

**RESPONSE TO SUBMISSIONS**  
**SECTION 75W MODIFICATION (2)**

**DA 267-11-99**

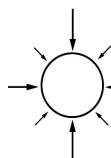
**HODGSON QUARRIES AND PLANT PTY LTD**

**ROBERTS ROAD**

**MARROOTA**



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**NEXUS**

Environmental Planning Pty Ltd

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**DA 267-11-99**  
**HODGSON QUARRIES AND PLANT PTY LTD**  
**ROBERTS ROAD**  
**MARROOTA**

3 December 2015

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**Part 1****INTRODUCTION AND BACKGROUND****1.1 Background**

Hodgson Quarries and Plant operates an extractive industry at Roberts Road, Maroota pursuant to Development Consent 267-11-99 (**the Consent**) issued by the then Minister for Urban Affairs and Planning.

It is proposed to modify the Consent to both regularise the existing extraction operation and to extend the life of the approved extraction.

**1.2 The Site**

The land to which the Consent relates (**the Site**) is:

Lots 1 & 2, DP 228308 and Lot 2, DP 312327  
Roberts Road  
**MAROOTA**

The Site is located on the northern side of Old Northern Road, at the intersection of Old Northern Road with Roberts Road. A small part of Lot 2, DP 228308, however, is located on the southern side of Old Northern Road, however, that part of Lot 2, DP 228308 was never part of the proposed extraction and, for the purposes of preparation of information below, that section of Lot 2, DP 228308 has been discounted.

Access to the Site is via Roberts Road.

The land is within The Hills Shire Council local government area and is zoned RU1 Primary Production pursuant to The Hills Local Environmental Plan 2012.

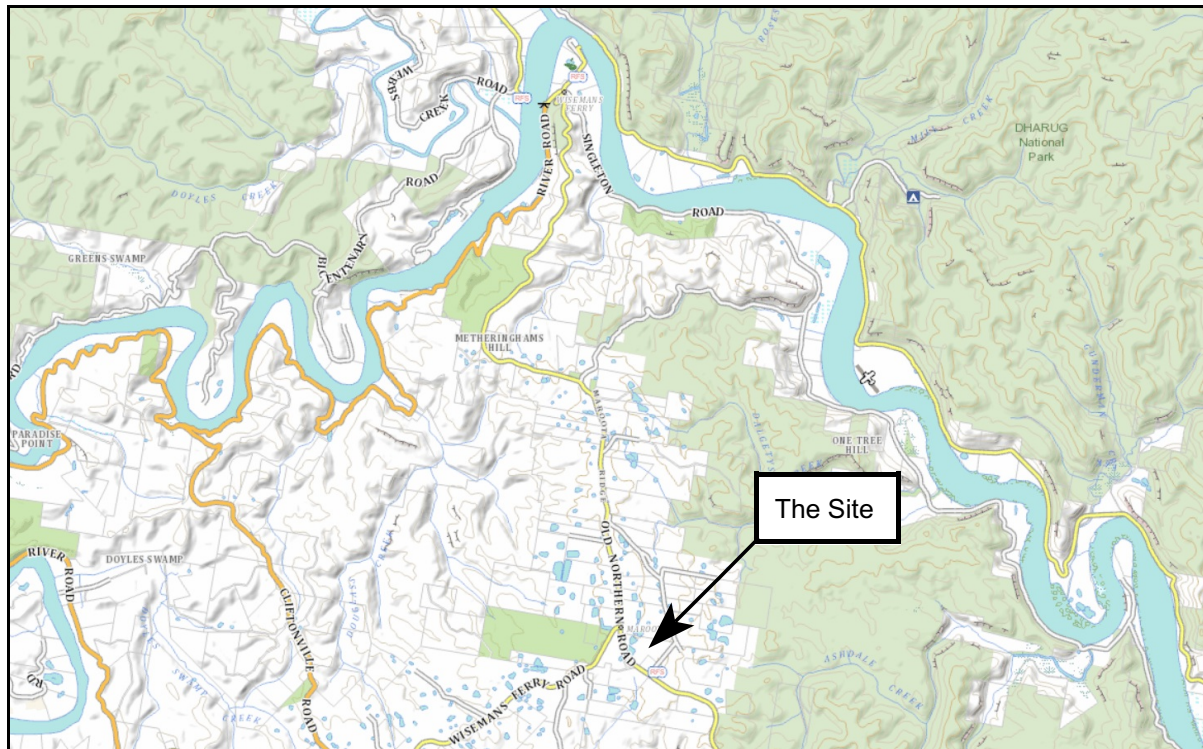
The land has been extensively disturbed by the extraction of sand, clay and pebble materials.

**Figure 1.1** shows the Site location.

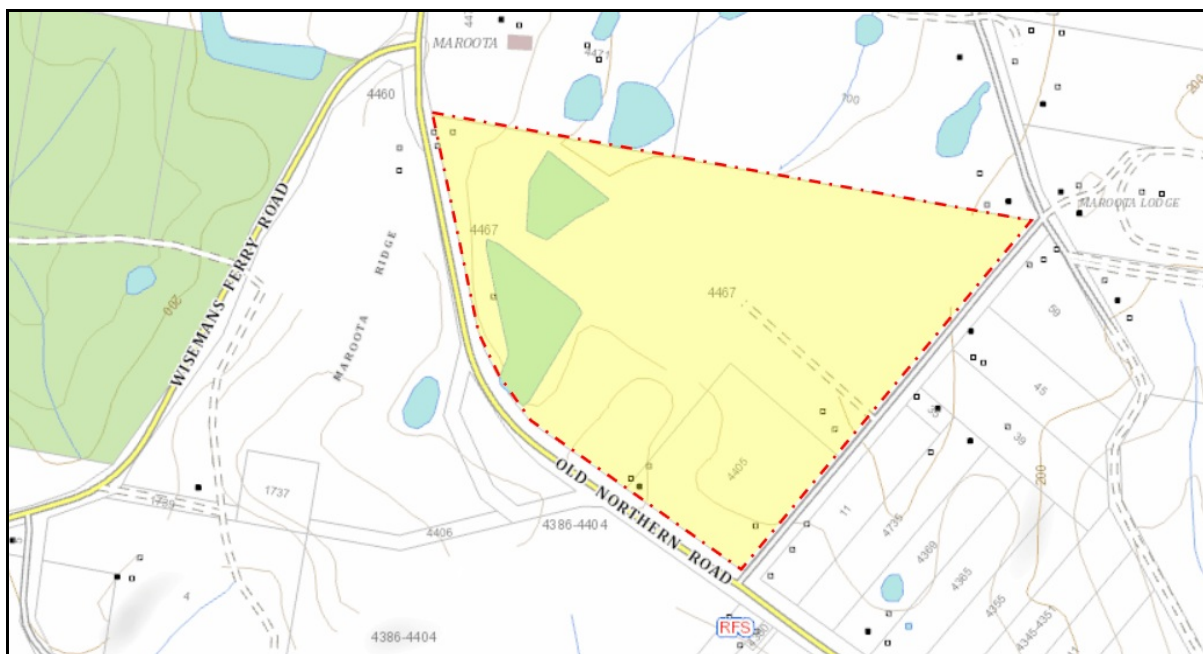
**Figure 1.2** shows the Site in more detail.

