

ASSESSMENT REPORT

Lynwood Quarry

Site Infrastructure and Construction Route Modification (DA 128-5-2005 Mod 2)

1 BACKGROUND

Holcim (Australia) Pty Ltd (Holcim) owns the Lynwood Quarry, located approximately 3 kilometres (km) west of Marulan and approximately 27 km northeast of Goulburn (see Figure 1). On 21 December 2005, the then Minister for Planning granted development consent for the construction and operation of the Lynwood Quarry. The development consent was subsequently modified in April 2009 to reduce the western extent of the approved quarry footprint and alter the layout of site infrastructure.



Figure 1: Quarry Location

The modified consent allows the extraction of 5 million tonnes per annum (Mtpa) of hard rock and transportation of a maximum of 1.5 Mtpa of quarry products via road, with the remaining product being transported via rail to all domestic markets. This consent is due to lapse in 2038. The quarry is partially constructed and is expected to commence operations in 2013. A plan depicting the approved quarry layout is provided in Figure 2 below.



Figure 2: Approved Quarry Layout

2 PROPOSED MODIFICATION

A detailed design study undertaken by Holcim in 2009 identified potential improvements to the layout of the site infrastructure. On 12 October 2010, Holcim applied to modify its development consent under section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed modifications are depicted in Figures 3 and 4 and described in full in the Environmental Assessment (EA) submitted in support of the application.

The proposed modifications include:

- reconfiguring the proposed rail loop to a spur, and associated changes to site infrastructure;
- initial use of a fixed in-pit primary crusher with resultant changes to in-pit development; and
- increased movement of heavy vehicles during construction and alternate construction access routes.

