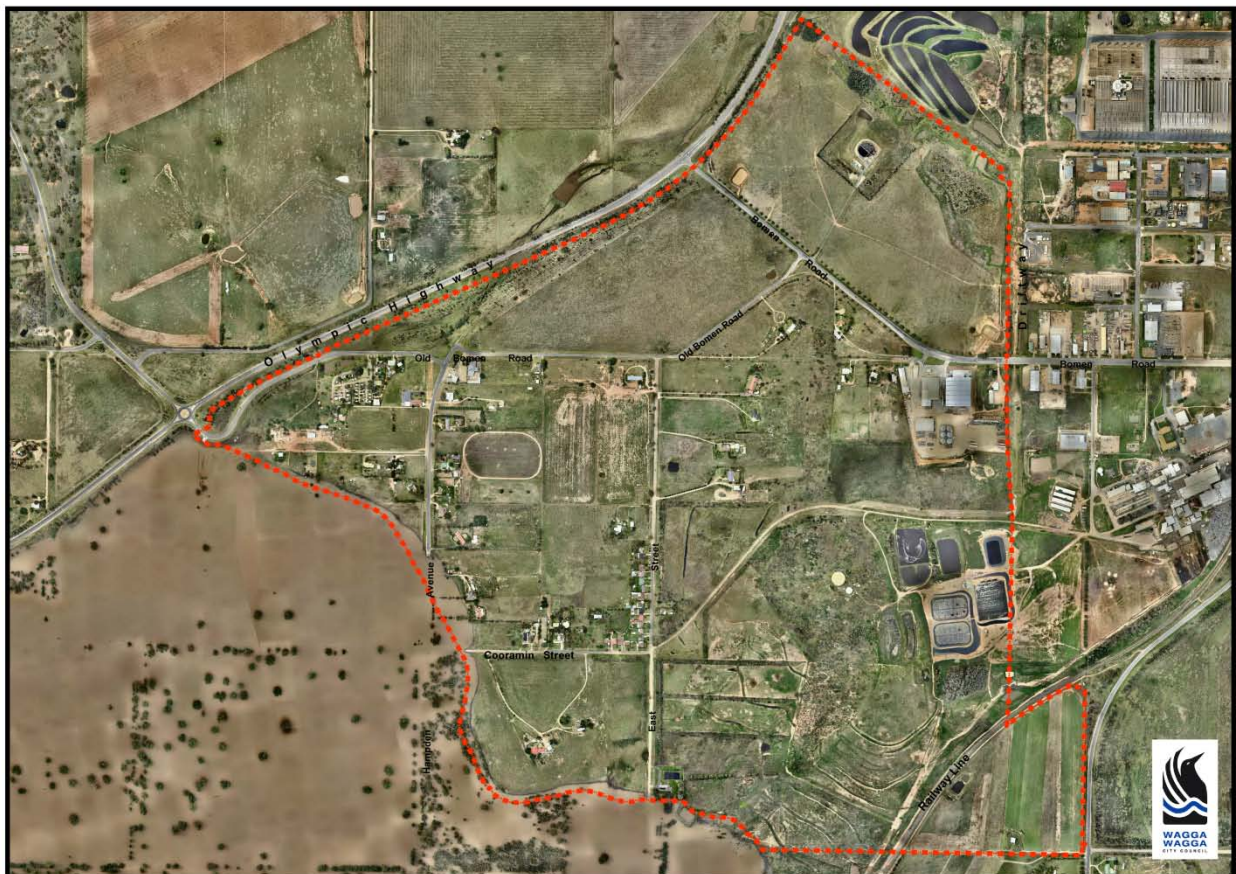


Report on Wagga Wagga Local Environmental Plan 2010 Deferred Area Cartwrights Hill



Draft Final Report

Cartwrights Hill Study

Prepared for Wagga Wagga City Council
by



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Table of Contents

Chapter 1: Introduction	1
1.1. Introduction.....	1
1.2. Location and Study Area.....	2
1.3. Purpose of Report.....	2
1.4. Methodology	5
Chapter 2: Physical Characteristics	6
2.1. Introduction.....	6
2.2. Physical Characteristics.....	6
2.3. Land Use	6
Chapter 3: Background and Issues	9
3.1. Introduction.....	9
3.2. History of Zoning	11
3.3. Land Use Conflict	17
3.2.1. Pollution	17
3.2.2. Complaints Investigation	20
3.2.3. Separation of Land Uses	21
3.4. Bomen Industries	21
3.3.1. Teys Australia	21
3.3.2. Rodneys Transport	26
3.3.3. Heinz Australia	26
3.3.4. Southern Oil Refineries	26
3.3.5. SITA Australia	26
3.3.6. Bomen Industrial Sewage Treatment Facility	26
3.5. Residential Development Potential.....	27
3.6. Odour and Acoustic Assessments	30
3.5.1. Odour Assessments.....	30
3.5.2. Acoustic Assessment	34
Chapter 4: Consultation	34
4.1. Introduction.....	34
4.2. Stakeholders	35
Chapter 5: Options and Recommendations.....	36
5.1. Introduction.....	36
5.2. Key Issues.....	36
5.3. Rezoning of Cartwrights Hill	37
5.4. Decreasing Lot Potential	38
5.5. LEP Amendments.....	39
5.6. Recommendation	41
Chapter 8: Conclusion.....	43
Bibliography	44

List of Maps

Map 1.1: Cartwrights Hill in Relation to Wagga Wagga	3
Map 1.2: Cartwrights Hill Study Area	4
Map 2.1: Cartwrights Hill Physical Characteristics	7
Map 2.2: Cartwrights Hill and Bomen Land Use	8
Map 3.1: Recommended Zonings	10
Map 3.2: Wagga Wagga LEP 1985 Map Excerpt	12
Map 3.3: Wagga Wagga DCP 1985 Map Excerpt	13
Map 3.4: Odour Modelling for Teys Meat Processing Plant – 4 Odour Units.....	24
Map 3.5: Odour Modelling for Teys Meat Processing Plant – 3 Odour Units.....	25
Map 3.6: Cartwrights Hill Lot Sizes	29

Map 5.1: Recommended Zonings 42

List of Figures

Figure 3.1: Odour Complaints 1996 - 2013 20

List of Tables

Table 3.1: Environmental Protection Licenced Premises 18

Table 3.2: Odour Assessment Criteria 19

Chapter 1: Introduction

1.1. Introduction

Cartwrights Hill is located to the north of Wagga Wagga adjacent to the Bomen Industrial Area.

The current zoning of the land is residential under the provisions of Wagga Wagga LEP 1985 and is capable of subdivision to a density of 10 dwellings per ha which relates to a lot size of approximately 800m², which will produce a total yield of approximately 700 residential lots. However there are only 19 lots that have been subdivided to residential lot sizes with the remainder ranging in lot size from approximately 0.5 ha to 21 ha with the majority in the 2 – 4 ha range. The land use of Cartwrights Hill can be described as rural residential.

The adjoining Bomen Industrial Area has a number of uses that cause pollution which results in a loss of amenity to the residents of Cartwrights Hill. The EPA has been working with the industries to reduce the pollution and have achieved a major reduction in the odour pollution especially by working with the industries to improve the odour management. This has been at considerable cost to the industries concerned. The Council is developing the Bomen Industrial area to for major transport and logistics based enterprises. The total area of land is approximately 2,000 ha. It is projected to be one of the major economic drivers for the City of Wagga Wagga. For this reason, there is a need to reduce the land use conflict and number of new residents moving into the area.

The land was deferred from being considered as part of the Wagga Wagga LEP 2010 when the Wagga Wagga Planning Panel considered the submissions to the exhibition of the document. The Panel's reasons for this were the number of objections received as well as significance, complexity and sensitivity of the issues involved. It was decided that these issues would take some time to resolve and so the land was deferred and the LEP was completed.

The draft LEP to finalise the zoning of the land has been the subject of a number of reports to the Planning Panels as well as exhibitions proposing varying zoning and minimum lot size recommendations. Land use conflict with the adjoining Bomen Industrial area plus the Bomen Industrial Sewage Treatment Facility has been the major concern because new residents moving into an area as well as the existing residents can complain about any odour or noise from an adjoining use and this can cause the use to either shut down or to take measures, at its own cost to rectify the pollution.

It is important to note that the Council has not had jurisdiction in determining the draft LEPs since 2007. On 7 November, 2007 the Wagga Wagga City Council Planning Panel was appointed to oversee the preparation of a Comprehensive LEP as well as development applications. Even though the comprehensive LEP has been made, the remaining deferred matter is also to be dealt with by the Planning Panel.

On 1 September 2010 the Wagga Wagga Interim Joint Planning Panel was established and continued to deal with the deferred areas. On 14 September 2011, both the Wagga Wagga City Council Planning Panel and the Wagga Wagga Joint Interim Planning Panel were abolished and the LGA then become under the Jurisdiction of the Southern Joint Regional Planning Panel.

1.2. Location and Study Area

Cartwrights Hill is located approximately 4.5 km north of the Wagga Wagga CBD. Map 1.1 shows the location of Cartwrights Hill in relation to the Wagga Wagga urban area. The study area for this project is shown on map 1.2 and includes the land bounded by Horseshoe Rd and the Olympic Highway in the west, the low lying flood prone land to the south and the vacant land between East Street and the industrial area to the east and the Bomen Industrial Sewage Treatment Plant to the north.

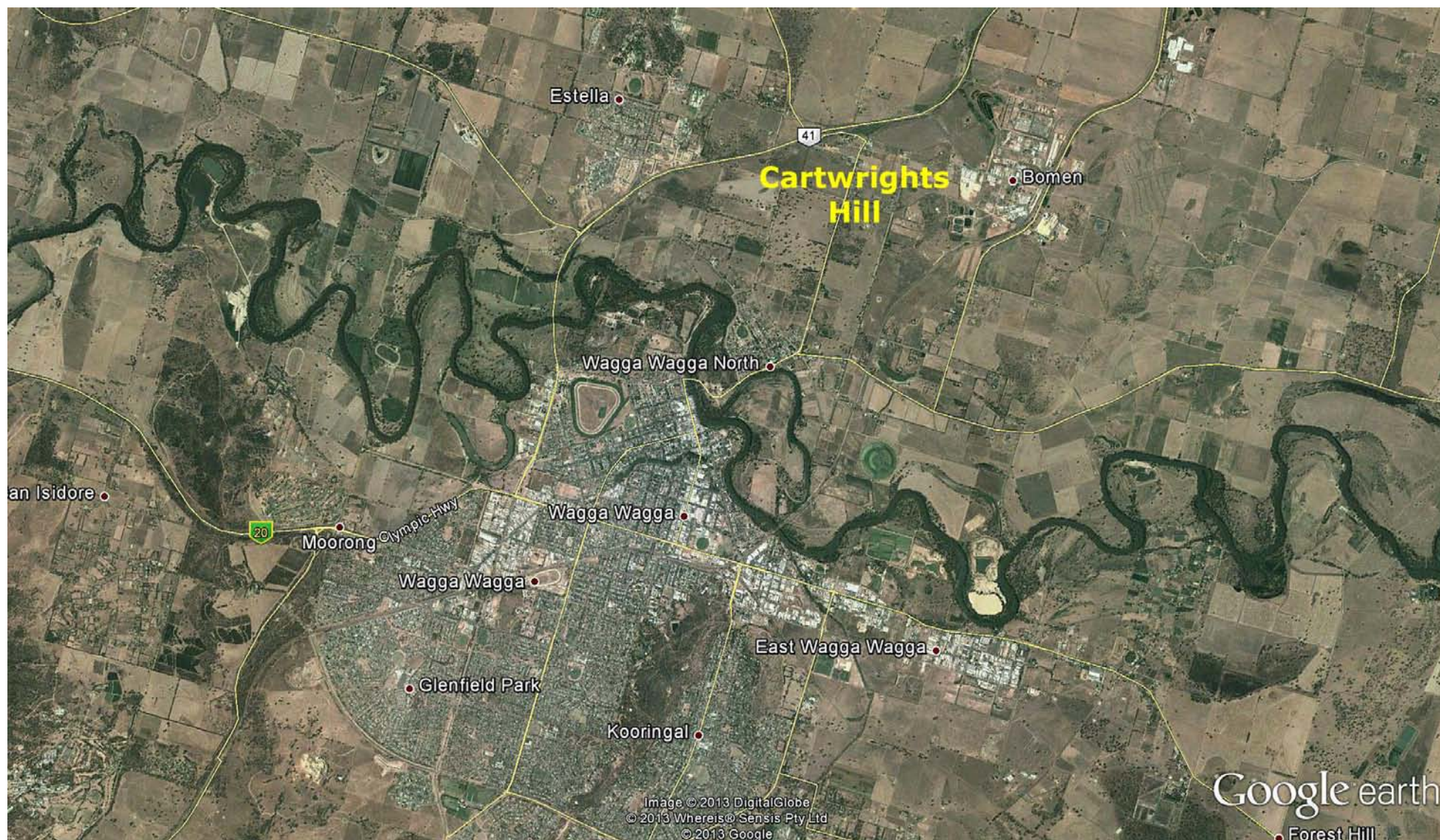
The majority of the existing dwellings are in the area bounded by East Street, Old Bomen Road Hampden Avenue and Cooramin Street.

