



New Chiltern Quarry



EPBC Act Referral Process – Report for the Minister

Prepared by

Holcim (Australia) Pty Ltd
(formerly known as CEMEX)

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View of Listed Community
(east looking west across ridgeline)

Executive Summary

Holcim (Australia) Pty Ltd (formerly known as CEMEX Australia Pty Limited (CEMEX)) propose to develop a hard rock quarry off Black Dog Creek Road, Chiltern, Victoria. The development will involve the removal of approximately 15 ha of the White Box – Yellow Box – Blakely’s Red Gum EPBC listed community and 38 mature old trees.

CEMEX made a referral to the Minister of Environment, Heritage and Arts as to a decision on whether the development will require approval as a controlled action. On 8 May 2009, the Department of Environment Heritage and the Arts (DEWHA) decided that development required assessment and Ministerial approval as a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The project would be assessed by preliminary documentation.

Holcim (former CEMEX) has prepared this report in response to the specific information requirements of the DEWHA, so as the Minister may assess relevant impacts, in particular:

- the potential impact from the action on the critically endangered EPBC ecological community White Box – Yellow Box – Blakely’s Red Gum Grassy Woodlands and Derived Native Grasslands including an assessment on accidental clearing, increased risk of fire, dust and introduction of weeds;

The likely impact on EPBC Act listed species associated with the removal of approximately 15 ha of the White Box – Yellow Box – Blakely’s Red Gum listed community has been documented and discussed by specialist ecologists.

- detailed strategies to avoid, mitigate or offset impacts on this ecological community;

Avoidance and mitigation has been factored into the design. The selected site was the only viable replacement option in the Region. The original concept drawings have altered with the direct intention of minimizing native vegetation impact. The quarry pit size has been significantly reduced to avoid impact on the Listed Community. Woodland habitat is proposed to be managed adjacent and surrounding the quarry to off-set losses.

- details regarding boundaries of any proposed off-sets and how vegetation set aside in off-sets will be managed in perpetuity;

An offset area equating to over 80 hectares (i.e. over 4.7 times the size of the area removed) and protection of 286 Large Old Trees is proposed. These off-set areas will be managed under a Section 173 Agreement on the property Title in accordance with an Off-set Management Plan.

- the potential impacts from the action on listed threatened species, in particular the impact on populations of the endangered Regent Honeyeater (*Anthochaera Phrygia*) and the endangered Swift Parrot (*Lathamus discolor*), including an assessment of potential impacts from dust, noise and vibrations;

The Regent Honeyeater and Swift Parrot have been subjected to a specific review which concludes limited impact including that resulting from quarry dust, noise, blasting and light.

- strategies to avoid, mitigate or offset impacts on these listed threatened species.
The Off-set Management Strategy specified above will offset potential bird impact. Additionally, Holcim are in discussions with Birds Australia with a view to sponsoring a research program aimed at establishing Woodland Bird activity within a rehabilitated Chiltern quarry with a particular focus on Regent Honeyeater and Swift Parrot numbers and the suitability of the improved habitat. The research program will extend into the proposed native vegetation off-set habitat adjacent the National Park on the proposed new Chiltern quarry site.

1. Introduction

Holcim (Australia) Pty Ltd (formerly known as CEMEX Australia Pty Limited (CEMEX)) existing Chiltern hard rock quarry, in the north east of Victoria, ceased extracting rock late in 2010 in accordance with the Chiltern-Mt. Pilot National Park Management Plan.

The Chiltern quarry ‘Hornfels’ aggregate is used through-out the Region, particularly for road construction and maintenance due to its superior skid resistance properties. Demand for the product is sought by State and Local Governments as well as private construction and building companies.

Holcim (CEMEX) has identified and investigated a suitable replacement hard rock quarry off Black Dog Creek Road, Chiltern some 400- 500m to the south-west of the existing quarry and located within the same geological formation.

The development will involve the removal of approximately 15 ha of the White Box – Yellow Box – Blakely’s Red Gum EPBC listed community and 38 Mature old trees.

As part of the Approval process, on 7th April 2009 CEMEX made a referral to the Minister of Environment, Heritage and Arts as to a decision on whether the development will require approval as a controlled action.

