

19 June 2015

Our Ref: MDK203_A386 AMENDED Planning Proposal Menah

The General Manager
Mid-Western Regional Council
86 Market Street
MUDGEE NSW 2850



Dear Sir

PLANNING PROPOSAL TO ACHIEVE 2HA LOTS WITHIN 'MENAH', MUDGEE EAST OF RAILWAY LINE

Please accept this proposal on behalf of the owner of 'Menah', Mr Michael de Kantzow. The approx. 335ha property, contains Lot 1 and Lot 2 DP136904; Lot 3 DP587806 and Lot1 DP877564, with frontage to Castlereagh Highway, Abattoirs Road and Wilbetree Road. This proposal refers only to that part of the 'Menah' property which lies on the eastern side of the Railway line (being Lot 3 DP587806 and Part of Lot 2 DP136904).

This proposal has been amended and updated to comply with the Council recommendation, 6th May meeting:

"Council support in principle the intent of the Planning Proposal in relation to part Lot 2 DP 136904 and Lot 3 DP 578806 (known as "Menah") for 2ha rural residential lots with an additional requirement that the documentation be amended to:

- (i) delete reference to 12ha lots;***
- (ii) amend the layout such that the land that is rezoned is limited to an area sufficient to accommodate 25 lots; and***
- (iii) all of the 2ha lots are fully above the 1 in 100 year flood level;"***

The proposal aims to facilitate future subdivision of the land creating 2ha rural residential type lifestyle allotments in close vicinity to Mudgee township. The land offers large lot residential housing in a rural setting preserving scenic quality, whilst being considerate to environmentally sensitive areas. The location of the future proposed lots will not compromise the aesthetic aspects of a main entrance to Mudgee town. The proposal also avoids residential development of land below the 1 in 100 yr flood level. The development concept does not include connection to reticulated sewerage services and land east of the Railway has level terrain which will restrict the likelihood of a reticulated sewerage system in the future. This aspect should provide certainty to Council regarding the long term integrity of the proposal for a long term 2ha lifestyle development. Also LEP amendment to enable smaller lots if connected to services is not proposed.

The owner appreciates acknowledgement of the amended proposal and requests to be kept informed of the progress of the proposal via email (michael@crossingcapital.com.au).

Should you require further information in relation to this matter, please do not hesitate to contact myself on 0457 711 169 or the owner, Mr Michael de Kantzow on 0414 660 331.

Yours faithfully

EMMA YULE
ENVIRONMENTAL TOWN PLANNER
MINESPEX PTY LTD

THE PROPOSAL

PART 1 - Objectives and intended outcomes of the proposal

1.1 Statement of Intended outcomes

It is intended to enable the development of the land east of the Railway within the property 'Menah', for residential development, with lots of min. 2ha (no reticulated services). All lots will have building opportunity above the 1 in 100 yr ARI contour.

1.2 Details of the proposed development to be carried out – Concept Plan

The main purpose of this planning proposal is to make an amendment to the relevant LEP provisions, to enable a 2ha residential subdivision development. The owner intends to stage any development in the future. Future development is proposed that will involve the facilitation of at least 25 x 2ha. It is envisaged that the timing of this type of development, i.e. Large Lot Residential, could be in a 0-5 year timeframe. The development could also feasibly be staged development.

The land on the western side of the Railway will not be negatively affected by the proposal. It is envisaged that the subject land (eastern side of Railway) would be suitable for 2ha lots, whereas the remaining 'Menah' property, i.e. that land on the western side of the railway would remain to provide a strategic 'pipe line buffer supply' of residential land without affecting the findings of the Urban Release Strategy.

The proponent would request that the land's potential for '2ha lots' is considered at this time, addressing the growing demand identified in the URS. The feasibility of the land to accommodate 2ha lot sizes in a subdivision layout is explored in a preliminary concept plan prepared by Jabek Pty Ltd. The subdivision layout demonstrates that a good ratio of road infrastructure outlay to lots created is easily achieved, avoiding underdevelopment of land. Also the topography lends itself to the ability to provide uniformity in shape to the lots, which will further support the ability of future dwellings to achieve the design criteria within the DCP for housing (refer to **Appendix A**).

A concept plan is included to demonstrate that the future development of the land into 2ha lots is a feasible development concept. The plan also demonstrates how the flood planning levels are located in relation to the concept layout. Alternative development layouts exist for the land, however this concept provides a development layout that is considerate to the environment and achieves lots that are generally rectangular in shape with regular frontages.

The preliminary concept sketch uses the nominal lot size of 100m x 200m (2ha) to achieve a road layout that would form the basis of a future subdivision road hierarchy based on the number of lots

served. The use of a cul-de-sac to service land is appropriate given the boundaries formed by the Railway line and the flood liable land.

The land to be developed involves the land in closest proximity to Mudgee Township on the eastern side of the Railway. Topographically this land is partly floodplain and is not as undulating as land on the opposite side of the Railway. The preliminary concept plan prepared by Jabek Pty Ltd depicts a new road (cul-de-sac) off Wilbetree Road. This area will yield approximately 25 x 2ha lots with an additional residue lot. The location of these 2ha lots is considerate to known flooding and the 1 in 100 ARI is shown on the plan. Dwelling sites are available above the 1 in 100 ARI for all lots.

The concept plan has demonstrated that the land can provide residential housing in a rural setting preserving scenic quality, whilst being considerate to environmentally sensitive areas. This preliminary concept layout demonstrates through the dimensions and nominal lots sizes adopted the potential for future residential development. A diagrammatic overview of the proposal is depicted below in **Figure 1** and **Appendix A: Preliminary Concept Sketch**.

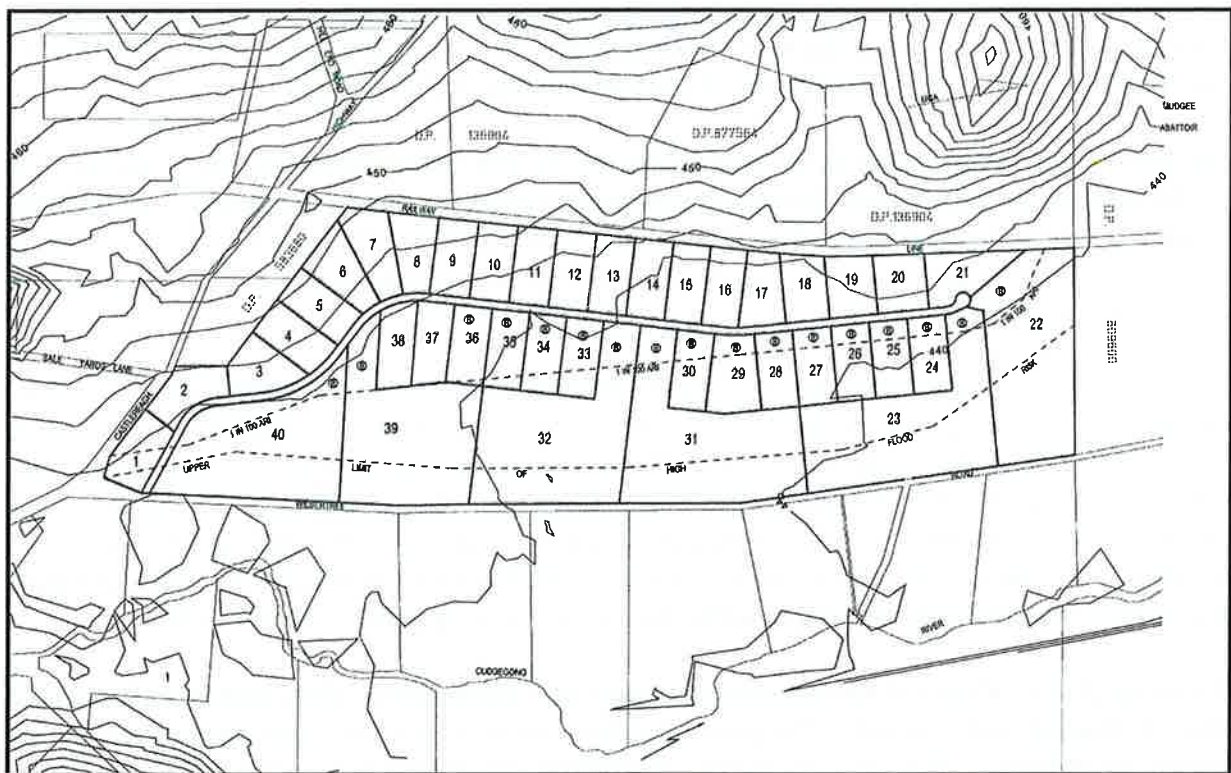


Figure 1: Concept Plan (nts)

PART 2 - Explanation of Provisions

One option to achieve the objectives and intended outcomes as described in Part 1 of this proposal as described, is through rezoning the subject land to R5 Large Lot Residential and amending the lot size map as relevant.

This may be achieved by the following:

1. Relevant Land Zoning Map (Sheet LZN_006) to be amended to include the R5 Large Lot Residential zone for the land identified as suitable for 2ha lots in the concept.
2. Lot Size Map (Sheet LSZ_006) to be amended to reflect change in zoning and minimum lots size to 2ha as related to the concept.

PART 3 - Justification

This section sets out the reasoning for the proposed changes to the LEP, taking into consideration the intended outcomes and objectives outlined. The following questions are based on requirements contained in NSW Planning and Infrastructures *A guide to preparing planning proposals* (October 2012) and address the need for the planning proposal, relationship to strategic planning framework, environmental, social and economic impacts and its effect on State and Commonwealth interests.

SECTION A - Need for the Planning Proposal

Q.1. Is the planning proposal the result of any strategic study or report?

YES.

The planning proposal has stemmed from the recommendations for Mudgee's Urban Release areas as identified within "*Mudgee and Gulgong Urban Release Strategy*", prepared for Mid-Western Regional Council by HillPDA Consulting December 2014 (URS). The development of this land is aligned to the 'Guiding Principles' of the Strategy. The URS outlines a need for 2ha rural residential type opportunities, which this proposal will serve to address in part.

