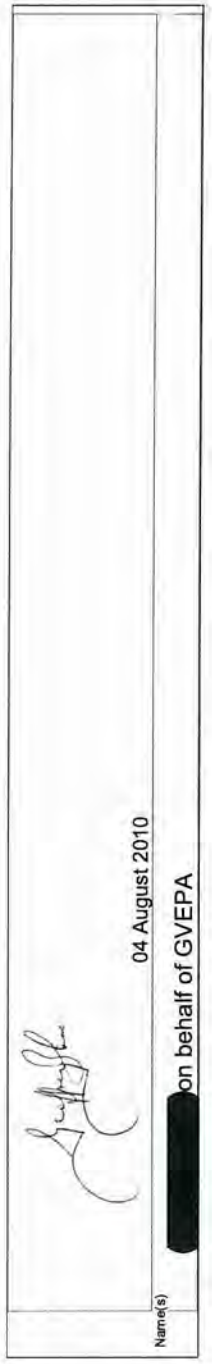

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re: Armidale Regional Landfill – Environmental Assessment Project Application Number 06_0220

The Gara Valley Environment Preservation Association (GVEPA) seeks intervention by the NSW and Australian Governments to prevent the construction of a new putrescible landfill anywhere within the catchment area of the Oxley Wild Rivers National Park, which is part of the Gondwana Rainforests of Australia World Heritage Area (GRAWHA).

In seeking this intervention, GVEPA believes that this Environmental Assessment (EA) is no more convincing than was the 2007 Referral, that the proposed landfill will not, sooner or later, further pollute the Oxley Wild Rivers National Park. In terms of the key concerns that we identified in our submission on that occasion, this EA:

- **confirms our assertions that leachate security is highly problematic in any landfill;**
- **fails to offer a leachate-containment technology that hasn't already been discredited by studies reported in the international literature;**
- **implies an inevitable violation of the Australian Government's obligations under the World Heritage Convention to ensure '*the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage*'[1]**
- **continues to dismiss the fact that a Critically Endangered Ecological Community (CEEC) will be disturbed and further degraded by the proposal;**
- **continues with its unacceptably myopic focus upon a landfill site within its immediate local government boundary, when what is needed is a facility located where it can serve the longer-term future needs of several Local Government Authorities AND does not threaten the integrity of the Gondwana Rainforests of Australia World Heritage Area.**

Given that additional alternative landfill sites exist in the soon-to-be-created New England Regional Council, and the Proponent's admission that the current site is not necessarily the best site available, GVEPA argues that it is absolutely unnecessary to run the risk of causing significant damage to the Gondwana Rainforests of Australia World Heritage Area and consequently that this proposal should be rejected.

We elaborate on these issues below.

[1] Article 4 – see http://www.worldheritagedump.com.au/Briefing/World%20Heritage%20Values%20080625.pdf

Water Quality is of Paramount Importance

It is important to be clear, from the outset, about why we argue that *water quality is of paramount importance.*

First, the NSW DLWC *Groundwater Quality Protection Policy* states[2] unequivocally that:

> ***All groundwater systems should be managed so that the most sensitive identified beneficial use (or environmental value) is maintained.***
>
> *... Potential dischargers need to either establish that their activity does not contaminate the groundwater system, or show that their proposal will not affect the beneficial use selected. This is consistent with the 'polluter pays' principle, which requires the costs of pollution prevention, or cleaning up pollution, to be met by the polluter.*
>
> *It must be clearly understood by all members of society that no-one has the right to contaminate groundwater in such a way as to create a significant risk to public health, critical ecosystems or other valued users of water (NWQMS, 1995).*

In this case, the 'identified beneficial use' is a 'critical ecosystem' in the form of the **aquatic environment** within the Oxley Wild Rivers National Park, part of the Gondwana Rainforests of Australia World Heritage Area.

Second, the EPBC has made it abundantly clear that concern over water quality is the fundamental reason for its declaration, in 2007, that this proposal would be a 'controlled action'. This is revealed in correspondence between the EPBC and the Proponent[3], in which the latter indicated its difficulty in identifying specific information about what makes the Gondwana Rainforests of Australia World Heritage Area worthy of inscription on the World Heritage register. The Proponent wrote:

> *... I haven't found a great deal of supporting literature or data that would assist in specifying in detail the ecological areas of the GRAWHA. Do you know of any sources (outside those available that generically discuss all GRAWHA sites) that would assist in more accurately defining the GRAWHA downstream of the proposed landfill site, ...*

to which the EPBC's Assessment Officer responded as follows:

> *The department considers that the sources you have identified accurately reflect those currently available in relation to specific information on the Oxley Wild Rivers National Park. The department considers that this information would then be interpreted against the World Heritage listing information found at*

[2] NSW DLWC, 1998, p.18

[3] EA, Appendix B / Appendix B / Appendix A, *DEWHA Correspondence*, pp. 1-3.

http://www.environment.gov.au/heritage/places/world/gondwana/values.html.

The World Heritage values listed on that web page include habitats associated with:

- *frogs in the families Myobatrahidae and Hylidae;*
- *reptiles such as chelid turtles, leaf-tailed gecko and angle-headed dragon;*
- *... and*
- *invertebrate fauna with origins in Gondwana, including fresh-water crays, land snails, velvet worms, mygalomorph spiders, flightless carabid beetles, bird-wing butterfly and glow-worms.*

and the EPBC response further stated that:

> ***The department does consider that the values most at risk are those which will be most affected by water quality (our emphasis)**, and also where weeds are likely to reduce values. Weeds are most likely to cause degradation of values in riverine environments, however, they could also be an issue in other environments.*

In short, the EPBC's reason for declaring the proposed landfill a 'controlled action' lies in its judgement that **the proposal poses a very real threat to the quality of water entering the Oxley Wild Rivers National Park from the Gara River**.

This exchange between the EPBC and the Proponent also reveals, unequivocally, that while the Gondwana Rainforests of Australia World Heritage Area is recognised as being a priceless natural environment, **it has not yet been subject to detailed scientific study, so that assessment of impacts from leachate pollution cannot be made with any confidence.**

A Cumulative Effect

At a time when the wider society is showing signs of increasing awareness of the need for additional efforts aimed at environmental preservation[4], it is unacceptable that we have a Council failing to take the (once-in-a-lifetime) opportunity to begin to relieve stress on the Gara River system.

The Gara River system is acknowledged unequivocally as being in a highly stressed condition, partly because of, *inter alia,* fertilizer run-off from agricultural activities, mining activities and the Armidale community's sewage and garbage facilities[5], both of which ultimately discharge into it. While those existing facilities will remain for years to come, and continue to discharge their effluent into the river, *by building its new landfill in a location that **does not drain eastwards** into the World Heritage properties, **the Council has a rare opportunity to divert future leachate discharges generated by future solid waste deposits, away from this ecologically sensitive area.***

[4] See for example, *The Great Eastern Ranges* initiative, another arguing that these ranges provide drinking water for 93% of the eastern seaboard population, so that the 'maintenance of the health of these catchments is essential for the future health and wellbeing' of that population. See http://www.greateasternranges.org.au/nature/catchments-and-water/catchments-and-water

[5] EA, p. 143

From this perspective, the building of this proposed landfill effectively constitutes a *cumulative effect* because it is ensuring the on-going, and increasing, pollution burden upon the river system (as population and waste also increase). We note the Proponent's implied claim that since there are no other major developments listed for future implementation, then there will be no cumulative effect[6]. Of course, this assumes that over the life of the landfill (projected to be 50 yrs) no unforeseen developments will take place. It also fails to recognise that it is, in itself, effectively a cumulative effect by virtue of its perpetuation, and subsequent increase, of an existing source of pollution.

GVEPA argues that in the interests of improving, rather than further degrading, the water quality within the Gondwana Rainforests of Australia World Heritage Area, **this proposed landfill must not be built in this location.** Underpinning GVEPA's assertions on this point is its conviction that there is currently no technology available that can guarantee the containment of leachate on-site for the long period of time that the landfill will be potentially polluting. As noted above, once groundwater is contaminated, it is virtually impossible to cleanup and rehabilitate. We must conclude that there is a high probability that this landfill will, sooner or later, release leachate into the Gara R and so the Gondwana Rainforests of Australia World Heritage Area waterways, with unanticipatable consequences.

Leachate Insecurity: Acknowledged but NOT Managed

In reporting the conclusions to be drawn from its literature review on Landfill Liner Defects, the EA (p. 158) states:

> *There is potential, albeit limited, for defects to occur during the construction of the landfill liner, resulting in potential leaks to the groundwater. During operation, a well-designed and installed liner may be expected to experience some degradation or aging with time that would eventually lead to localised failure.*

It goes on to summarise the 'main findings' in the following terms:

- *Composite liner systems must be used appropriately and in accordance with site specific design and in strict adherence to construction specifications ...*
- *The available laboratory and field evidence, combined with modelling, indicates that primary Leachate Collection and Conveyance Systems in municipal solid waste landfills have a finite service life, which could range from less than 70 years to more than a century depending on the design, waste characteristics, material and exposure conditions and mode of operation. ...*
- *Leachate quality and quantities would be dictated by the type of waste received, the design of the landfill and how the landfill is constructed and operated. ...*

all of which are consistent with GVEPA's previous assertions that sooner or later, landfill liners inevitably will fail! ***This is a significant, and welcome, concession on the part of the Proponent***

[6] EA, pp. 264,265

over the position it argued in the Preliminary Environmental Assessment of 2007, in which the problem of leachate insecurity was not even countenanced! (GVEPA, 2007:5).

Recognised negative impacts of leachate loss are listed in the EA (p. 144,145):

> *Leachate would be generated by the landfill and, if released to the environment, could impact on water quality through:*
>
> - *Input of nutrients at elevated levels.*
> - *Rapid growth of weeds, supported by the high nutrient levels.*
> - *Death of aquatic organisms within the creek such as fish and macro-invertebrates.*
> - *Lower dissolved oxygen levels in the creek.*
> - *Odour emissions from the river, mainly during periods of low flow.*
> - *Other pollutants of concern that may potentially be contained in surface water runoff from the Project Site include weed propagules (i.e. seeds or other plant matter), bacteria, other organic matter, oil and grease from operational plant and machinery, heavy metals and other toxins.*

Having finally admitted that landfills are prone to leakage (and the cause of sundry other environmental affronts), not surprisingly, the proponent goes on to assure all and sundry that this is really not at all problematic:

> *However, the landfill would be designed to ensure that no operational water (i.e. leachate or dirty stormwater) is released to the environment, therefore it is unlikely that the proposed landfill would impact on water quality of the unnamed intermittent creek or Gara River.*

And by implication, if the unlikely event of leakage did occur, then (EA, p.227)

> *... identified potential impacts from the proposed landfill can be appropriately managed through the implementation of specific mitigation measures and commitments outlined in this assessment.*

GVEPA does not share the Proponent's conviction that the risks associated with escaped leachate are either minimal, or that they can be 'adequately managed'.

Risk Management Problematic re: Leachate

The Proponent's 'Risk Profile' (EA, 9.274) identifies 18 'Issues' (which are forms/dimensions of risk), of which just 6 are categorised as 'Low', 9 are 'Low/Medium', 2 are 'Medium' and 1 is 'High/Medium'. In short, ***the Proponent acknowledges that there is a broad base of risk associated with this proposal.***

Each of these summary judgements of risk reflect a combination of two separate dimensions of each risk issue, its *significance* and its *manageability*. Each of these, in turn, is fundamentally a matter of personal judgement: they are NOT 'truths' to be accepted without question. Neither is the mapping of those judgements onto numerical scales. The main point of difference that GVEPA would emphasise here[7] is the optimistic judgement that the *management* of all of these issues is 'Standard' or at worst, 'Straightforward'. Against the agreed understanding that landfill liner systems must be assumed to leak sooner or later, it is essential that we examine closely the implications of such failure for the management of leachate, then assess the adequacy of the Proponent's management measures.

It is GVEPA's judgement that leachate loss into the Gara River and then Gondwana Rainforests of Australia World Heritage Area must be anticipated via both surface water (primarily flooding caused by infrequent extreme weather events) and groundwater (caused by liner failure).

(i) Surface Water Contamination

The proponent's assumption is that leachate will be contained within the landfill so that management is a simple matter of dealing with what can be seen and collected as per the pipes/pondages depicted in Fig 8, Section 5.2.6 (EA, p.59). This is elaborated (EA, p. 146):

> *In order to appropriately manage leachate water, the proposal would include the construction of a permanent leachate pond where all leachate would be collected, stored and treated. This would also include all waters that are potentially contaminated due to their contact with waste or with any areas of land that have been contaminated with waste.*
>
> *The volume of all leachate water produced would be regulated and would be required to undergo regular monitoring in accordance with the site EPL under the POEO Act. In the unlikely or "emergency" case that the leachate pond overflows, all overflow waters would be transferred to the permanent sedimentation basin for emergency storage and appropriate treatment.*

The claim that 'all leachate would be collected, stored and treated' in the on-site pondage system outlined above[8] is crucial to note, as is the assumption that no leachate will be lost beneath the landfill. Mitigation measures are said to be 'stringent', with pondages and back-up collection systems all built to meet 1 to 100 yr rainfall events[9].

However, the EA (p. 144) goes on to admit that

[7] GVEPA contests the judgement that the issue of 'Biodiversity' is appropriately rated at 4 on the Significance scale and that ' National Environmental Heritage' is appropriately rated at 3. It can be argued that each should be higher, at 5 and 4 (even 5) respectively.

[8] EA, p. 158

[9] Though we note that the leachate pond 'pond has been sized to capture the 1 in 25 year, 24hr storm event from direct rainfall' – see EA, p.147

> *No flood studies have been conducted in this area, instead, calculations using Manning's equation were used to estimate the 100 year Average Recurrence Interval (ARI) flow and the 100 year flood level in these creeks. The results of these calculations indicate that the proposed landfill site is well outside the extent of the 100 year floodplain.*
>
> *The design for the landfill and stormwater ponds (dry basin) incorporates adequate freeboard to contain 100 year ARI flows on site.*

So the design specifications of the siting and size of leachate containment pondages are based on *theoretical calculations of average flows and flood levels,* rather than actual data gathered from the site.

GVEPA argues there are good reasons for questioning the adequacy of theoretical modelling and the specifications derived from them. The site is known to be prone to flooding, as Council's previous consultant had already advised[10]:

> *... the site is located mid-catchment, with potential for flooding and there is previous evidence of flooding at the site.*

GVEPA's PowerPoint presentation includes a recent photograph of the main gully taken near where the landfill watercourse joins it[11]. Even after just 58 mm of normal rain, the volume of run-off was impressive. When extreme rainfall does hit the area, then we must expect that local flooding will be severe. Increasingly, extreme weather events have been encountered in recent years, and by definition, **these are not average occurrences**, so that design specifications based on average events can be expected to be inadequate.

An outstanding example of such an event on the Tablelands was the Timbarra Gold Mine[12] disaster, which stands as an inescapable testimony to the fact that both industry consultants and the Government approval process alike cannot always be relied upon to 'get it right'. No doubt the experts behind that proposal were confident that they 'had it right', and Government authorities obviously agreed, because cyanide leachate was involved.

One factor in the Timbarra case was unusually high rainfall. We understand that the design specifications for water containment were designed to meet a once-in-400 year level. *But still it failed, with disastrous consequences.* One of GVEPA's consultants, who is familiar with the Timbarra case, draws the comparison with the current proposal[13]:

> *Despite repeated mention within project documentation that the site will not have any undue adverse impacts upon the World Heritage property, it is apparent that considerable potential exists for major deleterious downstream impacts upon World Heritage values within Oxley Wild River National Park. Recent experiences on the Timbarra Plateau (1999-2001), a site of very*

[10] Maunsell, March 2004, *Regional Landfill Siting Study: Final Report,* p. 67

[11] See http://www.worldheritagedump.com.au/v4flashfast/GVEPAPPS08v4compressfast/pps.html

[12] See for example, http://en.wikipedia.org/wiki/Timbarra_Gold_Mine, http://www.bigscrub.org.au/timbarra.html

[13] Graham, M S, 2007, *A Review of EPBC Matters Relevant to the Site of the Proposed Regional Landfill – Gara River,* p.1

> *similar climatic and landscape context to the proposed landfill site, have shown that it is impossible to engineer a facility adequate to withhold runoff from peak summer rainfall events. In the case of the Timbarra gold mine, this resulted in considerable downstream leachate and sediment contamination of the headwaters of the Clarence River.*

This could also be a factor in the Gara landfill proposal. Climate change is being widely blamed for an increasing frequency of extreme weather events and sooner or later we might expect the Gara region to experience extreme rainfall. The risk then is that leachate pollution will escape directly and quickly into the Gara River.

A further element of disquiet about the adequacy of the mitigation measures designed to control surface water within the landfill relates to the intention to transport 'excess leachate', such as might accumulate in the proposed site's holding ponds in an "emergency" event, to the ADC's licensed Sewage Treatment Plant (EA, p. 147 & Appendix B, p.53).

Presumably it would be dumped there and eventually find its way out onto the fodder-growing paddocks as irrigation water. During heavy rain, run-off water from these paddocks flows down-catchment through small dams and finally joins the Commissioners Waters, which in turn end up in the Gara River. In short, *the leachate would not be contained, just released via a more circuitous route*! Rumour has it that already these paddocks are showing increased levels of heavy metals in the soil, presumably due to the sewage system effluent. This strategy for leachate management is not at all satisfactory.

