

2.0 Background and Project Need

This section provides information on the existing waste management facilities available to Council, the need for a new landfill and the rationale behind Council's decision to seek to develop a new landfill (i.e. with the capacity to receive wastes from other nearby LGAs).

2.1 Strategic Context

2.1.1 Regional alliances and regional context

Armidale Dumaresq Council is the proponent for the development of the proposed landfill facility which would service the Armidale-Dumaresq, Guyra, Uralla and Walcha LGAs (the former New England Strategic Alliance of Councils (NESAC). Armidale Dumaresq and Guyra Councils would deliver waste to the proposed landfill facility immediately following commissioning and Uralla and Walcha Councils would commence delivering waste as soon as existing landfills resources reach their capacity. This is expected to occur in around four years time for Uralla and about 10 to 15 years for Walcha.

2.1.2 Regional Strategies

The Northern Inland Regional Waste (NIRW) group is a voluntary local government networking group specifically developed to address waste management issues on a regional level. The NIRW Group has 13 member councils within the north-west and New England regions of NSW, including Armidale Dumaresq, Guyra Shire, Uralla Shire and Walcha Councils (NIRW, 2008).

The NIRW group develops initiatives specific to waste management, tailored to a regional and local level. NIRW waste management programmes include those relating specifically to metal waste, greenwaste, "drumMUSTER" (collection of empty chemical drums) and reduction of illegal dumping and littering impacts. The objectives of the NIRW Group are to:

- *Develop and implement regional programs that achieve a sustainable balance between the region's social, economic and environmental needs.*
- *Encourage partnerships and cooperation between member councils and external stakeholders in a collaborative approach to addressing sustainability issues for the overall benefit of the Region.*
- *Identify and investigate all opportunities for coordinated approaches in the provision of waste management services and the achievement of waste avoidance and waste minimisation within the region.*
- *Consider all waste management issues affecting member councils, where possible, and to speak as one voice in response to State and Federal Government initiatives or directives.*
- *Prevent the generation of waste and promote awareness by commerce and industry with the ideal being – what is good for commerce and industry is good for the environment.*
- *Maximise the recovery, recycling and reuse of resources from waste whilst addressing the concept of renewable energy along with a change of thinking (NIRW, 2008).*

The proposed landfill facility would service the waste management needs of several LGAs within the region, as opposed to the development of multiple, smaller scale landfills for each individual council area. The proposal is therefore considered to be a more favourable waste management solution and is consistent with the NIRW Group's third objective, to "*identify and investigate all opportunities for coordinated approaches in the provision of waste management services ...*".

2.1.3 Local Strategies

The need for a new landfill was first highlighted within the report *Waste Management Strategy for the Council of the City of Armidale* prepared by Council in June 1993. The Strategy clearly identified that “*locating, purchase and implementation of a new long-term landfill site is a very high priority*”. Further, the Strategy noted that “*any new landfill site would be subject to stringent environmental regulations and ideally should be located within reasonable proximity to Armidale, but away from populated areas*”.

The proposed location for the new landfill facility is consistent with this Strategy. It is located within reasonable proximity to Armidale City (i.e. approximately 12 kilometres) but also away from the more densely populated areas of the City. Only a small number of single, rural residential dwellings are located within a 2 kilometre radius of the proposed site (refer **Figure 5**).

The Armidale City and Dumaresq Shire Councils formally amalgamated on 21 February 2000. Armidale Dumaresq's current strategic goals for waste management are reflected within the amalgamated Council's 2003 *Waste Strategic Business Plan*. The purpose of the Business Plan was to develop strategies for the solid waste business in accordance with the aims of Government, Council and the Community. Council's overall strategic goals for waste management are as follows:

- *To see a continuous decline in the amount of waste generated.*
- *The recovery of resources from waste to be optimised.*
- *Residual waste left after recovering resources to be managed in the most environmentally responsible manner.*

The *Waste Strategic Business Plan 2003* documents Council's commitment to waste minimisation and to the identification of alternative methods for waste disposal. A key strategic focus in the Business Plan is to investigate and report on alternative waste processing and disposal methods (i.e. alternatives to landfilling). Council's commitment to reduce the total amount of residual waste disposed to landfill in the future is reflected in the following strategic aims:

- *Ensure maximum reuse of disposed goods.*
- *Ensure maximum recycling of recyclable materials.*
- *Establish minimum household targets for recycling.*
- *Investigate and encourage the recovery and use of materials and components from building and demolition sites.*
- *Continue to provide uniform kerbside collection containers.*

Council's commitment to resource recovery is also consistent with the NSW State Government's *Waste Avoidance and Resource Recovery Strategy 2007*. One of the key result areas in this Strategy is to increase the recovery and re-use of materials collected from the municipal waste stream from 26% in 2000 to 66% by 2014.

Council's commitment to implement a long-term resource recovery programme by diverting municipal waste from landfill is also consistent with the State Government's strategic targets.

Waste Management Committee

Council's Waste Management Committee has been active in the region since at least 1993, when it was first formed to advise on the development of a waste management strategy for the (then) Armidale City Council. Since the amalgamation of Dumaresq Council and Armidale City Council in 2000, the Waste Management Committee has continued to be active.

The Committee was established to provide advice on issues relating to waste management and minimisation including provision of adequate and appropriate services, facilities and equipment. In particular, the objectives of the Committee (Council, 2004) are to:

- *Provide recommendations relating to the Waste Management Strategy.*
- *Recommend priorities for action to be undertaken by Council in relation to waste management issues.*
- *Provide recommendations relating to the ownership financing and management of any proposed service, facility or equipment.*
- *Identify community education needs in relation to waste management matters.*
- *Provide a forum for discussion and community input to waste management issues.*
- *Identify other relevant matters.*

The Waste Management Committee currently comprises the following:

- Up to two elected representatives of Council.
- Council's Utilities Operations Manager, or other appropriate nominee(s).
- Up to six community representatives.

Membership of the Committee is reviewed after each local government election cycle (i.e. every four years), or at the time that any vacancy occurs. The Committee currently meets every month and will continue to advise Council on waste management matters and assist in the strategic oversight of Council's waste management programmes.

The Committee is also considered to be an effective forum in which the community may take part, for the purpose of providing input to decisions relating to waste management.

2.1.4 Regional Landfill

The proposed landfill facility as a regional facility, would appropriately service the waste management needs of all Armidale Dumaresq, Guyra, Uralla and Walcha councils over its lifespan. The development of a regional landfill is considered to be the most efficient waste disposal solution for this region due to the following:

- Improved economies of scale:
 - A landfill's operational and environmental cost effectiveness increases as the waste volumes entering the facility increases (per tonne of waste landfilled).
- Limited area to be impacted:
 - By having a single managed waste disposal facility, as opposed to numerous, smaller landfills.
- Ease of regulation:
 - Due to consolidation of operations within a single area, rather than at multiple sites.
- Increased environmental protection:
 - Due to conservative engineering design standards, monitoring and reporting.

2.2 Existing Waste Management

Details of the existing waste management facilities / collection services that are available within the relevant LGAs are provided in **Table 4**. It should be noted that, within this EA document, the term "waste management" also refers to the collection, sorting (into both re-usable / recyclable and residual fractions), storage, transportation and ultimate disposal of municipally collected waste materials.

