12 Natural Environmental Issues

12.1 Physical characteristic

Photo 3 (above) and Photo 4 (below): Vegetation South western corner of property (Holmes Street frontage)

13 Site Contamination and Other Unhealthy Land Issues

The brief to the Study required that an assessment regarding the potential contamination of land within the Study area was required to be undertaken.

The basic reasoning for including this topic is unknown given the previous land uses of the site and the adjoining lands.

However, despite not undertaking a detailed assessment some historical information is available on the past uses which could be used to draw conclusions as to the suitability or otherwise of the land in the Study area for development.

13.1 Previous land use - Agricultural

There is no visual or anecdotal evidence to suggest that any part of the Study area is contaminated through the historical use of the land for agriculture. The use of the land for grazing and the production of feed crops would indicate that the likelihood of contamination from this source is extremely low.

There is no indication that any past or present buildings upon the land would contribute to onsite contamination.

13.2 Implications for Development

There are no known contamination issues that would preclude the site developing.

14 Heritage and Aboriginal Archaeological Sites

The matter was referred to the local aboriginal land council, the Moama Land Council, for comment on 22 October 2007. At the date of completion of this report the land council have not replied to the invitation to comment on the proposal to rezone the land.

A desktop research of the site has been undertaken using the NSW Heritage online database. As a result it is a firm opinion that there would be no heritage listed items on the subject land, or within close proximity to the subject land.

Having reviewed the natural environment and resources of the subject land and found that it is unlikely that historical human use and occupation would have occurred on the land.

The natural environment has been highly modified by past agricultural land use practices and is not considered to have cultural heritage sensitivity as the subject land is not located within close proximity to a permanent waterway, a prior waterway, a wetland, rock outcrops, stony rises or caves or the like.

The site, because of clearing and laser levelling, is devoid of any native vegetation that could have been utilised by prior habitation in the area.

The relative distance of the site from the River Murray and its immediate environs would also substantiate that the site would be unlikely to contain any cultural heritage significance.

Notwithstanding the above should it be deemed it necessary, a report substantiating the fact that there are no known areas of heritage or archaeological significance on the site could be supplied prior to the lodgement of a development application or construction certificate application.

14.1 Implications for Development

There are no known heritage or archaeological impediments on the site that would preclude the rezoning or require any particular areas to be deferred from rezoning.

15 Hazard Assessment

15.1 Bush Fire Assessment

Some of the land contained within the subject site has been mapped as Bushfire Prone land by the NSW Rural Fire Service. Any development plan of the site would need to be forwarded to the NSW Rural Fire Service head office in Sydney for inspection and approval.

Issues that would need to be addressed in any future development application would include:

- Access
- Water supply
- Asset protection zones and fire breaks
- Construction standards for buildings
- Landscaping
- Emergency management arrangements

It is noted that this requirement would arise owing to the vegetation in the surrounding area as the site does not contain substantial trees that would contribute to the bushfire risk of the area.

Photo 5: Nominated potential bushfire prone area - road reserve, adjacent to "Kooyong Park"

15.2 Flooding and flood liable lands

The following should be read in conjunction with Section 9.1 to 9.4 of this report.

The issue is addressed in this section to provide the reader with a summary of all the known Hazards and their assessments as currently exists in the area.

The following is an extract from the Moama Land Use Strategy that addresses the hazard assessment of flooding in the Moama area:

> *The location of flood prone land is one of the greatest restrictions to the further expansion and growth of the township and rural residential areas of Moama. The original township was founded to the east of the study area and only a few remnant buildings remain due to the continual influx of floodwaters across these properties over the 150 years since Moama was first established.*
>
> *The flood levels in the study area are caused by the complex interactions of floods in three rivers, namely the Murray, Goulburn and Campaspe Rivers. The bureau of Meteorology defines major flood level when floods exceed 94.4m on the Echuca Wharf Gauge. The largest flood since European settlement was in 1870, when the peak was 96.2m on the gauge. More recently, the largest flood was in 1993 when the peak was 94.80m. Investigations carried out as part of the Moama and Bama District Flood Study (Sinclair Knight Merz, 1999) found that this flood was estimated to have an annual exceedance probability of 5% at the Echuca Gauge. This means that floods of this magnitude could be expected to occur in the study area about 1 in every 20 years on average.*
>
> *The south western part of the study area is below the one in one hundred year (the 'one percent') flood level of the Murray River (see Figure 4). The extent of the one percent flood is based on the Moama Floodplain Management Study undertaken in 1999 by Sinclair Knight Merz. This is a comprehensive study of flooding in and around the Moama area and the flood levels expressed are considered to be the most definitive to date.*
>
> *The limit of the one percent flood extends in a southerly direction from where the river meets Perricoota Road (immediately south of the Cadell County Motel), through parts of the River Park Estate, Winbi Resort and Shady River Caravan Park to the end of Merool Road. A large part of the Merool Caravan Park is also below the flood level. The width of the floodplain becomes narrower upstream of Merool Caravan Park (see Figure 4) and does not affect residences in the Maiden-smith Drive Estate.*
>
> *The areas to the east of the Cobb Highway in the study area are also subject to inundation. A temporary flood levee bank during the floods of 1993 protected the township of Moama. Following the Moama Flood Study, Council in negotiation with the community and key stakeholders prepared the Moama Floodplain Management Plan.*

The Moama Floodplain Management Plan included the following recommendations for 'principal planning or non-structural features':-
• Identification of key flood zones
• Minimum floor levels
• Identification of flood planning levels
• Development Control Plan.
Development Control Plan No 7 "Moama and Bama District Flood Prone Land" has been adopted and endorsed by Council and sets out planning guidelines and requirements for the areas subject to inundation. The key areas recommended above have been adopted in the plan.
One of the key recommendations for structural works of the Moama Floodplain Management Plan was the installation of a permanent town levee bank. The Moama town levee has recently been completed and provides protection for the Moama township against a flood probability of 0.5% AEP.

It is obvious that the areas to the north of the Moama township and east of the Cobb Highway is not suitable for development or expansion due to the influence of the floodplain.

In contrast to this are the areas of land within the alignment of the town levee bank.

There are a number of areas, currently zoned General Rural 1(a) under Murray LEP 1989 which will be fully protected from floodwaters upon completion of the levee bank project. These areas are along the eastern side of the existing township. The implications for development and expansion of these areas are discussed further in this report.

RECOMMENDATION: RURAL AREAS
• That land below the one percent flood level should not be made available for development, unless that land use or development will have no impact on the floodplain or water quality and the principles of MREP2 have been taken into account.

Existing developments and land uses within the floodplain can remain but should ensure any current impacts on the environment are not exacerbated.

The controls and planning guidelines expressed in the Moama Floodplain Management Plan and DCP No. 7 "Flood Prone Land" have been adopted by Council and these measures and controls are endorsed and supported by the Strategy.

15.3 Implications for Development

The hazards associated with Bushfire and Flooding have been demonstrated to a sufficient degree to require that they be addressed as precursors to any development of the site.

The design and layout of any subdivision on the site is to be undertaken, taking into consideration the requirements of the Rural Fire Service and the design is also required to take into consideration the requirements of the flood liable nature of the area.

Any design is to ensure that all building pads are above the 1:100 year food level and flood free access is available to all allotments created by any subdivision.

16 Open Space

16.1 Assessment of Needs of Area

The Echuca Moama Recreation Plan prepared for Campaspe Shire and Murray Shire Councils by Stratcorp Consulting 2005 states:

Implications for Recreation Provision from the Demographic Indicators
The key implications from the demographic profile in relation to recreation planning and development include:

- *Just under one-third of all residents in the Echuca-Moama region are aged under 25 years, a range which includes the most active age cohorts in relation to participation in sporting and recreation activities*
- *Estimated additional 5,600 people to take up residency in the Echuca-Moama region in the next 10 years*

  Implication: Although an older demographic, there will continue to be a need to provide active sporting opportunities for young people / families.

- *Currently, there is a higher proportion of older adults in the Echuca-Moama region when compared to Rural Victoria. As a whole, the future population will become "older"*

  Implication: May reduce some demand for active sporting opportunities, but will increase demand for unstructured and passive leisure and recreation pursuits, such as walking, golf, lawn bowls, indoor social activities, and use of parks. A perception of safety in the community and safe accessible areas will be important features of the region for older adults.

  There is a high importance for this target group to increase its level of participation in active recreation pursuits, where possible, to assist general health and well-being objectives to be achieved. The participation of older adults in sporting and recreation activities should not just focus on the physical fitness, competition and skill improvement outcomes, but also on social and general health outcomes.

- General affordability of population is average, although there are pockets of low affordability throughout the Echuca-Moama region.

  Implication: Notwithstanding the high numbers of older adults (concessions), the general affordability of the population is average meaning a "user pays" principle for costing the use of recreational services and facilities could be sustainable in the region.

- The Echuca-Moama region has a high proportion of its population which is Australian born.

  Implication: Will impact upon the types of recreation and sporting facilities and services to be provided. There will be continued strong demand for "traditional"

Australian sports, such as Australian football, cricket, golf, lawn bowls, netball and tennis.