In summary, the *Water and Leachate Management Plan* for the containment of leachate within the landfill site is problematic because it does not appear to be designed with extreme weather events in mind. The Timbarra Mine disaster occurred even though its design parameters were more stringent than those proposed for this landfill development. Further, the proposal to transfer excess leachate to the Armidale Sewage Treatment Plant is quite unacceptable because that effectively transfers effluent out onto nearby paddocks with rain runoff directly into the Gara River.

In terms of the Risk Assessment matrix, GVEPA's contention is that the ***Significance*** of flood water carrying leachate into the Gara River is **HIGH:** the receiving environment has been determined as **SENSITIVE** by both the EPBC and its World Heritage designation, and as demonstrated above (see p. 3), that environment is not well understood so that potential **IMPACTS ALSO ARE NOT WELL UNDERSTOOD.** With respect to ***Manageability of Effects***, given the theoretical nature of the risk of flooding, coupled with the increasing occurrence of extreme weather events, the rating of this dimension is at best Straightforward, and more likely **SUBSTANTIAL.**

Taken together, there is, at least, a HIGH/MEDIUM risk of surface water pollution damaging the World Heritage environment downstream.

(ii) Groundwater Contamination

GVEPA has long argued that landfill liners must be assumed to fail, sooner or later. We welcome the proponent's concurrence with this same conclusion (see above, p. 5).

In the event of the liner being breached, because of such influences as, *inter alia,* natural deterioration over time, contact with leachate, holes/tears created at time of construction, or because of punctures resulting from differential pressures created by the waste load (EA, p. 158), leakage

through the base of the landfill must be presumed and anticipated. This possibility is acknowledged in the EA (Appendix I, p. 9):

> *In conjunction with the barrier system the leachate level within the landfill is designed to be maintained not to exceed 300 mm above the base of the liner by a leachate collection system. Therefore, 'leakage' from the base of the landfill is considered to be negligible in practice. However, it is necessary to assess the potential impact of leakage on the basis that there is potential, albeit limited, for defects in construction of the HDPE liner. Leakages from the liner would then enter the environment, migrate downwards through the vadose zone, until the saturated zone is reached and then migrate laterally toward the Gara River.*

Research in the US reveals that when leachate enters the vadose zone, commonly and initially via a small hole in the HDPE liner, its migration away from the landfill is usually in the form of a narrow plume that might be as little as 600mm wide. Even if there are several of these, it is more by good luck than good management that a down-gradient monitoring bore system will pick it up. Furthermore, monitoring down-slope from the landfill using detection bores is ultimately not useful because once the leachate is out, then there is little that can be done to retrieve it.

When a hole in the liner does occur, the migration of leachate can be surprisingly quick. The EA (p.159) suggests that in the case of its proposal, and by its calculations, this time could be as short as 17 years!

> *Given these assumptions and the conclusions of the literature review, the estimated time for leakage to escape the landfill (approximately 17 years) is highly conservative.*

GVEPA's literature review has revealed calculated times that are similarly short (Lee and Jones-Lee, 2009, p.5):

> *... simple calculations show that it would take about 25 years for leachate that passes through a hole in the plastic sheeting liner under 1 ft of leachate head, to penetrate a 2-ft compacted clay liner.*

so perhaps the EA's estimate is not as conservative as the proponent might want to think.

And over a projected *active* life of 50 years[14], followed by a lifetime of further chemical reactions within the landfill after it is finally capped, this **rightly-conservative** estimate is alarming in its implications. The community might be lucky and get a landfill that holds up well, but the **probability is low[15] and certainly an unacceptable risk in the face of the obligations imposed by the World Heritage status of the Oxley Wild Rivers National Park.**

[14] In an update (June, 2010) of their 'Flawed technology' paper, Lee and Jones-Lee review Canadian, Swiss and US data that leachate generation continues long after capping, perhaps even for thousands of years, depending upon the nature of the waste deposited in them.

[15] Lee & Lee-Jones (June, 2010, p.9) notes a study in the US in the mid-1990s, that of 544 sites assessed in California, 72% were leaking, another 14% were indeterminate, with just 14% not leaking.

The *Water and Leachate Management Plan* sets out a variety of monitoring strategies/techniques, frequency of testing, reporting and reviewing, ***but there is absolute silence about what would be done, beyond more monitoring, in the event of groundwater pollution to remediate that situation.*** **The following statement of likely remedial actions to be taken, appears to indicate that *further monitoring* would be the extent of the action** (EA, Appendix B, p.57):

> □ *Internal review and amendment of the leachate monitoring program.*
>
> □ *External review and recommendations for amendment of the leachate monitoring program (by monitoring specialist).*
>
> □ *Additional monitoring points included into the leachate monitoring program.*
>
> □ *Review and amendment of the analytes tested for.*
>
> □ *Increase in the frequency of monitoring undertaken on site.*

GVEPA is NOT surprised by this apparent lack of a plan for mitigating action should leachate escape through the bottom of the landfill. As the *NSW Groundwater Protection Policy* has asserted, once ***'groundwater becomes polluted it is difficult or impossible to clean up completely'***. GVEPA's research has not encountered any literature that offers hope in this regard.

It is apparent that managing leachate containment is highly problematic. Once the landfill is built, there is little that can be done to manage liner deterioration, and detection of leakage is little more than a case of 'shutting the gate after the horse has bolted'. **As far as GVEPA can ascertain, there is NO management measure proposed in this EA, or discussed anywhere in the wider literature, that can remedy leachate loss through the liner.**

On these grounds, its conclusion is that the residual environmental risk associated with groundwater pollution is at least HIGH in the Residual Risk Matrix. GVEPA argues further, however, that since there is no proven mitigation measure available to manage this probable eventuality, the environmental risk here is *OFF THE SCALE.*

The tenor of GVEPA's analysis is consistent with that of its independent consultant[16]:

> *In regard to Table 74 (Section 10.2 Residual Risk Analysis) - disagree with the risk category for groundwater (3 for significance of effects (may be correct); however, **strongly disagree with their assessment of the ability to manage the risk if impacted groundwater is migrating off-site** (3 - straight forward) **(our emphasis).***

(iii) Geology not helpful

It appears as though the geology of the site is less than ideal for a landfill because the underlying rock is both highly weathered and fractured, rendering it permeable to groundwater. This is implied

[16] EDO Expert Reviewer, 2010, p.6
NOTE: The Environmental Defender's Office engaged an Independent Expert Hydro Geologist from its scientific register of experts to review components of the Environmental Assessment. The expert has particular expertise in contaminant hydrogeology and experience in landfill impacts on water quality.

in the EA's brief description of the geology and soils at the site (EA, p. 157), and is corroborated by drill-core data. Commissioned drill-core analysis shows considerable fracturing and weathering of rock in the vicinity of the landfill, to a depth of at least 26m. The report of these data includes the geologist's judgement that 'potential for considerable groundwater transmission' might exist (EA, Appendix N, 'Implications', no pagination):

> *Fracturing and weathering effects observed in the drill core would have implications on the transmission of groundwater and potential leachate from a landfill. The fact that weathering effects in the deeper part of the drill core are concentrated along fractures indicates that oxidising groundwater penetrates at least to the depth of the bottom of the hole (26 m). Zones of strong fracturing and clay development in the weathered zone might have the potential for considerable groundwater transmission.*

This interpretation of the drill core data doesn't seem to tally with EA assertions about slow migration of leachate into the Gara River that are presented in the Hydrogeological (Leachate) Assessment (Appendix I, p.21)

> *These estimates are largely based on assumed and uniform conditions and are considered likely to represent conservative estimates.*
>
> *Potential leakage from the landfill was estimated as approximately 100 L/day.*
>
> *The time taken for leachate to escape from potential defects in the liner and traverse the clay layer was calculated as approximately 17 years.*
>
> *Travel time from there to the saturated zone was calculated as 13 days. Upon mixing with the underlying groundwater, leachate is calculated to be significantly diluted (80 times) over a depth of approximately 1 m in the groundwater.*
>
> *Leachate contaminants would then take approximately 1000 years to reach the Gara River.*

The interesting part is the claim that although it could take as little as 13 days for leachate to traverse the vadose zone, and despite the evidence of highly fractured sub-soil rock that shows clear evidence of groundwater movement, it would be a further 1000 years before leachate would travel that last 1 km to the Gara River!

GVEPA's consultant, an EDO Expert Reviewer[17], also disputes this time-frame:

> *The reviewer disagrees with the statement ... that a long time frame may be required for groundwater migration in the bedrock.*

We note too the Proponent's admission that 'a groundwater model is a simplified approximation of a heterogeneous and highly complex physical system', a point also made by the EDO Expert Reviewer:

[17] EDO Expert Reviewer, 2010, p. 6

> *Further, the reviewer disagrees ...(with respect to)... the potential migration velocity in the fractured rock. Whilst the overall bulk permeability of the rock may be low, the groundwater velocity in the fractured media would be dependent upon the cube of the fracture aperture and the hydraulic gradient (which might be significant considering the local topography and proximity to recharge areas).* ***The groundwater velocity and rate of contaminant transport might be significantly faster than suggested. However, this would be difficult to prove since fractured rock is a complex hydrogeological environment (our emphasis).***

Further, we note the Proponent's acknowledgement of this complexity and that uncertainty surrounds the validity of such calculations because of that complexity:

> *Notwithstanding the simplifying assumptions made in the assessment, a groundwater model is a simplified approximation of a heterogeneous and highly complex physical system. As such, whilst models may be used to assess and predict aquifer behaviour and responses to a range of stresses, a degree of uncertainty is inherent in all models.*

From GVEPA's perspective, reliance upon such uncertain 'scientific' modelling to inform crucial decisions about the behaviour of complex hydrogeological system, *carries with it considerable risk.* **Such risk is amplified when resultant actions have the potential to violate Australia's international obligations to preserve its World Heritage environment**

Where there is inadequate scientific information to properly assess the risk, the 'Precautionary Principle' should be invoked, and we strongly believe that this principle should be applied in this case.

(iv) Residual Environmental Risk re Leachate Cannot be Managed

In light of the above conclusions that the Residual Risk Management associated with Surface Water is HIGH/MEDIUM (not *Low/Medium* as suggested in the EA) and that associated with Groundwater is HIGH, or more likely, ***OFF THE SCALE*** (certainly not *Medium* as suggested in the EA), it must be concluded that the probability of eventual leachate contamination of the World Heritage aquatic environment is **SO HIGH AS TO BE UNACCEPTABLE.**

There is a clear lack of sufficient knowledge about BOTH the nature of the aquatic ecology that is at risk, AND the nature of the leachate that will be generated by the landfill, for the Proponent to begin to understand just what the impact of leachate loss will be on that environment. Consequently, **GVEPA argues that the Precautionary Principle must be invoked and the landfill not being permitted to proceed on the chosen site.**

We emphasise the point made in relation to the failure of the Timbarra Mine disaster, that decision-makers in the past have approved projects, presumably in good faith, yet failures have occurred. Indeed, we live in a time of some spectacular instances of technical and/or management failure that have lead to environmental degradation (eg Chernobyl - Nuclear, Bhopal - Gas, Alaska [Exxon Valdez] - Oil, & the Gulf of Mexico - Oil, and who knows how many more smaller scale instances, which have been 'invisible' to the news media,). **GVEPA believes that it is no accident that the**

EA is silent on the question of mitigation measures to manage the case of liner failure, the eventuality that is most likely in the long-run: there are none available! Against the backdrop of the US-based research into the high frequency and high probability that any landfill will leak, sooner or later, **we are reinforced in our conclusion that the Precautionary Principle must prevail to stop this proposal proceeding *on this site*.**

Landfill Design is Outdated

The design outlined in the EA (Section 5.2) appears to be essentially the same as that ***discredited*** by the USEPA in 1991 when it was abandoned in favour of the so-called 'Dry Tomb' design concept[18]. That pre-1991 design had a composite bottom liner to which was added a clay liner upon capping, which is precisely what the EA is proposing for the Gara River site. However, it was (begrudgingly) recognised by the USEPA as being ineffective in controlling leachate and following public court action, it was finally abandoned. What is particularly interesting to GVEPA here is the explicit accusation that the persistence of landfill designs that were known to provide inadequate protection to the environment (and nearby residents) may well have been essentially a governmental strategy to keep costs minimal (Lee & Jones-Lee, 2010, p.5):

> *The evolution of liner and cover systems for landfills – from no liner, to a clay/soil liner, to a plastic sheeting liner, to the current composite liner – was not based on a finding that any of these liners could potentially prevent groundwater pollution by wastes for as long as the wastes in the containment system were a threat. The clay/soil liner was based on using the **next least expensive** material to no liner. When it was realized that clay/soil liners had significant problems, plastic sheeting was the **next least expensive** to clay/soil. There was never an evaluation that showed that clay/soil or plastic sheeting would be expected to prevent groundwater pollution for as long as the wastes were in the landfill. **The same situation applies to the composite liner system that is used today**. It is only a matter of time until that liner system fails to prevent leachate from passing through it which can pollute groundwaters, rendering them unusable for domestic and many other purposes.*

The question that GVEPA would now ask, is "WHY" is Australia travelling down that same pathway? Why are we not learning from the well-researched and documented experience of others, and at least adopting designs similar to their current 'best-practice'?

But even though a 'Dry Tomb' landfill has a composite top liner, researchers claim that while this is an improvement, it still will NOT afford adequate long-term protection to the environment. All that is achieved is that the deleterious effects are delayed. This has led Lee & Jones-Lee to advocate a double composite bottom liner be used on any 'Dry Tomb' landfill (Lee & Jones-Lee, 2010, p.33 for diagram). Again, such a strategy is one of delaying leachate loss as long as possible in the expectation that when leachate loss does occur, its level of toxicity will have been reduced considerably.

[18] For an overview of the evolution of landfill design requirements, driven by acknowledgement of failure to protect the environment, see Lee & Jones-Lee, 2010, p.3

NOTE – might use Lee & Jones-Lee 2010 design diagrams p.4 & p.33 as appendices – p.4 looks like the EA design?

It seems that at best, even 'dry tomb' landfill designs provide no more than a temporary delay in the discharge of leachate. GVEPA argues that where World Heritage Values are at risk, this is not good enough, the more so when it is recognised that alternatives sites exist that do not threaten these values. Accepting that the Armidale Dumaresq Council (or its replacement Regional Council) needs to establish a new landfill in the short-term future, GVEPA urges both the NSW and Commonwealth governments to direct that a new site be chosen that does not drain into the Gondwana Rainforests of Australia World Heritage Area (See below: p. 24).

Threats to Biodiversity

The threat to biodiversity that is posed by the proposed landfill has two main dimensions to it: one is its *impact on the site chosen* in terms of land clearing, removal and degradation of habitat while the other is the inevitable *impact of pollution to groundwater* that will be caused by leachate escaping from the landfill and affecting the aquatic ecosystem in the Oxley Wild Rivers National Park.

Critical Aquatic Ecosystem Downstream

The identification of water quality as the major driver behind the EPBC's decision in 2007 to declare the proposed landfill a 'controlled action' has been clarified above (see p. 3) and sits in stark contrast with the assertion made in the EA's Flora and Fauna Assessment (EA, Appendix E, p. iii):

> *No groundwater dependent ecosystems have been identified in the study area or in the Oxley Wild Rivers National Park downstream of the proposed new landfill (DNR 2002). Thus, the proposed new landfill is not likely to have any impacts on groundwater dependant ecosystems in the study area or further downstream in Oxley Wild Rivers National Park.*

This is a remarkable claim because it flies in the face of the EPBC's declaration of reasons for its World Heritage status. It is perhaps understandable given the revelation noted above that there is little detailed scientific data available that describes the aquatic ecosystem that is so highly valued by the World Heritage inscription. Presumably the 2002 Policy upon which the Proponent's assertion was based, also did not take cognizance of the World Heritage inscription of the Gondwana Rainforests of Australia World Heritage Area.

Whatever the reason for the EA's claim, GVEPA argues that it is manifestly false and that consequentially, it is incumbent upon the Proponent to meet the expectation of the NSW Groundwater Protection Policy[19]:

> *... Potential dischargers need to either establish that their activity does not contaminate the groundwater system, or show that their proposal will not affect the beneficial use selected*

In this case, that 'beneficial use' is the 'critical ecosystem' of the Gondwana Rainforests of Australia World Heritage Area. Until the nature of that 'critical' aquatic ecosystem is adequately established, the Proponent cannot meet this requirement. Equally, as GVEPA's consultant observed

[19] NSW DLWC, 1998, p.18

in 2007[20], until detailed identification of the likely leachate contaminants is established, no claims about possible ecological damage can be substantiated.

In short, neither cause, nor effect, can be precisely established by the proponent given the current state of knowledge about both the aquatic ecosystem in the Gondwana Rainforests of Australia World Heritage Area and the nature of the leachate likely to be produced by the landfill. Consequently, it is simply not possible to claim that these undefined risks can be managed!

In terms of the Residual Risk Matrix, the management of unidentified pollutants upon the sensitive, 'world-valued' yet poorly understood aquatic ecosystem downstream, is anything but 'Straightforward', as the Proponent claims (EA, p. 274). From the environmental perspective, this must be regarded as **COMPLEX at least,** leading to an overall assessment of **HIGH** residual risk rather than High/Medium as the Proponent claims.

As GVEPA understands it, this is a classic case in which the ***Precautionary Principle should be invoked***. There simply is not an adequate knowledge base upon which to confidently claim that the proposed landfill will not cause environmental damage. And when the environment under scrutiny lies within a designated World Heritage property, the stakes are so much higher: this landfill must not be allowed to proceed!