The existing Armidale Waste Management Centre, on Long Swamp Road in Armidale, is the largest in the local area and comprises:

- Materials Recycling Facility (MRF) including the Resource Recovery Centre.
- Waste Transfer Station (WTS).
- Landfill (Solid Waste Class I).

The operation of the Armidale Waste Management Centre and other available waste management facilities are discussed in the following sections.

On 2 July 2007 Armidale Dumaresq Council also extended its domestic waste collection service to the rural area around Armidale which was previously serviced by private contractors, on a needs basis.

2.2.1 Landfills

Landfilling will continue to be the predominant means of residual waste disposal available to the Armidale Dumaresq, Guyra, Uralla and Walcha LGAs until new processing and disposal options can be identified and implemented. The limited capacity of existing landfills within these LGAs illustrates the need to provide a long term waste disposal solution within this region.

Council's existing landfill is located off Long Swamp Road about 4 kilometres to the south-east of the Armidale City centre, near the City's LGA boundary at the Waste Management Centre. This facility has operated since 1961 and has approximately one year of capacity available for landfilling waste.

Guyra Shire Council has already closed its main landfill facility and now only waste collected from the local areas around Tingha and Ben Lomond are diverted to Guyra Shire's two small landfills at these locations. Accordingly, most of Guyra Shire's waste is now taken to the existing Armidale Waste Management Centre. Guyra Shire Council intends, under the current proposal, to utilise the proposed landfill facility.

Uralla Shire Council landfill has capacity to accept waste for up to a further 15 years. Uralla Shire's continued use of its current site beyond approximately 2013 would require further development within an existing woodland area that is considered to be potentially environmentally sensitive and is highly likely to be considered to be part of a listed Endangered Ecological Community (EEC). Uralla Council has therefore expressed its interest in using the proposed landfill facility when the currently developed portion of its site reaches its final capacity.

Walcha Council operates a landfill facility with a predicted remaining life of approximately 15 years.

Table 4: Existing Waste Collection Services

Council	Waste Type	Receptacle and Capacity	Collection Frequency
Armidale Dumaresq	MSW (household)	140L, red lidded 'wheelie' bin	Weekly
	MSW (commercial premises and public places)	240L bins	Weekly
	Greenwaste (garden waste)	240L, green bins	Fortnightly
	Recyclables	450x350x300mm crates (with lid) for cartons, metals, plastics and glass; and 450x350x300mm crates (with lid) for clean cardboard and paper; and No maximum limit / extra fees for total number of crates that residents/businesses may utilise	Weekly (i.e. alternate fortnights for each crate)
Guyra Shire	MSW (household)	140L bins	Weekly
	MSW (public place)	Variable bins throughout the city	Weekly, or as required
	Recyclables	Various 52L crates for recyclables	Weekly
Uralla Shire	MSW (household)	55L, 120L or 240L bins	Weekly
	Recyclables	Several 52L crates for recyclables	Weekly
Walcha	MSW (household)	240L 'wheelie' bin	Weekly
	Recyclables	Several 52L crates for recyclables	Weekly

Source: Extracted from State of the Environment Report (Southern New England Tablelands Region, 2004)

2.2.2 Resource Recovery Facilities

As documented within its *Waste Strategic Business Plan 2003*, Council is committed to effectively reducing the amount of waste that requires disposal to landfill. Council's commitment is demonstrated by its existing waste management and resource recovery (i.e. recycling) activities.

Council proposes to maintain and improve its existing resource recovery services over the long term, throughout the proposed period of operation of the proposed landfill facility, including the continued operation of Council's existing WTS and all its component resource recovery operations. Armidale Dumaresq Council currently uses a 'crate-based' collection system, as it has been demonstrated that this system provides a significantly lower contamination rate than the current NSW average. This is due to Council's collection contractor being able to visually monitor and manually reject non-conforming material at the kerbside, before loading appropriate recyclable materials on to the collection truck. This system consistently allows for only about 3% rejected material. Guyra, Uralla and Walcha Councils also all currently use a similar, crate-based recyclable collection system.

Materials Recycling Facility

The Armidale Waste Management Centre already incorporates a highly efficient MRF for the separation of recyclables from the various incoming waste streams.

It should be noted, however, that Council's kerbside collected, domestic waste stream (i.e. the content of its 140 litre, red-lidded 'wheelie' bins) is not currently able to be sorted. This material currently is directed straight to landfill.

The facility uses a combination of mechanised and manual sorting / separation techniques, including various skip bins and other designated materials disposal points to enable appropriate pre-sorting of various recyclable materials from incoming waste, both by residents and by Council's MRF staff (refer **Plates 2, 3, 4 and 5**). The MRF's sorting and collection facilities are able to separate and store all the following resources / materials:

- Paper, cardboard, plastic beverage containers and packaging, glass, aluminium and steel cans which are sorted and separated via the MRF.
- "E-waste" is separated from all other waste, on delivery to the MRF. All E-waste is stockpiled for transport offsite and component breakdown and then appropriate recycling of component parts / materials.
- Other metals (including all metal auto parts) are separated into a large skip for ferrous (iron based) metals and a smaller skip for all other non-ferrous metals (for example, copper, brass or aluminium).
- Greenwaste is separated into one large skip for general garden waste, tree prunings, etc, and another large skip for all other timber. Other timber mainly consists of sawn timber from building / demolition wastes, as well as some timber from old furniture, etc. Greenwaste is mulched and made available for sale to the public or commercial operators at the transfer station.
- Concrete and other bulky masonry products are stockpiled separately for crushing for reuse as road gravels / roadbase in Council's road building / maintenance activities.
- Heavy plastics, car batteries, paints, oils and other chemicals are separated into various smaller skip bins or other specific disposal facilities.
- Mixed waste – three skips are available for general non-recyclable waste, for disposal in landfill.

Resource Recovery Centre

Council's suite of recycling facilities currently operating at the Armidale Waste Management Centre also include its "Resource Recovery Centre", comprising a second-hand shop where any re-usable / saleable goods that can be recovered from the waste stream are offered for sale, at nominal prices. The Resource Recovery Centre is operated by a contractor who is responsible for the recovery of potentially useful materials. Council staff also assist with the process of selecting potentially useful materials.

Council's MRF is monitored by a contracted community group that recycles computers and other "E-waste" materials (including all computer hardware, video display units (VDU) and other electronic equipment like printers, photocopiers and fax machines, etc). The group currently operates from facilities within the MRF building but will soon have its own separate premises.

All waste not able to be sorted into any of the above categories must then be assumed to be putrescible waste (including all the contents of its red-lidded 'wheelie bins', as discussed above). All putrescible waste is currently disposed in the existing landfill space. The proposed landfill facility on Waterfall Way would only accept this fraction of Council's total waste stream.

Council manages the transfer station operations and a contractor (Armidale Recycling Services) operates the MRF (**Plate 5**) which is also located at this site.

It should be noted that there would be no public access to the proposed landfill facility. Only a strictly limited number of Council waste transport trucks and other operational / construction vehicles would access the landfill. No recycling or other waste separation / treatment activities are proposed to occur at the proposed landfill site.

Waste Transfer Station

Former (non-licensed) landfill facilities that have been converted to WTSs operate at the following locations within Armidale Dumaresq's rural areas:

- Tilbuster.
- Ebor.
- Wollomombi.
- Hillgrove.