**Figure 1.3** is a plan showing the cadastral details of the Site and surrounding land.

**Figure 1.4** is an aerial photograph of the Site.

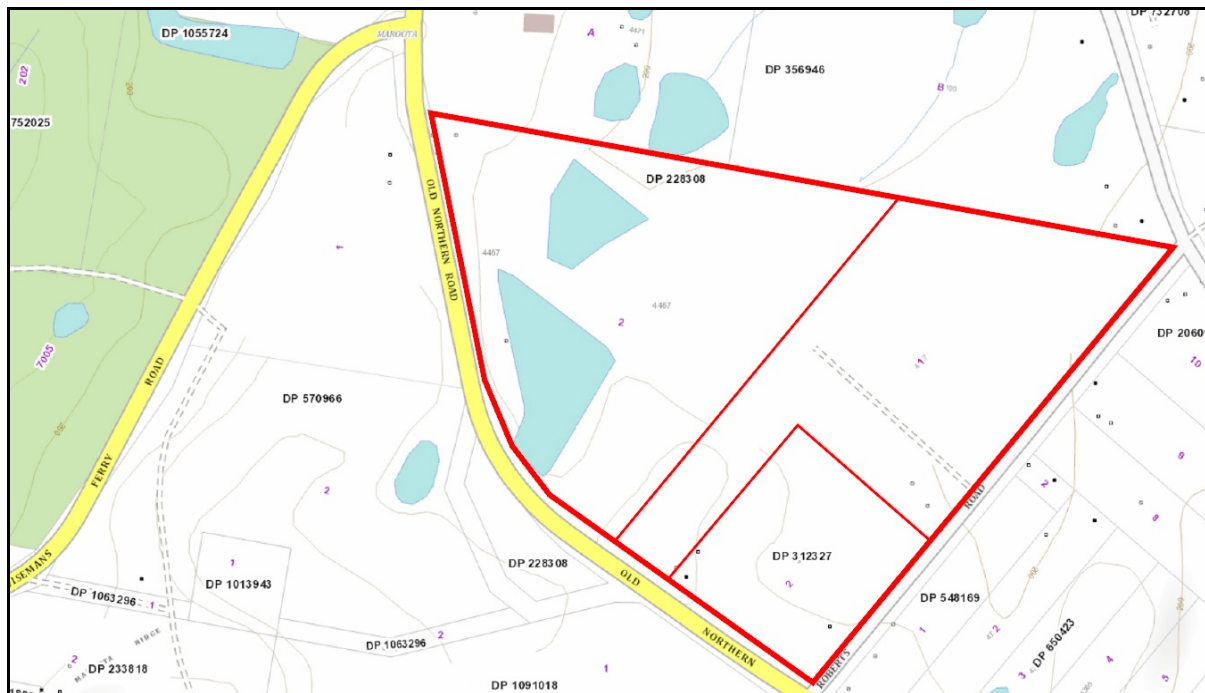


**Figure 1.1:** Regional Location of the Site. (© NSW Department of Lands 2014)



**Figure 1.2:** Site location highlighted in yellow. (© NSW Department of Lands 2014)





**Figure 1.3:** Cadastral details of the Site and surrounding land. (© NSW Department of Lands 2014)



**Figure 1.4:** Aerial photograph showing the boundary of the Site.

### 1.3 History of the Site

Prior to extraction, the Site had been used for agriculture and, in particular, as an orchard and plant nursery. The north western corner of the Site remains in use as a plant nursery.

The initial "*extraction activity*" on the Site related to the construction of a dam which was located on the northern boundary of the Site. The construction of the dam commenced in or around 1970.

The construction of the dam was dependent on the winning of clay material from the Site to provide for a comprehensive seal of that dam. The material available on the Site is a mix of clay materials suitable for the dam construction and sand which is important in the Sydney construction market.

The clay material on the Site was separated from the sand by washing the raw product which resulted in a significant amount of sand as a by-product of the winning of the clay material for the dam construction. The by-product sand material was exported from the Site to the Sydney construction market.

Notwithstanding the construction of the dam on the Site, the then Baulkham Hills Shire Council (**the Council**) commenced Class 4 proceedings in the Land and Environment Court which was based on the opinion of the Council that the construction of the dam was unlawful in that it was an unapproved extractive industry.

The Land and Environment Court, by Orders dated 29 May 1991, permitted the continuation of the construction of the dam. Order No.3(g) of the Court Orders stated:

- (g) *The construction of the dam and rehabilitation of the surrounding area is to be completed within ten (10) years. The respondent may apply to the Council for an extension of the period of time specified setting out reasons and the applicant Council shall give such application due and proper consideration.*

Having regard to the above Order No.3(g), the construction of the dam and the rehabilitation of the surrounding area was required to be completed by 29 May 2001, unless an extension of that period was granted.

It was always intended that the construction of the dam would cease on the granting of consent for the extraction of the remaining sections of the Site not covered by the Court Orders. In this regard, a Development Application (No.90/108) and an accompanying Environmental Impact Statement (**EIS**) were lodged with the Council for an extractive industry covering that part of the Site where sand and clay materials were to be extracted for the construction of the dam.

The Executive Summary to the EIS which accompanied Development Application No.90/108 states:

*The landholders, Dr Martin and the Warrah School Society now require to extract the Maroota Sand deposit within an approximately rectangular area of about 16 ha. This area comprises the easternmost two thirds of the subject lands. Although there is in excess of 2 million cubic metres of commercial sand on the total site this application, which is partly aimed at regularising past operations addresses only the first stage of extraction. In this stage a total volume of about 300,000 m<sup>3</sup> of Maroota sand will be removed, processed into construction sand and aggregate and transported from the site over a 5 year period.*

By Notice of Determination dated 7 November 1990, the Council consented to Development Application No.90/108 for the operation of an extractive industry on the Site, subject to a number of conditions.

It had been the intention to extract sand in accordance with the abovementioned approval such that sufficient funds could be generated to prepare a second EIS and Development Application which would seek the approval of the Council for the extraction of the remaining sand resource on the Site. The commencement of the approved extraction operation was, however, dependant upon the completion of the water supply dam the subject of the Court Orders. The water supply was required in order to sustain sufficient water supply on the Site to wash the clay from the material won from the approved extractive operation.

In the years which followed, a number of events occurred which led the Council to conclude, rightly or wrongly, that Consent No.90/108 had not been commenced and, as such, the consent had lapsed. This was essentially due to the fact that the dam construction had not been fully completed to allow extraction to occur.

Following protracted discussions with the Council as to whether the consent had or had not lapsed, Dr Martin, the landowner, indicated to the Council that he would not, at that point in time, pursue that Consent further pending approval of a further Development Application for extraction of sand from the entire Site.

On 22 November 1999, an application for extraction of sand from the Site was submitted to the then NSW Department of Urban Affairs and Planning pursuant to the then State Significant Development provisions of the Environmental Planning and Assessment Act 1979. The application was DA 267-11-99. The EIS which accompanied that application stated:

*Future extraction operations will involve the excavation, washing and screening of the Maroota Sand using the same process plant as per the existing operation. The proposed excavation will cover the majority of the site, some 23 ha, allowing for boundary buffer zones .....*

*Production objectives are demand related, however, a maximum sand production rate of 1000 t/day has been used for the extraction plan.*

*Future extraction operations are to involve the following:*

- *Materials are to be excavated using a self-loading scraper and*

*transported to the process plant. In areas where the underlying material cannot be effectively excavated using the scraper, the surface would be initially ripped using an excavator and in exceptional circumstances using a dozer.*

- *Process water for washing/screening will be primarily sourced from a water dam constructed at the location of the existing excavation pit (adjacent to the northern boundary). The existing pump-out facility will be utilised.*
- *Processed material is to be stockpiled adjacent to the plant area prior to transportation off-site generally using articulated trucks. A front-end loader is to be used to load the trucks.*
- *The residue clay/silt slurry is to be delivered by pipeline to designated drying areas in the previously extracted cell where it is spread in thin layers to dry. Liberated water will be drained into the water dam for re-use in the process plant. The clay materials will be used for the rehabilitation of the extracted areas.*
- *The materials are to be sequentially extracted in "cells" commencing along the northern boundary (adjacent to the process water dam) and working towards the southern boundary (to Old Northern Road). Each cell will be approximately 200 m x 50 m wide (1 ha in area) which provides sufficient area for the machinery to load and manoeuvre within each cell. The extraction process will minimise the disturbed area (i.e. the area exposed to erosive processes) and enable rehabilitation procedures to commence during operations.*
- *Each cell will be progressively rehabilitated (following extraction of the sand materials) involving surface contouring and replacement of a suitable growth medium/topsoil layer to enhance revegetation.*

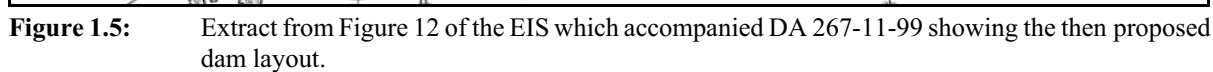
*Extraction within the site will be undertaken in two stages as follows:*

