initiatives during the design, operation and decommissioning of the modified RDC.

As part of Holcim, the modified RDC will to participate in the following Holcim programs:

- National Greenhouse and Energy Reporting System (NGERS); and
- Energy Efficiency Opportunities (EEO) Program.

6.7 Visual Impact

A comprehensive visual impact assessment of the modified RDC has been undertaken by Context. A summary of the key findings of the assessment is provided below, with the full assessment report provided in **Appendix 6**.

The visual impact assessment has assessed the impacts of the Modified RDC layout, including the shortened rail sidings and initial unloading facility configuration. As discussed in **Section 3.0**, should Holcim construct the longer approved rail siding and unloading facility configuration, all relevant visual mitigation measures will be consistent with that outlined in the 2005 EA (NECS, 2005). No further assessment of this approved option is required and therefore it is not considered further in this assessment.

6.7.1 Existing Visual Environment

The RDC site is located in a broad valley running north to south, surrounded by low undulating hills extensively modified by urban development. The valley is principally comprised of natural vegetation and open space areas within the Eastern Creek floodplain, with a still developing corridor of heavy industry on the western edge of the valley. The adjacent slopes to the east and west have gentle grades and are characterised by low density residential development, predominantly in the form of detached housing. The M7 Motorway and the Main Western Railway Line separates the RDC site from Blacktown Olympic Park, which comprises a number of athletic and sports fields in a predominantly open grassed setting, with a few clusters of trees and some buildings.

Nurragingy Reserve adjoins the eastern boundary of the RDC site and contains dense stands of trees which periodically open out to informal grassed areas and picnic bays. Immediately to the west of the site is the OneSteel Mini Mill which has bulky sheds and a tall stack (approximately 45 metres) constituting a landmark within the valley. The northern boundary of the RDC site faces expanding industrial sites to the north.

6.7.2 The Existing RDC Site

The RDC site currently supports five distinct visual precincts:

- Existing industrial buildings, facilities and plant in the northern part of the site currently occupied by Humes;
- Predominantly open cleared area, dominated by weed infested stockpiles, in the central part of the site;
- Tall native vegetation following the line of Angus Creek.
- Predominantly open grassed area adjacent to the railway tracks east of the M7; and
- Unkempt grassed area and drainage swale with woody weeds adjacent to the railway tracks west of the M7.

6.7.3 Visual Sensitivity and View Catchments

Seven surrounding areas were identified as potentially having high sensitivity to visual impacts from the modified RDC: Nurragingy Reserve, Blacktown Olympic Centre, sections of the Plumpton, Rooty Hill and Donside residential areas and the Rooty Hill town centre and reserve. Assessments for each of these areas were included in the visual assessment of the approved RDC. The modified RDC will not affect any additional areas of high visual sensitivity.

The primary view catchment for the RDC site is based upon theoretical line of sight mapping (refer to **Figure 6.10**). The visual catchment of the RDC is largely defined by the low ridges of the valley in the residential areas to the east and west of the site and in Rooty Hill Reserve to the south (viewpoint 7 on **Figure 6.10**). The majority of potential views to the site within this view catchment are obscured by vegetation or built form, the effects of which are enhanced by the gently undulating nature of the topography.

Several significant features dominate and in some cases obstruct views of the modified RDC, being:

- to the north: a ridgeline and associated vegetation;
- to the west and north-west: woodland vegetation along the Angus Creek corridor and industrial plant;
- to the east and north east: vegetation within Nurragingy Reserve;
- to the west: the OneSteel Mini Mill;
- residential structure and associated vegetation; and
- to the south-west and north-west: the M7 Motorway.

6.7.4 Visual Impact Assessment and Mitigation Measures for Key Viewpoints

6.7.4.1 Nurragingy Reserve (North and South) (viewpoints 1 and 2)

The existing views from Nurragingy Reserve north and south (viewpoints 1 and 2) of the RDC site are dominated by remnant native trees with existing plantings along the majority of its boundary with the RDC site. Views of the modified RDC from viewpoint 1 will be completely screened by the existing vegetation (refer to **Figure 6.11**). The density and width of the vegetation along Angus Creek screens the majority of the modified RDC at viewpoint 2 and the surrounding picnic shelters, however filtered views of the on ground concrete storage bins are available. The bulk of the storage bins are however below the existing tree line (refer to **Figure 6.12**). Filtered view of the modified RDC are also present at some locations along the western boundary of Nurragingy Reserve, most notably the open grassed area near the north eastern boundary of the RDC site (refer to **Figure 6.10**).

Short term visual impacts of the modified RDC will be minor, and less than the approved RDC due to the reduced height and bulk of the proposed on ground concrete storage bins (approximately 10 metres lower than the steel bins of the approved RDC). Proposed native tree and shrub plantings within the RDC site to supplement the existing boundary plantings within Nurragingy Reserve (refer to **Section 6.7.5**) would reduce the visual impact of the RDC. Visual impacts will potentially reduce over time as proposed screening vegetation matures.

FIGURE 6.10

Viewpoint Locations

Source: CONTEXT Landscape Design

File Name (A4): R02_V1/2802_036.dgn

Viewpoint 1
Existing View from Nurragingy Reserve (North)
Photo taken 01/06/2010 - 11:45am - (facing Southwest)

Outline of Proposed Storage Bins and Noise Wall

Viewpoint 1
Proposed View from Nurragingy Reserve (North) showing reinforced screening vegetation along boundary and within RDC Site

FIGURE 6.11

Nurragingy Reserve - North (viewpoint 1)

Source: CONTEXT landscape Design

File Name (A4): R02_V1/2802_030.dgn

Viewpoint 2
Existing View from Nurragingy Reserve (South)
Photo taken 01/06/2010 - 11:15am - (facing southwest)

Outline of Proposed Storage Bins, Stockpiles and Noise Wall

Viewpoint 2
Proposed View from Nurragingy Reserve (South) showing reinforced screening vegetation along boundary and within RDC Site

FIGURE 6.12

Nurragingy Reserve - South (viewpoint 2)

Source: CONTEXT landscape Design

File Name (A4): R02_V1/2802_031.dgn

6.7.4.2 Main Western Railway Corridor

North Parade Facing SW and NE (viewpoints 3 and 4)

BCC plans to close North Parade. Views from this location will not be available to the general public and limited to Holcim workers, rail maintenance crew and Council workers.

Passing Rail Commuters

Rail commuters will have passing views of the proposed rail sidings, conveyor and rail unloading facility and operational activities, predominantly train unloading and heavy vehicular movements. East of the proposed rail unloading facility, views into the RDC site from Nurragingy Reserve would be blocked by the proposed 5 metre high noise wall along the Reserves southern boundary and associated native ornamental shrub planting. Rail commuter views of the northern part of the RDC is obstructed by the riparian vegetation associated with Angus Creek.

Rooty Hill Station Platforms (viewpoint 5)

Views of the RDC site from the Rooty Hill Station platforms is constrained by the embankments to the M7 bridge over the main western rail line i.e. views are constrained to the rail corridor under the M7 overpass. Views from this location are therefore limited to the rail siding, rail unloading facility and potentially a small section of the transfer conveyor.

Views of the rail siding are further minimised during initial phase of the RDC with the shorter sidings, as the siding terminates east of the M7 overpass. Only distant views of the rail sidings and associated infrastructure are therefore available from the Rooty Hill Station platforms, during the initial stage of the sidings development. This view is consistent with the existing visual character and would not appear out of place (refer to **Figure 6.13**). The near field view of the existing unkempt grassed area and drainage swale with woody weeds will remain unchanged.

The overall visual impact of the Modified RDC from the Main Western Rail Corridor will be less than the approved RDC due to the closure of North Parade and the relocation of the previously approved noise wall which is not required for the shorter siding configuration. Visual impacts will potentially reduce over time as proposed screening vegetation matures.

6.7.4.3 Blacktown Olympic Centre (viewpoint 6)

The top of the on ground concrete storage bins which extend above the tree line may potentially be visible from Blacktown Olympic Centre(refer to **Figure 6.14**). Although the bins are situated relatively close to the view, the dominance of the foreground vegetation reduces the visual impact from this location. The rail unloading facilities will also be partially visible from certain vantage points in this area, however the impacts of these will be minimal due to the nature of the athletic activities taking place within the Blacktown Olympic Centre, the raised bench of the main tracks and proposed mitigating vegetation along the rail corridor.

Short term visual impacts of the modified RDC will be minor, and less than the approved RDC due to reduced heights and bulk of the proposed on-ground concrete storage bins and the relocation of the proposed noise walls. Visual impacts will potentially reduce over time as existing and proposed screening vegetation matures.