A higher proportion of the projected residential growth in Echuca to 2016 will occur in Echuca West.

Implication There will be high importance placed on the use of natural swales/waterways to create linear linkages back to the Campaspe and Murray Rivers for these new communities in order for residents to gain access to the established commercial/education/recreation areas of Echuca.

- The residential growth in Moama will almost exclusively occur west of the Cobb Highway.

Implication Moama Recreation Reserve is strategically positioned to become the key recreation precinct for Moama in the future – thereby placing high importance to plan for linear linkages back into the Reserve from proposed residential subdivisions to the north and west to ensure new communities have effective access to quality recreation areas.

The key findings from the analysis include:
Based on the current and projected populations of Echuca and Moama, both townships have well in excess of the open space provision benchmark of 4 hectares per 1,000 people (Echuca: 116Ha per 1,000 people; Moama: 26.41Ha).

After deducting the area of land classified as Bushland/Natural Area, both townships still have a provision of useable open space in excess of the benchmark amount (Echuca: 18.22Ha per 1,000 people; Moama: 15.08Ha). Interestingly, this average provision of open space for sports grounds and parks is very similar for both townships.

Whilst the overall provision of open space across the townships is well in excess of the benchmark amount, both Councils need to ensure that the minimum level of provision of open space (or its equivalent monetary value) continues to be delivered during future residential subdivision developments.

16.2 Implications for Development

Whilst no portion of the site is considered to be of such high amenity value that it should be excluded from development and considered for inclusion in any regional open space programme, due provision should be made on site for the creation of an open space network that recognises the interrelationship between the site and the surrounding rural area.

Further, the site's development should be undertaken with due regard to the adjoining land uses and open pace needs and networks. Stormwater retardation basins and flood management works provide opportunities for multi purpose uses, including passive recreation and amenity spaces.

17 Social and Economic Impact

As the site is undeveloped for residential or commercial, there are no on site socio-economic issues that preclude urban development. An assessment of the economic impact of the current agricultural use is provided at Section 17.2.

An understanding of the local and regional socio-economic context identifies the possible implications of developing the site and, in turn, the implications for Moama and the region in general.

17.1 Moama Census Data

The Moama Census Data of 2006 includes the site and the town of Moama.

Moama

AGE	Moama	% of total	Australia	% of total
0-4 years	298	6.4%	1,260,405	6.3%
5-14 years	550	11.9%	2,676,807	13.5%
15-24 years	462	10.0%	2,704,276	13.6%
25-54 years	1,645	35.5%	8,376,751	42.2%
55-64 years	672	14.5%	2,192,675	11.0%
65 years and over	1,011	21.8%	2,644,374	13.3%
Median age	44		37	

In the 2006 Census 18.3% of the population usually resident in Moama (Suburb) were children aged between 0-14 years, and 36.3% were persons aged 55 years and over. The median age of persons in Moama (Suburb) was 44 years, compared with 37 years for persons in Australia.

Echuca

AGE	Echuca	% of total	Australia	% of total
0-4 years	866	7.0%	1,260,405	6.3%
5-14 years	1,809	14.6%	2,676,807	13.5%
15-24 years	1,472	11.9%	2,704,276	13.6%
25-54 years	4,798	38.8%	8,376,751	42.2%
55-64 years	1,336	10.8%	2,192,675	11.0%
65 years and over	2,079	16.8%	2,644,374	13.3%
Median age	38		37	

In the 2006 Census 21.6% of the population usually resident in Campaspe (S) - Echuca (Statistical Local Area) were children aged between 0-14 years, and 27.6% were persons aged 55 years and over. The median age of persons in Campaspe (S) - Echuca (Statistical Local Area) was 38 years, compared with 37 years for persons in Australia.

Private Dwellings	Moama	Australia	% of total
Total private dwellings	2,160	8,426,559	-

Occupied private dwellings	1,871	7,596,183	-
Separate house	1,504	5,685,387	74.8%
Townhouse etc	96	702,550	9.2%
Flat, unit or apartment	164	1,076,315	14.2%
Other dwellings	107	127,337	1.7%
Median rent ($/weekly)	180	190	-
Median housing loan repayment ($/monthly)	1,237	1,300	-
Average household size	2.4	2.6	-
Average number of persons per bedroom	1.1	1.1	-
TENURE TYPE	Moama	Australia	% of total
Fully owned	689	2,478,264	32.6%
Being purchased	535	2,448,205	32.2%
Rented (includes rent-free)	457	2,063,947	27.2%
Other tenure type	43	65,715	0.9%
Not stated	146	540,050	7.1%

During the week prior to the 2006 Census, 2,122 people aged 15 years and over who were usually resident in Moama were in the labour force. Of these, 57.3% were employed full-time, 31.3% were employed part-time, 4.0% were employed but away from work, 2.6% were employed but did not state their hours worked and 4.8% were unemployed.

There were 1,430 usual residents aged 15 years and over not in the labour force.

In the 2006 Census, the most common responses for occupation for employed persons usually resident in Moama were Managers 19.1%, Technicians and Trades Workers 16.3%, Labourers 13.4%, Professionals 12.2% and Clerical and Administrative Workers 11.3%.

In the 2006 Census, the most common industries of employment for persons aged 15 years and over usually resident in Moama were Accommodation 7.2%, Cafes, Restaurants and Takeaway Food Services 3.8%, School Education 3.7%, Residential Building Construction 3.2% and Hospitals 3.1%.

To achieve full employment some 1.2 jobs per household are required. Job containment relates to the percentage of jobs that an area can retain in relation to the number of jobs required for full employment from the residential population. Excluding home based business, typical developments of around 10,000 people generates around 10% of local employment (in the developed area.

17.2 Economic viability of agricultural use

The site has for many years been utilised for agricultural purposes. The current operations upon the land yield cropped hay, after extensive irrigation resources have been utilised. The land has been laser levelled and provided with irrigation for this agricultural purpose. Adjoining land is not utilised in this manner, and is not held in common ownership with the site.

The existing road patterns in the area are not amenable to site amalgamation beyond the boundaries of the subject site to create a larger agricultural holding.

The agricultural classification of the land is not in dispute, but rather it is site's limited area, the subdivisional activity in the immediate vicinity of the site, and the site's proximity to the township of Moama that have made farming in the area non viable and unsustainable in the longer term.

Potential for a reduction of access to secure irrigation water also reduces the viability of the site for long term agricultural pursuits. Irrigated crops require higher water allocations than would be required for alternative development of the site.

17.3 Implications for Development

Development would need to include a diversity of housing lot sizes and housing types to match the demographic needs, housing affordability and allow the creation of a socio-economically healthy society.

Community services and facilities would be required on site commensurate to the level and intensity of development, population size and needs.

Size of and provision of local facilities and services would need to be consistent to the hierarchy where district or regional services and facilities are located in Echuca/Moama.

For any real prospect of a successful residential development on the site, localised employment would need to be encouraged within the site taking advantages of its size likely economies of scale and proximity to regional employment growth areas and the regional movement network.

Any rezoning of the land needs to be cognisant of the realities of the population and the skewering of the age distribution.

A general residential zone would only serve to further cater to the already well provided market share. Opportunities for commercial/tourism developments should be realised to provide employment and economic benefits. Consequentially, mix of zonings would cater for a variety of housing types and provide opportunities for commercial and tourism developments.

Innovation in the subdivision of the land is required to identify and create a site specific design presented to a particular market segment.

18 Cumulative Impacts and Potential Precedents

In determining the suitability of the site for any more intense development than current is available under the current zoning it is necessary to review the existing supply and demand issues that would affect any rezoning of the site.

Land to the east of the existing town of Moama has been overlooked in favour of land to the west of the urban area. The land east of the town has traditionally been seen as being 'blighted' by its susceptibility to flooding.

This issue combined with a decision to allow substantial recreational uses to the west has determined the growth of the area for some considerable time.

The land to the east of the township is, in part, flood liable but it also is visually and environmentally attractive to further development, if appropriate safeguards were to be incorporated into any development standards. Proximity to the river, town facilities, lack of agricultural activity as a source of potential conflict and ease of infrastructure creation would all tend to favour the development of the area as opposed to the more exposed western sectors.

Consequently, the issue of potential precedents being created, if support of a rezoning of the subject land is contemplated, must be addressed.

Issues of

- how much development land should or could be identified in the eastern sector;
- environmental issues;
- flood liability;
- servicing;
- the integration of any resultant development into the existing town
- likely community resistance to change by current residents of the area and
- cumulative impacts and potential precedents;

all need to be assessed.

18.1 Other similar areas for rezoning

Concurrent to the assessment of the request for rezoning of the subject land Council will be asked to determine its stance on at least three other similar requests in the Moama area.

Given the finite potential population increases that could or should occur in the area, Council will be required to assess and balance the relative merits of the various proposals.

Without wishing to pre-empt this deliberation each of the known proposals offer unique site attributes.

The current proposal, the subject of this report, is seen as offering the Council a unique opportunity to revisit its strategic studies and assess the potential for development and redevelopment of the eastern sector of the township.

It is apparent that substantial infill development of good quality has occurred in the eastern parts of the town in recent times and that proximity to services presents good environmental reasons why the area should be given special consideration.