On 8 May 2009, the Minister decided that development and operation of a hard rock quarry and associated infrastructure required assessment and approval as a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The project would be assessed by preliminary documentation.

Holcim (formerly CEMEX) has prepared this report in response to the specific information requirements of the Ministers Department, so they may assess relevant impacts, in particular:

- the potential impact from the action on the critically endangered EPBC ecological community White Box –Yellow Box – Blakely’s Red Gum Grassy Woodlands and Derived Native Grasslands including an assessment on accidental clearing, increased risk of fire, dust and introduction of weeds;
- detailed strategies to avoid, mitigate or offset impacts on this ecological community;
- details regarding boundaries of any proposed off-sets and how vegetation set aside in off-sets will be managed in perpetuity;
- the potential impacts from the action on listed threatened species, in particular the impact on populations of the endangered Regent Honeyeater (*Anthochaera Phrygia*) and the endangered Swift Parrot (*Lathamus discolor*), including an assessment of potential impacts from dust, noise and vibrations;
- strategies to avoid, mitigate or offset impacts on these listed threatened species.

(Note: Holcim purchased CEMEX’s Australian business in September 2009. Wherever reference is made to CEMEX, please also read as Holcim)

2. Potential Impact on EPBC ecological community

Details of the potential impact on the critically endangered EPBC ecological community White Box – Yellow Box – Blakely’s Red Gum Grassy Woodlands and Derived Native Grasslands including an assessment on accidental clearing, increased risk of fire, dust and introduction of weeds is discussed below. Specific technical detail is provided within Appendix 2.

“A number of species originally considered to have potential to inhabit the site (Biosis Research 2009a) are now considered unlikely to be present based on targeted surveys or other recent information that suggests they are unlikely to be present. Targeted survey was undertaken for Golden Sun Moth, Pink-tailed Worm-lizard and Striped Legless Lizard (All EPBC-listed and FFG-listed). These species were not detected and are now considered unlikely to be present.

Crested Bellbird is now extinct in the Chiltern district and thus is not expected to occur in the study area (D. Ingwerson, Birds Australia, pers. comm.). After a re-appraisal of the habitat present and local distributional information, Grey crowned Babbler and Chestnut-rumped Heathwren are not considered likely to use the site (D. Ingwerson, Birds Australia, pers. comm.). Similarly, a review of the habitat requirements of Bandy Bandy suggests it is unlikely that it would occur on the site. As such, there is not expected to be any direct impacts from the proposed quarry on any of these species.

Impacts to EPBC and FFG-listed species and communities

EPBC-listed White Box – Yellow Box – Blakely’s Red Gum grassy woodland and derived native grasslands community

The design of the proposed quarry and its associated infrastructure would result in the loss of 15.91 ha of native vegetation including about 12.42 ha of Grassy Woodland and 2.56 ha of Valley Grassy Forest. As both of these Ecological Vegetation Classes are identified as members of the EPBC Act listed community about 15 ha of White Box – Yellow Box – Blakely’s Red Gum grassy woodland and derived native grasslands community would be impacted. This represents about 19% of the 92.3 ha of this community identified within the proposed Work Authority (WA).

Defining the combination of Grassy Woodland and Valley Grassy Forest as this EPBC Act listed community, DSE mapping identifies that approximately 237,000 ha of the Northern Inland Slopes bioregion supported this community pre-1750 (DSE unpublished data). This mapping also indicates that approximately 7.4% of this vegetation remains although there is no data on the condition of that vegetation.

The 15 ha proposed to be impacted therefore represents a small fraction of a percent of these EVCs remaining within the bioregion. However, the proportion of the listed community impacted within the bioregion cannot be determined as

specific condition criteria need to be met to define the community.

Most of the remaining vegetation classified as Grassy Woodland or Valley Grassy Forest on private land (10,200 ha of the 17,400 ha mapped) is likely to be too degraded to be defined as White Box – Yellow Box – Blakely's Red Gum grassy woodland. Similarly much of this vegetation on public land is also likely to be so degraded that it could not be classified as the listed community.