1.3. Purpose of Report

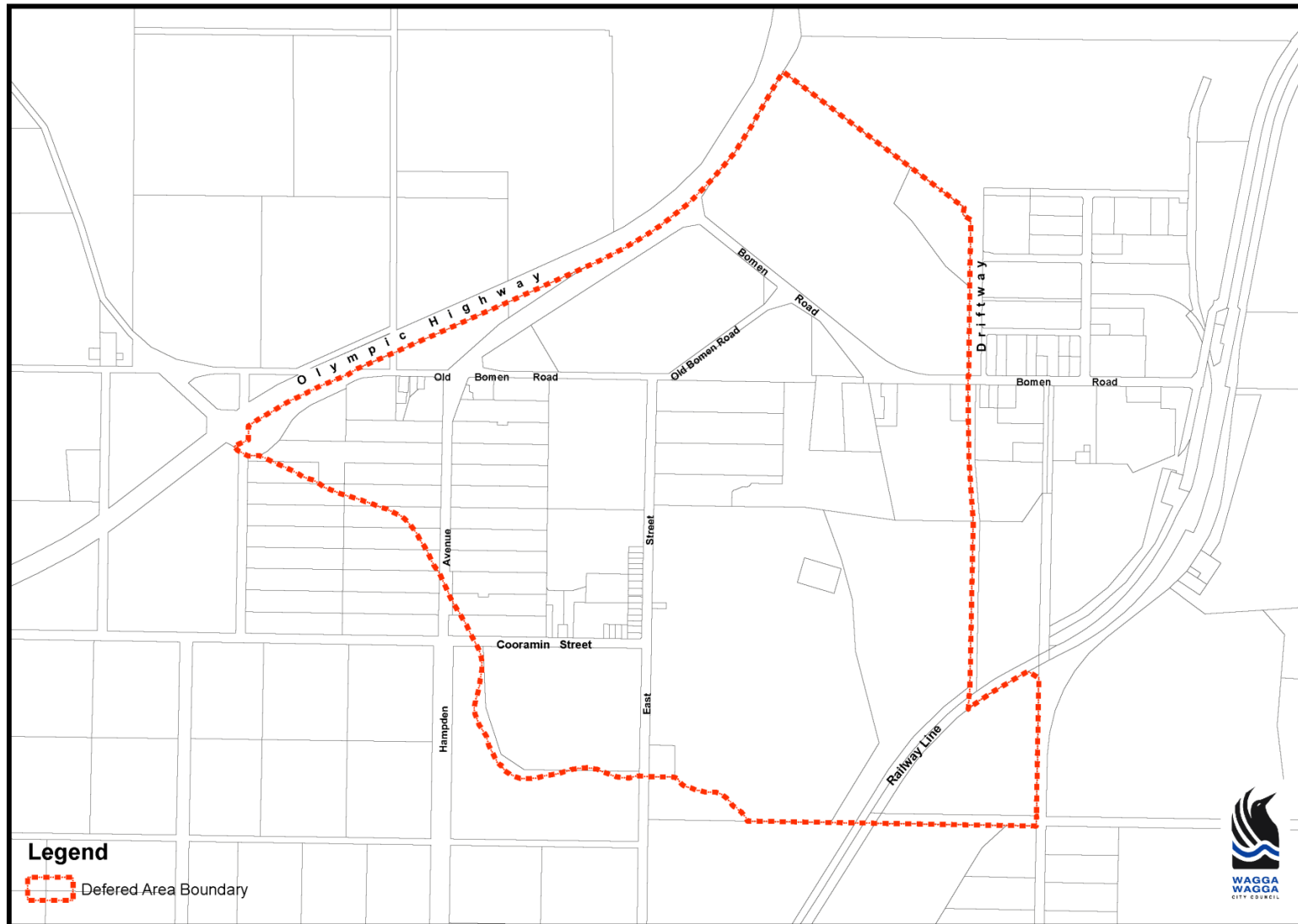
The most recent report to the Southern Joint Regional Planning to its meeting on 16 May 2013 included a recommendation to increase the minimum lot size for subdivision to 8 hectare which would effectively inhibit all land owners from subdividing their land. A number of residents objected to this proposal and the Panel resolved as follows:

- (a) Note the report as presented.
- (b) Request a further report on appropriate zonings for all the deferred area incorporating issues raised at today's meeting by the Panel and community.
- (c) Request Council to investigate the appropriateness and extent of a minimum lot size of less than 8 hectare for the R5 zone in consultation with the community.
- (d) Request Council to commission further odour and noise impact studies by independent bodies.
- (e) Request that the above report be presented to the Panel within 3 months.

This report has been prepared in response to parts (b) and (c) of the resolution.



Map 1.1: Cartwrights Hill in Relation to Wagga Wagga



Map 1.2: Cartwrights Hill Study Area

1.4. Methodology

This study has involved reviewing:

1. the reports to the Wagga Wagga City Council Planning Panel, the Wagga Wagga Interim Joint Planning Panel as well as the Southern Joint Regional Planning Panel,
2. specialist Noise and Odour studies and other material.

Discussions were held with officers of Council's Planning, Infrastructure Services, Environmental and Community Services as well as Commercial and Economic Development directorates. In addition to this, discussions were held with the Environment Protection Agency, key businesses in the Bomen Industrial area as well as residents of Cartwrights Hill. Discussions were also held with the consultant who conducted the odour modelling.

In relation to the recommendation *d* from the Southern Joint Regional Planning Panel meeting on the 16th May 2013 (reproduced below):

d request Council to commission further odour and noise impact studies by independent bodies,

The Council's Director Planning had discussions with members of the SJRPP on the 17 May 2013, where in the Panel was amenable to a suggestion by the Director Planning that the Council had indicated it was engaging an external consultant to prepare this report.

The Panel were supportive of the proposed methodology in engaging an external consultant and in doing so also confirmed suggestion by the Director Planning that the external consultant review the existing odour and noise impact studies that have previously been commissioned in respect of the Deferred Area. This paragraph satisfies condition *d* from the Southern Joint Regional Planning Panel Meeting on the 16 May 2013.

Chapter 2: Physical Characteristics

2.1. Introduction

The physical characteristics of an area will determine how the land uses interact with each other as well as the environmental qualities of the area. This chapter describes the land form, vegetation and drainage characteristics of the site as well as the land uses.

2.2. Physical Characteristics

Cartwrights Hill is located to the north of Wagga Wagga urban area. The land slopes to the south west with the highest point of the area located to be east of East street.

The only drainage line running through the study area is to the north of the Bomen Industrial Sewage Treatment Facility and it drains to the north and under the Olympic Highway.

There are not any significant areas of native vegetation within the study area.

Map 2.1 shows the physical characteristics of the land.

2.3. Land Use

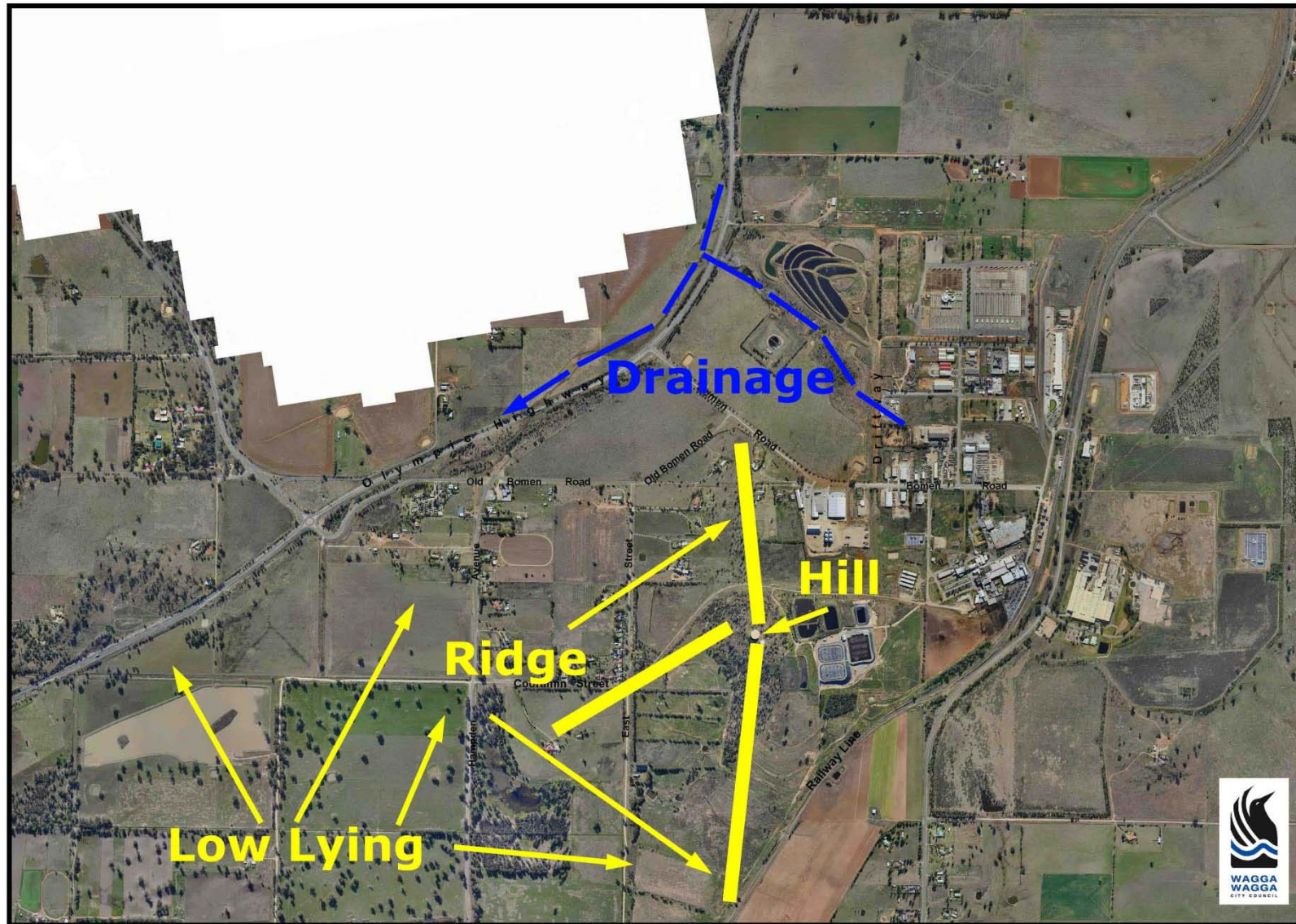
The land use of the Cartwrights Hill area is a mixture of residential and rural residential uses. There is a total of 55 dwellings, one hotel with accommodation, one caravan park and three vacant sites. The land to the west and north of the intersection East Street and Cooramin Road is subdivided into residential allotments of approximately 800 m². There are 15 lots along East Street, all but one of which has a house constructed on it. There are 4 lots along Cooramin Road which all have houses on them. The land along Hampton Avenue North of Cooramin Street and to old Bomen Road is rural residential use in character and has lot sizes of approximately 2 hectares each. The land to the north of East Street is an area of approximately 10 hectares and has a rural residential use. Land to be east of East Street to the north is rural residential use and has lot sizes of approximately 2 hectares. The land adjoining East Street to the south is owned by Teys Australia and is used for its holding yards for cattle. The land to the north of old Bomen Road is vacant and is used for grazing.

The hotel is located on the corner of old Bomen Road and Hampton Avenue and the caravan park is located to the west of Hampton Avenue on old Bomen Road.

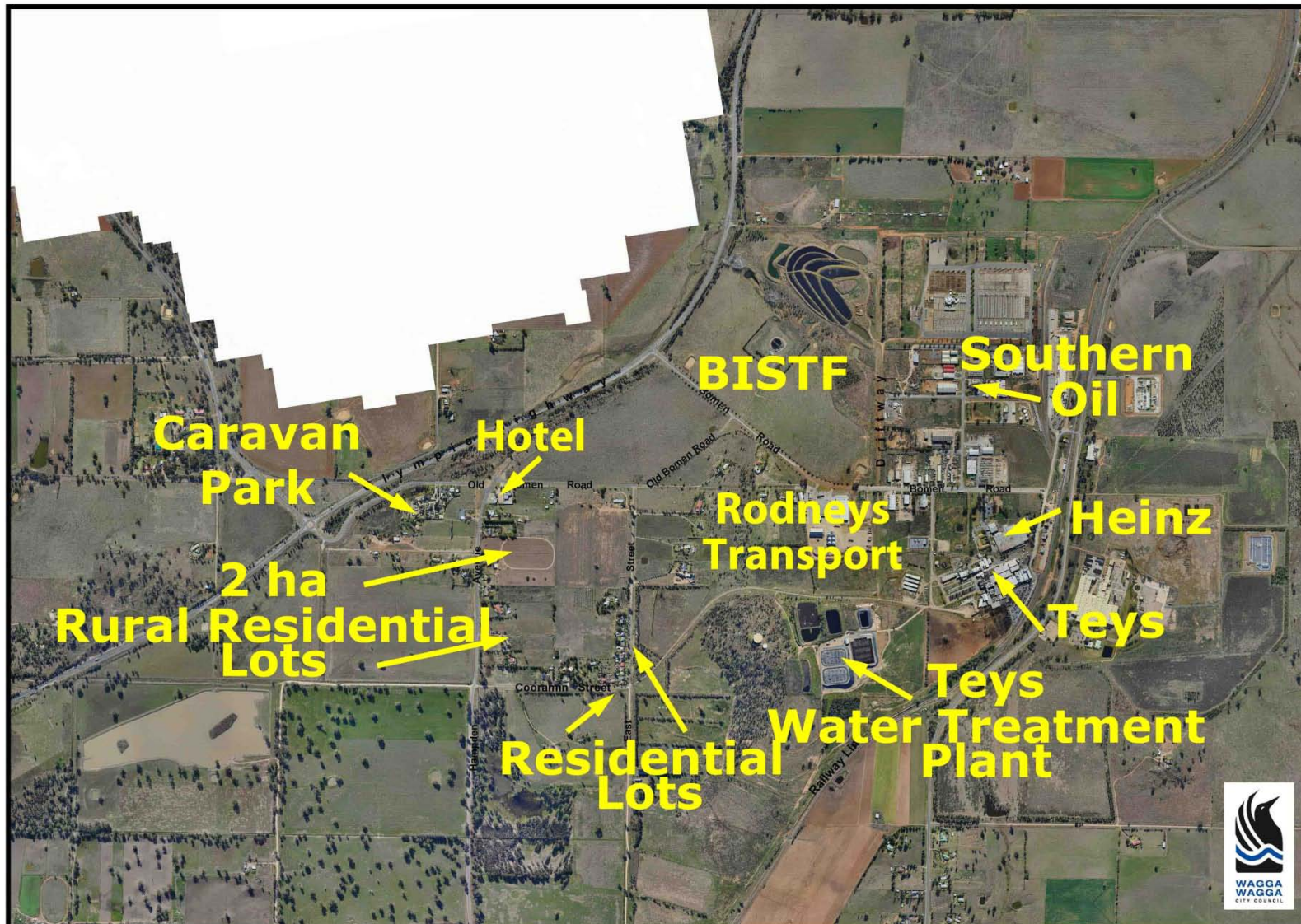
To the north of Cartwrights Hill on Bomen Road is the Council's Bomen Industrial Sewage Treatment Facility.

To the east of Cartwrights Hill is the Bomen industrial area. It has a mixture of land uses made up of a number of industrial uses including small light industrial and manufacturing uses as well as the fuel distributor and Asphalt Plant. There are three major industries which are Teys Meat Processing Plant, Southern Oil Processing Plant and Heinz Processing Plant. There is also the Wagga Wagga Livestock Marketing Centre within the area which is a sheep and cattle saleyards.

Map 2.2 shows the land use in the Cartwrights Hill and Bomen industrial area.