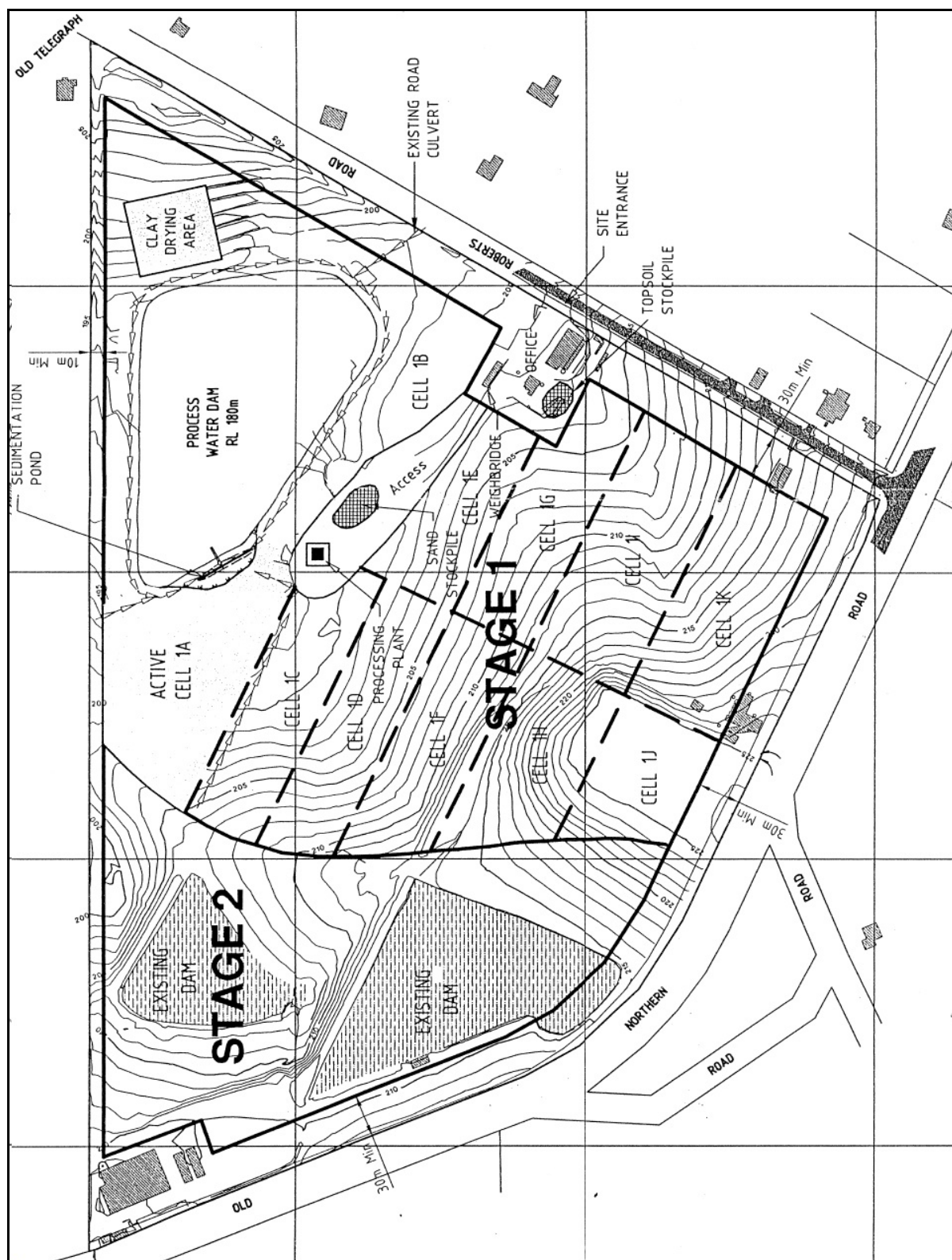
**Stage 1 Area** *located to the east of the catchment divide (i.e. the process water dam catchment), occupying a total area of approximately 16.5 ha, and*

**Stage 2 Area** *located to the west of the catchment divide (i.e. the catchment of the two existing water dams for the nursery), occupying a total area of approximately 6.5 ha.*

Extracts from "Figure 12: Proposed Water Dam Layout, Figure 15: Cell 1A Extraction" and "Figure 21: Final landform Contours" of the EIS which accompanied DA 267-11-99 are **Figure 1.5, 1.6 & 1.7** below. **Figure 1.5** shows the location of Stage 1 and Stage 2 of the then proposed extraction.

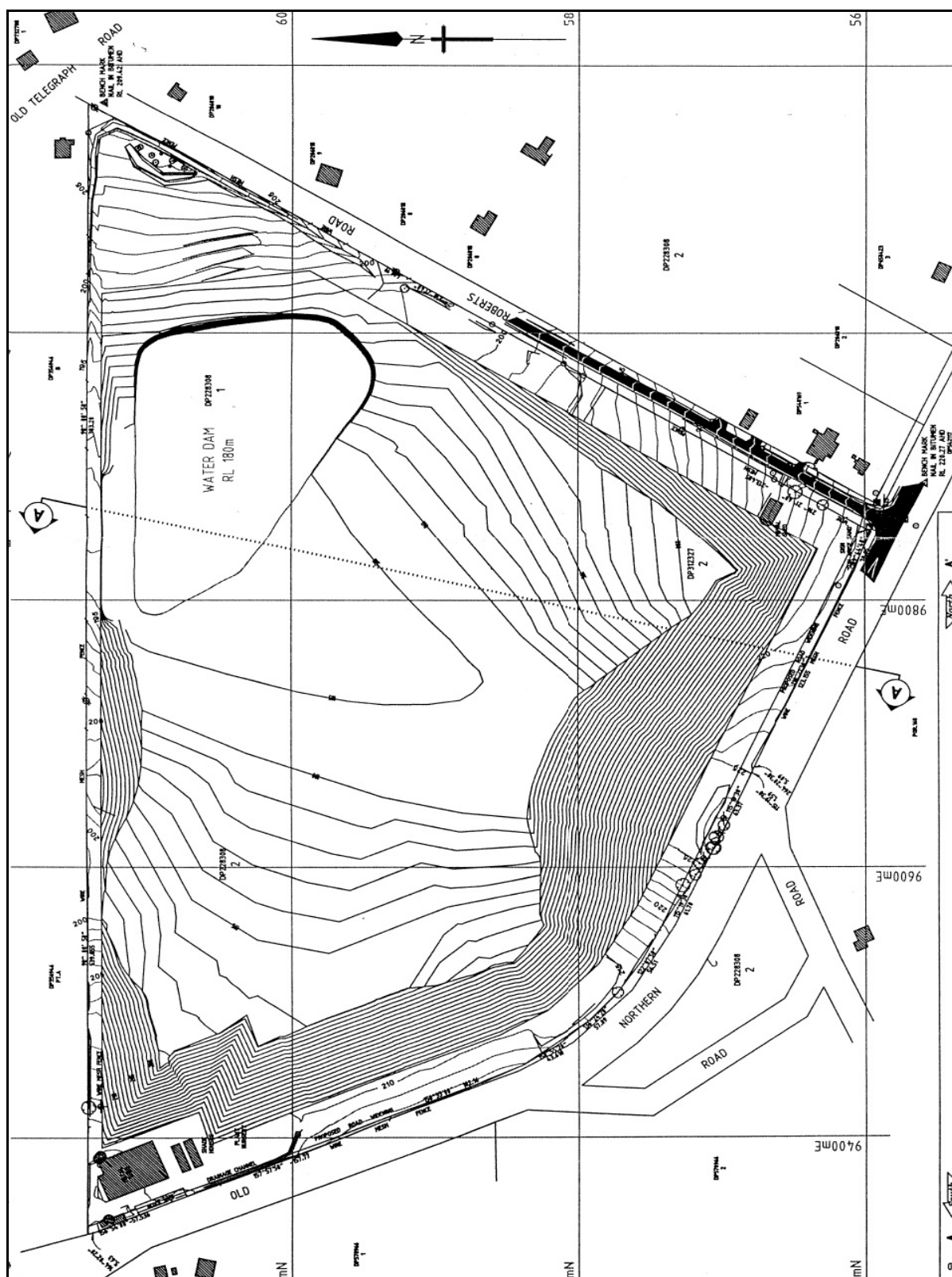






**Figure 1.6:** Extract from Figure 15 of the EIS which accompanied DA 267-11-99 showing Stage 1 and Stage 2 of the approved extraction and the location of the Cells of extraction for Stage 1.





**Figure 1.7:** Extract from Figure 21 of the EIS which accompanied DA 267-11-99 showing the approved final landform.

Of particular note is the fact that the development proposed in DA 267-11-99 included the continuation of the construction of the dam on the Site.

The Minister for Urban Affairs and Planning, by Notice of Determination dated 31 May 2000, granted consent to DA 267-11-99 subject to conditions. A copy of the consent is at **Attachment 1**. As such, the construction of the dam on the Site was now included in this consent.

Of particular importance was Condition No.9 which stated:

9. *The duration of extraction under this Consent is for a maximum period of 15 years. The Applicant shall ensure that rehabilitation of all disturbed areas is completed within six months of completion of extraction.*

As such, Consent 267-11-99 required extraction on the Site to cease on 31 May 2015. This timeframe has now been modified to 31 May 2016 as discussed in **Part 1.3.2** of this Environmental Assessment.