Landfill Site

The threat to biodiversity posed by the landfill footprint is primarily its acknowledged, likely deleterious effect upon particular threatened/vulnerable fauna and flora species as well as a Critically Endangered Ecological Community (CEEC) in the form of a Box-Gum Woodland. The New England Tablelands environment has been severely degraded by extensive clearing for grazing purposes since European settlement[21], which makes all remnants of former vegetation extremely valuable in ecological terms. This is the logic driving the current *The Great Eastern Ranges initiative*, its mission being:[22]

> *to engage the New South Wales community – including state government agencies and local government, landowners, industry representatives, community groups and researchers – in an effective long-term partnership to conserve, connect, protect and rehabilitate plant and animal habitats and catchments of the Great Eastern Ranges of Australia along 1,200 km of NSW.*

In the context of that endeavour, the proposal to build a new landfill by one local government authority in one of these water catchments runs starkly counter to the mood of the times!

Apart from the threat posed by the landfill to water quality, it runs counter to another of the *Great Eastern Ranges Initiative's core values* by causing further, acknowledged fragmentation of the woodlands on the tablelands[23]:

[20] GVEPA, 2007, p.5

[21] EA, Appendix E, p. 26

[22] See http://www.greateasternranges.org.au/vision/mission/mission

[23] EA, Appendix A, p. 34

> *Clearing of parts of the Box Gum Woodland in the TSR and parts of the Stringybark Woodland will contribute to fragmentation of woodland habitat with associated edge effects and reduced connectivity*

The consequences of which are also clearly spelled out in the EA[24]:

> *Species that require continuous forested areas are likely to disappear from areas that are severely fragmented. These isolated remnants of woodland provide potential habitat to enhance connectivity of wildlife populations and help some species to overcome the consequences of habitat fragmentation (Wilson & Lindenmayer 1995).* ***Thus every patch of woodland in this area potentially plays an important role in facilitating dissemination of propagules and genetic material of native fauna and flora that helps to maintain viable populations within the local area*** *(our emphasis).*

It is this understanding that has led to a dedicated effort by community members to establish a Citizens Wildlife Corridor that includes the landfill site, the adjacent Box-Gum TSR and many nearby properties owned landholders who have nominated their land for inclusion. This corridor connects the Oxley Wild Rivers National Park via the Gara River to the smaller Yina and Imbota Nature Reserves. Here again, the choice of site for the new landfill is most unfortunate for its implied indifference to the community's effort and commitment to restoring effective wildlife habitat.

The unacceptability of the proposal's impact upon the natural environment is all the more apparent when it is realised that the remnants being affected include bush that is in reasonably good condition (EA, Appendix E, p. 40):

> *The understorey of the Box Gum Woodland community demonstrates high levels of species diversity, the understorey of the Stringybark Woodland had moderate levels of species diversity, while the grassland, sedgeland and farm dams generally had low levels of species diversity.*

The willingness of the Council to propose further degradation of a CEEC, through clearing and associated marginal disturbance, reflects a mind-set more in tune with colonial days than with the present.

(i) Limitations of the Survey

The Proponent's commissioned Flora and Fauna Assessment describes very clearly the extent and nature of the negative environmental impacts that the landfill footprint will cause. From the outset, we should keep in mind that any such studies cannot be regarded as the definitive, last word on the matter. As that report acknowledges EA, Appendix E, p. 23):

> *The main limitation of the survey was its 'snapshot' nature meaning that only a proportion of the full species diversity was likely to be detected.*

[24] EA, Appendix A, p.11

This is particularly pertinent when reporting on sightings of migratory bird species. It is also noteworthy that beyond the numbers of threatened species observed on the landfill site during surveys, there are **many more in the immediate area for which the landfill site is judged to be 'suitable habitat'.** An estimated 10 flora, 14 fauna and a further 5 migratory/marine species can be expected to make use of the landfill habitat from time to time.[25]

At GVEPA's July, 2010 meeting, members reported sightings on nearby properties of both the Spotted-Tailed Quoll (also photographed) and Koala.

Further, and as noted already, the failure to acknowledge the EPBC's clear statement that a critical aquatic ecosystem does indeed exist within the waters of the Gondwana Rainforests of Australia World Heritage Area that might be affected by leachate spill, there is no evidence in the EA that any effort has been made to undertake the necessary studies to identify the nature of that ecosystem. Consequently, the Flora and Fauna Assessment that is included as part of the EA is limited in scope and does not address the environment that is of most concern to the EPBC and forms the basis of the World Heritage inscription! **This is a major shortcoming, to say the least.**

(ii) Box-Gum Woodland

The first point to note about the Box-Gum Woodland is that it is recognised as an Endangered Ecological Community (EEC) under the TSC Act and as a **Critically** Endangered Ecological Community (CEEC) under the EPBC Act. GVEPA's consultant has advised that this CEEC designation is because as little as 5% of the original quantity of this kind of woodland remains across the state.

The proposal for the landfill access easement to the Waterfall Way includes removal of approximately 2 ha of the CEEC woodland, great emphasis being placed on the fact that this represents (EA, Appendix E, p. 25):

> *'Less than 5% of the relevant part of the TSR (south of Waterfall way [sic]) ... (which is)... a negligible [sic] proportion (less than 1%) of that available in the local area.*

The implication that this is an inconsequentially small impact is predictable and seemingly at odds with the following admission, made elsewhere within the same report[26] (EA, Appendix E, p. 31):

> *The losses that will occur at the landfill site also contribute to the already significant level of cumulative habitat loss that has occurred at a regional scale on the New England Tablelands (DEC 2006)*

Further, the report emphasises that this remnant of Box-Gum Woodland is in surprisingly good condition, which simply adds to its habitat value (EA, Appendix E, p.26). And finally, since it is part of a CEEC, any suggestion of further clearing is quite out of order. As GVEPA's consultant[27] has observed:

[25] EA, Appendix E, pp. 44-52, 53-62 & 67.

[26] As was noted in GVEPA's submission in 2007, p. 3, this contradiction is possibly an example of where the Proponent has edited the commissioned report from specialist agencies.

[27] Tda Environmental Consulting, 2007, Report to EDO.

Environmental Consulting

> *This community is listed as a critically endangered ecological community, having undergone a decline of 95% or more of its original extent. Whilst it is acknowledged that the proposal has attempted to minimise impacts on identified Box gum woodland community by locating the access track in an apparently degraded remnant it should be noted that given the limited range and distribution of this community, under the EPBC Act Policy Statement 1.1 (Significant Impact Guidelines, May 2006)* ***any impact is likely to be significant (our emphasis).***

The boundary of what is referred to as the Box-Gum Woodland was challenged by GVEPA (2007, p. 15) in its submission under the EPBC Referral in 2007 and that concern remains.

(iii) Threatened Species

An expected consequence of the clearing required for both the access road through the Box-Gum Woodland and in the landfill site itself, is a significant impact upon threatened species, both fauna and flora. The threatened species sighted in the study environs include (EA, Appendix A, pp. 23-29):

- Narrow-Leaved Black Peppermint (*Eucalyptus nicholii*), listed as vulnerable under both the NSW TSC Act and the Commonwealth EPBC Act;
- Bendemeer white gum (*Eucalyptus elliptica*), a Rare or Threatened Australian Plant (ROTAP) species;
- Two threatened bird species: the Speckled Warbler (*Chthonicola sagittata*) and the Diamond Firetail (*Stagonopleura guttata*), which is listed as vulnerable under the TSC Act;
- Three species currently being assessed for probable listing under the TSC as vulnerable: the Little Eagle (*Hieraaetus morphnoides*), Scarlet Robin (*Petroica boodang*) and Varied Sittella (*Daphoenositta chrysoptera*).

In the Proponent's consultant's words (EA, Appendix A, p. 81 & pp. 134,135):

> *It is concluded that the loss of habitat due to the proposed development will have a* ***significant impact*** *(our emphasis) on local populations of two threatened woodland birds (Diamond Firetail Finch and Speckled Warbler) and two provisionally listed birds (Scarlet Robin and varied sittella [sic]) that have been observed on the proposed landfill footprint area. All five of these species have been recorded on the proposed landfill footprint area.*

Elsewhere, it is acknowledged that even though the Stringybark Woodland, which also contains small numbers of tree species that are indicative of the Box-Gum Woodland, is not regarded as 'core Koala habitat', it nonetheless contains clear evidence of recent Koala usage. This has led to the recommendation by the Proponent's consultants to recommend the preservation of one Yellow

Box tree (tree #3)[28], an action that seems to indicate that clearing of this woodland is likely to also have a negative impact upon the obviously struggling Koala population within this part of the valley.

Returning to the above statement about impact upon threatened species, this paragraph goes on to assure the reader that habitat loss will be offset by re-vegetation with similar species and conservation measures. In GVEPA's view there are two serious problems associated with this strategy.

(iv) Habitat Offset

The first, and most obvious, problem is one that we have identified previously. Removal of Box-Gum Woodland which carries CEEC status under the EPBC Act cannot be compensated for using the Habitat Offset strategy. GVEPA's consultant makes the following observation[29]:

> *Further the proposed mitigation measures do not seem to acknowledge the impacts on this specific community. The proponent has attempted to offset the impacts through a biodiversity offset strategy, which does not include any measures to manage the Box gum woodland. The proposed offset pertains to a vegetation community that is not classed as Box gum woodland.* ***For critically endangered ecologically communities, the use of a biodiversity offset strategy is not recognised by the Department of the Environment and Water Resources as a mitigation measure (our emphasis).***

It is unacceptable that the Proponent should propose to so flagrantly flout this key environmental safeguard. This adds emphasis to our consultant's assertion noted above that clearing of even a small area of this specially protected woodland is a significant assault upon the quality of the environment, and consequentially, its capacity to sustain the fauna that depend upon it. And when that fauna includes six acknowledged threatened species[30] (five threatened bird and the Koala), that is indeed a significant impact. But we should add to that figure the further 29 threatened species known to be in close proximity to the landfill for that habitat is judged to 'be suitable' (see above, p. 18). This is valuable habitat indeed that is will be lost.

The second aspect of the Habitat Offset strategy that is unacceptable again relates to the capacity of the environment to support the wildlife that current depend upon it. We note Principle 9 from the DECCW's *Principals [sic] of Biodiversity Offsetting* guidelines, which states that 'Offsets should minimise ecological risks from timelags'[31]. We presume that 'risks from timelags' refers to the loss of food sources and nesting sites due to clearing that cannot be replaced immediately they are removed through an offset strategy. In this case, the 35 species (6 known plus 29 likely) involved will lose immediately all access to this part of their range and with the intrusion caused by the

[28] EA, Appendix E, p.64

[29] tda Environmental Consulting, 2007, p.2

[30] GVEPA acknowledges the Proponent's claim that only four threatened species will 'lose territories' (EA, Appendix H, p.16), but argues that both the Little Eagle and Koala, which are both current users of the site, should also be included.

[31] EA, Appendix H, Appendix A, Attachment A, p.9

presence and activity of workers and machinery, it seems likely that this loss will be on-going (EA, Appendix H, p. 13:.

> *Several threatened species of birds are likely to be displaced due to construction of the landfill pit. However, the impacts will be minimised through the staged clearing required for construction of the landfill over its proposed 50 year lifespan. This will allow the maximum possible amount of habitat to remain while the Stringybark offset area becomes progressively more established.*

It seems obvious that Principle 9 will be violated by this proposal. But it gets worse!

Elsewhere in Appendix H, correspondence in 2006 between the *Department of Planning* and the *Department of Environment and Conservation*, included the following statement (EA, Appendix H, p. 2:

> *Consistent with the* EP&A Act, TSC Act *and* NP&W Act, *the proponent of any development is obliged to avoid natural and cultural features to the greatest extent possible.* ***No definitive experience or historical evidence exists to assure us that pre-disturbance 'naturalness' and biodiversity levels can be re-established following landfill construction. Nor is there any empirical information enabling us to gauge the rate at which biodiversity might recover (our emphasis).***
>
> *Nevertheless,* ***it is clear from the nature of landfilling that impacts to biodiversity are intense and that they will span time scales that are at least inter-generational, if not permanent (our emphasis).*** *Furthermore, the losses that will occur at the landfill site also contribute to the already significant level of cumulative loss that has occurred at a regional scale on the New England Tablelands.*

In other words, it is probable that full compensation will NEVER occur, and restoration of supporting vegetation will be slow. This seems clearly to point to the conclusion that Habitat Offset is very much an inferior strategy for compensating habitat loss, not just in the short-term, but also, in the long-term. This fact, together with the fact that five threatened bird species and the koala stand to lose further habitat if this landfill is built, **GVEPA must again call upon Governments to withhold approval. Given that alternative sites undoubtedly exist, we argue that there is no need for the landfill to be built on this site so that the survival of these already threatened species is not further jeopardised.**

And in terms of Residual Environmental Risk management, these observations are cause for pessimism: if full restitution of a cleared environment is unlikely to be achieved, then the Proponents assessment of HIGH/MEDIUM is optimistic, and there is a good case for declaring it more properly as **HIGH**.

(v) Increased Threat by Vermin and Pests

GVEPA believes that the presence of a landfill in any area inevitably increases the density of ground foraging vermin, such as foxes and cats. This is a particularly significant issue for the long-term survival of two of the threatened bird species because they nest on the ground (Speckled

Warbler) and/or feed on or close to the ground (Speckled Warbler and Diamond Firetail)[32]. So, not only will their habitat be significantly reduced, but their survival will be further jeopardized by increased predation.

Residual Environmental Risk re: Biodiversity

GVEPA concludes that the Residual Environmental Risk Assessment with respect to *Biodiversity* must be rated as **HIGH on both dimensions.** The centrally important aquatic ecosystem downstream is essentially undefined, as are the likely leachate pollutants, so that management of the risks cannot be defined either! The landfill site is subject to Habitat Offset compensation which it is acknowledged is unlikely to restore the environment to its existing condition, will effectively deprive threatened species that currently use it of its sustenance indefinitely, and there is nothing that can be done about that!

This is a wholly unacceptable proposal to anyone who respects the environment and acknowledges the downward spiral of species lost from the Australian environment since European occupation. And on that same theme, the EPBC's ruling in 2007 was squarely expressing concern that leachate pollution has the potential to affect the unique biodiversity that is part of that ecosystem.

What makes this particular proposal a special case, is that Australia has an international obligation to NOT wilfully take any actions that might prejudice its integrity by virtue of its international status as World Heritage site.

Obligations under the World Heritage Convention

As a signatory to the World Heritage Convention, GVEPA argues that the Australian Government and its people are obliged to ensure

> *the identification, **protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred** to in Articles 1 and 2 and situated on its territory, belongs primarily to that State. **It will do all it can to this end (our emphasis)**, to the utmost of its own resources ...*

(see **http://www.worldheritagedump.com.au/Briefing/World Heritage Values 080625.pdf** , p.4)

It is now long-established that the Gara River sub-catchment is under on-going ecological stress[33] and this is acknowledged in the EA (Section 8.3.1, p. 143):

> *The Southern New England Tablelands Region State of the Environment Report (2004) and Supplementary report (2004/05) identifies the Gara River as a "stressed sub-catchment", exhibiting signs of poor water quality. It also shows signs of "high hydrologic and environmental stress", including:*
>
> - *Eutrophication (due to high nutrient content).*

[32] EA, Appendix H, p. 13 and Appendix E, p.75.

[33] Might note here several sources of stress, eg
1. ADC Sewage Treatment Plant effluent – now diverted to paddocks, but run-off is into Commissioners Waters
2. 8.4.2, p.157 – Bore Hole 5 reveals phenols in groundwater – adds to the understanding of Gara R as a stressed environment.

> - *Poor river structure (stream bank erosion and poor riparian habitat).*
>
> *The Stressed Rivers Assessment Report 1998, produced by the former Department of Land and Water Conservation (DLWC), gave the Gara River the highest overall stress classification, indicating that water extraction within the region contributes to the river's environmental stress. Flows within the river are impacted both by the Guyra Shire Council Dams and the Malpas Dam, all of which are close to Guyra.*

There are no doubt multiple sources of stress upon the Gara R, not the least being the ADC's Sewage Treatment Plant and the existing Armidale Landfill, which can be expected to continue and perhaps increase in future years, the release of leachate into the waterways. The EA, Section 8.18, p.264, recognises that cumulative impacts 'may occur as a result of another existing or future project proposed within the locality', but elsewhere (p. 160) expresses faith in its proposed management measures to avoid adding to this stress:

> *As such management processes have been built into the design, construction and operation of the facility to ensure that no further stresses are placed upon waterways.*

But as GVEPA has argued already, there are compelling reasons why we should question the validity of such claims. **We go further and urge the Government to refuse to permit this new landfill to be built, in so doing, seizing the opportunity to start the process of relieving this waterway of some of it stress, thereby improving the *protection* and *conservation* of the Gondwana Rainforests of Australia World Heritage Area. This is a 'once-in-a-lifetime' opportunity to act to at least stabilise, if not reduce, the on-going stress upon this system, and ultimately the waterways within the Oxley Wild Rivers National Park.**

The demonstrated unwillingness of the ADC to recognise the significance of the Gondwana Rainforests of Australia World Heritage Area as a property demanding 'protection and conservation ... to the utmost of (our) resources)' is disappointing and difficult to understand. Perhaps it is a case of that old adage that 'familiarity breeds contempt'? It is possible that since residents in the New England districts live in close proximity to properties like the Oxley Wild Rivers National Park then, as 'insiders' (i.e. Australians in general and locals in particular), the risk is real and probably high, that we do not appreciate fully their uniqueness. The concomitant risk then is that we are all too willing to contemplate developments that should never be contemplated, at least not in such special environments.