18.2 Implications for Development

Development of the site would present Council with an opportunity to prepare a detailed development scenario for the eastern portion of the town and the surrounding areas to enable full advantage to be taken of proximity to services, commercial activity and industrial sites as well as providing desirable living areas of both urban and semi urban nature.

19 Public Benefit

The public benefit that could be derived from the development of the site would appear as:

19.1 Resultant Public Benefit

New development could broaden the current demographic composition of the town.

An increased diversity of housing could provide for lifecycle of the population, from childhood beginnings to catering for the elderly.

An increase in population would encourage an expansion in the provision of community facilities and health services

The proponent states that it is the aim of the development of the site to have a net positive benefit to the community. The proponent states:

ENVIRONMENTAL POLICIES OF PROPOSED DEVELOPMENT

Sustainability Goals

- *To promote best practice in the efficient use of all resources*
- *To use contemporary materials, with new technology and best practice construction requirement covenants to create a development that is protective of the environment and sympathetic to the history of local culture*
- *To minimise negative environmental outcomes through recycling water, reducing wastes, emissions and other pollutants, whilst minimising energy usage*
- *It is a commercial necessity that sustainable energy initiatives must add, or at least not detract, from the dwellings' value*

Our strategy is to commission appropriate senior students undertaking Masters Studies to base their thesis on best practice environmental structures to provide energy and water arrays for the development. The resulting energy development/design plans will be overseen and drawn up by an engineering design company that has suitable Environmentally Sustainable Design (ESD) credentials. Universities have enormous resources containing the latest research data. This approach will provide access to this information as well as dedicated personnel (in the form of their most senior post graduate students) and so locally tailor and customise 'green' energy solutions specifically for the Murray Shire.

Energy Conservation

The goal is to use design to fundamentally reduce household energy demand. This is expected to be achieved through strict building covenants and planned infrastructure support the creation of highly energy efficient dwellings.

Both 'passive' and 'active' design guidelines will be applied.

'Passive' requirements will include design, aspect & orientation of dwelling, insulation (roof, walls and windows) as well as the use of natural light and ducted ventilation of refrigerators.

'Active' will include solar cells, natural gas and water use (grey, storm water and rain water)

Water Conservation

A shared water array will be set up to service whole proposed development. This will provide duel water systems for grey and potable water. Grey water will be recycled for use in irrigation. Potable water will be supplemented (in toilets and washing machines) with communal rainwater reservoirs.

As far as practical, Wetland areas will by serviced by stormwater

Communal spaces will be landscaped with drought tolerant plant varieties and grassed areas will be maintained with water efficient irrigation systems.

Electricity

Investigate the feasibility of creating a 'Moama Community Power Station'. The goal will be to create a shared solar grid interactive system covering all the dwellings in the development. When an entity generates more than 25 megawatts hrs/p.a. it can be registered as a 'Power Generator' or 'Power Station'. 25 megawatt hrs/p.a. is equivalent to the average energy consumed by 5 household in 12 months.

Registering the development as a 'Power Generator' creates a number of benefits. Once accredited, the energy generated by the development can be sold on the national market at premium 'green' rates. Currently an individual household with photovoltaic cells feeding electricity back into the grid is only 'paid' a nominal amount for this electricity. The rate is equivalent to a third the price the household buys electricity off the network provider. A Community Power Station can sell green electricity at a 20% more than the price it buys energy from non-renewable sources. This vastly changes the economics and payback periods for installing photovoltaic cells. Additionally, this electricity also accrues 'Renewable Energy Certificates' that can by sold to heavy energy using companies.

Solar 'insolation' in the Murray Shire (watts of sunlight per square metre per day) is high (Appendix D). The average daily sunshine hours per annum in this area is 8 hrs. This compares to 6 in Melbourne. This means that solar cells in Moama are 34% more efficient than the same solar cells in Melbourne.

Preliminary figures indicate that a system costing $12,500 to install will save the average household $950 p.a. over its 30 year life. A major goal of the developers is to drive the use of solar power over the whole development.

Once a 'Community Power Station' structure is initiated, there is little reason that future developments around the local area couldn't piggyback on the system.

Eventually a permanent position may even be created within the Shire to manage this essential service for the area, and provide support for additional growth to the scheme.

COMMUNITY BENEFITS

Location

Close to town centre. Compact site with easy access to essential services compared to ribbon developments along the Murray. Within walking distance of Moama CBD.

Environmental Outcomes

Global best practice integrated solutions for zero greenhouse gas footprints in sustainable urban development. A showcase and a technical information bank for future developments located in our own Shire.

Demographic Demand

Development will provide for a range of property sizes and types. Demographic statistics show that the population is both growing rapidly and ageing. As well as the demand for larger properties continuing, this ageing demographic is expected to drive demand for quality property solutions that have low maintenance requirements, yet support high quality lifestyles. This property type provides direct access to open spaces and high quality services. We anticipate good demand for high quality dwellings on smaller allotments that border onto public parks, are close to the town centre and have easy access to Echuca and the clubs.

Positive Economic Impact

A conservative estimate of the money that will be spent over entire development is $85 million. This assumes 170 dwellings at an average of $500,000 each. The economic activity generated by this inflow can conservatively have a multiplier effect of 4. This equates to $340 million in new economic activity for the region.

After the construction phase, there will be ongoing local employment in the restaurant/regional display centre. This will assist in the growth and development of small food manufacturing entities in the area and will help them to bring their products to market, thus driving employment growth and value adding for these entities.

Tourism

There will be a positive impact of tourism for the region. This will be created through the restaurant and function centre facilities. This will considerably increase local income in peak times. It is in close proximity to numerous caravan parks and riverside resorts. It's estimated the tourist population within 2km of this location increases by 3 - 4,000 during these peak periods.

19.2 Implications for Development

The Public Benefit of the development proceeding would be in the revitalisation of the eastern sector of Moama.

To achieve this end it would be desirable, that following any decision to rezone the subject land, that Council further review the zoning of the area and prepare development plans for the town and the land immediately to the east of the existing urban boundaries.

20 Other Relevant Issues

20.1 Identification of Issues

20.1.1 Tourism and Hospitality

The proponent submits that the point of difference of the proposal over the other competing rezoning requests in the area is that the proposed rezoning is to permit a residential development inextricability linked to the environment and tourism.

To support this premise the proponent states the development concept would produce the following:

There will be a positive impact of tourism for the region. This will be created through the restaurant and function centre facilities. This will considerably increase local income in peak times. It is in close proximity to numerous caravan parks and riverside resorts. It's estimated the tourist population within 2km of this location increases by 3 - 4,000 during these peak periods.

At the heart of the proposed development is a restaurant with function facilities and potentially tourist accommodation. The focus of this facility will be to be a 'Region Produce Centre of Excellence'. Its goals will be to engage and encourage high quality organic food and drink producers in our region. It will provide a mechanism and a platform to market the best of the region's products to domestic and international markets. It will also encourage new producers and provide them with support and access to a market.

The facility will show case product, serve it at the restaurant and provide an outlet for its purchase by the public.

20.1.2 Variation to Traditional Residential Development

An additional point of difference to the traditional request for rezoning advanced by the proponent is the following concept:

A range of different land and lifestyle packages are included in the proposed development. Approximately 170 blocks with separate titles are planned. At one end of the scale will be generous housing blocks (4,000 sq metres +) with rural or water aspects. At the other end of the spectrum, low maintenance, high quality dwellings will be offered. These are dwellings planned around open communal areas, so owners have access to a full range of services, without the associated maintenance difficulties.

These communal areas are anticipated to be open parks, with shared facilities such as a tennis courts, bbq areas and a community sheds and gardens.

Similar dwellings will also be located around the restaurant complex grounds.

20.1.3 Existing Development Rights

An additional issue presented by the proponent to support the rezoning of the land is centred on the extent to which the existing property could be currently developed in an “ad hoc” manner.

In support of this contention the proponent writes as follows:

The Council has confirmed there are already 16 existing building entitlements on the site. The right to construct a tourist facility may also be applied for under current zoning of General Rural 1a.

A development of 16 residences in a low density format would not commercially support any of the environmental initiatives covered here. Given the sites central location, good access, flood protection, easy provision of services and the proven demand from the target demographics, an integrated environmentally sustainable model urban / tourist development for whole site is a better outcome for the community than a smaller piecemeal urban development (16 sites) combined with tourist facilities.

(Whilst this contention is not discussed, or tested, in this document the issue would be relevant if the site were not to be supported for rezoning.)

20.2 Implications for Development

The additional issues raised, whilst not environmental issues present upon the land at this point in time, could be given weight in determining a stance on the rezoning of the land.

The basis of any rezoning would need to demonstrate that the rezoning will allow a variation to the traditional residential development scenario, given the relatively low population increase expected compared to the amount of already zoned residential land in the area.

21 Study Outcomes

The outcomes of the Study are based on assessment of the characteristics of the area, current land uses, statutory and strategic planning matters and a wide range of environmental issues specified by the Council Brief.

The outcomes are expressed as constraints and opportunities for development in the Study area, concluding with an assessment as to the development potential of the land.