### **1.3.1 Modification No.1 of Development Consent DA 267-11-09**

On 21 July 2000, an application to modify consent DA 267-11-99 was made to the then Department of Urban Affairs and Planning pursuant to section 96(2) of the Environmental Planning and Assessment Act 1979. The planning report which accompanied the s.96(2) application stated:

*The proximity of housing to the site of the approved extractive industry has resulted in the need for a variety of acoustic mitigation measures to be incorporated into the design of the extraction plan, not least of which is the requirement for perimeter bunding to assist in the reduction of the potential impact of noise from the extraction operation.*

*..... the main generators of noise from the approved extraction will be:*

- *the dredging excavator*
- *pump adjacent to the dam*
- *scraper*
- *dozer.*

*In order to alleviate the noise impact from the approved extraction, Condition No.8 of the development consent states, inter alia:*

- "8. *No extraction shall commence in areas that are not currently subject to extraction, until the Applicant has:*

- (a) constructed the perimeter bund wall;"*



.... In order to mitigate the potential impact from noise generated by the above machinery, Dr Martin has investigated an alternative means of winning the extractive material. Dr Martin, in conjunction with Sand Classifiers Pty Limited, has developed two (2) options:

1. The Genflo Injector, and
2. The Pumping Unit.

.... It is the Pumping Unit option which is now proposed by Dr Martin.

.... Sand is extracted using an excavator. The excavator would start at the natural ground surface level but would immediately dig a hole so that the excavator and processing equipment would be working against an extraction face. The extraction face provides significant noise shielding.

The excavator which will be used will be fitted with acoustic mufflers to achieve a noise level of approximately 76 dBA when measured at 7 metres. This noise level has been achieved at several similar sites with noise issues. Discussions with the potential excavator suppliers have found that this specification can be met.

The excavator loads the sand into an acoustically lined hopper. The hopper is located above a belt feeder which introduces the sand into a mixing tank. The belt drive is variable rate controlled and is powered by an electric motor.

A centrifugal electrically driven water pump will be located at the approved clean water storage dam. This pump will pump water to the mixing tank through a rubber and polyethylene pipeline. The flow rate of the clean water will be controlled so that the water level in the mixing tank remains constant.

The sand slurry is then drawn out of the mixing tank by an electrically driven slurry pump and pumped via a rubber and polyethylene pipeline to the sand processing plant.

Electricity will be supplied to the belt feeder and slurry pump from a diesel generator. The generator will be fitted with an acoustic enclosure. A design for the enclosure has been provided by Enco Noise Control Pty Ltd. The design states that a noise level below 44 dBA at 30 metres will be achieved.

The belt feeder, mixing tank, slurry pump and enclosed generator will be located on a rubber tyred trailer. This will allow the unit to be moved as the sand extraction face progresses.

.... The major benefit of the proposed pumping unit system is that sand is won from the extraction cell by means of an excavator rather than a bull dozer and/or scraper. The excavator will be fitted with a power shovel which will allow the excavator to be located on the floor of the extraction cell, thus allowing for acoustic attenuation.

*The material won will be mixed with water from the approved water supply dam in a portable mixing tank located in the extraction cell. It is then transported by gravity to the processing plant by means of a pipe system. The only noise generating machinery attached to the mixing apparatus will be a diesel powered motor which will be contained in an acoustic enclosure for noise attenuation purposes.*

*.... The pumping unit method of extraction will provide a significant number of environmental benefits which will accrue when compared to the approved method of extraction. These benefits include:*

- elimination of the need for both the bull dozer and scraper to win the sand from the extraction cell and transport the material to the processing plant. This will provide for a significant reduction in noise generated from the site during extraction.*
- the removal of the bull dozer and the scraper from the extraction process will mean that many of the noise mitigation measures which are now required will no longer be required to meet the requirements of the EPA. In particular, there will no longer be a need for the perimeter bunding to extend around the site .... The removal of that bunding will mean a significant improvement in the visual impact of the site when viewed from Old Northern Road, Old Telegraph Road and Roberts Road. We are of the opinion that this will be a major environmental benefit.*
- the use of the excavator and the portable mixing apparatus will mean that a smaller section of the active extraction cell will be worked at any one time compared to the total cell being worked with the use of the scraper, thus reducing the area of the site disturbed at any one time.*
- the removal of the need to transport the extractive material from the extraction cell to the processing plant by scraper will mean that there will be little, if any, traffic on the site other than delivery trucks entering and leaving the site. This will have a significant and positive impact on the potential of the development to generate dust.*

Of particular note is that the s.96(2) application stated that:

- the approved amount of sand to be extracted will not alter.*
- the approved time frame for the extraction (15 years) will not alter.*
- the approved number of truck movements (100 per day) from the site will not alter.*
- the approved dam design and capacity will not alter.*
- the existing processing plant configuration will not alter.*

- *the approved extraction cells proposed as part of the EIS will not alter either in their location or area. The only change will be the method of winning the material from the cells and the reduction in area of the cell disturbed at any one time.*
- *the removal of the bund walls from the perimeter of the site will mean that the visual impact will be altered but only in a positive way.*
- *the proposed landscaping of the perimeter will not alter, however, it will now not have to incorporate the perimeter bunding.*
- *the removal of the perimeter bunding will allow the better protection of both the endangered Acacia species and Blue Mountains Mahogany species located on the site.*
- *the removal of the perimeter bunding will alleviate the potential noise impact to adjoining residences during the construction of the bund wall.*

Notwithstanding the above proposal to remove the approved perimeter bunds, the s.96(2) application also included an assessment by Scott Murray & Associates of the proposed modification of the approval from a visual impact perspective. The Scott Murray & Associates report was prepared:

*... to describe the proposed landscape changes for the Dr Martin property following the approval for the sand extraction and processing development at the site by the Minister for Urban Affairs and Planning on the 31<sup>st</sup> May, 2000.*

In this regard the following statements were made by Scott Murray & Associates:

*The removal of the bunds as recommended ... has the potential to impact on the visual and landscaping impact of the development as amended.*

*The revised extraction process .... would result in the elimination of the need for the use of dozers and scrapers on the site, thus significantly reducing noise emissions from the site during the extraction and processing process. As a direct result, the noise modelling .... report, states that: -*

- *The permanent earth bunds around the perimeter of the site as recommended in the EIS will no longer be required – from a noise perspective*
- *The temporary earth bunds around each extraction cell as recommended in the EIS will no longer be required – from a noise perspective*
- *The wall in the processing area as recommended in the EIS will still be required – from a noise perspective*

*As a result of this study it is clear that earth bunding – from a noise reduction*

*standpoint – is not required.*

*However, from a visual impact viewpoint, we believe that certain earth bunding works are still required.*

*.... As a consequence, it is therefore recommended – from a purely visual impact standpoint - that initial earth bunding still be implemented at the intersection of Old Northern and Roberts Road to prevent views into the site of the early stage 1 works. Plan **MP-01B** shows this revised bunding strategy. As in the previous scheme, this bunding would achieve heights of up to approximately 3 metres within the 30 metre setback, using a maximum 1:4 road-facing slope.*

*All other earth bunding previously proposed within boundary perimeter setbacks is now to be deleted as it is no longer required from either a visual impact or noise perspective. Again, plan **MP-01B** shows the current proposal.*

*It should be noted that there is no alteration to the vegetation proposed within the boundary setbacks – only the deletion of the now unnecessary earth bunding.*

*Plans **MP-02B** – **MP-05B** have been revised to reflect this current proposal.*

Copies of plans **MP-02B** to **MP-05B** are included as **Attachment 2**.