Narrow Goodenia

Populations of Narrow Goodenia have been observed at eight locations within minor drainage lines on the southern side of the main ridgeline. An estimated 2100 plants were observed in and around soaks and springs. Four of these populations may be influenced indirectly by the extraction of rock as the upper catchment of the minor drainage line which they inhabit will be removed. These populations represent about half of the total estimated population within the WA.

The catchments of the other four populations will not be impacted by rock extraction.

Other indirect impacts associated with the broader change in land use could include increased competition from weeds or the accumulation of ground cover biomass. DSE's 2007 Flora Information System supports 144 records of Narrow Goodenia largely concentrated around Euroa, the Warby Ranges and the Chiltern Mt. Pilot National Park. An unknown proportion of these records are results from population monitoring from the same locations (i.e. this species is not recorded from 144 different locations). Records occur in both public and private land.

The Action Statement for this species (Berwick 2003) identifies nine known major locations, with a total of twenty-four sites, comprising some thirty-two populations. While many populations have not been subject to census, the known population in Victoria is dominated by a single population on private property near Chesney Vale (100,000 plants) and one in the Warby Ranges (10,000 plants). Six other populations are identified as supporting about 1000 plants with another 8 populations of hundreds of plants. The population of 2100 plants within the Eames property is therefore one of the larger known populations in Victoria.

Woodland birds and the Temperate Woodland Bird Community

1. Species that primarily use resources provided by overstorey trees (Barking Owl, Swift Parrot, Regent Honeyeater, Grey Goshawk, Square-tailed Kite, Powerful Owl, Painted Honeyeater).

- The proposal will lead to a loss of 38 large old trees that provide potential foraging and nesting resources for these species;
- The loss of 12.42 ha of Grassy Woodland, 0.9 ha of Box-Ironbark Forest and 2.56 ha of Valley Grassy Forest (17% of woodland and forest habitat in the Work Authority). Note that this includes areas where trees and shrubs are either absent or rare and as such these areas do not constitute optimal habitat for these species.

- Disturbance to remaining habitat in the form of noise, dust and light resulting from quarry operations.

Note that the distribution of Regent Honeyeater in the Chiltern-Mt Pilot National Park has declined dramatically over recent decades and there are now fewer than several pairs observed within the park in any given year. Most records from the park from 2007 onwards have been from areas north of the township of Chiltern, well away from the proposed New Chiltern Quarry site. While this does not preclude the possibility that this highly mobile species would use land within or adjacent to the proposed New Chiltern Quarry, it does demonstrate that there has been a dramatic reduction in the local population. Consequently, if woodland resources within and adjacent to the affected land are used by the species, they likely to be used less frequently and by fewer individuals.

2. Species that primarily use understorey vegetation (Hooded Robin, Speckled Warbler, Turquoise Parrot, Diamond Firetail)

- The loss of 14.64 ha of Grassy Woodland, 0.9 ha of Box-Ironbark Forest and 2.6 ha of Valley Grassy Forest (17% of woodland and forest habitat in the Work Authority). Note that this includes areas where key habitat requirements for some of these species are either rare or absent (e.g. fallen timber, shrubs, leaf litter etc.) and as such may not constitute optimal habitat for some of these species.
- Disturbance to remaining habitat in the form of noise, dust and light resulting from quarry operations.
- Fragmentation of habitat by roads and infrastructure.

Woodland Mammals (Brush-tailed Phascogale, Squirrel Glider)

- The proposal will lead to a loss of 38 large old trees that provide potential foraging and den resources for Brush-tailed Phascogale. Neither species has been confirmed as occurring on the site. It is unlikely that Squirrel Glider would make significant use these trees as they are quite isolated and is more likely to use the connected habitat within the road reserves;
- The loss of 12.42 ha of Grassy Woodland, 0.9 ha of Box-Ironbark Forest and 2.56 ha of Valley Grassy Forest (17% of woodland and forest habitat in the Work Authority). Note that this includes areas where trees and shrubs are either absent or rare; such areas do not constitute optimal habitat for these species.
- Disturbance to remaining habitat in the form of noise, dust and light resulting from quarry operations.
- Fragmentation of habitat by roads and infrastructure.