These smaller WTSs service Council's rural communities outside the city limits of Armidale. Receptacles for the collection of both domestic waste and recyclables are available at each transfer station. Recyclables collected weekly include paper/cardboard, steel and aluminium cans, glass and plastic bottles. Waste materials collected at these transfer stations are then routinely transported to the Armidale Waste Management Centre. It is not proposed that these separate facilities should be subject to any substantial changes, other than progressive process improvement, when and where available, within the foreseeable future.



Plate 2: Armidale Waste Management Centre Disposal Bays



Plate 3: Chemicals, Cooking Oil, Paints and Batteries for Recycling at the Armidale Waste Management Centre



Plate 4: Sorting of Recyclable Waste at Armidale Waste Management Centre



Plate 5: Plastics and Container Recycling at the MRF, Armidale Waste Management Centre

In the future Council also intends to further process (i.e. treat) all putrescible wastes at the Waste Management Centre. This is intended to be within a proposed AWT facility, however it should be noted that any possible future establishment of an AWT facility at Waste Management Centre does not form part of this proposal. If established, it is intended that an AWT facility would employ appropriate waste treatment technology to render all putrescible wastes received into either a saleable “compost” type product or a residual waste material that would no longer be considered as “putrescible”. The residual, non-putrescible waste would then be landfilled at the proposed landfill facility, in accordance with DECCW’s “General solid waste (non-putrescible)” criteria.

2.2.3 Chemical Collection

The Annual NIRW Chemical Collection Campaign is conducted annually in July/August. The campaign is conducted to collect unwanted farm and household chemicals. There are various collection sites within the NIRW Member Council region. These sites are manned and operated by trained Council staff. In 2006, the following quantities of unwanted farm and household chemicals were collected during the campaign from regional councils:

- Armidale Dumaresq Council – 7,035.8 kg.
- Guyra Shire Council – 500.5 kg.
- Uralla Shire Council – 84 kg.
- Walcha Shire Council – 117.1 kg.

The drumMUSTER programme is another collection scheme run by NIRW. The programme focuses on non-returnable rigid metal and plastic containers used in the packaging of crop protection and animal health products.

Other specific collection schemes which operate within specific industries in the region include:

- Return Unwanted Medicines (RUM) programme. This is operated by pharmacies in the interest of appropriate and safe disposal of unwanted and out-of-date medicines. It is an ongoing programme.
- Silver recovery from photographic processing laboratories.
- Oil disposal and recovery from service stations.
- Potentially infectious wastes collection from medical practices.
- Independent arrangements with specialised waste service operators for waste that requires specialised treatment for disposal.

2.3 Waste Classification

The wastes to be disposed at the proposed landfill facility are classified under the DECCW's *Waste Classification Guidelines* (2008) as "General solid waste (putrescible)" materials. This classification may include any of the following waste types:

- Household waste that contains putrescible organics.
- Waste from litter bins collected by or on behalf of local councils.
- Manure and night soil.
- Disposable nappies, incontinence pads or sanitary napkins.
- Food waste.
- Animal waste.
- Grit or screenings from sewage treatment systems that have been dewatered so that the grit or screenings do not contain free liquids.
- Any mixture of the wastes referred to above.

Wastes would include household domestic waste (i.e. kerbside collections from residential areas via Council's 140 litre, red lidded 'wheelie' bins), other solid waste collected from commercial premises and municipal generated waste (e.g. local council-collected waste from street sweeping, litter bins and parks).

2.4 Waste Profile

2.4.1 Waste Volumes Directed to Landfill

The proposed landfill facility would constitute a Regional Landfill as it is proposed to service the LGAs of Armidale Dumaresq, Guyra, Uralla and Walcha, comprising a total area of 11,860 square kilometres and servicing a population of approximately 35,350. The proposed landfill facility has a total design capacity for 750,000 tonnes of putrescible waste over the proposed life span of the landfill (50 years) and would receive up to approximately 15,000 tonnes of waste per annum through existing waste collection activities.

Information about the volume of waste proposed to be landfilled by the four participating LGAs is discussed below.

The Annual Topographic Survey Map of Armidale Dumaresq's Existing Landfill for the Period of 1998 to 2005 (survey commissioned by AECOM)

This report provides information on waste deposited (volume basis) into the existing landfill during the subject period. An annual topographic survey was undertaken to calculate the annual volume change within the landfill mass. Overall, the average annual volume change was calculated to be approximately 24,208 m³, including some daily waste cover, bunds, etc which are not part of the actual waste stream. It is generally considered that a fifth of the total annual volume change constitutes these "non-waste" materials (i.e. cover materials and bunding / other materials).

The Control Survey Results in the report clearly indicate that there is a trend for the relevant sector of the populations of Armidale Dumaresq and Guyra to generate a volume of approximately 20,000 m³ of waste per annum.

Council Survey (2005 – 2008)

The most recent Council survey in relation to waste (**Table 5**) shows that from 2005 to 2008 some 124,225 m³ (averaging 41, 408 m³ / annum) of waste was received at the existing landfill. This represents a higher rate than the pre 2005 period, which shows an average 24, 208m³ / annum (a total 193 663 m³ over the period) of waste received at the landfill. This difference can be attributed in part to three major construction projects that have been undertaken in Armidale during the more recent period (2005 – 2008) resulting in significant volumes of waste being deposited into the landfill. The projects included the remediation of a gasworks site and the construction of two major shopping complexes within the town centre.

Table 5: Control Survey Waste Volumes Directed to Landfill at the Armidale Waste Management Centre (Long Swamp Road) between 1998 and 2005 and 2005 and 2008

Control Survey Results	
Date of Update Survey	Volume Added to Landfill
5 November 1998	22,600 m ³
25 November 1999	29,600 m ³
30 November 2000	25,904 m ³
29 November 2001	24,715 m ³
29 November 2002	23,730 m ³
30 November 2003	25,588 m ³
30 November 2004	28,978 m ³
21 August 2005	12,548 m ³
Total (1998 – 2005)	193,663 m ³ (24,208 m ³ / annum)
to November 2006 (interpolated)	46,266 m ³
to November 2007 (interpolated)	46,266 m ³
30 November 2008	31,693 m ³
Total (2005 – 2008)	124,225 m ³ (41,408 m ³ / annum)

2.4.2 Waste Type

Waste from within the Armidale Dumaresq, Guyra, Uralla and Walcha region can be expected to be generated from commercial, industrial, domestic and construction and demolition wastes. Domestic waste estimates and collected recyclables, for Armidale Dumaresq and Guyra councils are provided in **Table 6** and **Table 7**, respectively.

Table 6: Domestic Waste Collected 2004-2009

Waste Type	Domestic Waste Collected (tonnes)*				
	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009**
General Waste	8754.5	5604.8	3420.4	3389.5	1757.3
Other Waste	12953.9	17856.9	18882.7	13623.6	12277.7
Total Waste	21718.4	23461.7	22303.1	17013.1	14035.0

Source: Armidale-Dumaresq Council

* Figures are for Armidale and Guyra only due to data availability

** Reduction in general waste due to more accurate measurement plus reclassification of certain waste. Reduction in overall total due to the completion of several major construction projects in Armidale.