Viewpoint 5
Existing View from Railway Corridor (Rooty Hill Station Platform)
Photo taken 01/06/2010 - 12:30pm

Viewpoint 5
Proposed View from Railway Corridor (Rooty Hill Station Platform)

FIGURE 6.13

Rooty Hill Station Platforms (viewpoint 5)

Source: CONTEXT landscape Design

File Name (A4): R02_V1/2802_032.dgn

Viewpoint 6
Existing View from Blacktown Olympic Centre
Photo taken 01/06/2010 - 1:45pm - (Facing North)

Outline of Proposed Built Structures

Viewpoint 6
Proposed View from Blacktown Olympic Centre showing extent of the proposed structures visible above the existing tree canopy.

FIGURE 6.14

Blacktown Olympic Centre (viewpoint 6)

Source: CONTEXT landscape Design

File Name (A4): R02_V1/2802_033.dgn

6.7.4.4 Rooty Hill Reserve and Eastern Road (viewpoint 7)

The views toward the RDC site (approximately one kilometre away) are dominated by the existing vegetation within the RDC site and adjacent Nurragingy Reserve and industrial buildings and plant, in particular those of the OneSteel Mini Mill (refer to **Figure 6.15**). There are currently intermittent views toward the RDC site along Eastern Road, from adjacent to Rooty Hill Reserve, to the eastern boundary of Blacktown Olympic Centre, of the vegetation along Angus Creek and of the area beside the railway line.

The visible extent of the proposed bins associated with the modified RDC from Rooty Hill Reserve would be reduced due to their decrease in height. Intermittent views of the tops of the on-ground concrete storage bins would be possible along Eastern Road, although the existing vegetation planted within the M7 corridor around the RDC site would further limit these views (refer to **Figure 6.15**).

6.7.4.5 M7 Motorway (viewpoint 8)

Between Eastern Road and the Main Western Railway Line there are clear views of the RDC site, primarily of the area adjacent to the railway tracks and the vegetation along Angus Creek. From the vantage point between Eastern Road and the Main Western Railway Line views of the top of the on ground concrete storage bins and CBP may be possible. The distance of these views combined with the existing visual intrusion of the OneSteel Mini Mill plant and Blacktown Olympic Centre facilities as well as screening provided by existing vegetation maturing along the M7 corridor will further reduce the visual impact of these views.

The overall visual impact of the Modified RDC from this location will be negligible to minor, and less than the Approved RDC due to the reduced height of the on ground concrete storage bins and the removal of the noise wall previously proposed along the southern side of the Main Western Railway Line.

6.7.4.6 Rooty Hill Town Centre Carpark (viewpoint 9)

The modified RDC will not be visible from the Rooty Hill town centre car park, Station Street or Weston Lane. Only the rail sidings and associated noise wall are visible from this location. The rail siding and noise wall however terminate east of the M7 overpass for the initial phase of the sidings development and are therefore not visible from this location. The visual impact of extended rail siding should be longer, is consistent with the approved RDC.

In the short term, the overall visual impact of the modified RDC will be less than the approved RDC. Should the rail siding be extended the visual impact will be consistent with the approved RDC.

6.7.4.7 Wolseley Street, Rooty Hill Residential Area (viewpoint 10)

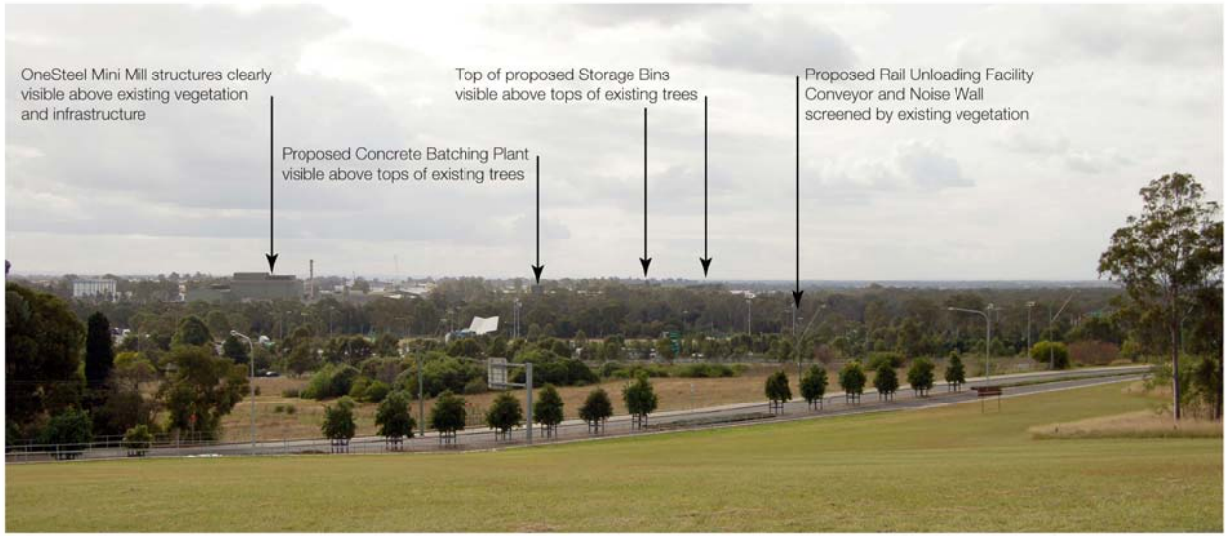
Views from this area are limited to partial glimpses of the RDC site only, primarily along Wolseley Street and in its vicinity, as existing houses, fences and vegetation block the majority of potential views (refer to **Figure 6.16**).

Views of the modified RDC from this location will be negligible, as the long distance views are significantly screened by existing structures and street tree plantings (refer to **Figure 6.16**).

Overall visual impacts of the modified RDC at viewpoint 10 will be less than the approved RDC due to reduced heights and bulk of the on ground concrete storage bins.

Viewpoint 7
Existing View from Rooty Hill Reserve
Photo taken 01/06/2010 - (Facing Northeast)

Outline of Proposed Built Structures



Viewpoint 7
Proposed View from Rooty Hill Reserve showing extent of proposed structures visible above existing vegetation and built form

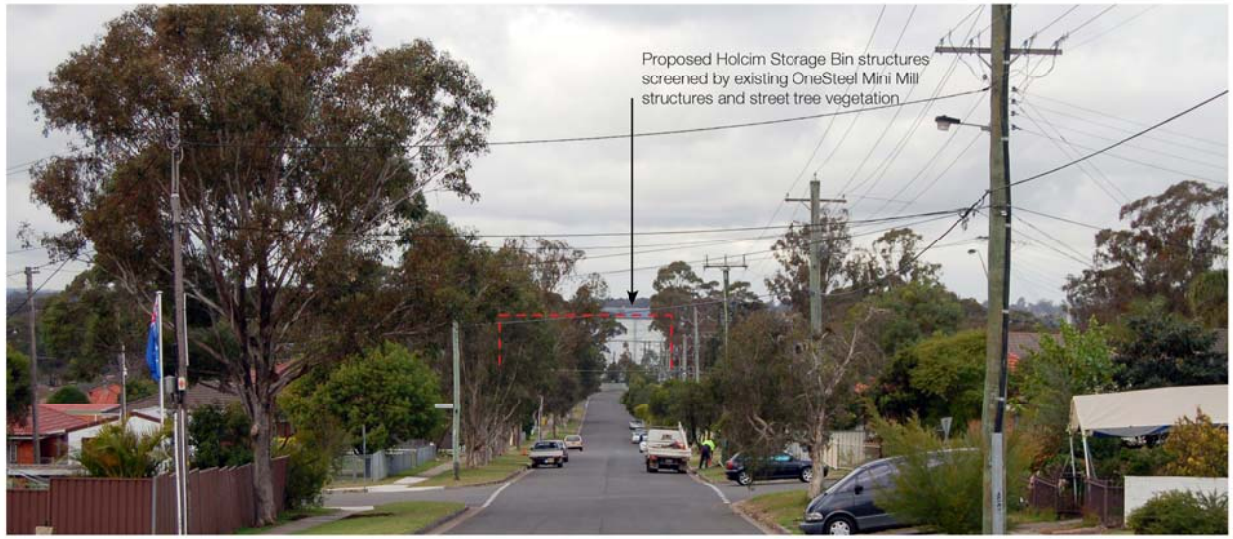
FIGURE 6.15

Rooty Hill Reserve and Eastern Road (viewpoint 7)

Source: CONTEXT landscape Design

File Name (A4): R02_V1/2802_034.dgn

Viewpoint 10 - Existing View from Wolseley Street
Photo taken 22/06/2010 - 12:10pm



Viewpoint 10 - Proposed View from Wolseley Street

Location of Proposed Built Structures

FIGURE 6.16

Rooty Hill Residential Area - Wolseley Street (viewpoint 10)

Source: CONTEXT landscape Design

File Name (A4): R02_V1/2802_035.dgn

6.7.4.8 Plumpton Residential Area (viewpoint 11)

The majority of views toward the RDC site from this suburb are obscured by existing houses, fences and vegetation at close range. Some filtered long range views of the RDC site which are dominated by the industrial buildings and surrounding plant are available from elevated locations.