21.1 Development Constraints

The Study has revealed the following general constraints to the development of the land in the Study of the area, at this point in time:

- Provisions of the current zoning
- Separation from the existing Moama community infrastructure
- The existing rural living style enjoyed by adjoining and adjacent properties
- Need to extend and augment service infrastructure
- Areas of vegetation, particularly on roadsides and adjacent lands
- Murray Regional Environmental Plan 2
- Proximity of site to Murray River and flood and inundation issues
- Surface drainage at urban capacities and lack of stormwater infrastructure for urban development
- Ability to implement a cohesive levee system in the area to ensure access in times of inundation to other urban areas and services and infrastructure
- Lack of demographic information to support development
- Lack of flora and fauna survey material/seven part test data
- Lack of a Bushfire Management Pan for the site and surrounding roads
- Lack of archaeological data
- Lack of agricultural land use type assessment

21.2 Opportunities for development

Development of the Study area could be generally supported by the:

- Land being in one ownership
- Proximity to township
- Servicing advantages over more remote locations currently zoned for urban uses
- Proximity and access to Murray River and the Echuca-Moama urban areas
- Surrounding development being of a rural residential nature
- The land has some limitation owing to possible low level inundation
- Existing levee licence to provide additional protection for the site
- Relatively small amount of work (0.5 – 1m) in raising height of levee
- Agricultural activity is less than on other lands nominated for residential uses
- Area is remote from any serious conflicting land uses
- The site does not have a high visibility from public places
- Land configuration suitable for development proposal
- The site is nominated in Council 2030 Strategic land use strategy as suitable for further investigation

21.3 Development Potential

The outcomes of the Study reveal that there are a number of constraints as well as a number of reasons to support the development as proposed within the nominated study area.

It is the reasoned outcome of this Study that if the development of the land was to be undertaken in a controlled environment, and by a responsible developer, there is no reason to suggest that the development of the site will present any detrimental impacts to the visual or environmental amenity of the area.

It is considered that the benefits of retaining the site as rural use are outweighed by the proposal to rezone and develop.

Given the site's location, relative to the residential area of Moama, thought must be given to the possibility of a residential proposal on the site. However, given the issues identified in this Study; the large tracts of residentially nominated land to the west of the town; and the potential impact of a flood event upon the site and its surrounds, the possibility of such a use would need to be qualified until such time as collaborative data is available to support the premise of rezoning.

Having discounted, at least to some extent, the potential of the site for a conventional residential zoning the alternatives that present themselves would appear to be either in the areas of low density residential; small lot rural zoning or specific purpose residential use which would be capable of recognising the site's unique attributes and limitations.

Any rezoning of the land must also address the issues of environmental protection and the provision of suitable open space corridors, as well as the impact of development on adjoining development issues.

22 Study Summary

The owner of the land has not indicated a detailed design scenario for the site's development, but rather has provided a preferred preliminary strategy for its development at this point in time.

This stance is seen as a mature and appropriate position to adopt, as it is the outcome of a study, such as has been commissioned, that will eventually provide the basis of an informed and sound decision on the eventual zoning and development of the land.

This Local Environmental Study has identified a number of areas of further investigation as appropriate to fully assess any proposed development of the site and the impact of the site's development on the riverine environment and the Shire of Murray in general.

As a result of undertaking this Study it is considered that the site is suitable for some forms of residential development.

Given the land area of the site to be developed (and the need to formally seek Department of Planning support for any draft Local Environmental Plan), it is prudent to undertake the further studies nominated in this Study, conditional to and after the issue of a Section 65 Certificate to publicly exhibit the draft Local Environmental Plan by the Department of Planning.

The outcome of this Study is a review of the integration of social, economic and ecological planning issues that has determined the constraints and opportunities for the site.

The study concludes that there is a preferred land use which is suitable for the land. However, constraints to development exist and these will need to be taken into account in preparation of development controls to be administered by the Council and in the actual design and development of the land.

The Local Environmental Study concludes that the site is suitable for a combination of urban (including residential and commercial/tourism), semi-urban and conservation land uses, based on available information.

22.1 Vision for Site

Prior to discussing a recommended course of action in respect to the rezoning of the site, it is prudent to establish a vision for the site to enable the reader to comprehend the underpinning of the development philosophy.

On this basis any development of the site should aim to achieve a focus on the creation of a 'liveable quasi-urban community'.

Any development on site should aim to achieve the following:

- Good amenity and sense of place;
- Upgrading and use of existing interconnected local roads and utilisation of the existing accesses to Moama and the substantial recreational amenities of the Murray River;
- Where possible, the creation of allotments should address existing roads and focus on the creation of walkable catchments to the central activity nodes;
- Development of the site should be orientated, where at all possible, to transport alternatives – pedestrian, cycle, private and public transport;
- The design and development of the site should identify opportunities for community interaction;
- Whilst it is acknowledged that such provision would be limited, the design of the subdivision should aim for a range of housing choice; and
- The land use table should make appropriate provision for employment opportunities.

23 Recommendations

Having regard to the Study brief and the findings of the Study, the following recommendations are made:

23.1 Demonstration of Development Potential

Before any rezoning of the land, the proponent should undertake, and demonstrate to the satisfaction of Council, such work as would be necessary to justify the extent of the development proposed upon the site and the nominated allotment sizing.

23.2 Infrastructure Provision

Before any rezoning of the land, the proponent should demonstrate to the satisfaction of Council, that the expected public outlay for the provision of the services (specifically electricity, street lighting, waste disposal; public road access and water supply) as may be necessary to service the development from an external source, are justified and can be provided at no additional ongoing cost to the Shire's existing community.

23.3 Drainage

In considering the improvements to on-site drainage to enhance development opportunities the following works are recommended that:

- A hydrological survey be undertaken;
- An analysis of the catchment area be undertaken;
- A detailed flood study be undertaken to determine areas of inundation and determine access road levels;
- A stormwater drainage plan be prepared; and
- An environment protection and sediment control plan be prepared.

23.4 Flora and Fauna

In considering the development opportunities for the site, the following works are recommended:

- A comprehensive flora and fauna survey be undertaken, particularly in relation to the road verge adjacent to the site;
- A Seven Part Test should be undertaken, particularly in relation to the road verge adjacent to the site;
- A land use plan be designed to identify and incorporate the findings of the Study.

23.5 Archaeology

Prior to a site rezoning, the studies listed below should be undertaken. The findings should then be the basis for any detailed site development plans and identify the development opportunities and constraints for the site:

- A full archaeological survey, the survey is to be both pre and post European settlement focused; and

- The findings of the studies are to be incorporated into the final design parameters for the site.

23.6 Sewerage

If rezoning is supported and effected, in considering the development opportunities the following works are recommended that:

- An analysis of possible treatment alternatives be undertaken;
- A land capability assessment, if on site disposal is proposed, be undertaken; and
- A preferred system be nominated.

23.7 Water Supply

If rezoning is supported and effected, in considering the development opportunities the following works are recommended that:

- An analysis of a possible potable supply source be undertaken;
- An analysis of a possible non potable supply be undertaken; and
- A preferred system be nominated.

23.8 Bushfire Hazard

Prior to support for a site rezoning a full Bush Fire Identification of Risk Study should be undertaken.

If rezoning is supported and effected, in considering the development opportunities the following works are recommended that:

- Access for fire fighting and protection purposes be provided along the perimeter of the study area. Access is to be a minimum four metres wide with passing opportunities at regular intervals. The access is to be within 20-30m of the boundaries of the site.
- A buffer area of at least 30m wide be established on the boundaries of the site. The area is to be maintained as a fire break with minimal tree planting and easily accessible for annual fuel reduction programmes where appropriate.
- Promote implementation of ecologically sound bush fire control practices while not compromising the protection of lives and property. Consideration should be given to bush fire hazards when designing planting patterns, such as breaks in the vegetation to retard the spread of fire and consideration should also be given to the planting of indigenous fire retardant species.

23.9 Subdivision matters

If rezoning is supported and effected, in considering the development opportunities the following works are recommended:

- A suitable allotment sizing for the development be adopted;
- A suitable chapter be prepared for the Murray Development Control Plan to direct and guide development on the site
- Suitable standards for the upgrading of the existing public roads in the area be adopted;

- A vegetation survey and Seven Part Test (see above) be undertaken; and
- A plan be prepared which nominates the road reserve landscaping with an aim of maintaining the visual amenity of surrounding landowners.

23.10 Roads and Traffic

If rezoning is supported and effected, in considering the development opportunities the following works are recommended that:

- A flood free public road access be incorporated into the design;
- A traffic study be undertaken to identify any potential adverse impacts on the surrounding road systems and measures to minimise the impacts or mitigate them entirely; and
- Suitable standards be prepared for road improvements to existing road networks

23.11 Development Matters

If rezoning is supported and effected, in considering the development opportunities the following works are recommended that:

- A Chapter of the Development Control Plan be prepared to control the redevelopment of the land;
- A detailed report be prepared to address the issues nominated in the Murray Regional Plan No 2 and/or the Murray Regional Strategy, as appropriate at that time.
- Council and the proponent undertake consultation to achieve an acceptable biodiversity framework to offset any vegetation loss that occurs in the execution of the Master Plan should a rezoning be achieved.