Table 7: Recyclables Collected 2005-2009

Waste Type	Recyclables (tonnes)			
	2005-2006	2006-2007	2007-2008	2008-2009
Domestic*	1968.2	3167.5	3408.8	3749.8
Greenwaste	6496.4	5862.0	5256.3	3603.3
B & D Waste**	6080.7	7654.7	4913.3	4719.2
Metals	1048.3	661.7	779.1	363.8
Other Recyclables	838.1	1272.2	1868.8	569.6
Total Recyclables	16431.7	18618.1	16226.3	13005.8

Source: Armidale-Dumaresq Council

* 06/07 domestic recyclables figure is for Armidale only. All other years include Armidale and Guyra.

** Building and Demolition Waste.

The majority of waste disposed within the proposed landfill facility would comprise household domestic waste (i.e. kerb side collections) and municipal generated waste (e.g. waste from street sweeping, litter bins and parks). The waste types that may be accepted at the proposed landfill, in accordance with DECCW requirements for a General solid waste (putrescible) landfill are detailed in the draft LEMP (**Appendix B**).

It is noted that although the landfill is intended to be licensed as a general solid waste (putrescible) landfill, Council intends in the future to consider off-site waste processing technologies (AWTs) that would effectively remove the putrescible fraction from all waste received, prior to landfilling of the non-putrescible fraction.

2.4.3 Future Waste Profile

Table 8 shows that over the 2000 to 2006 period the population in the member LGAs has shown very little change. This trend is expected to continue into the foreseeable future and has therefore been assumed for the EA.

Table 8: Population 2000 - 2006

LGA	Population						
	2000	2001	2002	2003	2004	2005	2006
Armidale Dumaresq	24,944	24,807	24,780	24,657	24,558	24,611	24,533
Uralla Shire	6,019	6,099	6,076	6,021	6,031	6,075	5,989
Guyra Shire	4,430	4,475	4,484	4,453	4,434	4,460	4,402
Total	34,393	35,381	35,340	35,131	35,023	35,146	34,924

Source: ABS

Waste data has been recorded at the weighbridge at the Armidale Waste Management Centre, including all waste from domestic, Council and commercial operations. Trends over recent years show a relatively stable total volume of waste being disposed to landfill each year. Over the past two years (July 2007 to June 2009) an average of 15,500 tonnes of waste was sent to landfill each year with a pronounced downward trend in the second year as major construction projects in Armidale came to an end. Based on this data an assumed estimate of 15,000 tonnes per annum has been used as the proposed landfill tonnage for the concept design of the proposed landfill.

Future waste disposal trends are also directly dependant on the actual recycling rates achieved by each council and its residents. Armidale Dumaresq's recycling rate has increased steadily over the past 5 years and currently stands at 48.1% of total waste. It is not envisaged that these high standard recycling rates would decline within the foreseeable future. Indeed it is anticipated that these rates would improve over time.

In addition, the community's current practice of disposing of recyclable packaging via kerbside collections may also find more appropriate alternatives in the future. This would allow Council to scale back the intensity of its resource recovery activities. It is not within the scope of this EA process to attempt to more fully consider this issue, other than to state that the participating Councils are committed to waste education initiatives and have extensive recycling infrastructures in place. Councils have stated that having a new landfill facility in operation will not affect the effort they put into recycling.

2.5 Need for a new landfill

2.5.1 Extension to the Waste Management Centre landfill

On 21 July 2004, the EPA received an application from Council for the variation of its EPL No. 5860, which permits the operation of the landfill at the Waste Management Centre on Long Swamp Road. The requested variation was to extend the area of the current landfill into part of Lot 2 DP 808124 to accommodate waste volumes not greater than 20,000 tpa as the landfill was nearing capacity. Approval was subsequently granted and the EPL varied to reflect the revised capacity. Council already had development consent (DA 261/90) for the landfill at the Waste Management Centre, which was issued on 15 July 1991.

Discussions are still ongoing between Council and DECCW with a view to exploring new ways to extend the life of the existing landfill space, however, the approved extension for the landfill at the Waste Management Centre is only an interim measure to provide additional capacity until a new waste disposal facility can be constructed.

2.5.2 Demand for Landfill Space

As previously mentioned in **Section 2.2.1**, the member Councils have varied remaining capacity as outlined in **Table 9**.

Table 9: Operational Life of Existing Landfills in the Region

LGA Landfill	Approximate Operational Life Remaining
Armidale Dumaresq (Armidale Waste Management Centre)	1 year
Guyra Shire Council	Main landfill = 0 years (closed)
Uralla Shire Council	Existing = 4 years Extension* = 15 years
Walcha Council	15 years

* Uralla Shire's continued use of its current site beyond approximately 2013 would require further development within an existing woodland area that is highly likely to be considered to be part of a listed EEC.

Although Guyra Shire diverts waste to two small landfills at Tingha and Ben Lomond, most of its waste is taken to the existing Armidale Waste Management Centre. Given the remaining operational life of the landfill at the Armidale Waste Management Centre (approximately one year), a new regional landfill facility is needed to alleviate the demand and short term available capacity at Uralla and Walcha, and provide long term regional capacity.

2.5.3 Future Requirements

Whilst the region currently has three main landfills in operation, the proposed landfill facility is expected to accept a similar volume of waste to that of the existing Waste Management Centre (approximately 14,035 tonnes in 08/09).

The implementation of waste minimisation measures in the future is expected to reduce substantially the volume of waste to landfill in the region. The size of the proposed landfill facility was considered in the context of the existing and future waste profile and has been designed to accept up to an estimated 15,000 tonnes per annum of general waste, and up to 750,000 tonnes over its lifespan.

Should the proposed landfill facility be approved, the existing landfill at the Waste Management Centre would close and all waste for landfill would be diverted to the proposed landfill facility. Similarly, other existing landfills in the LGA would either consider closure prior to, or once existing capacities have been reached and divert waste to the proposed landfill facility.

3.0 Project Justification

3.1 Significance of the Proposal

The proposed landfill facility is considered to be a socially and economically significant proposal from both a local (i.e. Armidale) perspective and from a broader New England Tablelands perspective.

Current predictions suggest that the population within this region will not significantly change in the near future (**Section 2.4.3**). However, landfills in a number of neighbouring LGAs are reaching their operational capacity and the existing landfill at the Armidale Waste Management Centre is predicted to reach its final capacity in 2010. As a result, there is a need for a new landfill to be built.

3.2 Consideration of Other Options

Alternatives to the proposed landfill option are discussed in **Section 4.0** and include:

- The 'Do-nothing' option. Not finding a workable alternative to the use of the existing Long Swamp Road landfill site will result in Council having no viable local waste disposal options in less than one year's time.
- AWT technologies, including mechanical / biological technologies and/or thermal treatment.
- Landfilling (i.e. at other sites within, or outside the Armidale Dumaresq LGA).

The currently proposed location of the proposed landfill facility was identified and assessed following a comprehensive site selection process that identified 11 different sites within the former NESAC area that had potential to be developed as a landfill site (refer **Section 4.2**). The preferred "Sherraloy" option is being assessed within this EA document.

A key aspect of Council's overall waste management strategy is that the Armidale Waste Management Centre remains fully operational so that existing waste processing practices may continue to ensure the most efficient operation of any finally adopted disposal options. Council is also committed to improving its already high standard of separation, reuse and recycling rates by adopting, wherever feasible, more efficient practices and technologies at the Waste Management Centre, and/or within the wider operational areas of its NESAC partners.