Views of the tops of the proposed on-ground concrete storage bins may potentially occur in some nearby residential areas. However, despite this area being of high sensitivity to visual change long distance views are dominated and significantly screened by existing built form and tree planting despite the elevated topography.

Overall visual impacts of the Modified RDC proposal on residential areas within Plumpton will be less than the Approved RDC proposal due to reduced heights and bulk of the proposed bin structures. Any visual impacts that do occur will likely reduce further over time as proposed mitigating vegetation and tree planting within the neighbourhood matures.

6.7.4.9 Doonside Residential Area (viewpoint 12)

Long distance views of the RDC site are available from this location however, existing houses, fences and vegetation block the majority of potential views. The views toward the RDC site are dominated by the Blue Mountains in the background, with extensive tracts of native vegetation in the vicinity of the site as well as some nearby industrial buildings.

Views of the tops of the proposed on-ground concrete storage bins may potentially occur in some nearby residential areas. However, despite this area being of high sensitivity to visual change the visual impact of the proposed Modified RDC will be only negligible to minor from this location due to existing industrial elements, and as long distance views are limited by existing built form and tree planting despite the elevated topography.

Overall visual impacts of the modified RDC on the residential areas within Doonside will be less than the approved RDC due to reduced heights and bulk of the on ground concrete storage bins. Any visual impacts that do occur will likely reduce further over time as proposed mitigating vegetation and tree planting within the neighbourhood matures.

6.7.5 Comparison with Approved RDC Visual Impacts

Table 6.16 provides a summary of the visual impact comparison between the approved and modified RDC. At ten out of the twelve viewpoint locations the visual impact of the modified RDC is less than the approved RDC. The visual impact at the remaining two viewpoint locations is predicted to be the same as or less than the impacts identified in the 2005 EA.

Table 6.16 Summary of Visual Impact Assessment Comparison

Viewpoint Number	Visual Impact Rating Approved RDC	Visual Impact Rating Modified RDC	Visual Impact Comparison
1	Minor	Negligible to Minor	Less Impact
2	Minor	Minor	Less Impact
3	Moderate to Major	Moderate to Major	Less Impact
4	Moderate to Major	Moderate to Major	Less Impact
5	Minor	Negligible to Minor	Less or Same
6	Minor	Minor	Less Impact
7	Minor	Minor	Less Impact
8	Negligible to Minor	Negligible to Minor	Less Impact

Table 6.16 Summary of Visual Impact Assessment Comparison (Cont.)

Viewpoint Number	Visual Impact Rating Approved RDC	Visual Impact Rating Modified RDC	Visual Impact Comparison
9	Minor	Minor	Less or Same
10	Negligible	Negligible	Less Impact
11	Negligible	Negligible	Less Impact
12	Negligible to Minor	Negligible to Minor	Less Impact

6.7.6 Mitigation Measures

Landscape Master Plan

The landscape master plan for the site has been designed to mitigate the visual impacts of the modified RDC project. The landscape masterplan is provided on **Figure 6.17**. Key elements of the landscape design include:

- Ornamental groundcover planting to the Kellogg Road site entrance;
- Small native ornamental tree planting in the proposed car park in the RDC site;
- Native ornamental tree and shrub screen planting within the RDC site along the western site boundary, supplementing existing boundary planting within the OneSteel site;
- Native ornamental shrub and groundcover screen planting to the noise wall adjacent the storage bin facilities;
- Grassed buffer zone with drainage swales between the existing vegetation along Angus Creek and the RDC infrastructure;
- Tree and shrub screen planting of Cumberland Plain Woodland/River-flat Eucalypt Forest species within the RDC site along the eastern site boundary, supplementing existing boundary planting within Nurragingy Reserve, where possible;
- Potential additional tree and shrub boundary screen planting of Cumberland Plain Woodland species along the western and southern edge of Nurragingy Reserve (i.e. within the Reserve), supplementing existing boundary planting, where agreed with BCC and other relevant authorities;
- Tree and shrub planting of Cumberland Plain Woodland species within the site between the rail siding and the OneSteel site, reinforcing the edge of the existing vegetation in the OneSteel site;
- Native ornamental tree and shrub planting at frontage of the proposed office building in the Humes site;
- Native ornamental shrub and climber planting along the boundary of the Humes site adjacent the proposed office building and laboratories; and
- Potential additional tree and shrub screen planting of Cumberland Plain Woodland species in the road reserve adjacent the northern boundary of the Humes site (i.e. outside the site), supplementing existing boundary plantings, where agreed with BCC and other relevant authorities.

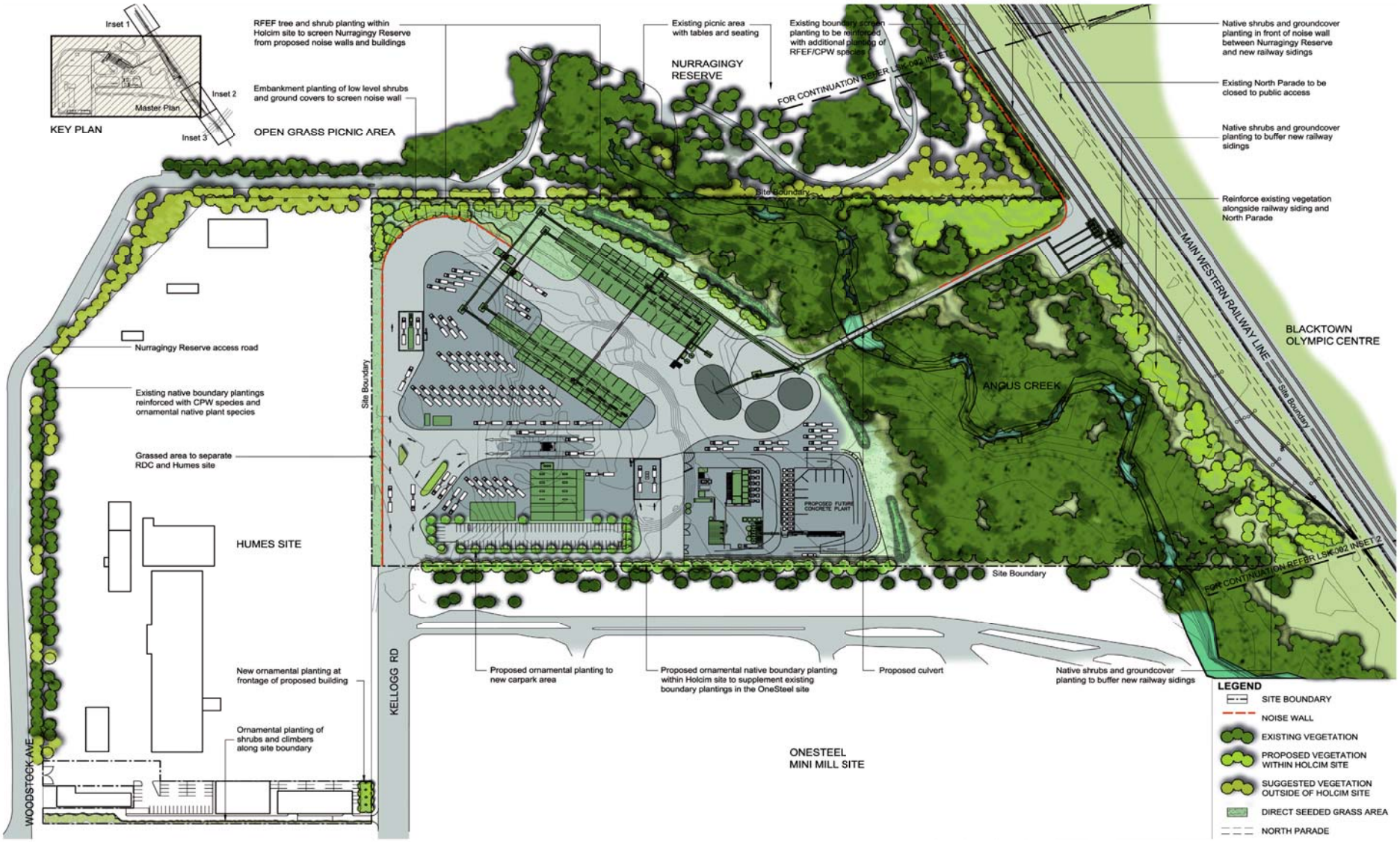


FIGURE 6.17

Landscape Master Plan - Context 2010

Source: Holcim (Australia) Pty Ltd
Note: Not to scale

In addition to the Landscape Master Plan the following mitigation measures will be used to further reduce potential visual impacts of the RDC:

Planning and Design Phase

- Boundary planting design: Tree planting at strategic locations around the RDC site and affected properties should be undertaken to screen parts of the development.
- Increased density of boundary plantings: The density of boundary screen plantings needs to be increased both within the RDC site and potentially in Nurragingy Reserve.
- Reduced clearing: During construction the extent of clearing should be kept to as low as possible to maximise existing screening.

