EXECUTIVE SUMMARY

INTRODUCTION

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.

This Environmental Assessment has been prepared on behalf of Hodgson Quarries and Plant pursuant to Section 75W of the Environmental Planning and Assessment Act 1979.

The objectives of the proposed modification are:

(a) To provide graded sand and gravel products suitable for use in the construction industry and specialty markets.

(b) To realise the economic potential and maximise the efficient recovery of natural resources on the Site.

(c) To successfully rehabilitate the extracted areas of the Site into an integrated, continuous agricultural landform plus an area of re-established native vegetation.

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.

DEVELOPMENT CONSENT No.267-11-09

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 Notice of Modification (1) dated 29 November 2000 was issued by the then Minister for Urban Affairs and Planning.

A Notice of Modification (3) dated 18 August 2015 was issued by the Minister for Planning.

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

Hodgson Quarries and Plant seeks the approval of the Minister for Planning to modify the Consent as follows.

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. No change is proposed to the dimensions of the approved dam.

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.

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.

Approved Volume of Material to be Extracted and Life of the Consent

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 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^3 of material on the Site compared to the 2,144,000m^3 calculated by Woodward Clyde.

Advice from the applicant is that a conservative estimate of 2 tonnes per m^3 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.

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

IMPACT OF THE PROPOSED MODIFICATION

Groundwater

By Notice of Determination dated 18 August 2015, consent was granted to Modification (3) of the Consent 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 assessment process of Modification (3), the NSW Office of Water made comment as follows:

The Office of Water has reviewed the information provided it 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.

The proposed modification does not seek to either alter the dimensions of the approved dam or increase the lateral extent of the approved extraction.

Acoustic Impact

The quarry will develop further to the west and north for modified Stages 1-5 over a period of approximately 8 years, at which time the processing plant would be relocated to allow for the extraction of modified Stage 6 to include a cell near the northern boundary and the material beneath where the existing processing plant is located. The lateral extent of the extraction will not exceed that of the approved development.

Operations also require further excavation and the emplacement of material to create the final landform. This would occur intermittently on a campaign basis, typically 2 weeks at a time, possibly once or twice per year, such that equipment / staff not needed to meet the supply of raw material would be utilised to haul material to the emplacement areas and an excavator would be used to form the final landform. It is possible that some sandstone will need to be ripped in this area at RL195 and below. Noise levels from this activity are not considered to be any higher than that experienced to date.

The modified extraction process requires an excavator and truck at surface level to remove the top soil and overburden which is initially formed into perimeter bunds and remaining material is stockpiled. From this point onwards, the excavator works occur from below the surface and

is able to pull material down from above.

The excavator and truck are, therefore, only at surface level for a small proportion of time (less than 10%) and most of this time it is operating behind a 5 metre bundwall relative to the nearest boundary.

In relation to hauling product off site between 6:00am and 6:00pm, it is considered that the typical "worst case" operating scenario would be when 3 truck movements overlap in the same 15-minute period. This assumption incorporates 2 trucks arriving and 1 truck subsequently leaving the Site. The selection of 3 truck movements is based on operational constraints as this is the maximum which can be loaded.

During typical operations, the predicted noise levels comply with the $L_{Aeq,15min}$ noise condition of 43dBA at all receivers, however, when dozers are required to operate in some areas, and the excavation of top soil occurs at the beginning of each new cell, noise levels are predicted to exceed the criterion at some receivers.

Exceedance for surface extraction works are up to 1dBA, typically for a total of 2-3 weeks during sandstone ripping within cells where rock is above approximately RL 200.

Exceedance for dozer ripping works are up to 10dBA at Receiver D, 2dBA at receiver B and 1dBA at receiver H, typically for 3-4 weeks during the initial top soil and overburden extraction of each cell.

Exceedance during these periods for emplacement works are up to 5dBA at Receiver A, 4dBA at Receiver G, 2dBA at receiver B and 1dBA at receiver H, typically 3 weeks per year on average.

Since the plant on site is considered to be modern and well maintained, there are no feasible or reasonable mitigation measures which can be applied to further reduce noise levels.