3.3 Benefits and Impacts of the Proposed Landfill Site

Following is a summary of the benefits and impacts of the proposed landfill site.

3.3.1 Biophysical

The Project Site currently contains woodland vegetation that is listed as an EEC. Approximately 20 hectares of this habitat type would need to be cleared to enable construction and operation of the landfill. The access to the Project Site from Waterfall Way would traverse the Gara TSR which contains box-gum woodland vegetation community, also a listed EEC. Several threatened plant and animal species are also known to occur in these areas. Therefore, in consideration of the impact to the existing vegetation communities at this site, an appropriate offset area of compensatory vegetation/ habitat has been proposed as an integral component of this proposal. A Vegetation Management Plan (VMP) will be prepared prior to the operation stage of the proposed landfill facility. The offset area is proposed to be developed at a 3:1 ratio and would thus protect and regenerate approximately 61 hectares of other land within the boundaries of the overall Project Site. The proposed compensatory habitat would surround the proposed landfill footprint, connect to the Gara TSR and would remain connected to existing habitat corridors in order to promote biodiversity on a regional scale. Active programmes to eradicate introduced predators and other feral and pest species within the total offset area would help to ensure that the site does not act as a source population for any of these species, which would otherwise result in impacts to far broader areas than currently is the case.

Measures proposed to minimise erosion and sedimentation, retain all potentially contaminated water and leachate on site and prevent groundwater contamination would ensure that downstream water quality would not be significantly impacted by the proposed landfill facility.

3.3.2 Economic

Two permanent jobs would be created during the operational phase and up to 15 other short term employment opportunities during the construction phase.

The option of transporting waste from a city of 25,000 people (Armidale Region) to another regional landfill site (Tamworth or Coffs Harbour) over 100 kilometres away is deemed uneconomical and would be subject to the cities of Tamworth and Coffs Harbour favourably accepting waste from another region. The added cost to the local ratepayer could also be significant.

3.3.3 Social

Two residences near the proposed landfill facility would be potentially affected by the proposal. However noise, dust and odour modelling shows the proposed landfill facility would have minimal impact on these residents. Similarly, the visual assessment indicates that the proposal would not have a significant impact on the visual amenity of the local area (refer to **Section 8.0** for a detailed assessment of all potential impacts of the proposed development).

3.4 Sustainability

This proposal is considered to address the principles of ESD as it:

- Meets the objectives and goals established within relevant State, regional and/or local waste minimisation or management strategies.
- Demonstrates economic efficiency in meeting short and long term community requirements for waste minimisation and management.
- Meets relevant environmental performance requirements, including improved conservation or protection of natural resources in conjunction with reduced environmental costs.

3.5 Conclusion

The proposed landfill facility is considered to be fully justified due to:

- A genuine need for a landfill site in the region.
- Long-term biophysical benefits arising from the project.
- Relatively minor social or economic impacts.
- Compliance with the criteria for sustainability.

4.0 Review of Alternatives and Site Selection Process

This section provides a summary of the review of a number of alternatives to landfilling as well as a summary of the site selection process that determined the finally proposed site location. A review of the preliminary studies undertaken to confirm the site's suitability is also provided.

4.1 Review of Alternatives to Landfilling

As previously mentioned in **Section 2.5.1**, the approved landfill extension for the Waste Management Centre at Long Swamp Road is only an interim measure to provide additional capacity until a new landfill facility can be constructed. Another extension to the existing site would not provide adequate capacity to accommodate future regional demand, and has hence not been considered as a feasible alternative to the project.

4.1.1 Identification of Alternatives

Workshop

A review of potentially feasible alternatives to landfill was conducted by Council in 2002, at the same time as the site selection investigations were also being conducted (refer **Section 4.2**). This review was completed as part of a Council workshop process, the outcomes of which were presented in a discussion paper entitled *Council Workshop Strategy for Obtaining a Site for a New Regional Landfill* (Armidale Dumaresq Council, February 2002).

The discussion paper identifies four alternatives to landfilling. These are listed in **Table 10** and are commonly known, established technologies. A summary of the advantages and disadvantages associated with each of these alternatives is also presented within **Table 10**.

The initial review concluded that it:

"would appear there was not a known and readily available alternate process for treating Armidale's waste and a suitable landfill should be pursued immediately."

Council remains committed to minimising the total amount of waste directed to landfill. Further investigations into alternatives to landfilling were more recently carried out, however it is believed that notwithstanding new technologies and a commitment to recycling and reuse, there would always be residual waste that would require final disposal as landfill.

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Table 10: Review of Alternatives to Landfill, 2002

Company	Description	Advantages/Disadvantages
Bedminster Digester	A mechanical (rolling drum) composting process, which receives household waste and in 10 to 14 continuous processes converts the garbage to a useable compost and an inert residue of about 20% of initial material by weight.	Overriding disadvantage is the capital and ongoing operating costs. Indicative costs provided (2002) would be in the order of \$10M capital and ongoing operating and energy costs, together with the need for a smaller landfill for inert material.
WTT B.V Holland	A cellular composting process whereby individual concrete cells are loaded and allowed to “cook” for 14 days. The cells are then mechanically unloaded and sieved to provide compost and inert material.	Due to construction costs, it was thought to be uneconomical by the company for the relatively small quantities to be processed by Armidale (and surrounding councils).
Eco Waste Pty Ltd in association with Brandown Pty Ltd	Process where existing landfills are re-excavated in cells approximately eight to ten years after deposition and covering. It is anticipated that the putrescible wastes would have composted naturally in that time and be recoverable as a composting material, leaving only inert material. The excavated waste would ‘free up’ around 80% of the volume to enable re-deposition of new waste.	Tests were carried out in older areas of the landfill at Armidale Waste Management Centre (Long Swamp Road). It was found however that the material excavated was not suitable as a compostable material, as it was still very moist and odorous.
VCU Technology Pty Ltd	Vertical Composting Unit (VCU).	Advantage – The VCU can be installed in a very small area and hence has a small footprint. There could therefore be a possibility to install the VCU at/or adjacent to the landfill site at the Armidale Waste Management Centre. Disadvantage – the process is only suitable for compostable material, and not municipal putrescible waste material. The process would also require manual up front sorting, to remove plastics, tin and glass from the municipal waste stream before it could enter the VCU.

Source: Council Discussion Paper, February 2002

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Business Plan

Council has documented its commitment to waste minimisation and to pursuing alternative waste disposal methods within its *Waste Strategic Business Plan 2003* for waste management. A key strategic focus of Council's Business Plan is to investigate and report on alternative waste processing and disposal methods (i.e. alternatives to landfilling). As documented within the Business Plan, Council's commitment to reduce the amount of residual waste disposed to landfill, over the long term, is to be achieved through the following strategic actions:

- *Ensure maximum reuse of disposed goods.*
- *Ensure maximum recycling of recyclable materials.*
- *Establish minimum household targets for recycling.*
- *Investigate and encourage the recovery and use of materials and components from building and demolition sites.*
- *Continue to provide uniform kerbside collection containers.*

Council's commitment to resource recovery is consistent with the NSW government's *Waste Avoidance and Resource Recovery Strategy 2007* (Waste Strategy). One of the key result areas in the Waste Strategy is to increase recovery and use of materials from the municipal waste stream from 26% in 2000 to 66% in 2014. Council's commitment to implement a long-term resource recovery programme by diverting municipal waste from landfill is consistent with these targets. Council is also committed to developing progressively stringent annual targets that would be compatible, at a local level, with current government policy targets for waste reduction and recycling.