'Menah' has been identified in the document as an option available to Council to accommodate demand for new housing in the future. Further, supply and demand analysis for Mudgee in the URS identified that land supply for 2ha residential lots would be exhausted after just 9 years. Gap analysis found insufficient land zoned in Mudgee's urban release areas to meet long term 20 year demand for general residential lots (450-1000sqm) and 2ha lots. The analysis in the URS concluded that further land may need to be released in the long term to accommodate demand in the 10-20 year period if high levels of demand for 2ha lots were sustained. This proposal provides Council with an alternative to address this demand. The site is located close to Mudgee Town and will not form an isolated residential 'pocket' of development.

The URS highlights the positive aspects for future development of 'Menah' (refer to page 98, 100 & 101 of the Strategy). The land extends from the edge of the existing residential zone and is in close proximity to Mudgee's new STP. The property of 'Menah' however can be considered as having topographic differences which are defined somewhat by the dividing Railway line. The flatness of the terrain on the eastern side of the Railway, will restrict the likelihood of a reticulated sewerage system in the future being implemented and is conducive to 2ha lots (un-serviced). Whereas the remaining 'Menah' property, i.e. that land on the western side of the railway would remain to provide a strategic 'pipe line buffer supply' of residential land without affecting the findings of the Urban Release Strategy.

Q.2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

YES.

It is considered that the Planning Proposal is the best means of achieving the intended outcomes. Alternative avenues under the current available LEP provisions have been considered that may achieve the outcomes of the proposal; however no options other than LEP amendment have been identified. A review of the site characteristics and the objectives of the available zones are warranted to best match the land, zoning and development standards. In this case, a rezoning to R5 is supported as a logical outcome to achieve the objectives of the proposal, as well as providing a zone which is most fitting and aligned with the proposals characteristics. Also the residue land remains appropriate for land along the floodplain of the Cudgegong River. The planning proposal should also be reflected in updates to the CLUS and URS.

SECTION B - Relationship to the strategic planning framework

Q.3. Is the planning proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy?

In June 2014 the NSW Government released new draft regional boundaries for NSW. The Mid-Western Regional LGA falls within the 'Central West and Orana' region. Once the boundaries are finalised for each region, they will provide the basis for a new generation of strategic plans called Regional Growth Plans. The Regional Growth Plan will identify areas suitable for housing and employment expansion in the region.

Prior, in 2012, the NSW Government introduced the 'Strategic Land Use Policy' to better manage the potential land use conflicts arising from the location of our high quality agricultural land, and the mining and coal seam gas (CSG) industries.

There are no existing strategies in place for this region. There are no applicable State or Regional strategic directions for development as such, the Assessment Criteria as referred to in the 'A Guide to Preparing Planning proposals' is referred to.

a. Does the proposal have strategic merit?

YES.

- The proposal addresses an identified need for 2ha lots.
- The proposal is able to meet timing requirements for land release.
- The proposal will not cause substantial resource outlay by the Council/ratepayer.
- The realization of the development does not depend on the prior development of other land.
- The proposal is consistent with the guiding principles developed in the URS to ensure future residential land release is sustainable, economic, and provides positive environmental and social outcomes for the LGA.
- Potential environmental constraints to development are identified and overcome in design or can be further investigated at DA stage.

The merit is demonstrated by the benefits the land provides in providing an option in particular for 2ha development that are consistent with the Mudgee and Gulgong URS. The inclusion of 'Menah' also will not create a significant infrastructure outlay. This planning proposal presents an option to develop land without reticulated services that addresses the demand identified.

b. Does the proposal have site-specific merit and is it compatible with the surrounding land uses, having regard to the following:

The natural environment; the existing uses, approved uses, and likely future uses in vicinity to the proposal; the services and infrastructure that are or will be available to meet the demands arising from the proposal and any proposed financial arrangements for infrastructure provision.

As identified in the URS, the 'Menah' property presents a good longer term option for residential land supply. The land east of the Railway affected by flooding, lends itself to the larger lots and will have strategic contiguity with future residential development of the Menah and Caerleon areas. The URS highlights that in fact: *land west of the railway can be serviced for water supply and sewerage by the upgrade of infrastructure that will be extended to service 'Caerleon'. Development of this area represents a reasonable alternative, compared to the servicing of Spring Flat (Area 22), as it involves extending servicing in one direction and will assist in infrastructure provision and builds a relationship with other areas beyond 'Menah' (namely the former Abattoir land – Area 20 of the draft URS) if required. There is in fact a shorter distance to the sewerage treatment plant. The land is in close proximity to Mudjee's new STP (i.e. significantly shorter distance than land in Spring Flat).*

The development of this land will maximise the use of existing Council infrastructure in the long term minimising the costs to consumers and Council and financial risk to the rate payer (aligned to guiding principles in URS).

The proposed 2ha lots are suitable in the locality considering the current rural setting and flood zone. This proposal makes a distinction between the land east and west of the Railway due to the environmental aspects and potential for servicing. With consideration of the above points, the remaining 'Menah' property west of the Railway, presents a good longer term option for residential land supply. The subject lands east of the railway, including the land associated with the proposed 2ha lots, are impacted by the flood zone of the Castlereagh River and are flatter in terrain. All 2ha lots are above the 1 in 100 yr flood level. This supports that the land is suitable for the lower density of development proposed as well as remaining consistent with the strategic direction for the locality.

Q.4. Is the proposal consistent with Council's Local Strategy or other local strategic plan?

YES. However, no strategy directly explores a constraints analysis for 2ha lifestyle lots surrounding Mudgee, though the URS identifies a clear demand for such lots.

The Comprehensive Land Use Strategy (CLUS) forms the current basis of Council policy and constraints assessment. The CLUS assessed suitable land for lifestyle allotments however a minimum of 12ha was adopted as the minimum lot size, with 2ha lots located near to Mudgee on the Town Structure Plan. A lack of current available land for 2ha lots and with extension of reticulated services leading to development of smaller lot sizes in former large lot areas is apparent around Mudgee. The CLUS encourages opportunities for housing diversity in the Mid-Western Regional LGA. The Mudgee and Gulgong Urban Release Strategy (URS) provides guidance on the timing, location and type of future residential development. The URS supports that there is a growing demand and limited supply of large residential lots of 2ha.

The proposal allows for staging of release land including 25 x 2ha lots. This planning proposal includes a concept for future large lot development which does not include residential building sites below the 1 in 100yr flood level.

The owner has been approached by MWRC staff in previous years and recently with discussions progressed regarding Council's inclusion of the subject land as an opportunity for a new release area in the review of the Mudgee Town Structure Plan. The owners were receptive to the idea of being included in the land use review, and supported the land being included as Area 20 –Menah - 'New Release Area' under consideration by the Staff and Councillors.

The URS references land the subject of other Planning Proposals received and not progressed by Council awaiting the finalisation of the URS. The intention of this planning proposal is to ensure that the consideration of 'Menah' by Council is formalised and the land is given due consideration and compared to other land addressed in the URS, as they are addressed further now that the URS has been adopted by Council.

The URS states:

"Given the dynamic nature of Mudgee's population growth and housing demand and the amount of undeveloped land already zoned residential it is difficult to provide a meaningful recommendation for the future uses for Menah, Hill End Road and Spring Flat South. Instead it is recommended that Council adopt a 'wait and see' approach to the take up of land in the 22 existing urban release areas before committing to significant infrastructure outlays to service Menah, Hill End Road or Spring Flat South. Regular monitoring of housing supply in Mudgee will assist Council in ascertaining when one or more of these additional areas may be needed to help meet future housing demand." (Pg 101)

The inclusion of 'Menah' for 2ha + lots will not create a significant infrastructure outlay and will not hinder the further development for serviced residential land in the future west of the Railway. This planning proposal presents an option to develop land without reticulated services and addresses the needs for 2 ha lots. The URS gap analysis *"found insufficient land zoned in Mudjee's urban release areas to meet long term 20 year demand for standard residential lots (450-900sqm) and 2ha lots."* pg 82. The development makes the most of the available land, road infrastructure and is compatible with the environmental aspects of the land.

Mid-Western Regional Comprehensive Land Use Strategy (CLUS)

The Mid-Western Regional Council adopted the CLUS in 2010, which aimed to provide clear direction for growth for the next 15-20 years. The Strategy has informed the comprehensive MWRLEP and provides a context for future land use. This planning proposal is consistent with the CLUS as it makes the best use of available infrastructure and land within the existing settlement area as described in *Section 4.8.3 Release and Staging of Opportunity Areas* in the CLUS.

The planning proposal provides an opportunity to utilise the land which is suited to lower density residential subdivision capable of providing diversity in lot sizes and staged release of land. The following attributes support the planning proposal:

Ownership:

The land is not constrained by involvement of multiple landowners and staging future development is feasibly implemented at the site. The owner is open to strategic planning options to promote logical development of the land. 'Menah' could supply land as a staged DA.

Servicing:

The property offers land that can supply large lots (un-serviced) without hindering the potential for supply of residential land at a greater density for the remaining areas of 'Menah' in the future (west of railway).

The part of the 'Menah' property on the east of the Railway has level terrain which will restrict the likelihood of a reticulated sewerage system in the future. This has been acknowledged in the pursuit of the 2ha as the minimum lot size as an appropriate option for the land. A report by Geolyse Pty Ltd supports the ability of the land to accommodate 2ha lots with onsite effluent disposal without impacts to the groundwater (refer to **Appendix C**). It is asserted that not connecting to the reticulated sewer would prevent further subdivision in the future, thus retaining the integrity of the 2ha lifestyle concept for the longer term. This concept does not propose that the land would be associated with an LEP provision requiring connection to services to allow smaller lot sizes (with reference to clause 4.1(3A) in the MWRLEP 2012).

Road Access:

The land has good road linkages. With frontage to the Castlereagh Highway and Wilbetree Road, there are several opportunities to safely provide a new road. The intersection with Wilbetree Road and Castlereagh Highway is only a 4minute drive to the Mudjee Post Office (approx. 2.5km). The

close vicinity of the Mudgee CBD increases the attractiveness for such residential development. All proposed lots in the concept plan will have flood free access off the new road, although some reconstruction of Wilbetree Road may be necessary at the intersection with the new road to achieve this.

Environmental Aspects:

The topography is conducive to un-serviced development, capable of supporting lots of minimum 2ha. The topography lends itself to good yields which will provide good return on investment in road infrastructure. The land falls within the flood plain of the Cudgegong River floodplain. The flood risk zones and the 1 in 100 yr ARI contour are depicted on the concept plan. The accuracy of the 1 in 100 year ARI contour has been plotted from publically available Maps and may require revision in the future, post-survey, although the variations are expected to be minor (some at the northern and southern ends of the property). All lots will have building sites above the 1 in 100 ARI contour.

