

MAJOR PROJECT ASSESSMENT: Hitchcock Road Sand Project



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

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Cover photograph of Hitchcock Road Quarry viewed from Haerses Road, courtesy of PF Formation

EXECUTIVE SUMMARY

PF Formation (the Proponent) operates a sand quarry at the intersection of Wisemans Ferry Road and Old Northern Road Maroota, approximately 8 km from Wisemans Ferry in the Baulkham Hills local government area. The quarry primarily supplies medium and coarse grained washed sand for use as construction materials in the Sydney market, and is allowed to produce up to 400,000 tonnes of processed sand per year. Clay and recycled products are also produced on the site.

Sand is extracted in a series of depressions, extending to within 2 metres of the wet weather high groundwater level. Extracted sand is pumped from the quarry site in slurry form to the processing plant, located on another nearby property.

PF Formation is proposing to extend the area of extraction, extract to a greater depth and modify the boundaries of the sand quarry. The company also seeks approval to continue bringing up to 20 laden trucks per day of virgin excavated natural material onto the site for recycling, blending and/or washing.

The proposal constitutes a 'major project' under Part 3A of the *Environmental Planning and Assessment Act 1979* and consequently the Minister is the approval authority for the project.

The Department exhibited the Environmental Assessment of the project from 5 December 2007 to 31 January 2008, and received 13 submissions on the project: 5 from government authorities and 8 public submissions. Three of the public submissions objected to the project, however submissions raised a number of concerns including effects on water resources, clearing of vegetation, heritage and traffic.

The key issues considered during the assessment include control of amenity impacts affecting residents in the area, impacts on groundwater, rehabilitating the site and implementing an acceptable offset strategy to compensate for losses to flora and fauna habitats.

The Department has assessed the project application, EA, submissions on the project, and PF Formation's response to submissions and preferred project report, in accordance with the objects of the EP&A Act and principles of ecologically sustainable development.

Following this assessment, the Department is satisfied that the impacts of the project are able to be effectively minimised, managed and/or compensated for, to ensure an acceptable level of environmental performance. The Department has recommended a range of conditions including requirements on PF Formation to comply with applicable noise and air quality criteria, avoid impact on groundwater, and provide and conserve offsets for vegetation cleared by the project.

Importantly, the project would provide continued employment for the 22 people employed at the quarry, and shore up sand supplies required for the construction industry.

On balance, the Department believes that the project's benefits sufficiently outweigh any residual costs, and that it is therefore in the public interest and should be approved, subject to conditions.

1 BACKGROUND

PF Formation (the Proponent) operates a sand quarry at Hitchcock Road, Maroota in the Baulkham Hills local government area. The 79 hectare quarry is located on a ridge-top adjacent to the intersection of Old Northern Road and Wisemans Ferry Road about 8 km south of Wisemans Ferry (see Figure 1).

Prior to quarrying, the site was partly cleared for rural purposes with areas of natural vegetation remaining on the site. The surrounding land is predominantly used for rural purposes (agriculture, forestry and extractive industries).

The current development was approved by the Land and Environment Court in July 1998. The Court consent limits the operation to producing a maximum of 400,000 tonnes of processed sand per year (with a daily limit of 200 laden vehicle movements from the processing plant), extending 30 years from the date of consent.

PF Formation's operations occupy land to the north and south of Wisemans Ferry Road. The triangular-shaped extraction area is to the south of the road while the processing, loading and despatching area (the washery), originally approved by Baulkham Hills Shire Council in 1991, is on a square-shaped parcel on the northern side.

The extraction area is divided into two segments by a strip of excluded land that passes roughly east-west through the site. This land comprises a former Trigonometrical reserve and former Crown roads (see Figure 2). PF Formation has now acquired the Crown roads and holds a long term lease over the former Trigonometrical reserve.

Accordingly, PF Formation is now proposing to extract sand from this area.

Furthermore, PF Formation has included two additional parcels of land at the southern end of the site (Lot 214 DP 752039 and Lot 1 DP 223323) and deleted another two allotments where sand mining was previously approved (Lot 2 DP 555184 and Lot 1 DP 34599). PF Formation intends that the Court consent should continue to operate on the latter allotments.

In addition, PF Formation is seeking to amend the allowable depth of extraction. The existing Court consent limits extraction to a depth of 187 metres AHD, which is based on the then estimated wet weather groundwater level of 185 metres AHD, plus a 2 metre buffer. The Court consent does allow flexibility for variation of the 187 metre limit should the groundwater level be found to vary from the 185 m estimate.

PF Formation is seeking extract sand to within 2 metres of the wet weather groundwater level, which its groundwater monitoring estimates is nominally 181 metres AHD.