Waste Management Committee

The Waste Management Committee is considered to be an important forum to enable discussion, deliberation and the formulation of appropriate recommendations to Council with respect to emerging technologies and/or improved methodologies that may result in alternatives to landfill, for example the diversion of waste to landfill. The Waste Management Committee has coordinated and conducted site visits of waste management facilities in the region, with an aim being to enable a better understanding for Council of the processing of putrescible wastes to form compostable material.

Site Visits

Representatives from Council, including the Mayor, in conjunction with the advisory Waste Management Committee have undertaken site visits of existing waste management facilities. The purpose of these site visits was to understand alternatives to landfilling and to see them in practice.

A tour was undertaken around January 2005 to waste management facilities located at Grafton, Coffs Harbour, Port Macquarie and Port Stephens that were utilising state of the art processing techniques. The purpose of the tour was to understand how other Councils around the Council regions manage their waste. It was acknowledged that the other regional councils had populations larger than Council. The commitment and intent to reduce waste to landfill was evident in the waste management facilities and how they were run. Council acknowledged during the tour, the possibility of drawing on the latest waste technology similar to that inspected and adapting it to local conditions.

Expression of Interest

Council proposed to explore the options of adding a process to enable the removal of organics and putrescibles from the waste stream and produce a useful saleable product.

In April 2005, Council called for Expressions of Interest (EOI) to conduct trials of equipment and processes that would enable Council to operate its proposed landfill as a "non-putrescible" landfill (i.e. in order to accept only "inert" or non-putrescible waste). EOIs were called to conduct trials for a 12 month period at the existing landfill at the Armidale Waste Management Centre. EOIs were received from the following companies:

- Coastplan Consulting.
- WSN Environmental Solutions.
- Spartel Pty Ltd.
- Cleanaway Pty Ltd.

- EWT Pty Ltd.
- Biomass Solutions Pty Ltd.
- SITA Environmental.

Council concluded that the cost to Council to conduct a suitable trial of any of the proposed processes would be prohibitive. From the submitted EOI's, the "Gore Cover" process seemed to be the most potentially attractive offer to Council. The Gore Cover system uses a hi-tech composting process to de-compose a high quality greenwaste feed. A site visit was conducted in October 2005 to observe the Gore Cover system in operation at a trial at premises of Camden Soil Mix. Council decided to defer conducting its own trials, pending the results and evaluation of the Gore Cover trial near Camden.

4.1.2 Do Nothing Option

Although alternative methods of waste management, such as minimising waste, waste recovery and recycling of materials will reduce the overall volume of waste needing to be disposed of as landfill, within the foreseeable future there remains a need to dispose of the residual waste to landfill. Some alternatives to landfill such as incineration have been used in the past and continue to be in other locations (almost exclusively overseas), where the identification of usable landfill space is not possible. Incineration of residual waste, even with the use of some of the best technologies in the world, is not considered to be either economically feasible or acceptable in terms of potential impacts to the environment in this location.

Regardless of technology, within the foreseeable future there will always be residual waste that will require disposal in an environmentally and economically acceptable manner. If the proposed landfill facility is not ultimately approved to operate, it is envisaged that some of the consequences would include the following:

- Deviation away from Council's *Waste Strategic Business Plan 2003*. The Plan has developed strategies for the solid waste management in accordance with the aims of Government, Council, and Community.
- A lost opportunity to provide a regional landfill, taking into consideration the benefits that a regional landfill can provide.
- A requirement to find an alternative waste disposal method for both Armidale Dumaresq and Guyra Shire.
- Economic cost of transporting waste outside the Region probably to Tamworth or Coffs Harbour.
- Loss of employment opportunities.
- Loss of the security of a long term disposal solution.

4.1.3 Additional Studies into Alternative Waste Technology

As noted previously, Council is committed to reducing waste to landfill through the application of Alternative Waste Technology (AWT). AWT refers to technologies such as Mechanical Biological Technologies (MBT), thermal treatment or a combination of both MBT and thermal treatment. Council has demonstrated its commitment via its active pursuit of AWT processes over a number of years.

Council requires that during its investigation and preliminary design processes for the proposed landfill facility, all practical options for additional waste processing and separation facilities that may be available in the marketplace are identified and their feasibility assessed for incorporation at the Armidale Waste Management Centre.

4.1.4 Transport to another Landfill

If the proposed landfill facility did not proceed, it is probable that waste from the region would be disposed of to either Tamworth or Coffs Harbour, these being the closest, potentially available landfills. Any proposal that involves landfilling Armidale / Guyra waste at either the Uralla Shire or Walcha Shire facilities is not considered to be viable as both facilities are quite small, non-standard landfills with a very limited operational life. Should the proposed landfill facility not be situated in the (former) NESAC region the implications would include the following:

- Greater haulage costs from Armidale.
- Greater environmental and social impacts of transporting regional waste to another region.
- Decreased landfill life of surrounding regional landfills.
- A still unresolved need to provide a long-term waste disposal solution for the region.

Considering the above, transporting waste to another landfill is not considered to be a practical option.

4.2 Alternative Site Assessment

4.2.1 Landfill Siting Studies

A site selection process was undertaken since the mid 1990's which identified a total of over 50 sites for investigation. The site selection process was based on:

- Consultation with Real Estate agents regarding availability for sale of appropriate sites.
- Consultation with the Department of Mineral Resources regarding the availability of current and former extractive industry sites.
- Consideration of sites within appropriate geological areas.

A summary of the site identification and selection process that has been undertaken is as follows:

- 1996 – Preliminary Regional Landfill Siting Study produced by Brian J Mackney & Associates Pty Ltd. Mackney & Associates' report aimed to reduce the areas under consideration for the siting of the proposed landfill by eliminating unsuitable areas and identifying key selection criteria in order to focus on specific areas of maximum potential. The study sought initially to eliminate various unsuitable areas and to then identify key selection criteria in order to focus on areas of maximum potential. The report concluded that site geology and hydrogeology were the key factors that should influence the selection of any site for a landfill facility within this region of northern NSW.
- 1996-1998 – Following consultation with local real estate agents from 1996 to 1998 regarding the actual availability of potentially suitable lands, seven sites were identified as being consistent with the recommended geological criteria and hence were noted as potentially suitable landfill sites.
- 1998 – The Joint Councils Regional Landfill Advisory Committee was formed between (the former) Armidale City and Dumaresq Shire Councils, with support from Uralla Shire Council. The Committee considered and eventually decided against a number of landfill site options, based on the preliminary assessment studies conducted to date.
- February 2001 – The amalgamation of Armidale City and Dumaresq Shire Councils resulting in the formation of Armidale Dumaresq Council and the disbanding of the Joint Councils Regional Landfill Advisory Committee.
- June 2002 – A Landfill Siting Study by the NSW Department of Public Works, using aerial photography identified two additional sites. Based on the study, a property "Ballantrae", off Miningvale Road was recommended as the preferred site.
- Early 2003 – Following objections and debate on the selection of "Ballantrae" as the preferred site, Council endorsed the formation of the Armidale Dumaresq Landfill Community Consultative Committee (ADLCCC). The Committee was formed to consider the issues relevant to the siting of a landfill as well as other waste issues. The Committee contributed to the development of selection criteria and weightings for the site evaluation process that were then used within a subsequent report entitled Regional Landfill Siting Study (Maunsell Australia, March 2004).
- 2003 – A review was undertaken by Maunsell of various site selection studies. A report was produced entitled Review of Criteria and Strategy Used for Locating Sites for a Regional Landfill Report (Maunsell Australia, September 2003).
- 2004 – Maunsell in its report entitled *Regional Landfill Siting Study* (Maunsell Australia, March 2004) (**Appendix C**) evaluated eleven sites, including the original nine previously investigated, a new site, known as Site 10 that was then being offered for sale and also another "site" that combined Sites 3 and 4 (see **Table 11**). The report recommended that Site 7 (Sherraloy) was the most suitable site for a new landfill and includes details of all 11 sites that were evaluated (see **Appendix C**). Initially only 10 sites were evaluated however "site 4A", a combination of Sites 3 and 4, was also considered in the final evaluation.
- 2004 – Final Site Selection – Council and ADLCCC adopted a recommendation that Site 7 (referred to below as 'Sherraloy', but actually encompassing portions of two separate farmland properties, 'Sherraloy' and 'Edington') as the preferred site for the proposed landfill. Site 7 is the subject of this EA. ADLCCC then disbanded, as its primary purpose was to conduct and conclude the above site selection process.