Brown Toadlet

This species has not been recorded on the site (no targeted survey has been undertaken) although general surveys were conducted when the species would be expected to be calling. However these surveys were done when potential habitat

was dry. If present, this species is most likely to inhabit Creekline Grassy Woodland which occurs along the drainage lines running off the central ridgeline. The proposed development of the quarry does not impact directly on this habitat and is not expected to significantly alter the hydrology of these drainage lines.

Offsetting native vegetation losses

... The proposed New Chiltern Quarry has identified about **80 ha** of native vegetation in three areas to generate a like-for-like Net Gain outcome for the habitat hectare component of the offset prescriptions within the broader Eames (landowner) property. This vegetation will be incorporated into the WA (Works Authority offset areas) for this quarry. This includes about **70 ha** of vegetation classified as White Box – Yellow Box – Blakely’s Red Gum grassy woodland.

For the EPBC Act listed community, this provides a managed offset about **4.7 times** the size of the area of vegetation proposed to be cleared. Offset requirements are detailed in a native vegetation offset management plan (Biosis Research 2009b) but includes actions relating to biomass management, weed control, enhancement plantings to re-introduce understorey species and pest animal control works.

Offset sites to cater for Large Old Tree (LOT) losses have also been identified within the broader area of land CEMEX will lease from the Eames property, including two road reserves (Biosis Research 2009b). The implementation of this offset plan generates habitat hectare offsets and protection for at least **177** Large Old Trees and up to **291 LOTS** and 191 Medium Old Trees (dbh >52.5 and <70 cm) to account for the unavoidable losses of **38** LOTS associated with the New Chiltern Quarry (Biosis Research 2009b).

Fire Risk Protection

CEMEX operates the existing Chiltern quarry within the National Park. This quarry has been operational since the mid 1970’s. A series of fire prevention and response measures are in place that will be replicated within the new Chiltern Quarry to mitigate and manage fire risk.

These risk management measures include:

- All hot works are conducted in accordance with the CEMEX hot work procedure. This requires a functioning extinguisher to be kept at the ready nearby.
- A Hot Works Permit system (internal, CEMEX) must be issued for any hot works conducted outside of workshop area.
- A Permit is issued by DSE for hot works when required on Fire Ban days. Any work required is conducted within conditions of the permit.
- All fuel & flammable materials are stored in approved containers and in accordance with Dangerous Goods storage requirements.

- A water cart (filled from on-site standpipe) is maintained on site at all times.
- All mobile equipment (loaders, trucks & light vehicles) are equipped with fire extinguishers.
- Face loader & dump truck have automatic fire suppression units fitted.
- Extra fire extinguishers are located in workshop, buildings & around site.
- All fire extinguishers are checked & serviced at prescribed intervals.
- All site personnel are trained annually in use of fire extinguishers & fire fighting techniques.
- Quarry Manager is Deputy Captain & authorised trainer assessor with NSW Rural Fire Brigade.

Water Catchment Change

There will be an alteration to catchments on the quarry site. Catchment changes are depicted in Appendix 7. The change in catchment is not expected to significantly impact vegetation not directly impacted by the quarry pit or haul road excavations.

3. Avoidance, Mitigation and Off-set Strategies

Holcim's strategies to avoid, mitigate, offset and manage impacts on the listed ecological community and the boundaries of the proposed off-sets area are presented below and within Appendix 3, 4 and 8.

The off-set areas will be managed under a Section 173 Agreement on the property Title resulting in the protection of these off-set areas in perpetuity and direct management for the life of the quarry (>50 years). All off-set areas fall under the one property owner. Holcim has a contractual agreement with the landowner that options the land to Holcim for management should the development proceed.

The following represents extracts from the Offset Strategy:

Native vegetation mapping on the proposed quarry reveals the development will result in the loss of:

- **15.9 Ha** of land with modified native vegetation equating to **6.2 Habitat Hectares** of very high conservation significance; and
- **37 Large Old Trees within patches** (including a staged removal with 20% of the trees not scheduled for removal for around 15 - 20 year post quarry commencement) and **1 scattered Large Old Tree**. [Biosis Research, 2009]

Holcim's strategy for native vegetation off-set and management follows a three (3) staged approach (refer Appendix 3, Attachment 1: Chronology of Events), as

recommended in Victoria's Net Gain policy:

1. Avoidance of impact wherever practicable:

A review of alternative sites during 2005/06 concluded the western aspects of Skeleton Hill represented the only viable alternative as a replacement Chiltern quarry [Bird. D., 2009]. The review included a high level vegetation cover and flora/fauna component.