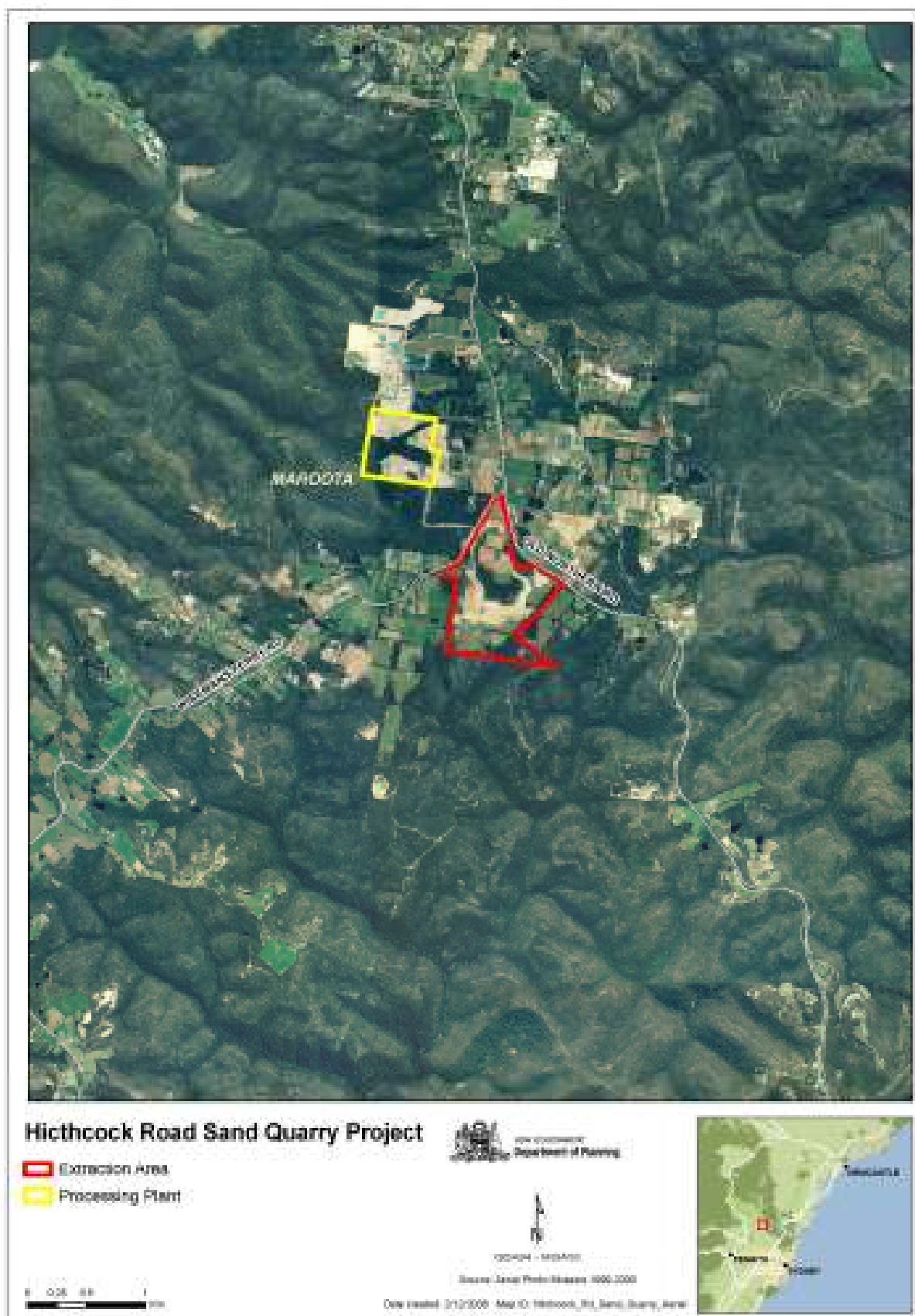


Figure 1: Location Map

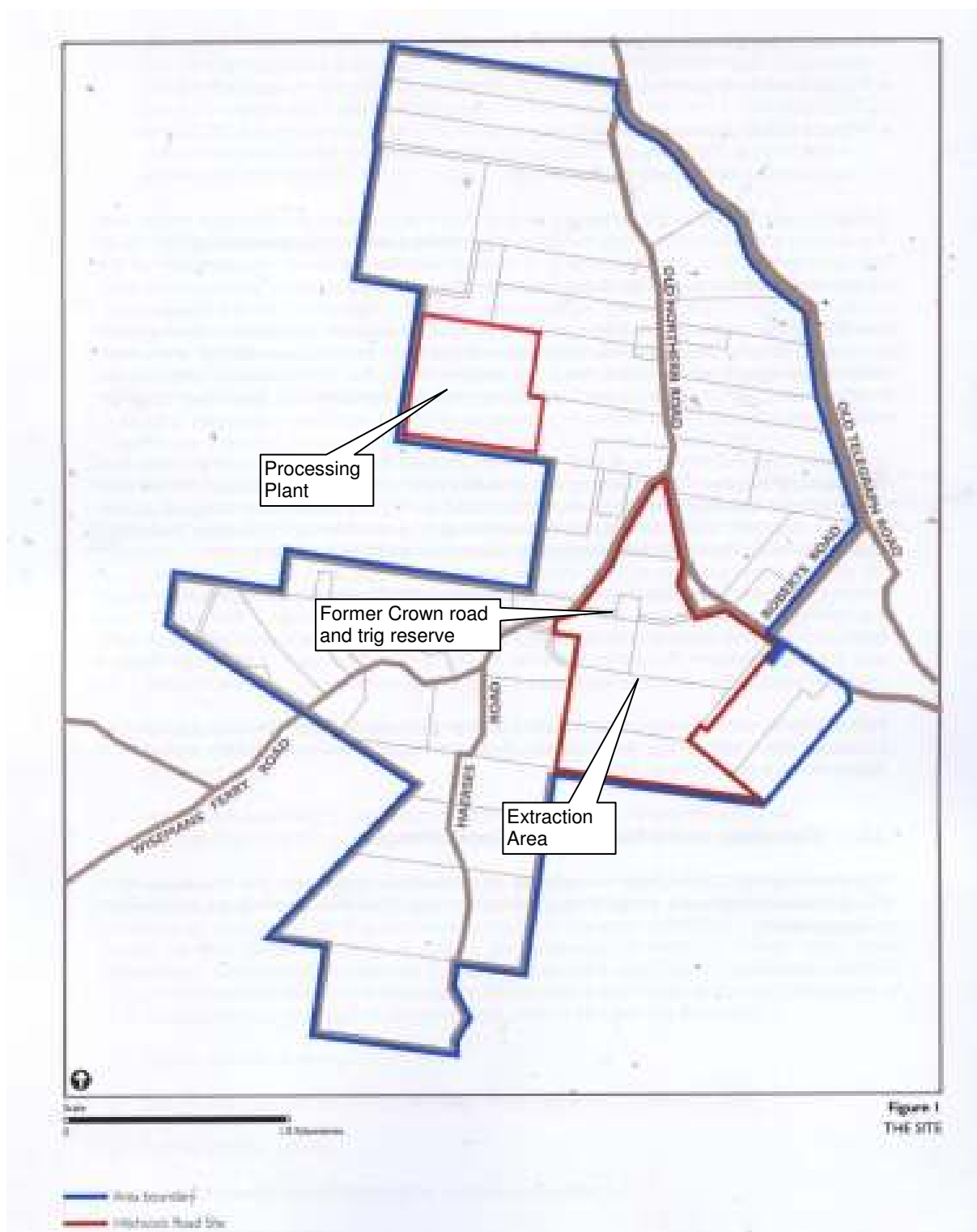


Figure 2: Proposed Project Area

2 PROPOSED PROJECT

2.1 Project Description

The main aim of the proposal is to continue extracting and processing sand to supply the Sydney construction market. Importation of virgin excavated natural material (VENM) for recycling or processing (20 laden trucks per day) is also proposed. PF Formation seeks no change to the existing approved upper limits of 400,000 tonnes per annum of processed sand, 200 laden vehicle movements per day from the processing plant, and the balance of the currently approved 30 year life of the project (to 2028).

The key components of the project are set out in Table 1. The future extraction areas are shown in Figure 3.

Table 1: Key Components of the Project

| Project Components | Description |
|------------------------------|---|
| Summary | <p>Continued extraction of tertiary sand, friable sandstone, clay and gravel at an existing approved sand quarry at Maroota with modifications to the existing approved project to permit:</p> <ul style="list-style-type: none"> alterations to the area of land where extraction is permissible; increased depth of extraction; and consequent changes to the final landform. |
| Reserves | Estimates prepared in 2005 indicated approximately 5.3 million tonnes of extractable resources on the site, including 4,600,000 tonnes of sand and 185,000 tonnes of clay. Since commencing operations under the Court consent, extraction rates have ranged between 200,000 to 350,000 tonnes of material per year. |
| Layout | The extraction area is roughly triangular in shape and located on the south-western side of the intersection of Old Northern Road and Wisemans Ferry Road. The slurry plant is located at the northern end of this area. About half of the land area has already been extracted, located to the south of the former Trig Hill and Crown roads. Rehabilitation has commenced in part of this area. The processing plant is located on a separate allotment approximately 500m to the north-west, on the northern side of Wisemans Ferry Road. |
| Access | Finished product is trucked from the processing site via an access road to Wisemans Ferry Road. Some material that does not require processing is trucked directly from the extraction site via an access to Old Northern Road. Operator and maintenance access to the extraction site is available from several gates on the periphery. |
| Preparation | There is no construction work proposed as the site is already an operating sand quarry. Approval of the application would alter the sequence of workings to take advantage of the additional land areas available for extraction and the additional depth of extraction. Preparatory work for extraction includes removing topsoil and overburden and constructing tailings ponds. |
| Quarrying | Most material is extracted using an excavator and transferred to an articulated dump truck for transport across the site to the slurry plant, where processing commences. A small amount of material not requiring processing is loaded to road trucks and exported to market directly from the extraction site. Such material may include clay and VENM brought to the site. |
| Processing | At the slurry plant raw excavated sand or friable sandstone is screened to separate larger particles. The sandy fraction is pre-washed to remove fine silt and clay, which are piped directly to tailings ponds. The balance is pumped via a bunded pipeline to the central wash plant, north of Wisemans Ferry Road. At the central wash plant the material is further washed, screened into various sized products and stockpiled for despatch. The fines content in the reject slurry is reduced using cyclones and a dewatering screen. The remaining suspended rejects are piped to tailings ponds on the extraction site. |
| Imported Material | It is proposed to maintain the current limit of up to 20 laden truck loads per day of imported VENM to the extraction area for recycling, blending and processing using fixed and portable equipment to produce marketable sand. |
| Loading and Transport | The majority of products are loaded to trucks at the central wash plant site. After passing over the weighbridge trucks exit to Wisemans Ferry Road where |

| Project Components | Description |
|---------------------------------|---|
| | approximately equal numbers turn left and right. The smaller quantity of material that does not require washing is despatched from the excavation site via the existing truck access to Old Northern Road to the weighbridge. |
| <i>Water Management</i> | Tailings ponds are formed with a clay lining and arranged in a cascade system so that water can flow from one to the other, eventually reaching the clean water dam, from which it is recycled to the slurry plant and central wash plant. Water is obtained from groundwater and surface water inflow to a dam on the extraction site with a licensed extraction limit of 50 ML/year and from two water supply bores at the central wash plant with a combined licensed allocation of 120 ML/year |
| <i>Staging</i> | PF Formation points out that the constraints of the sand quarrying process mean that operations cannot be confined to a series of consecutive stages, progressing across the site. Instead, operations require a large part of the site to be in a disturbed state at any one time. This arises from the need to: <ul style="list-style-type: none"> • extract resources from land prior to constructing tailings ponds; • allocate a large area for tailings ponds which take several years to fill and dry; and • avoid double-handling the large volumes of overburden to be moved. |
| <i>Hours of Working</i> | Existing hours of operation would continue to apply, as follows: <ul style="list-style-type: none"> • Monday to Saturday: 05:45 - gates open for vehicle entry; 06:00 to 07:00 – 10 laden trucks permitted; 07:00 to 18:00 – all normal operations permitted; • Sundays and public holidays: no extraction, transportation or processing. |
| <i>Employment</i> | The current workforce of 20 to 22 staff would be unaltered by the proposal which provides for continuation of an existing extractive industry. |
| <i>Surface Water Management</i> | The area already extracted is inward draining and retains surface water for use in processing, although there is high infiltration through the permeable base. Undisturbed land at the eastern part of the site drains to a tributary of Little Cattai Creek. There has been no discharge from the site to date and PF Formation expects this would not change. Erosion and sediment controls have been established within the site to separate clean runoff from working areas and prevent sediment transport to adjoining areas. |
| <i>Final Landform</i> | PF Formation has provided two strategies for final landform. Strategy A creates a depression gently sloping towards the existing dam in the southern part of the site with steeper slopes towards Old Northern Road. Strategy B, to apply if vegetation in the former Trig Hill is not removed, retains a high landform in the north with a lower, gently sloping area in the south. Steep gradients occur in a number of locations for Strategy B. Final retention basins are to remain in place, sized to ensure no discharge occurs for rainfall up to the 100 year ARI event. |
| <i>Rehabilitation</i> | PF Formation intends to create agricultural land on most of the site consistent with the dominant use prior to extraction. Approximately 12 hectares in the western and north-eastern parts of the site are designated for habitat restoration. PF Formation undertakes that should approval be given to remove vegetation from the former trig reserve, this would not occur until an equivalent area has been successfully revegetated. An area of 3 ha has already been replanted with native species grown from seed collected from Trig Hill. |

2.2 Amendments to the Project

Following exhibition of the EA, PF Formation amended certain aspects of the project. The changes included:

- removal of Lot 1 DP34599 from the project (which was originally proposed to be quarried);
- modification of the extraction area on Lot 214 DP752039 to reduce vegetation removal;
- inclusion of an alternative final landform (ie. Strategy B); and
- modified buffers to adjacent roads and properties.

The project amendments are described in full in PF Formation's Preferred Project Report, which is attached in Appendix D. Figure 3 reflects the revised project layout.



Figure 3: Future Extraction Areas

3 STATUTORY CONTEXT

3.1 Major Project

The proposal is classified as a major project under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), because it meets the criteria in clause 7(1)(a) of Schedule 1 of *State Environmental Planning Policy (Major Projects) 2005*, being development for the purpose of an extractive industry that extracts more than 200,000 tonnes of extractive material per year.

Consequently, the Minister for Planning is the approval authority for the project.

3.2 Permissibility

The site is zoned Rural 1(b) under *Baulkham Hills Local Environmental Plan 2005*. The project is permissible with consent in this zone and consequently may be approved by the Minister.

3.3 Exhibition

Under section 75H(3) of the EP&A Act, the Director-General is required to make the environmental assessment (EA) of a project publicly available for at least 30 days.

After accepting the EA for the project, the Department:

- made it publicly available from Wednesday 5 December 2007 until Thursday 31 January 2008:
 - on the Department's website;
 - at the Department's Information Centre in Sydney;
 - at Baulkham Hills Shire Council;
 - at the Dural Branch Library; and
 - at the Nature Conservation Council in Sydney;
- notified relevant State government authorities and Baulkham Hills Shire Council by letter; and
- advertised the exhibition in the Sydney Morning Herald and the Hills Shire Times.

This satisfies the requirements in section 75H(3) of the EP&A Act.