In addition to the exceedance above, there are also periods of a few days when perimeter bunding is required to be built and will require an excavator to be located at the surface without any shielding by a bund for a few days at a time. Predicted noise levels from this activity at these times are up to 57dBA at Location D, 48dBA at Location C and 40dBA at Location F. At other locations, the contribution is less than 30dBA.

At three of the receivers (C, D and F), noise levels are expected to increase compared with current levels over the remainder of the project as operations move closer. Two of these receivers (D and F) are located within 30m of Old Northern Road and L_{Aeq} noise levels from traffic are expected to be over 55dBA and, therefore, more than 10dBA higher than typical L_{Aeq} noise levels from the Site and similar or higher than noise levels in the short periods with an excavator at the surface.

Negligible impact is, therefore, expected at these two receivers. These receivers are also located closer to other sand extraction activities on the other side of Old Northern Road.

Location C is set further back from Old Northern Road so ambient noise levels are lower, but still

similar or higher than the predicted noise levels from the quarry of up to 44dBA during normal activities and 48dBA whilst the northern bund is being built.

The existing consent allowing the loading of trucks between 6:00am to 7:00am is not proposed to change, so no change in impact compared to the existing situation is expected. The potentially worst affected residence is Receiver B, closest to the site entrance on Roberts Road.

It is recommended that a short section of 4m bund is constructed from the weighbridge to join with the existing bund adjacent to Roberts Road.

The predicted noise level from this activity is 37dBA which meets the amenity criterion of 40dBA.

Traffic Impact

The EIS which accompanied the original application dealt with the impact of the then proposed development on the operation of the intersection of Roberts Road with Old Northern Road.

With regard to increased truck traffic in the main road system, the EIS stated:

> *The increase in heavy truck traffic generated by this development is estimated to be 30 truck movements per day (Monday to Friday) in Wisemans Ferry Road west of Old Northern Road and 20 truck movements per day in Old Northern Road south of Roberts Road. These increases amount to 14.25 per cent and 9.37 percent respectively.*
>
> *These increases are relatively small and will not reduce the Level of Service at either the intersection of Roberts Road with Old Northern Road or in Wisemans Ferry Road and Old Northern Road.*

Resulting from the above, condition 49 of the Consent relates to truck movements and states:

> *49. The applicant shall ensure that truck movements associated with the development do not exceed 100 movements per day (50 laden truck movements) or 20 (10 laden truck movements) movements per hour, during construction or operation.*

No modification to condition 49 is proposed as part of this modification application.

Notwithstanding, Lyle Marshall & Associates Pty Ltd has prepared a report (**the Marshall Report**) relating to the impact the existing approved development would have on the existing road network and, in particular, the intersection of Roberts Road with Old Northern Road, a copy of which is at **Appendix 13**. The Marshall Report concludes that the proposed modification to the extraction would have no additional impact on the local road network or the operation of the intersection of Roberts Road with Old Northern Road.

Air Quality

The EIS submitted with the original development application contained a detailed assessment of the then existing air quality together with details of the air quality impacts of the then extraction

activity on the Site.

To determine the impact the development as proposed to be modified would have on the air quality of the locality, Wilkinson Murray Pty Limited has prepared an Air Quality Assessment, a copy of which is at **Appendix 14**.

The air quality goals for the relevant particulate matter pollutants relate to the total pollutant burden in the air and not just the pollutant from the project. As such, consideration of background pollutant levels is required when using these goals to assess potential impacts.

The locality is predominantly agricultural and mining land, although areas to the east of the Site and the National Park are well vegetated. Sources of particulate matter in the area would include traffic on unsealed roads, mining activities, local building and construction activities, animal grazing activities and to a lesser extent traffic on roads.

As part of the extraction, there are various excavation and processing activities proposed to occur on-site for the continued operation. These would include:

- an excavator and truck at surface level to remove the topsoil and overburden;
- an excavator pulling material down from above or a dozer to rip sandstone, and excavator loading dump trucks;
- transportation of product using a dump truck to the processing feed area;
- front end loader managing a few stockpiles to blend the different grades of sand as required before tipping into the power screen, and
- transportation of sand off site.

The total amount of dust generated from the continued sand extraction would not be greater than the levels generated during past operations of the facility.