24 Conclusions

Based on the available information, the research undertaken to prepare this Study, and site and locality inspection, the following specific recommendations are made in respect to the site:

1. Should Council wish to proceed to rezone the site, it is recommended that the land be zoned as Environmental Living E4 as defined in the Standard Instrument (Local Environmental Plans) Order 2006, viz

   Zone E4 Environmental Living

   Direction
   The following must be included as either "Permitted without consent" or "Permitted with consent" for this zone:
   - Environmental protection works
   - Roads
   - Home industries may (but need not) be included as permitted with consent.

   1 Objectives of zone
   - To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values.
   - To ensure that residential development does not have an adverse effect on those values.

   2 Permitted without consent
   - Home occupations

   3 Permitted with consent
   - Dwelling houses

   4 Prohibited
   - Industries; Service stations; Warehouse or distribution centres; any other development not specified in item 2 or 3

2. Include in the objectives to the zone, a provision recognising the site's agricultural past, and current relationship with the agricultural endeavours of the area.

3. Include in the "permissible with consent" uses of the zone provision for the establishment of an agricultural interpretative centre and food outlet upon the site.

4. Without necessarily limiting debate as to the appropriate size of allotments in the zone, and having noted previous Council reports on the matter, set an appropriate acceptable sizing for allotments that should occur. The allotment sizing should take into account surrounding development and the need for and the availability of closer settlement allotments to the east of Moama.

5. To achieve a predetermined desired outcome for the site it will be necessary to employ relevant specific clauses in the Instrument. The Standard Instrument sets specific clauses that may be used to control and guide development on the land (ie Height of Buildings; Lot size map; Floor Space Ratio provisions; Preservation of Trees and Vegetation, etc).

3. Insertion of a clause to acknowledge the flood liable status of the site.

   Given the flood liability that may affect some, or the entire site, the insertion of an appropriate clause into any new instrument is considered to be necessary. The following is a recommended wording for such a clause:

   Development on land in flood referral areas

   (1) A person must not carry out development on land within a flood referral area except with the consent of the consent authority.

   (2) The consent authority may consent to development on land within a flood referral area only if it is satisfied that:
   - (a) the development would not:
     - (i) adversely affect the efficiency of a floodway, or
     - (ii) unduly restrict the capacity of a floodway to carry and discharge floodwaters, or
     - (iii) significantly increase the level of flooding on other land in the vicinity, or
     - (iv) result in risk to life or human safety, to property or to the environment, in the event that the land or adjoining land is inundated by flood water, and
   - (b) any portion of any building or structure proposed to be located in a position where it is likely to be subject to inundation will be built from flood-compatible materials and will be designed to be capable of withstanding flooding, and
   - (c) satisfactory arrangements are made for access to the development during a flood.

   (3) Nothing in this clause limits or restricts the authority of the consent authority to consent to the carrying out of water control measures.

   (4) In considering any application to carry out development on land in a floor referral area, the consent authority must have regard to the principles and guidelines contained in the current *Floodplain Management Manual, Development Guidelines*, prepared by the New South Wales Government.

   (5) In this clause:
   Flood referral area means the area identified on the Flood Referral Map.
   Flood Referral Map means the Murray Local Environmental Plan 2008 Flood Referral Map.

25 Methodology

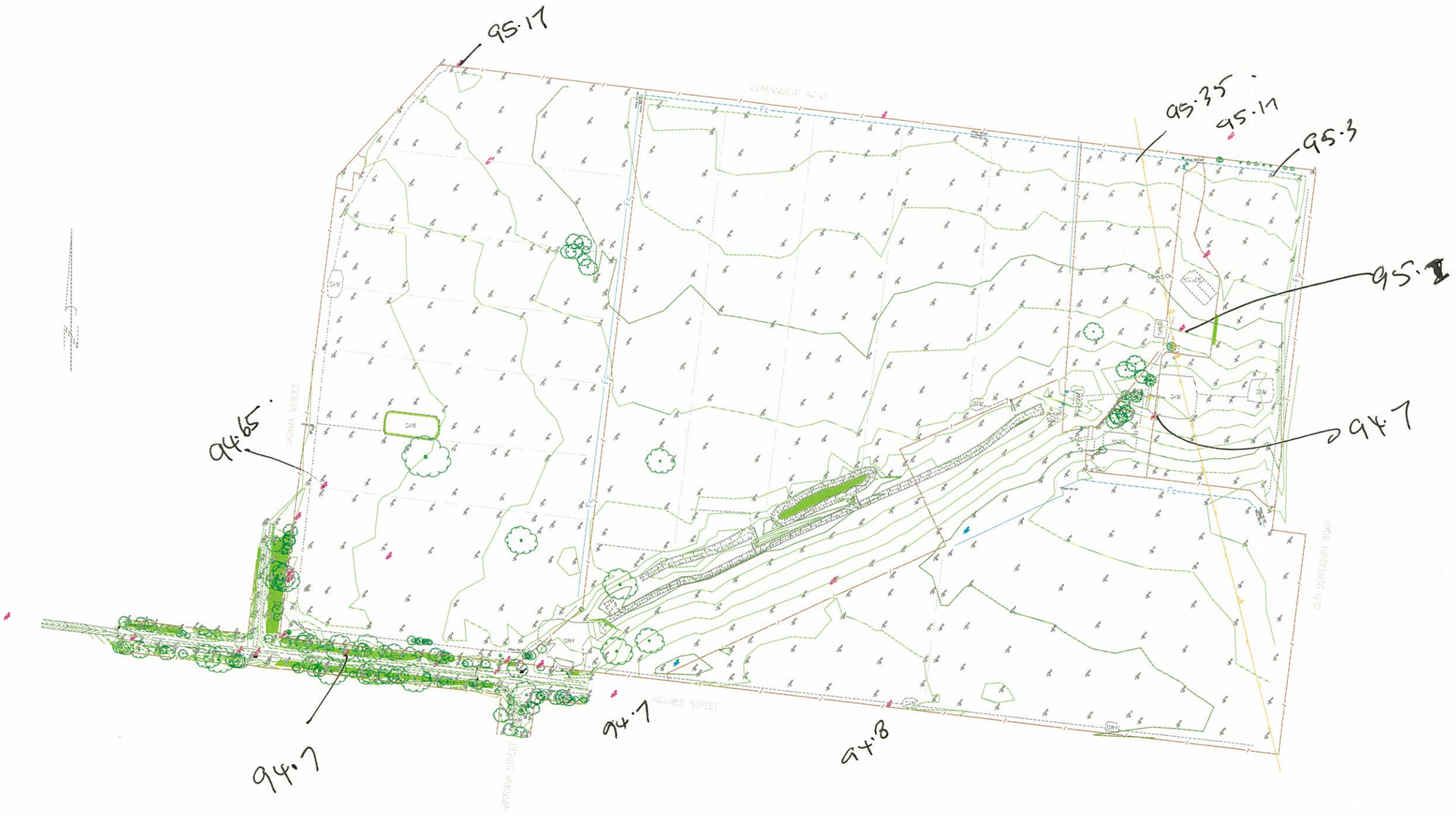
All previous available literature and environmental assessments of the Moama Area have been reviewed for the purpose of this Study.

The documents reviewed have included:

- Department of Urban Affairs and Planning, 2001, Better Rural Residential Development
- A guide for Councils west of the Great Divide on preparing rural residential strategies Sydney
- Habitat Planning, Moama Rural Residential Strategy, November 2000
- Sinclair, Knight, Merz, Moama and Bama District Flood Study, 1999
- Moama Development Strategy, Prepared by: Murray Shire Council, Final Draft Report August 2004
- Kooyong Park Urban Development Proposal, O'Farrell Family, May 2007
- Echuca Moama Recreation Plan, December 2005
- Moama West Infrastructure, Strategy For Stormwater Drainage, Sewerage, Road Network And Development Contribution Plan
- Perricoota Road, Moama, Assessment Of The Traffic Impacts Of Future Development, Earth Tech, January 2007
- Relevant state legislative acts, regulations and policies
- Aerial photographs and topographical maps

Attachments

Attachment A: Existing Levels of Site



DISCLAIMER

Notwithstanding any description contained in the Plans or Specification the Contractor shall be responsible for satisfying himself as to the nature and extent of the specified works and the physical and legal conditions under which the works will be carried out, including means of access, extent of clearing, nature of material to be excavated, type and size of mechanical plant required and any like matters effecting the construction of the works.

WARNING

BEWARE OF UNDERGROUND SERVICES

The location of underground services, where shown, are approximate only.

All authorities must be contacted prior to construction to determine the exact location of all underground services.