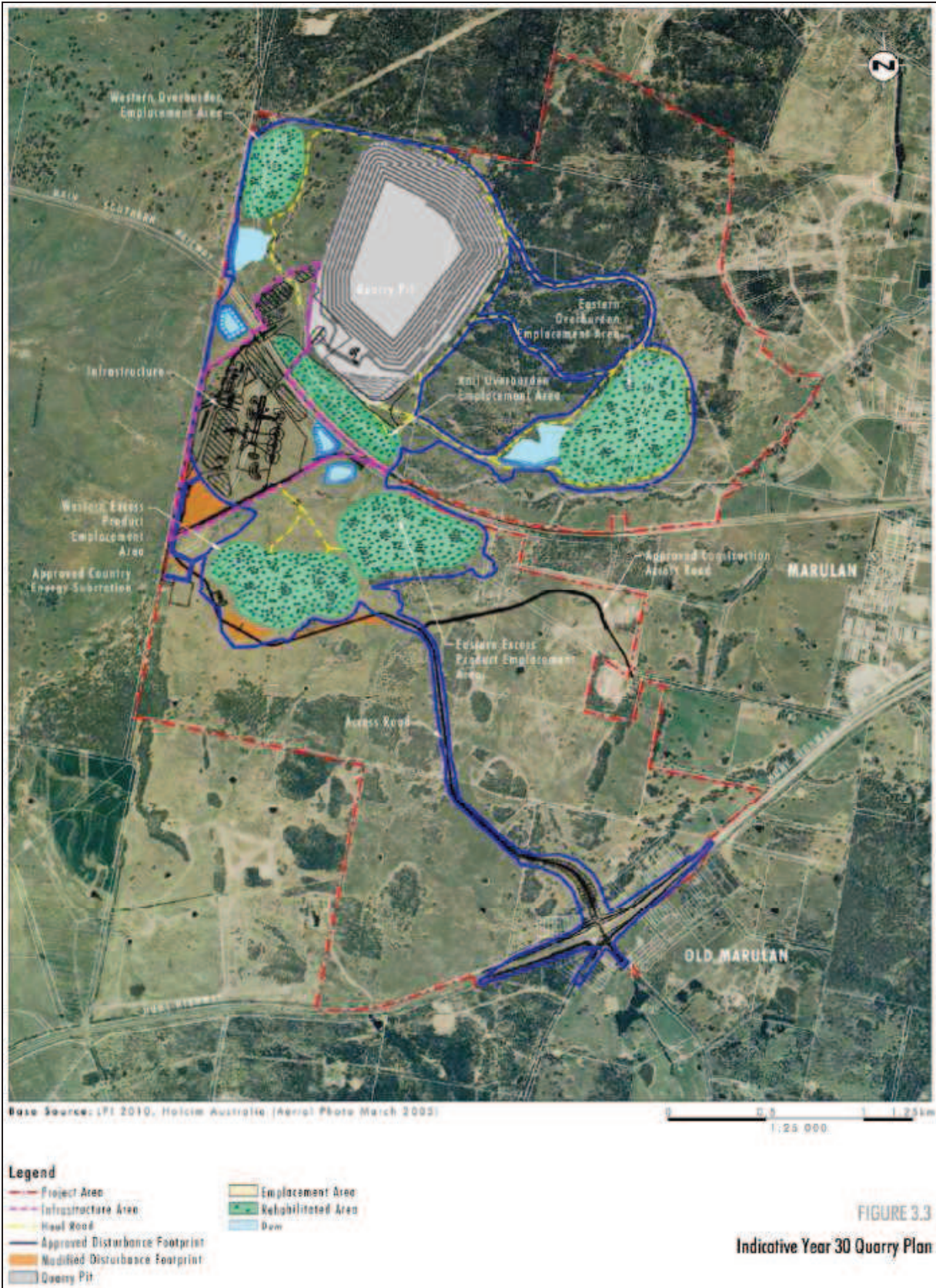


Figure 3: Proposed Quarry Layout

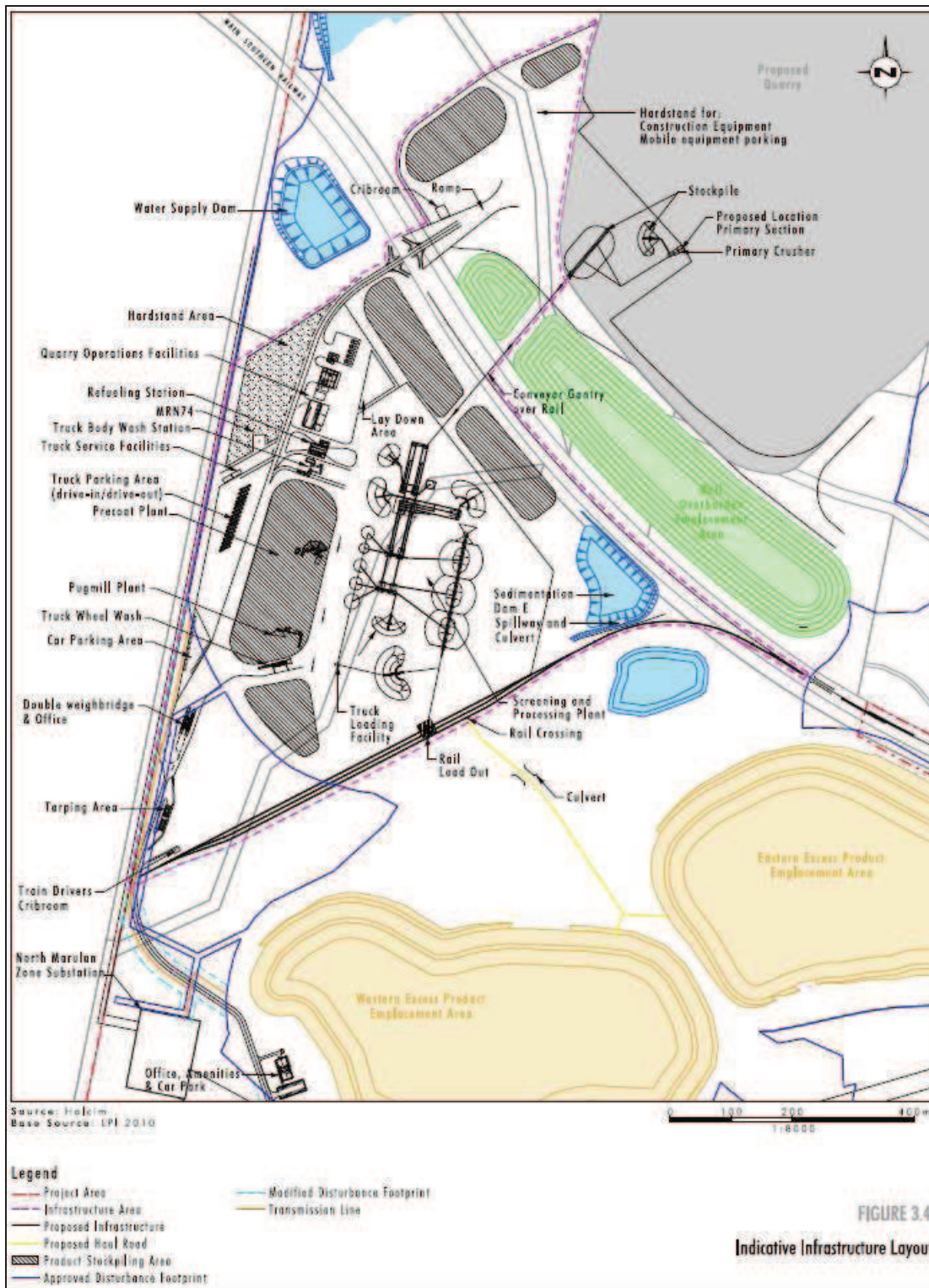


Figure 4: Proposed Infrastructure Layout

3 STATUTORY CONTEXT

3.1 Part 3A

Under Clause 8J(8)(c) of the *Environmental Planning and Assessment Regulation 2000*, a development consent granted under Part 4 of the EP&A Act is taken to be an approval under Part 3A of the Act for the purposes of modification if the development consent was granted by the Minister because the proposal related to State significant development.

The original development consent was granted by the then Minister because the proposal was classified as State significant development under section 76A(7)(b) of the EP&A Act. Consequently, section 75W of the EP&A Act is the appropriate statutory provision under which the Minister may determine the modification application.

3.2 Consent Authority

The Minister was the consent authority for the original application, and is consequently the consent authority for this modification application. However, as the proposed modification generated less than 10 public submissions objecting to the development, the Deputy Director-General, Development Assessment and Systems Performance may determine the application under the Minister's delegation of 25 January 2010.

3.3 Modification

The proposed modification involves two changes to the consent, one which relates to the layout of the site infrastructure, and the other to construction heavy vehicle movements and access routes. As each of these would have minor effects on the approved quarrying operations and resultant environmental impacts (see Section 5), the Department is satisfied that they can be appropriately considered under section 75W as an application to modify the existing development consent.

4 CONSULTATION

Under section 75W, the Department is not required to notify or exhibit the application. However, after accepting the EA for the proposed modification, the Department:

- made the EA publicly available from 13 October until 1 November 2010;
 - on the Department's website,
 - at the Department's Information Centre; and
 - at Goulburn Mulwaree Council's offices;
- notified relevant State and local government authorities; and
- advertised the exhibition in the Goulburn Post.