Map 2.1: Cartwrights Hill Physical Characteristics



Map 2.2: Cartwrights Hill and Bomen Land Use

Chapter 3: Background and Issues

3.1. Introduction

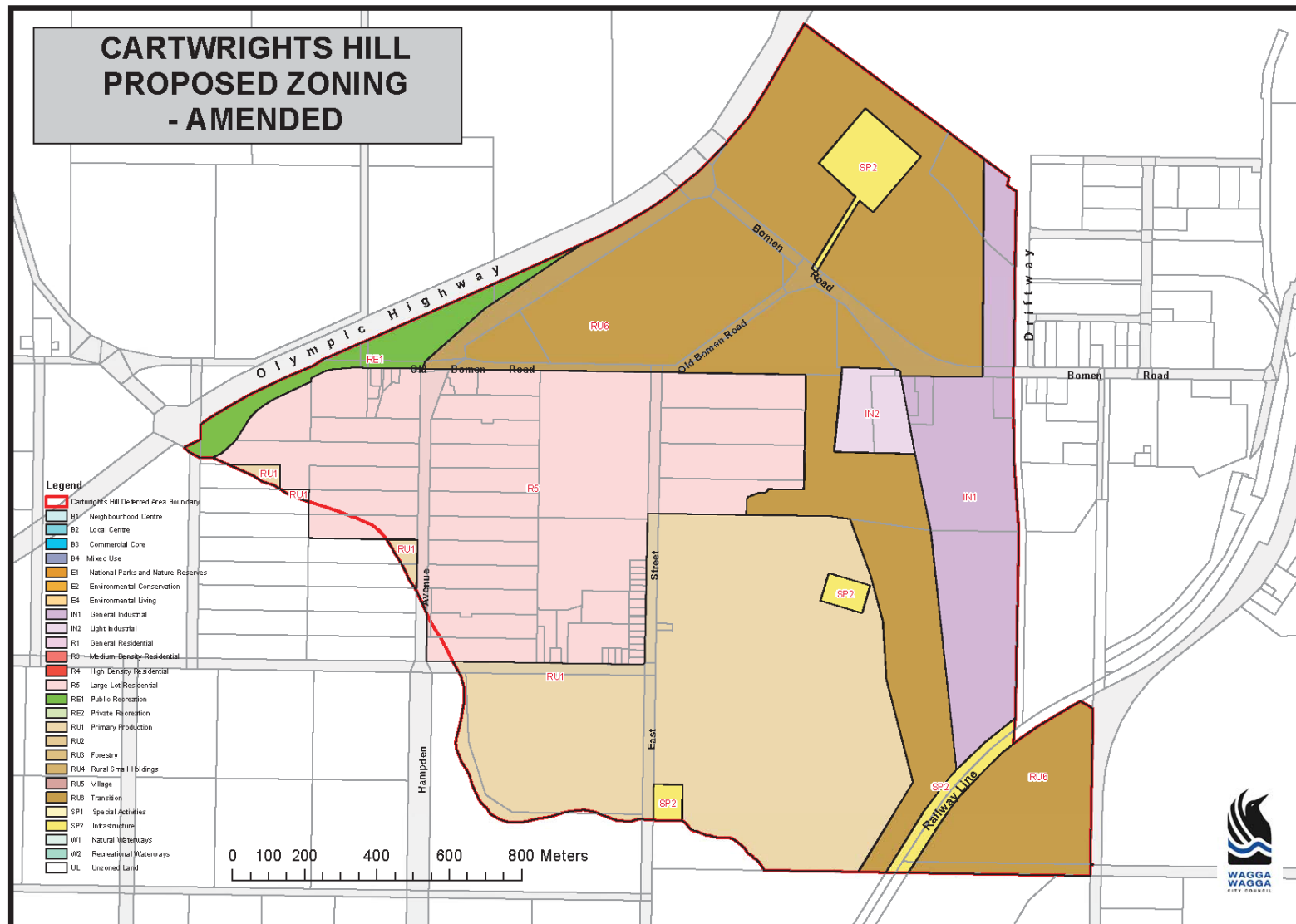
The Cartwrights Hill area has a number of issues that need to be detailed in this study.

It needs to be noted that the current zoning of the land is for residential purposes at a density of 10 dwellings per hectare which currently has the potential to result in approximately 700 lots.

The major issues relate to the minimum lot sizes and dwelling potential of the Cartwrights Hill residential zone as well as to the odour and noise pollution from the adjacent Bomen Industrial area. The main source of odour is from the Bomen Industrial area. Noise is an issue for the existing the expanded Bomen Industrial Sewage Treatment Facility (BISTF). The Council is planning to promote the Bomen Industrial area for transport and logistics enterprises and so needs to reduce the number of residential uses in the surrounding land. Land use conflict, therefore is at the heart of the determination of zoning and minimum lot size for the Cartwrights Hill area.

The current situation concerning the zoning and minimum lot sizes for the Cartwrights Hill Deferred area is that the zoning has been exhibited there have been two subdivision minimums for the Large Lot Residential zone exhibited – one at 8 hectares and the other at 1 hectares. The recommended zoning map is shown as map 3.1 and this was presented to the Panel at its meeting on 16 May 2013.

The background of the zoning of the land and the variety of reports to Council to deal with it is important to the understanding of the issues.



Map 3.1: Recommended Zonings

3.2. History of Zoning

The land is currently a deferred matter under the provisions of Wagga Wagga Local Environmental Plan 2010 (LEP) and therefore still retains its previous zoning. The land is zoned Residential 2 under the provisions of the Wagga Wagga LEP 1985. It is further sub-zoned 2a General (Urban Living Area) with a small portion of land in the centre of the area being sub-zoned 2c Medium Density (Urban Living Area). There is also an open space 6a Recreation (Urban Living Area) sub-zone through the middle of the site as well as adjoining the low-lying land flood prone land to the south east. This can be seen from map 3.2 which shows the LEP zoning and 3.3 which shows the DCP sub-zoning of the land.

The land has been zoned as residential since 1953 when it was zoned by the Wagga Wagga Planning Scheme Ordinance and anecdotal reports are that this was done to encourage residents of North Wagga Wagga to move from the floodplain of the Murrumbidgee River to the flood free land at Cartwrights Hill. The land was also identified in a Council Strategy for residential development in 1976. This was reviewed in 1995 when Council adopted its Vision 21 Strategic Land Use Management Plan. This plan also considered an option of back-zoning Cartwrights Hill and excluding it from future residential development. (Habitat Planning, 2003). It gave the following as the reasons for this:

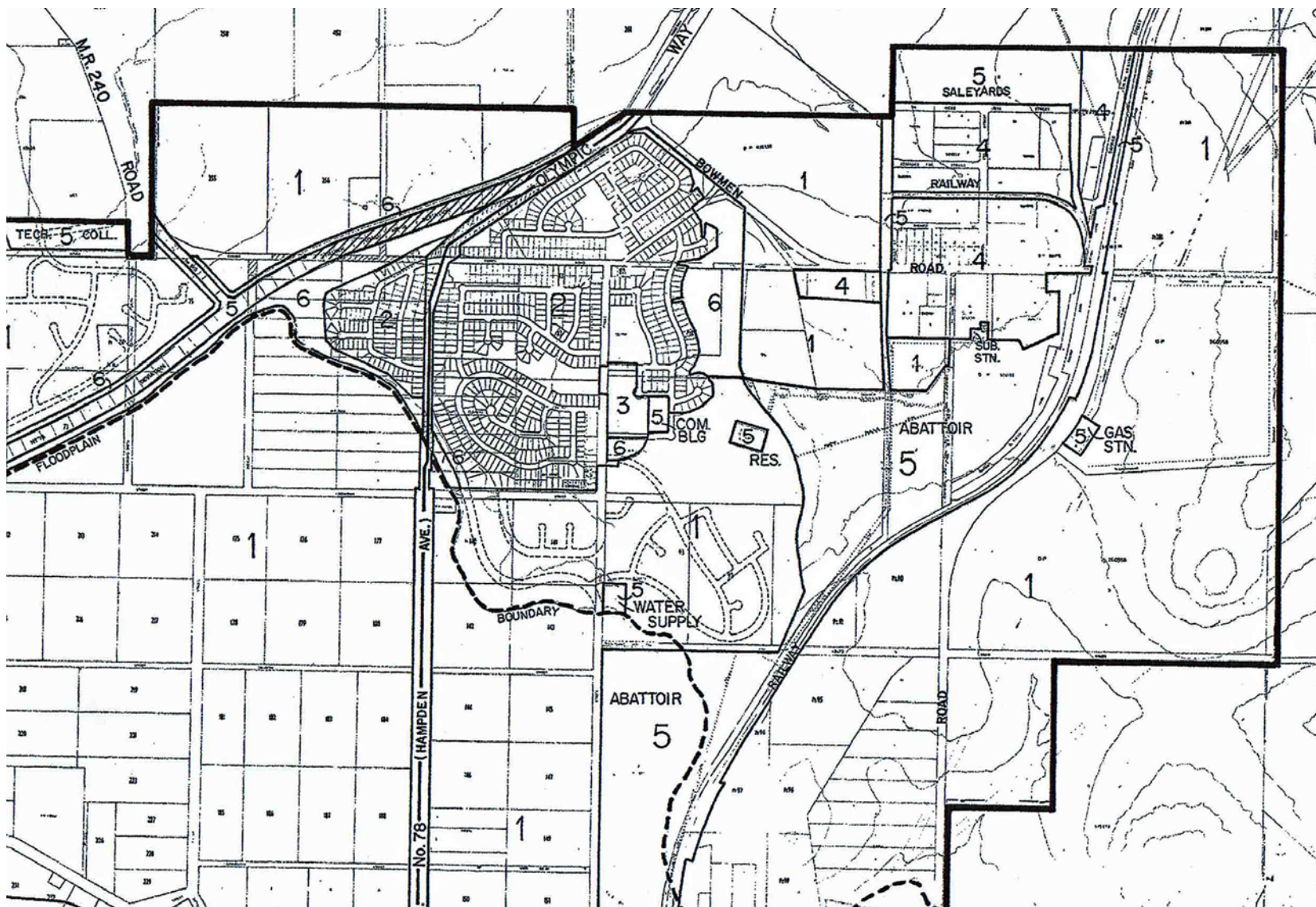
“To protect the interests of the industrial area of Bomen and provide adequate buffer distances between industry and residential areas there is an option to re-zone the Cartwrights Hill suburb from Residential to another zone more compatible with the neighbouring industry.”

In addition it is a recommended action in the plan that Council “investigate a rezoning of Cartwrights Hill to reduce potential conflict of land use and to protect the viability of the Bomen Industrial Area.” (Habitat Planning, 2003 p 11)

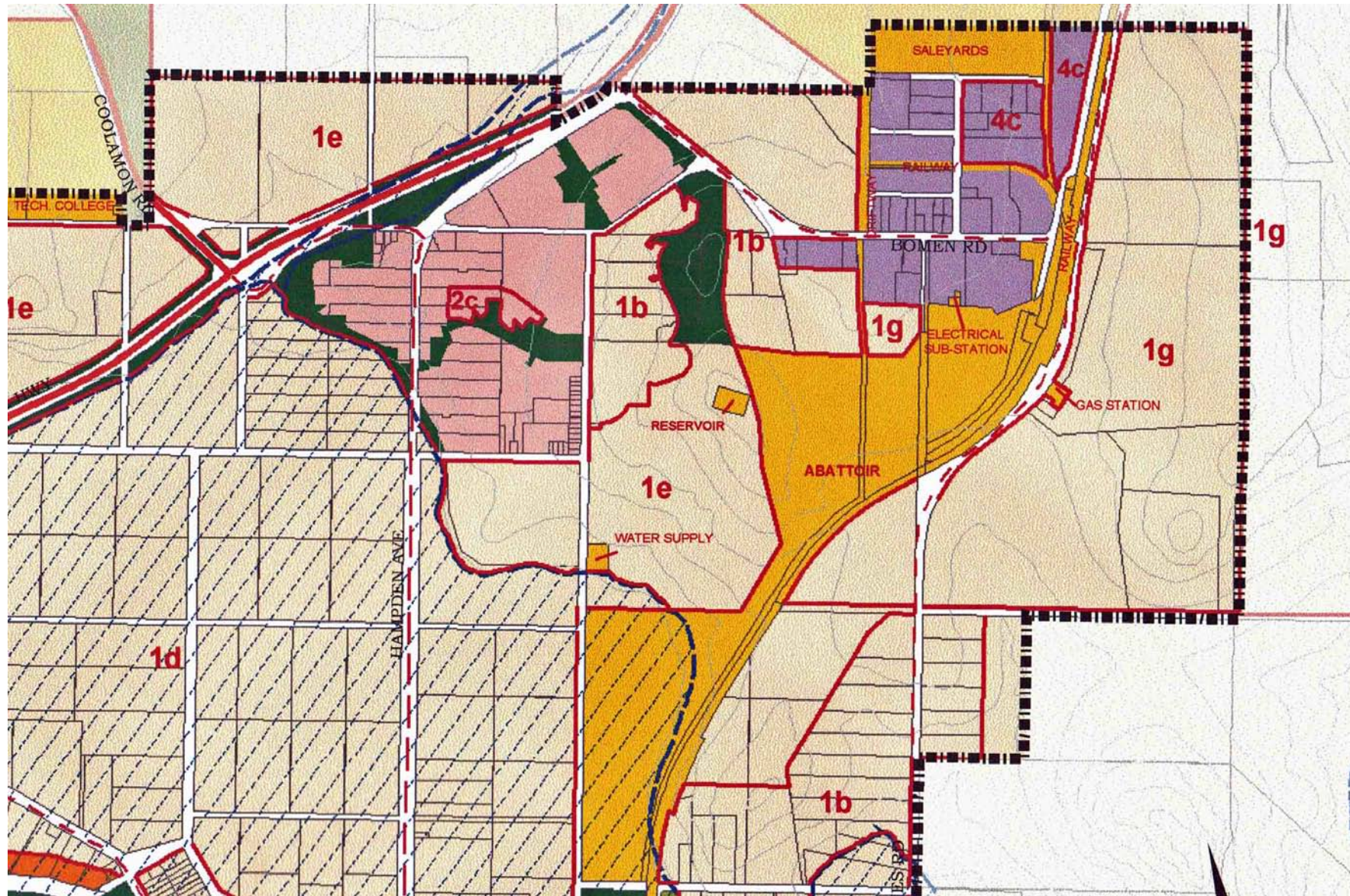
The Wagga Wagga Local Environmental Plan LEP 1985 map also provided an indication of subdivision possible lot layout of the land, although the land is still mostly unsubdivided to residential standard with only those lots along the southern part of East Street and the eastern part of Cooramin Street being subdivided. Map 3.1 shows an excerpt of the LEP for the study area.

The Wagga Wagga Development Control Plan 2005 prescribes a density of housing at 10 dwellings per residential hectare which equates to a lot size of approximately 800 m². The land which is sub-zoned as 2c Medium Density can be subdivided to a maximum density of 40 dwellings per hectare. Map 3.2 shows an excerpt of the DCP for the study area.

The fact that the LEP shows the land as subdivided is reflected in the indicative lot and road layout. This is unusual and was not and is still not the normal practice for LEP mapping. It is noted that the DCP is the document that stipulates the controls for the subdivision of the land and the DCP map shows the existing lot layout. This is reinforced by clause 2 of the LEP which outlines the Aims and objectives. In particular is clause 2(1)(c) and 2(2)(b) which are reproduced below:



Map 3.2: Wagga Wagga LEP 1985 Map Excerpt



Map 3.3: Wagga Wagga DCP 1985 Map Excerpt

- (c) *to give the council greater responsibility for environmental planning by creating only a broad framework of controls and to create opportunity for the more detailed provisions relating to matters of significance only for local environmental planning to be contained in development control plans made by the council,*
- (b) *to encourage the council to make development control plans regulating the carrying out of development in any zone:*
 - (i) *by restricting the carrying out of that development to a specified area within the zone, or*
 - (ii) *by fixing standards or specifying requirements in respect of any aspect of that development,*

Clause 11 of the LEP is the relevant clause dealing with subdivision and it states that all subdivision requires the consent of Council. This and the objectives of the DCP plus the provisions of the DCP for density of development and not specific minimum lot size, leads one to conclude that the lot layout in the LEP map should only be viewed as one potential layout. It could be called a subdivision on paper only which shows an indicative lot layout but has no force. It should also be noted that landowners are not compelled to subdivide their land if it has been zoned to allow for smaller lots.