Perhaps one reason for such apparent indifference to our World Heritage properties lies in the seemingly limited attention being given by Governments to Article 5 of the World heritage Convention, which requires them to:

> *adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes*

If Government were to approve this proposal, GVEAPA argues that such a decision would be an action that would speak much louder than words. Indeed, it would be tantamount to signalling quite the opposite value, that World Heritage properties are nothing special and do not require special exemptions from routine, normal planning behaviour.

Whatever the cause of the ADC's intransigence on this issue, GVEPA argues that Governmental obligations are unambiguous and binding: any proposed development that has potential to threaten the integrity of any of its (and the World's) World Heritage properties must not be approved. **It is unarguable that something as mundane as a municipal landfill, which is a short-term convenience to a small section of the wider Australian community, but which almost certainly will have long-term, deleterious consequence for the Natural World Heritage environment, could ever be contemplated, let alone approved.**

At the risk of boring repetition, we assert that this landfill DOES NOT NEED TO PROCEED ON THIS SITE because there are alternatives.

The Way Ahead

If a new landfill is to be built, then it must not be located anywhere in the Gondwana Rainforests of Australia World Heritage Area water catchment: we refute the claim that alternative sites do not exist and challenge the efficacy of the process that led to the current site being selected.

Council's *Regional Landfill Siting Study (2004, p. 17)* includes the following statement in relation to the proposed site:

> ***This does not necessarily mean that it is the best available site in the region, nor does it mean that it is an ideal site (our emphasis).***
>
> *Unless a site is specifically excluded by way of legislation/planning, it could always be development into a landfill, dependent upon what mitigation measures are required to make it comply with both DUAP and EPA Guidelines. In these instances however, cost considerations then become increasingly important.*

When coupled with the fact that in this site selection process the environment factor (one of ten, but lumped together with 'Local Amenity') was given a weighting of just 6 (maximum 10), it seems that Council's concern for the environment has not been high.

The reality is that other sites do exist and the above statement clearly indicates that Council's advisors understand that fact: what is needed is for an external authority to direct the Council to choose a different site.

The recent announcement by the NSW Government that the ADC will be dismissed and subsumed by a broader New England Regional Council simply facilitates the undertaking of a new search across a wider geographic area for a site that does not threaten a World Heritage property. We urge the new administrator of the nascent New England Regional Council to take the following steps to re-orient the landfill proposal:

1. Stop all expenditures on the current proposal, get the New England Regional Council (NERC) established and set up a new waste management committee (or other mechanism).
2. 'Buy time' in which to negotiate a genuinely shared, larger capacity waste treatment plant in a location that serves all immediate LGAs, by
    - maximising the use of the current Armidale facility by continuing down the pathway of AWT on the Long Swamp Rd plant; and

    - if necessary, once the Armidale facility is full, use the current Uralla Landfill to deposit 'waste-to-landfill' from the Armidale facility as a short-term action while the new long-term facility is sited, approved and commissioned;
3. Negotiate for the design of a waste management system that includes appropriate Alternative Waste Technologies (AWT) and to serve the waste management needs of several Local Government Authorities (LGA).
4. Identify a site that does not threaten World Heritage values (probably means draining west of the watershed) which is suitably located for access by neighbouring LGAs (eg Glen Innes, Inverell, ...);
5. Acknowledge from the outset that this option may NOT BE THE CHEAPEST alternative: environmental preservation might well have an economic cost, but that is a consequence of being a signatory to the World Heritage Convention (which is morally the right and proper commitment to have made).

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Dust and Odour

The proponent's conclusion that 'off site' odour impacts from the landfill will be at 'acceptable levels' is not justified by the data submitted.
AIR QUALITY IMPACT ASSESSMENT - DRAFT
PROPOSED ARMIDALE LANDFILL

Conclusions P12
'⍰ Odour impacts due to the landfill operations are predicted to be at acceptable levels'
Dust and odour emissions are based on ideal management scenarios such as when assessing dust impacts the proponent assumes (Air Quality Impact Assessment 5.2 P8)

'These estimates assume that 75% control of dust is achievable due to the watering of haul roads. Regular watering on unsealed haul routes has been assumed for the purposes of the dust emission calculations.'

When assessing odour emissions the proponent assumes (Air Quality Impact Assessment 5.1 P7)

'The tipping face has been calculated as being an area of 32 square meters for daily tipping'

The conclusion that has been drawn based on the ideal management practices relies on many assumptions on landfill operation and management that historically Council have failed to achieve. It also appears to ignore odour and gasses from other potential sources such as landfill gas leakage, again it assumes perfect management. The below landfill audit report highlights Council's inability to meet the stated environmental commitments.
Compliance Audit Report EPA 2000 Armidale City Council Page 6

'The EPA is concerned that the environmental goal of preventing the degradation of local amenity is not being achieved. The licensee should ensure that the environmental outcomes achieved by covering of waste are addressed through improved landfill management.'

One odour unit (OU) of a sample would prompt 3 out of a group of 6 panellists to reliably detect the presence of an odour when compared to clean air.

Assessment and management
of odour from stationary sources
in NSW
November 2006 Department of Environment and Conservation NSW

'Offensive odour
In practice, 'offensive' odour can only be judged by public reaction to the odour, preferably under similar social and regional conditions. The nuisance level can be as low as 2 OU'
Figure 22 has been modified below to magnify an inset of the 'off site' odour levels projected by the proponent. As can be clearly seen, neighbouring properties will be subjected to odour levels of 30-40 OU and 3 houses and the Waterfall Way Gara Reserve picnic area subjected to Odour Units (OU) of greater than 3.
If the nuisance level of odour can be as low as 2 OU, GVEPA contend that 30-40 OU level predicted into the neighbouring property will be a 'stench'.

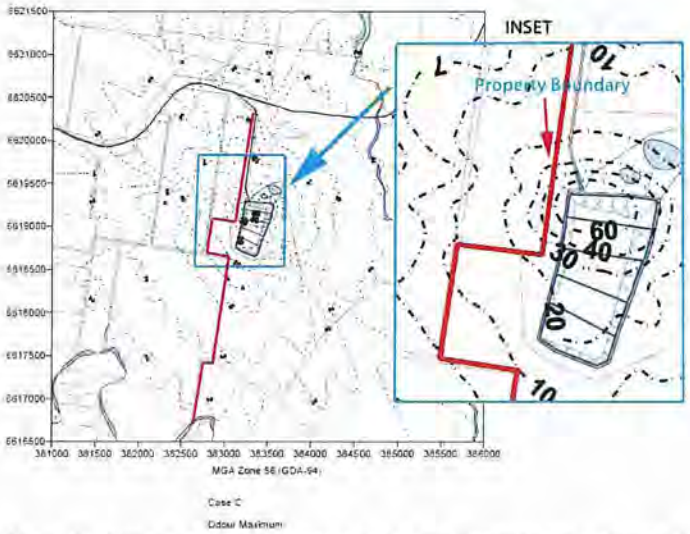


Figure 22 – Maximum odour levels (ou) due to landfill operations – Staging 40-50 Years

The rest and picnic area opposite the proposed site on the Waterfall Way on which many hundreds of tourists stop to eat has not been accessed as a 'receiver'. Contradictory to the principle of Table 5 – Odour performance criteria for the assessment of odour. The population density should be significantly increased from the 'single residence' goal due to the number of persons that actually stop at this picnic area or travel along the scenic Waterfall Way.
AIR QUALITY IMPACT ASSESSMENT - DRAFT
PROPOSED ARMIDALE LANDFILL P6

Table 5 – Odour performance criteria for the assessment of odour	
Population of affected community	Odour performance criteria (nose response odour certainty units at the 99th percentile)
Single residence (L ~2)	7
~10	6
~ 30	5
~ 125	4
~ 500	3
Urban (~ 2000)	2

The 'off site' odour impacts with a magnitude of 40 times the perceivable level near the property boundary have been interpreted by the proponent as acceptable 'receiver impacts'. One would assume that 'off site' means off the site area owned by the proponent, not at a house that may be some distance from where maximum impacts will occur. GVEPA's argument appears supported by the proponents own definition of 'offensive odour' which states that the odour may be described as 'offensive' when it interferes with the comfort of a person 'outside the premises from which it is emitted'. This is distinctly different from a residence 400m from the property boundary.
Landfill Environmental Management Plan
Armidale Regional Landfill Facility - Draft Landfill Environmental Management Plan Page xiv

Glossary and Abbreviations

'Offensive Odour
The definitions that pertain to NSW Protection of the Environment Operations Act 1997 define an "offensive odour" as an odour:
(a) that, by reason of its strength, nature, duration, character or quality, or the time at which it is emitted, or any other circumstances:
(i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
(ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
(b) that is of a strength, nature, duration, character or quality prescribed by the regulations or that is emitted at a time, or in other circumstances, prescribed by the regulations'.

Due to current and future development potential on affected properties, a host of issues remain unassessed in relation to additional impacts of insects and changes to ecosystems due to odour issues. Assessment at 'receiver' level when significant 'on' property impacts are obvious have not been addressed. An example of this is the neighbouring 'Cellar Door' Olive and Feijoa sales and orchard tours which will be significantly affected due to documented landfill odour impacts. Impacts such as these are not considered 'off site' for purposes of the EA evaluation as only houses are considered 'receivers'.
Dust impacts on neighbouring activities such as pollination of fruit trees remains unassessed. The health aspect in terms of neighbouring residents and solar panels used for bore water pumping only 50m from the site has also not been assessed.
The impact from insects and vermin which will be attracted to the odours on neighbouring horticultural industries has not been assessed.
GVEPA contend that due to the proximity to Armidale, availability of services such as town water, power and arterial road access, that the area has significant and probable future subdivision potential. GVEPA assert that in light of the following statement by DEC NSW that the criteria applied by the proponent should be at the 'boundary of the facility', Otherwise future landuse potential will be compromised.
Technical framework: assessment and management of odour from stationary sources in NSW p9
Department of Environment and Conservation NSW
'These criteria should not be exceeded at the nearest sensitive receptor (both existing and any likely future sensitive receptors). If a receptor is, or is likely to be, located near the boundary of a facility, then the criteria should be applied at and beyond the boundary of the premises'
Photo showing 300mm WaterMain (potential future development)

A number of small allotments exist opposite the proposed site already. It was only in Council's latest 2008 LEP that Council's Rural 1(b) (Rural Arterial) zoning was revoked. Future decisions by Council are unknown and with the impending appointment of an administrator for Armidale Dumaresq Council the assumption is that due to the high level of available services that the area has significant development potential.
The same 'level of service' that led the proponent to select the site are the same reasons that the area is primed for future additional small allotments.
The proponent's acknowledgment of this is stated in the Site assessment for the proposed site.
Regional Landfill siting Study p71
Site Assessment for Site 7 'Sherraloy'
'Future Development - Potential area for future development, due to location;'
Due to inadequate buffer zones, GVEPA reiterates that 'off site' dust and odour impacts should be accessed at the property boundary so not as to inhibit future landuse or development potential. In light of this and the acknowledged exceedence of DEC criteria into neighbouring properties GVEPA assert the site is unsuitable for use as a putrescible landfill.

Environmental Record

Armidale Dumaresq Council past environmental record and in particular the management and operation of its current landfill site raises serious concerns about Council's ability to manage its proposed landfill site.
Other well documented Council environmental disasters such as the Armidale Gasworks Site, and the Martin St Subdivision Contamination demonstrate that Council's poor record with landfill management is not a 'one off' case.
Council proven track record with its failure to satisfy the most basic of landfill licensing conditions is extremely disturbing. What is even more frightening is that contaminated wells were found nearby 'believed' to be from the landfill. The monitoring equipment put in place by Council is not able to isolate the source of the contamination.
With a World Heritage Area at stake, is this the environmental 'track record' of a Council you would trust to uphold the World Heritage Values of the area?

Final Compliance Audit Report
Armidale City Council Solid Waste Landfill
Long Swamp Road
December 2000
Executive Summary

The findings of the audit indicate that the enterprise was not complying with a number of conditions attached to the Environment Protection Licence issued under the Protection of the Environment Operations Act 1997.

Issues of concern include the following:

Inadequate containment of contaminated soil undergoing remediation.
Inadequate maintenance of the bund wall forming part of the containment structure for the dedicated remediation area.
Inadequate and/or incomplete records relating to contaminated soil received at the premises.
An action program has been developed to ensure that the enterprise addresses these issues.

Issues of concern identified through further observations include:

The collection of uncontaminated surface water in the leachate collection system, increasing the quantity of leachate contaminated water that requires disposal
Scouring of the landfill batter located in the south eastern corner of the premise, allowing infiltration of surface water into the landfill.
The inadequate collection of surface water, contaminated by landfilling activities, likely to cause pollution of groundwaters.
The degradation of local amenity through inadequate litter controls and inadequate covering of waste.

Further the report stated;

'Groundwater Contamination

The licensee has implemented a comprehensive water monitoring program involving quarterly sampling of surface and ground waters for a range of parameters. The first round of sampling in February 2000 indicated that high levels of contaminants were present in the groundwater in the well located adjacent to the northern boundary. It was reported that the high levels may have been caused by leachate contamination.
Subsequent testing in May 2000 confirmed the presence of contaminants in the groundwater with the report submitted to the EPA stating that "run-off" water and leachate from the north eastern section of the landfill that pools in a diversion drain close to LWI (the sampling well) is the likely cause".
The EPA is concerned that inadequate collection of surface water, contaminated by landfilling activities, may be causing pollution of waters. (See Appendix C for extract from Protection of the Environment Operations Act 1997)'

The proponents idealistic assertion in the EA that includes their 'statement of commitments' is not backed up by their previous dismal compliance record.
Degradation, concern and inadequate are the words the EPA has used to describe Armidale Dumaresq Council's efforts to satisfy agreed licensing conditions. Australia's obligations to preserve a World Heritage Site should not be jeopardised by a local Council with a deplorable record of environmental management.

Financial Mismanagement

In May 2010 a NSW Government report into a review of local government service delivery in the New England Area was handed down. The report titled 'A Proposal for the Creation of a New England Regional Council' was commissioned by the Minister for Local Government, the Hon Barbara Perry MP. Gabrielle Kibble AO was engaged as facilitator to undertake a review of local government services currently provided by Armidale Dumaresq Council, Guyra Shire Council, Uralla Shire Council and Walcha Council.
Ms Kibble has recommended a forced amalgamation of Armidale Dumaresq, Guyra and Uralla Shires and recommended that an Administrator be appointed to oversee the implementation of the amalgamated Council.
The report is a damning indictment of Armidale Dumaresq Council's financial position, distrust within the Community and leads one to question Council's ability to adequately guarantee any of its many promised EA 'commitments' . Can Council service the project in the long term, remediate if required and guarantee Australia's World Heritage Obligations?
A number of references are aimed specifically at Armidale Dumaresq Council poor financial position and management, summed up by Ms Kibble stating

> 5.2.1 Armidale Dumaresq Council (ADC) P18
>
> ADC's outstanding rates and annual charges over the last three financial years also highlight a poor record of debt control.

The report also questions council's ability to deliver services to ratepayers

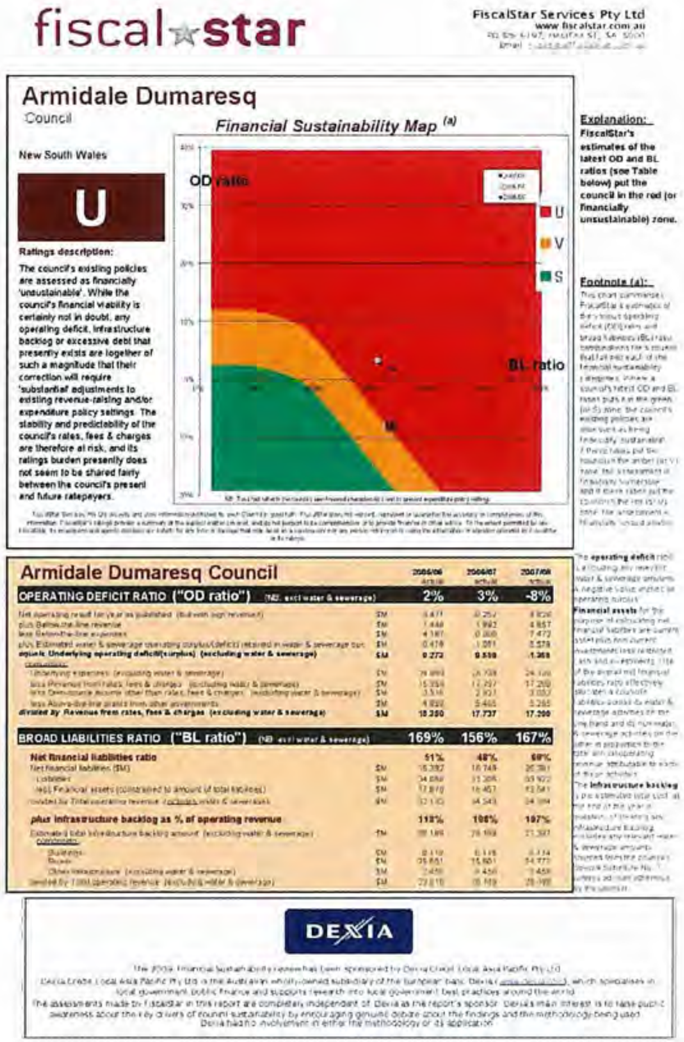
> 5.3 Conclusions P21
>
> Armidale Dumaresq's current financial position is of concern. Despite a reasonably stable revenue base of $41 million for 2008/09, the Council still carried $24 million in debt as at 30 June 2009 which will need to be serviced in future years. This will have an impact on ADC's ability to deliver services to the community in the medium term. Additionally, if Council continues to record operating deficits, the losses will erode its cash position, which will led to significant pressures on the renewal of assets.