Following the exhibition of the EA, the Department received five submissions on the proposal, including four from public authorities (NSW Office of Water, Industry & Investment NSW, the Roads and Traffic Authority and Goulburn Mulwaree Council), and one from the general public.

The NSW Office of Water (NOW) did not object to the proposal but advised that all construction in the vicinity of riparian corridors must comply with NOW's controlled activities guidelines. NOW requested detail about the volume and source of additional water requirements, and recommended conditions to ensure impacts to riparian corridors and watercourses are minimised.

Industry & Investment NSW (I&I NSW) did not object to the proposal but recommended that any modified consent require that the design and construction of new or upgraded access road crossings of Joarimin Creek must be undertaken in accordance with I&I NSW's policies and guidelines.

The NSW Roads and Traffic Authority (RTA) did not object to the proposal but raised concern about one of Holcim's two options for the varied construction traffic access route.

Goulburn Mulwaree Council (Council) did not object to the proposal but requested that product transport only commence following the completion of the new Hume Highway interchange.

The public submission objected to the modification application and was concerned with the amenity impacts from increased construction traffic through Marulan.

Holcim has provided a detailed response to the issues raised in the submissions. The Department has considered all issues in the submissions and Holcim's response to these issues in its assessment.

5 ASSESSMENT

The Department's assessment of the key issues is summarised below.

5.1 Traffic and Transport

The EA includes an assessment of the potential transport impacts of the proposed modifications.

Construction Access Route

Much of the quarry remains to be constructed. Key elements of the remaining work include road and conveyor overpasses over the Main Southern Railway (which link the northern and southern parts of the site) and the construction of the main access road (including a major interchange with the Hume Highway to be constructed at the intersection with South Marulan Rd (see Figure 5). Most construction requires to be undertaken using the Portland Ave access point.