Industrial Plant Colour Selection

- Colour: The externally visible elements of the on-ground concrete storage bins, the concrete plant silos, concrete batching plant, unloading station and other bulky elements, will be coloured in tones that are sympathetic (i.e. green/brown tones) to the surrounding native vegetation.
- Lighting Design: The 24 hours per day, 7 days per week nature of the operations means that lighting will be required within the RDC site throughout the night. It is recommended that the lighting design for the site aim to:
  - avoid highlighting prominent industrial plant such as the bulk storage bins and silos; and
  - minimise the spill of light into surrounding sites.

All lighting associated with the proposed development will be designed, installed and operated in accordance with *AS 4282:1997 - Control of the Obtrusive Effects of Outdoor Lighting*.

Construction and Operational Phases

Measures to reduce visual impacts during construction and operation of the RDC project relate to maintenance of the site in a neat and orderly state. This will be addressed in the CEMP.

6.8 Hazards

A Preliminary Risk Screening (PRS) for the modified RDC has been undertaken by Umwelt to address the requirements of *State Environmental Planning Policy 33 (SEPP 33) Hazardous and Offensive Developments* (1994) and the *Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis* (DUAP, 1997). A summary of the key findings of the PRS in provided below, with the full PRS contained in **Appendix 7**.

6.8.1 SEPP 33 Assessment

SEPP 33 applies to all industries that are considered to be potentially hazardous industry or potentially offensive industry. SEPP 33 is designed to ensure industrial proposals only proceed if they are suitably located and able to demonstrate that they can be built and operated with an adequate level of safety (DUAP 1994).

Clause 3 of SEPP 33 contains the definitions of potentially hazardous industry and potentially offensive industry and these are presented below.

Potentially hazardous industry means a development for the purposes of any industry which, if the development were to operate without employing any measures (including for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

a) to human health, life or property, or

b) to the biophysical environment,

and includes a hazardous industry and a hazardous storage establishment.

Potentially offensive industry means a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.

6.8.2 Preliminary Screening

In order to determine whether an industry is classified as 'potentially hazardous industry', the former Department of Urban Affairs and Planning (DUAP) (now DOP) developed a preliminary risk screening procedure based on the storage, transport and the distance of specific dangerous goods classes from the site boundary that have the potential for significant off-site effects. Hazardous materials are classified by the Australian Code for the Transport of Dangerous Goods by Road and Rail (Australian Dangerous Goods Code). If a project proposes to store quantities of these goods below the relevant thresholds it can be assumed there is unlikely to be a significant off-site risk and the proposal is therefore not classified as 'potentially hazardous industry'.

The modification of the approved RDC involves no changes to the inventories that were documented as part of the 2005 EA. Only small inventories of Class 2 substances (Flammable gases) will be stored on site which do not exceed the relevant screening thresholds outlined in the guideline *Applying SEPP 33* (DUAP 1994) and are therefore the modified RDC is not considered potentially hazardous development. The diesel fuel stored on site is a Class 3 (Combustible – C1) substance, however these substances do not require assessment against the relevant screening thresholds outlined in the guideline *Applying SEPP 33* (DUAP 1994). Therefore, the modified RDC is not considered to be potentially hazardous with respect to the storage or use of hazardous substances.

The modified RDC involves no change to approved traffic arrangements or traffic volumes from the approved project and the transport volumes and frequency do not exceed the SEPP 33 screening thresholds. Therefore, the modified RDC is not considered to be potentially hazardous with respect to the transport of hazardous substances.

The risk screening process has confirmed that the modified RDC is not potentially hazardous and therefore further risk analysis and assessment requirements under SEPP 33 are not required.

Assessment of Potential Offensiveness

In order to determine whether or not the proposal is potentially offensive, it is recommended in DUAP 1994, to consider the following:

- Does the proposal require a licence under any pollution control legislation administered by DECCW?

- Does the proposal require pollution control approval pursuant to any legislation or by-laws administered by Council?

- Does the proposal cause offence having regard to the sensitivity of the surrounding environment?

The development will require an EPL from the DECCW as the development falls under the definition of a Scheduled activity under the POEO Act, being concrete works and extractive industries.

Therefore the development is considered to be potentially offensive and SEPP 33 applies.

DoP (DUAP, 1994) also states, however, that if an EPL can be obtained for a development, the development is not considered to be an 'offensive industry' and is permissible under SEPP 33.

Subject to project approval being granted for the proposed minor modifications, Holcim will apply for an EPL for the Project from the DECCW. The final scope of the EPL will be determined in consultation with DECCW during the licence application process. In accordance with Section 75V of the EP&A Act (refer to **Section 4.0**) the EPL application cannot be refused, with this situation also applying to the currently approved RDC. As such it is considered that an EPL will be obtained for the Project, and the proposed facility does not constitute an 'offensive industry' as defined by SEPP 33.

6.8.3 Final Hazard Analysis

Alinta's Sydney to Newcastle High Pressure Natural Gas Pipeline was not identified as a potential hazard during the preliminary risk screening since the process is focussed on the storage and transportation of specific classes of dangerous goods. However the pipeline is located in an easement which runs approximately north-south, outside the eastern boundary of the RDC site (refer to **Figure 6.18**) in which construction activities associated with the rail siding works will be undertaken.

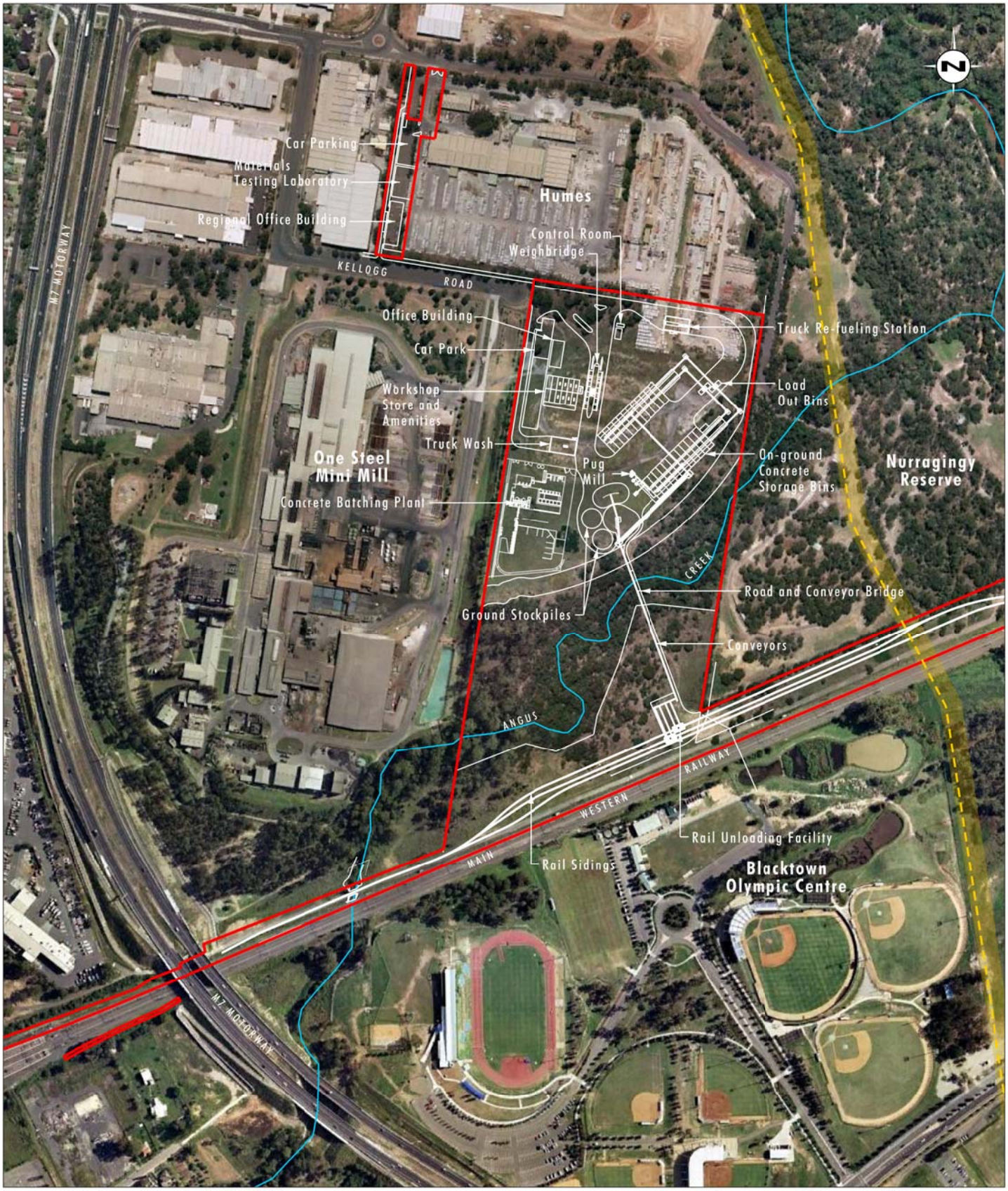
The 2006 Project Approval for the RDC recognised the potential risks associated with the gas pipeline and as such, Condition 1.12 required the preparation of a Final Hazard Analysis (FHA) to review the potential impact of the RDC on the Sydney to Newcastle High Pressure Natural Gas Pipeline. The required FHA has been prepared and a summary of the key findings of the FHA is provided below, with the full FHA contained in **Appendix 7**.