RELEASE	No.	DATE	DESCRIPTION
H			
G			
F			
E			
D			
C			
B			

SCALE:
HOR: 1:2,000 (A1)
0m 20 40 80 120 160

DOCUMENT PURPOSE:
☐PRELIMINARY ONLY ☐CONSTRUCTION
☐APPROVAL ☐AS CONSTRUCTED
☐FOR TENDER ONLY ☐OTHER

B.M. No.:	B.M.El.:	
DATUM: A.H.D.		
SURVEYED: SP GN PA		Nov 2006
DESIGNED:		
DRAWN:		
CHECKED:		
ORIGINAL SHEET SIZE : A1		

IDEAS INTO ACTION
PLANRIGHT
Civil Engineers, Irrigation Designers, Licensed Surveyors.
139 Hogan Street, TATURA Ph. 03 58241322
21 Nish Street, ECHUCA Ph. 03 54821699
2 Kelly Street, PYRAMID HILL Ph. 03 54557322
Email:results@planright.com.au

Quality System
Quality Endorsed Company
ISO 9001 Lic.12414
Tcturo Only
Standards Australia

Client: Matthew O'Farrell

Contour Survey
Moama St
Moama

####

CAD: CV6922_11-7-06 PLOTTED: 26/11/2007

SHEET ### 1

DRAWING No. CV6922 1/1 RELEASE 10

Attachment B: Proponent's submission

Private & Confidential

Executive Summary

Kooyong Park

Development Strategy

Internal Document

Development Strategy Overview

Kooyong Park is the most centrally located development site of this size in the Echuca/Moama area. It is approximately 40 hectares in size, with its closest point being located 1.7km from the Moama Post Office and 1.4km from the Echuca/Moama Bridge.

The scale and location of this site offers the community a unique opportunity to undertake a series of innovative environmental initiatives. The strategy is to create an integrated community development with a mix of high quality residential and tourism elements. Core to the development plans are its long term environmental and residential outcomes.

Fundamental to replacing non-renewable energy sources with those that are fully renewable is ensuring there is no/minimal financial penalty to the end-user. The greater scale of economy provided by a large number of energy integrated households means the more cost effective, efficient and commercially viable the use of renewable energy becomes. Kooyong Park's strategy is to construct an integrated energy array over the entire site. Each household would then become part of this array as it is built. It is forecast that such an array encompassing approximately 200 residences will allow the development to be essentially independent of non-renewable energy sources, except in extreme peak periods. The long term energy cost to residents is forecast to be no greater than that from using non-renewable sources, but potentially much less.

Complimentary water management initiatives will be developed in tandem with the energy initiatives. As with the energy array, the scale of a site wide fully integrated water array offers significant commercial and environmental benefits compared to a large number of residences buying and maintaining their own individual and independent systems. The array will include grey and rain water management. Black water (sewage) will be processed by Moama waste water management. Undertaken effectively, this should drought proof the residences and greatly reduce the load the development places on existing Council services.

The development will offer a broad range of residential options to the community. At one end, this will range from higher density, high quality housing on small low maintenance blocks (400 sq m), situated overlooking communal parklands. These will cater to both the retiree or semi retiree sector as well as those wanting a low maintenance lifestyle, but with access to plenty of open areas and some communal facilities. At the other end of the spectrum will be a number of 2,000 sq m blocks aimed at higher income families with positive environmental principles but with no wish to compromise lifestyle.

Demand

Moama is one of the fastest growing townships in NSW. It is also ageing rapidly. The median age of residents rose from 39 in 2001 to 44 in 2006. This shows that the town is attracting new citizens at record rates that are near or of retirement age. There is an abundance of 3 types of residential choices for this demographic in Moama. 1) The large half acre block, with large house and gardens. 2) The half acre block with smaller gardens. 3) Small blocks in discrete communities with small demountable houses. Typical of this latter style of accommodation is Cobb Haven and the various tourist parks such as Horseshoe Lagoon.

Evidence from property professionals in based in Melbourne and in country towns (especially along the Murray River) has shown demand is strongest for low maintenance property on small blocks with large high quality dwellings close to town services. This demand is primarily being driven by retiring baby-boomers who are interested in lifestyle residential opportunities. Demographic data indicates this market segment is particularly prevalent in Moama; however while the bottom end of this market is being adequately serviced, there is a dearth of quality developments that directly fulfils higher quality demands.

Kooyong Park will be an integrated development that will include a sizable amount of this residential style (with low level care retirement village aspects) to cater for demand. Demand will also be driven by its proximity to services offered in central Moama and Echuca. Good access and transport links are already available. It is close (500m) to recreational opportunities provided by the Moama Bowling Club (the largest and richest bowling club in the world) which also provides extensive entertainment and dining facilities for future residents.

Growing public awareness of environmental issues, as well as concerns over accelerating costs for energy and water is also creating substantial demand from environmentally conscious buyers. This demand is spread over all age groups. We believe the environmental initiatives will be a major attraction, assisting to drive demand due to the strong differentiation with other developments in the catchment area.

Commercial (Tourism) Land Use Component

Central to the strategy is a restaurant and delicatessen facility designed to be a 'Regional Produce Centre of Excellence'. The facility will include extensive open and green parklands. These parklands will also provide uncluttered aspects for residents. The venue itself will provide high quality entertaining, dining and food shopping options for the community. This facility will use 'sustainability' as its central theme. This will not only include its construction methods, but in the local and organic nature of the produce it will focus on.

An in principle agreement is in place with the proprietor of a local iconic restaurant to use the facility. They plan to leverage off their well know name and enter the 'Provender' market. The expectation is to use the delicatessen and restaurant as a central show case and outlet for locally grown and manufactured food and wine produce. This will provide food and wine producers in the area, which tend to be small and fragmented, with a physical venue to sell goods as well as extensive visibility and marketing options.

The facility will create a wide range of employment and community benefits. The centre itself will provide an estimated 12 full time equivalent jobs. There will also be significant flow-on effects in the local community. By providing support, marketing and access to various markets for value added product, the facility will encourage and assist in the growth and creation of local niche food manufacturing enterprises.

The facility and grounds will be configured to enable it to host a wide range of functions, cultural events, conferences and large outdoor events.

Site Background Information

Size: Approx 40 hectares. Boundaries measure 900m x 540m (approx).

Access: The site has exceptional access as it can currently be entered via 6 different roads. These are Holmes St, Moama St, Victoria St, Edwards St, Old Bamah Rd and Old Deniliquin Rd.

Infrastructure: All services readily available. Natural gas is available on 3 boundaries of the site. A major sewage hub for Moama is located in the industrial estate at the north-west boundary of the site. Telstra has recently installed optic fibre capacity beside the site. Broadband enabled copper cable communications are also available on all site boundaries. Town water is available on the western boundary of the site. The site is currently serviced with electricity.

Other: The site is not bushfire prone, there are minimal flora and fauna constraints (long term cleared land with a few scattered feature trees), it has been communicated that there are no indigenous cultural caveats on the site.

Environmental Goals

The ultimate goal of the development is for it to achieve a 6 star rating without compromising residents lifestyles. That is, it will be fully independent and self sustaining for energy and water. Although it may not yet be feasible to fully realise this goal, significant progress can be made towards this outcome when compared to other 'environmentally aware' developments.

In terms of energy, the focus will be on using proven technologies and techniques combined in innovative ways to provide viable real-world alternatives to energy generation for like communities. Central to pushing costs down is building an array that covers the whole development. This greatly improves the scale of economy to push down infrastructure costs for each resident to a point where it is comparable to using existing non-renewable energy infrastructure. This will allow the whole site to register itself as a 'Power Station' and sell excess electricity back to the wider grid. 'Green' electricity attracts a 20% higher wholesale price to that of non-renewable energy. This compares to a single household with solar cells selling power back to the grid. Electricity distribution companies buy 'green' power off individual households at a price that is only 30% that of non-renewable energy. Registering the whole development as a 'Power Station' will allow each resident to effectively receive 400% more (ie. moving from 30% of the non-renewable price to 120% of the non-renewable price) for any excess power they generate. A vast improvement in energy economics for each household.

To assist in achieving this, we are in the process of approaching various Universities to have Post Graduate students attack this challenge as part of their official assessments. RMIT have indicated they wish to put this on their Environmental Engineering curriculum as an elective subject for next year. This will enable teams of Post Graduate students to jointly address the challenge. A similar initiative is being launched with the Department of Photovoltaic's at the University of NSW. This is part of a process to engage universities to access their vast resource bases of research and personnel. Suitably qualified engineers will be independently engaged to oversee any solutions of merit this process generates.

State and Federal governments have professed strong policy support for the types of environmental initiatives outlined here. As such, we are optimistic that some level of grants may be available to assist in bringing the initiative to fruition. This will bring in outside resources and generate additional economic activity in the Shire.

Another benefit of greater scale of economy for this development is the increased cost effective options generated for using different building materials. An example of this is 'Earth Brick' technology, developed by the CSIRO. This allows for the on-site manufacture of force air-dried (not kiln fired) bricks. See: www.amcer.com.au Material removed from constructing the developments water arrays may be used on-site to manufacture bricks for construction of residences and the commercial facilities. This produces multiple economic and environmental benefits. These include reuse of material available onsite, much

reduced energy in manufacturing building materials, net cheaper building costs (when done on this scale) and negligible transport costs (with its environmental impact). The bricks themselves have superior thermal and maintenance properties, similar to that of thick concrete.