Design of the quarry has focussed on avoiding areas with native vegetation.

Iterations to the initial concept design to avoid native vegetation include:

- Locating facilities so as to avoid Black Dog Creek vegetation (2007) – an important habitat area for Regent Honeyeater;
- Relocation of services to avoid Black Dog Creek riparian vegetation (2008) – an important habitat area for Regent Honeyeater; and
- Relocation of the processing operations into the area with predominantly introduced vegetation to avoid native grasses and trees with a chance of being frequented by Swift Parrott and Regent Honeyeater (2008).

2. Minimisation of unavoidable native vegetation impact:

The extraction pit has been downsized to minimise impact on native vegetation within the listed community. Access roads will meander around large old trees within the listed community and beyond, and enter at Black Dog Creek Road at a gap in the tree line.

3. Off-Sets for any approved vegetation removal:

Significant woodland habitat off-sets have been allocated to achieve a net gain outcome on the subject site.

The areas proposed for Off-Sets are illustrated in Figure 3. These areas provide the following Off-sets as measured against the Net Gain provisions of the Native Vegetation Management – A Framework for Action (Biosis Research, 2009):

- The Off-set areas proposed equate to over **15 Habitat Hectares** predominantly within woodland habitat which is around 110% of the Nett Gain off-set requirement.

Protection of **LOTs** on the 3 main areas, the Road Reserve area held under Licence by Eames (the landowner) and also the eastern area of the Eames property provide:

- 100% provision of LOT Nett Gain requirements for Box Ironbark Forest
- 100% provision of LOT Nett Gain requirements for Valley Grassy Forest
- 100% provision of LOT Nett Gain requirements for Diamond Firetail or Barking Owl habitat requirements.

In total 286 LOTs and also 191 Medium Old Trees will be protected in the woodland habitat. In addition:

- recruitment of **over 1560** trees via enhanced natural re-generation and planting within the proposed off-set areas, road reserves and Work Authority boundary.

- re-introduction of Swainson-Pea (if possible), which is no longer found on the property, onto the extraction block .
- support for Birds Australia research into Swift Parrott and Regent Honey-eater.

Figure 3



The available net gain count as measured against the Victorian Framework is:

Habitat Hectares (all Very High conservation significance)

EVC	Prescribed Offset	Offset Identified	Compliance
Box Ironbark Forest	1.07 hha	2.01 hha	188%
Creekline Grassy Woodland	0 hha	0.02 hha	NA
Valley Grassy Forest	1.79 hha	2.07 hha	116%
Threatened Bird Habitat	7.61 hha	7.61 hha	100%
Grassy Woodland	1.96 hha	3.19 hha	163%
Totals	12.43 hha	14.90 hha	120%

Large Old Tree Protection

EVC	Prescribed Offset	Offset Available	Compliance
Box Ironbark Forest	0	45*	NA
Creekline Grassy Woodland	0	2*	NA
Valley Grassy Forest	40	154 [#] (+121 MOTs)	385%
Threatened Bird Habitat*	64	64	100%
Grassy Woodland	192	73 (+70 MOTs)	38%
Totals	296	291 (+191 MOTs)	(98.3%)

* used as Threatened Bird Habitat offsets,

17 were used as Threatened Bird Habitat offset

4. Listed Threatened Species & Impact Management

The following overview is provided in response to DEWHA requirement that:

- the potential impacts from the action on listed threatened species, in particular the impact on populations of the endangered Regent Honeyeater (*Anthochaera Phrygia*) and the endangered Swift Parrot (*Lathamus discolor*), including an assessment of potential impacts from dust, noise and vibrations; and
- strategies to avoid, mitigate or offset impacts on these listed threatened species be provided.