6.8.4 Final Hazard Analysis Methodology

The FHA methodology was based on the Hazard Industry Planning Advisory Paper (HIPAP) from DoP and *AS2885 Pipelines - Gas and Liquid Petroleum – Operation and Maintenance*. The steps involved in the preparation of the FHA included:

- a hazard identification study to identify:

    - possible causes of risks and potentially hazardous incidents associated with the proposed development with respect to the Sydney to Newcastle High Pressure Natural Gas Pipeline; and
    - potentially hazardous incidents that have the potential for off-site impact;



Source: Holcim and Google Earth 2010

0 100 200 300m
1:6000

Legend

- Approved RDC Site Boundary
- Indicative Modified RDC Layout
- Sydney to Newcastle Gas Pipeline
- Sydney to Newcastle Gas Pipeline Easement

FIGURE 6.18

Indicative Modified RDC and Sydney to Newcastle Gas Pipeline

- qualitative risk analysis and assessment of the consequence/likelihood of the hazardous incidents that have the potential for off-site impact;
- identification, with the proponent, of appropriate safeguards and procedures which may be employed to minimise risk to the adjacent land users; and
- an outline of operational and organisational safety controls.

A facilitated hazard identification study was undertaken as part of the preparation of the FHA with key stakeholders including representatives from Holcim, Alinta and the consulting engineers Hughes Trueman.

6.8.5 Final Hazard Analysis Findings

The hazard identification study identified a number of credible hazard scenarios associated with the development in relation to the gas pipeline. The subsequent level 1 qualitative risk analysis and assessment concluded that none of the risks associated with the gas pipeline constitute extreme risks and that these risks could be mitigated and managed via the following technical and non technical safeguards.

The key technical control measures identified during the hazard identification study included:

- design of piping and structures in accordance relevant standards;
- geotechnical assessment to determine soil stability prior to construction activities;
- use of appropriate equipment to minimise the impact on the pipe in the event of contact; and
- use of process and design controls including limited excavation depths, buffer distances and designated crossings to limit potential for contact with or overstress of the pipe.

The key non-technical safeguards and procedures identified during the hazard identification study included:

- assessment of process designs, site layout and design changes;
- procedural control including Alinta's Daily Permit System and site inductions;
- preparation of operating/construction procedures, including awareness and training;
- cessation of operations in adverse weather conditions;
- implementation of site speed limit, driver training, route selection and physical barriers where appropriate;
- provision of physical controls including fencing of siding during construction;
- limiting access to authorised personnel only and implementation of security patrol if necessary;
- appropriate training and supervision of operations; and
- provision of ongoing maintenance and operation procedures.

The FHA concluded that the risk of off-site impacts associated with the development is negligible and the risk of propagation and cumulative impacts on surrounding land uses is negligible.

6.9 Other Environment and Community Issues

The modified RDC will not result in any additional Aboriginal heritage, traffic, aquatic ecology, waste or socio economic impacts to that identified and assessed in the 2005 EA. As such no further assessment is warranted and no additional mitigation measures are proposed.

The following sections (**Sections 6.9.1** to **6.9.4**) provide a summary of the key findings of the 2005 EA for completeness.

6.9.1 Traffic

No changes to the traffic volumes or the traffic routes are proposed due to the modification of the RDC. The traffic impacts associated with the construction and operation of the RDC as identified in the 2005 EA are therefore unchanged. No additional mitigation measures or further assessment is therefore required.

All vehicles (heavy and light) associated with the site will utilise parts of either; Woodstock Avenue, Glendenning Road/Power Street or the Westlink M7 to access the site. All heavy vehicle movements related to the RDC will utilise the M7 and will not encroach on residential streets.

The RDC will primarily be accessed via Kellogg Road from where heavy vehicles will proceed to the inbound weigh bridge area to be directed to the relevant loading station. After loading the vehicles will proceed via the outbound weigh bridge and depart via Kellogg Road. The average daily traffic generation from the RDC under the maximum operating capacity (4Mtpa) is provided in **Table 6.17**. The traffic generated from the RDC site (maximum 295 total vehicle movements in the peak hour) will only negligibly impact on the hourly traffic on the M7 (6000-8000 vehicles/hour).

Table 6.17 – Average Daily Traffic Generation

	Type of Vehicle	No. of Vehicles Entering and Exiting the Site/day
Staff	Car	185
Aggregate distribution	Heavy vehicle	400
Concrete deliveries	Agitator	133
General deliveries	Car/van	50
Special deliveries	Heavy vehicle	18

Improvements to the road network form part of the approved project, including an upgrade to the intersection if Kellogg Road and Woodstock Avenue. These works will be undertaken in consultation with BCC.

6.9.2 Aboriginal Heritage

An archaeological assessment of the RDC site was undertaken for the 2005 EA, which included historical research, literature and register reviews, consultation with representatives of local Aboriginal groups including the Deerubbin Local Aboriginal Land Council, the Darug

Tribal Aboriginal Corporation and the Darug Custodians Aboriginal Corporation and field survey.

No Aboriginal sites were identified in or close to the RDC site or on the creek margins near the western boundary of the site area.

Therefore there are no known Aboriginal archaeological constraints to the development of the RDC site. Management controls were provided in the 2005 EA (NECS, 2005).

6.9.3 Aquatic Ecology

Modification of the 2006 approved RDC will not result in any additional impacts on Angus or Eastern Creeks to that identified and assessed as part of the 2005 EA (NECS, 2005). No additional mitigation measures are warranted and no further assessment is therefore required. The following summary information is adapted from the 2005 EA (NECS, 2005).

The site is located within the Hawkesbury-Nepean Catchment and is associated with Angus Creek which flows across the site into Eastern Creek which is a tributary of South Creek. An aquatic ecology assessment was undertaken in 2005 as part of the 2005 EA to determine the conservation significance of the site in terms of threatened aquatic species, populations and ecological communities that occurred or could occur on the site. The assessment included surveys of the waterway and riparian environmental values of Angus and Eastern Creeks. The assessment included survey of water quality, macroinvertebrates, fish and habitat.

The assessment determined that Angus Creek was highly impacted by stormwater discharge resulting in short periods of high velocity flows, associated bank erosion, water quality degradation and further disturbance by large amounts of rubbish. The water quality of the creek was considered highly disturbed with low levels of dissolved oxygen, and high conductivity and turbidity.

The habitat associated with Angus Creek was consistent with a disturbed lowland creek with introduced riparian species commonly occurring along the riparian buffer. Eastern Creek was identified as being a lowland turbid creek that has generally suffered the effects of urbanisation of the catchment.

Both creeks were determined to support moderate to minor fish habitat and generally modified habitat conditions. Few native fish species were present in either creek and the populations were dominated by the introduced mosquito fish *Gambusia holbrooki.* The low diversity of fish species was an indicator that Angus and Eastern Creeks were degraded urban waterways.

The macroinvertebrate communities present within the creeks were characteristic of typical urban waterways and all sites recorded a pollution problem.

No threatened aquatic species, populations or endangered aquatic ecological communities were recorded during the aquatic assessment.

Potential impacts on aquatic ecology were identified as:

- Sedimentation and runoff;
- Increased salinity;
- Restriction to fish passage; and
- Pest species.

These measures were managed through the design of an effective water management system as part of the project and appropriate design of bridge and culvert structures.