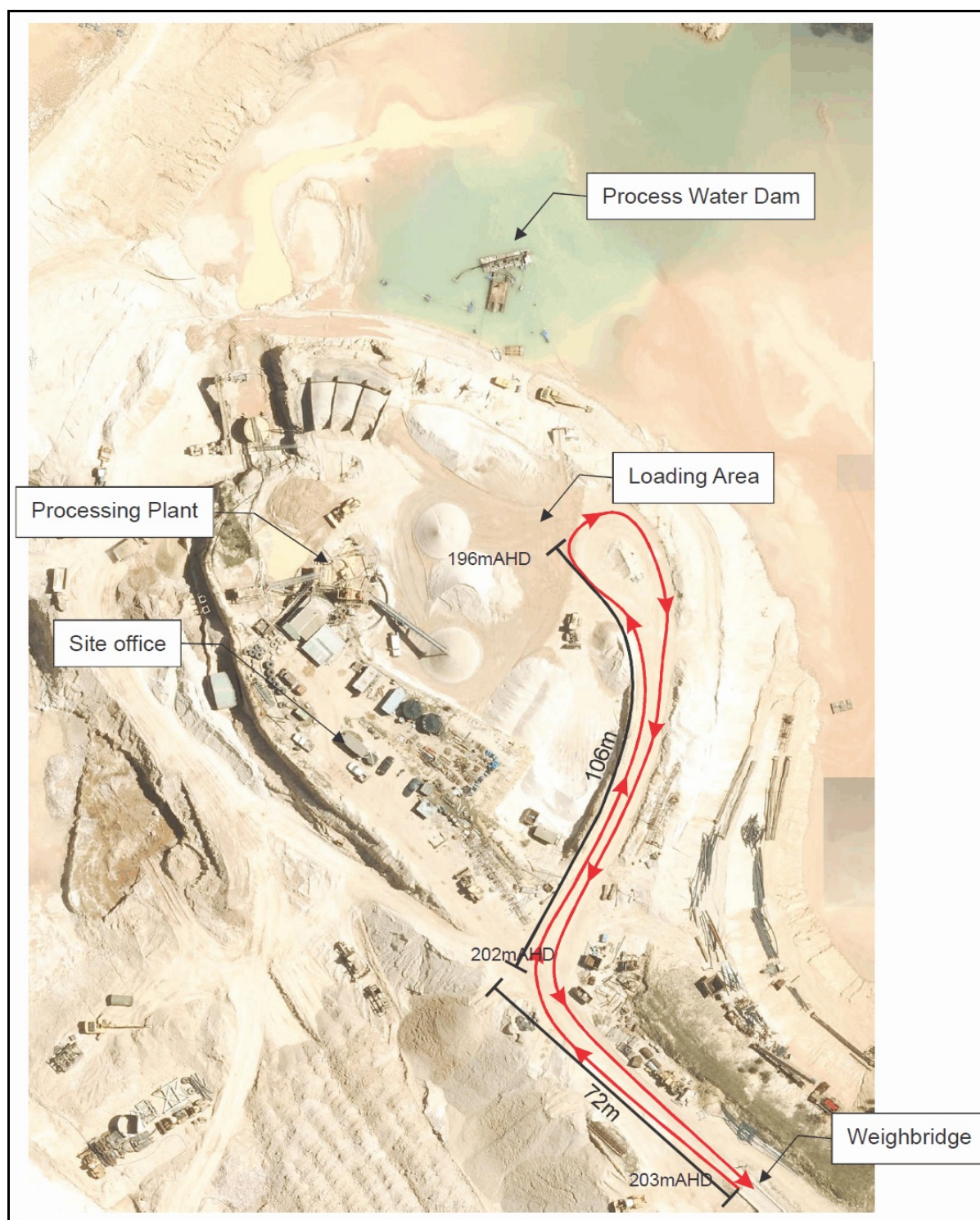
A Notice of Modification dated 29 November 2000 was issued by the then Minister for Urban Affairs and Planning, a copy of which is at **Attachment 3**.

Modification to Condition 2(c) of consent 267-11-99 inserts reference to the report of Dick Benbow and Associates (Report No.10065 Issue 1) dated 26 June 2000 into the Consent. The Dick Benbow and Associates report details the modified extraction process as described above.

**Figure 1.8** shows the location of the processing plant and loading area.

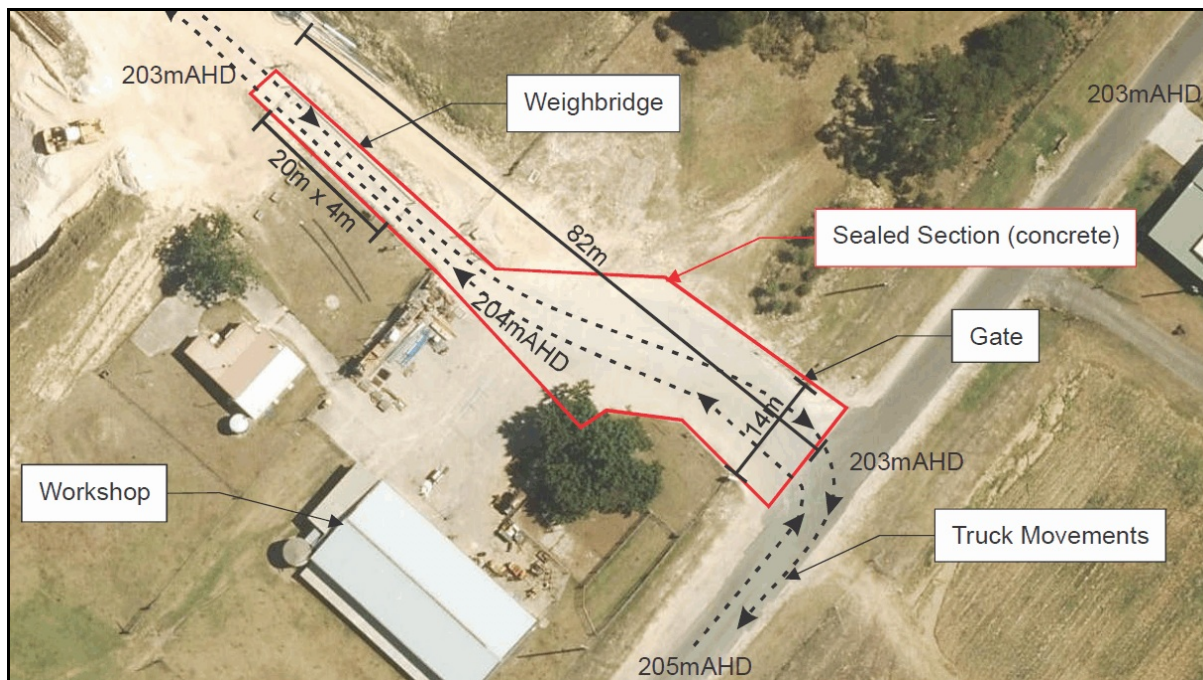
**Figure 1.9** shows the existing entrance to the Site including the location of the weighbridge.





**Figure 1.8:** Aerial photograph showing the location of the existing processing plant and loading area together with the location of the weighbridge and process water supply source.





**Figure 1.9:** This figure shows, at the top view, an aerial photograph of the existing entrance to the Site and the existing weighbridge. At the bottom is a photograph of the existing sealed entrance to the Site with the weighbridge shown in the background of the photograph.

### 1.3.2 Modification No.3 of Development Consent DA 267-11-09

Condition No.9 of the Consent stated:

9. *The duration of extraction under this Consent is for a maximum period of 15 years. The Applicant shall ensure that rehabilitation of all disturbed areas is completed within six months of completion of extraction.*

The assessment process for Modification (2) has been such that the complex level of empirical detail which has been required with regard to groundwater, acoustic and air quality impacts has been such that the timeframe originally expected for the completion of the Environmental Assessment has been significantly exceeded. As such, the assessment of Modification (2) by the Department of Planning and Environment and other agencies involved in that assessment was not be completed by 31 May 2015.

As detailed in **Part 1.4.4** below, one of the modifications to the Consent proposed in Modification (2) is that the life of extraction on the Site be extended from 31 May 2015 to 31 May 2025.

If extraction activity ceased on 31 May 2015, pending the resolution of Modification (2), there would be an hiatus in the provision of Maroota Sand to the Sydney construction industry. In addition, less than half of the Site has been extracted, and, as such, it would be impossible to rehabilitate the Site in accordance with the Consent until such time as the Site is fully extracted as per the Consent. In order to cause the least disruption to the operation of the existing extraction, the continued employment of workers at the Site, and to maintain the supply of Maroota Sand to the local market, Modification (3) was submitted to extend the existing extraction of the Site for a period of up to 12 months while Modification (2) is comprehensively assessed and determined.

The extended period of extraction proposed as Modification (3) would allow the continued extraction of the Site in accordance with the current Consent as modified.

By Notice of Determination dated 18 August 2015, consent was granted to Modification (3) to, among other things, modify condition 9 to read:

9. *The duration of extraction under this Consent is until 31 May 2016. The Applicant shall ensure that rehabilitation of all disturbed areas is completed within six months of completion of extraction.*

Condition 17 of the original consent stated:

17. *Baulkham Hills Shire Council Development Control Plan for Extractive Industries (DCP 500) requires that the depth of extraction incorporate a 2m freeboard above the wet weather high groundwater level. To meet the objectives of this policy, the Applicant shall ensure that the depth of extraction is consistent with the depth as shown in the extraction plan in*

*the EIS and follow the procedures in Condition 40 if groundwater is encountered during extraction.*

As part of the Environmental Assessment process for Modification (2), it has been determined that the wet weather groundwater level of the Site is higher than that predicted in the original EIS. As such, it was proposed that the continued extraction of the Site as proposed in Modification (3) would not involve extraction within 2 metres of the newly assessed groundwater level of 183.1m AHD.

Notwithstanding, as part of the assessment process of Modification (3), the NSW Office of Water made comment as follows:

*The Office of Water has reviewed the information provided and it requests that the Department of Planning and Environment notes the following:*

- *That the highest water level measured beneath the site is at least 1 m above that which has been reported in the current documentation (i.e. at 184.08 m AHD, not 183.10 m AHD).*
- *That any excavation approved for the one year period requested must maintain additional freeboard accordingly (i.e. no excavation deeper than 186.08 m AHD).*

As a consequence of the above comments from the NSW Office of Water, the Consent was modified such that Condition 17 now reads:

*The Applicant shall ensure that the depth of extraction is no deeper than 186.08 metres AHD, unless otherwise agreed by the Secretary.*

A copy of the Notice of Determination for Modification (3) and a copy of the consolidated consent following Modification No.(3), are at **Attachment 4**.