3.4 Objects of the EP&A Act

The Minister's consideration and determination of the application must be consistent with the relevant provisions of the EP&A Act, including the objects set out in section 5 of the Act. The objects of most relevance to the Minister's decision on whether or not to approve the project are found in section 5(a)(i), (ii), (vi) & (vii). They are:

- “(a) to encourage:
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (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”*

The Department has fully considered the objects of the EP&A Act, including the encouragement of Ecologically Sustainable Development (ESD), in its assessment of the project. The assessment integrates all significant economic and environmental considerations and seeks to avoid any potential serious or irreversible damage to the social environment, based on an assessment of risk-weighted consequences. PF Formation has also considered a number of alternatives to the proposed development, including the alternative of not proceeding, and considered the proposal in the light of the ESD principles.

The Department is satisfied that the project can be undertaken in a manner that is consistent with the objects of the EP&A Act.

3.5 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's report is required to include a copy of or reference to the provisions of environmental planning instruments that substantially govern the carrying out of the project.

The Department has considered the project against the relevant provisions of several *State Environmental Planning Policies* (SEPPs) and other environmental planning instruments (see Appendix C), and is satisfied that none of these instruments substantially govern the carrying out of this project. The Department is satisfied that the project can be undertaken in a manner that is consistent with the aims, objectives and provisions of these instruments.

3.6 Statement of Compliance

Under section 75I of the EP&A Act, the Director-General's report is required to include a statement relating to compliance with the environmental assessment requirements established for the project's EA.

The Department is satisfied that the environmental assessment requirements have been complied with.

4 ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received 13 submissions on the project, including:

- 5 from public authorities; and
- 8 from the general public and private organisations.

Three of the submissions from the general public objected to the project.

4.1 Public Authorities

Submissions from public authorities did not object to the project, although a number of issues were raised. The key issues raised by the authorities are summarised below.

Department of Primary Industries (DPI) requested that the approval require PF Formation to provide annual production data to the Department and that weed management be addressed in the environmental management plan. In its Submissions Report (see Appendix E), PF Formation agreed to meet these requirements.

Department of Environment and Climate Change (DECC) advised that it would be able to vary the Environment Protection Licence for the facility, and attached proposed conditions for noise and water. The DECC submitted the following comments on the noise assessment in the EA:

- the ambient background noise applied to several residences towards the southern end of the site should be identical to the measurement recorded in that area;
- a sleep disturbance limit of $L_{A1,1\text{minute}}$ 45dB(A) should be applied for early morning operations; and
- noise impacts at Residence 4 (see Figure 4) and the residence on Lot 2 DP 555184 should be managed by the approval if those residences are deemed to constitute sensitive receivers.

PF Formation in its Submissions Report (see Appendix E) did not support the DECC comments (see Section 5.3 for discussion).



Figure 4: Noise Monitoring Locations

Note: This figure shows the original larger project site

Baulkham Hills Shire Council (Council) raised a number of matters in relation to setbacks of the extraction area from adjoining properties and roads. Council requested that all setbacks comply with the provisions of *Baulkham Hills Development Control Plan Part D, Section 6, Extractive Industries, September 2007* (DCP). In Council's opinion, PF Formation's claim that setbacks are not required to Lot 2 DP 555184 may not be valid as Council has received no application for sand extraction in respect of that property.

Council raised the following further points:

- any approval should provide for section 94 contributions be paid on a monthly basis in accordance with Council's Section 94 Contributions Plan No 6 Extractive Industries;
- there are limited details regarding site revegetation, indicating the appropriateness of the final landform and vegetative cover should be reviewed;
- an unsatisfactory outcome may arise if the proposal proceeds without inclusion of Lot 2 DP 555184.

In its Submissions Report (see Appendix E), PF Formation agreed to provide a 30 metre setback to Hitchcock Road consistent with the DCP. However Figure 4 of the Preferred Project Report reduces this setback to 10m. This is considered an error in failing to carry across the commitment in the Submissions Report and a specific condition has been included to ensure the appropriate setback is provided.

PF Formation argued that a 100 metre setback was not required from the Maroota Rural Fire Brigade building or the adjoining disused scout hall and that 30 metres would be more appropriate. PF Formation also restated its belief that a development application for sand extraction would be submitted in respect of Lot 2 DP 555184, obviating the need for setbacks from that property. Further discussion is provided in Section 5.2.

The Roads and Traffic Authority (RTA) listed mitigation measures that should be incorporated which are similar to those proposed in the EA. The RTA also requested that PF Formation comply with Council's Section 94 Contributions Plan No 6 which provides funds for maintenance, repair and reconstruction of key roads affected by the project.

(Cwth) Department of the Environment, Water, Heritage and the Arts (DEWHA) originally considered that the proposed revegetation over completed extractive workings was unlikely to be an acceptable offset for the loss of a mature Shale Sandstone Transition Forest (SSTF) ecological community (an Endangered Ecological Community (EEC)). DEWHA requested that PF Formation develop an offset proposal based on its draft discussion paper *Use of Environmental Offsets Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

Subsequently PF Formation submitted a Preferred Project Report (see Appendix D) including the results of further detailed survey of site vegetation, leading to the conclusion that a vegetation community previously identified as SSTF is more consistent with Sydney Hinterland Transition Woodland (SHTW). Following the resurvey, DEWHA advised that the SHTW was not listed under the EPBC Act.

4.2 Public Submissions

A number of matters were raised in public submissions including the following key issues:

- the project would adversely affect groundwater with consequences for users and groundwater dependent ecosystems (GDE);
- compensation for removing an EEC, Shale Sandstone Transitional Forest, is inadequate;
- recommendations of the archaeological consultant have been ignored;
- the existing sand mining consent on Lot 2 DP 555184 should be preserved; and
- issues currently exist with the behaviour of trucks on the road system leading to the site;

PF Formation responded to issues raised in public submissions in its Submissions Report (see Appendix E) and subsequently modified the project as described in its Preferred Project Report (see Appendix D).

5 ASSESSMENT

5.1 Existing Consent

Excluded Properties

Lot 2 DP 555184 and Lot 1 DP 34599 (shown on Figure 3) are part of the consolidated site included within the current development consent for sand mining, issued by the Land & Environment Court in July 1998 (ie. the existing consent).

These properties have now been removed in the current application. PF Formation indicates in its Submissions Report (see Appendix E) that it has omitted Lot 2 DP 555184 from the current application at the request of the owner of that property. In its Preferred Project Report (see Appendix D), PF Formation modified the proposal to remove Lot 1 DP 34599 from the project.

Extraction has previously commenced on Lot 1 in accordance with the existing consent. Sand extraction has not commenced on Lot 2 DP 555184 and it remains in rural use with an occupied residence. The owner of this property has expressed their intent to submit to Council a further application for sand mining on their property, independent of PF Formation. The owner made a submission objecting to the surrender of the existing consent and requested delaying approval of PF Formation's application until such time as the foreshadowed application has been determined. This objection was raised in the belief that the existing consent would cease over all properties once the new approval was granted and that their application would be aided by the existence of the current consent.

Preservation of Existing Consent

Should the Minister approve the project, Clause 8M(1) of the *Environmental Planning and Assessment Regulation 2000* would apply. This would mean that the existing consent would cease to have effect on the land subject to the project approval, but it would remain in force on Lot 2 DP 555184 and Lot 1 DP 34599, which are not subject to the project approval.

However, any extraction on Lots 1 and 2 in isolation would most likely require a modification of the Court consent, given that the consent does not provide for processing of sand extracted from these lots in isolation. To enable the effective extraction from these lots, the Department has recommended a condition to allow PF Formation to accept extracted material from Lots 1 and 2 for processing, should a commercial arrangement be reached between the parties.

A further condition provides that the approved upper limits of 400,000 tonnes per annum of processed sand apply to the combined output of sand extracted under the project approval and from Lot 2 DP 555184 and Lot 1 DP 34599, should extraction commence or resume on those lots (see Section 5.3 for further discussion).

The Department considers these conditions would ensure that future extraction activities on those allotments could continue in an orderly manner, consistent with the quantity of material that is allowed to be extracted and other relevant restrictions under the existing consent.

5.2 Setbacks

Desired setbacks from land subject to sand extraction at Maroota are defined in Council's *Development Control Plan 16 – Extractive Industries* (DCP). Setbacks are included to provide a landscape buffer to extractive areas, protect flora and fauna habitats, maintain the rural-residential streetscape and maintain the character and amenity of rural residential activities.

Figure 2.3 of the EA illustrated proposed setbacks for the project. The submission from Council pointed out some anomalies within the EA description of setbacks and discrepancies between the proposal and the DCP, requesting that PF Formation comply with the provisions of the DCP.

PF Formation's Preferred Project Report provided amended setbacks for the project, but argued that strict compliance with the DCP was not necessary in one instance. PF Formation proposes a 30 metre setback from the Maroota Fire Brigade building and adjoining disused scout hall, to the east of

the quarry site. Due to the nature of these facilities, PF Formation considers the 100 metre setback requirement in the DCP to be excessive, as activities in the buildings are unlikely to be disturbed by sand mining.

The Department agrees with PF Formation that the nature of current activities on these properties is adequately served by a 30 metre setback as proposed.

A condition has been included requiring PF Formation to submit a surveyor's plan showing the approved boundary of the extraction area.

5.3 Noise

Operational Noise Assessment

The EA examined the existing acoustic environment, referring to background noise monitoring conducted at four nearby residential locations in 2004. Noise intrusiveness criteria were determined for seven residences in the locality and Maroota Public School, for both daytime and night time operation. The night time period is relevant because truck movements are currently able to commence at 6 am and for the first hour (ie. 6 am to 7 am) would be within the night time period. Under the existing consent PF Formation is limited to 10 laden trucks leaving the site between 6 am and 7 am. In the EA PF Formation sought to increase the number of loaded trucks permitted to depart in the 6 am to 7 am period from 10 to 15, but subsequently withdrew this request.

Intrusiveness criteria ($L_{Aeq(15\text{ minutes})}$) for the project range from 39 to 42 dB(A) for day time. The criterion for all locations is 35 dB(A) at night.

Operational noise modelling considered four scenarios for site operations representing worst case situations with all fixed and mobile plant operating simultaneously at full load. The modelling predicted that in the daytime, noise would generally be within criteria except at three residences when, during certain scenarios, criteria would be exceeded by between 3 and 5 dB. PF Formation states in the EA that in practice not all equipment is in use at the same time and lower received noise levels would occur as evidenced by noise monitoring of the existing operation, where relevant criteria are not normally exceeded.