6.9.4 Waste

Construction and operation of the modified RDC will not result in the generation of additional waste when compared to the approved RDC. No further assessment of waste related impacts is therefore required.

Waste generated during construction will be typical of any development, being building materials such as concrete, steel, insulation and wiring, waste originating from site preparation including vegetation, rubble and fill waste and workforce waste associated with contractors. The solid waste will be disposed of to a licensed landfill or recycling facility.

Waste water generated on site will be reused on site during processing or discharged as clean stormwater. The solid waste generated on site during operation will include concrete washout, returned concrete generated in settlement pits, steel/industrial waste from maintenance activities and domestic waste. The solid waste will be disposed of to a licensed landfill or recycling facility. Dedicated waste bins will be used for domestic waste including office waste and disposed of using normal Council collections.

Waste related issues will be managed through the CEMP during the construction phase and through the OEMP during the operational phase.

6.10 Socio-economic

The Approved RDC project generated a range of local community interest, raising a number of issues for consideration it the original environmental assessment and approvals process (refer to **Section 4.1**). These previously issues have all been considered in this EA for the Modified RDC. A further consultation program was undertaken for this project with relevant stakeholders, with further issues raised for consideration by Holcim in the detailed review of the project and in the completion of this EA (refer to **Section 4.2**). The assessment findings related to these issues are outlined in the relevant sections throughout **Section 6.0**, however, in summary, the findings related to the key community issues include:

- there are no changes to traffic arrangements, volumes or impacts;
- visual impacts are reduced as an outcome of the Modified RDC;
- noise impacts are reduced at residential receiver locations as an outcome of the Modified RDC;
- air quality impacts are substantially the same as for the Approved RDC;
- there are no changes to impacts on water resources; and
- employment numbers remain unchanged.

As identified above, there are no changes to predicted employment numbers as a result of the proposed modifications to the RDC. This means that there will be no changes to the population related impacts and flow on economic impacts when compared to the Approved RDC project.

In regard to predicted employment outcomes as part of the project, peak construction employment will be approximately 220 people. During operation the project will employ

approximately 250 people (in full operation). Based on the 2005 EA findings (NECS, 2005), it is expected that approximately 60 of these jobs will be locally sourced, stimulating an estimated additional 220 jobs within the Greater Western Sydney region.

In regard to the economic impact of the RDC project, approximately $35 million of the total capital costs of construction will be paid in wages and based on the predictions in the 2005 EA, this will result in approximately $9 million for Blacktown and a further approximately $10.5 million within the Greater Western Sydney Region. During the operation of the RDC annual wages for employees are predicted to be approximately $16 million resulting in a significant input to the local and regional economies.

The RDC project also plays a crucial role in the ongoing security of supply of construction materials to the Sydney market, given the approaching closure of the PLDC scheme that currently supplies a significant proportion of Sydney's construction materials. The implementation of the RDC project is part of Holcim's long-term strategy for supplying construction materials into Sydney from surrounding regional areas using the rail network, a more efficient transport option than road haulage. There is significant ongoing need for construction materials for the maintenance and enhancement of development in the Sydney region. The Modified RDC will assist in meeting this need.

The RDC will make a significant contribution to the local, regional and state economies through employment, capital expenditure of approximately $100M, through the payment of wages, through annual operating expenditure and through payment of State and Commonwealth taxes and fees.

In regard to the proposed modifications, the findings provided in this EA have identified that the proposed modifications will not result in any significant changes to the environmental and social impacts when compared to the approved RDC, and in many cases will reduce the impacts when compared to the approved RDC project. The positive economic benefits of the project, however, remain unchanged. Therefore, the overall socio-economic impacts of the Modified RDC are considered to be less than those of the approved RDC.

7.0 Draft Statement of Commitments and Proposed Changes to Consent Conditions

7.1 Draft Statement of Commitments

If approval is granted under Section 75W of the EP&A for the proposed modifications, and in addition to the Project Approval Conditions for the RDC, Holcim will commit to the following:

Compliance with this EA

1. To carry out the project generally in accordance with the modification application and this EA report.

Noise

2. The following noise controls will be implemented for the Modified RDC:

    - all conveyor drives and transfer points will be enclosed (or alternative comparative mitigation);
    - the most eastern side of the truck load-out facility will be enclosed;
    - noise walls will be constructed during the site establishment phase of construction (refer to **Figure 6.1** for noise wall locations. Noise wall specifications are outlined in **Appendix 2**);
    - plant design, specification and implementation of the Modified RDC to achieve the relevant noise criteria (refer to **Appendix 2**);
    - during construction noisy equipment will be situated behind structures that act as barriers or at distance from the noise-sensitive areas, where possible;
    - construction plant and equipment will be maintained in good working order;
    - during construction 'quiet' practices will be employed when operating equipment (e.g. unloading of trucks away from noise sensitive areas); and
    - Holcim will liaise with Blacktown City Council and the Western Sydney Parklands Trust regarding the management of construction noise impacts on Nurragingy Reserve.

    Holcim is committed to achieving the noise mitigation outcomes achieved by the above management controls. As technological advances occur and through implementing operational management controls, Holcim may be able to achieve the same noise mitigation outcomes through alternative means. Holcim may therefore modify the above management controls in response to these technological advances or operational controls, provided that the same overall noise management outcomes are achieved.

Air Quality

Construction

3. Holcim will implement the following controls during construction of the modified RDC to minimise dust emissions associated with the Project:

    - minimising all disturbed areas and stabilisation by progressive rehabilitation/stabilisation as soon as practicable;
    - clearly identifying and delineating areas required to be disturbed and ensuring that disturbance is limited to those areas;
    - minimising the area of disturbance by restricting vegetation clearing ahead of construction activities;
    - removal of any material which is tracked onto pavement surfaces at the end of each working day;
    - place hardstand material or install rumble grids at site exit points onto public roads to minimise the tracking of soil onto pavement surfaces;
    - all trafficable areas on the site will be maintained in a condition that will minimise the generation or emission of windblown or traffic generated dust from the site at all times;
    - vegetation will be established on soil stockpiles if they will be undisturbed for a period longer than three months;
    - topsoil stripping will be undertaken when there is sufficient moisture content in the soil to minimise dust generation;
    - plant and equipment will not be left idling when not in use;
    - restricting or ceasing dust-generating activities on extremely windy or dry days; and
    - ensuring that all equipment used on site will be maintained in good working order and in accordance with manufacturers specifications to minimise emissions.

Operation

4. Holcim will implement the following controls to minimise dust emissions associated with the operation of the project:

    - all conveyor transfer points will be enclosed;
    - conveyors will be covered on at least three sides;
    - water sprays will be used within the transfer point enclosures, rail unloading facility and in other enclosures as required to further minimise dust;
    - water spray systems will be installed to service all stockpiles;
    - the rail unloading facility will be enclosed in a building that is open at each end to allow trains to pass through;

- all paved trafficable areas shall be swept as required by a permanently stationed street sweeper to minimise dust;

- all trafficable areas on the site will be maintained in a condition that will minimise the generation or emission of windblown or traffic generated dust from the site at all times;

- plant and equipment will not be left idling when not in use;

- the radial stacker and associated stockpiles will have water sprays which will be used when the facility is in operation, including when loading vehicles, as required to suppress dust;

- vehicle movements will be confined to designated areas, and vehicles will only travel on sealed roads; heavy vehicles entering and leaving the site that are carrying loads shall be covered at all times, except during loading and unloading activities; and

- ensuring that all equipment used on site will be maintained in good working order and in accordance with manufacturers specifications to minimise emissions.

Ecology

5. In addition to the existing commitments the following mitigation measures will be implemented to further reduce the impact of the modified RDC:

    - prior to any clearing operations being undertaken, the limits of clearing will be clearly marked;

    - native logs and bark removed during construction will be retained and reused in areas of Cumberland Plain Woodland, during regeneration and revegetation to provide sheltering habitat for the Cumberland land snail;

    - sedimentation and erosion control measures will be put in place and maintained during construction and operation to ensure that soil material does not enter surrounding woodland and waterways; and

    - the post-construction rehabilitation program will use local native plant species and incorporate a weed control program to prevent the spread of weed species into the surrounding woodland landscape.

6. Holcim will consider the small additional area of Cumberland Plain Woodland to be cleared for the Modified RDC when establishing the Ecological Offset for the project as part of the preparation of the Vegetation Management Plan required by Project Approval Condition 2.24.

Water Resources

7. All erosion and sediment control measures will be carried out in accordance with relevant guidelines for erosion and sediment control, including Managing Urban Stormwater: Soils and Construction (the Blue Book):

    - *Volume 1* (Landcom, 2004); and

    - *Volume 2D Main road construction* (DECC, 2008).