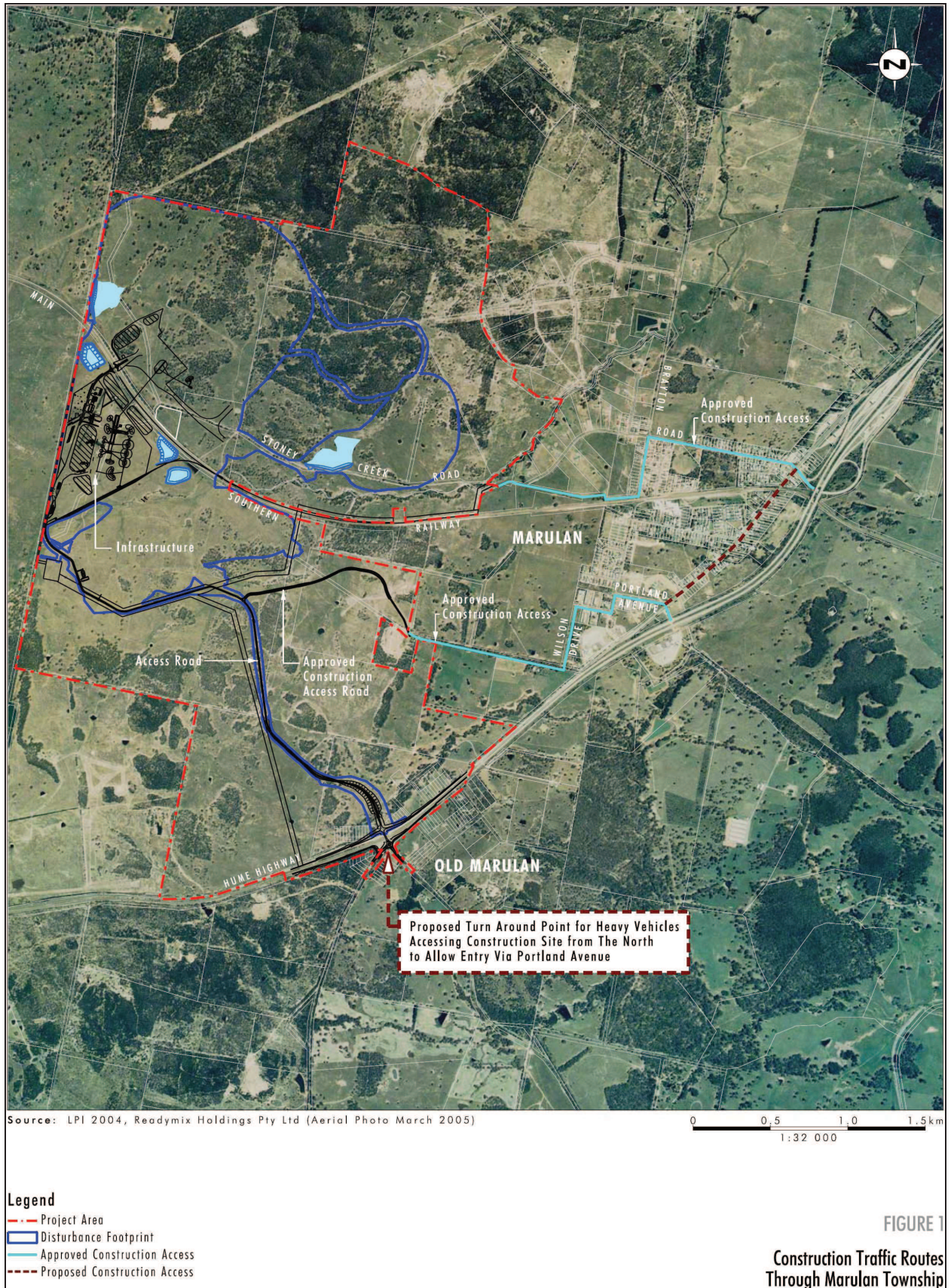


Figure 5: Approved and Proposed Access Routes

The RTA has recently made changes to the road network in Marulan. Right-turning movements at the George St intersection with the Hume Highway have been restricted to reduce traffic safety concerns. This intersection previously formed the development's approved south-bound access from the Hume Highway to Portland Ave and Wilson Drive (the access to the southern part of the development site). Holcim has therefore identified two alternate routes for construction vehicles seeking to enter Portland Ave from the north (see Figure 5):

- Access Route 1: via the Hume Highway south-bound off-ramp and underpass at Marulan, and then passing through the Marulan town centre via George St; and
- Access Route 2: via the Hume Highway north-bound off-ramp at Marulan, following a turnaround at South Marulan Rd in Old Marulan.