In 1995 the Wagga Wagga DCP was amended to introduce section 8.6.38 and 10.6.12 into its Residential and Industrial Chapters respectively, titled Bomen Industrial Estate, Cartwrights Hill Residential Area and Bomen Industrial Candidate Area. This would have been in response to the issues raised in the Vision 21 Strategic Land Use Management Plan. The DCP makes the following statement:

“As a result of the recently completed WISDOM Study (Wagga Industrial Sustainable Development Opportunities Model) Council will progressively introduce development control guidelines over the subject area to ensure sustainable industrial activity. This special provision is the first of such and is aimed at ensuring that any new development will not have an adverse environmental effect or create a conflict between residents and industries locating in this area.

All proposed development within the subject area is to obtain Council consent. Development is restricted within the prescribed area whether classified as permissible with council consent or without council consent on the DCP landuse guide.”

This was effectively a moratorium on development in Cartwrights Hill and this was future investigated in 2003 when Habitat Planning were engaged to prepare a Study on the future development of the Cartwrights Hill area. This study assessed the range of options available to the Council including back-zoning to preclude residential development from the area. The Council resolved on 26 May 2003, inter alia as follows:

- (b) *maintain the current approach (a moratorium on the erection of new dwellings) to development in Cartwrights Hill, until such a time as the results of the upgrade to the Cargill Foods plant can be quantified in respect of any environmental impact, in particular, odour emissions.*

The effect of the moratorium was to stop the residents from submitting Development Applications to subdivide their land. It should be noted however that a Council cannot issue a moratorium on the lodgement of Development Applications under the provisions of the Environmental Planning and Assessment Act. Under the provisions of that Act, Council

must accept a Development Application and then must determine it having regard to the provisions of the development assessment requirements in section 79C of that Act. Once assessed, Council can either approve (with conditions) or refuse the application. If the Council wished to reduce or stop the subdivision of land in Cartwrights Hill because of potential impact on the industrial uses in Bomen, it should have taken steps to alter the minimum lot size of the land at that time, to one which would either stop subdivision altogether or reduce the number of lots by increasing the subdivision minimum.

The land at Cartwrights Hill was originally included in the exhibition of the Wagga Wagga draft LEP 2008 and zoned as RU6 Transition with no provision for subdivision. However due to the number of objections from the residents within Cartwrights Hill, the Wagga Wagga City Council Planning Panel resolved on 17 February 2010 to defer land at Cartwrights Hill for the following reasons:

- 1) The number and validity of objections received at the time of the exhibition of the draft LEP.
- 2) Significance, complexity and sensitivity of the issues involved.
- 3) To allow the remainder of the ("priority") LEP to progress to finalisation or more considered solution is found to the zoning of the land.

On 21 June 2010 the Planning Panel considered a report relating to the LEP deferred matters. The report to the Panel recommended as follows:

- 1) Zone Cartwrights Hill to the extent indicated R5 (Large Lot Residential) on the plan identified on minimum allotment size map undertake investigations to concern serviceability.
- 2) Allow for additional subdivision indicated areas to minimum allotment size of 1 hectares including potential additional road. On this basis up to 40 additional lots could be created.
- 3) Alter zoning of land owned by Council and Crown (Hume livestock pest and Health Authority) to RU6 transition to the extent indicated and advise the department accordingly. Note: Bomen Road is also to take on RU6 zoning.
- 4) Zone the Rodney owned land should recognise that land's value transitional land.
- 5) Reduce depth of land to be zoned IN1 on western side of travelling stock route to depth indicated on (approximately 70 m)

This was exhibited from 5 July - 15 August 2010. This was an 'informal exhibition' because of technical issues with the Panel determination to exhibit the draft LEP. Four submissions were received from Tom and Sheila Watson, Lennon Salvestro Planning on behalf of Wilks and Vesty, DECCW, Cargill Beef. Maps of the land show that the Large Lot Residential Zone covers land between Old Bomen Rd and Bomen Rd. This was to cover the 400m buffer from the Bomen STF.

On 1 September 2010, the Planning Panel resolved to formally exhibit the Planning Proposal which was the same as that in the 'informal exhibition'. The exhibition was held from 8 September – 5 October 2010.

On 13 October 2010 the Planning Panel considered a report on the exhibition and resolved to approve the exhibited zonings with some amendments as well as the minimum of 1 hectare to be enlarged to cover the entire Large Lot Residential zone. The Panel asked the Department of Planning and Infrastructure to make the LEP as a matter of priority.

On 10 February 2011, Council received a letter from the Minister for Planning advising that the Wagga Wagga Planning Panel could not be the Relevant Planning Authority to prepare a Planning Proposal pursuant to s54 of the EP&A Act. The Planning Panel did not have the jurisdiction under its terms of reference to do this. The Minister then directed that the Planning Panel is the Relevant Planning Authority in accordance with s54(2) of the EP&A Act. The Minister went on to say that the Planning Panel

“... will be required to prepare a planning proposal for the deferred matters and submit it to the Gateway for determination in accordance with the provisions of the Act. I suggest that Council staff urgently contact the Regional Office to discuss the processing of the Planning Proposal to best recognise the existing work and consultation that has been completed. ”

This had the effect of requiring the process to restart from the beginning.

On 4 May 2011 the Planning Panel resolved to prepare a Planning Proposal for the deferred areas. The Planning Proposal was to comprise all of the documents and maps that had previously been exhibited.

On 12 May 2011 Council submitted the Planning Proposal to the Department of Planning and Infrastructure for determination via the Gateway.

On 28 October 2011, the Gateway determination was issued by Department of Planning and Infrastructure.

On 8 February 2012 the Planning Panel endorsed the exhibition material for the Planning Proposal.

On 14 February 2012, the Chair of Planning Panel wrote to the Department of Planning and Infrastructure seeking approval to proceed with the exhibition.

On 21 February 2012 the Regional Director of the Department of Planning and Infrastructure endorsed the material for exhibition and also required two lots on Bomen Road adjacent to Rodneys Transport to be zoned as Light Industrial IN2 rather than Large Lot Residential R5 as submitted by the Planning Panel. This made these two lots zoned a similar zone to the adjoining land and it is noted that there is a hill between these two lots and the land to the west.

From 20 March to 20 April 2012 the Planning Proposal was placed on public exhibition. 16 individual submissions and 17 'pro-forma' submissions were received. The minimum lot size for the Large Lot Residential R5 zone was 1 hectare. Council's Executive requested that the matter not proceed to determination until studies into the buffer for the Bomen Industrial Sewerage Treatment Facility were carried out.

On 27 June 2012 the Planning Panel considered the Planning Proposal, written submissions and presentations at a public meeting. It resolved to defer the Cartwrights Hill area from determination. The Panel was advised that due to (recent) concerns raised by Council's Executive relation to the need for re-examination of odour and acoustic buffers between the Cartwrights Hill residential area and the Bomen Industrial Sewer Treatment Facility and between the Cartwrights Hill residential area and the Bomen Industrial Area, only Deferred Area 2, Estella, is now recommended for finalisation. The report to the Panel recommends that Deferred Area 1 Cartwrights Hill remain as a deferred area until further odour and acoustic studies are completed and a further report is provided to the Panel.

On 8 February 2013 the Planning Panel considered a report on the exhibition of the Planning Proposal in March and April 2012 as well as the outcomes of the additional Acoustic and Odour studies. The report recommended that the minimum lot size be increased from 1 hectare to 8 hectares as well as the extension of RU6. The Panel resolved to place the revised Planning Proposal on public exhibition.

From 18 February to 18 March 2013 the Planning Proposal was exhibited. Those authorities and Bomen-based businesses which had previously supported the control on future residential development on Cartwrights Hill, advised of even stronger support to the amendments, while Cartwrights Hill residents unanimously disagreed with them. There were 21 pro forma responses received as well as one from Teys Australia.

On 16 May 2013 the Planning Panel considered a report on the exhibition of the Planning Proposal as well as the outcomes of the additional Acoustic and Odour studies. The report recommended that the minimum lot size be 8 hectares, extend the Transition Zone RU6 zone to Old Bomen Road as well as other minor matters. There were 12 residents who spoke against the recommendation. The Panel resolved as follows:

- (f) note the report as presented.
- (g) request a further report on appropriate zonings for all the deferred area incorporating issues raised at today's meeting by the Panel and community.
- (h) request Council to investigate the appropriateness and extent of a minimum lot size of less than 8 hectares for the R5 zone in consultation with the community.
- (i) request Council to commission further odour and noise impact studies by independent bodies.
- (j) request that the above report be presented to the Panel within 3 months.

This report has been prepared in response to resolutions (b) and (c).

3.3. Land Use Conflict

Land use conflict occurs when incompatible land uses are located close to each other. It commonly occurs between residential and industrial type uses. These industrial uses create noise, odour or other forms of pollution that extend beyond the boundary and this causes a loss of amenity for a nearby residential use or area. The conflict can occur irrespective of whether the uses are residential uses rural residential, or urban.

3.2.1. Pollution

The main cause of land use conflict is the pollution from the use but it is also caused by lack of understanding and lack of communication between both the resident and the polluting use.

The basic concept of pollution regulation is to ensure that the pollution does not impact on uses outside the property boundaries. Any person can make a complaint about a land use that is causing noise, odour or other pollution to cross its boundaries and lead to a loss of amenity to the surrounding land uses. It is not always residential uses and in some cases, it can be commercial and other types of industrial uses. The polluting use has to take steps to ensure that the pollution does not occur. This can lead to an amendment to the operation or physical structures being built to enclose the pollution and treat it at the source. In a lot of cases, the pollution is from existing activities that are required to upgrade the facilities to conform to identified pollution targets

Pollution is regulated in NSW by the Protection of the Environment Operations Act (PoEO). This Act identifies a number of uses that have potentially significant environmental impacts. They are listed in Schedule 1 of the Act and include agricultural processing industries, cement works, chemical processing and storage, livestock processing activities, petroleum and fuel production, resource recovery, sewage processing and the like. They require an Environment Protection Licence to be issued by the EPA, which licences are integrated and regulate air, noise, water and waste environmental impacts. There are 10 uses within the Bomen Industrial area that have Environmental Protection Licences. They have been published by the EPA on its website and are listed in Table 3.1.

The EPA is the Appropriate Regulatory Authority for the uses that are listed in Schedule 1 and which have an Environment Protection Licence. The local Council is responsible for all other pollution issues.

Table 3.1: Environmental Protection Licenced Premises

Licensee Name	Location Name	Fee-Based Activity
Tasco Inland Australia Pty Ltd	Bomen inland terminal	Petroleum products storage
Wagga Wagga City Council	Bomen Industrial Pre-Treatment Sewage Treatment Facility	Sewage treatment processing by small plants
H.J. Heinz Company Australia Limited	H.J. Heinz Company Australia Limited	General animal products production
Teys Australia Southern Property Pty Ltd	Teys Australia Wagga Wagga	Rendering or fat extraction
Teys Australia Southern Property Pty Ltd	Teys Australia Wagga Wagga	Slaughtering or processing animals
Riverina Wool Combing Pty Ltd	Riverina Wool Combing Pty Ltd	Greasy wool or fleece processing
Southern Oil Refining Pty Ltd	Southern Oil Refining	Petroleum products and fuel production
Southern Oil Refining Pty Ltd	Southern Oil Refining	Recovery of waste oil
Renewed Metal Technologies Pty Ltd	Renewed Metal Technologies Pty Ltd	Metal waste generation
Renewed Metal Technologies Pty Ltd	Renewed Metal Technologies Pty Ltd	Non-ferrous metal production (scrap metal)
Renewed Metal Technologies Pty Ltd	Renewed Metal Technologies Pty Ltd	Recovery of hazardous and other waste
Riverina Oils & Bio Energy Pty Ltd	Riverina Oils And Bio Energy Pty Ltd	General agricultural processing
Rodney's Transport Service (Australia) Pty. Ltd.	Rodney's Transport Services Pty Ltd	Waste storage - hazardous, restricted solid, liquid, clinical and related waste and

Licensee Name	Location Name	Fee-Based Activity
		asbestos waste
BOC Limited	BOC Limited	General chemicals storage

Source: EPA PoEO Public Register

It should be noted that Riverina Wool Combing closed and ceased to operate in 2010.

The land use conflict in the Cartwrights Hill area comes from the uses with Environment Protection Licences and the complaints are made to the EPA who investigate and monitor them. The EPA also advise the Council of complaints made and the two organisations work together to reduce the pollution incidents. Whilst it is recognised that it is the aim of the PoEO Act to reduce pollution, in some cases it is not possible to create an environment where no odour is emitted.

Odour, in the case of this report is measured by odour assessment criteria specified as odour units that have been developed by the EPA. This has been done in a publication prepared in 2006 by the then Department of Environment and Climate Change titled *Technical Framework – Assessment and Management of Odour from Stationary Sources in NSW*. The odour assessment criteria are used to assess the desirable level of odour and its management. It can be used to provide data about an area's suitability for more or less development (which in this case includes residential development). The odour level at which there is no odour is 1, however in practical terms this is not readily achievable. The range of odour units has been identified by the EPA as ranging from 2 to 10 odour units where 2 is the most acceptable and 10 the least. The assessment of odour intensity is based on a number of issues as follows:

- Odour quality;
- Odour intensity;
- Odour frequency, timing and duration;
- Population sensitivity;
- Background level;
- Public expectation;
- Source characteristics; and
- Health effects.

The EPA have developed a set of criteria based on the population size measured in number of people. A table has been produced which provides a summary of odour assessment criteria for a range of population densities. It is reproduced as table 3.2. It is based on the number of people - assessed having regard to the number of dwellings multiplied by an occupancy rate of 2.6 persons per dwelling. (Todoroski and Mattes 2006)

Table 3.2: Odour Assessment Criteria

Population of Affected Community	Odour Assessment Criteria (Odour Units)
Rural Single Residences (<= 2)	7.0
~10	6.0
~30	5.0
~125	4.0
~500	3.0
Urban Area (>= 2,000) and or schools / hospitals	2.0

Source: DECC 2006 p21

Applying this to the current population of Cartwrights Hill it would have a population of 143 people based on 55 dwellings. This would make the odour assessment for the residents in Cartwrights Hill at between 4 and 3 odour units.

A higher number, (or level of tolerance figure), equates with a smaller number of receptors.

3.2.2. Complaints Investigation

The EPA has been working with a number of the uses in Bomen to deal with the odour and have been working with Teys, Heinz and Southern Oil to reduce the odour impacts from the plants under Pollution Reduction Programs. These three uses are considered to be the main odour emitting uses in Bomen and are the source of complaints made to the EPA Environment Line.

The EPA receives complaints about these licenced uses from the public via the Environment Line. The EPA has provided data on the odour complaints from residents in the Cartwrights Hill area. It is presented graphically below. It should be noted that the 1996 numbers are not for the full year and the 2013 numbers are calendar year up to 9 July 2013. It should be noted that Teys Australia Meat Processing Plant is considered to be the major cause of odour up until it made major improvements in 2012.