It also appears that Council may be understating its debts and questions Council's ability to replace assets.
This obviously has enormous potential to jeopardise many of Council's Statement of Commitments and questions Council's capacity to adequately manage the proposed landfill facility for the 50 years of operation and closure thereafter.

> 5.2.1 Armidale Dumaresq Council (ADC) P19
>
> However, there is a concern that, in recognising its Collateralised Debt Obligations investments as current assets, ADC may be overstating the liquidity and health of its finances to some degree.
>
> 5.2.1 Armidale Dumaresq Council (ADC) P18
>
> ADC has recorded operating deficits after capital grants in three of the last five financial years with a cumulative loss of $10.134 million. In 2008/09, ADC recorded an operating deficiency of $1.223 million, including the early payment of the first instalment of the Federal Government financial assistance grant (FAG) for the 2010 year of $0.956 million. If ADC continues to record operating deficits, the continued losses will erode Council's cash position meaning the Council will not be able to provide for the replacement of its assets as they are being used.

Previously in 2009 the financial sustainability review of Armidale Dumaresq Council rated Council 'Financially Unsustainable' . The fiscalstar report goes on to say

> The stability and predictability of the council's rates, fees & charges are therefore at risk, and its ratings burden presently does not seem to be shared fairly between the council's present and future ratepayers.



fiscal★star

FiscalStar Services Pty Ltd
www.fiscalstar.com.au

Armidale Dumaresq
Council

New South Wales

U

Ratings description:
The council's existing policies are assessed as financially 'unsustainable'. While the council's financial viability is certainly not in doubt, any operating deficit, infrastructure backlog or excessive debt that presently exists are together of such a magnitude that their correction will require 'substantial' adjustments to existing revenue-raising and/or expenditure policy settings. The stability and predictability of the council's rates, fees & charges are therefore at risk, and its ratings burden presently does not seem to be shared fairly between the council's present and future ratepayers.

Financial Sustainability Map (a)

Explanation:
FiscalStar's estimates of the latest OD and BL ratios (see Table below) put the council in the red (or financially unsustainable) zone.

Footnote (a):

Armidale Dumaresq Council

	2005/06	2006/07	2007/08
OPERATING DEFICIT RATIO ("OD ratio")	2%	3%	-8%
BROAD LIABILITIES RATIO ("BL ratio")	169%	156%	167%
Net financial liabilities ratio	51%	48%	60%
plus Infrastructure backlog as % of operating revenue	118%	108%	107%

DEXIA

This statement is certainly alarming in the knowledge that Councils $40million landfill will have massive impacts of ratepayers and raises concerns that Council or their contractors may not be in the financial position to guarantee safeguards are able to be implemented and maintained for the life and post-closure of the landfill.

Insects, Pests and Vermin

The proponent has made little attempt to address issues of pest and disease impacts from the proposed landfill site.
Birds, insects, rodents and other animals will be free to move on and off the site. Due to the unsorted nature of the waste and no sorting of household rubbish, any contaminated waste or piece of fruit with fly or other disease will be freely transferred to adjacent areas.
The Disease Monitoring Protocol has not yet been presented for comment in this EA and again is stated only as a commitment.
GVEPA are unable to comment on plans that have not been presented.

It appears the only preventative measure presented in the assessment is a 'well maintained fence'. This contradicts the stated use of 'wildlife friendly' fencing. GVEPA raises doubts that any fencing proposed by the proponent can stop the movement of rodents, predatory birds and insects, all which may spread weeds and disease off site.

EA page 207

Disease Monitoring Protocol
'In the unlikely event that infected material is brought on site, well maintained fencing would minimise the risk of diseases such as foot and mouth being transferred off-site by pest or feral animals.
There are currently few instances of olive tree diseases in Australia and those existing are controlled through either preventative or remedial measures. With respect to the olive grove on the adjacent Strathaven property, it is unlikely that the proposed landfill would give rise to nematodes and soil-borne fungi which may impact on the olive trees on the property given the mitigation measures identified in this section and the preparation and implementation of a Disease Monitoring Protocol (EA Systems 2010, Appendix E).'

The proponent has clearly been unable to indentify measures to prevent potential disease risks from spreading from the proposed landfill site. As the integrity of the incoming waste cannot be guaranteed and in light of the stated proposal to send 'contaminated green waste' to the site GVEPA protests the inappropriate location of the chosen site.

Litter

Windblown litter has not been sufficiently addressed in the EA.
The unpredictable nature of the wind means that proposed limited mitigation measures will still lead to vast quantities of litter off site. The fact that the proponent states that they will have to manually

remove rubbish from neighbouring properties means there is acceptance that control measures will be inadequate.
EA page P77
'Ensuring that all wind blown litter that leaves the site is retrieved.'
Photo at current Armidale Dumaresq Landfill site boundary

How will this retrieval be achieved? Will Council have access to neighbouring properties to retrieve the rubbish?
'Willy Willies' and other unpredictable gusts of wind will result in litter blowing unabated over the proposed inadequate litter fencing, smaller litter will blow straight through the fence.
The windblown litter will follow the prevailing winds which are generally Easterly, Westerly with partial Southerly winds.
As the nearby Gara River which feeds immediately into the World Heritage listed Oxley Wild Rivers National Park and Macleay River system is East of the proposed site, it is clear that litter which finds its way into this river system will not be retrieved by Landfill staff and will create hazards further down the catchment.
With the acknowledgement that litter will invariably escape, there appears to be no measures put in place to stop ingestion by inquisitive animals on neighbouring properties. An inadequate 50m property buffer zone is not possibly sufficient to guarantee rubbish will not leave the site with even a minor unpredictable wind event.
Unsightly litter which makes its way to the Waterfall Way will create an undesirable amenity for tourists and residents who travel along the Waterfall Way (Tourist Drive no. 17). One only has to inspect Council's current landfill site to see the inability of Council to control litter. Bags stuck high in trees 'off site', rubbish stuck in fences are commonplace around the current site.

Compliance Audit Report EPA 2000 Armidale City Council Page 6

'Litter Control

During the audit inspection significant quantities of windblown litter was observed on and around the premise. It is noted that temporary litter fencing has been installed at various locations however this was not adequate for controlling litter blown from the deposited waste.
The site representative indicated that the contractor undertaking the landfilling activities is responsible for collection of litter.
The EPA is concerned that the environmental goal of preventing the degradation of local amenity is not being achieved. The licensee should introduce procedures that prevent the unnecessary proliferation of litter.'

The EPA's 2002 Industry Sector : Rural Waste Landfill Facilities – Compliance Performance Report December 2002 Page 16 reveals that Armidale Dumaresq Council was not isolated in its inability to control litter with the Audit report stating that;

'Litter controls
Litter was not being adequately controlled at 25 of the 30 facilities audited:'

Armidale Dumaresq Council was one of the Audited Sites.
Council's previous appalling record in this area and EPA's conclusion that 25 out of the 30 audited facilities were unable to fully contain windblown within site boundaries increase GVEPA's confidence that Council's inadequate 50m landfill property buffer zone is insufficient to contain its windblown pollution.

Noise

GVEPA contend that noise impacts will be real and significant. Site investigation noise (drilling etc) was reported to Council during the site investigation stage, indicating the high probability that typical landfill machinery will have considerable impact outside the proposed landfill site.
Poor site selection has resulted in the requirement to use engineered noise controls to attempt to make up for the shortcomings of the proposed site.
Noise Impact Assessment P19

'As the proposed landfill facility would be reliant on engineered noise control treatment, the ongoing maintenance of equipment will be critical to ensure the continuing compliance with the noise criteria'

The reliance upon 'engineered noise control' highlights the unacceptable proximity to neighbouring residences, property buffer zones and the incompatibility with surrounding land use.
The acknowledgement by the proponent that the facility 'would generally comply' with industrial noise level criteria is alarming, meaning that it sometimes or often won't. The fact that Industrial Noise criteria (INP) is used in a quiet rural setting highlights the significant loss of local amenity.
Executive summary – noise impact assessment page vii

'With these and the additional mitigation measures discussed in Section 5.2.2 implemented, it is expected that the noise levels at the nearest receivers would generally comply with the INP criteria for the typical operational scenarios that have been analysed.'

Inadequate buffer zones will have significant impacts on neighbouring residences, wildlife and the local amenity of the quiet rural/residential environment. Construction of a new entrance road some 1.8 km, will have severe detrimental impacts on neighbouring residences and wildlife that have not been addressed in this EA.

Below is an example of 'off site' noise exceeding recommended levels.

conditions. Under the maximum impact wind conditions outlined in the *INP* the noise levels would be expected to be 5-6 dB(A) higher then the levels in Table 13. However, these conditions have been shown to occur for less than 30% of any assessment period in any season and, in accordance with the guidance given in the *INP* are not considered to be significant.

Table 13 - All Construction Plant Operating During Daytime under Neutral Meteorological Conditions

Receiver	L_{Aeq} dB(A)
Strathaven	36
Sherraloy	38
Riverton	28
4 North 1	32
5 North 2	34
6 North West	28

Below is a modification to the above table. dB(A) levels in brackets (below) have been formulated from the addition of 6 dB(A) due to unfavourable wind conditions, as per above statement. These figures may occur up to 30% of the time.

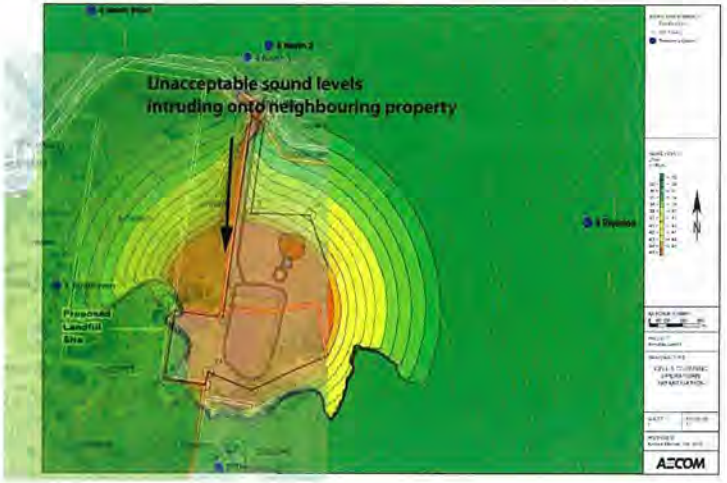
Receiver	L_{Aeq} dB(A)
Strathaven	36 (42)
Sherraloy	38 (44)
Riverton	28 (34)
4 North 1	32 (38)
5 North 2	34 (40)
6 North West	28 (34)

Under the 'typical' plant configuration the noise objective of 40 dB(A) would not be met for 2 neighbouring residences. An increase in the minimum machinery noise as described as 'typical', would result in 4 residences being subjected to sound levels above the noise objective of 40dB(A). Of course neighbours access on their properties is not restricted to 'residences' and as such sound levels greater than 45 dB(A) that are propagated 'off site' will have significant impacts on local amenity, wildlife and current and future landuse potential.
The background noise at neighbouring residences has been assessed by AECOM as approximately 30db(A). A 10dB increase is approximately a doubling of the perceived noise level.
Armidale Regional Landfill - Noise Impact Assessment p31
Glossary of Acoustic Terminology

'Loudness
A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on'

Therefore the increase in noise level from 30dB to 40dB as indicated in the assessment could double noise level at neighbouring properties.

It has been indicated that the construction phase would be approximately 8 months initially (Armidale landfill Project Plan – Construction Phase) and as such noise levels experienced 'off site' will be at unacceptable levels for periods far longer than community expectations and that neighbours should be subjected too.
The below diagram shows noise impinging on neighbouring properties is above acceptable levels. Construction noise in site extremities will be considerably higher than the 'covering operations' shown. Noise abatement has only been proposed for permanent equipment, thus contractor machinery which is non-permanent remains unabated.
Site layout has been superimposed on chart to show property boundaries and insufficient 50m buffer.



Noise from operation and construction of new road hugging neighbouring boundary has not been accessed. There is no data on the access road type. If 'cutting' into the hillside will be employed for construction of the road there must be reflected sound impacts on neighbours that have not been assessed. The noise from the entrance road as shown in the above diagram does not indicate this. Concerns are also raised from residences North of the proposed site entrance that traffic direction into and out of the site will raise noise levels significantly due to acceleration and deceleration of heavy vehicles. As these vehicles will be accessing the site perpendicular to current traffic flow with exhaust noise directed at the residences impacts will be significant.
There appears to be no assessment of this issue as direction of intersection onto the Waterfall Way (As shown above) appears contradictory to the proponents statements that the road entrance will be perpendicular to the Waterfall Way .
There also appears to be conflicting statements from the proponent regarding the hours of operation which will have significant impact on the amenity of neighbouring properties with regards to site noise.
The first statement says that the hours of operation and construction in the landfill will be adhered to at all times, yet immediately below the proponent says that if work needs to be undertaken outside these hours it can!. It is therefore clear that the hours of construction and operation will not be adhered to 'at all times'.

LEMP Noise Control P 94

The following noise controls are to be implemented at the landfill site:

- The construction and operational hours as outlined in the Landfill Licence will be adhered to at all times. The proposed construction and operational hours are detailed in Sections 4.2.5 and 0.0 respectively. In the event that construction/operational works need to be conducted outside of the normal hours, residents will be informed.
- A 50m buffer zone has been included into the design of the landfill.

Vol 4 p163

'The proposed landfill will typically operate from 6am to 5:30pm Monday to Friday, and 8am to 6:30pm on weekends and public holidays. Construction hours will be from 7am to 5pm Monday to Friday and 8am to 5pm on Saturdays'

Conversely

2.2 Proposed Operations

Waste would be processed at the existing landfill and transfer station on Long Swamp Road and would be transported between the transfer station and the site by truck. No direct public access to the proposed site would be provided.

The proposed landfill facility would operate seven days per week with the proposed operating hours from 7:00am to 5:30pm Monday to Friday and 8:00am to 6:30pm on Saturday, Sunday and Public Holidays.

The main activities on the site would be associated with the unloading, distribution and compaction of waste materials in the landfill cells and the loading, distribution and compaction of cover material. For the purpose of this report the operations occurring on the site are as summarised below:

- Three waste vehicles per day arrive from the Long Swamp Rd transfer station via Waterfall Way and the proposed site access road.

[illegible]\Projects\2001760\ [illegible] ARMLANDFILL\ [illegible] \Appendix F Noise Assessment\Revised\NoiseRpt_19Feb10

EA LEMP P45

Landfill Environmental Management Plan
Armidale Regional Landfill Facility - **Draft Landfill** Environmental Management Plan AECOM

Construction Hours

The normal construction hours of the landfill will be from 7am to 5pm Monday to Friday and from 8am to 1pm on Saturdays. No work will occur on Sundays or on Public Holidays. The Contractor will be able to work outside of these normal hours with prior permission from DECCW and Council.

The 'hours of operation' are unclear due to multiple conflicting statements. Both a 6am and 7am start time (landfilling activities) have been declared by the proponent.
Machinery movements at 6 am coupled with the stillness of the early morning air will have unacceptable 'off site' noise impacts.

Reweighting Analysis

An analysis of the flaws and subjective judgements with the 're-weighting' and ranking system employed by AECOM is demonstrated below.
When Maunsell's draft report 'Regional landfill Siting Study ' was released there was a significant error that was pointed out to Maunsell, notably that Site 4 was wrongly accessed as NOT being in a target geological area when in fact it was. It then had a criterion rating of 3.

After the error had been corrected the criterion rating in the final report was changed to 4.
As part of the selection process AECOM deemed that being in a 'target geological area', was a primary criteria for site selection.
It seems inexplicable that a major change in primary criteria such as this was only worth an increase in score from 3 to 4 !
A simple example of the flawed process is illustrated below.
As is illustrated AECOM have documented almost identical assessments for Criterion 9 – 'Operational Costs' for the two sites used in this example, sites 4 and 7.
The score difference of 3 between these two sites cannot possibly be justified on the basis of AECOM's data. Multiply the difference by a weighting factor of 6 for this criterion and significant errors are apparent and exaggerated.