Having reviewed the potentially closest residential receivers to the proposed extraction areas, the predominate winds and the PM_{10} and dust deposition levels monitored from the Site from past operations, it would appear that dust from the continuation of sand extraction is unlikely to impact on the closest residential receivers as long as the dust mitigation methods in the existing air quality management plan continue.

Heritage

It is unlikely that heritage items or archaeological sites would be encountered should the modification be approved. Notwithstanding, Condition 56 would ensure that appropriate measures are employed to ensure the integrity of any such items of heritage or archaeological sites.

Rehabilitation

The EIS which accompanied the original development application contained an Environmental Management & Rehabilitation Plan (**EMRP**) for the Site which was based on the approved extraction sequence and the approved final landform plan.

Condition 57 of the Consent deals with rehabilitation of the Site and states:

> *57. The Applicant shall prepare a Plan for the staged rehabilitation of the site as part of the EMP. The Rehabilitation Plan shall:*
>
> *(a) outline procedures for the implementation of rehabilitation measures within an acceptable timeframe;*
>
> *(b) document the source of material for rehabilitation and methods to ensure that no contaminated of otherwise unsuitable material is brought onto the site;*
>
> *(c) detail the preferred option for the final landform and implementation of this landform.*
>
> *(d) detail proposals for the integration of the visual bund walls into the final landform of the site; and*
>
> *(e) provide evidence of consultation with Council in the design of the final landform for the site.*

The proposed modification seeks to modify the approved sequence and method of extraction. A consequence of the proposed modification is a modified final landform for the Site. A reduced copy of the modified final landform plan is at **Appendix 17**.

Due to the proposed modification, there is also a need to modify the approved Rehabilitation Plan for the Site. A revised Rehabilitation Plan has been prepared by Conzept Landscape Architects as part of the proposed modification, a copy of which is at **Appendix 11**.

The modified Rehabilitation Plan is discussed in detail in **Part 2.9** of the EA. The conclusions are:

> *It is proposed that if the methods outlined in the report and plans are followed, then:*
>
> - *The nominated extraction areas can be successfully rehabilitated, re-establishing an extensive endemic vegetation cover.*
> - *That vegetated bunds may be utilized to minimise the visual impact of the extraction works.*
> - *The proposed rehabilitation process can be staged in an effective manner so as to progressively rehabilitate areas of the site where extraction has been*

completed, final levels achieved, and all activity has ceased.

- *Appropriate standards will be set for the on-going monitoring of the rehabilitation process and maintenance works to ensure the successful establishment of rehabilitated areas on site, resulting in a sustainable, endemic landscape in character with the original Shale-Sandstone Transitional Forest vegetation Community.*

Soil and Water Management

A Soil and Water Management Plan (**SWMP**) was developed by Morse McVey and Associates Pty Ltd for the site in 1999 and was submitted with the original EIS. Notwithstanding, a revised SWMP has been prepared for the modified development, a copy of which is at **Appendix 19**. The executive summary of the revised SWMP states:

> *The water management of the site has been developed to comply with Managing Urban Stormwater, Soils and Construction, Volume 2E Mines and Quarries. Sediment basins are designed for a 95th percentile, 5 day rainfall event whilst catch drains and diversions are designed for a 10 year Average Recurrence Interval.*
>
> *Clean water is currently diverted around the disturbed area via diversion bunds where possible and the natural topography assists. A portion of clean water from the undisturbed areas and properties adjacent to the quarry on Roberts Road does enter the main quarry area. Dirty water is collected in the disturbed areas into one of several dams to allow for settling to occur.*
>
> *Retained water is reused on site for dust suppression and material processing. For this reason water is generally retained as far as possible on site. No water is released off-site.*
>
> *If required Dams will only be discharged when quality limits are met. The proponent will undertake a regular monitoring and maintenance program to ensure water management goals are met.*

CONCLUSION

This Environmental Assessment has concluded that, with the proposed modification to Development Consent No.267-11-99, there would be no impact to the environment of the Site and its environs over and above that which was identified in the assessment of Development Application No.267-11-99.

The proposed modification, with commitments in place as described in **Part 4**, would ensure that a valuable resource is utilised to its economic capacity and ensure that the Site would be rehabilitated to be consistent with the agricultural landscape of the area.