Modelling predicted that night time noise would be within the criterion at all locations during calm conditions but would exceed the criterion at three residences (including one residence not predicted to exceed daytime criteria) by between 2 and 3 dB under worst case weather conditions.

The Department's typical policy with regard to noise exceedances is as follows:

| Noise Impact | Criteria Exceedance | Management Required |
|---------------------|----------------------------|--|
| Marginal | 1-2 dBA | Noise mitigation, if possible |
| Moderate | 3-5 dBA | Noise mitigation, inc. noise mitigation at residence |
| Significant | >5 dBA | Acquisition |

In this case, the project is predicted to have a marginal to moderate impact on four surrounding private properties. The Department believes that additional noise mitigation measures (such as earthen bunds or operational changes) should be able to be adopted to reduce these impacts such that the project would comply with the applicable criteria.

In this regard, The Department has recommended a condition requiring PF Formation to investigate and assess additional noise mitigation measures aimed at ensuring compliance with the criteria during all stages of the project. This requirement would form part of a wider Noise Management Plan which also provides for a detailed noise monitoring program for the project.

The Department has also included a condition requiring PF Formation to undertake additional noise mitigation measures on moderately affected residences (such as installation of double glazing, insulation and/or air conditioning), at the request of the applicable landowner, if the on-site additional noise mitigation measures are unable to substantially reduce noise impacts.

In its submission, DECC recommended that noise impacts at Residence 4 and the residence on Lot 2 DP 555184 (see Figures 3 and 4 for locations) be also managed, if these residences are considered sensitive. Given that these residences are located on approved sand mining sites, the Department is satisfied that specific noise mitigation measures on these properties is not warranted.

Notwithstanding, the Department notes that requirements to comply with applicable criteria on other nearby residences would also benefit these properties.

The Department is satisfied that the project can be managed such that the project operations would not have a significant noise impact on the surrounding area. To ensure this occurs, the Department has recommended conditions requiring PF Formation to:

- comply with strict hours of operation;
- comply with applicable operational noise criteria;
- prepare and implement a comprehensive Noise Management Plan, which provides for reducing identified noise exceedances and a detailed noise monitoring program; and
- keep the community informed about the project and respond effectively to any complaints.

Road Noise Assessment

The DECC publication *Environmental Criteria for Road Traffic Noise* provides standards for road traffic noise associated with the proposed sand quarry:

- Daytime (collector roads) 60 dB(A) for 7:00 am to 10:00 pm; and
- Night time (collector roads) 55 dB(A) for 10:00 pm to 7:00 am.

In cases where the criteria are already exceeded, the traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dB.

The EA assesses noise impacts from site traffic on Wisemans Ferry Road and Old Northern Road using the US EPA method, noting that the proposal would not generate any additional traffic. The assessment was carried out for five residences set back from 35 to 100 metres from the roadside. Existing minimum daytime $L_{Aeq}(1 \text{ hour})$ noise levels were found to be lower than the DECC criterion of 60 dB(A) at all assessment locations. The worst case cumulative project related traffic is predicted to increase daytime traffic noise by 1.2 dB which would continue to remain below the criterion at all locations.

For the early morning period where night time criteria apply, noise levels from site traffic are lower than the DECC criterion of 55 dB(A) at two assessment locations and up to 2.5 dB higher at three other locations. The worst case project related traffic is predicted to increase night time traffic noise by 1.0 dB or lower.

The Department is satisfied that the road noise assessment has not identified any significant issues requiring further mitigation measures. The recommended conditions retain the existing limitation of 10 laden vehicles departing the site during the 6 am to 7 am period.

Cumulative Noise Assessment

The EA considered the cumulative effect of the project with three other approved or operational sand extraction projects in the vicinity. The resulting amenity noise levels were calculated on the assumption that all projects simultaneously emitted their maximum noise levels. At all eight sensitive receivers assessed, the cumulative noise emissions were at or below the relevant amenity criteria for industrial (non-transport related) noise during the daytime and night time period.

The Department notes that the cumulative assessment did not consider the potential for simultaneous extraction from the project and Lot 1 DP 34599 and Lot 2 DP 555184 (ie. the other properties included within the original Court consent). Accordingly, the Department has recommended a condition capping the production rate at 400,000 tonnes of processed material a year, for the combined operations of the project and any future extraction on Lots 1 and 2. The Department has also recommended a condition requiring the Proponent to take all reasonable and feasible measures to ensure that the project complies with applicable cumulative noise criteria.

Given that the existing Court consent requires any extraction on Lots 1 and 2 to use the slurry pipeline on the project site, the Department is satisfied that a suitable framework exists to control the combined extraction from the project site and Lots 1 and 2, in a manner that would not unduly compromise the rights of the applicable landowners, whilst protecting the amenity of the surrounding area.

5.4 Surface Water and Groundwater

Groundwater

Groundwater levels have been recorded on the site and in the area since 1996, with data loggers in use since 1999. Groundwater studies have been conducted in the Maroota area by the Department of Water and Energy with the aim of determining the position of the groundwater table. The studies led to a departmental policy that the base of sand mining excavations should be at least two metres above the seasonally highest elevation of the shallow water table, which is reflected in Council's Extractive Industries DCP.

The EA argues that the Maroota sand aquifer should be assessed on a site specific basis as available data indicates a variable water table in the aquifer. This is due to localised influencing factors such as surface topography, sediment characteristics, location relative to the palaeochannel and basement elevation.

The hydrogeological report in the EA refers to the excavated fresh water dam within the site (on Lot 167 DP 752039) as being a window into the water table. This dam is centrally located over the palaeochannel and was excavated prior to 1995 at the commencement of sand mining on the site. It is licensed for an annual extraction of 50 ML. Notwithstanding its use as a water supply point for the operation, over 10 years of weekly records have shown the water level in this dam to generally range between 180.5 and 182 m AHD. These levels are similar to levels monitored in four boreholes, one at the Hitchcock Road boundary of the site and three in a cluster about one kilometre north east of the site.

PF Formation considers the average dam level of 180.9 m AHD to represent the level of the water table beneath the extractive site and therefore a depth of mining to 183 m AHD would maintain a buffer of two metres above the wet weather high groundwater level.

The EA concludes that based on more than 10 years monitoring results, groundwater extraction from the Maroota Sand and the Hawkesbury Sandstone is in hydrogeological balance, as no apparent decline in the water table has occurred apart from that considered to be in response to drought conditions. The EA suggests that the project would have the beneficial effect of assisting recharge to the shallow aquifer resulting from removal of vegetation and clay overburden.

The proposal to quarry to a depth of 183 m AHD is reliant upon two predictions:

- the elevation of 181 m AHD represents the wet weather high groundwater level over the entire extractive site; and
- a buffer of two metres above the wet weather high groundwater level is appropriate to prevent unacceptable impacts on groundwater.

The Department believes a precautionary approach is appropriate in relation to groundwater, and is concerned by inconclusive evidence in the EA that 181 m AHD represents the wet weather high groundwater level at all locations where extraction is proposed.

The proposed approval conditions permit extraction to a base of two metres above the wet weather high groundwater level, in accordance with the DCP. Definition of this level would be subject to detailed assessment, based on comprehensive groundwater monitoring and review by a suitably qualified groundwater expert.

A further condition requires a Groundwater Monitoring Program to be submitted. This includes the installation of additional boreholes around the periphery of the site to more accurately determine the groundwater surface within the extraction area and to more closely monitor the effect of mining on groundwater level and quality.

Surface Water

The EA indicates that the site comprises three catchments, of which the northern and southern catchments are inwardly draining. This has been achieved by a combination of natural topography and peripheral bunds constructed as part of sand mining to date. These catchments drain to existing storage basins and do not discharge from the site. Rainfall runoff is lost either by infiltration, evaporation or consumption in the sand mining process.

The third (eastern) catchment is now largely unaffected by extractive operations following PF Formation's withdrawal of Lot 1 DP 34599 from the project in the Preferred Project Report (see Appendix D). This catchment now drains land along the southern boundary of the site, mostly supporting natural vegetation, to a natural watercourse flowing to Little Cattai Creek. Should the on-site basins overflow, this catchment would receive the discharge. PF Formation states in the EA that to date there has been no discharge of sand quarry surface water beyond the boundary of the site.

At the completion of sand mining PF Formation intends to construct basins within the northern and southern catchments, sized to ensure that no discharge occurs for storm events up to and including the 100 year ARI event.

The Department is satisfied that surface water associated with the project is able to be effectively managed. Conditions have been recommended which requires a Erosion and Sediment Control Plan and a Surface Water Monitoring Program, to document all necessary pollution reduction measures, including basins, within the development site.

Water Supply

Water for the slurry plant on the extraction site is obtained from the clean water dam on Lot 167 DP 752039. The water is used for the pre-cleaning of sand and creation of a sand slurry for delivery by pipeline to the central processing plant for washing and processing. PF Formation has approval to extract up to 50ML of water a year from the clean water dam for extraction purposes. The slurry plant also obtains recycled water from the settlement dam on Lot 198. Water for dust suppression is recycled from the siltation pond. Fines and tailings are returned from the central processing plant for discharge into a series of tailings/settlement ponds culminating in the clean water dam. Water for the central processing plant is obtained from two production bores on Lot 198, which are licensed for 60ML each a year.

One submission was concerned the EA did not contain a water balance or water management plan. PF Formation states a more reliable approach to water management at the site is one based on the actual results over the previous ten years of operations. The site has been managed and operated in accordance with the various licence conditions for the quarry and accurate records of water usage, water levels at the monitoring locations, water quality and rainfall are maintained. The monitoring data collected over the ten year period demonstrates that the site operations are in balance with the groundwater regime. PF Formation believes that a site water balance is not required given the extensive monitoring data that has been collected and that the operations to date have had no significant impact on groundwater levels. PF Formation has also implemented improvements at the central processing plant to reduce by approximately 20% the volume of tailings returned to the ponds, which has resulted in a reduction in the top up water required for the processing plant.

The Department accepts PF Formation's reasoning that water usage based on historical monitoring results provides sufficient information on the impact of the project on the groundwater regime. The Department is satisfied that water management impacts have been adequately assessed. However, it is recommended that a condition of approval require PF Formation to develop and implement a Water Management Plan for the project, which includes a site water balance and surface and groundwater monitoring programs.