Mudgee and Gulgong Urban Release Strategy (URS)

The inclusion of the property 'Menah' in amendment to the MWRLEP2012 and in future revisions of the URS is consistent with the 'Guiding Principles' adopted in the draft for release of residential land. See below:

Guiding Principles

- **Encourage higher density residential development in Mudgee and Gulgong town centres** – N/A (this principle relates to development of town centres)
- **Rely on areas already zoned and nominated for residential development in the first instance to meet future demand** – The URS identifies the lack of current available zoned land for 2ha developments. The intention is to offer a new land release area to address future growth.
- **Maximise use of existing Council infrastructure** – The future serviced development of 'Menah' is aligned with this principle. The development will maximise existing and planned Council infrastructure, particularly water, so as to minimise costs to consumers and council and financial risk to the broader rate payer. Reticulated water supply could feasibly be supplied to the 2ha lots proposed (further engineering assessment is required to confirm). The land presents a shorter distance to the sewerage treatment plant than other release land near Mudgee and the remaining areas of 'Menah' are capable of being serviced. As indicated above, this land (west of Railway) can be serviced for sewerage by the upgrade of infrastructure that will be extended to service 'Caerleon'; though the 2ha lots proposed (east of Railway) will be faced with servicing issues due to the lack of fall in the topography.
- **Encourage and meet demand for a diverse range of housing types and lots sizes** – As a new development the staging of release and master planning process is conducive to ensuring a range of lots sizes is provided.
- **Facilitate orderly and coordinated approach to residential growth** – The location of the property represents a logical location for a residential release area opposite 'Caerleon' and is

sensitive to surrounding land uses. The timing of release can be informed by supply and demand monitoring by the developer.

- **Ensure a pipeline supply buffer exists** - Council should have 5 years' worth of land zoned for each residential type as a buffer to avoid future shortage. This proposal is able provide land in logical stages and adhere to release triggers. Whereby if strategically the release of land can be staged according to need, the flooding of the market will be avoided. With the identification of 'Menah' for future growth, overall it will facilitate the planning of infrastructure such as sewer, water and roads in the most efficient manner. While also addressing a growing demand for 2ha lots in the interim.
- **Protect employment lands and high value agricultural land** – The subject land is in close proximity to the township of Mudgee and developed residential lifestyle lots. The proposal will align with this principle as the land is not currently intensively farmed and topographic boundaries separate the site from other rural land. Further, with the advent of the developed large lot rural residential land to the west, closure of the Mudgee Abattoir and plans to redevelop this site, and the rezoning of 'Caerleon', the character of the locality is shifting from an agricultural focus.
- **Avoid environmentally sensitive areas and natural hazards** - Residential growth should not encroach on areas identified as environmentally sensitive areas or natural hazards. The concept design has demonstrated that environmentally sensitive design can be implemented at the site.

Mid-Western Region Towards 2030 Community Plan

The goals of the Community Plan have been reviewed. The proposal will support the goal of providing a vibrant town. The planning proposal presents opportunity for high amenity community whereby development is appropriately located and sensitive to surrounding land uses and environmental aspects. The release of land can be staged to ensure affordability of housing is not adversely affected by over release in Mudgee. The proposal does not compromise the main entrance corridor to the Mudgee Township.

Mid-Western Regional - Economic Development Strategy

Mid-Western Regional Council has prepared an Economic Development Strategy (EDS) outlining a future economic direction for the Regional in the next 10 years, to June 2020. The EDS provides a broad framework for the various lead agencies and stakeholders involved in economic development to identify their roles and engage in economic development initiatives for the Region. The planning proposal will have negligible impact on economic development.

Q.5. Is the planning proposal consistent with applicable state environmental planning policies?

Yes. The Planning Proposal is considered to be consistent with applicable State Environmental Planning Policies as discussed below.

SEPP	Applicable/Consistency
1 – Development Standards	Not relevant to planning proposal.
4 – Development without consent	Not relevant to planning proposal.
6 - Number of Storeys	Not relevant to planning proposal.
10 - Retention of Low Cost Rental Accommodation	Not relevant to planning proposal.
14 – Coastal Wetlands	Not relevant to planning proposal.
19 – Bushland in Urban Areas	Not relevant to planning proposal.
21 – Caravan Parks	Not relevant to planning proposal.
22 – Shops and Commercial Premises	Not relevant to planning proposal.
26 – Littoral Rainforests	Not relevant to planning proposal.
29 – Western Sydney Recreation Area	Not relevant to planning proposal.
30 – Intensive Agriculture	Not relevant to planning proposal.
32 – Urban Consolidation (Redevelopment of Urban Land)	Not relevant to planning proposal.
33 – Hazardous and Offensive Development	Not relevant to planning proposal.
36 – Manufactured Home Estates	Not relevant to planning proposal.
39 – Spit Island Bird Habitat	Not relevant to planning proposal.
41 – Casino Entertainment Complex	Not relevant to planning proposal.
44 - Koala Habitat Protection	Not relevant to planning proposal.
47 – Moore Park Showground	Not relevant to planning proposal.
50 – Canal Estate Development	Not relevant to planning proposal.
52 – Farm Dams and other works in Land and Water Management Plan Areas	Not relevant to planning proposal.
53 – Metropolitan Residential Development	Not relevant to planning proposal.
55 – Remediation of Land	Not relevant to planning proposal. See comments below.
59 – Central Western Sydney Economic and Employment Area	Not relevant to planning proposal.
60 – Exempt and Complying Development	Not relevant to planning proposal.
62 – Sustainable Aquaculture	Not relevant to planning proposal.
64 – Advertising and Signage	Not relevant to planning proposal.
65 – Design Quality of Residential Flat Development	Not relevant to planning proposal.
70 – Affordable Housing	Not relevant to planning proposal.
71 – Coastal Protection	Not relevant to planning proposal.
BASIX 2004	Future development for housing will be required to address the provisions of BASIX.
Exempt and Complying Development Codes 2008	Not relevant to planning proposal.
Housing for Seniors or People with a Disability 2009	Future development will be able to deliver accessible housing.
Infrastructure 2007	The SEPP is relevant due to the occurrence

SEPP	Applicable/Consistency
	of the Railway line dividing the property. Provisions for the protection of the rail corridor is able to be adopted in the future development concepts and is not a hindrance to future development.
Kosciusko National Park – Alpine Resorts 2007	Not relevant to planning proposal.
Major Development 2005	Not relevant to planning proposal.
Sydney Region Growth Centres 2006	Not relevant to planning proposal.
Mining and Petroleum Production and Extractive Industries 2007	Not relevant to planning proposal.
Temporary Structures and Places of Public Entertainment 2007	Not relevant to planning proposal.
Rural Lands 2008	The proposal is consistent with the Rural Subdivision Principles, i.e. the proposal recognises and addresses the minimisation of rural land use conflicts, particularly between residential land uses and other rural land uses. Further the proposal is consistent with the Rural Planning Principles including due consideration of impacts on services and infrastructure and appropriate location when providing for rural housing.
Western Sydney Employment Area 2009	Not relevant to planning proposal.
Western Sydney Parklands 2009	Not relevant to planning proposal.
Affordable Rental Housing	Through the provision of a variety of housing choices, the housing options in Mudgee will potentially cater to a range of income levels. The development proposal is not to adversely affect rental housing with a staged release proposed.

State Environmental Planning Policy No. 55 – Remediation of Land

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) applies to the whole of the State of NSW and is required to be considered in a rezoning proposal under Clause 6 of SEPP 55. Given the previous use of the site (i.e. residential component and historical grazing) the likelihood of contamination indicating the land is not suitable for the proposed concept is minimal.

Any localised surface soil contamination will require remediation before the land can be used for residential development. Should remediation be required, it is anticipated that this can occur at future development application stage. The Planning Proposal is consistent with SEPP 55.

Q.6. Is the proposal consistent with applicable Ministerial directions (s.117 directions)?

Section 117 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) enables the Minister for Planning and Infrastructure to issue directions regarding the content of LEPs to the extent that the content must achieve or give effect to particular principles, aims, objectives or policies set out in those directions.

The proposal is consistent with those 117 Directions that are relevant to the site. An overview of applicable directions and compliance is included in **Table 1**.

Table 1: Section 117 Ministerial directions

Section 117 Ministerial directions		Compliance of Planning Proposal
1.1	Business and Industrial Zones	N/A
1.2	Rural Zones	The current zoning of the land is RU4 Primary Production Small Lots. The planning proposal is consistent with this direction as the proposal is of minor significance to the agricultural value of rural land. The land is not currently intensively farmed and with the advent of the developed large lot rural residential land, closure of the Mudgee Abattoir and plans to redevelop this site, and the rezoning of 'Caerleon' the character of the locality is shifting from an agricultural focus. The land adjoins developed large lot residential land to the north and is separated by the Highway and River to other rural land. The proposal does not compromise the ongoing agricultural pursuits occurring in this other land as described in this proposal.
1.3	Mining, Petroleum Production and Extractive Industries	N/A
1.4	Oyster Aquaculture	N/A
1.5	Rural Lands	The objectives of this direction are to protect the agricultural production value of rural land, and facilitate the orderly and economic development of rural lands for rural and related purposes. The direction applies due to the proposal seeking an outcome whereby the land can be subdivided (possibly through a change in min lot size). The proposal requires the endorsement of MWRC to support the strategic planning for growth of Mudgee.
2.1	Environment Protection Zones	N/A
2.2	Coastal Protection	N/A
2.3	Heritage Conservation	One item of European heritage is identified in vicinity of the subject site, i.e. the main homestead of 'Menah'. This dwelling is not affected by the subdivision design. The planning proposal adopts measures that facilitate the conservation of environmental heritage. Due diligence and mitigation measures are to be followed that will ensure the protection of any unknown Aboriginal heritage items occurring within vicinity of the future development lands. An AHIMS Search has been undertaken and attached to this proposal.
2.4	Recreation Vehicle Areas	N/A
3.1	Residential Zones	The planning proposal will create a lifestyle lot release area for the Mudgee Township and will contribute to future residential land supply.
3.2	Caravan Parks and Manufactured Home Estates	N/A