Greenhouse

8. Holcim will develop and implement of an Energy Saving Management Plan (ESMP) as part of the Operation Environmental Management Plan. The ESMP will review energy usage, identify energy savings opportunities, and based on this will implement viable energy saving measures.

Visual

9. The externally visible elements of the on-ground concrete storage bins, the concrete plant silos, concrete batching plant, unloading station and other bulky elements, will be coloured in tones that are sympathetic (i.e. green/brown tones) to the surrounding native vegetation.

Hazard

10. The following control measures will be implemented associated with the development in relation to the high pressure gas pipeline:

    Technical control measures include:

    - design of piping and structures in accordance relevant standards;
    - geotechnical assessment to determine soil stability prior to construction activities;
    - use of appropriate equipment to minimise the impact on the pipe in the event of contact; and
    - use of process and design controls including limited excavation depths, buffer distances and designated crossings to limit potential for contact with or overstress of the pipe.

    Non-technical safeguards and procedures include:

    - assessment of process designs, site layout and design changes;
    - procedural control including the pipeline owner's Daily Permit System and site inductions;
    - preparation of operating/construction procedures, including awareness and training;
    - cessation of operations in adverse weather conditions;
    - implementation of site speed limit, driver training, route selection and physical barriers where appropriate;
    - provision of physical controls including fencing of siding during construction;
    - limiting access to authorised personnel only and implementation of security patrol if necessary;
    - appropriate training and supervision of operations; and
    - provision of ongoing maintenance and operation procedures.

7.2 Proposed Changes to Consent Conditions

Based on the proposed modifications, should the Minister elect to approve the modification application, Holcim suggests the following changes be made to the conditions of Project Application 05-0051 (note changes highlighted by strikethrough text (deletions) or underline (additions)):

Condition 1.1 and 1.2

1.1 The Proponent shall carry out the project generally in accordance with the:
a) Project Application 05_0051;
b) *Environmental Assessment Report for the Proposed Regional Distribution Centre, Rooty Hill*, volumes 1-3, prepared by National Environmental Consulting Services, dated October 2005;
c) *Response to Issues Raised in Submissions to EAR*, prepared by National Environmental Consulting Services, dated February 2006;
d) the final Statement of Commitments, submitted by the Proponent to the Department on 17 March 2006; ~~and~~
e) *Environmental Assessment Proposed Minor Modifications to Regional Distribution Centre, Rooty Hill*, prepared by Umwelt (Australia) Pty Limited, dated August 2010.
f) the conditions of this approval.

1.2 If there is any inconsistency between the above documents, ~~the conditions of this approval shall prevail to the extent of the inconsistency~~ the most recent document shall prevail to the extent of the inconsistency. However, the conditions of the approval shall prevail to the extent of any inconsistency. An inconsistency includes any contrariety between the documents that both cannot exist or be met together as well as any general lack of agreement between the above documents.

The commitments in the September 2010 EA for the minor modification (condition 1.1(e)) supersede the commitments in the earlier assessment documents and responses (conditions 1.1(b) to 1.1(d)) to the extent that any of these conditions address the same subject matter.

Condition 2.19

2.19 Access to the site during operation of the project shall be via Kellogg Road and Woodstock Avenue. Access to the site via the existing ~~and realigned~~ North Parade shall be for maintenance purposes or emergency access only.

Condition 2.20A

2.20A Subject to condition 2.20, prior to the commencement of construction of the project, the Proponent shall develop, in consultation with Council and the Roads and Traffic Authority, a schedule for the implementation of road upgrades, ~~relocations and replacements~~ necessary for the implementation of the project, as specified under this approval and the EAR and as amended by the conditions of this approval. The schedule shall include but not necessarily be limited to:
a) timing and coordination of the road works recommended in section 7.10 of the EAR for the project, having regard to the timing for implementation of the project~~, Council's operational requirements with respect to North Parade~~ and coordination of all road works to minimise conflict with other road users;
b) .....
c) .....

d) arrangements for the funding of road works by or on behalf of the Proponent, ~~equivalent to the full cost of the North Parade works,~~ and equivalent to percentage of road traffic contributed by the project to site access routes, and

Condition 2.21B
Delete condition.

Condition 2.31
2.31 The Proponent shall generally design, construct and maintain all stormwater management infrastructure on the site having regard to:
a).....
b) .....
c) ~~Landcom's *Managing Urban Stormwater: Soils and Construction, 4th edition March 2004*;~~ *Managing Urban Stormwater: Soils and Construction* (the Blue Book):

- *Volume 1* (Landcom, 2004); and
- *Volume 2D Main road construction* (DECC, 2008);

8.0 Conclusion and Ecologically Sustainable Development

Prior to any development taking place in NSW, a formal assessment needs to be made of the proposed development to ensure it complies with relevant planning controls and, according to its nature and scale, confirm that it is environmentally, socially and economically sustainable. The EP&A Act provides the framework for the assessment of development proposals and allows for members of the public to participate in the decision making process that will determine future land uses.

The objectives of the EP&A 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; and
ii. the promotion and co-ordination of the orderly and economic use and development of land; and
iii. the protection, provision and co-ordination of communication and utility services; and
iv. the provision of land for public purposes; and
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 modified RDC, including the environmental management procedures outlined in this EA, are considered to meet the relevant objectives of the EP&A Act. In particular:

- the modified RDC will provide for the transport and distribution of quarry products in a coordinated, integrated and energy efficient manner. These products are required for the ongoing maintenance and development of Sydney's built environment;

- the operations will be managed in an environmentally responsible manner through the implementation of Holcim's SHE management system and in accordance with the statutory framework for environmental management;

- relevant government and community stakeholders have been consulted in relation to the modified RDC, with relevant issues addressed as part of this EA, to provide an opportunity for relevant stakeholders to participate in the environmental impact assessment process;

- this EA has addressed the potential environmental impacts associated with the modified RDC and has found that predicted impacts meet all relevant criteria within areas surrounding the RDC site and that the modified RDC will not have a significant impact on biodiversity or cultural values; and

- as discussed in **Section 7.2**, the modified RDC is considered to be consistent with the principles of Ecologically Sustainable Development.

8.1 Overview of Environmental Impacts

The potential environmental impacts of the modified RDC have been identified through a process involving:

- assessment of the site characteristics (existing environment);
- consultation with government agencies, the community and other stakeholders;
- environmental risk assessment; and
- expert technical assessment.

The key issues identified were the subject of comprehensive technical assessments to assess the potential impacts of the modified RDC on the existing environment. The results of these assessments are detailed in **Section 6.0** and the appendices to this EA.

Whilst there are many complex aspects which must be read in their entirety to fully understand these assessments, **Table 7.1** provides a broad overview of the key outcomes of the environmental and social impact assessment.

Table 7.1 - Overview of Environmental and Social Impacts

Environmental/Social Issue	Overview of Key Outcomes (After proposed Management and Mitigation)
Noise	• Operation of the modified RDC will comply with noise criteria at all residential and recreational locations. • Noise impacts are reduced as a result of the proposed modification when compared to the approved RDC.
Air Quality	• The modified RDC will make minimal contribution to local dust levels and is predicted to comply with all relevant criteria. • The air quality impacts are substantially the same as the approved RDC.
Ecology	• Minimal vegetation clearing is required as a result of the proposed modifications. • The project will not have a significant impact on listed threatened species and CEECs. • A compensatory habitat package will be implemented to offset the impact of the modified RDC on Cumberland Plain Woodland, in accordance with the requirements of the Project Approval.
Water Resources	• The modified RDC is predicted to have no impact on the predicted 100 year ARI flood levels at the RDC site and the neighbouring properties and groundwater systems, when compared to the approved RDC. • Erosion and sediment control measures, as outlined for the approved RDC will be implemented during construction and operation of the RDC. • The modified RDC is expected to have negligible impacts on the approved water management system.

Environmental/Social Issue	Overview of Key Outcomes (After proposed Management and Mitigation)
Greenhouse and Energy	• The modified RDC will not result in any additional greenhouse gas emissions. • The assessment for the Modified RDC has been completed using an adapted methodology following contemporary standards. • The modified RDC will make a very small contribution to global greenhouse gas emissions. • The use of rail to transport the quarry product to the RDC results in a significant reduction in emissions when compared to road transport. • Opportunities for improving energy efficiency will be pursued during the life of the RDC.
Visual Amenity	• The visual impact of the modified RDC will be less than the impact of the approved RDC at 10 out of the 12 viewpoint locations. • The impact at the remaining 2 viewpoint locations will be less or the same as the approved RDC.
Hazard	• Construction activities within the Sydney to Newcastle High Pressure Natural Gas Pipeline easement can be mitigated and managed via technical and non technical safeguards, such that the impacts would be negligible and the risk of propagation and cumulative impacts on surrounding land uses is negligible.
Aboriginal and Historic Heritage	• The modified RDC will not impact on Aboriginal sites or historical archaeological sites.
Traffic	• No changes to the traffic volume or access arrangements are proposed as part of the modified RDC.
Aquatic Ecology	• The modified RDC will not result in any additional impacts on Angus or Eastern Creeks to that identified and assessed as part of the approved RDC.
Socio-economic Assessment	• Employment numbers for the construction and operational phases are unchanged as a result of the modified RDC. • Further socio-economic impacts of the project are discussed in **Section 6.10.5**.