Site Assessment for Site 4 'Annerleey' P346 vol 2

Criterion 9 - Operational Costs	
Compaction	Presence of suitable cover materials on site, subject to further investigation; Compaction costs will be lower than those sites where intermediate daily cover is not readily available;
Transfer Operations	Haulage costs amongst the lowest of the sites evaluated due to lower distances to areas serviced (taking into account average haulage levels) and good quality road access;
Operation and Maintenance	Cover and construction materials appear to be available in the short to medium term, but detailed investigation is required; Topsoils would need to be collected and stored for future use in rehabilitation.
Criterion Ranking	**5**

Site Assessment for Site 7 'Sherraloy' P372 Vol 2

Criterion 9 - Operational Costs	
Compaction	Presence of suitable cover materials on site; subject to further investigation; Compaction costs will be lower than those sites where intermediate daily cover is not readily available;
Transfer Operations	Haulage costs amongst the lowest of the sites evaluated due to lower distances to areas serviced (taking into account average haulage levels) and good quality road access;
Operation and Maintenance	All base materials appear to be in good supply; Topsoils would need to be collected and stored for future closure and rehabilitation;
Criterion Ranking	8

The above is not an isolated example of subjective data judgements being inconsistent with data provided, it is endemic in the presented site selection ratings. When a multiplication factor is then applied, already suspect ratings are further exacerbated.
Council's hypocrisy with regards to Criterion 4 'Local Amenity and Environmental Considerations', is highlighted by the fact that this category was given a weighting of 6 out of 10. It is also alarming that 'environmental considerations' were also not considered important enough even to have its own 'criterion'.
Of a total possible score of 590, environmental considerations, even if they were absolutely perfect, would only account for 60/590 = 10% of the total score. Yet Council announce on their website.

> 'The protection of our environment, with its unique flora and fauna is one of the foremost challenges facing our community. Armidale Dumaresq Council has a record of environmental responsibility and Council is committed to ensuring that all decision making processes and procedures take environmental, social and economic factors into consideration.
> Council's focus is to protect our environment, with its unique ecosystems and World Heritage areas for the enjoyment of future generations. Council is proud of its record to date, with a first class Recycling Centre, and a community that supports recycling on a daily basis.' Cr Peter Ducat, 12/10/05
> http://www.armidale.nsw.gov.au/environment/95838/103329.html

The weighting system employed by the proponent makes the evaluation of this vitally important criterion almost insignificant, contrary to Council's stated 'focus'.
It is clear that if additional data has been used to justify site selection it has not been presented to the community in this forum. In many cases the data appears to be 'cut and pasted' from other sites yet identical data appears to have been scored differently resulting in suspect and confusing results.
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Site Ownership

GVEPA raises concerns at the nature of the relationship between the vendors and Council in this issue.
Cr Ken Waters (at time of site selection decision) and Derry Crisp are the landfill site vendors. Cr Waters is also Chairman of Greening Australia NSW.
Derry Crisp was the owner of LJ Hooker and was asked to identify sites for sale that would be suitable for landfilling. He proposed his own and Cr Waters parcels of land as a suitable option foi Council to purchase.
Regional Landfill Siting Study (Draft) 2003 P54
'Land Cost 'Stated valuation of $1.367 million has been provided by the landowner'

After Cr Beyersdof expressed concerns at the inappropriate nature of the proposed agreement between Council and the vendors, the new General Manager Shane Burns decided not to proceed with the purchase of the site

Council Workshop - Strategy for Obtaining a Site for a New Regional Landfill - Discussion Paper - February 2002

8. ACTION TO PROCEED TO PURCHASE OF A SITE (cont)

8.9 New General Manager's Alternate Recommendation:

When the new General Manager, Mr S Burns, commenced in early September 2001, he expressed considerable concern of Council purchasing land for a landfill at four times the valuation of the State Valuation Officer, particularly when it became known that an existing Councillor was a vendor and when it was considered that obtaining approval for a Development Application could be difficult and costly

Legal opinion was sought from Council and it was believed that the 'handshake deal' with the previous GM was not binding.

8.10 Legal Opinion:

In accordance with Council's resolution, legal opinion was sought as to whether any of the discussions with any vendor could be considered as a 'binding offer' to purchase or further negotiate to purchase any of the properties.

Council's normal legal advisors, Weaver Gentle and Harrison, advised that the company also acted for one of the vendors and could therefore not provide Council with an opinion.

Therefore, Hugh Piper of Pipers Lawyers was retained to provide the legal advice required.

In letter of 31 October 2001, Mr Piper advised that *"Council has not entered into a legally binding contract with either of the prospective vendors"* and *"that in the event that Council requires either site in the future, then the negotiations may be accepted as valuation evidence by a Court in Madness. It is not possible however, to determine the significance or weight of these negotiations in compensation proceedings before the Land and Environmental Court."*

Hence, Council has no legal obligation to continue along the previous road to purchase a property and can decide to now resume appropriate land if it so wishes.

GVEPA are unable to comment on the current status of legal proceedings between the vendors and Council and whether this has influenced Council's pursuit of this site.

Site Selection - Anomalies

Slope
Preliminary Landfill Siting Studies PRLSS state that sites with slopes greater than 5 % were discarded. (2.1.1 Site Selection Criteria) AECOM note that some of theproposed site 'contains relatively steep gradients of up to 30 %'.
Simple graphical analysis in Figure 2 proves slope is well over 5 %. The itermittent first order watercourse which flows through the middle of the site, filling the two farm dams in the valley is indicitive of the sloping nature of the site.

The proponent acknowleges slopes of up to 15% on site when highlighting the soil stability problems.
EA Soil Stability P137

' Slopes of up to 15% occur on the site.'

GVEPA assert that thesite should have been rejected at identification stage on the grounds of not satisfying documented selection criteria.
Figures 2 and 3 show the vast quantities of water requiring containment in the more gently sloping adjacent catchment. The conclusion is that the steep gradients on the proposed site will require containment and flood mitigation measures not addressed in the EA.

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Landfill Siting Study - Aerial Photographic Survey 4

2.1.1 Site Identification Criteria

Target sites for the aerial survey were identified with reference to the selection criteria applied in the earlier PRLSS. These were interpreted for application to the aerial photographic survey. The primary identification criteria used in the photographic survey were as follows:

Criteria	Comment
Suitable geology	Assessed by reference to the PRLSS
Distant from watorways	Separation distance objectively assessed, taking into account practical management of surface & groundwater
Low ground relief	Sites with slopes > 7% discarded.

Regional Landfill Siting Studies P69

Criterion 7 - Site Features	
Topography/Terrain	Sloping site from maximum 990 metre elevation to 960 metres; Some of the site contains relatively steep gradients of up to 30%.
Capacity To Accept Defined Waste	Capacity between 50 and 100 years could be made available subject to detailed design and analysis;

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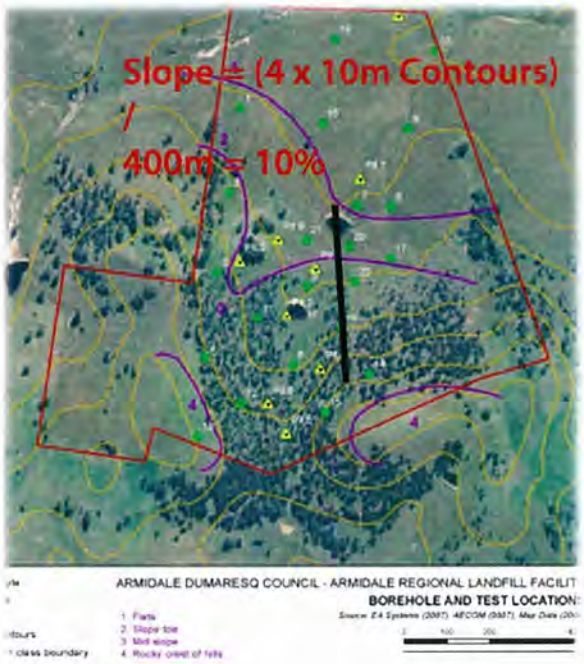
20023963.01\2004_0203 Regional Landfill Siting Study Rev 3.doc Page 56

Simple graphic analysis of contours shows a general slope of over 10 %.
Figure 1 Slope



Flooding

Of serious concern to the Gara Valley Environment Preservation Association is an observation of the site by Armidale Dumaresq Council's own consultants:
Regional Landfill Siting Study Site 7 'Sherraloy' P67

'Flooding – Site is located mid-catchment therefore potential for flooding exists;
Previous evidence of flooding:'

Flood prone locations are a prohibited location as listed under the Solid Waste Landfill EPA Guidelines.
EA 8.3 Surface Water P 144

'No flood studies have been conducted in this area, instead, calculations using Manning's equation were used to estimate the 100 year Average Recurrence Interval (ARI) flow and the 100 year flood level in these creeks. The results of these calculations indicate that the proposed landfill site is well outside the extent of the 100 year floodplain.'

The design for the landfill and stormwater ponds (dry basin) incorporates adequate freeboard to contain 100 year ARI flows on site.

The nearby Timbarra mine disaster highlights the inadequacies in management controls to respond to our rapidly changing and erratic climate. The tailings dams in this occasion were designed for a 1 in 400 year rain event and within two months of opening had failed to contain a rainfall event, contaminating the environment. The mine was then closed.
The Timbarra mine is only 2 hours drive from the proposed landfill site.

By definition the landfill has been designed with less than a one in two chance of 'over-topping' and contaminating the environment. With a proposed life of 50 years and a post-monitoring period to be added and only the incorporation of freeboard to contain a '100 year ARI' event. GVEPA stresses that the proposed management of floodwaters have been insufficiently addressed.

Figure 2 Adjacent Catchment in flood

Figure 3 Catchment in Flood SouthWest of Site. Site boundary on picture RHS

Buffer Zone

The selected site failed to satisfy Preliminary Landfill Siting Study (PRLSS) criteria on the grounds of having an inadequate buffer distance.
The inconsistencies in the selection process are again highlighted below. The proponent states that it considered 2km 'adjacent' when considering other sites for selection and was ruling sites out on this basis.
Landfill Siting Study – Aerial Photographic Survey P4
'Visually exposed and adjacent (- 2km) closely developed area.
West orientation not desirable. Proximity and access to Armidale
good. Not recommended'.

2 1 1 Site Identification Criteria

Target sites for the aerial survey were identified with reference to the selection criteria adopted in the earlier PRLSS. These were interpreted for application to the aerial photographic survey. The primary identification criteria used in the photographic survey were as follows:

Criteria	Comment
Suitable geology	Assessed by reference to the PRLSS
Distant from waterways	Separation distance subjectively assessed taking into account practical management of surface & groundwater
Low ground relief	Sites with slopes > 5% discarded
Good surface water control	Sites at head of catchment targeted
Minimal external catchments	Avoid through flow of run-off
Good erosion protection	Control of surface run off & slopes
Compatibility with adjoining development	Adequate buffer distance > 1 km approx

GVEPA contend that the site clearly failed to satisfy documented selection criteria on the grounds of having an inadequate buffer distance.

Figure 1 shows 4 dwellings within approximately 1 km of the site boundary.

Figure 1 Aerial Photograph showing dwellings and a 1km site boundary buffer zone

Landfilling over a Waterway
Department of Water and Energy
General Assessment Requirements for Major Project Proposals
Under Part 3A of Environmental Planning & Assessment Act 1979 Page 5 (Vol2 P23)
The Department of Water and Energy (DWE) provides the following advice for consideration:
Although Part 3A Major Projects are exempt from requiring a controlled activity approval (s91 of WMA), the assessment is required to take into account the objectives and provisions of relevant legislation and guidelines.
Note: Recommended Core Riparian Zones (as applicable):
_ Minimum of 10m for any intermittently flowing 1st order watercourse;

It is clear from the above 1:25,000 map that the recommended core riparian zone objective for landfill exclusion has not been met.
A 1st order waterway is designated as a 'blue' watercourse on the 1:25000 map. The joining of two 1st order Waterways result in a 2nd order Waterway which is also apparent on the North Eastern site boundary.
Council intend to landfill the valley over 1st order watercourse. This is clearly not recommended.

Soils

Although the Environmental Assessment accepts the potential for slope destabilisation,

EA Potential Soil Impacts Page 137
'Soil Stability
There is some potential for the existing slopes to become destabilised during vegetation clearance and construction. Slopes of up to 15% occur on the site. Due to the dispersive nature of the existing soils on the site, there is the potential for slope instability. Appropriate controls will therefore need to be in place to retain soils on site.'

GVEPA believes the proponent is grossly understating the engineering hazards due to the dispersive nature of the soils, high erodability and other limitations highlighted below under the headings Argyle, Middle Earth and Commissioners Waters. The fragile soils that have been detected on the proposed site and the significant planned changes to water drainage lines, diversion drains and bulk movement of soils reveal the potential for high levels of pollution to enter the Gara River.
EA Soil Landscapes P127

'Soil Landscapes
A soil survey of the area undertaken by the (former) DNR (now DWE) indicates that the Project Site occurs predominantly within the two soil landscape groups 'Argyle' and 'Middle Earth'. A small section of the site, located along the drainage gullies, is classified as 'Commissioners Waters'. A description of these soil landscapes is presented in the Table 23.'

Council has used selective data extracted from the DNR soil profile survey to populate Table 23 on page 127 of the Environmental Assessment.
For each of the soil types a heading called 'Qualities and Limitations' highlights the inadequacies of the three mentioned soil types in the DNR survey and has been omitted from the EA. These are presented below.
Argyle

'Qualities and Limitations – Hardsetting (localised – lower slopes), poor seedbed conditions (localised), Shallow (localised – upper slopes), strongly acid soils, high organic matter (localised – topsoils), high erodability, sodicity (localised), rock outcrop (localised), steep slopes (localised), sheet erosion risk, gully erosion risk, water repellence (localised)acidification hazard (very low pH buffering capacity.'

Middle Earth

'Qualities and Limitations – Hardsetting soils of low fertility, severe gully erosion (localised – lower slopes / depressions), high organic matter (localised), rock outcrop (localised), sheet erosion risk, shallow soils (localised), low wet bearing strength, sodicity / dispersibility (localised, high shrink-swell potential (localised), acid soils (localised)'

Commissioners Waters

'Qualities and Limitations – High water erosion hazard, loose, incoherent soils (localised), high organic matter (localised), permanently high water tables, gully erosion risk, engineering hazard, sodicity (localised) high erodibility (localised).'

There appears to be a significant 'unknown' component in relation to site soils and geology in the Environmental Assessment. Due to only 'concept' drawings based on 'typical' landfill construction site specific factors are unknown. The proponent assures us that this will be addressed once construction and the 'detailed design phase' commences. GVEPA contests that at that stage it is far to late.
EA Leachate Barrier System 5.2.2 P 57

'If there are insufficient volumes of appropriate clay material available from site excavation works to construct the required recompacted clay liner (to be determined during the detailed design phase),..'

An example of the unknown underlying geology is given below
EA potential Fault Line Page 140

'A hydrogeological investigation undertaken in 2007 (Appendix F) reported the abandonment of two bores during drilling near the southern boundary of the Project Site. It was reported that confining pressure was lost due to a subsurface void or possibly a fault in the rock structure.'

It is clear that the information provided in the EA with the unknown subsurface geology, unknown quantities of construction material but known soil profile which lists, permanently high water tables, gully erosion risk, high erodability and dispersive soils that there is a high likelihood of pollution and sedimentation making its way from the proposed landfill site into the Oxley Wild Rivers National Park.

Site Selection

The basis for selection of sites which received consideration in the project was flawed and in no way was ever going to deliver the 'best site in the region'.
Only properties that were for sale within close proximity to Armidale were considered. Local Real Estate agents were invited to identify sites for Council, with the final selected site being owned by one of the Agents and a sitting ADC Councillor at the time.

COUNCIL WORKSHOP

STRATEGY FOR OBTAINING A SITE FOR A NEW REGIONAL LANDFILL
DISCUSSION PAPER
February 2002
P20

9. THE WAY FORWARD

Until the General Manager's recommendations of 27 August 2001 the approach to obtaining a site for a new landfill had been to locate properties with satisfactory potential to develop a landfill and which could be negotiated to purchase.

This has limited Council's investigations to properties that owners are willing to negotiate a sale. Many owners are not willing to sell land to Council for a landfill site for fear of criticism by family and/or neighbours. Some have even intimated that they would fear reprisal from neighbours.

However with the option to resume a site, a totally new alternative is available to Council.

Firstly, the total area can be revisited and the absolutely best location selected. Then any responsibility is completely removed from the property owner if Council compulsorily resumes the site leaving the owner no alternative and for which he can be apportioned no blame.

Also by resuming a selected property or portion thereof at a Just Terms Price, a site with sufficient buffer zone can be selected to ensure there is little if any impediment to neighbours or the public, that is completely out of public view and which provides the ability to operate a supplementary commercial activity on the land surrounding the landfill facility. This could provide an opportunity for alternate income to offset some of the operational expenses of the landfill.

The proponent is unsure of how many sites were investigated. 40, 50 and over 150 sites have been stated by the proponent. It is concerning that Council's documentation and the information provided by Council is inconsistent, leading GVEPA to believe that the process documentation is not of a suitable quality to withstand inquiry.
Council contends that EA (p xxiii) 'since the early 1990's council has investigated over 40 potential landfill sites in an exhaustive search.
Environmental Assessment – Armidale Regional Landfill 4.2.1 landfill Siting Studies p43

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

More recently council are on record saying they looked at 'over 150 sites' in a recent NBN Television media release. There is no evidence or data presented by the proponent that confirms the 90 missing sites.
GVEPA's FOI request pertaining to initial site identification revealed under 20 sites had been investigated.
Regardless of Council's record keeping inadequacies all considered sites except site 1 and 9 were identified in only an 18 month period between 1996 and 1998. GVEPA believes that this does not equate to an exhaustive search and in fact reveals Council's urgency to rush the site process.
GVEPA believes the proponent has overstated the robustness of the selection process.
The inconsistent and haphazard nature of the site visits or 'non-visits' has jeopardised the integrity of the process. Even when there were only 9 'shortlisted sites' , AECOM were unable to undertake a site survey of one of these sites (Pinaroo site 6) as there was no access.
Regional Landfill Siting Study P64

'Access onto the property was not possible with this site, therefore it was not possible to visually confirm geology and terrain conditions.'