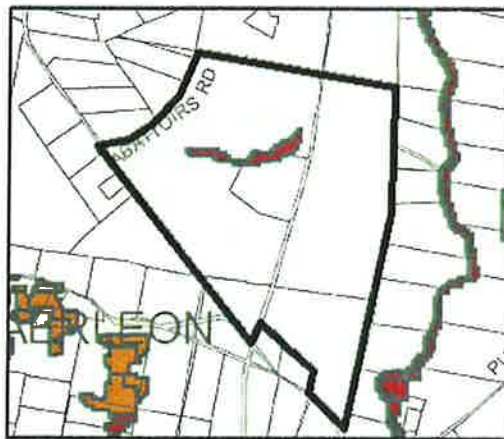
Section 117 Ministerial directions		Compliance of Planning Proposal
3.3	Home Occupations	The planning proposal is consistent with this Direction, and the capacity for any future dwelling to accommodate small businesses will not be hindered.
3.4	Integrating Land Use and Transport	The proposal has considered the existing infrastructure, residential development patterns, and local transport issues when developing the concept plan for future subdivision. The proposal is consistent with the direction.
3.5	Development Near Licensed Aerodromes	N/A
3.6	Shooting Ranges	N/A
4.1	Acid Sulfate Soils	N/A
4.2	Mine Subsidence and Unstable Land	N/A
4.3	Flood Prone Land	N/A
4.4	Planning for Bushfire Protection	Mid-Western Regional LGA has a bushfire prone land map prepared under s146 of the <i>Environmental Planning and Assessment Act 1979</i> . The planning proposal is not affected by the mapped bushfire prone land.
5.1	Implementation of Regional Strategies	N/A
5.2	Sydney Drinking Water Catchment	N/A
5.3	Farmland of State and Regional Significance on the NSW Far North Coast	N/A
5.4	Commercial and Retail Development along the Pacific Highway, North Coast	N/A
5.8	Second Sydney Airport: Badgerys Creek	N/A
6.1	Approval and Referral Requirements	This direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development. The planning proposal does not include LEP provisions requiring concurrence, consultation or referral.
6.2	Reserving Land for Public Purposes	N/A
6.3	Site Specific Provisions	N/A
7.1	Implementation of the Metropolitan Plan for Sydney 2036	N/A

SECTION C - Environmental, Social and Economic Impact

Q.7. Is there any likelihood that Critical Habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The map below depicts the site in regard to the MWR LEP 2012 Sensitivity Biodiversity mapping. The land has minor constraint due to biodiversity with the majority of the land historically cleared for grazing purposes. This mapped land occurs outside the subject land west of the Railway. The majority of other treed areas are planted corridors. The 'Menah' property has been enhanced with over 6000 trees planted in the corridor and along the road frontages over the past 15yrs by the current owner.

The planning proposal is not likely to cause any impact on critical habitat or threatened species, populations or ecological communities. Minor interference (or clearing) of trees is required for the proposal, including planted trees. Site specific native flora and fauna survey is not warranted at this stage.



(Excerpt MWR LEP 2012 – Sensitivity Biodiversity Map (sheet BIO_006))

Q.8. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

With reference to *A Guide to Preparing Planning Proposals*, technical studies to address an identified issue should be undertaken following the initial Gateway determination. Such studies together with community and public authority consultation can explore the mitigation of any potential impacts. The planning proposal constraints assessment has not identified any specific technical assessment that would be required.

Groundwater Vulnerability

The land is mapped as 'groundwater vulnerable' similarly to the majority of the Mudgee Township. The MWR LEP 2012 has provisions to ensure measures would be engaged that ensure good design, and effluent disposal through a water cycle management plan be carried out within a development application process.

Noting the requirements of Clause 6.4 of Mid-Western LEP 2012, a future DA for subdivision of the site may include a study to further consider potential groundwater impacts. However to support the feasibility of this proposal, Geolyse (Environmental Engineer) was engaged to consider the potential impacts of on-site effluent disposal due to development with onsite disposal for a 2ha lot development (refer to **Appendix C**).

The Geolyse report refers to the suitability of the site for on-site effluent reuse and made assessments in accordance with:

- Environment & Health Protection Guidelines for On-site Sewage Management for Single Households (Department of Local Government, 1998); and
- AS/NZS 1547:2012 On-site domestic wastewater management.

Site constraints for on-site effluent disposal were rated in accordance with the guidelines, with features rated only as 'minor'. The recommended buffer distance to domestic bores within the land can be managed by converting authorised purpose of on-site bores to stock and irrigation.

The water balance and sizing of effluent disposal area requirements identified that the preliminary irrigation area is only 7% of the minimum lot size. This indicates there would be adequate room for a suitably sized reuse area and associated buffers. There would also be adequate room for back up irrigation areas in the unlikely event that they are required.

Groundwater vulnerability was specifically considered in regard to the potential risks on groundwater that may arise from the proposed development of the site, being:

1. The management of materials or substances generated or stored on-site that could result in the contamination of groundwater – particularly relating to on-site effluent management; and
2. Changes to water cycle and potential groundwater recharge.

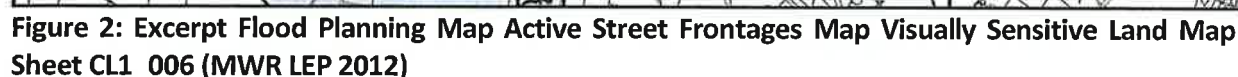
The assessment concluded that by installing an appropriate effluent treatment and irrigation system the impact of the proposed development on groundwater resources would be negligible. Further the proposed development would have minimal impact on the site water cycle.

Overall the Geolyse report concluded:

"Based on the review presented above it is concluded that there are no major constraints that would prevent sustainable on-site effluent management and that the proposed lots would have sufficient area available to install an on-site effluent management system in accordance with the current guidelines and Australian Standard.

The aquifer impact assessment determined that the proposed development would have negligible impact on the groundwater aquifer as long as the proposed effluent management systems maximise evapotranspiration and minimise absorption into the soil."

The land is affected by the floodplain of the Cudgegong River (refer to **Figure 2**). Further noting the requirements of clause 6.2 Flood Planning in the MWR LEP 2012, the concept plan has made due consideration of flooding as an environmental constraint.



The Development Control Plan 2013 has also been referred to with regard to future development requirements and flood compatible design. The subdivision concept proposes building sites and the new road within the 'Low Flood Risk' zone. The concept depicts the High Flood Risk zone and the 1 in 100 year ARI on the plan provided. It is noted that the accuracy of the 1 in 100 year ARI contour has been plotted by Jabek Pty Ltd from publically available Council Maps and may require revision in the future after a site survey, although the variations are expected to be minor. Due to the level terrain, the land is not subject to high hydraulic hazard. All proposed lots are able to be provided with flood free access off the new road (although some reconstruction of Wilbetree Road may be necessary at the intersection with the proposed new road. All lots in the concept plan will have building opportunities on ground, having an existing RL greater than 1 in 100 ARI with all 2ha lots depicted above the flood 1 in 100 year flood level. The concept has ensured that the provisions of the DCP 2013 can be implemented and appropriate setbacks can be achieved. A development application would be able to further investigate and confirm flooding aspects of the land and include provisions in a design.

Heritage

Heritage aspects relevant to the site have been considered. **Appendix B** provides the AHIMS search results carried out for the wider locality including the Cudgegong River corridor. With a buffer of 1km, 10 recorded items are known for the locality. The consideration of the likelihood for occurrence of Aboriginal heritage and due diligence assessment processes will be able to be carried out in the future at DA stage. The occurrence of heritage would be able to be managed in the future and the development impacts assessed as a development layout is finalised.

Q.9. How has the planning proposal adequately addressed any social and economic effects?

The planning proposal is in response to the gap analysis and recommendations to accommodate growth for Mudgee into the future. Mudgee has experienced a dynamic population growth influenced by mining activity in the region. Housing demand has also been subject to the drivers of mining industry growth, population/dynamics changes, and a growing need for housing diversity. The proposal addresses the possible social and economic effects of failing to maintain an adequate and timely land release.

Mudgee has had a limited supply of 2ha lots (and greater) and a growing demand. With this in mind it is difficult to predict the demand for such lots into the future. The predicted demand is addressed in the URS:

“Large Lot Residential (2ha and over)

Demand for larger residential lots (2ha and greater) in Mudgee's urban release areas is projected to average 7 lot per annum or 37 lots over 5 years. If land is released in accordance with the recommendations of the Strategy there will be between 76 and 88 large residential lots available every five years until the year 2025. This level of supply will create a buffer of 43 to 51 lots over that period which is sufficient to meet the required 5 year buffer of 37 lots. The analysis indicates that further land may need to be released in the long term to accommodate demand in the 10-20 year period if high levels of demand for 2ha lots were sustained.” Pg 88

The URS recommendations include release of up to 88 lots of 2ha lots in a 2015+ timeframe. Alternative planning proposals, including 2ha lots, were submitted to Council in 2014 and the subsequent moratorium on further planning proposals was issued by Council pending the finalisation of the URS. With the document now endorsed, reliance is made upon the findings with regard to demand and housing needs. This proposal represents a feasible alternative to supply.

The URS quantifies the demand, and the CLUS supports diversity in housing options. The strategy indicates that the lack of diversity in housing types arguably affects the ability of a diverse population, such as found in Mudgee, to find accommodation to suitably meet their needs. A supply of land is best sourced from varied locations and distances from town. To achieve the sought social and economic outcomes, it is believed that Council should address the current limited exiting supply

of zoned land, and facilitate release of the number of predicted lots, however within a variety of settings. The subject land would offer a large lot lifestyle choice which offers a unique setting.

This proposal is able to partially meet the predicted demand and is close to Mudgee and will become even more appealing when Caerleon is developed. The property is not constrained by multiple owners and the delivery to the market is readily achieved. Market trends reported in the draft URS indicate a growing demand and limited supply of larger lot residential blocks around 2 hectares. This land also has contiguity with 'Caerleon' and future development capacity of 'Menah' to supply residential land. The development site represents residential lifestyle development delivered in a coordinated manner. This ensures future development can proceed without foreseeable land use conflicts and unreasonable infrastructure costs.

1.3 SECTION D - State and Commonwealth interests

Q.10. Is there adequate public infrastructure for the planning proposal?

The site has current electricity and telecommunication services that would be assessed for extension to service additional lots. Servicing of public infrastructure will require consultation with appropriate public authorities at the design stage.