The Department has consulted the RTA about the two alternate access routes. Access Route 2 involves trucks turning left off the Hume Highway into South Marulan Rd, turning right into Jerrara Rd, doing a U turn on open ground, returning to Jerrara Rd, turning left into South Marulan Rd and then turning right across oncoming traffic into the Highway seagull intersection to travel north to the exist ramp and thence to Portland Ave. The RTA considers that allowing right-turning movements (across southbound traffic) onto the Highway at South Marulan Rd for the 12 to 18 month period of construction would represent a significant road safety concern. The Department accepts this view, but notes also the potential significant safety risks and amenity impacts on George St, if this was to be the only permitted route to access Portland Ave (relevant traffic numbers are discussed below).

Holcim estimates that about 60% of deliveries would require use of George St (either one leg or both) if the Marulan South Rd turnaround option was not available. Although George St has a very wide carriageway (being the old Princes Highway), it contains a primary school and a preschool, a substantial number of residences and a small number of commercial premises. Further, South Marulan Rd is already approved for use as an access point to the Hume Highway for other major quarries (the not-yet operational Ardmore Park Quarry and Marulan South Quarry) as well as the Marulan limestone mine. Right-hand turns will be legal (for this and other traffic) at that intersection until the interchange is completed, and it would be an unusual outcome if the company which is required to construct the interchange (at substantial cost) could not use this intersection in the meantime, while its competitors could. In the absence of re-opening the George St intersection (only for right hand turns off the Highway), the Department considers that the use of a turnaround in the vicinity of South Marulan Rd is preferable to requiring all construction traffic to use George St for southbound access to Portland Ave (including for the interchange fill trucks which could otherwise join the Highway from the Brayton Rd underpass and then proceed to turnaround at South Marulan Rd). The Department notes, however, that a certain proportion of construction traffic would have to use George St. These are the interchange fill trucks that return to the Stoney Creek Rd access point, and trucks which had an origin south of the quarry and which must return in that direction, using the Brayton Rd underpass and the on-ramp to the Highway.

Overall, the Department considers that the potential risks and impacts can be best managed by permitting construction heavy vehicle movements on both alternate access routes. The Department has recommended conditions to this effect, and also requiring Holcim to:

- avoid using George St, during school zone times, where practicable; and
- ensure that heavy vehicles using George St do not exceed 40 km per hour.

The RTA has accepted this outcome.

Construction Traffic

The proposed modification would increase construction vehicle movements to accelerate construction of the proposed Hume Highway interchange, after which all vehicles entering and leaving the site would use this interchange. Holcim estimates that the average daily laden heavy vehicle traffic movements accessing the site via Portland Ave would increase from an average of 18, originally assessed for the development, to an average of 20 daily laden vehicle movements and up to a maximum of 40, during the 15 to 18 month period prior to the commissioning of the interchange. It should be noted that every laden heavy vehicle movement also requires a return unladen heavy vehicle movement. Estimated light vehicle movements associated with construction activities would remain unchanged.

Holcim also estimates that construction traffic accessing the northern portion of the site via Stoney Creek Rd would increase from the approved maximum of 10 daily laden heavy vehicle movements to an average of 20 and up to a maximum of 45. Stoney Creek Rd would be used for approximately 8 months until the commissioning of the rail overpass, which would allow site access via the main construction access route using Portland Ave.

Holcim has indicated that a combined total of up to 57 laden trucks would access either entrance (see Figure 6). It should be noted that the maxima using each access route are therefore not completely cumulative. Apart from construction focusing on one part of the site or another, the key reason for this is that a significant portion of trucks (shown in light blue) would be transporting interchange construction fill material from the northern part of the site to the interchange and access road construction site, ie these movements appear in the maxima for both Portland Ave and Stoney Creek Rd.