Table 11: Sites Selected for Site Evaluation (Final Stage)

Site Number*	How Selected	Site Area	Development Area
Site 1: 'Metz'	An existing basalt quarry and mining area	14.41 hectares	14.41 hectares available
Site 2: 'Bannaweera'	Farmland. Disused Basalt Quarry south of the site	761.2 hectares	100 hectares required plus an additional 1.5 hectares for road access
Site 3: 'Tillbuster West'	Directly adjoins the southern boundary of Site 4	231.7 hectares	Approximately 100 hectares required plus 2.0 hectares for road access
Site 4: 'Annaleey'	Directly adjoins the boundary of Site 4	644.6 hectares	Approximately 100 hectares required plus 2 hectares for road access
Site 4a: 'Annaleey' and 'Tillbuster West'	Directly adjoins the boundary of Site 4	876.3 hectares; (225 hectares for sale plus negotiable land area required from 'Annaleey')	Approximately 100 hectares required
Site 5: 'East Mihi'	Farmland	463.2 hectares	Approximately 100 hectares required
Site 6: 'Pinaroo'	Farmland property	474.7 hectares	Approximately 100 hectares required
Site 7: 'Sherraloy'	Encompassing parts of two farmland properties (i.e. 'Sherraloy' & 'Edington')	467.9 Hectares (total area)	Total site area of approximately 100 hectares required
Site 8: 'Waioma'	Farmland, two properties available	169.6 hectares	Approximately 100 hectares required plus 6.0 hectares for access road (if required)
Site 9: 'Miningvale Road'	Farmland	555.3 hectares (236 hectares for sale-site recently divided)	Approximately 100 hectares required plus 8.0 hectares for access road (if required)
Site 10: 'Greenhill'	Farmland	Not identified in report	100 hectares required

* As identified in the report Regional Landfill Siting Study (Maunsell Australia, March 2004)

4.2.2 Site Selection Process

The document *Landfilling – EIS Guidelines* (DUAP, September 1996) states that the principles relating to the site selection for landfill site proposals must give consideration as to whether:

- The location has been identified in any strategic waste management plan.
- The land use is permissible.
- Environmentally sensitive areas are avoided.
- The use is compatible with nearby land uses.

These principles were used to develop appropriate criteria and weightings for the assessment of the potential landfill sites identified. For each of the primary criteria, a number of sub-criteria were discussed, with potentially measurable critiques.

The *Regional Landfill Siting Study* (Maunsell Australia, March 2004) in **Appendix C** provides detail of the site selection process.

The study involved a desktop review of the 11 sites, including a review of the following information sources:

- Available existing site investigations and evaluations.
- Relevant LEP zoning plans for the site and surrounding land.
- Topographic maps.
- Geological maps.
- Groundwater maps / existing bore information.
- Other relevant and available information.

Information that assisted with the evaluation against the site selection sub-criteria (refer **Appendix C**) was noted and recorded for weighting and evaluation purposes. Field inspections and local consultation (where possible) were undertaken for each site in order to determine any local site issues that were not evident from the desktop study.

Assessment Criteria

Table 12 outlines the criteria and sub-criteria used to assess the 11 potential landfill sites as identified in **Appendix C**.

Table 12: Assessment Criteria for Potential Landfill Sites

Primary Selection Criteria	Sub-Criteria	
Strategic Planning Guidelines	EPA Guidelines	DUAP Guidelines
Statutory Planning Issues	Council Zoning Aims and Objectives	SEPPs Other Constraints
Ground and Surface Water Environment	Regional Geology Local Geology Hydrology/Groundwater Land Capability Leachate Control	Flooding Surface Water Control Erosion Protection Distance from Waterways
Level of Service	Distance to Areas Served Required Land Area Level of Site Access	Needs of Processing, Handling, Recycling Level of Existing Road Service Bush Fire Hazard
Adequacy of Service	Infrastructure	
Local Amenity and Environmental Considerations	Visual Amenity Flora and Fauna Land Environment Land Compatibility Noise	Orientation Atmospheric Protection Landfill Gas Control
Site Features Required	Topography/Terrain	Capacity To Accept Defined Waste
Set-up Costs	Land Area Requirement Land Cost	Infrastructure Costs Leachate Control
Operational Costs	Compaction Transfer Operations	Operation and Maintenance

Primary Selection Criteria	Sub-Criteria	
Social Issues	Regional Economy Sensitive Land uses Land Values Tourism	Agriculture Future Development Heritage

Source: *Regional Landfill Siting Study* (Maunsell Australia, March 2004)

Weightings

The relative importance of each primary criteria was "weighted" (i.e. prioritised) using a 1-10 scale, ranging from "relevant" (assigned a weighting of 1) to "essential" (assigned a weighting of 10). The weightings assigned to each of the primary criteria are shown in **Table 13**.

Table 13: Primary Criteria Weightings

Primary Selection Criteria	Weighting
<i>Strategic Planning Guidelines</i>	1
Statutory Planning Issues	10
Ground and Surface Water Environment	10
Level of Service	10
Adequacy of Service	4
Local Amenity and Environmental Considerations	6
Site Features Required	4
Set-up Costs	4
Operational Costs	6
Social Issues	4

Source: *Regional Landfill Siting Study* (Maunsell Australia, March 2004).

The weightings were determined during the review conducted of the *Preliminary Regional Landfill Siting Study* (Mackney & Associates, 1996), as discussed in Maunsell AECOM's report entitled *Review of Criteria and Strategy Used for Locating Sites for a Regional Landfill Report* (September, 2003) and as reviewed by Council at that time, in consultation with the ADLCCC. Weightings were also adjusted as a result of this consultation. The final weightings adopted in the site selection process are as per **Table 13**.