5.5 Flora and Fauna

PF Formation undertook a flora and fauna survey of the site in 2004, which is presented in the EA. The survey reported the site contained three vegetation communities, including approximately 7.5 hectares of Shale Sandstone Transition Forest (SSTF), an endangered ecological community (EEC) under both the *Threatened Species Conservation Act 1995* (TSC Act) and Commonwealth *EPBC Act*.

Recent vegetation mapping across New South Wales provided a more detailed split of communities and identified a new community, Sydney Hinterland Transition Woodland (SHTW). PF Formation subsequently undertook a further investigation for the Preferred Project Report, including quadrat surveys, which concluded that the vegetation within the Trig Hill area is consistent with SHTW and vegetation at a second location on Lot 1 DP 223323 more closely fits SHTW than SSTF. PF

Formation states that, notwithstanding similarities with the EEC, the SHTW is not separately listed as an EEC and is more abundant than the SSTF, with relevance to the offset strategy for the project.

Figure 5 shows the location of the three remnant native vegetation communities on the site:

- **Sydney Hinterland Transition Woodland**, although in the poorest condition, is the most important forest on the site. Approximately 7.5 hectares of this forest remains in three remnants, of which 3.7 hectares is to be cleared. This forest is considered to be in poor to moderate condition owing to weed invasion, encouraged by the high edge to area ratios. The tree canopy is intact and provides hollows for fauna. The fauna habitat value is considered moderate;
- **Sydney Sandstone Gully Forest** is present at the southern site boundary within the catchment of Little Cattai Creek. The vegetation in this community has undergone little disturbance in the past and is considered to be in good condition. There are high quality microhabitat resources present, suitable for a variety of native fauna. Fauna habitats in this forest are also considered to be in good condition. None of this community is proposed for clearing; and
- **Sydney Sandstone Ridgetop Woodland** occurs in the ridge areas in the east and south of the site. The community is considered to be in good condition as very few introduced species were recorded, mainly near the edges. Two threatened plant species are present, *Tetratheca glandulosa* and *Grevillea parviflora*. The fauna habitat of this vegetation community is considered to be moderate. The Preferred Project Report has modified the project to exclude the remnants of this community present on the site from extraction.

The Sydney Sandstone Gully Forest and Sydney Sandstone Ridgetop Woodland are contiguous with extensive areas of native bushland beyond the boundaries of the development site. Maroota State Forest adjoins the site to the south and east.

In addition to the above forest types there are some areas of regrowth vegetation, being natural regeneration of previously cleared land and a 3 ha area of revegetation on the existing sand quarry site.

The survey did not record any threatened fauna on the site although the Glossy Black Cockatoo was observed flying overhead. The EA considered a number of threatened fauna species including migratory species that may potentially occur on the site. The EA concluded that while some threatened species of birds and bats might use the site as a marginal foraging or roosting resource, threatened or migratory fauna species were unlikely to be significantly affected by the proposal.

Biodiversity Offset Strategy

Several submissions expressed concern at the loss of remnant vegetation on the site, particularly the endangered SSTF (as originally identified). PF Formation in its Submissions Report (refer Appendix E) draws attention to the draft statement of commitments in the EA where an undertaking is given to prepare a Rehabilitation Plan including a Biodiversity Offset Strategy.

In the Preferred Project Report PF Formation presented its plan for a biodiversity offset strategy, which involves revegetating a total of 12 hectares of disturbed areas of the site (see Figure 5). On the western side of the site, 7.9 ha of land would be revegetated (including 3 ha that has already been planted) adjacent to a remnant of the same community existing outside the boundary. PF Formation aims to select species consistent with the SHTW and to manage the area to create the characteristics of this community. The Preferred Project Report contains criteria to be applied by an independent specialist to determine whether the characteristics of the existing community have been achieved. The performance criteria are discussed below.

Clearing of the remnant SHTW on the site would not occur until the majority of the 10 year performance criteria have been met over an area equal to that proposed to be cleared (3.7 ha). Revegetation would be monitored annually and reported, with targets set for comparison at 5 yearly intervals. If the 10 year target criteria are not met, PF Formation would abandon its plan to remove the remnant vegetation and revert to extraction and rehabilitation strategy B, as referred to in section 5.6.

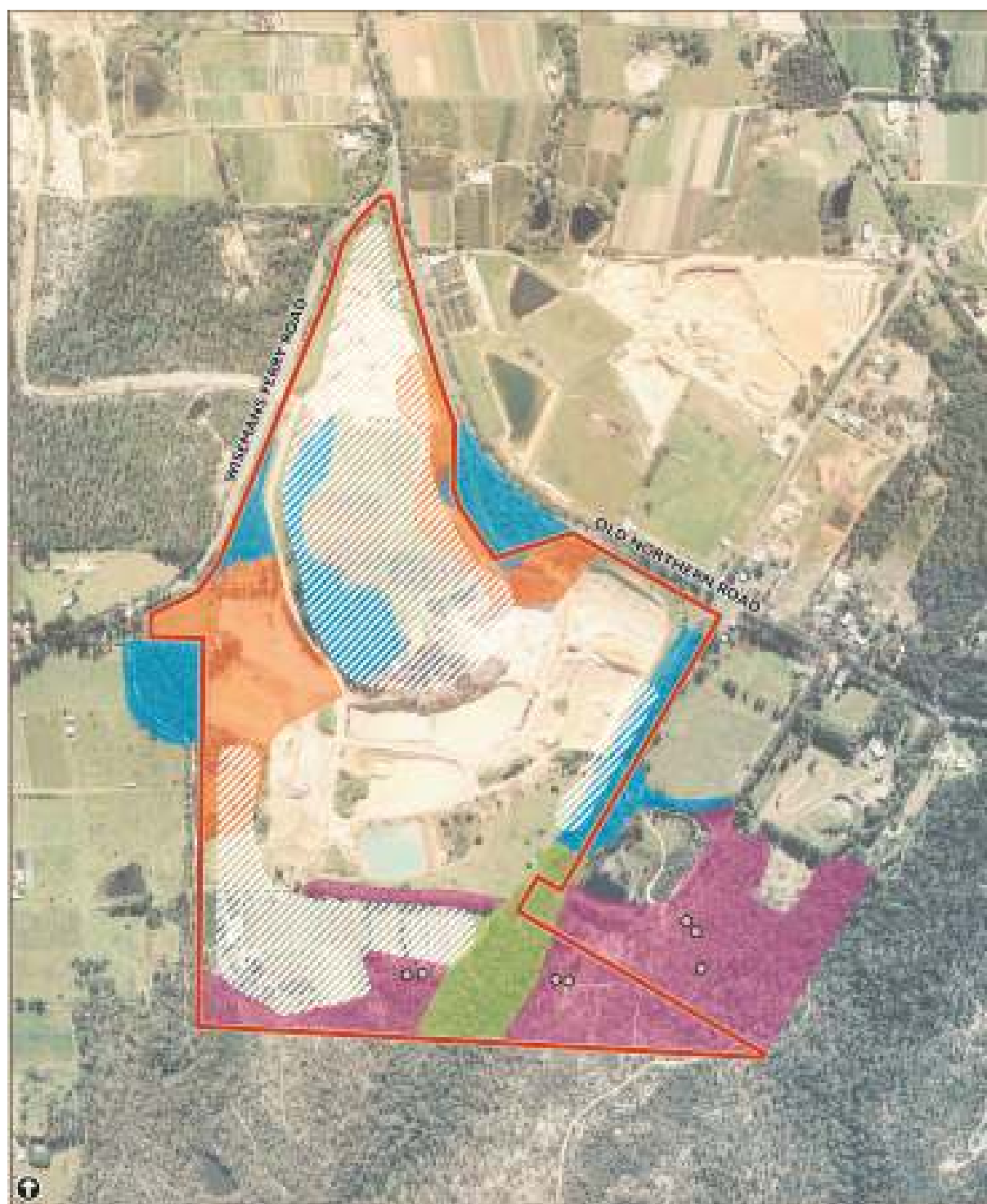


Figure 8

AREAS TO BE CLEARED AND NEW PLANTINGS (STRATEGY A)

- Hitchcock Road site
- Areas for new plantings
- *Tetrastichia glandulosa*
- Sydney Sandstone Gully Forest
- Sydney Sandstone Ridgeline Woodland
- Sydney Hinterland Transition Woodland

Areas to be cleared

Note: Sydney Hinterland Transition Woodland shown at time of photograph (2006)
Parts of this area can be cleared under the current consent

Figure 5: Existing and Proposed Vegetation Communities

Performance Criteria

The proposed performance criteria were developed by PF Formation's ecological consultant and are summarised as follows:

- native species diversity;
- diagnostic species for SHTW;
- native species cover;
- weed abundance and presence of noxious species;
- vegetation structure;
- canopy height and cover;
- native shrub height and cover;
- percentage of native ground cover; and
- ecosystem function and habitat values.

Targets have been proposed for 5, 10 and 15 years from commencement, to be measured in quadrats within the area revegetated up to that time. In most cases the targets are numerical and capable of objective measurement. PF Formation explained that the requirement for the majority of the targets to be met would allow the monitoring consultants to balance criteria exceeding targets with any that fell short, when determining whether the revegetation should be considered to be making satisfactory progress.

DECC considered PF Formation's biodiversity offset strategy and while noting that there are high risks and uncertainties in attempting to re-create ecological communities, the outcome is less critical for communities that are not listed in the schedules of the TSC Act. DECC indicated that while its preference is for the proposed impacts to be offset by management of lands off site, if this is not feasible the proposed biodiversity offset strategy can be supported with the following amendments:

- during monitoring, species diversity in the quadrats is compared to previous species lists for the site and surroundings rather than diagnostic species for SHTW;
- fixed quadrats are used rather than random quadrats;
- monitoring be carried out by consultants independent of those undertaking the revegetation; and
- use of the Braun-Blanquet scale as part of the measure for monitoring vegetation structure.

Noting DECC's acceptance of PF Formation's biodiversity offset strategy the Department is satisfied that the strategy can be developed and implemented from the proposals contained in the Preferred Project Report. The performance criteria would provide a measure against which independent monitoring can confirm that the offset areas are being adequately revegetated.