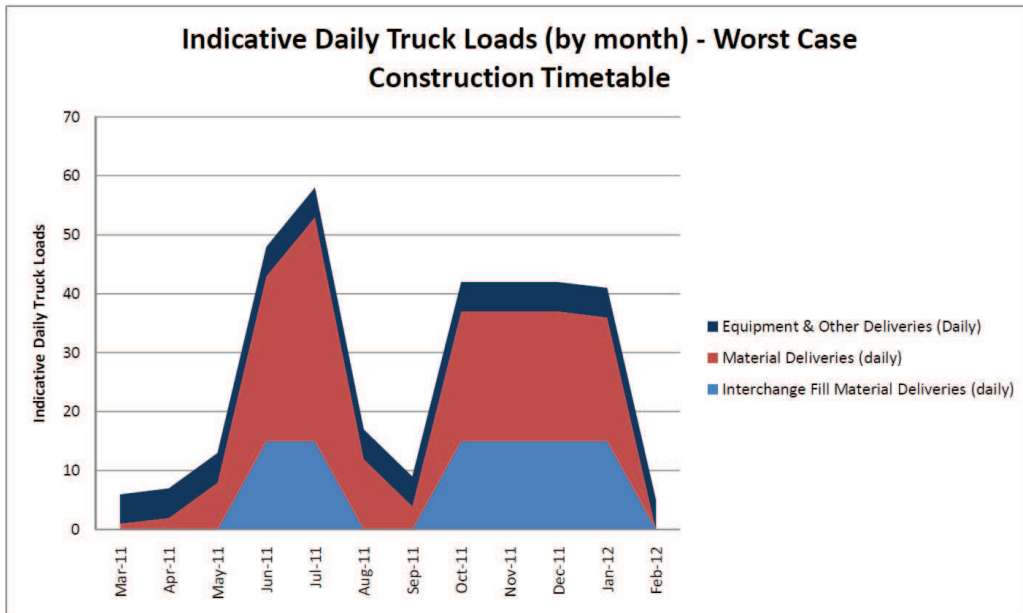


Figure 6: Indicative Worst-case Laden Heavy Vehicle Movements

Holcim proposes measures to mitigate the increases in construction traffic. Holcim has committed to limit heavy vehicle movements accessing the site via George St to outside of school zone times (8:00 am to 9:30 am and 2:30 pm to 4:00 pm on school days), wherever practicable. It has also committed to deliver heavy vehicle loads with the potential to cause significant traffic disruptions outside of peak traffic hours for the local road network (which are 8:00 am to 9:00 am, 12:00 pm to 1:00 pm and 5:30 pm to 6:30 pm), wherever practicable. Holcim has committed to not transport any product for sale until the opening of the interchange (reducing overall heavy vehicle traffic movements by an average of up to 13 laden trucks per day) and has proposed to address the proposed modification in an amended Construction Traffic Management Plan (CTMP). The CTMP must adequately address all safety and noise (ie amenity) impacts associated with construction traffic, including for the construction of the interchange.

Council and the Department recognise that Holcim’s options are limited for construction access and are satisfied that the proposal would have manageable effects on Hume Highway traffic flow. The Department is also satisfied that the proposal would limit overall heavy vehicle movements through Marulan to reasonable numbers. The Council has supported Holcim’s proposals in that it leads to a shorter period of construction, and therefore reduced overall impacts. The Department is further satisfied that Holcim has proposed reasonable and feasible mitigation measures, and that the impacts of the proposal on road safety are likely to be low.

Rail Transport

The proposal would increase the required number of trains from an average of four trains per day to 4.5 due to the intent to use smaller trains, though the maximum approved number of trains required for product transportation would not increase from six. The Department considers the potential impacts associated with train movements to be consistent with those of the approved development.

5.2 Other Key Issues

The Department’s assessment of other key issues is summarised in Table 1 below.

Table 1: Assessment of Other Key Issues

Issue	Consideration
Biodiversity	The proposed modification would result in an increase to the approved disturbance footprint of the development of approximately 10.5 hectares (ha) (an additional 1% of the total approved disturbance footprint). The EA included an ecological assessment by Umwelt (Australia) Pty Limited to assess the impacts of this additional disturbance.

The assessment found that the majority of the proposed additional disturbance area has been extensively cleared and used for grazing, most of the recorded flora species are widespread in the region and the majority of recorded dominant flora species are exotic. The assessment found that no endangered flora populations or Endangered Ecological Communities (EECs) exist within the additional disturbance area.