Evaluation and Results

In evaluating the sites, each of the primary selection criteria was assessed in terms of the sub-criteria and assigned a relative ranking using a 1-10 scale, ranging from 'poor' (assigned as 1) to 'ideal' (assigned as 10). The ranking for site suitability was assigned according to the scale shown in **Table 14**.

Table 14: Ranking for Site Suitability

Ranking	Importance
10	Ideal
9	
8	Very Good
7	
6	Good
5	
4	
3	Fair

Ranking	Importance
2	
1	Poor

The evaluation of each site involved multiplying the relative primary criteria weighting against the site suitability ranking in a site evaluation matrix (refer to **Appendix C** for further detail). The total of these values for all of the criteria becomes the score for that site. Therefore the highest possible score a site can obtain is 590, while the lowest possible score is 59.

Results of the evaluation process are presented in **Table 15**.

Table 15: Site Selection Assessment Results

Primary Criteria	Evaluation Score	Comparative Suitability Ranking
Site 7 – Sherraloy	372	1
Site 4A (Site 3& 4 combined)	340	2
Site 8 – Waioma	328	3
Site 9 - Miningvale Road	322	4
Site 2 – Bannaweera	304	5
Site 4 – Tillbuster	292	6
Site 1 - Metz Quarry	278	7
Site 3 – Annaleey	272	8
Site 5 - East Mihi	266	=9
Site 6 – Pinaroo	266	=9
Site 10 ¹ – Greenhill	0	NA

⁽¹⁾ The Regional Landfill Siting Study (Maunsell Australia, March 2004) stipulated that while the majority of the “Site 10” property is zoned General Rural 1(a), much of the land area that is potentially suitable for landfilling (i.e. within an area of natural depression) is likely to be located within the Arterial Road Corridor zoned Rural 1(2), covering a 400 metre wide corridor where “landfilling” is a prohibited activity. The Study notes that even if the landfill was designed to avoid the prohibited (road corridor) area, vehicular access from the highway and the proximity to a watercourse would then become “potentially restrictive issues.” The report recommends that “this evaluation and site (should) not be pursued due to the potentially prohibitive zoning” without further considering the more detailed selection criteria process undertaken for all other sites.

Using the adopted criteria and weightings, Site 7 was recommended to be the most suitable site for a future landfill facility due to the following advantages:

- The site was not included in any areas deemed sensitive or unsuitable by *Strategic Planning Guidelines*.
- The site was located within a preferable geological area.
- Underlying metasediments should provide an adequate barrier to groundwater movement through the site.
- Site topography and local geology appears to lend itself well to long term control and monitoring of leachate.
- Views are generally protected from surrounding land towards the west, south and east by existing vegetation, with partially inhibited views towards the north.
- Use as landfill should not impact on surrounding land use provided the landfill is managed correctly and adequate buffer distances are maintained.
- Relatively low bush fire hazard exists as the area is largely clear of vegetation.
- Haulage costs amongst the lowest of the sites evaluated due to shorter distances to areas serviced (taking into account average haulage levels) and good quality road access.

It should be noted that the site assessment was undertaken with the intention that there was no predetermined threshold within the score-line that would indicate an 'ideal' site or a 'poor' site. For example, a site that may score 450 does not necessarily represent an 'ideal' location for the siting of a landfill, however it was considered to be a more suitable site than those that score lower. In this regard, the site with the highest overall score was noted to be the 'preferred' site, relative to the other sites included in the evaluation.

4.2.3 Further site suitability assessment and justification

In addition to the above, initial outcomes of geotechnical investigation carried out by E.A. Systems Pty Limited indicated that soil and groundwater conditions at Sherraloy would be suitable for the siting of a landfill. More detailed findings of the Hydro-geotechnical Investigation and Flora and Fauna Studies are summarised in **Section 8.0**, and **Appendix D** and **Appendix E**, respectively.

Armidale, including LGA as well as most of the township of Guyra are located within the catchment of the World Heritage Area, Oxley Wild Rivers National Park. All sites investigated therefore also fall within this catchment. Hydro-geotechnical investigations undertaken for Site 7 (**Appendix D**) conclude that the landfill void is unlikely to encounter any groundwater or subsurface flows.

Potential sites outside the Gara River catchment were investigated in both Dumaresq Shire and Uralla Shire as part of the study. However these sites were not considered feasible due to poor ratings on significant criteria such as suitable geology and ground and surface water environment, as they drain to more highly stressed inland river systems.

4.2.4 Consultation

The site selection process and community consultation occurred simultaneously. For effective ownership of any future landfill site by the community, the process by which the site is selected should involve the people who have to live with and by it. As such, the community consultation process was an important part of both setting site selection criteria and in evaluating sites against these criteria.

A public meeting was held at the Council Town Hall on the 29 January 2003, to discuss the proposed landfill facility. More than 150 local people attended the meeting. During the meeting, Council's General Manager outlined the background, future processes and mechanisms that would be used as the project proceeded. It was concluded at the public meeting that a community consultative committee (ADLCCC) would be formed to work with Council on the choice of a new landfill site.

The ADLCCC was formed around May 2003 as a medium for various stakeholders to provide input into the site selection process. The overall aim of the ADLCCC was:

To assist in developing a new landfill site and the associated integration of waste disposal strategies for the Armidale Dumaresq Council and surrounding communities.

EOIs were called from the local community to sit on the ADLCCC. Ten members of the community were endorsed by Council. Membership of the ADLCCC was constituted as follows:

- Three Council representatives.
- Six stakeholder representatives from the three potential landfill sites under consideration at the time (Sites 7, 8 and 9).
- One independent Chairperson.
- Five members of the public.

A meeting of the ADLCCC was held on 4 September 2003 to discuss the site selection process. This was undertaken as part of the review of site selection studies completed up until this date by Maunsell (refer to **Appendix C**). It was established, from the meeting, that the ADLCCC members believed the important siting issues were:

- Environmental issues.
- Social Issues.
- Technical issues.
- Aesthetics.
- Site Aspect.
- Demographics.
- Protection of amenity and health.
- Odour, noise, dust, seepage.
- Visual amenity.
- Effect on native flora and fauna.
- Vermin.
- Proximity to National Park.
- Access (physical, utilities and communication).
- Impact on tourism.
- Impact on neighbouring agricultural practices.
- Impact on large scale future development due to potable water supply.

Consultation with the ADLCCC contributed to the development of primary criteria and weightings for the site selection evaluation in the subsequent *Regional Landfill Siting Study* (Maunsell Australia, March 2004) included as **Appendix C**.

As part of the consultation process, the draft *Regional Landfill Siting Study* was presented to both Council and the ADLCCC at a special ADLCCC meeting on 8 December 2003, in order to address any concerns regarding the evaluations and 'fine-tune' the rankings according to any further recommendations prior to issuing the final version of the report. A motion was passed by the ADLCCC to release the draft report for public comment. Submissions were received from ADLCCC members and other stakeholders. These submissions were reviewed and the relevant information incorporated into the report and the selection criteria re-evaluated as necessary.

ADLCCC accepted the findings of the *Regional Landfill Siting Study* and recommended to Council that Site 7 be adopted as the selected site. Council then resolved to pursue the establishment of a new landfill on this site and the ADLCCC was disbanded.

Further community consultation has been ongoing since the site selection process. The community have been informed at key stages throughout the project's development of the opportunity to provide feedback on community environment and other issues. **Section 7.0** details the community consultation activities conducted as part of this EA process.

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