The proposal will generate increased volumes of traffic which will warrant due engineering assessment of the existing road system. The current provisions within MWRC DCP 2013 will be able to be met in any new roads and lot design. This can be addressed at DA stage.

The level of servicing is commensurate to expectations for 2ha lifestyle lots. The current LEP provisions and adopted servicing requirements imposed by MWRC in the past have set 2ha as the min lot size without connection to water and sewer services. Lots of areas less than 2ha are expected to be connected to reticulated services and the lot size maps reflect this. Consistent with this adopted development standard, the land is not proposed to be serviced by reticulated water or sewer. The sewer is not in vicinity to the land. As indicated the flatness of the terrain will severely restrict the likelihood of a reticulated sewerage system being able to be physically implemented. Potential for servicing with town water supply would require further investigation.

Q.11. What are the views of State and Commonwealth Public Authorities consulted in accordance with the gateway determination, and have they resulted in any variations to the Planning proposal?

A summary of the views of State and Commonwealth Public Authorities will be provided following gateway determination.

PART 4 - Mapping

MWRC has a SI LEP in force and mapping should be carried out consistently with the requirements of the Standard technical requirements for LEP maps. The land subject to the planning proposal is included within Land Zoning Map (Sheet LZN_006) which is proposed to be amended as depicted in **Figure 3**.

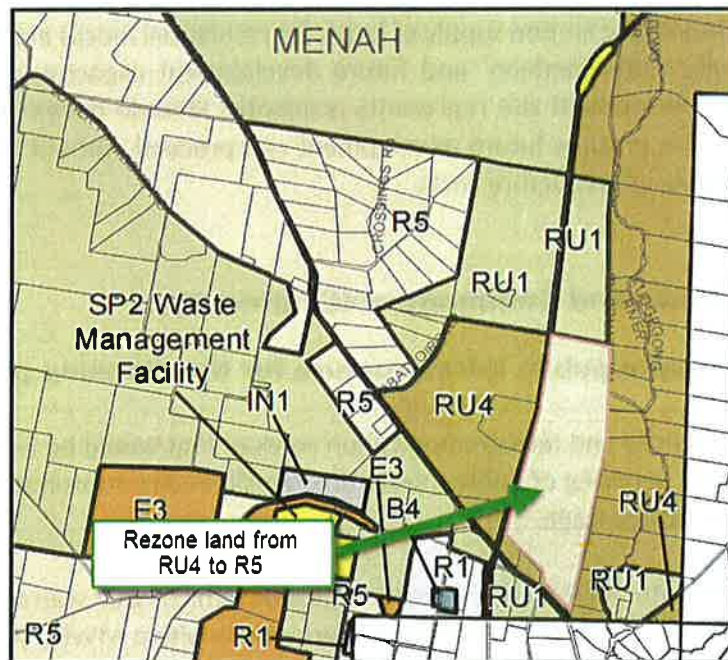


Figure 3: Proposed change to zoning map (Sheet LZN_006)

The corresponding lot size map is proposed to be amended to allow the 2ha lots proposed. The land is included within Lot Size Map (Sheet LSZ_006) which is proposed to be amended to reflect the concept plan provided. An excerpt of the current Lot size map is provided below as **Figure 4**.

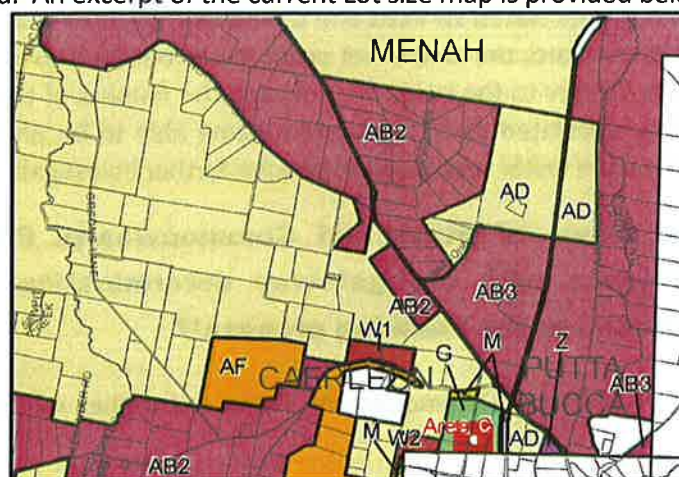


Figure 4: Excerpt Lot Size map (Sheet LSZ_006)

PART 5 - Community Consultation

Community consultation for the Planning Proposal would be undertaken in accordance with the consultation requirements set out in *A guide to preparing local environmental plans* (DoP 2009). The consultation requirements for this Planning Proposal are expected to be confirmed by the Department of Planning and Infrastructure (DP&I) at the gateway determination.

PART 6 – Project Timeline

This will be prepared with MWRC if supported.

CONCLUSION

This Planning Proposal relates to an amendment to *Mid-Western Regional Local Environmental Plan 2012* for part of 'Menah', Castlereagh Highway, Mudgee. The aim of this report has been to describe the proposed amendment to the zoning and lot size map pertaining to the land.

The planning proposal has included the concept plan to highlight the following:

- Feasibility of suitable 2ha building lots above the 1 in 100 ARI contour;
- Layout of development and integration with existing road layouts,
- Investigate road layout and drainage,
- Existing development and sensitive riparian environments.

Development is proposed that will involve the facilitation of 2ha un-serviced lifestyle lots. In accordance with the guiding principles of the URS, Council should maintain 5 years' worth of land zoned for each residential type as a buffer to avoid future shortage. The URS reviews land available with a 20 years+ timeframe, as such this proposal is not considered premature at this time, especially considering the identified demand for this form of development. It is acknowledged that with limited current supply it is difficult to ascertain what that demand might be over the next five years. It is envisaged that the timing of this type of development, i.e. Large Lot Residential, could be in 0-5 year timeframe without hindering the opportunity for 'Menah' to additionally cater for smaller residential lots in the future (i.e. west of the Railway).

This proposal is able to partially meet the predicted demand and is close to Mudgee and will become even more appealing when Caerleon is developed. The property is not constrained by multiple owners and the delivery to the market is readily achieved. Market trends reported in the draft URS indicate a growing demand and limited supply of larger lot residential blocks around 2 hectares. This land also has contiguity with 'Caerleon' and future development capacity of 'Menah' to supply residential land. The development site represents residential lifestyle development delivered in a coordinated manner. This ensures future development can proceed without foreseeable land use conflicts and unreasonable infrastructure costs.

Overall, the planning proposal seeks to deliver the best community and design outcomes, achieving the objectives of the LEP and addresses the need for 2ha lots as identified in the endorsed Urban Release Strategy. Support of this planning proposal will ensure the successful future development of the wider Mudgee community.

Appendix A - Concept Plan

(prepared by Jabek Pty Ltd on behalf of the owner)

Appendix B – AHIMS Search



Office of
Environment
& Heritage

AHIMS Web Services (AWS) Search Result

Your Ref Number : Menah Map Sear

Client Service ID :

Minespex Pty Ltd

Date: 24 Septembe

Units 1 and 2 73 Market Street
Mudgee New South Wales 2850

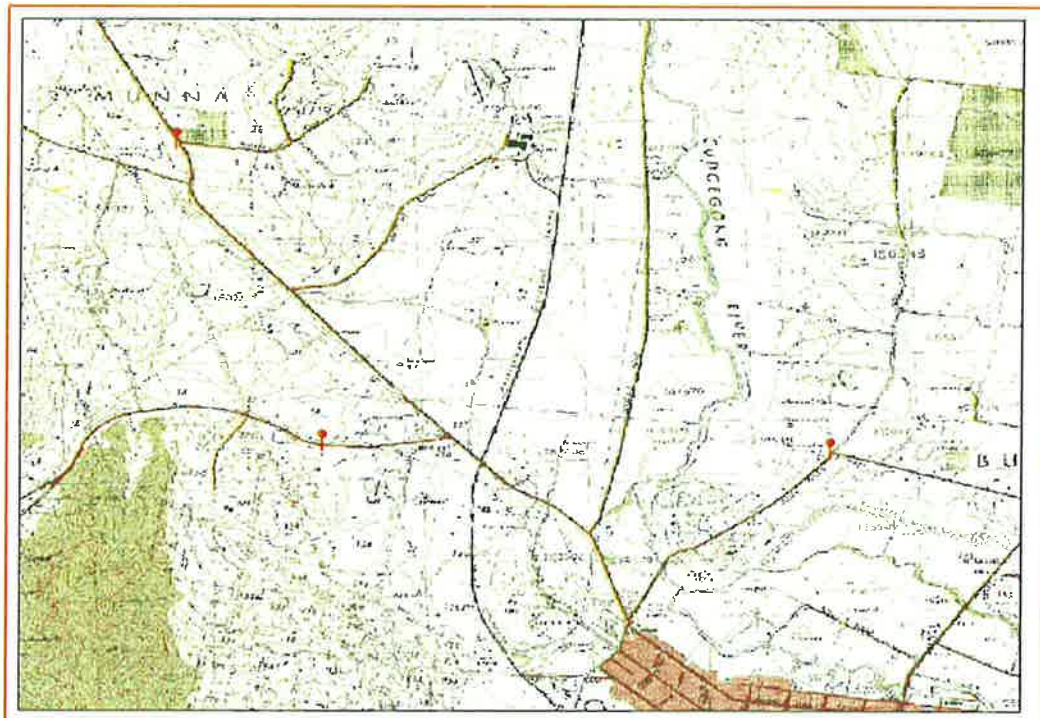
Attention: Emma Yule

Email: emma.yule@minespex.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -32.5778, 149.5424 - Lat, Long To : -32.5505, 149.5857 with a Buffer of 1000 meters, conducted by Emma Yule on 24 September 2014.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

10	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette](http://www.nsw.gov.au/gazette) (<http://www.nsw.gov.au/gazette>) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important Information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Appendix C – GEOLYSE REPORT



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PO Box 1963
ORANGE NSW 2800

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✉ 02 6393 5050

✉ orange@geolyse.com
🌐 geolyse.com

Our Ref: 215081_LET_001A.docx

7 April 2015

Mr Michael DeKantzow
C/o Minespex
PO Box 604
MUDGEES NSW 2850

Dear Sir

PLANNING PROPOSAL FOR PROPOSED SUBDIVISION OF 'MENAH' – ONSITE EFFLUENT MANAGEMENT AND GROUNDWATER REVIEW

We understand that the owner of 'Menah' has engaged Minespex to prepare a Planning Proposal to facilitate the development of current RU4 Primary Production Small Lots (minimum lot size 20ha) to a residential development in accord with a concept plan that accommodates 2ha lots (no reticulated services).