The assessment also found that the proposed modification is not expected to result in the

Issue	Consideration
	<p>loss of fauna species diversity or abundance in the local area due to the poor quality habitat proposed to be cleared. The assessment recorded one threatened fauna species, the Brown Treecreeper, within the proposed additional disturbance area during a field survey. The assessment found that surrounding scattered woodland vegetation would provide suitable foraging and nestling habitat for the Brown Treecreeper and is of a higher quality than that proposed to be disturbed. Therefore, the assessment concluded that the proposed modification would not result in a significant impact on this species.</p> <p>The assessment recorded no migratory species listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> during survey, although seven migratory species have previously been recorded within the development site. The assessment concluded that the previously recorded migratory species are unlikely to exist within the proposed additional disturbance area, and as such, the proposed modification would not have a significant impact on any migratory species.</p> <p>To reduce the potential impacts of the proposed modification on flora and fauna, Holcim has committed to implementing several mitigation measures. These include retaining mature eucalypt trees adjacent to the proposed realigned section of the main access road, retaining habitat features such as fallen logs that may be used by fauna, and clearly delineating the area to be developed to prevent potential impacts on adjacent native vegetation.</p> <p>The Department is satisfied that Holcim has assessed the potential impacts of the proposed modification in accordance with the relevant legislation and guidelines, and appropriately considered reasonable mitigation measures so as to ensure that the modification is unlikely to result in significant impacts on flora and fauna. The Department is satisfied that the modification would not result in a significant impact on any threatened species or endangered ecological communities, and that the proposed additional disturbance area is very small compared to the total disturbance footprint of the approved development.</p>
<p><i>Surface Water</i></p>	<p>The EA includes an assessment of the potential water impacts of the proposed modification, including:</p> <ul style="list-style-type: none"> • a revised site water balance; • updated flood modelling; and • a review of surface water quality impacts due to the proposed site layout and increased stockpile area. <p><u><i>Site Water Balance</i></u></p> <p>The revised site water balance found that the site would potentially require an additional 22 megalitres (ML) of water per annum for dust suppression. During 10th percentile dry conditions, and with the 74 ML of industrial water allocation that Holcim has so far secured, the EA predicts a maximum shortfall of 11 ML per annum.</p> <p>Holcim has committed to investigate opportunities to purchase additional entitlements, if necessary and in consultation with NOW, and to maximise its water efficiency. The Department has recommended a condition which requires that Holcim ensure it has sufficient water for its operations and to curtail its operations if it doesn't.</p> <p><u><i>Flooding</i></u></p> <p>The revised flood modelling results indicate that a small increase in peak water levels of up to 200 millimetres would occur at a Joarimin Creek tributary. Holcim has highlighted that the modelled increase is localised within the site immediately upstream of the Main Southern Railway and is considered negligible.</p> <p>The modelling also indicated a maximum increase in flood depths for a distance of approximately 170 metres (m) upstream of the proposed modified access road crossing of Joarimin Creek, with a maximum increase of 1.5 m during the 100 year ARI storm event. Holcim has highlighted that this flood depth increase would occur for approximately 4.5 hours and would not significantly alter the flow regimes in Joarimin Creek in terms of peak discharges, flood depths or peak in-stream velocities, either upstream or downstream of the development site.</p> <p><u><i>Water Quality</i></u></p> <p>The proposed modification would a minimal impact on the development's approved water management system. With the use of appropriate erosion and sediment controls, the original assessment outcomes in regard to water quality would not be altered.</p>