Conditions have been included to require management and monitoring of the biodiversity offset strategy to be included in the Rehabilitation and Offset Management Plan. In particular, the conditions reinforce the requirement that the 10 year revegetation targets must be met over at least 3.7 ha of revegetated land to the satisfaction of the Department before approval can be given to proceed with clearing the SHTW. PF Formation would be required to provide details of the long term protection of the revegetated lands in the Rehabilitation and Offset Management Plan.

The Rehabilitation and Offset Management Plan would be required to specify enhancement works within the remnant vegetation areas and their timing together with measurable objectives, regular monitoring, reporting of progress and corrective action.

5.6 Rehabilitation

PF Formation's Preferred Project Report (see Appendix D) has provided two rehabilitation strategies. Strategy A is similar to that in the EA, amended to reflect the modified project area. This strategy removes the central Trig Hill and replaces it with a gently sloping interior with sufficient gradient for drainage while minimising erosion potential. The EA states that the detailed landform, to be provided in a future more detailed rehabilitation strategy, would be subject to factors such as the depth of extraction at any location and the quantity of overburden available at the time extracted areas are being re-contoured. Locations where sand has already been extracted to the depth allowable under the current consent may be reworked to the greater depth now proposed if economical to do so. In this case, where existing rehabilitation is affected it would be removed.

PF Formation argues in the EA that owing to the circumstances of sand extraction at Maroota, clearing, extraction and rehabilitation cannot be undertaken concurrently as occurs on many extractive sites. This arises because the thickness of the clay overburden, the desire to avoid double handling and the large areas of the site required for tailings ponds. Revegetation can commence when a suitably sized part of the site has reached final contours.

Strategy B would apply if PF Formation's revised biodiversity offset strategy (see section 5.5) is determined not to have succeeded. This proposal retains the vegetation on the high ground at Trig Hill resulting in very steep slopes on the southern side and near Old Northern Road dropping to a more gently sloping base.

The EA lists the objectives of rehabilitation on the Maroota site, one of which is to return the land to the use prior to extraction, being agriculture including horticulture with some areas of natural vegetation. Habitat restoration is proposed in peripheral areas, on steep batters and on the highest parts of the re-profiled site, achieved by a combination of natural regeneration and revegetation. The EA acknowledges potential shortcomings of ecosystem restoration using revegetation techniques and proposes a combination of planting and seeding on a carefully prepared soil with ongoing management. The area to be planted and/or seeded to restore native vegetation would be some 12 hectares, more than twice that removed for the purposes of sand quarrying.

Figure 6 shows the indicative final landform for the site proposed in the Preferred Project Report for Strategy A and Figure 7 shows the area indicated for planting under Strategy B. The Department would require further detail in subsequent rehabilitation management plans to be submitted in response to conditions.

The Department is satisfied that with appropriate detailed planning and implementation the Strategy A rehabilitation proposal can produce a satisfactory final surface and balance of habitat areas and agricultural land. With regard to habitat restoration, much depends upon the diligence of the operator during the mining period and beyond. In its Preferred Project Report, PF Formation offers that removal of remnant vegetation on Trig Hill would occur only when an equal area has been successfully revegetated on the extraction site. PF Formation has prepared a methodology to assess the success of revegetation within the extraction area.

PF Formation acknowledges that Strategy B (see Figure 7) is similar to the currently approved final landform. Should it become necessary to implement this strategy, the stability of resulting gradients would need to be certified by a qualified geotechnical engineer.

A condition has been recommended to require submission of a Rehabilitation and Offset Management Plan including detailed proposals for the habitat restoration areas including timing, methods, monitoring, performance criteria and corrective action. Conditions have also been recommended requiring PF Formation to lodge a substantial bond for the rehabilitation and offset works.

5.7 Aboriginal and European Heritage

An archaeological survey in 1995 identified one Aboriginal site (MR1) within the project area: a scatter of five artefacts on the crest of a spur in the south eastern part of the site. The EA explains that this Aboriginal site was located in cleared land used as a fuel depot and was considered by the archaeologist to be of low significance. A survey in 2004 for the current application, including a thorough re-inspection of MR1, did not identify any Aboriginal sites. The EA explains that surface grading of the MR1 area not long before the 2004 survey may have removed any artefacts. However, the survey identified a potential archaeological deposit (MRPAD1) in a less disturbed section of the same spur crest just to the south of site MR1.

In its Preferred Project Report, PF Formation deleted from the project Lot 1 DP 34599 upon which MR1 and MRPAD1 exist. Hence these findings are no longer under any threat from the project and no conditions are required in respect of their preservation. The Department is satisfied that the project is unlikely to have any significant impact on Aboriginal heritage values.

The Department is also satisfied that the project is unlikely to have any significant impact on European heritage.



Figure 6: Final Landform (Strategy A)

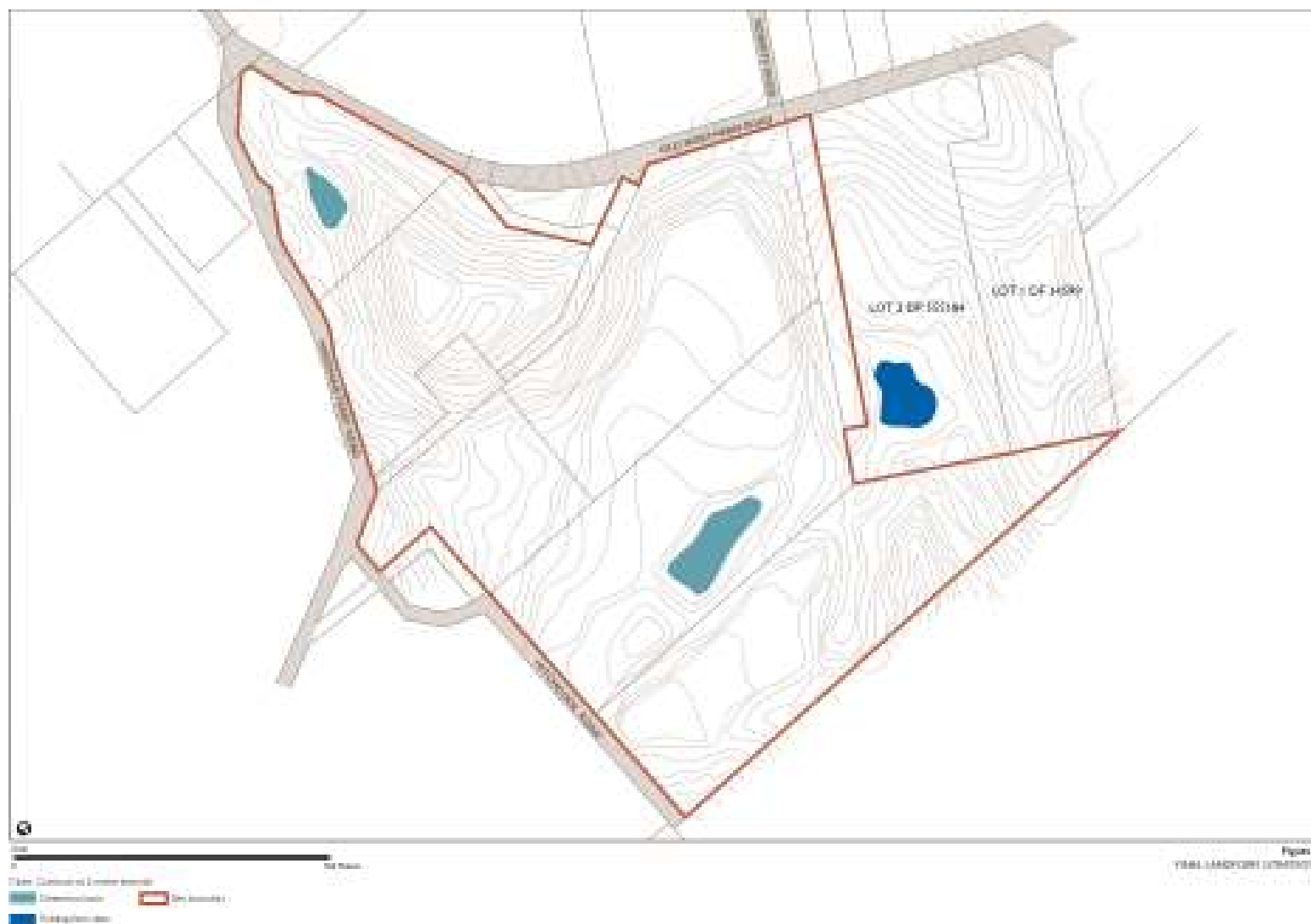


Figure 7: Final Landform (Strategy B)

5.8 Traffic

Trucks carrying washed sand from the sand quarry exit via an access road from Lot 198 (the washery site) to Wisemans Ferry Road, about 400 metres south of the Old Northern Road intersection. Approximately half of the exiting vehicles turn left and half turn right on Wisemans Ferry Road. Under the existing consent, a secondary access is available from the eastern end of the extraction site, directly to Old Northern Road. This secondary access is used to remove friable sandstone and other material that does not require washing and can also be used if it is necessary to transport excavated sand to the washery by truck when the slurry pumping system is out of action. In its Preferred Project Report, PF Formation has deleted the Lot 1 DP 34599 from the project and hence the secondary access is no longer part of the application.

The existing consent limits PF Formation to 200 laden trucks (or 400 truck movements) per day at the intersection of Wisemans Ferry Road and the washery access road, generated as a result of all of PF Formation's sand extraction operations at Maroota. PF Formation makes no request for existing truck limits to be altered but requests that within the 400 movement maximum, approval be given for up to 20 laden trucks (40 movements) per day to transport VENM into the combined site (washery or extraction area) for recycling, blending and/or washing.

PF Formation notes that future planned development on Lot 198, which is not the subject of the application, may generate an additional 10 laden trucks per day but that this would remain within the approved limit of 400 movements per day.

Analysis of intersection performance has shown that the project would have no significant impact on the satisfactory operation of the two relevant intersections: the intersection of the site access road and Wisemans Ferry Road; and the intersection of Wisemans Ferry Road and Old Northern Road. Both intersections would continue to operate at level of service "A".