## **1.4 The Proposed Modification**

The Consent, as modified, permits:

- (a) development for the purposes of an extractive industry on the Site, in accordance with details contained in the Environmental Impact Statement (**EIS**) prepared by Nexus Environmental Planning Pty Ltd, dated 1999 as submitted with the development application;
- (b) extraction in accordance with an extraction plan prepared by Woodward Clyde which details both the sequence and depth of extraction, and
- (c) extraction in accordance with the modified method of extraction as detailed in the documents prepared by Dick Benbow & Associates which were submitted with



the s.96(2) modification application.

- (d) continuation of extraction on the Site until 31 May 2016 to a depth of RL 186.08m AHD.

The proposed modification would amend the Consent as follows, full details of which are provided in **Part 2** of the Environmental Assessment.

#### **1.4.1 Dam Construction**

Part of the Consent was for the continued construction of a water supply dam on the Site, that dam being required to provide sufficient water to maintain the life of the approved extraction.

The approved dam was to be constructed in two (2) stages, details of which were described in the EIS which accompanied the application for extraction.

During the construction of the approved dam, the applicant has determined that the construction process would be better served if the dam were to be constructed in three (3) stages rather than the approved two (2) stages. It is proposed to amend the Consent to modify the dam construction process accordingly.

#### **1.4.2 Sequence of Extraction**

There is an approved sequence of extraction of the Site as shown in **Figure 1.6**.

During the extraction process, it has been determined that the approved method of extraction using the cells shown in **Figure 1.6** is neither an economic nor practical way to achieve that extraction.

The existing extraction process on the Site involves a similar cell by cell extraction process to that which is approved but one which is not as rigidly defined as that portrayed in **Figure 1.6**.

It is proposed to modify the approved sequence of extraction to reflect that which is now being undertaken on the Site such that the most efficient means of extracting the material on the Site is achieved.

#### **1.4.3 Extraction Process**

The approved extraction was to be undertaken in accordance with the method of extraction described in the abovementioned s.96(2) modification to the Consent where

a "*Pumping Unit*" method of extraction was to be employed.

Since commencement of the extraction, it has been determined that the approved "*Pumping Unit*" method of extraction is not a practical means by which the resource can be extracted.

While the general concept of the "*Pumping Unit*" method of extraction remains, there have been modifications made to that method as follows:

1. The approved method of extraction is as follows:

*Sand is extracted using an excavator. The excavator would start at the natural ground surface level but would immediately dig a hole so that the excavator and processing equipment would be working against an extraction face. The extraction face provides significant noise shielding.*

While the above is generally the case, there are instances where sandstone is encountered which is not able to be extracted using an excavator alone. In such circumstances, the sandstone material is ripped using a dozer and then removed using the excavator.

2. The approved method of extraction states:

*The excavator loads the sand into an acoustically lined hopper. The hopper is located above a belt feeder which introduces the sand into a mixing tank. The belt drive is variable rate controlled and is powered by an electric motor.*

The introduction of extracted sand into the mixing tank is being undertaken, however, the approved process assumes that the mixing tank is mobile and can easily move around the active extraction cell with the excavator. This is physically not easily achieved. What actually occurs is that the mixing tank is located close to the processing plant and is located there on a semi-permanent basis. The material won from the individual extraction cell is then loaded by the excavator to a dump truck which transports that material to a stockpile adjacent to the mixing tank. From there, a front end loader transfers the sand to the mixing tank.

It is proposed to modify the Consent to regularise the existing method of extraction.

#### **1.4.4 Approved Volume of Material to be Extracted and Life of the Consent**

Table 4.3 of the EIS relating to the Consent provided details of the sequence of extraction, the volume of material to be extracted from each cell, and the time for that extraction to be completed, those data having been provided by Woodward Clyde as part of the mine plan prepared for the approved extraction.

It has become apparent that the volume calculations undertaken by Woodward Clyde, as detailed in Table 4.3 of the EIS, are flawed in that they do not provide accurate volumes

of the material present on the Site.

To establish a more accurate figure of the volume of material contained on the Site, VGT Environmental Compliance Solutions (VGT) has undertaken detailed volume calculations utilising survey data obtained in December 2013. Using a computer generated model of the Site, VGT has determined that there is 4,607,822m<sup>3</sup> of material on the Site compared to the 2,144,000m<sup>3</sup> calculated by Woodward Clyde.

Advice from the applicant is that a conservative estimate of 2 tonnes per m<sup>3</sup> should be applied to determine the tonnage of material on the Site. Applying that conversion rate, there is 9,215,644 tonnes of material on the Site. The applicant has advised that a figure of 60% sand to 40% clay/gravel is generally obtained. As such, 5,529,386 tonnes of the volume calculated by VGT would be sand product.

The applicant has advised that approximately 1,000,000 tonnes of sand has been exported from the Site during the life of the extraction to date which means that approximately 4.5 million tonnes of sand product remains to be extracted.

Having regard to the errors in the original calculations undertaken by Woodward Clyde, it is now proposed to modify the Consent based on the volume figures calculated by VGT. The EIS for the original development provided a formula to determine the rate of extraction. Using that formula, the following applies:

- maximum 50 trucks per day (approved).
- average load per truck 33.5 tonnes.
- 1,675 tonnes per day.
- 5.5 days per week extraction = 286 days per annum.
- maximum 479,050 tonnes per annum extracted.
- 9.4 years of extraction remaining.

In light of the above, the applicant seeks a modification to the life of the extraction from 31 May 2016 to 31 May 2025.

## **1.5 Structure of this Report**

**Part 2** A summary of the issues raised in submissions is provided together with the Proponent's response to issues raised in submissions.

*Part 2***RESPONSE TO SUBMISSIONS****2.1 Respondents**

Seven (7) submissions were received during the exhibition period of the Environmental Assessment. Each submission was reviewed and the key issues identified.

Submissions comprised:

- One (1) individual submission from the public.
- Six (6) submissions from Government Agencies, being:
  - The Hills Shire Council
  - NSW Office of Environment & Heritage
  - NSW Environment Protection Authority
  - NSW Department of Primary Industries, Geological Survey of NSW Branch.
  - NSW Department of Primary Industries, Agriculture.
  - NSW Department of Primary Industries, Office of Water.

A copy of the submissions received is provided as **Attachment 5**.

Of the above submissions, the following raised no objection or issues with the proposed modification:

- NSW Office of Environment & Heritage
- NSW Environment Protection Authority
- NSW Department of Primary Industries, Geological Survey of NSW Branch.
- NSW Department of Primary Industries, Agriculture.

The key issues raised in the submissions related to the following:

1. Adequacy of existing and proposed screen planting and visual impact to adjoining landowners.

2. Insufficient information is provided to allow assessment of the overall impact of the proposed modification on groundwater.
3. Impact on land values of the adjoining property.
4. Traffic impacts.
5. Maintenance of boundary.

## **2.2 Adequacy of screen planting and visual impact**

### **2.2.1 Issue Description**

The Hills Shire Council made the following submission:

*The modification application does not adequately consider potential impacts to adjoining property owner's given the additional period requested for extraction. Of particular concern is the visual impact of the proposal. The Statement on page 3-69 refers to the original EIS and refers to 'extensive screen planting, supplemented with earth bunding...'*

*In this regard some bund walls have been constructed with some landscape works. The bund walls provide a reasonable screen however the landscape works undertaken are not consistent around the boundary and does not provide an adequate screen.*

*Additional landscape work is required to reduce visual impact.*

### **2.2.2 Response**

Page 3-69 of the Environmental Assessment referred to by the Council contains quotations from the original EIS. Modification No.1 to the Consent modified the bunding and landscaping to act as a mitigation device to visual impact.

The proposed bunding was planted, however, cattle on the site have, over time, destroyed much of the landscaping.

In recent times, replanting of that bunding has occurred.

It is recognised that the continued extraction of the Site as proposed in Modification No.2 would require additional bunding and screen planting both in a temporary form and in a permanent form upon completion of the extraction. **Appendix 11** to the Environmental Assessment contains full details of the additional bunding required and the planting

which would ensue as part of the continued extraction of the Site.

It is considered that the now proposed additional bunding and planting would significantly decrease the visual impact of the extraction from adjoining land holdings.