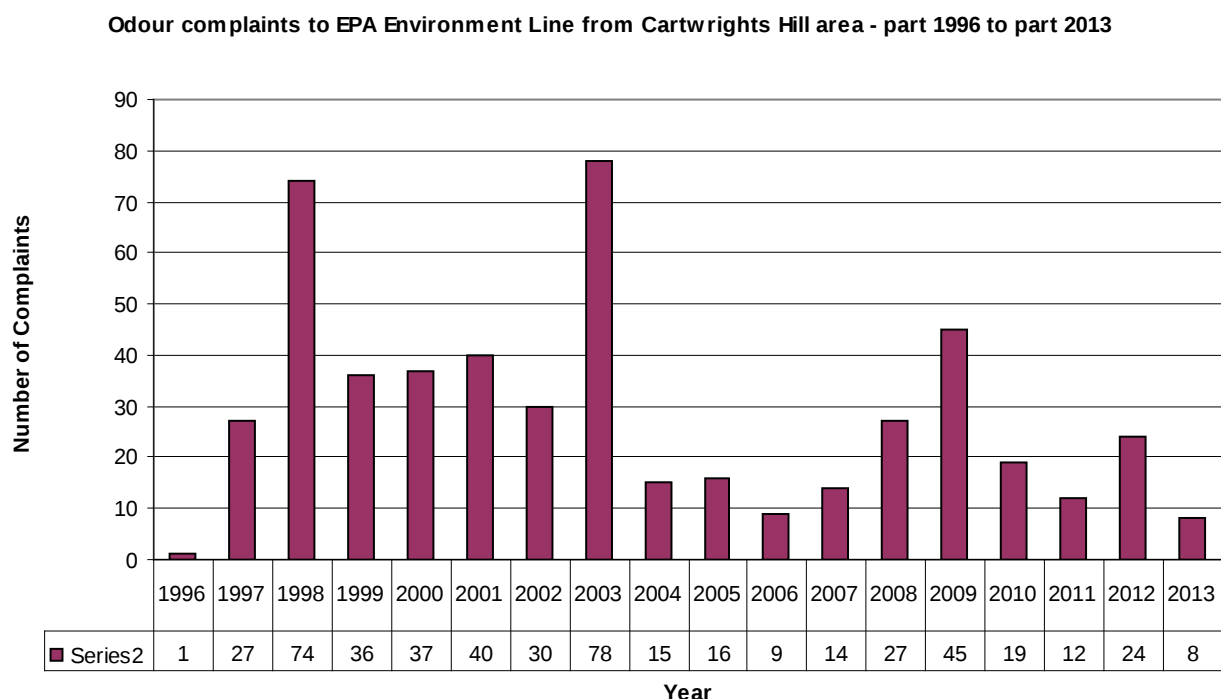


Figure 3.1: Odour Complaints 1996 - 2013

Source: EPA Environment Line data compiled by EPA

It can be seen that the complaints reached a peak in 2003 when a total of 78 complaints were received. They then varied between nine and 16 from 2004 to 2007 then started to rise with 27 in 2008 and 45 in 2009. After this the complaints have dropped off and show a declining trend.

The investigation and reporting of pollution incidents is a time consuming and costly exercise to both the EPA and Council. They involve staff time for the receiving and investigation of the complaints. If the matter cannot be resolved by requiring the use to comply with standards, it can lead to litigation which is more costly – both in staff time as well as costs associated with the litigation including solicitors and consultants.

The EPA are moving to a Risk Based Licencing system which will use complaints generated by the licensee to be related to the annual licence fee. It is an incentive for companies to reduce their impact and thus complaints.

3.2.3. Separation of Land Uses

The most effective way of dealing with land use conflict is to separate the uses and provide appropriate buffers so that conflict is minimised. This is done by the use of zoning through the Local Environmental Planning process. This allows a Council to zone for new land uses or to amend zones to locate land uses so as to reduce conflict if it is occurring.

In the case of Cartwrights Hill, if there was a request to zone the land from rural to urban it would not be considered appropriate because of the potential for land use conflict. As stated above, appropriate strategic planning can ensure that there are no new dwellings built in an area that has current incidents of land use conflict and odour issues. It should be pointed out that this has been raised by the EPA and others consistently since the process of preparing the Wagga Wagga Comprehensive LEP began.

However, this is not the case with Cartwrights Hill and so the options of providing a buffer between the residential uses in Cartwrights Hill and the industrial uses as well as limiting the number of new dwellings have to be considered. The views of the existing residents who want to live in the area have to be balanced against those of the EPA and others who wish to limit the land use conflict. The EPA reiterated its concern about any increase in the number of residents in the Cartwrights Hill area and the potential impact on Bomen industries during the meeting held with officers of the EPA as part of this study.

3.4. Bomen Industries

Bomen is one of the major economic drivers for the city of Wagga Wagga. The total employment within the Bomen industrial area has been estimated by Council's Commercial and Economic directorate as being approximately 1,600 people. The land use of the area has been described in section 2.3. There are a number of key industries that were visited during the consultation phase of this study. They are discussed below.

It should be pointed out that the currently developed Bomen Industrial area, is only a small part of the proposed expansion of it to move into the 2,000 ha of land which is currently zoned as Industrial. This is to house a number of transport and logistics industries which is to include the proposed Riverina Integrated Freight Logistics development. Therefore it can be seen that Bomen is expected to become a key component of the City of Wagga Wagga economy for the foreseeable future.

There are a number of businesses in Bomen that because of their potentially significant impact, have specific Environment Protection Licences. These are outlined below.

3.3.1. Teys Australia

The largest business within the Bomen Business Park is Teys Australia. This is a Meat Processing Plant that operates seven days per week. A total of 930 people are employed

on the site. 800 are employed in the processing plant and 130 in the administration supervisory, management and maintenance sectors. The plant produces two types of beef product:

- *Carton Beef.* Carton beef, which is the core business of the processing plant, is chilled beef cuts for domestic and export market. 45% of the carton beef is exported overseas to markets in Japan, Korea USA and China where it is sold to restaurants and supermarket chains. The domestic market is made up of butchers, restaurants and catering firms.
- *Case Ready Beef.* This consists of butchering and packaging single and multiple serve cuts of beef which are packaged ready to be sold in supermarket shelves. They are supplied to Aldi Supermarkets in New South Wales and Victoria as well as some Woolworths supermarkets as Riverina Beef.

Teys expressed concern about the introduction of more people into the Cartwrights Hill area who could complain about any odour emanating from the plant.

Over the past 10 years Teys have been working to reduce the odour from the plant. This has been done in conjunction with the EPA under a Pollution Reduction Program. Teys have invested in a Bio filter on the rendering plant as well as a waste water treatment plant. The cost of the waste water treatment plant was \$12 million. Both of these have led to a reduction in the odour emanating from the plant.

The Bio filter was commissioned in March 2004 and the waste water treatment plant was commissioned in January 2012. This had the effect of reducing the amount of effluent being input into the BISTF which has had a subsequent drop in the load and operation activity of the facility. The Bio filter had a dramatic impact on the odour complaints as can be seen from the EPA data where they dropped from 78 in 2003 to 14 in 2004. Teys advise that during the commissioning of the waste water treatment plant there were some teething problems which resulted in approximately 12 complaints to the EPA Environment Line and this has been verified by the EPA. So if this is taken into account the number of complaints for 2012 is the same as for 2011. The residents advised during the consultations with Teys, that now there is not any odour emanating from the Teys plant. During various inspections of the Cartwrights Hill area by the author, there was no odour evident from any of the Bomen industrial uses.

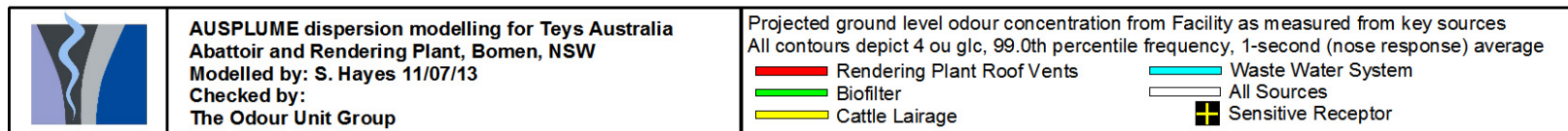
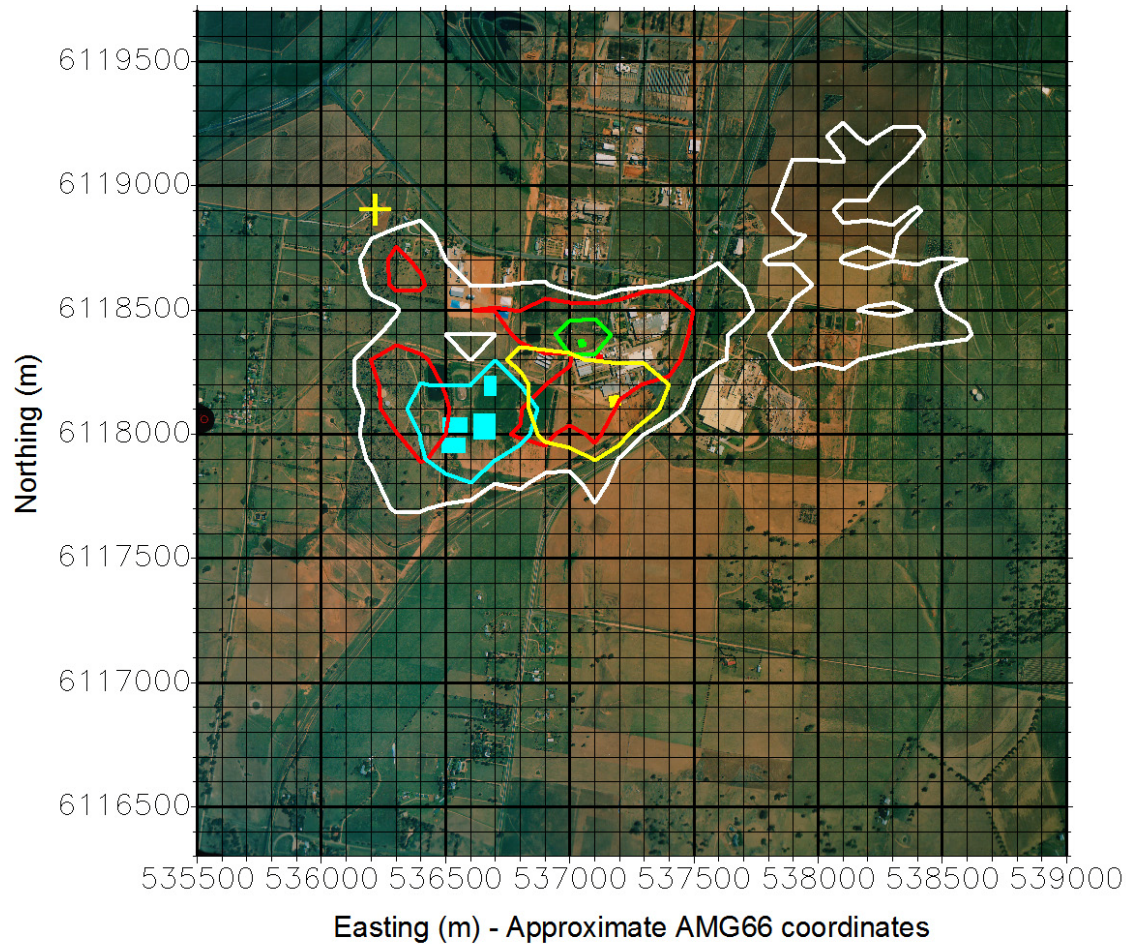
Teys Australia are concerned that any increase in the number of dwellings in the Cartwrights Hill area will result in them having to do more works on their site to reduce the odour. They have stated that they believe that any increase in the odour assessment criterion for the Wagga Wagga facility will lead to significant capital expenditure of approximately \$1.5 million. Teys states that they have an odour assessment criteria of 4 which its Effluent Management System and upgrades to the rendering plant have been designed to achieve. Teys have estimated the population to be 176 for Cartwrights Hill (based on ABS figures) and that any increase in the number of dwellings will lead to it moving to an odour assessment criterion of 3.

An assessment has been done by Teys of the subdivision potential of the area and this has shown that any subdivision minimum of less than 4 hectares will increase the number of people in the area to such a population that it will lead to an odour assessment criterion of 3. However, as pointed out in section 3.2.2, the odour assessment criteria 4 is between 125 people and 500 people. It is at 500 people that it moves to level 3. Based on the assessment of the number of dwellings in Cartwrights Hill it currently would have a

population of 143 people. It would require in the order of 358 more people to reach the level of 3 odour units.

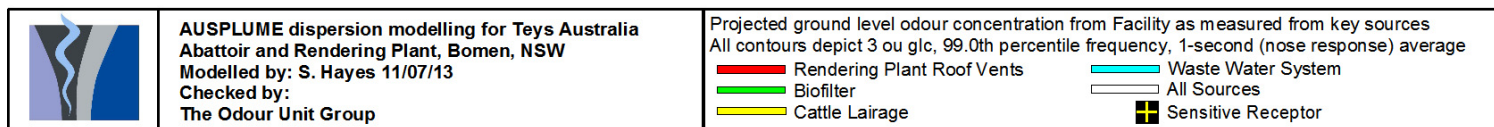
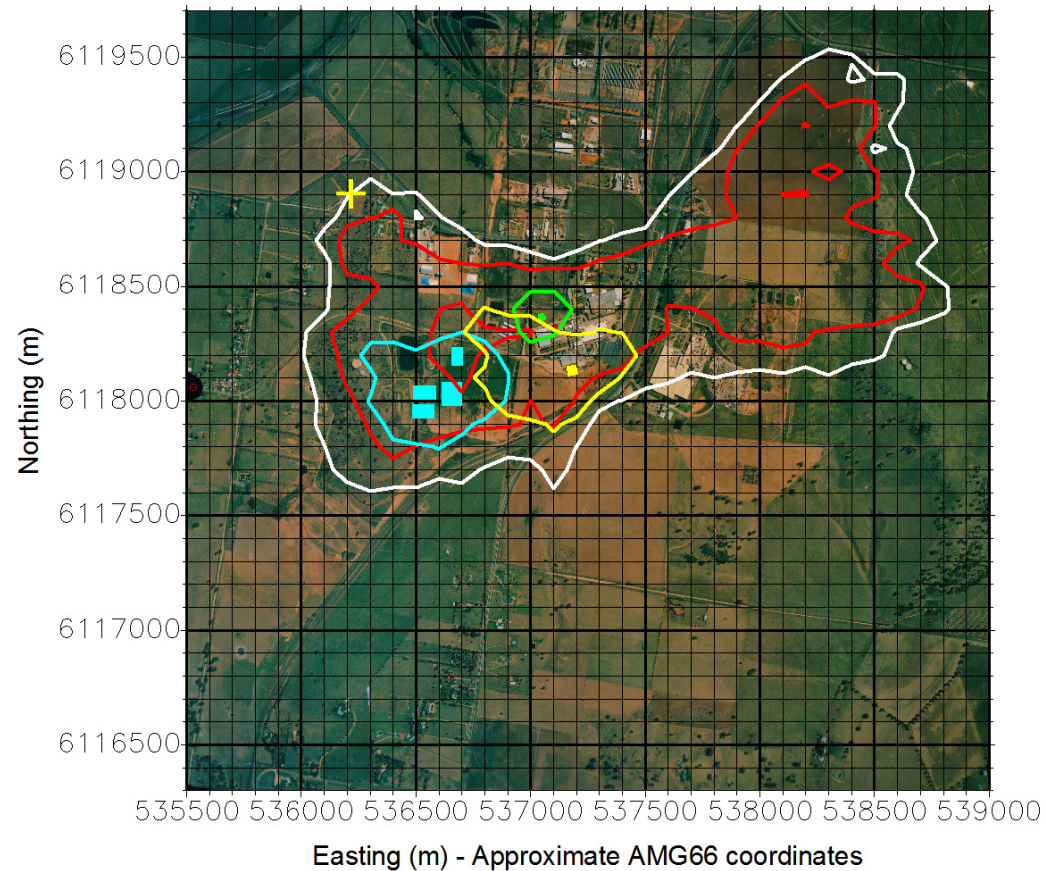
Teys Australia have had odour testing done for the current operations of the plant, which show that the odour level of 4 odour units is contained within their property boundaries except for Rodney's Transport and the two lots to the west of it on Bomen Road. Teys Australia has provided this for inclusion in the study and it is shown as map 3.4. When this is related to the odour assessment outline in section 3.2.2, this would be appropriate for a population of approximately 125 people within the boundaries of the odour contour. The map shows that the odour contour extends to the hilly land between the Plant and East Street. Teys have also produced a map showing the limits of 3 odour units and this is shown as map 3.5.