This letter has been prepared to support the Planning Proposal and provides a desk top review of site characteristics relating to on site effluent management systems for domestic effluent and provides specific comment on groundwater vulnerability.

SITE LOCATION AND LAYOUT

The site is identified as Lot 3 DP587806 and Part of Lot 2 DP136904 and is located to the north-west of Mudgee on the northern side of the Mudgee-Gulgong road (refer to **Figure 1**). The site is currently vacant rural land.

A proposed subdivision layout is shown on **Figure 2**.

The land is affected by flood potential, though all proposed residential lots would be above the 1 in 100 year flood level as shown on **Figure 2**.



Figure 1: Site location

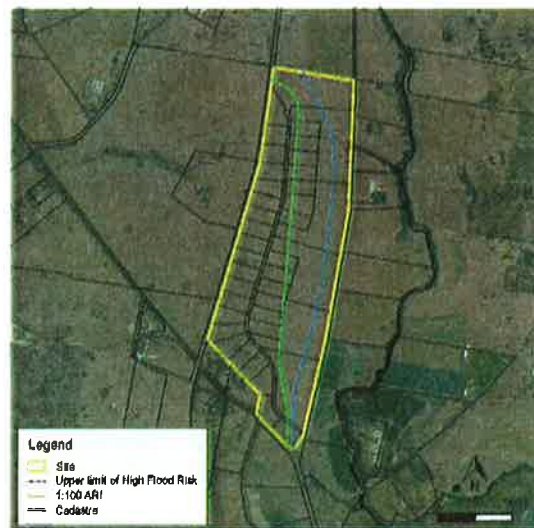


Figure 2: Proposed site layout

ON-SITE EFFLUENT MANAGEMENT – SITE SUITABILITY

The suitability of the site for on-site effluent reuse was assessed in accordance with:

- Environment & Health Protection Guidelines for On-site Sewage Management for Single Households (Department of Local Government, 1998); and
- AS/NZS 1547:2012 On-site domestic wastewater management.

Soil Landscapes

Mapped soil landscapes around the site are shown on **Figure 3**. The majority of the site lies on the Cudgegong soil landscape as defined in Murphy et al (1998). A small portion along the southern site boundary is mapped as the Craigmores soil landscape.

The Cudgegong soil landscape dominates along the alluvial plains and terraces of the Cudgegong River. The proposed subdivision is located on the lower and higher terraces of this soil landscape which includes Red Brown Earths, Red Earths and Yellow Podzolic Soils in depressions. These soil types have deep soil profiles with fine sandy loam topsoils overlying fine sandy clay loam subsoils.

The Craigmores soil landscape occurs on the high terraces of the Cudgegong River and includes Non-calcareous Brown Soils and Red Earths with some Yellow Podzolic-Solodich Soils on lower lying areas. Again the soil profiles in this soil landscape are deep and typically consist of fine sandy loam topsoils overlying sandy clay loam/light clay subsoil.



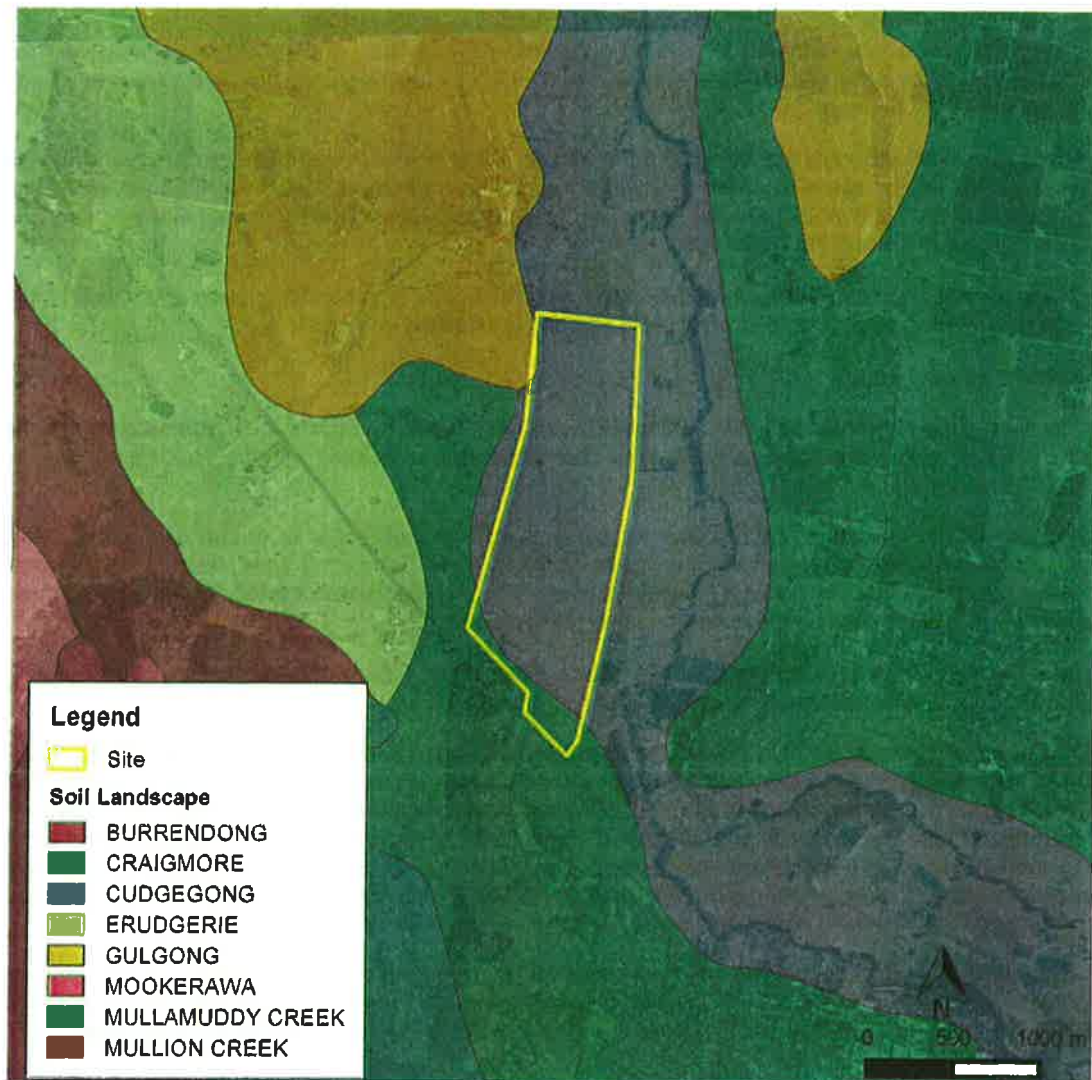


Figure 3: Soil landscapes

The soil category defined in accordance with Table 5.1 of AS1547:2012 for these soil profiles would be:

- Topsoil Category 2
- Subsoils Category 3-4



Topography and Drainage

Slope across the site ranges from around 0.2% along the eastern portion of the site following the Cudgegong River up to 3% along the western site boundary. General slopes across the western portion of the site range between 1% to 2%.

Drainage would generally occur across the site as sheet flow concentrating into shallow drainage depressions which head in a north-easterly and then northerly direction. A shallow incised drainage line is present in the north-western sector of the site. This drainage line has a catchment that extends to the west and south beyond the Castlereagh Highway.

The land is affected by flooding from the Cudgegong River. The high flood risk areas and extent of 1 in 100 year Average Recurrence Interval (ARI) flooding is indicated on **Figure 2**.

Groundwater

Licensed groundwater bores within 1,000m of the site are shown on **Figure 4**. Groundwater resources in the area are sourced from unconsolidated alluvial systems associated with the Cudgegong River or from fractured rock aquifers.

The alluvial system groundwater resources are typically high yielding (2 to 10 L/s) and source water from reasonably shallow water bearing zones (2.5m to 10.0m). Standing water levels in this system range from 2.5m to 8.0m. Authorised uses include stock, irrigation and domestic. There are also three monitoring bores located in the unconsolidated aquifer system.

Bores in the fracture rock system are lower yielding (less than 1L/s) with water bearing zones ranging from depths of 12m to 30m.

The *Environment & Health Protection Guidelines* (Department of Local Government, 1998) recommended a buffer distance of 250m to groundwater bores used for domestic supply. The groundwater records were used to identify those licensed bores authorised for domestic use. These are shown on **Figure 5** along with a 250m buffer. The majority of these occur on the subject site and the recommended 250m buffer constrains a large portion of the site. These are old concrete wells that have not been used for over 30 years (M DeKantzow, pers com). The authorised use of these wells would be converted to stock and irrigation only which would remove this constraint.

There are two off-site domestic bores to the south which constrain a portion of two lots proposed near the site entry. However there is sufficient land on these two lots for on-site effluent reuse outside of the 250m buffer. It is also noted that these two lots would be down gradient of the bores to the south.

It is noted that the proposed development is located down gradient of bore fields used to supply drinking water and irrigation water to Mudgee. Bores used for drinking water supplies are located to the south of the township in the Cudgegong River valley about 6.5km upstream of 'Menah'. Irrigation bores are located north of the township about 2.5km upstream of 'Menah'.