## 2.3 Groundwater Impact

### 2.3.1 Issue Description

The NSW Office of Water provided the following comments:

*The Modification 2 proposal provides insufficient information for DPI Water to assess the overall impacts. Additional information is listed below with detailed comments in Attachment A. Should the Modification 2 proposal proceed to approval, recommended conditions of consent are outlined in Attachment A.*

#### *Information Requests*

- *All groundwater elevation measurement data from the commencement of monitoring (prior to January 1999) until present in tabular and graphical format and an assessment of this data to determine the extent of the current and proposed impacts of the quarry in accordance with the requirements of the NSW Aquifer Interference Policy.*
- *All records of the required regular surveying program of all extraction areas and other site features to identify the up to date depth of extraction.*
- *A map of the quarry site illustrating the high wet weather groundwater level across the proposed extraction areas based on surveyed elevation data from all previous and current monitoring bores and the central pond (such mapping as described by the June 2005 audit report).*
- *A commitment from the proponent to update the monitoring program to adequately monitor the hydrogeological conditions of the site and the development of quantifiable triggers and response actions. A minimum six monitoring bores would be recommended for groundwater monitoring at the site.*

The recommended conditions of consent are:

- *Restriction on the absolute depth of extraction to 186.08m AHD for the entire period of quarry operation (regardless of any future extension to the consent) unless higher wet weather groundwater levels become apparent.*



- *Continuous groundwater level monitoring (as required under existing consents) must be established by the operator immediately in at least six locations across the site (excluding the central pond) where the water table within the Maroota Sand can be measured throughout the proposed period of future sand extraction operations.*
- *Establishment of a network of monitoring bores distributed across the site purpose-built to monitor groundwater levels in the Maroota Sand and at locations chosen in agreeance with DPI Water.*
- *Quarterly groundwater quality monitoring for a suite of analytes determined in consultation with DPI Water.*
- *Six monthly survey mapping of the quarry site with specific delineation of excavation cell elevations and highest measured groundwater elevations.*
- *Revision of the operations plan to recognise the raised limit of excavation and to incorporate mitigation actions, notification triggers and reporting requirements consistent with the NSW Aquifer Interference Policy.*
- *Development and implementation of a Groundwater Monitoring and Management Plan for the site in consultation with DPI Water.*
- *Annual environmental reporting that must include groundwater related data and reports, and be reported online.*

## 2.3.2 Response

### Information Requests

#### Groundwater

The submission states, in part:

*The Groundwater Assessment Report (Appendix 16) prepared by AGT identifies the results of a recent survey of the property with the deepest extraction point being 183.70 mAHD (page 3), corresponding to a substantial clay layer. It appears from the photograph included in the report (page 6) that this elevation is at the base of a current or recently completed extraction cell. The current status of groundwater monitoring reported by AGT appears limited to one on-site monitoring bore (PT84MW-6, likely to be GW114972 installed under licence 10BL605696) drilled as a replacement for a pre-existing monitoring bore (PT84MW-3, probably GW114209 installed under licence 10BL158808). Monitoring bore GW114972 was installed in January 2015 and has one recorded groundwater level elevation reported (at 183.10m AHD on 3 March 2015). It appears that the single measurement of groundwater level is the same data point referred to in the Modification 3 application. Despite the operator advising that*

*additional monitoring would be undertaken, it is apparent that no other groundwater level measurements have been made in the meantime (i.e. since March 2015 when the measurement was taken or since June 2015 when the previous modification application was made).*

The submission further states:

*Whilst the AGT report provides an assessment of the activity against the requirements of the NSW Aquifer Interference Policy, the analysis is not supported by the results of a reasonable period of on-site monitoring and is therefore questionable. The proposed monitoring program remains limited to the single on-site bore for all triggers, which does not appear sufficient to establish a sound understanding of the hydrogeology of the site, nor to detect the occurrence of groundwater behaviour that would exceed the minimal impact thresholds. The impacts and mitigation measures are poorly defined and require significantly greater rigour in providing quantifiable triggers and response actions.*

*In summary further information is requested in order to clarify the 'high wet weather groundwater level' and therefore the extraction depths for the operation. Data from several on-site monitoring bores over the last ten years would provide an appropriate record, however only minimal information is provided in the report.*

We are advised by the operator of the extractive industry that all monitoring which has been undertaken since the commencement of the extractive activity on the Site has been provided as per the conditions of the consent. Notwithstanding, we have been able to locate a number of the monitoring reports dating from 2001 to 2013. Copies of those monitoring reports are provided as **Attachment 7**.

#### Water licenses and Water Balance Modelling

The submission states, in part:

*The Revised Soil and Water Management Plan (RSWMP) for the modified development indicates the site holds a number of licences issued under the Water Management Act 2000 for the operation of groundwater bores and dams (Section 2.3.3 page 12, Appendix 19). Table 1 in the RSWMP lists the licenses held at the site but the table is confusing, especially the information provided in the bore status column.*

.....

*The RSWMP notes the location of the bores and dams are shown on Figure 2 (Section 2.3.3). Figure 2 shows two monitoring bores (PT84MW1 and PT84MW5) occur on the site. Neither Table 1, nor Figure 2 refers to the monitoring bore (10BL605696) which was installed on 13/1/2015. The proponent needs to provide DPI Water with construction details of the bores on the site.*

*The Mod 2 EA includes an extract from the EIS which accompanied the original application on water balance modelling and it notes there is no change to the modelled water balance as a result of the proposed modification (page 3.32). The extract notes the applicant installed two bores into the Hawkesbury Sandstone aquifer which are generating 1.9 L/sec and 1.3 L/sec respectively (Section 2.2, page 2.5) and indicates an alternative water supply source would be required to supplement the process water dam during extended periods of low or no rainfall and that two bores have a combined capacity of 3.2 L/sec (page 2.6). As noted above, the site has two groundwater access licences and these have a combined allocation of 51 ML/year. It is suggested the Mod 2 proposal clarifies that an alternative groundwater water supply source is still required to supplement the process water dam during extended dry periods, as Table 1 in the RSWMP implies the groundwater supply licences have expired.*

A further revision of the Soil and Water and Management Plan has been prepared in response to the above submission and is contained as **Attachment 6**. A 27 November 2015 letter from VGT has also been included in **Attachment 6**, that letter stating, in part:

*We have reviewed the comments and offer an amended Revised Soil and Water Management Plan (SWMP) report no 1557\_HMA\_SWMP\_R5 to address the issues raised.*

*Primarily the comments relate to disparity over the status of bores on the site listed on the NOW Register, which was summarised in Table 1, and the actual status of the bores. The table has been amended and comments added to describe the history and current status of the bores. Information was obtained from both the NSW Office of Water (NOW) online register and HB Records. Figure 2 has been amended to include locations of the bores on the site. Records of all bore construction has been included in the Appendices as requested.*

*A copy of the status of all the Water Access Licences is included in the Appendices. The Water Access Licences (26163 & 24157) for the two bores, PT84PB1 & 2 are current and Table 1 erroneously listed PT84PB1 as destroyed. It appears some of the confusion arises from the NOW Register listing the bore at that location as cancelled however it is evident, according to historical documents, bore logs and per coms from Mr Martin Hodgson that this bore is operational and is the one referred to in the current WAL. The dam licence for irrigation (10CA104888) is current and has also been included in the Appendices.*

*Correspondence relating to this bore and other bores on the site has also been included in the Appendices for clarification. Since both the WAL bores listed are functional an alternative water supply source is not required.*

#### Transfer of Water Offsite

The submission states:

*Section 5.4 of Appendix 19 indicates excess surface water is to be transferred*

*from the site to the neighbouring land owned by Mr Tony Portelli and is to be used for stock water and irrigation (pages 39 and 40). Details are requested on the source of the surface water that is proposed to be transferred from the site and whether the water is proposed to be transferred from Dam 1.*

The 27 November 2015 letter from VGT at **Attachment 6** states:

*The Transfer of Water Offsite relates to the water from Dam 1 and the report has been amended to reflect this.*

#### Rehabilitation of site

The submission states:

*The Rehabilitation Report (October 2014) indicates that at the completion of specified rehabilitation works, the vegetated areas shall be subject to a minimum landscape works period of 12 months and the maintenance shall include watering and weed control. It is recommended the minimum maintenance period is longer than 12 months to ensure that the vegetation is established and the bund walls and the site are adequately stabilised with vegetation to protect the downstream environment from sediment and erosion impacts, the spread of weeds from the site etc.*

The applicant is willing to agree to a condition of consent which stipulates a reasonable time frame for the maintenance of the proposed rehabilitation.

#### Groundwater map

We have been advised by AGT that it is not possible to provide a map as requested based on data from one monitoring bore.

#### Update monitoring program

The applicant has advised that an updated monitoring program will be implemented as discussed below.