PF Formation intends to maintain existing procedures for vehicle management contained in its Environmental Management System, which include:

- all truck loads to be covered when leaving the site;
- monthly inspection of the access road intersection and repair of any damage;
- weekly inspection of the access road intersection for sand and clay and prompt removal;
- induction for all new drivers outlining expected behaviour including observing speed limits and refraining from using compression braking in proximity to residences; and
- site speed limit of 20 kph.

The Department is satisfied that the project is unlikely to have any significant traffic impacts.

5.9 Air Quality

Existing air quality in the area is monitored with two dust deposition gauges within or close to the site and a third at Maroota Public School, 1,200 metres to the north. The dust gauge near the school is closer to other sand extraction/processing operations in the area than to the Hitchcock Road site.

At all three monitoring locations the running annual average dust deposition rate has mostly been above 3 g/m²/month with frequent exceedances of the accepted criterion of 4 g/m²/month. Maximum monthly deposition rates have exceeded 7 g/m²/month at all three locations.

A continuous PM₁₀ monitor was installed at the school by another sand mining company shortly before PF Formation's air quality assessment was undertaken in October 2006. The EA reports that advice from DECC at that time was that there had been no exceedances of the 24-hour goal of 50 µg/m³.

The air quality assessment considered all potential sources of dust on the site and operational safeguards implemented to minimise dust generation. Dispersion modelling predicted maximum 24-hour PM₁₀, annual average PM₁₀ and annual average TSP at the nearest dwelling would be sufficiently low that it was unlikely, even with contributions from other sources, that relevant goals would be exceeded. In relation to annual average dust deposition, the model predicted a contribution from the site at the nearest dwelling to be a maximum of 0.2 g/m²/month.

At the time of the air quality assessment, Lot 2 DP 555184 was included as part of the sand quarry site. Inspection of contour plots in the EA indicate that the conclusions from modelling results would also apply to the residence on Lot 2 DP 555184, should a sand quarry not proceed on that property.

The Department is concerned that existing running annual average dust deposition levels in the area already frequently exceed the DECC recommended maximum level of 4 g/m²/month, potentially creating poor amenity for residents in the vicinity. PF Formation has not undertaken to implement any additional measures to control its contribution to dust in the area. The Department notes that there are clusters of residences to the north and west of the site, where PF Formation has no nearby monitors. Accordingly, conditions have been included to require a monitoring plan to be submitted providing for additional dust deposition monitoring sites and PM₁₀ monitoring with corrective action to be taken in the event that results progressively deteriorate or criteria are found to be exceeded.

Greenhouse Gas Emissions

Sand mining machinery and trucks release greenhouse gases from combustion of fossil fuels. Clearing vegetation from land to be quarried would remove that land from playing a role in absorbing CO₂ from the atmosphere. Cleared vegetation releases greenhouse gases as it decays. Greenhouse gases emitted from all of these processes associated with the proposal would contribute to climate change.

Greenhouse gas emissions from the project may be partly offset by two aspects of the proposal:

- revegetation plantings associated with the rehabilitation program, aimed at restoring vegetation cover, either bushland or agricultural land, would offset some of the greenhouse gas generation as a result of previous and proposed clearing; and
- the biodiversity offset strategy, by protecting flora and fauna in perpetuity, would eliminate the risk of future clearing and associated release of stored carbon from the protected vegetation.

The Department is satisfied that the need for the sand quarry to continue has been established. Refusal of the application would not necessarily save greenhouse gas emissions. The principal purpose of the sand quarry is to supply sand for construction projects in the Sydney region. If the Hitchcock Road project does not proceed the necessary sand would be obtained from another source. It is likely that such alternative sources would be less favourably located than Maroota resulting in greater greenhouse gas emissions owing to greater haulage distance. Hence the Department concludes there is no significant reason relating to greenhouse gas emission to withhold approval for the project.

5.10 Visual Impact

The site is in a ridgetop location with the most prominent feature being the former Maroota Trigonometrical Hill. The EA states that bunds constructed by PF Formation, vegetation and naturally rising ground have generally limited opportunities to view the site to a small number of locations on the peripheral roads. The project would result in further vegetation removal and modification to the landform, including the removal of the Trigonometrical Hill. PF Formation considers the principal visual impacts to be removing the hill and its vegetation and exposing to view the yellow coloured sand within the site.

To mitigate the effects of the project, PF Formation proposes to extend vegetated bunds and revegetate exposed areas as soon as possible within the constraints of continuing operations.

The Department is satisfied that while the project would permanently alter the visual characteristics of the land, the visual impact of the proposal would be temporary and can be controlled by an appropriate rehabilitation strategy. A condition of approval requires the rehabilitation management plan to contain measures to minimise the visual impact of the project.

5.11 Other Issues

A number of other matters were raised in submissions, particularly one public submission. The Department's consideration of these issues is presented in the following table. In summary, the Department is satisfied that the issues are not relevant or relatively minor, and can be managed subject to conditions.

| Issue | Consideration |
|---|---|
| <ul style="list-style-type: none"> Objection to the Part 3A process for development proposals; | <p>Under clause 6 of <i>State Environmental Planning Policy (Major Projects) 2005</i> (Major Projects SEPP), development that <i>in the opinion of the Minister</i> is development of a kind that is described in Schedule 1 of the Major Projects SEPP is declared to be a project to which Part 3A of the EP&A Act applies. Clause 7(1)(a) of Schedule 1 of the Major Projects SEPP lists development for extractive industries that extracts more than 200,000 tonnes of extractive materials per year.</p> <p>On 8 May 2006, the Minister declared the Hitchcock Road Sand Extraction and Rehabilitation Project to be a project to which Part 3A of the EP&A Act applies. The Hitchcock Road proposal was declared to be a project as the proposed extraction rate of 400,000 tonnes of extractive materials a year met the criteria in Schedule 1 of the Major Projects SEPP.</p> <p>The Minister for Planning is the approval authority for projects under Part 3A of the EP&A Act and is consequently the approval authority for the proposal. The assessment of the proposal must be carried out in accordance with the provisions of Part 3A of the EP&A Act. The Department therefore considers the objection to the Part 3A process to be not relevant to the assessment of the project.</p> |
| <ul style="list-style-type: none"> Concern at a variation between the EA summary on the Department's web site and that available on disk or in printed form; | <p>The Department accepts PF Formation's explanation that a slightly earlier version of the summary of the project appeared on the web site. However, it is the Department's opinion that the differences between the summary document that appeared on the web site and the summary document on the CD-ROM copy of the EA, would not have misled the reader in any significant manner. The differences between the documents comprise clarification of issues, provision of additional information or minor rewording. The Department is satisfied that the differences between the two summary documents did not reflect changes to the proposal, its identified impacts or mitigation measures.</p> <p>The Department does not consider it is necessary to re-exhibit the proposal as the differences between the summary document on the web site and that on the CD-ROM copy of the EA are considered to be minor and not significant. Furthermore, the EA of the proposal was available for viewing by the reader and others, should uncertainty about the proposal be raised by the reading of the EA summary.</p> |
| <ul style="list-style-type: none"> Administrative issues with the EA (signature, Proponent, site identification); | <p>The EA stated that the name of PF Formation was PF Formation and clearly identified the land subject to the proposal. Although Table 1.1 of the EA only lists the land within the extraction site, Figure 1.2 clearly identifies the project site as including the extraction areas and Lot 198, the existing processing facility. The project application, which included Lot 198 as part of the project, was available for viewing on the web site, should uncertainty about the project site be raised by the reading of the EA. In relation to the certification of the EA, there is no requirement under Part 3A of the EP&A Act that the EA must contain the signature of the person who prepared the EA.</p> <p>The Department is satisfied that the EA is satisfactory and the project is appropriate for determination.</p> |
| <ul style="list-style-type: none"> Allegation that the existing operation is not in compliance with the Court-issued consent; | <p>PF Formation has advised that it has exceeded the annual water extraction allowance from the clean water dam on Lot 167 in 2003, 2004 and 2005. These exceedances were reported in the 2005-2006 Environmental Management Plan submitted to the Council. PF Formation has introduced measures to prevent this from recurring. The extraction of water from the dam has been reduced over the last two years (approximately half the licensed extraction volume) by water efficiency improvements at the central processing plant. There were no reported exceedances of the two production bores on Lot 198.</p> <p>The DECC's public register of licences lists two non compliances with the environment protection licence for the existing quarry. The 1999-2000 annual return reported an exceedance of the 45 dB(A) noise limit, and in the 2004-2005 annual return reported a non-compliance of the air quality condition as dust monitoring was not carried out for a 1-month period. The DECC has advised it is currently investigating an exceedance of the air quality conditions due to a reported exceedance of the dust levels at a gauge on the site.</p> <p>PF Formation has advised that no breaches of the consent have been served by the approval bodies (Council, DECC and DWE). Its compliance with the development consent is based on detailed environmental monitoring and inspections, which are submitted to the relevant approval bodies as required by the existing consent.</p> |