The impacts of the Modified RDC project have been kept to a minimum through:

- obtaining a detailed understanding of the issues and impacts by scientific evaluation;
- close consideration of environmental and community factors as part of an iterative design process to avoid or minimise impacts;
- development of proactive and appropriate strategies to avoid, minimise and mitigate or manage; and
- a Statement of Commitments (refer to **Section 7.0**).

8.2 Ecologically Sustainable Development

The EP&A Act aims to encourage ESD within NSW. As outlined in **Section 5.0**, the modified RDC requires approval from the Minister under Section 75W of the EP&A Act. As such, the Minister needs to be satisfied that the modified RDC is consistent with the principles of ESD.

This section provides an assessment of the modified RDC in relation to the principles of ESD.

To justify the modified RDC with regard to the ESD principles, the benefits of the modified RDC in an environmental and socio-economic context should outweigh any negative impacts. The ESD principles encompass the following:

- the precautionary principle;
- inter-generational equity;
- conservation of biological diversity; and
- valuation and pricing of resources.

Essentially, ESD requires that current and future generations should live in an environment that is of the same or improved quality than the one that is inherited.

8.2.1 The Precautionary Principle

The EP&A Regulation defines the precautionary principle as:

> Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
>
> In the application of the precautionary principle, public and private decisions should be guided by:
>
> (i) Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
> (ii) an assessment of the risk-weighted consequences of various options.

In order to achieve a level of scientific certainty in relation to potential impacts associated with the modified RDC, this EA has undertaken an extensive evaluation of all the key components of the modified RDC. Detailed assessment of all key issues has been conducted and necessary management procedures comprehensively documented in this EA.

The assessment process has involved a detailed study of the existing environment (refer to **Section 6.0**), and the use of engineering and scientific modelling to assess and determine potential impacts as a result of the modified RDC. To this end, there has been careful evaluation to avoid, where possible, irreversible damage to the environment.

The decision making process for the design, impact assessment and development of management processes has been transparent in the following respects:

1. Relevant government authorities and community representatives were consulted during EA preparation (refer to **Section 4.0**). This enabled comment and discussion regarding potential environmental impacts and proposed environmental management procedures.

2. Holcim has an established Safety, Health and Environment (SHE) management system, incorporating environmental management plans, procedures and environmental monitoring, that has been implemented for its current operations and which will be implemented in regard to the modified RDC. In addition, the management controls that will be implemented by Holcim as part of the implementation of this modified RDC have been clearly specified in **Sections 6.0** and **7.0**.

3. This EA has been undertaken on the basis of the best available scientific information about the RDC site. Where uncertainty in the data used in the assessment has been identified, a conservative worst case analysis has been undertaken and contingency measures have been identified to manage that uncertainty. A validation program will also be implemented in accordance with the existing Project Approval conditions to measure predicted against actual impacts of the modified RDC, so that contingency measures, if required, can be implemented in a timely and pro-active manner.

4. An auditing and review process is an integral component of Holcim's existing SHE system, and is required by the Project Approval conditions, providing for verification of the modified RDC's performance by independent auditors and relevant government agencies.

8.2.2 Intergenerational Equity

The EP&A Regulation defines intergenerational equity as:

> Intergenerational equity namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

Intergenerational equity refers to equality between generations. It requires that the needs and requirements of today's generations do not compromise the needs and requirements of future generations in terms of health, bio-diversity and productivity.

The key objective of the modified RDC is to provide for the efficient supply and distribution of quarry products to the Sydney market. Rail transportation of quarry products to the RDC for subsequent distribution via trucks to Sydney customers, significantly minimises the upstream greenhouse gas emissions of transport.

As detailed in **Section 6.0**, the modified RDC can be undertaken without having a significant impact on the local environment or community and is predicted to meet all relevant amenity criteria at the nearest residential locations. The Modified RDC is also predicted to have reduced environmental impacts when compared to the Approved RDC. The environmental management measures discussed in **Sections 6.0** and **7.0** have been developed to minimise the impact of the modified RDC on the environment and community to the greatest extent reasonably possible.

The management of environmental issues as outlined in this EA will maintain the health, diversity and productivity of the environment for future generations.

8.2.3 Conservation of Biological Diversity

The conservation of biological diversity refers to the maintenance of species richness, ecosystem diversity and health and the links and processes between them. All environmental components, ecosystems and habitat values potentially affected by the Project are described in this EA. Potential impacts are also outlined and measures to ameliorate any negative impact are also provided in **Section 6.5**.

The modified RDC has been designed to minimise impact on native vegetation areas, with the majority of the modified RDC undertaken within the disturbance footprint of the approved RDC. The modified RDC will result in an additional 600 m^2 of vegetation disturbance. The majority of which (530 m^2) is identified as cleared/disturbed areas. A small area of Cumberland Plain Woodland CEEC, (70 m^2) will be impacted by the modified RDC, however, this will be significantly offset by the implementation of a compensatory package in accordance with the existing project approval conditions. The ecological assessment

completed for the modified RDC (refer to **Section 6.5**) has found that due to the degraded nature of the additional vegetation to be disturbed and the minimal area of disturbance, the modified RDC will not have a significant impact on biodiversity.

8.2.4 Valuation and Pricing of Resources

The goal of improved valuation of natural capital has been included in Agenda 21 of Australia's Intergovernmental Agreement on the Environment. The principle of improved valuation and pricing refers to the need to determine proper values of services provided by the natural environment. The objective is to apply economic terms and values to the elements of the natural environment. This is a difficult task largely due to the intangible comparisons that need to be drawn in order to apply the values.

The modified RDC optimises the valuation and pricing of the quarry resource with minimal impact by:

- optimising transport efficiencies as part of the distribution of quarry products to the Sydney market by using rail as the primary transport mode; and
- designing the project to reduce environmental impacts including minimising the extent of ground disturbance and vegetation clearance.

Project feasibility considerations have included the costs of integration of effective management measures to minimise potential environmental and social impacts.

8.3 Conclusion

The RDC will play a crucial role in the ongoing security of supply of construction materials to the Sydney market, given the approaching closure of the PLDC scheme that currently supplies a significant proportion of Sydney's construction materials. The implementation of the RDC project is part of Holcim's long-term strategy for supplying construction materials into Sydney from surrounding regional areas using the rail network, a more efficient transport option than road haulage. The proposed modifications to the RDC will optimise the project resulting in operational and economic efficiencies, and providing substantial benefits to Holcim.

As discussed in **Section 6.0**, the modifications to the RDC in general result in a reduced environmental impact. Key findings include:

- there are no changes to traffic arrangements, volumes or impacts;
- visual impacts are reduced as an outcome of the Modified RDC;
- noise impacts are reduced at residential receiver locations as an outcome of the Modified RDC;
- air quality impacts are substantially the same as for the Approved RDC;
- there are no changes to impacts on water resources; and
- employment numbers remain unchanged.

Importantly the modified RDC does not predicted any increase in environmental impacts for any environmental aspects.

The environmental impacts of the modified RDC while reduced, are not significantly different to the environment and social impacts to that detailed in EA approved in 2006, whilst the economic benefits of and need for the RDC remain unchanged. The economic, social and environmental benefits of the modified RDC are therefore consistent with that documented in the 2005 EA.

The modified RDC will provide input into the economy of NSW through capital expenditure, employment and payment of royalties and taxes. The modified RDC will provide for peak employment of approximately 220 people during the construction period of two years and 250 people during operation of the modified RDC, providing an important input into the local and regional economics.

The modified RDC is considered to be consistent with relevant objectives of the EP&A Act, including the principles of ESD. Therefore, on considering the balance of environment and community impacts, it is considered that it would be reasonable for the Minister to conclude that the benefits of the proposed modifications to the RDC outweigh the impacts.

APPENDIX 1

Environment Assessment Statement of Authorship, Schedule of Lands and Project Team

APPENDIX 2

Noise Assessment

APPENDIX 3

Air Quality Assessment

APPENDIX 4

Ecological Assessment

APPENDIX 5

Greenhouse Gas and Energy Impact Assessment

APPENDIX 6

Visual Impact Assessment

APPENDIX 7

Preliminary Risk Screening

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