Further information on impact and details of strategies to avoid, mitigate, offset and manage are provided within Appendix 3, 4 and 8.

Woodland birds and the Temperate Woodland Bird Community

1. Species that primarily use resources provided by overstorey trees (Barking Owl, Swift Parrot, Regent Honeyeater, Grey Goshawk, Square-tailed Kite, Powerful Owl, Painted Honeyeater).

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- The loss of 12.42 ha of Grassy Woodland, 0.9 ha of Box-Ironbark Forest and

2.56 ha of Valley Grassy Forest (17% of woodland and forest habitat in the Work Authority). Note that this includes areas where trees and shrubs are either absent or rare and as such these areas do not constitute optimal habitat for these species.

- Disturbance to remaining habitat in the form of noise, dust and light resulting from quarry operations.

Note that the distribution of Regent Honeyeater in the Chiltern-Mt Pilot National Park has declined dramatically over recent decades and there are now fewer than several pairs observed within the park in any given year. Most records from the park from 2007 onwards have been from areas north of the township of Chiltern, well away from the proposed New Chiltern Quarry site. While this does not preclude the possibility that this highly mobile species would use land within or adjacent to the proposed New Chiltern Quarry, it does demonstrate that there has been a dramatic reduction in the local population. Consequently, if woodland resources within and adjacent to the affected land are used by the species, they likely to be used less frequently and by fewer individuals.

2. Species that primarily use understorey vegetation (Hooded Robin, Speckled Warbler, Turquoise Parrot, Diamond Firetail)

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Woodland Mammals (Brush-tailed Phascogale, Squirrel Glider)

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Off-setting Impact

Offset sites to cater for Large Old Tree (LOT) losses have also been identified within the broader area of land CEMEX will lease from the Eames (landholders) property, including two road reserves (Biosis Research 2009b). The implementation of this offset plan generates habitat hectare offsets and protection for at least **186** Large Old Trees and up to 286 LOTs and 191 Medium Old Trees (dbh >52.5 and <70 cm).

The actions identified in the proposed management plan (Biosis Research 2009b) are aimed at permanently protecting and improving the quality of native vegetation remnants. These improvements are expected to result in increases in habitat quality for FFG-listed species and increased security of existing LOTs that are a critical component of Swift Parrot and Regent Honeyeater habitat. The proposed offset sites include more contiguous sections of woodland habitat on the more fertile surrounding lower slopes.

Regent Honeyeater seems to prefer this type of habitat (Menkhorst 1999). The plan also includes control of the Red Fox within the offset areas, broader Eames property and on adjacent landholdings. This species is likely to prey upon FFG-listed mammals and some FFG-listed birds that occur or are likely to occur in the study area. Control of this predator is expected to benefit populations of these FFG-listed species.

The offset plan (Biosis Research 2009b) also recommends the placement of 38 (the same number as LOTs proposed to be lost) suitably designed and maintained nest boxes in areas of retained and managed native vegetation, which will provide additional den sites for the Brush-tailed Phascogale and Squirrel Glider and hollow-nesting birds such as the Turquoise Parrot. These will be placed within the offset areas and/or within the neighbouring Chiltern-Mt Pilot National Park (subject to negotiations with DSE and Parks Victoria) where hollows are a scarce resource. All three species have been recorded using nest boxes in the Chiltern area and the local population of these species can be expected to benefit from these boxes. These nest boxes will be monitored annually and maintained in a manner which allows their use but target species.

Any trees lopped or removed in association with the development of the quarry will also have the coarse woody debris placed within areas of retained vegetation to increase the cover of this valuable ecological resource. Any existing coarse woody debris within the extraction zone will also be moved into the offset site, if deemed

appropriate. Coarse woody debris is an important habitat component for many of the birds in the Temperate Woodland Bird Community and for the scansorial Brush-tailed Phascogale and ground dwelling Brown Toadlet.

CEMEX Australia are in discussions with Birds Australia with a view to sponsoring a research program aimed at establishing the level of Woodland Bird activity within a rehabilitated Chiltern quarry with a particular focus on Regent Honeyeater and Swift Parrot numbers and the suitability of the improved habitat. The research program will extend into the proposed native vegetation off-set habitat adjacent the National Park on the proposed new Chiltern quarry site.