It can be seen from this map that the odour contours extend to the edge of the vegetated land and also to the houses on the north eastern side of East Street. It is significant to note that the odour contours do not extend to East Street where most of the existing residents are located.



Map 3.4: Odour Modelling for Teys Meat Processing Plant – 4 Odour Units

Source: Teys Australia



Map 3.5: Odour Modelling for Teys Meat Processing Plant – 3 Odour Units
 Source: Teys Australia

3.3.2. Rodney's Transport

Rodney's Transport is another of the major uses within Bomen and they employ 155 people and operate 120 trucks from the site. It operates 24 hours a day seven days a week. They store waste on the site as well as being a storage facility for grain, batteries, fertiliser, paper, salt and cement.

Rodneys Transport use Bomen Road as one of their routes to access their business. They were concerned about the impact of new residents complaining about the noise of trucks as well as any noise emanating from the use itself. For this reason they don't want to see any more dwellings in Cartwrights Hill.

3.3.3. Heinz Australia

Heinz food processing prepares canned corned beef. The plant has a total employment of 80 people and produces 120 tonnes per week of product. They produce for domestic supermarkets as well as exporting 60% of their product overseas.

Heinz Australia expressed similar concerns to Teys related to odour and objected to any new residents in Cartwrights Hill.

Heinz have invested in a Dissolved Air Flotation Unit to deal with the waste water generated from the food processing. This has reduced the amount of odour emanating from the plant. The installation of the DAF has been done in conjunction with the EPA under a Pollution Reduction Program.

3.3.4. Southern Oil Refineries

Southern Oil is another large business within Bomen. It is an oil re-refinery where waste oil from mechanics (which carry out oil changes on cars) is refined into high-grade product. It employs 32 full time staff and operates 24 hours a day seven days a week.

Southern Oil receives odour complaints during its regular maintenance which occurs every 2 months. At other times it does not emit odour. For this reason they don't want to see any more dwellings in Cartwrights Hill.

3.3.5. SITA Australia

SITA operate a waste removal and resource recovery depot in Bomen. They provide waste services for industry and their clients in Bomen including Teys, Heinz and Southern Oil as well as others in Wagga Wagga. They operate 25 trucks from the site and operate 7 days per week 24 hours per day. The majority of the truck movements are during normal working hours but they can also operate at other times depending on client needs.

SITA, like Rodney's Transport use Bomen Road to access the site as well as Old Bomen Road for one of their contracts. They are located in Bomen because it is appropriately zoned for industrial use as well as being near to a number of their clients. They don't want to see any more dwellings in Cartwrights Hill.

3.3.6. Bomen Industrial Sewage Treatment Facility

Council operates a treatment facility on land to the north of Bomen Road where it intersects with old Bomen Road. This facility is a pre-treatment facility before the sewage is treated at Council's main Sewage Treatment Plant which is located at Narrung Street

North of the CBD. The main load of the treatment facility at Bomen comes from Teys and Heinz as well as the from other industrial uses within Bomen.

The work carried out by Teys and Heinz has meant that the load on the treatment facility has decreased considerably and the facility now no longer needs to operate at its full capacity. The Council has plans to turn the Bomen facility into a full sewage treatment plant which would treat sewage from the residential areas being considered for the North of Wagga Wagga under the Spatial Plan Review, as well as any future development within the Bomen industrial area. Currently the Council are planning for this to occur in 2018 to 2020. The upgrade in function is also dependent upon the capacity being reached at the Narrung Sewage Treatment Plant.

A sewage-treatment plant creates both odour and noise pollution. The guidelines for development of sewage-treatment plants near residential areas outlined in a Planning Practice Note issued by the Department of Planning and Infrastructure, which state that they should have a buffer of 400 m between them and any residential development. This will address both odour and noise issues. For the Bomen sewage-treatment plant to be upgraded it will require the addition of a second Sequential Batch Reactor (to treat the sewage) which will have the impact of causing potential odour and noise pollution from the site. However, this can be addressed by appropriate on-site construction and management procedures.

Council has received complaints from the current facility for odour and noise, but these complaints have been reduced over the past 2 to 3 years particularly because of the improvements to the water treatment plant at Teys. This means that the plant does not have to operate at its full capacity.

Council has commissioned odour and acoustic studies to investigate the impact of the BISTF and its upgrade on surrounding land uses and particularly Cartwrights Hill. The study findings will be discussed later in this chapter.

3.5. Residential Development Potential

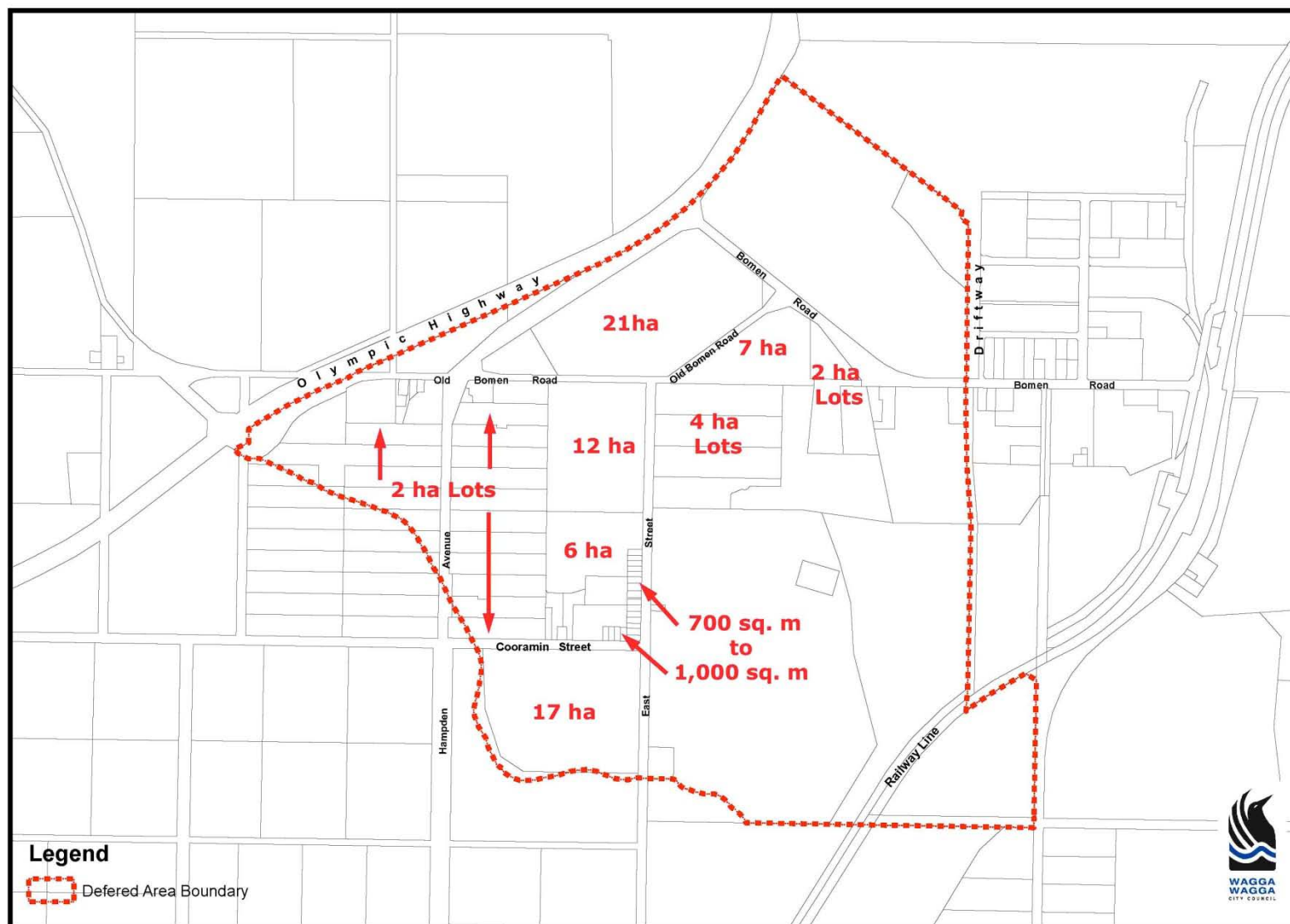
The zoning of the land permits subdivision at a density of 10 dwellings per hectare for the majority of the site, with a small area (R3 zoning) which could be subdivided at a density of 40 dwellings per hectare. The total lot yields of the Cartwrights Hill area is estimated by council to be in the order of 700 lots. However there have only been 19 allotments created at this density. These lots were created in the 1980s and all but one has a house constructed on them. The owners of the land could expect to achieve the subdivision potential of their individual land holdings any time in the future. It being noted that the zoning of the land for residential does not require them to subdivide the land immediately.

The lots in Cartwrights Hill have varying sizes and range from 700m² to 20 ha. There are 19 lots that have been subdivided in accordance with the zonings. They range in size from 700m² to 1,000m² and are located along the East St north of the intersection with Cooramin Street. There are also 17 lots that have a size of around 2 ha and these are located on both sides of Hampden Avenue north of Cooramin Street. The lots on the eastern side of East Street south of the Old Bomen Road intersection are 3 – 4 ha in size. The cadastre (lot layout) of the area can be seen from map 3.6.

The Council instituted is a moratorium on the lodgement of Development Applications for subdivision in Cartwrights Hill because of potential impacts of further subdivision on the industries within the adjoining Bomen industrial area. This moratorium on subdivision had

the effect however of stopping the residents of the area from lodging Development Applications for subdivision of the land. The residents have advised that they did not lodge any applications because they were aware of odour and they had waited until the odour issues had been addressed by the major industries within the area.

The landowners within the Cartwrights Hill area have now commenced lodging development applications with Council and currently three development applications have been approved for a total of eight allotments. These consist of two additional one hectare lots and six 800m² residential lots. The residential lots have been configured to allow for the submission of subsequent applications and the resident has advised that an application is currently being prepared for an additional 20 lot subdivision.



Map 3.6: Cartwrights Hill Lot Sizes

3.6. Odour and Acoustic Assessments

Initial odour assessments were carried out as part of the Wagga Wagga Spatial Plan exercise in 2008 by Holmes Air Sciences. In October 2009 validation of the report were provided to Council and in 2012 a report was commissioned to address the impact of the BISTF.

Odour and Acoustic assessments have been carried out to determine the impact of the current operations of the Bomen Industrial Sewage Treatment Facility as well as planned expansion to a Sewage Treatment Plant.

An acoustic assessment was carried out in 2012 to assess the noise impact of the BISTF. This was also done to assess the impact it had on the Cartwrights Hill area.

Each of these will be discussed below.

3.5.1. Odour Assessments

The odour assessment carried out in 2008 by Holmes Air Sciences was prepared as part of the Wagga Wagga Spatial Plan and provided an assessment of the impacts of the existing odorous industries in Bomen. The main objective of the study was to determine the extent of odour impacts arising from existing odour generating industries. This was to allow the extent of odour impacts to be used for consideration in the rezoning process. The report noted three key odour industries as follows:

- Riverina wool combing (this plant ceased operation in December 2009).
- Cargill foods (this facility has changed its name to Teys)
- Wagga Wagga Livestock Marketing Centre

The report noted that there was a history of odour complaints registered with the EPA and that most of these complaints originated from the Cartwrights Hill area and were directed at the odour generating industries in Bomen. The Teys Meat Processing Plant was accepted as the operation most likely to cause odour impacts. The Teys Meat Processing Plant carried out an upgrade to the plant to add a bio filter to the rendering plant, which was commissioned in March 2004. This led to a reduction in the number of odour complaints. However the report noted that complaints were still being received.

The assessment of the odour impacts from Bomen on the Cartwrights Hill are based on criteria developed by the former Department of Environment and Climate Change (DECC) which are related to the population density in the vicinity of the odour source measured as population based on the number of dwellings (in this case it is 2.6 people per dwelling). A table produced by DECC is included in that report. The assessment of impact is carried out by Holmes Air Sciences which states that the "... estimated ... population of the community around Cartwrights Hill is one of the order of 20 which indicates that the appropriate odour criteria is five odour units ..." (Holmes Air Sciences p 12).

As outlined in section 2.3 of this report, there are 55 dwellings, one motel and one caravan park within the Cartwrights Hill locality. This would make a population of 143. All of these buildings were present in 2008 when the Holmes Air Sciences report was carried out. This is a considerable difference and this error has the effect of moving the odour performance criteria to between three and four which is a higher level. It should be noted that the odour assessments included odour emanating from Riverina Wool Combing which has

subsequently closed and any odour from this plant has ceased. However, it is a model for predicting future land use impact and whilst it uses existing industries other similar industries may be developed in the area in the future.

The dispersion model used six different scenarios which ranged from all of the odour sources within the Bomen area to just the Teys Meat Processing Plant. The odour modelling showed that at the corner of East Street and Cooramin Street the odour level was 30 odour units for all of the sources. However the odour modelling for the Teys food processing facility only shows this to be 20 odour units at the corner of East Street and Cooramin Street. This odour level is the one that should be used now because of the closure of the other major source of odour in the area being the Riverina Wool Combing.

In 2009 Council sought clarification from PAE Holmes (previously Holmes Air Sciences) about the 2008 study. It is interesting to note that this showed the " ... odour criterion of around 4 to 5 ..." odour units. There is no clarification of the number of dwellings used to justify this change in the odour unit criteria. This response also included a detailed list of the odour sources used in the 2008 air-quality impact assessment modelling. It is noted that this list was not included in the 2008 report. The list is as follows:

- Cargill foods (existing and upgraded)
- Riverina wool combing
- Livestock Marketing Centre
- proposed ANL plant
- future food processing plant in the central northern area of the Bomen industrial area
- to future poultry livestock plant in the central eastern area of the Bomen industrial area and
- to future poultry livestock plant in the north-eastern area of the Bomen industrial area

The last four operations on this list do not exist.