#### Recommended Conditions of Consent

Condition 1:            *Restriction on the absolute depth of extraction to 186.08m AHD for the entire period of quarry operation (regardless of any future extension to the consent) unless higher wet weather groundwater levels become apparent.*

As stated in the Environmental Assessment, the original depth of extraction has been altered as a result of the recent groundwater levels obtained from the new bore on the site, that new level being that requested by the Office of Water as RL186.08m AHD.

The Environmental Assessment has been prepared on the basis that the RL186.08m AHD

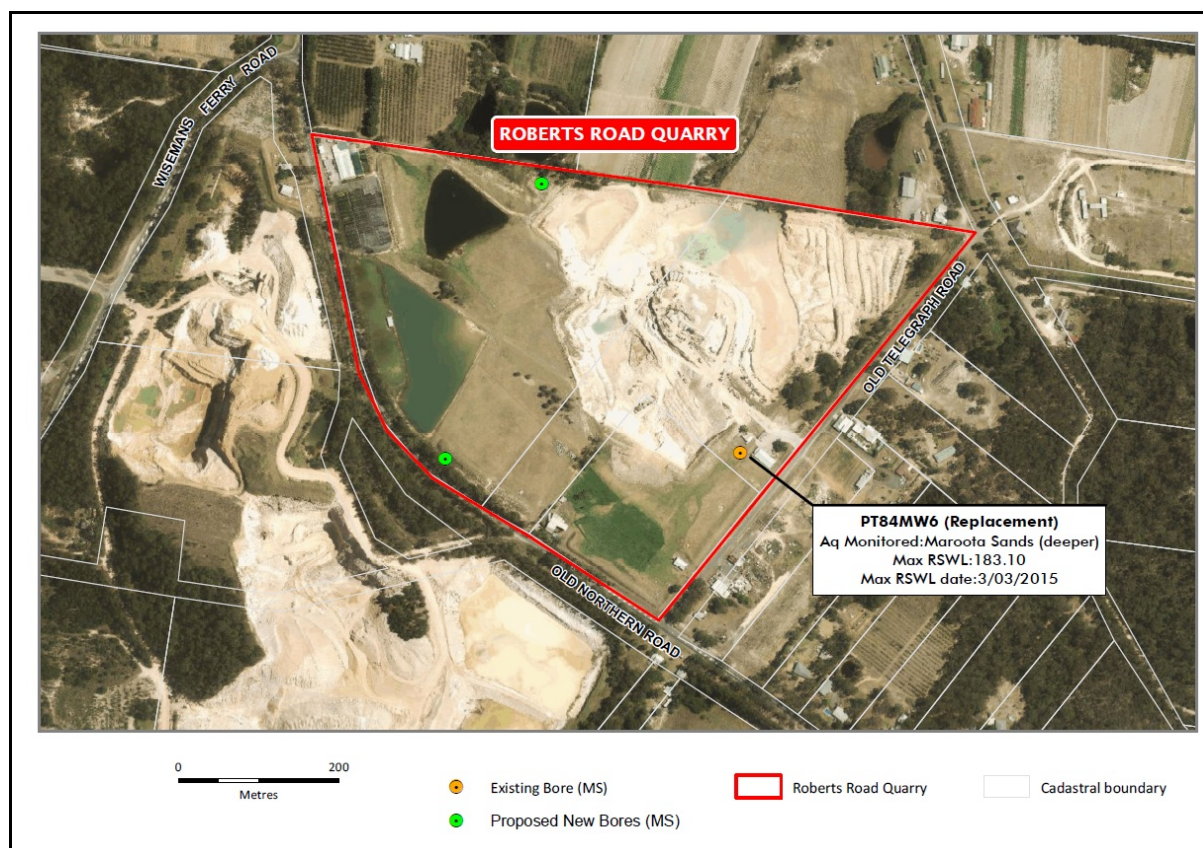
level is adopted for all future extraction on the site.

While the general premise of the recommended condition is agreed, it is requested that reference to future extensions be deleted. While the recommendation accounts for future data requiring possible raising of the depth of extraction, it should also allow for lowering of the level if monitoring data from existing and proposed bores concludes that such a change is level is justified. The following condition is recommended:

Condition 1: *Restriction on the absolute depth of extraction to 186.08m AHD for the entire period of quarry operation unless groundwater monitoring dictates that this level should be adjusted.*

Condition 2: *Continuous groundwater level monitoring (as required under existing consents) must be established by the operator immediately in at least six locations across the site (excluding the central pond) where the water table within the Maroota Sand can be measured throughout the proposed period of future sand extraction operations.*

It is agreed that additional groundwater monitoring bores are required to be installed on the site, however, the suggest six (6) bores is considered excessive for such a small site. It is recommended that an additional two (2) bores be located on the site as depicted in **Figure 2.1**.



**Figure 2.1:** Location of existing monitoring bore and proposed location of two (2) additional monitoring bores.

Condition 3:            *Establishment of a network of monitoring bores distributed across the site purpose-built to monitor groundwater levels in the Maroota Sand and at locations chosen in agreeance with DPI Water.*

As per above, it is considered that two (2) additional groundwater monitoring bores is sufficient to monitor groundwater levels.

Condition 4:            *Quarterly groundwater quality monitoring for a suite of analytes determined in consultation with DPI Water.*

The applicant agrees to this condition.

Condition 5:            *Six monthly survey mapping of the quarry site with specific delineation of excavation cell elevations and highest measured groundwater elevations.*

The applicant agrees to this condition.

Condition 6:            *Revision of the operations plan to recognise the raised limit of excavation and to incorporate mitigation actions, notification triggers and reporting requirements consistent with the NSW Aquifer Interference Policy.*

The applicant agrees to this condition.

Condition 7:            *Development and implementation of a Groundwater Monitoring and Management Plan for the site in consultation with DPI Water.*

The applicant agrees to this condition.

Condition 8:            *Annual environmental reporting that must include groundwater related data and reports, and be reported online.*

The applicant agrees to this condition.

## **2.4 Impact on land values of the adjoining property**

### **2.4.1 Issue Description**

The submission from a member of the public states:

*We are concerned that the ongoing operation of the quarry, should the lapse date be extended will adversely affect the value of our property. The Quarry is an*



*eyesore. The Quarry is all that we can see from our property. In heavy rains, the silt ponds from the Quarry have to be pumped into the natural water causeway located at the rear of our property. This affects usage of our land and devalues our property.*

*The quarry is also affecting our property by changing the levels of the land. We have observed that the operations of the quarry are undermining our property. Ongoing operation of the quarry will continue to affect surrounding properties adversely and negatively affect property values.*

## **2.4.2 Response**

We are advised that the discharge from the dam to the watercourse located on the adjoining property to the north of the site is licenced and forms part of the approvals for the extractive industry on the site. We are also advised that discharge has occurred on only a few occasions during the life of the approved extraction and that the water quality is as per the requirements of the conditions of the consent. Refer also to the revised Soil and Water Management Plan.

With regard to the undermining of the adjoining land, we are advised that a trench was created along the northern boundary of the extraction site by the landowner as part of the construction of the dam on the site which was approved in the 1970s. The trench was in place at the time of approval of the extractive industry. We are also advised that the trench will be remediated as part of the ongoing construction of the water supply dam and that the required work will be undertaken once the dam is de-watered, constructed as per the modification, and completed.

## **2.5 Traffic impacts**

### **2.5.1 Issue Description**

The submission from the member of the public states:

*Although the traffic studies report that extension of the quarry lapse date will not affect the current traffic movements, we are concerned that the traffic to and from the quarry already damages the road and the road edges, in particular. Continued operation will no doubt damage the road further.*

### **2.5.2 Response**

**Photograph 1.9** shows the existing, approved access to the site, which is concrete

formed to the formation of Roberts Road. As part of the approval process for the extractive industry on the site, and, indeed, in the Maroota area in general, there has been a s.94 contribution levied on the basis of tonnage processed at the site. The s.94 contribution is to be used for the maintenance of the public road network. As such, the maintenance of Roberts Road is a matter for the Council.

## **2.6 Maintenance of boundary**

### **2.6.1 Issue Description**

The submission from a member of the public states:

*We are concerned that the maintenance or lack of maintenance of the quarry boundary fencing, grass, weeds and other vegetation surrounding the quarry will continue to produce vermin, snakes and other unhealthy species. We were expecting the quarry to complete operations in 2016 and the property be rehabilitated to a lake and a bike track that would be fully maintained preventing unwanted and unhealthy species from breeding.*

*Should Planning and Environment permit continued operation of the quarry, we fear the ongoing threat to surrounding properties by vermin.*

### **2.6.2 Issue Response**

There is no evidence presented with regard to this issue. As such, we are not in a position to address the alleged issue of breeding of vermin.

## **Appendix 1**

**Development Consent No. 267-11-99**