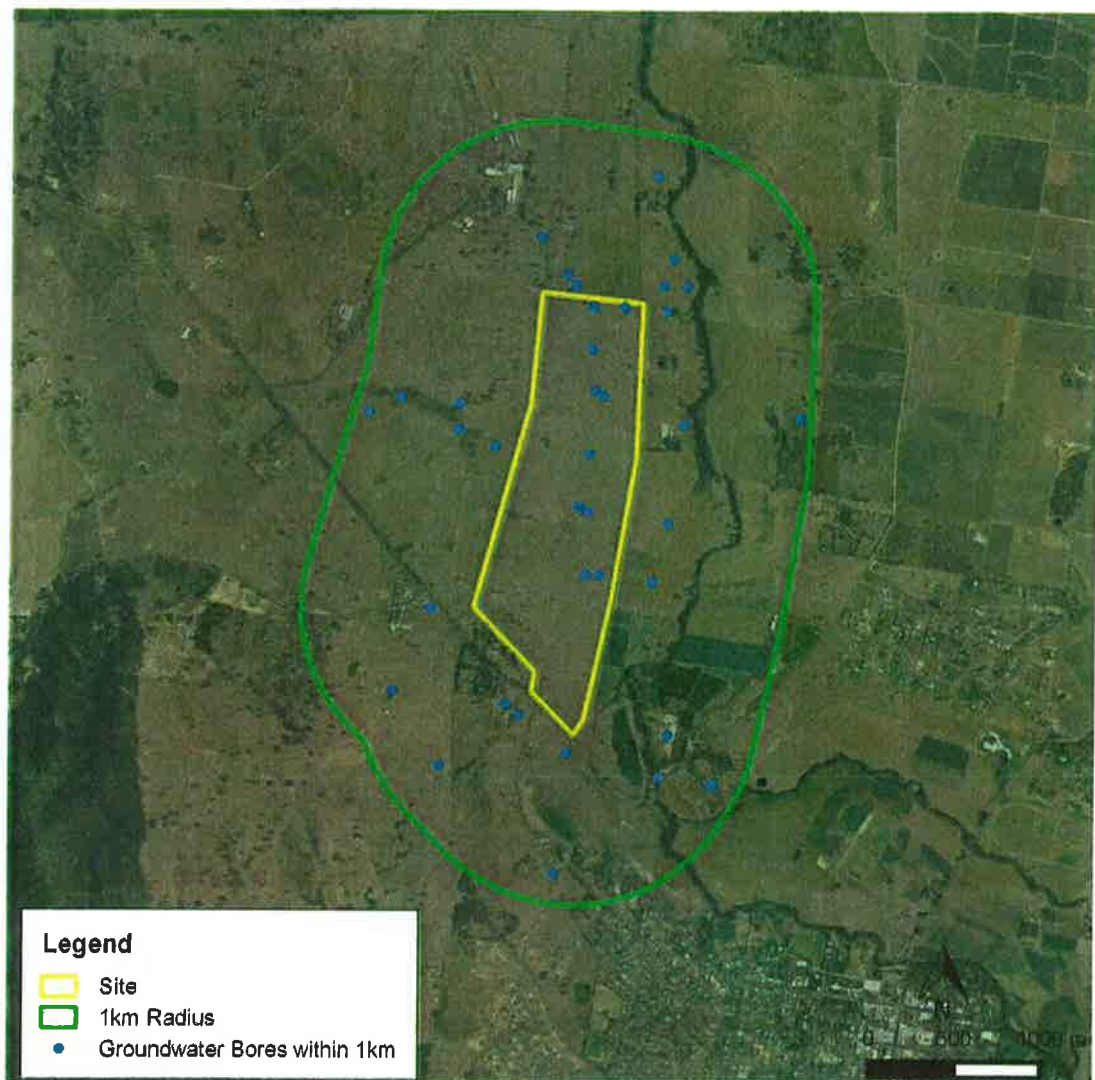


Figure 4: Licensed groundwater bores within 1,000m



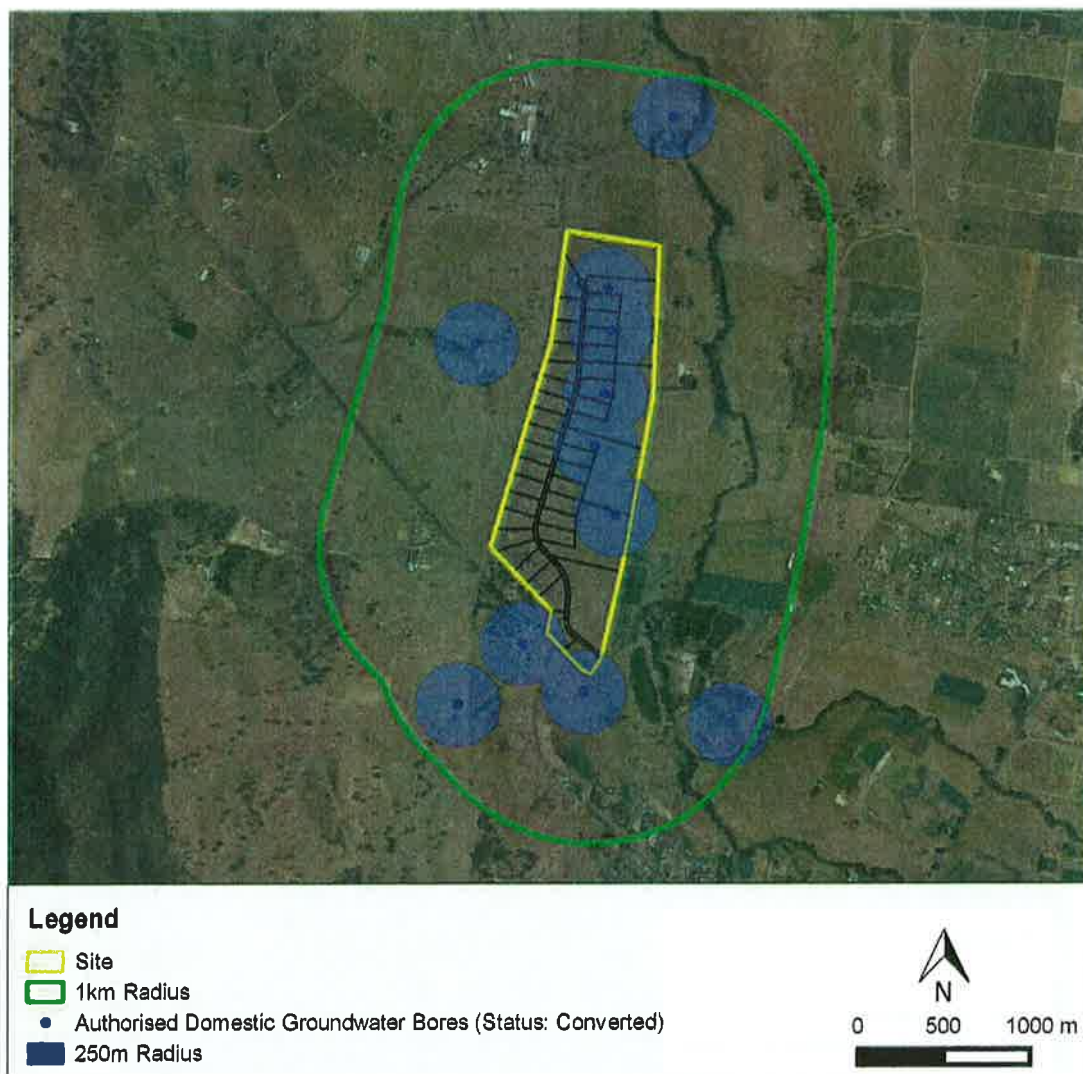


Figure 5: Domestic groundwater bores



CONSTRAINTS TO ON-SITE EFFLUENT MANAGEMENT

Site constraints for on-site effluent disposal were rated using Table 4 of the *Environment & Health Protection Guidelines* (Department of Local Government, 1998). A summary of this analysis is provided in **Table 1**. All site features are rated as minor limitations or can be managed to achieve a minor limitation.

Table1 – Desk top site assessment

Site Feature	Comment	Rating
Flood potential	- Parts of the site are identified as being affected by 1 in 100 year ARI flooding. - Adequate building envelopes are provided for each lot outside of the 1 in 100 year flood line. - Effluent treatment systems could be located above the 1 in 100 year flood line. - Land application areas can be within the 1 in 100 year flood line but above the 1 in 20 year flood line.	Minor limitation
Exposure	- High sun and wind exposure. - Northerly or north-easterly aspects possible.	Minor limitation
Slope %	Site slopes less than 3%.	Minor limitation
Landform	- Convex side slopes and plains. - Managed through localised siting and controls at reuse areas.	Minor limitation
Run-on and upslope seepage	- Located on lower terraces of the Cudgegong River. - Drainage from areas to the west. - Localised earthworks could be used to divert upslope runoff around reuse areas.	Minor limitation
Erosion potential	- No signs of erosion potential. - Cudgegong soil landscape – low to moderate topsoil erodibility when exposed - Craigmore soil landscape – low soil erodibility when exposed - Managed by maintaining ground cover in reuse areas.	Minor limitation
Site drainage	- No visible signs of surface dampness. - Adequate site drainage.	Minor limitation
Fill	No fill on site	Minor limitation
Buffer distance	- Buffer distance to domestic bores managed by converting authorised purpose of on-site bores to stock and irrigation. - Adequate buffer to off-site domestic bores. - Adequate buffer distances to surface waters. - Adequate area available to locate reuse areas and required buffer distances at individual lot level.	Minor limitation
Land area	- Minimum land area required for surface irrigation system is xxx m2 (see below) - Adequate area available on minimum 2ha lot.	Minor limitation
Rocks and rock outcrops	Less than 10% of site area containing rocks >200mm diameter	Minor limitation
Geology/regolith	- No major geological discontinuities. - No highly porous regolith on site.	Minor limitation



ON-SITE EFFLUENT MANAGEMENT – PRELIMINARY SYSTEM SIZING

The preferred method of on-site effluent management at this location would be an aerated wastewater treatment system (AWTS) with irrigation reuse (surface or sub-surface irrigation). An AWTS is preferred due to the proximity of the Cudgegong River and its associated alluvial aquifer system.

Detailed site investigations may indicate other suitable systems can be used whilst still meeting the objectives of AS1547:2012.

Detailed sizing of the required irrigation area is presented in the following sections. The preliminary system sizing is based on a wastewater flow allowance of 120 L/p/day (Table H1, Appendix H, AS1547:2012) and a 5 person household using a tank supply (i.e. 600 L/day).

Treated effluent from an AWTS is reused across irrigation areas. From Table 5.2 in AS1547:2012 and based on the subsoil category, a conservative design irrigation rate (DIR) of 3.5mm/day (24.5 mm/week) can be used in the design, coupled with a review of the water balance and nutrient loading calculations.

DIR Sizing

Using a DIR of 24.5 mm/week, and daily effluent generation of 600 L/day, the required irrigation area is 171 m².