The report goes on to note that there are sources that have potential to generate significant widespread odour that were not included in the 2008 modelling. These are Pioneer Road Service (Asphalt plant) and Riverina Oils (proposed).

The 2009 review of the 2008 study confirmed that the original data and conclusions of that study remained valid.

In 2011 Council commissioned a Buffer Zone Odour Impact Assessment of the Bomen Industrial Sewage Treatment Facility (BISTF). This was carried out by Todoroski Air Sciences and its purpose was to delineate an appropriate buffer zone to ameliorate potential odour impacts associated with the Bomen Industrial Area including the Bomen Industrial Sewage Treatment Facility. It updates the 2008 study by incorporating potential impacts from the BISTF and "... identifying the potential extent of land that would be impacted by unacceptable odour levels." (Todoroski Air Services p 1) The study also considers the extent of the buffer required to accommodate an expansion of sewage treatment operations at Bomen to become a fully operational Sewage Treatment Plant. It should be noted that the 2008 study did not include the BISTF.

The assessment considered three scenarios, as follows:

- Scenario one-reproduction of the 2008 assessment

- scenario two-scenario 1 plus the inclusion of the BISTF
- scenario three-scenario 1 plus the inclusion of the BISTF and an assumed future sequencing batch reactor sewage treatment plant located next to the BISTF

The same odour emissions outlined in the 2009 review by PAE Holmes (outlined above) are included in this report. There is no commentary in this report on the status of these odour sources. Similarly the report states that the sources of odour such as the asphalt plant have not been added (because they are a different type of odour). Again there is no acknowledgement of Southern Oil which is a licensed premises and subject of complaints to the EPA. It would have been expected that this information should have been clarified and that is the uses which have closed and those which have not commence since 2008 would have been noted.

The report shows that the existing "... BISTF plant has only a minor effect on odour in the area." (Todoroski Air Services p 12) the odour contours show that the outermost contour is 0.5 odour units and that it doesn't extend south of Bomen Road. The odour modelling for scenario two shows that " ... the BISTF has only a minor effect on odour in the area. The addition of the BISTF has no discernible effect on the odour impacts outside of the Bomen study area. (Todoroski Air Services p 13) It should be noted that the study area for this study does not include the Cartwrights Hill residential area and so therefore it can be concluded that there will be no additional impact from the BISTF on Cartwrights Hill residents. The modelling for scenario three shows that the lot immediately south of Bomen Road and North of old Bomen Road is the only area affected by the upgraded BISTF to a sewage treatment plant and that none of the residents in Cartwrights Hill are affected by the upgrade. The figure shown in the report on page 15 uses the modelling from the 2008 study which included the now closed Riverina wool combing plant and therefore is considered to be wrong as it shows the odour level at the corner of East Street and Cooramin street to be 30 odour units and not 20. This is an unfortunate error but not considered to be of a major magnitude to the overall conclusions of the study. Recent discussion with Todoroski Air Services has revealed that they were not able to get any odour information from Teys and so had to produce a conservative estimate. The recent works done by Teys, had it been included, would have reduced the odour unit contours. This is evident from the modelling done by Teys Australia and shown as map 3.4. It has since been revealed by Teys Australia that they were reluctant to provide any data about their odour to the consultants for the 2008 and 2012 odour studies because of legal issues associated with the licence and non-compliance with it. This means that the odour modelling done for that study and the subsequent one are conservative and do not reflect the current situation at all.

The section on odour complaints seems to be at odds with the data provided by the EPA. It is stated that the data covers the period from 2009 up to early August 2012 and that the highest number of complaints in any year was recorded in the first seven months of 2012. This seems to be at odds with the data shown above which shows that 2009 had the highest number of complaints in that period and that this was the third highest complaint year. The report states that the complaints are trending upwards when the data from the EPA show that the complaints are trending downwards. The following statement is made:

"It is noteworthy that the largest number of odour complaints have been received since the Teys commissioning of odour reduction measures. The level of complains potentially indicates that whilst there may have been a reduction in the odour from Teys, the residual odour levels in the Bomen area appears to be sufficient to still lead to complaints."

Previous complaints data from the EPA was analysed in the 2009 review. That data included all other sources of odour in the wider area (and not just Teys / Cargill data). Approximately 440 complaints were lodged between 1997 and 2009, however in a representation to Council prior to the October 2009 review, the Cartwrights Hill group suggested there was no longer any odour issue in the area.

The continued, and potentially increasing trend in complaints since 2009, despite significant work on one of the major odour sources in the area (Tey's) indicates that the community near the Bomen industrial area does not find the odour in that location satisfactory.

It would have appeared to be prudent for all industry in the area to continue to work towards ameliorating its odour emissions and for Wagga Wagga city council not to introduce new receptors into an area that appears to already have existing levels of odour that are unacceptable to the community.

It would appear that a somewhat larger buffer is required to West of the Bomen study area in order to accommodate the sewage treatment requirements arising from Wagga Wagga's projected population growth." (Todoroski Air Sciences pp 16 and 17).

The study concludes that the BISTF as it exists currently does not make any discernible difference to the existing situation of odour impacts. The document states that there is a continued and increasing trend of complaints since 2009 and at this indicates that the community in the vicinity of Bomen does not find odour level satisfactory. As stated above this conclusion seems to be erroneous is certainly is not borne out by the figures provided by the EPA. It goes on to state that there should not be any new odour receptors (dwelling houses) introduced "... Into an area where currently it appears that existing levels of odour are giving rise to community complaints." (Todoroski Air Services p 17)

Of concern in relation to determining a potential minimum allotment size in Cartwrights Hill is the conclusion that the odour complaints are increasing in Cartwrights Hill and that this indicates the odour being omitted from the uses in Bomen (particularly Teys Meat Processing Plant) is not acceptable to the community and that this is the reason for not recommending anymore dwellings in the area. The report does not make any mention of the water treatment plant that Teys have commissioned in 2012 and which would have been worked upon when this study was prepared. The residents of Cartwrights Hill advise that since the commissioning of the water treatment plant odour from the area has not been present.

Recent discussion with Todoroski Air Sciences has revealed that they did not visit the site for this project and that they were unable to obtain any odour data from Teys Australia. For this reason, they could not make any comment about the impact of the water treatment works on the reduction of the odour in the area. This is an unfortunate series of events. However, the fact that no commentary was made about the work done by Teys and its commissioning in early 2012 (before this study was carried out) and its potential impact, is of concern.

As a result of this and the modelling done for Teys Australia in July 2013, Todoroski Air Sciences have advised that reliance on the 2008 modelling will not give an accurate picture of the current odour issues and should not be used in any future planning investigations. It was advised that a new set of modelling was recommended to the council using a different model but this was not agreed to by the Council.

For this reason, it is considered that the only information from this report that can be relied upon is the modelling of the BISTF and that the conclusions about the impacts on residents of the area from odours emanating from the Bomen Industrial area should be disregarded.

Therefore, it can be concluded that the operation of the BISTF currently does not have any impact on the land outside the boundaries of the site but that for any expansion, there would be an impact on the two lots to the south of Bomen Road. This would put it in accordance with the recommended buffer of 400m between a STP and housing.

It is clear that the odour studies are outdated and the Council is encouraged to undertake a new set of odour modelling for the Bomen Industrial area to ascertain its odour impact on the surrounding lands. However, it is not considered necessary to do this before the issues of a minimum lot size for Cartwrights Hill is determined.

3.5.2. Acoustic Assessment

Atkins Acoustics and Associates was commissioned to prepare a Noise Impact Assessment of the BISTF. This was to cover the existing operation as well as providing some guidance with future expansion of the facility.

The study referred to the (former) Department of Environment and Climate Change (DECC) noise policy amenity goals and recommended that the night time suburban residential receiver being 40 dB(A) and a maximum of 45 dB(A). The noise sampling has shown that the current noise levels are above this.

The report has shown that the level is 40dBA for 100% operation and 35dBA for the 75% operation of the plant. This would put it within the tolerance of the DECC noise policy amenity goals. The report also prepared predicted noise levels for the 100% and 75% load conditions for calm, wind, temperature inversion and a combination of wind and temperature inversion. This showed that land north of Cooramin Street would be noise affected at 100% blower load conditions (1,600m). The modelling also showed that at 75% blower load, the land north of Old Bomen Road would be noise affected this is 600m from the plant.

The report makes recommendations to assist with reducing noise from BISTF that would reduce the land exposure to noise which are noise attenuation works that can be done to the BISTF plant itself. It also recommends that any new plant and equipment should be designed to achieve a noise level at least 10dBA below the project specific noise criteria of 40dBA.

It can be concluded from this report that noise impact on the residential properties in the Cartwrights Hill area can be ameliorated by noise attenuation works at the BISTF and that any expansion to it should also have appropriate noise levels of 30dBA. This would put it in accordance with the recommended buffer of 400m between a STP and housing.

Chapter 4: Consultation

4.1. Introduction

Consulting with the affected stakeholders is a key part of the preparation of this study.

4.2. Stakeholders

The stakeholders of the Cartwrights Hill area can be grouped into three categories:

- Council and EPA
- Landowners
- Bomen Business Park

Meetings were held with the stakeholders from 8 to 11 July.

These meetings with the Council officers included those from Council's Planning, Infrastructure Services, Environmental and Community Services as well as Commercial Services directorates.

The meeting with the EPA included the Regional Manager and local unit officers.

Meetings were held with the following landowners:

- Tom and Sheila Watson
- Jeff Ashley
- Jan Mackenzie
- Craig and Gail Burns

The Watsons were at one meeting and the other three people were at the other.

Meetings and site visits were held with the following Bomen land uses:

- Teys Australia
- Heinz Australia
- SITA
- Southern Oil
- Rodney's Transport

Chapter 5: Options and Recommendations

5.1. Introduction

The issues discussed in chapter three of the Report have shown that it is a very complex planning matter and one with three major conflicting components.

On the one hand there is the Bomen Industrial area which is of vital importance to the economy of the City Wagga Wagga and on the other is land that has been rezoned for residential development and which would currently yield approximately 700 residential lots. Added to this is the existing BISTF and the potential expansion of this into a conventional sewage treatment plant which also may have an impact on adjoining residents.

It is clear that the introduction of 700 new residents in two the Cartwrights Hill area is likely to have a detrimental impact on the attainment of the full capacity within the Bomen industrial area. It could also probably lead to the closure of some of the polluting industries with resultant employment impacts. The options to deal with this will be discussed in this chapter.

5.2. Key Issues

The key issues for the future of the Cartwrights Hill and Bomen industrial area are as follows:

- Bomen Industrial Area and its economic benefits to Wagga Wagga economy;
- Cartwrights Hill Residential zoning;
- Bomen Industrial Sewerage Treatment Facility and expansion.

The Bomen industrial area is a very significant part of the Wagga Wagga city economy. It employs approximately 1,600 people and is being investigated for the development of a major intermodal transport facility which will generate a number of new industries around the transport and logistics sector, thus increasing the employment in the area. The Council is also promoting the introduction of other industries into the Bomen area. It should be noted that this development area is to the north of existing industrial development in Bomen and means that these uses would be further away from any development in Cartwrights Hill.

The land at Cartwrights Hill is zoned residential and has been zoned this way since the introduction of Wagga Wagga Local Environmental Plan 1985. This land would yield approximately 700 residential allotments however currently only 19 have been constructed and built upon.

In the past two months, there have been three development applications for subdivision, two of which created lots in the vicinity of 1 ha and above but one of these applications created five residential lots along East Street. This application was configured to be the first stage of future subdivision of the land for residential development and the landowner has advised that a further application for 20 lots is currently being prepared. It should be noted that this is a subdivision of a large parcel of land within Cartwrights Hill and this allotment alone would generate approximately 100 residential allotments. Approximately 10 years ago the council introduced a moratorium on the receipt of development applications for subdivision within the Cartwrights Hill area in an attempt to reduce any impact on the industrial development in Bomen which presumably included the odour emitting industries. However there are no provisions within the Environmental Planning

and Assessment Act to allow a Council to refuse to accept applications. It is considered that this matter should have been dealt with by rezoning the land to create a minimum allotment size which would reduce the number of residential allotments that would result from subdivision of the land. It also should be noted that the landowners have indicated that some of them purchased the land some time ago with the intention subdividing the land to fund part of their retirement. However they also have advised that they held off doing this because of the potential impact on the industries in Bomen. It is their contention that the odour issues have been addressed and now they can lodge development applications for subdivision. It should be noted that they can lodge development applications until the zoning is changed which is the subject of this report.

The Council constructed the Bomen Industrial Sewage Treatment Facility initially to be a pre-treatment facility for the waste generated by the Bomen industrial area. This was to reduce the load of effluent on the Council's main sewage treatment plant. However the works done by Heinz and Teys to treat their effluent on site have resulted in a major reduction in the inflows of effluent to the treatment facility. The Council also has plans to convert the treatment facility into a full sewage treatment plant which would treat the effluent from the northern part of Wagga Wagga where residential expansion is currently occurring and is planned in the future. There is potential for this expansion to have an impact on both the existing and any proposed residential developments in Cartwrights Hill because of odour and noise emitted from the plant.

The odour modelling prepared by Todoroski Air Sciences has shown that the only land to be affected are those two lots along Bomen Road adjacent to the site. The noise assessments by Atkins Acoustics have shown that the current noise affectation from the plant extends to Cooramin Street which in effect covers much of the Cartwrights Hill residential zoning.

It is noted that the principle of the noise pollution legislation is that the noise should not be more than 5dBA above the ambient noise level, which it is at present. However the report makes recommendations for noise attenuation works at the plant which would reduce this noise impact on the adjoining neighbours. It is considered that the impacts of the BISTF can be dealt with by adopting the proposed zoning of these two lots adjoining Bomen Road as Transition RU6 zone with an appropriate minimum allotment size to not allow any subdivision of this land. In effect this would mean that the land could not be developed for any form of residential development. It is noted that this is the subject of the amendments proposed and considered by the Planning Panel at its meeting held on 16 May.

5.3. Rezoning of Cartwrights Hill

This matter was proposed in the Wagga Wagga draft LEP 2008 which recommended that the entire Cartwrights Hill be zoned as RU6 Transition and that it not have any subdivision potential.

The residents affected raised considerable objection to this proposal and stated that they wanted the land to remain as residential.

During the discussions with the Cartwrights Hill residents, the option of rezoning the land to an industrial use was canvassed. This was rejected because they stated that they wanted to live in the area and have it retain its residential potential.

The zoning of the area exhibited in February and March 2013 and shown as map 3.1 is considered to be the most appropriate. It zones the land adjacent to the exiting industrial

zone as Industrial and the hill to the east of East Street as RU6 Transition and RU1 Primary Production. This will provide a separation of the industrial uses from the residential uses. The land between the BISTF and Bomen Road / Old Bomen Road has been zoned as RU6 Transition which provides a buffer of between 500m and 800 m to the Large Lot Residential zone. This is in excess of the recommended buffer between sewage treatment plants and residential zones.