| Issue | Consideration |
|---|--|
| | <p>The Department notes there have been exceedances of water allocations in the past which PF Formation has implemented measures to ensure no exceedances occur in the future and by reducing the use of water at the central processing plant. Apart from these identified non-compliances, the Department is not aware of any other breaches of the development consent for the existing quarry.</p> <p>After consideration of these non-compliances, the Department does not consider that they warrant a recommendation against the proposal.</p> |
| <ul style="list-style-type: none"> Concern that the EA is inadequate in its consideration of water consumption by the operation; | <p>Impacts on water have been considered in this assessment report (see sections 5.4 to 5.6).</p> |
| <ul style="list-style-type: none"> Allegation of previous avoidance of s94 contributions; | <p>Baulkham Hills Council is responsible for the management of s94 contributions collected for the maintenance of roads. The proposal does not change the maximum number of laden truck movements or the existing transport routes. Allegations about the avoidance of s94 contributions are for the Council, as the consent authority for the existing quarry, to investigate.</p> |
| | <p>The proposal does not change the number of truck movements or the transport routes, and that saleable material is required to exit the central processing plant via the weighbridge on the access road to Wisemans Ferry Road.</p> |
| <ul style="list-style-type: none"> Allegation of breaches of earlier consents in relation to Lot 198 and its access road; | <p>From the information before the Department and after due consideration, there is no substance to this allegation which could warrant a recommendation against the proposal. Furthermore, the recommended conditions of approval require the payment of s94 contributions to Council for the maintenance of local roads.</p> <p>It is alleged that PF Formation has breached the conditions of consent for the processing plant on Lot 198. The submission alleges an internal access road was constructed deeper and wider than that approved by the Council and that PF Formation has operated illegally on Lot 198. The project includes Lot 198 as material excavated from the Hitchcock Road quarry would be processed at the central processing plant. However, the project does not change or alter the existing operations at the processing plant, the internal access road and the sediment ponds.</p> |
| | <p>From the information before the Department and after due consideration, there is no substance to this allegation which could warrant a recommendation against the proposal.</p> |
| <ul style="list-style-type: none"> Illegal clearing of vegetation on Trig Hill; | <p>The former Maroota Trigonometrical Reserve is located on the northern part of the extraction site. The existing consent requires public access to Trig Hill to be maintained via existing Crown Road Reserves. PF Formation has subsequently purchased the Crown Road Reserves and leased Trig Hill from the Department of Lands. Trig Hill contains remnant native vegetation that was originally classified as SSTF but following its reassessment, the vegetation is more characteristic of SHTW, which is not an EEC. The proposal involves the clearing of about 3.7 ha of SHTW on Trig Hill. However, the clearing of the remnant vegetation on Trig Hill would be dependent on the revegetation of an equivalent area of vegetation. The success of the revegetated areas would be monitored regularly against performance criteria such as species mix, weed cover, vegetation structure, cover (canopy/shrub/ground cover) and habitat value. The Department has not been made aware of any illegal clearing of vegetation on Trig Hill.</p> |
| | <p>From the information before the Department and after due consideration, there is no substance to this allegation which could warrant a recommendation against the proposal.</p> |
| <ul style="list-style-type: none"> Absence of evidence of progressive rehabilitation to date; | <p>PF Formation has advised that apart from the revegetation of a 3 ha area on the western part of the quarry site, a large proportion of the site is required for operational purposes. Consequently rehabilitation would be undertaken near the end of the quarry life.</p> |
| | <p>The proposal continues the current operational and extraction method, which means a large part of the site would be in a disturbed state at any one time. Extraction operations cannot be confined to a series of consecutive stages, progressing across the site as occurs on many extraction sites. PF Formation states that rehabilitation of the site would largely occur at the conclusion of extraction. However, the proposal would increase the area of regenerated native</p> |

| Issue | Consideration |
|--|---|
| | vegetation in addition to the revegetation that has occurred in the eastern part of the site. Furthermore, PF Formation would not clear the remaining vegetation on Trig Hill until an equivalent area of SHTW vegetation had been recreated and the 10-year vegetation performance criteria met. |
| | The recommended conditions of approval require PF Formation to prepare and implement Rehabilitation and Offset Management Plan and a Quarry Closure Plan. |
| <ul style="list-style-type: none"> Inadequacy of the current rehabilitation bond; | <p>The amount of the existing rehabilitation bond is for the Council as the relevant consent authority to determine.</p> <p>The recommended conditions of approval require PF Formation to lodge a bond to ensure that the site is rehabilitated.</p> |
| <ul style="list-style-type: none"> Dust impacts in the Maroota area | Air quality has been considered in this assessment report (see section 5.10). |
| <ul style="list-style-type: none"> Alleged failure of State and local governments to adequately regulate the sand mining industry at Maroota; and | Allegations raised in a number of unsuccessful appeals in the Land and Environment Court to PF Formation's existing operations and another sand extraction operation in Maroota have been made in the submission as the basis for refusal of the proposal. These largely relate to issues about water licensing, breaches of consents and allegations of inaction and/or false information provided by officers of public authorities. These allegations and the supporting information have been tested and rejected by the Court. No new information has been raised in the submission and after due consideration, the Department considers that there is no substance to the allegations which could warrant a refusal of the proposal. |
| <ul style="list-style-type: none"> Inadequate community consultation. | <p>PF Formation has undertaken a community consultation program which involved public meeting, provision of information on PF Formation's website, and distribution of an information flyer to adjacent landowners and residents,.</p> <p>PF Formation considered the level of consultation was appropriate given the proposal was an amendment to an existing development.</p> <p>The Department is satisfied PF Formation has undertaken consultation with the Maroota community on the project and has complied with the Director-General's requirements for community consultation.</p> |

6 RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of approval for the Project. These conditions are required to:

- prevent, minimise and/or offset adverse impacts of the project;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

The recommended conditions address sand mining operations, on-going environmental monitoring and management, progressive rehabilitation and biodiversity offsets, compliance mechanisms, independent reviews, community consultation, complaints management and performance audits. A summary of the conditions of approval is provided in Appendix A and a full set of the recommended conditions appears in Appendix B.

The Department has discussed the draft conditions of approval for the Project with relevant Government authorities and has incorporated their comments into the conditions of approval where appropriate. PF Formation has reviewed the recommended conditions and has accepted them.

7 CONCLUSION

The Hitchcock Road sand quarry is an existing operation for which approval is requested to alter the area of extraction, increase the depth of extraction with consequent alteration to the final profile of the site. There are economic benefits to New South Wales in extracting medium to coarse grained construction sand from available resources in close proximity to markets.

The Department has assessed the project application with accompanying environmental assessment, submissions received and PF Formation's response to submissions and is satisfied that there is sufficient information available to determine the application. The key issues identified in the Department's assessment and raised in submissions concern the control of amenity impacts on residents in the area, impacts on groundwater, rehabilitating the site and implementing an acceptable biodiversity offset strategy to compensate for losses to flora and fauna habitats. Conditions have been recommended to address these issues.

A number of other issues were raised in the submissions; however PF Formation has satisfactorily addressed these in its Environmental Assessment, Submissions Report and Preferred Project Report.

On balance, the Department believes that the project's benefits sufficiently outweigh any residual costs, and that it is therefore in the public interest and should be approved, subject to conditions.

8 RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider this report;
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (Tagged B).

Chris Ritchie
A/Director
Major Development Assessment

Chris Wilson
Executive Director
Major Project Assessment

Sam Haddad
Director-General

APPENDIX A. SUMMARY OF THE CONDITIONS OF APPROVAL

The Department has recommended a number of conditions of approval, including requirements to:

- restrict the period of extraction to 20 years;
- limit the depth of extraction to 2 metres above the wet weather high groundwater level;
- limit the extraction of material from the site and from Lot 2 DP 555184 and Lot 1 DP 34599 in total to 400,000 tonnes of processed material per year;
- limit the total number of laden vehicles using the intersection of Wisemans Ferry Road and the washery access road to 200 per day;
- limit the number of laden trucks that may bring VENM to the site for processing to 20 per day;
- prepare and implement Monitoring Programs for Noise and Air Quality to evaluate critical parameters and demonstrate compliance;
- prepare and implement a comprehensive Water Management Plan for the project to monitor and manage surface and groundwater impacts. The components of the Plan include:
 - a site water balance;
 - erosion and sediment control measures; and
 - groundwater monitoring;
- prepare and implement a Rehabilitation and Offset Management Plan to specify details of site closure and rehabilitation works
- maintain specified setbacks between the extraction area and adjoining land; and
- prepare an environmental management strategy, submit annual reports and conduct environmental audits in accordance with standard practices.

**APPENDIX B. RECOMMENDED CONDITIONS OF
APPROVAL**

APPENDIX C. CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (Major Projects)

See discussion in Section 3.

SEPP No.33 – Hazardous and Offensive Development

A potentially hazardous industry is defined in SEPP 33 as an industry which, if it were to operate without employing any measures to reduce or minimise its impact, would pose a significant risk in relation to the locality to human health, life or property, or to the biophysical environment.

The proposal is not potentially hazardous because no hazardous materials would be stored on site.

A potentially offensive industry is defined in SEPP 33 as an industry which, if it were to operate without employing any measures to reduce its impact, would emit a polluting discharge in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land.

The assessment of impacts contained in the EA indicates that emissions from the operation would meet or exceed to a minor extent only, relevant assessment criteria at sensitive receivers. The Department is satisfied that the proposal is not a potentially offensive industry as defined in SEPP 33.

SEPP No 44 – Koala Habitat protection

Potential koala habitat is defined in SEPP 44 as areas of native vegetation where trees of the types listed in schedule 2 of the SEPP constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. Notwithstanding that SEPP 44 does not apply within Baulkham Hills local government area, the EA assessed the prevalence of Koala feed trees on the site and concluded that the property would be neither potential nor core Koala habitat.

SEPP No 55 – Remediation of Land

Contaminated land is defined in SEPP 55 to mean land in, on or under which any substance is present at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment. There is no evidence that such contamination exists in respect of the land affected by the Hitchcock Road sand quarry and no reason to suspect that the land may be contaminated, having previously been used for agriculture.

Consequently it is considered SEPP 55 does not require any further consideration or action by a consent authority when considering a development proposal affecting the land.

Baulkham Hills LEP, 2005

See discussion in Section 3.2

SREP 9 – Extractive Industry (No 2 1995)

SREP 9 is aimed at assisting development of extractive resources close to the Sydney population. The Maroota sand deposit is identified in Schedule 2 of the REP. Extraction is permissible in this area with development consent and the special requirements for consideration have been addressed in the EA.

SREP 20 – Hawkesbury-Nepean River (No 2 1997)

SREP 20 is aimed at protecting the environment of the river system. Planning strategies in the REP applicable to the proposal have been addressed in the EA.

APPENDIX D. PROPONENT'S PREFERRED PROJECT REPORT

See attached a CD-ROM copy of the PPR and amended PPR dated 18 November 2008

APPENDIX E. PROPONENT'S RESPONSE TO THE SUBMISSIONS

See attached CD-ROM.

APPENDIX F. SUBMISSIONS

See the attached CD-ROM.

APPENDIX G. ENVIRONMENTAL ASSESSMENT REPORT

See the attached CD-ROM entitled *Hitchcock Road Sand Extraction and Rehabilitation Project, Maroota – Environmental Assessment – Volume 1 - Main Volume, Volume 2 – Technical Papers, Volume 3 – Technical Papers*.