Water Balance Sizing

The following were assumed for inputs and outputs in the water balance equation:

- design precipitation corresponding to the median year (i.e. 50 percentile). Data was obtained from the Bureau of Meteorology station in Mudgee (George Street) Site No. 062021;
- evaporation data was obtained for the Bureau of Meteorology station Wellington (Wellington Research Centre, Site No. 065035). Monthly evapotranspiration was determined by multiplying evaporation by a monthly crop factor representative of pasture/grass;
- the final treated effluent containing 30 mg/L total nitrogen and 15 mg/L phosphorus;
- rate of downward percolation to the groundwater system was conservatively modelled as 0 mm/week;
- zero runoff; and
- a conservative phosphorus sorption capacity of 100 mg/kg and soil profile depth of 1.5 m.

The nutrient and water balance calculations are included as **Attachment A**.

The preliminary design calculations undertaken for surface irrigation indicate that the nutrient balance is the limiting factor with a minimum irrigation area of 1,135 m² required to balance the phosphorous production and usage over 50 years. It is suggested that the nominated irrigation area be increased by approximately 20% in place of providing wet weather storage. Therefore the recommended minimum irrigation area would be 1,362 m², say 1,400 m².

The minimum lot size in the proposed subdivision is 2 ha (20,000 m²). Therefore the preliminary irrigation area is only 7% of the minimum lot size. This indicates there would be adequate room for a suitably sized reuse area and associated buffers. There would also be adequate room for back up irrigation areas in the unlikely event that they are required.



The weekly hydraulic loading across this area is 2.3 mm/week, which is substantially less than the DIR determined for the soil type. It is therefore well within the capacity of the soil.

It is noted that only 709 m² was required to achieve a hydraulic balance for the site. Therefore an irrigation area of 1,400 m² would ensure a low annual application rate and extremely low potential for leaching.

GROUNDWATER VULNERABILITY

Mid-Western Regional Council has identified the site as being groundwater vulnerable. The available bore data presented above shows a large number of licensed groundwater bores in the area, the majority of which access alluvial aquifer systems associated with the Cudgong River.

The potential risks on groundwater that may arise from the proposed development of the site are:

1. The management of materials or substances generated or stored on-site that could result in the contamination of groundwater – particularly relating to on-site effluent management; and
2. Changes to water cycle and potential groundwater recharge.

Potential Groundwater Contamination

The proposed planning proposal would result in urban development on large lots. Therefore, other than domestic wastewater, it is highly unlikely that there would be materials generated or stored on-site in significant quantities that would result in the contamination of surface or groundwater.

The desk top assessment presented in this review indicates that there are no major constraints that would prevent sustainable on-site effluent disposal and that the site should have sufficient area available to install a disposal system in accordance with the current guidelines and Australian Standard.

The purpose of AS1547:2012 is:

... to provide the requirements for treatment units and their land application systems to achieve sustainable and effective on-site domestic wastewater management, to protect public health and the environment.

The application of this standard through the selection of treatment systems and siting of reuse areas on an individual lot basis would ensure adequate protection of groundwater resources.

The Australian Standard was applied to a typical household in the proposed development through the development of a water balance. The preferred on-site effluent management system would comprise of an AWTS with surface or sub-surface irrigation. A water balance for the required irrigation area assumed that there would be no percolation into the soil and that all irrigated effluent would be utilised by the vegetation on the surface of the soil.

The water balance showed that an area of 1,400 m² was required. The proposed subdivision provides more than adequate area for effluent disposal and back up effluent disposal areas if required. The weekly application would be 2.3 mm/week which is only 9% of the recommended DIR. Therefore the large irrigation area would be maximising evapotranspiration and ensuring there is minimal absorption into the soil.



By installing an appropriate effluent treatment and irrigation system the impact of the proposed development on groundwater resources would be negligible.

It is noted that the authorised purpose of the five existing wells on 'Menah' would need to be changed to stock and irrigation (i.e. not domestic) to meet suggested buffer distances.

Changes to Water Cycle

The proposed development would have minimal impact on the site water cycle. Additional runoff created from dwelling roofs would be harvested and reused as the main water supply with 60-80% of this being reused through irrigation of vegetated areas. The area of vegetation lost due to the construction of the dwellings would typically be replaced by garden plantings and trees which typically have higher evapotranspiration rates than the existing vegetation. The change in overall evapotranspiration from the site would therefore be negligible. The result being that there would be no detrimental changes to potential groundwater recharge or groundwater levels in the aquifer.

CONCLUSION

Based on the review presented above it is concluded that there are no major constraints that would prevent sustainable on-site effluent management and that the proposed lots would have sufficient area available to install an on-site effluent management system in accordance with the current guidelines and Australian Standard.

The aquifer impact assessment determined that the proposed development would have negligible impact on the groundwater aquifer as long as the proposed effluent management systems maximise evapotranspiration and minimise absorption into the soil.

Please contact the writer at our Orange office should you have any queries regarding the matter

Yours faithfully
Geolyse Pty Ltd



MARTIN HAEGE
Principal Environmental Engineer / Director

No. of Attachments (1): A – Water and nutrient balance

References:

AS/NZS 1547:2012 On-site domestic wastewater management.

Department of Local Government (1998) *Environment & Health Protection Guidelines for On-site Sewage Management for Single Households*.

Murphy et al (1998) *Soil Landscapes of the Dubbo 1:250 000 Sheet*.



ATTACHMENT A: ON-SITE SEWAGE MANAGEMENT FOR SINGLE HOUSEHOLDS

Client: MD
Job No.: 215081
Location: Mudgee
Effluent Treatment: AWTs
Disposal: Surface irrigation
Hydraulic Loading: 600 litres per day

1. NUTRIENT LOADING

Nitrogen	TN concentration in effluent	30 mg/L	
	Critical loading rate	27 mg/m ² /d	
	Irrigation area required	667 m ²	
Phosphorus	TP concentration in effluent	15 mg/L	
	Soil uptake: P sorption	100 mg/kg	
	Bulk density	1800 kg/m ³	
	P sorption capacity (1 m deep)	1800 kg/ha	
	soil depth	1.5 m	
	P sorption capacity	2700 kg/ha	
		0.27 kg/m ²	
	Vegetation: Vegetation uptake	3 mg/m ² /d	
	Vegetation uptake over 50 years	54750 mg/m ²	
		0.055 kg/m ²	
	P generation over 50 years	164 kg	
	Irrigation area required	1135 m ²	
	Limiting nutrient loading is Phosphorus which requires a minimum disposal area of		1135 m ²

2. HYDRAULIC LOADING

2a Nominated Area Method

Design Rainfall

50 % ile

Daily Effluent	Q	700 litres/day
Nominated irrigation area	L	1135 m ²
Design percolation rate	R	0 mm/wk

Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	365
Precipitation	P		mm/month	53.8	48.7	38.8	31.8	41.1	44.2	46	46.3	45.3	48.9	51.2	53.8	549.9
Evaporation	E		mm/month	205	162	140	84	50	33	37	56	81	121	153	205	1327
Crop factor	C		-	0.7	0.7	0.7	0.6	0.5	0.45	0.4	0.45	0.55	0.65	0.7	0.7	-

Inputs

Precipitation	P	-	mm/month	53.8	48.7	38.8	31.8	41.1	44.2	46.0	46.3	45.3	48.9	51.2	53.8	549.9
Effluent irrigation	W	(QxD)/L	mm/month	19.1	17.3	19.1	18.5	19.1	18.5	19.1	19.1	18.5	19.1	18.5	19.1	225.2
Inputs		P+W	mm/month	72.9	66.0	57.9	50.3	60.2	62.7	65.1	65.4	63.8	68.0	69.7	72.9	775.1

Outputs

Evapotranspiration	ET	ExC	mm/month	143.5	113.4	98.0	50.4	25.0	14.9	14.8	25.2	44.6	78.7	107.1	143.5	859.0
Percolation	B	(R/7)xD	mm/month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outputs		ET+B	mm/month	143.5	113.4	98.0	50.4	25.0	14.9	14.8	25.2	44.6	78.7	107.1	143.5	859.0

Storage	S	(P+W) - (ET+B)	mm/month	-70.6	-47.4	-40.1	-0.1	19.1	18.5	19.1	19.1	18.5	-10.6	-37.4	-70.6	-
Cumulative storage	M	-	mm	0.0	0.0	0.0	0.0	19.1	37.6	56.8	75.9	94.4	0.0	0.0	0.0	-

Storage	V	largest M	mm	94.4
		(MxL)/1000	m ³	107.1

2b Minimum Area Method

Daily Effluent	Q	600 litres/day
Design percolation rate	R	0 mm/wk

Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	365
Precipitation	P		mm/month	53.8	48.7	38.8	31.8	41.1	44.2	46.0	46.3	45.3	48.9	51.2	53.8	549.9
Evaporation	E		mm/month	205	162	140	84	50	33	37	56	81	121	153	205	1327
Crop factor	C		-	0.7	0.7	0.7	0.6	0.5	0.45	0.4	0.45	0.55	0.65	0.7	0.7	-

Outputs

Evapotranspiration	ET	ExC	mm/month	143.5	113.4	98.0	50.4	25.0	14.9	14.8	25.2	44.6	78.7	107.1	143.5	859.0
Percolation	B	(R/7)xD	mm/month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outputs		ET+B	mm/month	143.5	113.4	98.0	50.4	25.0	14.9	14.8	25.2	44.6	78.7	107.1	143.5	859.0

Inputs

Precipitation	P	-	mm/month	53.8	48.7	38.8	31.8	41.1	44.2	46.0	46.3	45.3	48.9	51.2	53.8	549.9
Possible Effluent irrigation	W	(ET+B)-P	mm/month	89.7	64.7	59.2	18.6	-16.1	-29.4	-31.2	-21.1	-0.7	29.8	55.9	89.7	309.1
Actual Effluent Production	I	H/12	mm/month	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	309.1
Inputs		P+I	mm/month	79.6	74.5	64.6	57.6	66.9	70.0	71.8	72.1	71.1	74.7	77.0	79.6	859.0
Storage	S	(P+I) - (ET+B)	mm/month	-63.9	-38.9	-33.4	7.2	41.9	55.1	57.0	46.9	26.5	-4.0	-30.1	-63.9	-
Cumulative storage	M	-	mm	0.0	0.0	0.0	7.2	49.0	104.1	161.1	207.9	234.4	0.0	0.0	0.0	-

Irrigation Area	L	365 x Q/H	m ²	709
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Storage	V	largest M	mm	234.4
		(MxL)/1000	m ³	166.1