5.4. Decreasing Lot Potential

It is clear from the above discussion of the key issues that there is a need to reduce the current potential number of residential lots in the Cartwrights Hill area. It should be pointed out that if this was a rezoning proposal put to Council to create an entirely new residential subdivision of the land by rezoning it from rural to residential, that this would be rejected on planning grounds because of its potential impact on the continuation and expansion of the adjacent Bomen industrial area. This is the position made by the EPA in many submissions to the Council on the matter.

However this is a hypothetical concern and the land is currently zoned residential with a potential lot yield of approximately 700 lots. Importantly, it should be pointed out that until a resolution of the minimum allotment size and zoning of the land, there is nothing to stop the landowners from submitting develop applications to achieve the ultimate residential density. This is a likely outcome should be recommended position of not allowing any future subdivision of the land to occur. There are two options available to Council:

- Increase the minimum lot size so that no future development would be permitted;
- increase the minimum lot size to a level which would allow for some subdivision at a large lot residential size

The option to increase the residential density to a level that would totally prevent any future development is considered to be iniquitous and unfair on the residents of Cartwrights Hill. It is noted that this is the recommendation that was exhibited and considered by the Planning Panel at its meeting of 16 May. It is noted that this proposal drew objections from a number of the land owners within Cartwrights Hill.

In the absence of other considerations, this option would be the preferred option having regard to the potential impact on the adjoining industrial uses from the perspective of pollution reduction and not putting any further pollution receptors (dwellings) in Cartwrights Hill. However from a planning perspective, there is a need to weigh up all of the issues associated with this matter and the denial of subdivision potential cannot be ignored. For this reason, it is considered that this option should not be pursued.

The option to change the minimum lot size to a level which would allow for some subdivision at a large lot residential scale is one that will allow for the landowners to gain some subdivision potential, whilst minimising the number of new dwellings being introduced into the area. In order to do this there is a need to consider the extent of the zoning as well as the minimum allotment size. It is considered that the proposed zonings exhibited and considered by the Planning Panel at its meeting on 16 May is the most appropriate as it provides an adequate buffer between the industrial area to the east as well as the BISTF to the North and provides for residential use of the private land (except the three lots on Bomen Road). This land is required to provide an appropriate buffer distance for the BISTF. It is noted that the recommended 400 m buffer for sewage treatment plants extends to part way through these allotments, however it is recommended that the entire allotments be included because of the problems associated with creating

two zones over existing allotments. It will also allow for a larger area of buffer. The Department of Planning and Infrastructure do not recommend having two different zones on one lot.

The next matter to be dealt with is an appropriate minimum allotment size. It is recommended that a minimum allotment size of 1 ha be applied to the land covered by the R5 Large Lot Residential zone. There are two reasons for this. The first is that it would allow the majority of the landholders to subdivide to create at least one additional allotment. There are 27 allotments greater than 2 ha. This would generate 40 additional dwellings. The second reason relates to the odour criteria and specifically the odour units recommended by the EPA. The odour unit criteria recommended by the EPA is based on the population of an area which is derived by multiplying the number of dwellings by an occupancy rate which the EPA use 2.6. On the current number of dwellings within Cartwrights Hill being 55, this equates to a population of 143 which will put the odour assessment criteria of between three and four. The addition of 40 new dwellings is equivalent to 104 people. When this is added to the current population it would put the population at 247, which would still mean the odour units would be between three and four because the next threshold is 500 people to get to 3 odour units. So from the perspective of pollution investigations by the EPA, there should not be any different from the current situation. It should be pointed out that 40 additional lots is much more preferable to 700 from the perspective of managing the land uses.

There are a number of other matters that the Council can do to ameliorate any potential land use conflict and complaints from new residents in the Cartwrights Hill Area. The reasons for this are to alert the purchasers that they are purchasing land near an industrial area – a ‘buyer beware’ concept. However, it needs to be noted that the pollution legislation does not take this into account. The matters are as follows:

- Put an appropriate notation on all zoning certificates issued for the sale of new lots and existing dwellings in the Cartwrights Hill area. This should alert the purchasers to the fact that they are purchasing land that is adjacent to an industrial area and a Sewage Treatment Plant and that they might experience odour and noise from time to time.
- Promote the benefits of the Bomen Industrial area and its significant impact on the economy of Wagga Wagga. This should include data on the employment of the major industries, their significance as producers / manufacturers to the wider economy and the value of the investment by the businesses. It should also be pointed out that this is a significant proportion of the entire Wagga Wagga workforce and that it is likely that every person in Wagga Wagga either knows someone who works in Bomen or knows someone who does.

5.5. LEP Amendments

To progress the finalisation of the deferred areas it is not necessary to hold any further exhibitions of the recommendations of this report. The proposal for a 1 hectare minimum lot size was exhibited from 20 March to 20 April 2012 and submissions were received both for and against the proposal. The latest amendments to the zoning to cover the extension of the RU6 Transition Zone to Bomen Road was exhibited from 18 February to 18 March 2013 and there were no submissions made about this despite the landowner being advised about the changes in the zoning of the land. It is significant to note that the Southern Joint Regional Planning Panel did not determine either of these exhibitions and so it is able to use this report to make a determination on the matter and finalise the

deferred matter. This matter has been discussed with the Regional Director of the Department of Planning who concurs with the recommended approach.

Clause 1.3 (1A) makes reference to the Land Application Map not applying to the deferred matter. This subclause will have to be deleted.

There is an issue with the Savings Clause of LEP 2010 which needs to be addressed. Clause 1.8A states that any DA that has been lodged but not determined by the time that the LEP is made, is to be determined under the provisions in place before the plan was made. It will be necessary to include the deferred area LEP in this clause.

There are a number of vacant lots that have been created in the R5 Large Lot Residential Zone as well as a number of lots that have been approved but not yet registered that are less than 1 hectare. The minimum lot size recommended for the entire zone is 1 hectare and these lots would not be large enough to have a dwelling house constructed on them despite the fact that they were approved under the LEP as it stood at the time and which did allow dwelling houses.

This matter is covered by clause 4.2A. The Parliamentary Counsel has stated that there will be an amendment to clause 4.2A to allow for dwellings to be permitted on the lots created before the deferred area is finalised. This is not considered necessary because clause 4.2A(3)(c) covers this matter. Clause 4.2A outlined below:

- (3) Development consent must not be granted for the erection of a dwelling house or a dual occupancy on a lot in a zone to which this clause applies, and on which no dwelling house or dual occupancy has been erected, unless the lot is:*
- (a) a lot that is at least the minimum lot size specified for that lot by the Lot Size Map, or*
 - (b) a lot created before this Plan commenced and on which the erection of a dwelling house or dual occupancy was permissible immediately before that commencement, or*
 - (c) a lot resulting from a subdivision for which development consent (or equivalent) was granted before this Plan commenced and on which the erection of a dwelling house or dual occupancy would have been permissible if the plan of subdivision had been registered before that commencement, or*
 - (d) an existing holding to which the Wagga Wagga Rural Local Environmental Plan 1991 applied.*

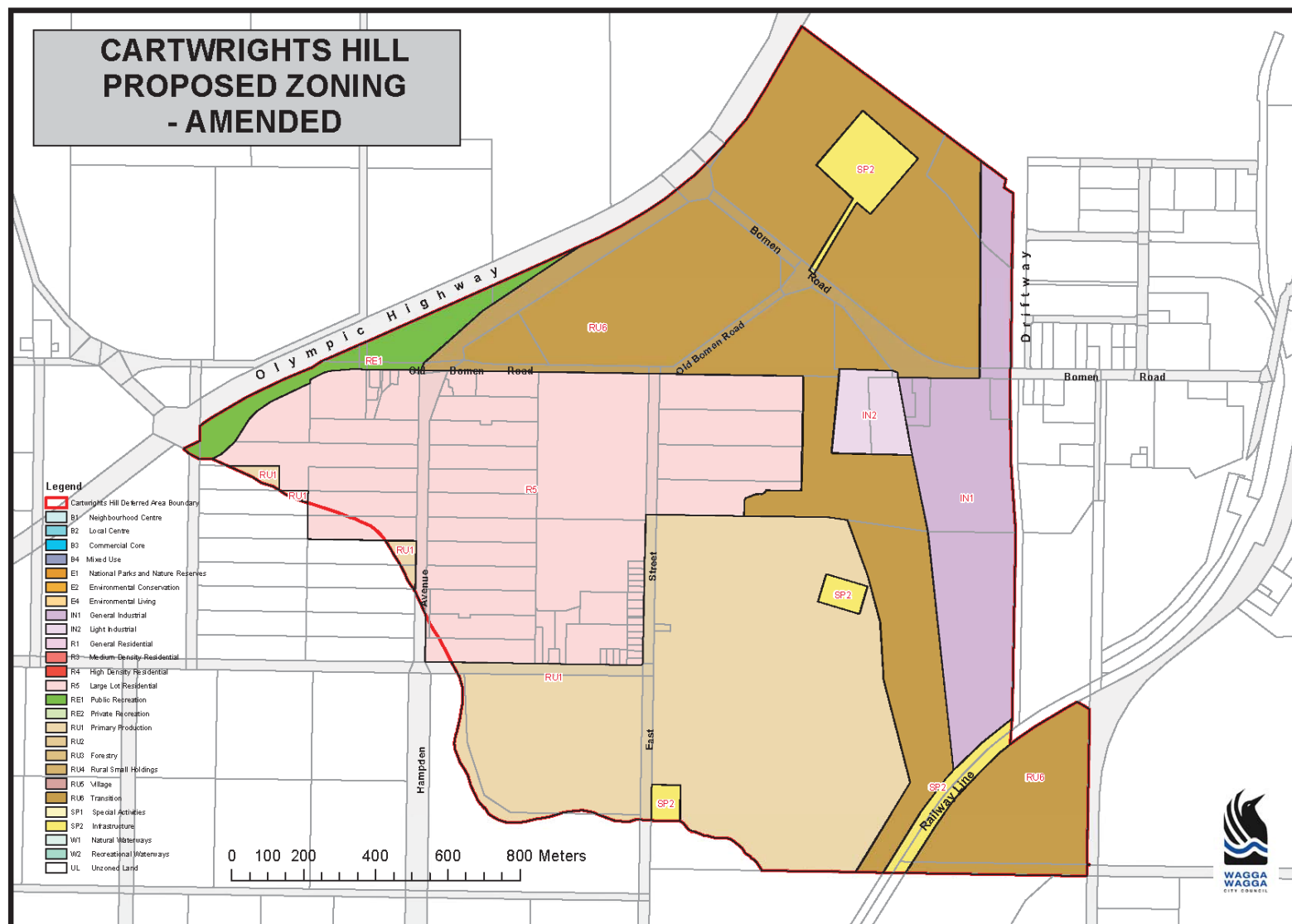
It can be seen that subclause (c) would allow for a dwelling house to be constructed on any lot that is approved when the land was covered by reason the deferred matter remaining unresolved (ie lots approved or applied for between 17 February 2010 and the date that the LEP is made).

The Planning Directions made by the Minister pursuant to section 117 of the Environmental Planning and Assessment Act have been reviewed as part of this report. A table of the relevant Directions and commentary about it is included as appendix 1. It is noted, however that this is normally done as part of the section 68 reporting which is done by staff after the matter has been determined by the Council or in this case the Joint Regional Planning Panel.

5.6. Recommendation

The recommendations of this report to the Southern Joint Regional Planning Panel are as follows:

- (1) The land is zoned in accordance with Map 5.1.
- (2) The minimum lot sizes for the zones shown on Map 5.1 are recommended as follows:
 - R5 Large Lot Residential: 1 ha
 - RU6 Transition: 200 ha which is what currently exists under LEP 2010
 - RU1 Primary Production: 200 ha which is what currently exists under LEP 2010
- (3) Adopt the zoning and minimum lot sizes recommended in (1) and (2) and refer the Planning Proposal to the Department of Planning and Infrastructure with a request that it makes the LEP with expediency.
- (4) Council put an appropriate notation on all zoning certificates issued for the sale of new lots and existing dwellings in the Cartwrights Hill area. This should alert the purchasers to the fact that they are purchasing land that is adjacent to an industrial area and a Sewage Treatment Plant and that they might experience odour and noise from time to time.
- (5) Council promote the benefits of the Bomen Industrial area and its significant impact on the economy of Wagga Wagga.



Map 5.1: Recommended Zonings

Chapter 8: Conclusion

Cartwrights Hill is located to the north of Wagga Wagga adjacent to the Bomen Industrial Area. The current zoning of the land is residential under the provisions of Wagga Wagga LEP 1985. Out of a current possible total lot yield of 700 only 19 have been created and built on and 5 lots have been recently approved. The remainder of the land ranges from approximately 0.5ha to 21 ha and is used for rural residential use as well as a hotel motel and caravan park.

The adjoining Bomen Industrial area contains a number of industrial uses ranging from small light industrial to large industrial food processing such as Teys meat processing plant and Heinz food processing plant. It is a significant employment area and economic driver for the City of Wagga Wagga. Wagga Wagga City Council operate the Bomen Industrial Sewage Treatment Facility on Bomen Road north of Cartwrights Hill and are planning to expand it to become a Sewage Treatment Plant to treat effluent from existing and proposed urban development north of the Wagga Wagga existing urban area. Residential subdivision in Cartwrights Hill is not conducive to the operation of industrial uses due to its proximity and the presence of complaints about odour and noise from the existing residents.

Wagga Wagga City Council has deferred land at Cartwrights Hill, North Wagga Wagga from its LEP 2010. The deferred area has subsequently been the subject of a number of reports to the Wagga Wagga Planning Panel to determine the zoning and minimum lot size for the area. Land use conflict with the adjoining Bomen Industrial area. In addition, plus the Bomen Industrial Sewage Treatment Facility has been the major concern because new residents moving into an area as well as the existing residents can complain about any odour or noise from an adjoining use and this can cause the use to either shut down or to take measures to rectify the pollution.

This study has outlined the physical characteristics and land use of the Cartwrights Hill area as well as the Bomen Industrial area. It has then discussed all of the history of the zoning of the land, the key industries in Bomen, the residential subdivision potential as well as the odour and noise impact assessments carried out. This has led to a discussion about the most appropriate zoning and lot sizes for the area. It is recommended that the zoning remain "and need to add the extent of RU6 zone" the same as that which was recently exhibited and that the minimum lot size be 1 ha.

Bibliography

Atkins Acoustics (2012) *Noise Impact Assessment Bomen Industrial Sewage Treatment Facility, Bomen*. Wagga Wagga City Council

Department of Environment and Climate Change (2006) *Assessment and Management of Odour from Stationary Sources*, DECC, Sydney

Habitat Planning (2003) *Cartwrights Hill Future Use Study*, Wagga Wagga City Council

Holmes Air Sciences (2008) *Odour Modelling and Impact Assessment: Bomen Industrial Estate, Wagga Wagga*, Wagga Wagga City Council.

Todoroski Air Sciences (2012) *Buffer Zone Odour Impact Assessment Bomen Industrial Sewage Treatment Facility*, Wagga Wagga City Council.

Todoroski, A and Mattes, A (2006) *Establishing Appropriate Odour Impact Assessment Criteria for Complex Mixtures of Odorous Air Pollutants in NSW*, Department of Environment and Climate Change.