Flooding Issues

The 'Moama Floodplain Management Study' shows the site to be free of floodwaters during a 1 in 100 year ARI flood. The site has existing license from the Dept of Water and Energy (DWE) for a rural levee around its boundaries. As part of the development, this levee will be upgraded to 'residential' standards compatible with Council requirements. This will protect it during a 1 in 200 year flood event. The DWE have stated in writing that they have no objections to such an upgrade. The hydraulics of the site mean that the flood height difference between a 1 in 100 year and a 1 in 200 year flood is only 11mm (1.1cm).

Access and egress to the site during a 200 year ARI flood event can easily be ensured with the construction of a short causeway (that includes a culvert) at the north-west corner. This causeway would be approximately 60m in length and link the existing town levee with the site flood works for the site. An emergency back-up, flood free access to the land is already in place. This is along the railway line linking the Moama levee to the property.

Waters over the access roads during major floods are slow moving and relatively shallow – up to 300mm. These depths can easily be traversed by the average large 4WD vehicle. As such, access and egress to the site in major flood events can always be guaranteed in the event of an emergency.

Additional Information

Evolution of Process and Concepts

Council was first engaged in discussions about rezoning this site in 2001. Discussions continued until the Council was formally requested in May 2005 to include the land in the 'Strategic Land Use Plan' for the current LEP. This notification also included the first land use 'mudmap' detailing the environmental initiatives and 'Region Produce Centre of Excellence'. This style of development had been decided on by the family in 2004. Over the past 3 years, with ongoing consultation with Shire officers, the detail of these initiatives and target outcomes has become significantly more detailed and refined. In May 2007, in recognition of the value this development will create for the community, Council formally ratified its support for rezoning the site.

Existing Development Rights

The Council has confirmed there are already 16 existing building entitlements on the site. The right to construct a tourist facility may also be applied for under current zoning of General Rural 1a. A development of 16 residences in a low density format would not commercially support any of the environmental initiatives covered here. Given the site's central location, good access, flood protection, easy provision of services and the proven demand from the target demographics, an integrated environmentally sustainable model urban / tourist development for whole site is a better outcome for the community than a smaller piecemeal urban development (16 sites) combined with tourist facilities.

Agriculture

This site has being unable to support a commercially viable primary production business for many years. Even when irrigation water was not restricted, the property had few profitable years. This is because of its relatively small size. Irrigation water constraints over the past decade have ensured a loss each year from its primary production activities. Given recent developments in the Murray Darling basin with the permanent removal of agricultural water for environmental flows and the intention to direct it to metropolitan centres (Melbourne, Ballarat and Bendigo) it seems extremely unlikely that the water previously available agricultural irrigation will return to the levels of the past. Due to the site's small size, its proximity to the centre of Moama and the easy availability of all town services, it is now much more valuable to the community for residential rather than rural use.

Additional Information - continued

Family Property

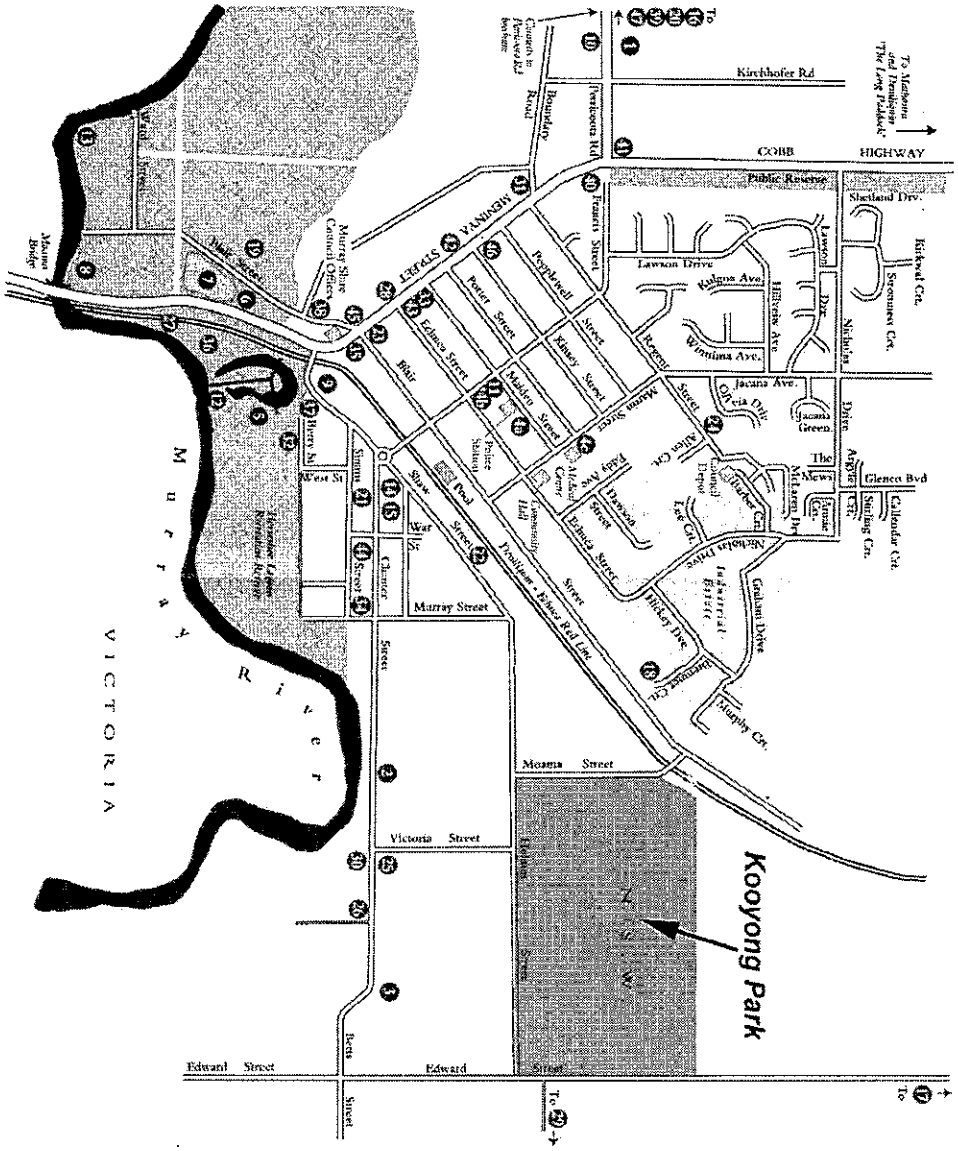
The type, style and targeted outcomes of this development strategy reflect the fact that those undertaking the project have a long and intimate association with the site. Although reasonable commercial outcomes are central to the development strategy, the timeframe for properly implementing these will not be dictated by the usual financial constraints of property developers who have to service borrowings to finance land purchases. Given the family's long term local engagement, a special interest/focus is placed on adding value to the community and developing an environmental model that can be duplicated by future developments in Moama, as well as in similar townships.

Family Skill Set

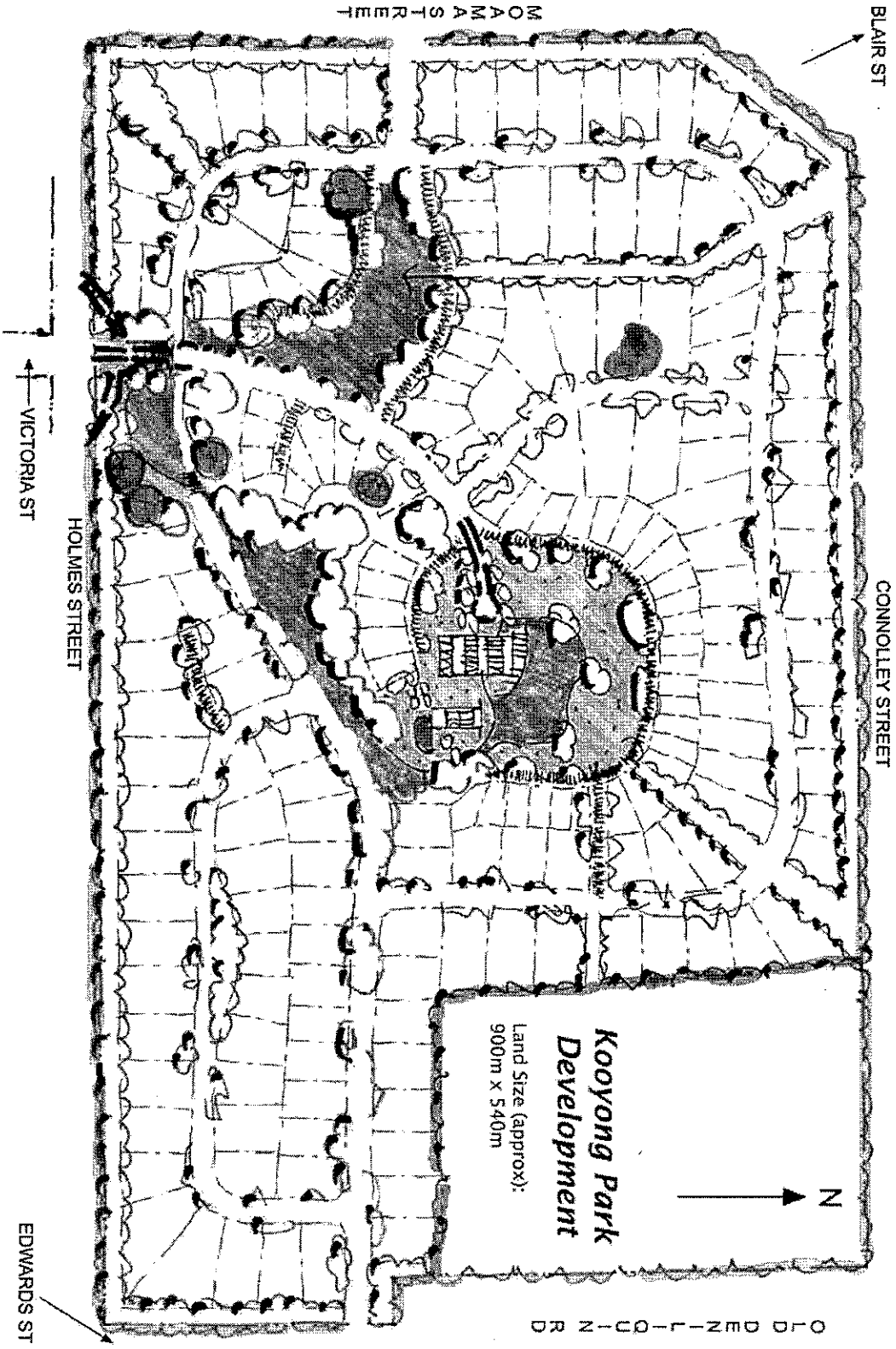
The specialist skills of the various (sibling) family members provide a deep resource to assist in successfully planning and undertaking this development strategy. The shorthand background of the siblings include:

1. Masters in Environmental Engineering,
2. Masters in Hydrology – specialising in cleanup of contaminated water tables at Commonwealth sites,
3. Banking and Finance expert with 20 years experience specialising in financing, financial risk management and governance.
4. Lawyer

LOCATION MAP - KOOYONG PARK DEVELOPMENT



Early Draft Street Plan



Attachment C: Correspondence

NSW Government
Department of Water & Energy

Contact: Jane Taylor
Phone: 03 5898 3900
Fax: 03 5881 3465
Email: jane.taylor@dnr.nsw.gov.au

B O'Brien
Coomes Consulting Group
PO Box 3400
ALBURY NSW 2646

File: DEN7702810-2
Your Ref: 315060

26 October 2007

Dear Mr O'Brien

Re: Kooyong Park, Moama Local Environmental Study

Thank you for the opportunity to comment on the above possible development in Moama.

As you are aware the area proposed is on a floodplain, any investigation into the ramifications of the development in relation to this will be assessed by the Department of Environment and Climate Change, in particular Mr Peter Nankivell. The Department of Water and Energy (DWE) however will be responsible for any new license approvals or changes to existing ones in relation to levees in the area of the development.

The DWE will also be responsible for assessment of any such as works that fall under the *Water Management Act 2000* such as, aquifer access (bores), surface water access (river pumps), water storages (stormwater retention basins and harvestable right dams) and works that fall under the *River and Foreshores Improvement Act 1948* that are works in, on or under the bed or banks of a stream. If any of these activities are to be undertaken it is suggested that the proponent contact the Department before taking any action to ascertain any requirements they may need, such as applying for an approval or permit.

If you have any questions about the any of the above activities and the approval process and/or requirements please contact either Jenny Campion, Lindsay Holden or myself on the above number.

Yours sincerely

Jane Taylor

Jane Taylor
Natural Resource Officer
Licensing South

All communications to be addressed to:

Zone Manager
NSW Rural Fire Service
Mid Murray Zone
PO Box 109
DENILIQUIN NSW 2710

NSW Rural Fire Service
Mid Murray Zone
305 Duncan Street
DENILIQUIN NSW 2710

Telephone: 03 5881 5351

Facsimile: 03 5881 5158

E-mail: midmurray.zone@rfs.nsw.gov.au

Our ref: MMZ ADM 80

Your ref: 135060

Date: 26 October 2007

Mr. Bill O'Brien
Senior Consultant – Planning
Coomes Consulting Group
P.O. Box 3400
Albury NSW 2640

Re: Kooyong Park Moama Local Environmental Study

Dear Mr O'Brien,

I write in response to your letter dated 22 October 2007 outlining the Environmental Study in respect to land comprising Kooyong Park, Old Deniliquin Road, Moama.

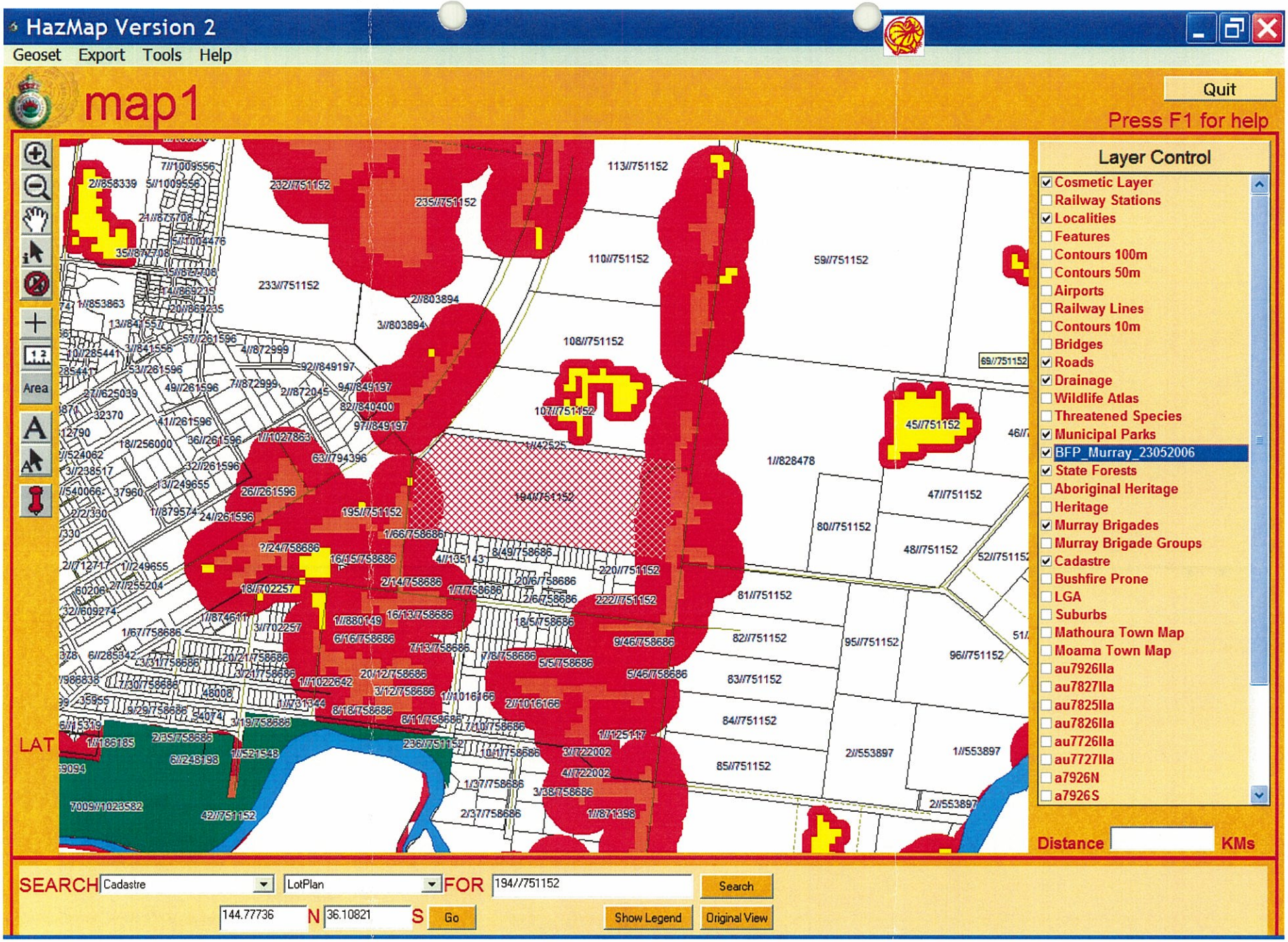
As some of the land on the LES site is mapped as Bushfire Prone (screen dump attached), any development plans on the site would need to be forwarded to the NSW Rural Fire Service head office in Sydney for inspection and approval. Some of the issues that would need to be addressed in any future development would include,

- Access (particularly for fire appliances)
- Water supply
- Asset protection zones and fire breaks
- Construction standard
- Landscaping
- Emergency management arrangements

Detailed information on all of the above can be found in the NSW Rural Fire Service (RFS) publication "Planning for Bushfire Protection 2006". This and other relevant information can be found and down loaded from the RFS web site at www.rfs.nsw.gov.au.

Yours sincerely

Doug Adamson
Community Safety Officer
NSW Rural Fire Service
Mid Murray Zone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