Issue	Consideration
	<p><u>Conclusion</u></p> <p>With the implementation of a revised Water Management Plan, the Department is satisfied that the potential impacts of the proposed modification would be comparable to the approved development.</p>
<i>Noise</i>	<p>The proposed modification would have the potential to increase noise at receivers surrounding the development site and along the modified transport access routes. The EA includes a Noise Impact Assessment prepared by Heggies Pty Ltd to assess potential noise impacts of the proposed modification in accordance with DECCW's <i>Industrial Noise Policy</i> (INP) and <i>Environmental Criteria for road Traffic Noise</i> (ECRTN).</p> <p>The assessment found that noise impacts from the proposed modifications are predicted to comply with consent noise criteria at all sensitive receiver locations under both calm and prevailing meteorological conditions, with appropriate noise management controls in place. The assessment also concluded that construction traffic noise is predicted to be below the ECRTN limit for traffic generated on Portland Ave and Wilson Drive. For all other roads, the increase over that created by existing non-development related traffic is predicted to be less than 2 dBA, therefore meeting the requirements of the ECRTN.</p> <p>In the event that quarry operations cause exceedances of the project approval's noise criteria, Holcim has committed to particular restrictions on operational hours in order to meet them. This would limit the hours of operation for the stockpile loader, dump truck and rough terrain forklift to daytime hours (7:00 am to 6:00 pm) and the pugmill and primary crusher to daytime and evening hours (7:00 am to 10:00 pm). It would also limit the operation of sales loaders to one during night-time hours (10:00 pm to 7:00 am).</p> <p>DECCW and the Department are satisfied that Holcim has assessed the potential noise impacts of the proposed modification in accordance with the relevant guidelines, and appropriately considered reasonable and feasible management measures to minimise potential noise impacts. The Department is satisfied that the modified development is unlikely to result in any additional noise impacts.</p>
<i>Aboriginal Heritage</i>	<p>The EA includes an Aboriginal cultural heritage and archaeological assessment undertaken by Umwelt in accordance with DECCW guidelines and in consultation with representatives of the local Aboriginal community. The assessment found that no known Aboriginal archaeological sites exist within the proposed modification area, however identified five areas as having the likelihood of retaining potential archaeological deposits (PADs), ie areas likely to have artefacts in a subsurface context that may retain some spatial integrity.</p> <p>The PADs were assessed as having low to moderate archaeological significance due to the level of disturbance and the nature of their assemblage sizes. The PADs would be impacted by proposed access road widening and construction, construction of the tarping area and double weighbridge, and ground trenching required for the underground electricity feeder.</p> <p>Following discussion with the registered Aboriginal parties, Holcim has proposed measures to mitigate potential impacts to the PADs, including covering the PADs with geotextile, constructing the modified access with imported fill, and the monitoring of topsoil removal by an archaeologist and registered Aboriginal parties.</p> <p>DECCW and the Department are satisfied that Holcim has assessed the additional areas to be impacted by the modified development and the potential impacts on the identified PADs, and committed to implement measures to ensure the mitigation of any potential impacts.</p>
<i>Visual</i>	<p>The proposed reconfiguration of site infrastructure and slight changes to the western excess product emplacement area would potentially alter the visual impacts of the development. Three residences have views across the site which could potentially be affected by the modification. As the general nature (eg height) and general locations of the site infrastructure and the western excess product emplacement area remain unchanged, the potential for visual impacts as a result of the proposed modifications are minimal and are not predicted to significantly alter the visibility of the development site or impacts on existing visual amenity. As such, the Department is satisfied that the proposed modification would not noticeably change the visual impacts of the approved development.</p>

5.3 Other Issues

All other issues are considered to have negligible environmental impacts and do not warrant further assessment.

6 RECOMMENDED CONDITIONS

The Department has prepared recommended conditions for the modification. Holcim has reviewed and accepted these conditions.

7 CONCLUSION

The Department has assessed the proposed modification in accordance with the relevant requirements of the EP&A Act, including the objects of the EP&A Act and the principles of ecologically sustainable development.

The assessment found that the environmental impacts of the modified development would not be significantly different from the development as originally approved, apart from an increase in construction traffic. The Department has recommended conditions to minimise construction traffic impacts and potential safety risks. Further, Holcim has committed to implementing construction traffic management measures and has proposed to address the proposed modification in an amended CTMP.


Overall, the Department is satisfied that, with the implementation of the recommended conditions and the proposed mitigation measures, the impacts of the proposed modification are minor and can be adequately mitigated, managed, and/or compensated for.

The Department is satisfied that the benefits of the proposal outweigh any residual costs, and that it is in the public interest and should be approved, subject to conditions.

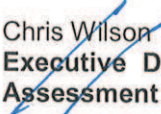
8 RECOMMENDATION


It is RECOMMENDED that the Deputy Director-General, Development Assessments and Systems Performance, as delegate of the Minister:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approve** the proposed modification under section 75W of the EP&A Act; and
- **sign** the attached Notice of Modification (Tag A).


Howard Reed 17.3.11
Manager Mining Projects


David Kitto 17.3.11
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Chris Wilson
Executive Director, Major Projects Assessment


Richard Pearson 22/3/11
Deputy Director-General, Development Assessments and Systems Performance