Disturbance by light, noise (vibration), dust

Establishment of an earthen noise and visual bund wall is planned for the north-western boundary of the WA area. Bunding will reduce visual and noise impacts on fauna offsite, particularly fauna habitat along Forrest Lane. It will reduce disturbances emanating from operations on ground level and provide additional attenuation to those from below the surface level. The potential for disturbance caused by the construction of bund walls can be managed by ensuring that it is undertaken during the summer season when Swift Parrot and Regent Honeyeater are not likely to be present in the vicinity.

Hours of operation of the quarry will be between 0700 and 1800 hrs EST so noise impacts to nocturnal fauna such as Brush-tailed Phascogale, Squirrel Glider and Barking Owl will be minimal.

It should be noted here that birds generally become habituated to certain anthropogenic disturbances that are not actually associated with danger. These include blasting from quarries (Biosis Research unpublished data), human presence, vehicular traffic and artificial light. For example, both the Regent Honeyeater and Swift Parrot are frequently recorded in highly disturbed urban environments with very high levels of human presence and Regent Honeyeater is recorded as breeding in urban areas (Higgins 1999; Higgins et al. 2001; pers. obs.) suggesting these species can and do become habituated to anthropogenic disturbances. There are numerous records of the Swift Parrot within 1 km of the existing Chiltern Quarry (Atlas of Victorian Wildlife database, 2007 version, DSE).

Dust suppression occurs within the existing Chiltern quarry and takes the form of watering down roads, equipment, and the crushed rock itself. The primary mitigation measure would be to continue to implement dust management strategies within all parts of the New Chiltern Quarry that generate dust. Activities that generate dust have been sited away from ecologically sensitive areas (outside offset areas) to reduce deleterious impacts. GHD prepared an air quality report for the predicted levels of dust produced by the New Chiltern Quarry (GHD 2009) and CEMEX has specified a best practice water use regime for the new quarry. GHD (2009) concludes that the levels of dust will be well below prescribed limits for surrounding residences as outlined in Mining and Extractive Industries Protocol for Environmental Management (Mining PEM), suggesting that impacts to surrounding vegetation and

fauna habitat from dust will also be relatively low. CEMEX will prepare a Dust Management Plan (DMP), in accordance with the recommendations outlined in the GHD (2009) report, which will include measures to keep dust at minimal levels, thereby reducing impacts to surrounding vegetation and habitats.

Dust from activities of quarrying itself and that generated by trucks on haul roads will require active suppression. This management will be required throughout all stages of the proposed quarry development. Establishment of earth bunds and maintenance of a buffer zone between active quarrying activities and sensitive fauna habitats off-site (see above) will assist in the prevention of dust having negative impacts on these habitats.

It may be necessary to curtail operations that cause high levels of air-borne dust during periods when strong wind might blow dust toward areas of managed native vegetation and this should be incorporated into the DMP.

Artificial lighting throughout the proposed development will be kept to the minimum. Lights will be kept as close to the ground as is practical. All artificial lighting will be designed and sited so that light spill to ecologically sensitive areas does not occur. In order to minimise potential impacts of altered behaviour on FFG and EPBC-listed species and communities, stationary light sources will be shielded so that they minimal impact to habitat for such species.

Hours of operation of the quarry will be between 0700 and 1800 hrs EST and lights, other than on vehicles, will not be used in the quarry pit when dark. Minimal night lighting will be used for security purposes around the works depot, stockpile areas and crushing plant.

5. Conclusion

The EPBC listed community is situated atop of the hornfels rock resource and cannot be avoided during proposed quarry extraction activities. Alternative sites were investigated during 2005/ 2006. No other viable hornfels site was identified (Bird. D, 2009).

Holcim (formerly CEMEX) has made considerable efforts to avoid impact to native vegetation, including the listed community, during the quarry design process. Several design changes have been made as a direct consequence to avoid native vegetation.

Holcim remains committed to the mitigation and off-set strategy proposed and believes this represents a strong conservation outcome, particularly when compared with a long term view of the habitat against the existing intensive farming practices that will otherwise continue.