This is highlighted in the fact that the 'desktop study' that was used to ascertain flora and fauna on site 6 was from a previous 'desktop Study' in 1998. Regional Landfill Siting Study P61

'Observation (Mackney 1998) suggests the site is extensively disturbed through clearing and grazing;'

The quality and integrity of the Regional Landfill Siting Study RLSS assessment must be questioned. The exhaustive and comprehensive assessment of sites (as described by Council) which resulted in site 7 becoming the selected site has not been to the standard that would be expected from the Community.
The scope of work and methodology to select the site is described below
Regional Landfill Siting Study P3 (Vol 2 P375)

> 2. Field Investigation
>
> A field inspection of each of the sites was carried out in order to determine any local site issues that were not evident from the desktop study. This included discussions and/or joint visits with Council Officers and, where possible, brief discussions were held with the land owners themselves, neighbouring landowners, members of the ADLCCC, and local DIPNR officers. As a result of this review, information that assisted with evaluation against the site selection sub-criteria was noted and recorded on the site evaluation note sheets.

The 'site evaluation note sheet' for site 4 'Annerleey', as completed by AECOM experts is used as an example of the clumsy and inept 'field note' assessment. These 'field notes' appeared in the Draft Regional Landfill Siting Study 2003 but have been omitted from the final report.

SITE 9 - Annaleey (Northern) sites	
Gradient / Slope	Note suitability, concerns, ...
Upcatchment	
Topography / Terrain	Landforms, steep/flat, gravelled, vegetation, trees
More sloping than southern	
Distance from Waterways	Check distance on site
close to [illegible]	
Visual Impact	Buffer zones, surrounding landuse / sensitivity, public land
Highly - to creek	
Impact on surrounding landuse	Include social and economic impacts
Same as site 3 - Mostly Lifestyle 'farming' [illegible]	
Existing Flora	Dominant trees / vegetation, habitats
Grazing	
Existing Fauna	Note
Not known. Adjacent creek	
Archaeological significance	Heritage value
× none known	
Existing landuse	Current/potential landuse
Grazing	
Surrounding landuse	Note landuses and conflicts with impacts
Grazing	
Compatibility with land uses	Agricultural land? Affect value.

The conclusion must be drawn that the quality of the field notes were extremely substandard and should not have formed any part of the assessment procedure. The claim of a 'site visit' in an attempt to strengthen the perception of a rigorous process is a misleading embellishment of a shoddy and unprofessional report.
As not all 'short – listed' sites had a site visit alarming inconsistencies in process integrity are apparent.

		Information Source: Desktop	Site
Flooding	Sites should have minimal connectivity to external stormwater catchments; An ideal site will be located at or near the head of the local stormwater catchment to avoid the path of and potential collection of water however, it is usually possible to divert stormwater around the site; Catchment areas and potential for flooding can be checked on-site or by photographic evidence. Flooding down-catchment of landfill site not necessarily critical to landfill operation		•
Surface Water Control	Sites should have low ground relief and minimal external catchment opportunities for groundwater; Evidence of surface water direction and control can be checked on-site		•
Erosion Protection	Gently sloping land with a good level of cover will support erosion and sediment control; Excessive soil erosion will be evident on-site		•
Distance from Waterways	DIPNR (formerly DUAP) Guidelines state an acceptable distance from intermittent or permanent waterways is at least 40 metres; Topographical and site checks can be made.		•
Criterion 4 - Local Amenity and Environmental Considerations			
Visual Amenity	DIPNR (ex-DUAP) Guidelines state that landfills should not be located within 250 metres of a residential zone, or a dwelling not associated with the facility; Ideal sites will be well protected from adjoining properties by gradient and landform; Vegetative screening can also be useful, however not as effective as landform barriers; Particular notice must be paid to dwellings, public land (such as reserves or parks), rural and arterial roads visible from the site or immediately adjoining land; Visual amenity can be mitigated by the effective use of bunding or vegetative landscaping		•

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[illegible] Regional Landfill Siting Study Rev 3.doc
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Tourism – World Heritage/National Parks/Waterfall Way

The spectacular Waterfall Way is synonymous with eco-tourism, wild rivers wilderness areas and breathtaking waterfalls. The World Heritage Values that have evolved over millions of years make this area a unique wilderness experience.
A regional waste and rubbish dump, run by a Council with a documented poor record of landfill management) is not consistent with the international and national significance of this wilderness area.

The Waterfall Way stretches from Armidale in the West to Coffs Harbour in the East, linking the New England and Coffs Coast regions. The proposed landfill site is visible from the Waterfall Way for at least a kilometre. Many thousands of tourists and holiday makers use this main regional corridor route each year and all must pass this proposed landfill site.
The Waterfall Way, Tourist Drive No.17 has been voted by the NRMA as "One of the Ten Best Drives in NSW" and by Australian Traveller magazine as the third best drive in Australia (after the Great Ocean Road and the Great Tropical Drive).
Only a short distance along the Waterfall Way lie the Bakers Creek, Wollomombi and Ebor Waterfalls. The Wollomombi falls being the second highest waterfall in Australia.
Directly opposite the proposed landfill site on the Waterfall Way is the Gara Reserve rest and picnic area. The Gara Reserve is described as an area of 'key habitat'by the NSW NPWS and is regularly frequented by bird watching groups, nature lovers and tourists enjoying a rest.
3km downstream from the proposed landfill site is the 'Blue Hole', Gara Gorge swimming and recreation area. Undoubtedly pollution contaminations in the form of litter or leachate chemicals have the potential to permanently affect this recreation area. Swimming in, or ingesting water from a contaminated landfill source would halt the use of this area for public recreation and create a public health risk.
Armidale Dumaresq Council's own documents highlight the importance of the World Heritage Areas East of Armidale and the significance tourism plays in positioning Armidale as a destination hub.

Armidale Facts and Figures 2008 Armidale Dumaresq Council
'the growth of activities centred on the food and wine industry as well as the World Heritage Listed Gorge Country have all enhanced Armidale's position as a destination and as a hub for business and leisure travel within the New England North West region of NSW.'

Recently there has been a very strong branding campaign called 'Waterfall Way Branding'

Waterfall Way Branding http://www.waterfallwaytourism.com
'The Waterfall Way Brand and this Toolkit are about marketing single and packaged experiences for locals and visitors. These nature-based and ecotourism products could include a variety of purely physical activities (walking, cycling, food and wine tasting) while incorporating family, indigenous and spiritual appreciations.

The Waterfall Way Brand has the potential to contribute significantly to the development of the regions it serves. It engages communities, facilitates partnerships, and contributes with tools that will foster the sustainable management of human, cultural and natural resources.

Local communities and stakeholders chose the name Waterfall Way to form the core of the exciting new brand for the New England to Coffs Coast region to be seen as one total eco- and nature-based tourism destination.

Waterfall Way is already widely known as one of the top tourist drives in Australia so, when it came to deciding on a name for the new brand, the overwhelming community response was to use the Waterfall Way name because it's about the region; it's about tourism; and it's already well known.'

Council's statements appear to be in total contrast to their actions. Council's former Mayor released the following statement on Council's website in 2004.

'The protection of our environment, together with its unique flora and fauna, for our children and their children, is one of the greatest challenges facing our community.'

And further

'There is no way that Armidale Dumaresq Council will support or allow any landfill site to be constructed, should it be any risk to the World Heritage areas, or damage the environment.'

GVEPA considers that if protection of the environment is one of the greatest challenges facing our community then the placement of a Regional Landfill adjacent to the Gara River, immediately above a World Heritage Area is an unacceptable threat to the environment.
GVEPA considers that the significant loss of amenity from odours, dust, litter, noise and changes to the ecosystem due to predatory and vermin impacts will have a significant impact on the area. The visual impact of a scarred landscape is in strict contrast to the surrounding environmental beauty. Tourists that travel upon the Waterfall Way or who choose to view the Wild Rivers area by helicopter are certain to have a lasting memory of the 'gateway to the World Heritage Area' .

Submission S041a

Issue Number	Topic	Response
S041a_0	Introduction Executive Summary	Refer to detailed responses provided to these summary points where raised in the main body of the submission.
S041a_1	W4	Community concerns have been noted regarding potential for pollution of the Gara River through leachate migration from the landfill and these issues are addressed in **Sections 8.3** and **8.4** of the EA. Potential impacts on the GRAWHA were assessed under the *EPBC Act 1999* and a referral lodged with DSEWPC (formerly DEWHA). DSEWPC determined that the proposal constitutes a controlled action under the EPBC Act. The nature of the assessment process under the EPBC Act is such that determinations are made without having regard to mitigation measures that would be implemented. However, the mitigation measures proposed in the EA will reduce the likelihood of significant impacts on the environment including the World Heritage Area. Stringent environmental controls to manage dirty stormwater runoff, provide leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. A Hydrogeological (Leachate) Assessment (**Appendix I** of the EA) assessed the potential risk of leachate infiltration through the landfill liner and subsequent worse case impacts if a leak were to occur. The assessment results indicated that it would take approximately 300 years for a leachate leak to reach the site boundary and approximately 700 to 800 years to reach the Gara River, by which time it would be diluted by groundwater and would not result in significant impacts on the Gara River, OWRNP or GRAWHA. Comprehensive management systems and strategies would be implemented to manage the rate and volume of leachate generated from the landfill mass, as well as the manner in which the leachate would be stored, treated and ultimately disposed. These management systems / strategies are described in the LEMP (**Appendix B** of the EA). A groundwater and surface water monitoring program and management plan was developed in consultation with DSEWPC (formerly DEWHA) for inclusion within the EA as per the DGRs. This was included as an appendix to the LEMP. The groundwater monitoring program is designed specifically to monitor the quality of groundwater at locations around the landfill. Additional monitoring in groundwater wells installed by RCA in 2007 is proposed. The additional well locations include: • BH10: southern end of eastern boundary of landfill cells (screened in Argilitte; total depth 47.0m, groundwater detected at 41.0m); • BH11: northern end of western boundary of landfill cells (screened in Sandstone; total depth 36.0m, groundwater detected at 31.0m); and • BH12: northern end of eastern boundary of landfill cells (screened in Argilitte; Sandstone to 30m, total depth 40.0m, groundwater detected at 35.0m). In the unexpected event of a leak occurring, it is noted that groundwater can be appropriately remediated however the method would be dependent on the source, extent and type of the contaminant (i.e. groundwater extraction, amelioration in situ, removal of contaminated subsoils). With the management measures proposed it is unlikely that remediation of the groundwater will be required.
S041a_2	P6	Due to the nature of landfills, leachate would continue to be generated once the landfill has reached capacity and has been capped.

		Council would be required to monitor the site until leachate generation ceases and comply with other post-closure conditions as specified by the EPL and/or approval conditions. Council is committed to monitoring and rehabilitating the site and the proposed offset area post-closure for a time yet to be specified in any approvals. A Closure Management Plan and Rehabilitation Plan would be prepared and implemented as part of the LEMP.
S041a_3	W4	Existing flow rates (which include release from Malpas Dam) were considered in the specialist study modelling the potential for pollution of the downstream environment (**Appendix I** of the EA). The study assessed the potential risk of leachate infiltration through the landfill liner and subsequent worse case impacts if a leak were to occur. The specialist study indicated that the travel distance of approximately one (1) km from the site to the Gara River would be substantially longer once the actual flow path through the fractured rock is taken into account. Considering the low permeability (4.8×10^{-9} m/s) of the rock observed in bore hole No. BH4 and the expected capacity of the clays and silts to naturally attenuate any fugitive contaminants, any significant impacts to potential receptors would be extremely unlikely. The results indicated that it would take approximately 300 years for a leachate leak to reach the site boundary and approximately 700 to 800 years to reach the Gara River, by which time it would be diluted by groundwater and would not result in significant impacts on the Gara River, OWRNP or GRAWHA.
S041a_4	W4	Council and its consultants had previously identified in relation to Site 7 that the facility was intended to be operated essentially as a Solid Waste Class 2 or non-putrescible landfill but would be licenced as a Solid Waste Class 1 or putrescible landfill. This is in order to allow for odd occasions when disposal of difficult putrescible material would be required where such material is not suited to the composting or stabilising process that would be adopted for the proposed AWT facilities at the Long Swamp Road site. The proposed new landfill facility will accept General solid waste (putrescible) in accordance with the EPL which includes household waste, manure, disposable nappies, food waste and litter bin waste collected by local councils. No toxic or chemical wastes would be disposed of at the proposed landfill facility. Waste would be sorted at the existing Waste Management Centre prior to transportation to the proposed landfill. Leachate generated within the landfill would be managed in accordance with DECCW requirements. Mitigation measures include a geosynthetic liner system, water management system and leachate barrier and collection system. Leachate would be collected and transferred via pipes to the Leachate Pond which would be lined in accordance with the DECCW *Benchmark Techniques*. Stringent environmental controls (such as dirty stormwater runoff controls, leachate containment and emergency storage) and implementation of the Surface and Groundwater Monitoring Program and Management Plan (appended to the LEMP) would reduce the likelihood of impacts to surface and groundwater. Diluted concentrations reaching downstream would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area.
S041a_5	P4	The landfill and pond design, including the landfill liner, have been designed in accordance with the recommended DECCW Landfill Guidelines Benchmark Techniques. The combination of a composite landfill liner with a leachate collection system ensures maximum prevention of leachate leakage from the landfill into the surrounding environment. A review of available literature on the efficiency of different landfill linings was

		undertaken (refer **Appendix I**). Although the Leachate Collection and Conveyance Systems have a finite life ranging from under 70 years to over 200 years, the system will have a higher operational life provided that it is installed in accordance with the construction specifications including the CQA/CQC programmes and protection of the liners during and after construction. The LEMP will dictate efficient operation and management of the landfill to ensure landfill structures are used appropriately and the risk of leachate leakage from the landfill site is minimised. The site would also be managed in accordance with the EPL issued and monitored by the DECCW. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater.
S041a_6	W5	The prevention of leachate contamination is identified through the design of the proposed landfill and water management system (including Leachate Pond, Sedimentation Basin and Dry Basin) detailed in the LEMP and throughout the several associated management plans such as the Surface and Groundwater Management Plan. Groundwater monitoring would be undertaken (refer Surface and Groundwater Monitoring Program and Management Plan appended to the LEMP) and if required, appropriate measures to remediate groundwater would be implemented to prevent impacts to the Gara River. The groundwater monitoring program is designed specifically to monitor the quality of groundwater at locations around the landfill. Additional monitoring in groundwater wells installed by RCA in 2007 is proposed. The additional well locations include: • BH10: southern end of eastern boundary of landfill cells (screened in Argillite; total depth 47.0m, groundwater detected at 41.0m); • BH11: northern end of western boundary of landfill cells (screened in Sandstone; total depth 36.0m, groundwater detected at 31.0m); and • BH12: northern end of eastern boundary of landfill cells (screened in Argillite; Sandstone to 30m, total depth 40.0m, groundwater detected at 35.0m). In the unexpected event that leachate enters the groundwater occurring, it is noted that groundwater can be appropriately remediated however the method would be dependent on the source, extent and type of the contaminant (i.e. groundwater extraction, amelioration in situ, removal of contaminated subsoils). Should it be determined that the landfill is the cause of groundwater quality degradation, Council would evaluate measures to remediate groundwater as part of a groundwater contingency plan which would be prepared in consultation with DECCW.
S041a_7	W4	Refer to responses above. Management measures proposed for the landfill are designed to prevent dirty water runoff during construction and operation of the proposed landfill facility. Mitigation measures include a geosynthetic liner system, water management system and leachate barrier and collection system as well as surface and groundwater monitoring (refer Surface and Groundwater Monitoring Program and Management Plan appended to the LEMP). These measures have been designed in accordance with the DECCW Landfill Guidelines Benchmark Techniques. With the implementation of environmental controls and mitigation measures to manage dirty stormwater runoff, leachate containment and emergency storage, impacts to surface water, including drinking water, are not likely.
S041a_8	V3 O2	A Pollution and Litter Management Plan for the operation of the landfill would be prepared and implemented for the site to ensure litter is contained. Measures to be included in this plan include a combination of the following:

		• Portable litter fences around the tipping face. • Ensuring that all wind blown litter that leaves the site is retrieved and clearing of litter from fences and gates as required. • Regular inspection of all litter fences, perimeter fences and gates. • Suitable covering procedures (refer Section 5.5 of the EA). The Pollution and Litter Management Plan would comply with the relevant conditions set out in the EPL and Project Approval regarding litter management. These measures will reduce the likelihood of windblown litter escaping the site thereby minimising the likelihood of litter from the proposed site ending up in the Gara or Macleay Rivers. Pest and vermin monitoring would be undertaken on a regular basis at the Project Site. Daily cover of the landfill would also discourage vermin and reduce odour emissions. Should the proposed techniques be unsuccessful in deterring pests and vermin, further investigations for additional measures would be undertaken such as engaging a firm of specialist exterminators if required.
S041a_9	FF2	Potential impacts to biodiversity, including threatened species, were addressed in the Flora and Fauna Assessment (**Appendix E** of the EA). Known habitat is present within the study area for the Koala, Diamond Firetail and Speckled Warbler, which are all listed threatened species. Potential impacts to Box Gum Woodland (an EEC) in the area were also addressed. Assessments of Significance were undertaken for these species and are provided in **Appendix A** of the Flora and Fauna Assessment (**Appendix E** of the EA). The Flora and Fauna Assessment concluded that the proposed works would have a significant impact on local populations of the Diamond Firetail Finch and Speckled Warbler. This will be offset by setting aside adjacent areas of similar vegetation type that are likely to respond to conservation measures which will permanently improve biodiversity values of the offset area. The impact to the Diamond Firetail Finch and Speckled Warbler will be greatly reduced by provision of these offset areas. Less than 1 ha of the Box Gum Woodland and 3.3 ha of the grassland (degraded Box Gum Woodland) will be cleared from the TSR for the access track. This is unlikely to be significant to the long term survival of the EEC. Approximately 0.6 hectares of Box-gum woodland in the TSR would be cleared in the construction of the access road. This loss of habitat would be offset within the biodiversity offset area of approximately 61 hectares that would be provided as part of the proposal. It would surround the landfill footprint and connect to the TSR. The impacts on flora and fauna will be minimised through implementation of the mitigation measures outlined in **Section 8.8.16** of the EA and **Section 4** of the Flora and Fauna Assessment (**Appendix E** of the EA). Mitigation measures include minimising the extent of clearing; a staged approach to clearing; progressive rehabilitation and revegetation of spent landfill areas; and provision of approximately 61 hectares of compensatory habitat (biodiversity offset). Impacts associated with vegetation clearance will also be managed through implementation of a suite of management plans including a VMP, Biodiversity Offset Management Plan (**Appendix H** of the EA) and Vegetation Clearing Protocol. Further details of the contents of these plans are provided in Section 4 of the Flora and Fauna Assessment (**Appendix E** of the EA). These plans will be developed during detailed design of the landfill and prior to construction. The plans would be prepared in consultation with relevant government agencies (e.g. DECCW and DSEWPC) and in accordance with best practice guidelines and Recovery Plans for threatened species.
S041a_10	FF1	The purpose of the PEA document was to scope the potential environmental

		issues as well as identify likely mitigation measures that would be required to minimise those potential impacts identified. The EA is designed to demonstrate further assessment and detail since the original scope, including the provision and development of more detailed mitigation measures. The EA included the provision of more detailed management measures and plans including the development of the Biodiversity Offset Plan and the LEMP.
S041a_11	FF2	Construction of the access road to the proposed landfill facility would necessitate the removal of approximately 0.6ha of Box-Gum Woodland. This area of impact is within the 12.7ha of woodland area to be impacted and for which biodiversity offset will be provided. Box-gum woodland is listed as an EEC under the TSC Act and listed as a CEEC under the EPBC Act. An assessment of significance for the CEEC was undertaken (refer **Appendix B** of the Flora and Fauna Assessment, **Appendix E** of the EA). The assessment concluded that a referral was recommended for potential impacts on matters of national environmental significance including: (i) *clearing of up to 1ha of the CE ecological community, Box Gum Woodland and derived grassland* The referral outlined the assessment of significance of the EPBC listed species and communities for the proposed development considered known or potentially occurring within 20km of the study area. The assessment stated that *potential impacts have been identified but are not considered to be significant for any of these threatened species and communities*. The Flora and Fauna Assessment found: • *The proposed clearing is not likely to adversely affect habitat critical to the survival of an ecological community since the strip to be cleared is in an area that has previously been cleared.* • *The proposed clearing is not likely to modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for the community's survival since drainage and erosion control measures will be incorporated into design and construction of the access road.* • *The proposed clearing is not likely to cause a substantial change in the species composition of an occurrence of an ecological community since the proposed mitigation measures and remnant vegetation conservation management plan will minimise negative impacts on E. nicholii in this patch of Box Gum Woodland.* • *The proposed clearing is not likely to interfere with the recovery of Box Gum Woodland since the proposed mitigation measures and vegetation management plan will minimise negative impacts on this patch of Box Gum Woodland. A recovery plan has not been prepared for this CE ecological community.* The environmental assessment for the proposed landfill has been completed in accordance with the requirements of the NSW Part 3A approvals process, which has been accredited by the Commonwealth. Where impacts on biodiversity have been identified, appropriate mitigation measures have been proposed to reduce the residual impacts on the environment. The biodiversity offset area a proposed measure to offset the impacts on the EEC and has been designed in accordance with the DECCW *Principles for the use of biodiversity offsets in NSW*. The proposed 3:1 offset ratio has been agreed with DECCW (refer to correspondence included in **Appendix A** of the EA) and the biodiversity offset area has been accepted by DECCW as an appropriate measure to offset the impacts on the EEC. Offsets are a legitimate option under the EPBC Act. The EPBC Act provides a framework for using offsets and defines the circumstances in which they can be applied. Offsets can be required as an approval condition and would be subject

		to the same legislative requirements that apply to all approval conditions under Part 9 of the EPBC Act. The Biodiversity Offset Area Management Plan prepared for the site (refer to **Appendix H** of the EA) will be finalised in consultation with DECCW and DSEWPC prior to construction.
S041a_12	FF1	A search of threatened species in the vicinity of the proposed landfill was undertaken as part of the Flora and Fauna Assessment (**Appendix E** of the EA). These species were inclusive of riparian flora and aquatic species which are listed in **Appendix G** and **Appendix H** of the Flora and Fauna Assessment. Known habitat is present within the study area for a number of threatened species. Assessments of Significance were undertaken for these species and are provided in **Appendix A** of the Flora and Fauna Assessment. Potential impacts on threatened species on site and in the surrounding area were addressed in the Flora and Fauna Assessment (**Appendix E** of the EA). The DGRs for the project did not require a detailed assessment of the riparian and aquatic communities in the OWRNP. As outlined in the EA, with the implementation of the proposed mitigation measures significant impacts on the OWRNP and GRAWHA are unlikely.
S041a_13	AQ4 O1	GHG emission sources for the proposed landfill include emissions resulting from fuel use on site, vegetation clearance, landfill gas emissions and use of electricity. A GHG assessment has been undertaken as part of the EA (refer **Section 8.6** of the EA) and in accordance with EPA Landfill Guidelines Benchmark Technique Number 11 – Extraction and Disposal of Landfill Gas. The assessment considered construction and operational GHG emissions. Active collection of landfill gasses with a landfill gas collection system and flaring the methane has been considered an option for the future of the landfill with regard to management of landfill gas. Other options include: • The application of a methane oxidation cap; and • Passive venting and using a filter (e.g. activated carbon or the like) to reduce emissions. It is not expected that landfill gas will escape and pollute the air in an uncontrolled manner and affect nearby receivers. Suitable options to manage landfill gas have been considered and the most suitable option would be determined and implemented once preliminary data on the extent of landfill gas is collected from the operational landfill. The proposed development would not pose a significant risk to human health during construction or operation. This is due to the implementation of comprehensive measures that will ensure that neither hazardous nor offensive discharges from the development site would occur.
S041a_14	SE3 V1	It is not expected the proposed landfill facility would significantly affect or impede tourism in the area. It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. Visual montages of the various viewpoints were considered as part of the EA. All existing trees and known tree heights were included in the visual montages in addition to the final profile of the proposed landfill mass (refer **Figures 30** to **35** of the EA). It should be noted that these montages did not take into account future screening from the proposed biodiversity offset area. It is also noted that views towards the Project Site from Receivers 4 and 5 (and indicatively of the Waterfall Way) are considered to be reasonably significant, however these views would be partially masked by existing vegetation and further obscured by offset vegetation once matured.

S041a_15	AQ1	The Air Quality Assessment is presented in **Appendix O** of the EA and summarised in **Section 8.5** of the EA. Modelled predictions of odour levels were compared against relevant air quality criteria set by DECCW. Odour levels at the 99th percentile were shown to be well within the 7 ou odour goal at the nearest receiver and at the site boundary – refer to **Figure 23** of Appendix O. That is, odour goals were predicted to be met 99% of the time, in accordance with DECCWs odour goals. Council is unable to comment on the design and management practices at the Coffs Harbour landfill. Odour emissions from landfill are affected by several variables including meteorological conditions, surrounding environment, type and quantity of waste received and the type and efficiency of management practices. The Armidale Regional Landfill Facility would be commissioned and operated in accordance with current DECCW guidelines and the EPL. Total dust emissions due to the operations at the proposed landfill facility have been estimated by analysing excavation and landfilling for three stages of the proposed landfill. Predictions of dust generation were very low and it was concluded that the proposed activities would be unlikely to cause exceedances of the DECCW air quality criteria. Overall, predicted dust concentrations and deposition levels at all residential receivers were very low and is was concluded that there would be no significant impacts arising from dust emissions from the proposed landfill facility.
S041a_16	N1	Noise emissions are expected to comply with the environmental criteria for the site under the neutral meteorological conditions that have been shown to be typical of the site given mitigation measures are implemented. Minor exceedances of the criterion of up to 3dB(A) may occur at Receiver 2 (Sherraloy) at certain times near the end of the operating life of Cell 1, however the modelling assumed a worst case scenario where all equipment would be working in unison at the extremities of construction area. In general however, the equipment and therefore the noise generated, would generally be distributed across the site, with minimal impacts to noise level amenity.
S041a_17	HR1	A Fire Management Plan would be prepared and implemented for the landfill site (including the surrounding bushland) which would provide for monitoring of fuel loads, fuel reduction techniques and other management controls. The potential for explosions will be minimised through the implementation of gas accumulation monitoring, remediation of uncontrolled landfill gas emissions, as well as controlled burning at the site periphery. Suitable fire fighting equipment would be kept on site and an Emergency Response Plan would be prepared to provide management measures for identified hazards during construction and operation.
S041a_18	P6	Council would be required to monitor the site until leachate generation ceases and comply with other post-closure conditions as specified by the EPL and/or approval conditions. Council is committed to monitoring and rehabilitating the site and the proposed offset area post-closure for a time yet to be specified in any approvals. A Closure Management Plan and Rehabilitation Plan would be prepared and implemented as part of the LEMP. Preparation of the Closure Plan closer to the completion of the landfill will allow for the most appropriate solutions to be designed based on the operational performance of the landfill. It will also allow for future best management practises to be incorporated into the Closure management Plan.
S041a_19	W2	Specialist studies indicate that the travel distance of approximately one (1) km from the site to the Gara River would be substantially longer once the actual flow paths through the fractured rock is taken into account. Considering the low permeability (4.8 x 10^{-9} m/s) of the rock observed in bore hole No. BH4 and the expected capacity of the clays and silts to naturally attenuate any fugitive

		contaminants, any significant impacts to potential receptors would be extremely unlikely. A groundwater and surface water monitoring program and management plan was developed, in consultation with DSEWPC (formerly DEWHA), for inclusion in the EA as per the DGRs. This was submitted as an appendix to the LEMP. The groundwater monitoring program is designed specifically to monitor the quality of groundwater at locations around the landfill. In the event any toxicity is detected, it is possible for groundwater to be appropriately remediated, however the remediation technique is dependent on the source, extent and type of the contaminant (i.e. groundwater extraction, amelioration in situ, removal of contaminated subsoils). With the management measures proposed it is unlikely that remediation of the groundwater will be required.
S041a_20	E3	The decision by Council to take the landfill option was agreed before the appointment of a consultant. In 2004, Council sought tenders from suitably qualified consultants to provide project management and consultancy services to manage the design, planning, environmental assessment, land acquisition and construction project management for the new regional landfill. AECOM was engaged by Council through this competitive tender process. Therefore the appointment of AECOM as a consultant on the project does not represent a conflict of interest; it is the nature of large tenders such as this that one consultant is engaged to undertake the work from feasibility through to construction. Council has engaged the services of AECOM, an independent Professional Services Consultant, to provide technical and management services including detailed design, environmental approvals and land acquisition for the proposed landfill. As required, other specialist consultants have been engaged to provide Council technical advice and assessment. AECOM pursued the option of alternatives to landfilling prior to and during the EA process. Council believes that an AWT facility is not a substitute for landfill however Council is fully committed to waste minimisation with plans well advanced to establish an AWT which will work in tandem with the new landfill to remove and stabilise putrescible waste. It is envisaged that the implementation of an AWT would further contribute to Council's waste diversion from landfill.
S041a_21	E3	Council engaged three real estate agents to search for suitable land on the market, which was part of the site selection criteria. The real estate agents proposed several sites that were considered as part of the site selection process, however other site options were also assessed in addition to those identified by the real estate agents. Land on which the proposed landfill will be sited is currently owned by a former Councillor and one of the real estate agents commissioned by Council during the site selection process. As part of the site selection process, 50 alternative sites were considered for the proposed landfill facility and a set of criteria was used to analyse each site during the site selection process: The relative importance of each primary criteria was weighted using a scale ranging from 'relevant' to 'essential'. The ranking process was determined to account for potential environmental issues and constraints as well as giving weightings to those criteria considered to be of greater significance for design purposes. AECOM was awarded the contract to review the site evaluation work carried out to that time and to carry out a re-assessment using extended criteria and weightings. One of the first actions by AECOM staff was to visit the sites to be assessed in detail, to ensure that the site characteristics in the previous

		assessments were correct or updated as necessary. Colin Maciver from Council personally accompanied them on their site visits. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA). This concluded that the current site was the most suitable of the sites considered with respect to the assessment criteria determined as part of the site selection process. Mr Crisp was a member of the ADLCCC which was set up following a public meeting (29 January 2003) to review the site selection process carried out to that point in time and to move forward with the site selection process using this community consultative committee. Membership of the ADLCCC comprised: • 3 Council representatives; • 6 (2 per site) representatives from the 3 short listed landfill sites under investigation, sites 7, 8 and 9; • 1 independent chair; and • 5 members of the public. Mr Crisp was nominated and appointed as a representative for site 7. Only one other site owner (site 9) nominated for membership but was not appointed to the committee due to inadequate awareness of waste management issues. Representatives for sites 8 and 9 were close neighbours of those sites. Several members of the Gara Valley Environment Preservation Association (GVEPA) were members of the ADLCCC including: • Mr David Laird representing site 7; • Mr Les Davis and Mr John Holthouse representing site 9 • Mr Dan Calvert (Mining Vale Road) which is the access road to site 9; and • Ms J Grainger. All these persons as well as Mr Crisp were involved in the ADLCCC's activities including adopting of selection criteria, weightings and the final selection of site 7. The potential conflict of interest or pecuniary interest associated with the appointment of Mr Crisp to the ADLCCC was raised by Mr Les Davis, President of the GVEPA, in a letter to Council's General Manager (28 April 2003). To quote from the General Manager's reply (30 April 2003): "*The issue of Mr Crisp's appointment and the question of conflict or pecuniary interest also concerned myself. However, upon enquiry with both ICAC and the Department of Local Government for advice, it would appear that he has the right to sit on a Community Advisory Committee, as it is only formulating recommendations for Council's decision. It was advised that Mr Crisp should declare his interest at the start of the meetings and he will be encouraged to do this.*" Mr Crisp's interest as an owner of part of the land involved in site 7 was always declared and understood, similar to all others on the committee that had interest as owners or close neighbours of a site under consideration. Note that Mr Les Davis President of the GVEPA and a member of ADLCCC representing site 9, was a recent past owner of the proposed Site 9 land and owned land in it's immediate vicinity. Council does not agree that legal advice was obligatory and did not see the need to seek legal advice. The Local Government Act 1993 covers the legal requirements for Councillor's conduct with respect to pecuniary interest and the like and Councillor Waters scrupulously observed his obligations in this regard, keeping himself at arms length from all discussions and Council decisions, declaring his interest and vacating the chambers when necessary. Mr Crisp represented both landowners in all other dealings. Mr Crisp was involved in his

		capacity as a real estate agent in assisting Council with identification of suitable land along with a number of other real estate agents in Armidale.
S041a_22	C1	**Section 7** of the EA describes the consultation that has been undertaken during the environmental assessment process to date. Consultation with the community was strategically planned and targeted to include landowners nearest the proposal, as well as residents along the transport route, specialist interest groups and the wider community. A range of media have been used during community consultation, including newsletters, website updates, media releases, public displays and direct contact with neighbouring landowners. Key issues raised by the public have been considered during the preparation of the EA and specialist studies to support the EA.
S041a_23	E3	As described in **Section 5.5** of the EA, Council will seek an operating licence to landfill putrescible material to accommodate the essential intermittent need for disposal of material for which stabilisation or composting is not a practical option. However, once the appropriate additional off-site sorting and/or treatment technologies are able to be employed, Council is proposing to operate the proposed landfill as a non-putrescible facility until final closure. Council and its consultants had previously identified in relation to Site 7 that the facility was intended to be operated essentially as a Solid Waste Class 2 or non-putrescible landfill but would be licenced as a Solid Waste Class 1 or putrescible landfill. This is in order to allow for odd occasions when disposal of difficult putrescible material would be required where such material is not suited to the composting or stabilising process that would be adopted for the proposed AWT facilities at the Long Swamp Road site. It is envisaged that the implementation of an AWT facility would further contribute to Council's waste diversion from landfill and therefore minimise any future waste levy charges.
S041a_24	C1	Newsletter 5, issued by Council in April 2008, detailed the outcome of the EPBC referral process and that that the project had been declared a 'Controlled Action'. The newsletter was available for download from the Council website.
S041a_25	E3	Council has made information freely available in accordance with FOI processes. However, information relating to "commercial in confidence" detailed discussions with private persons and companies has been withheld.
S041a_26	SE4 P4	The estimated cost for the construction of the landfill is $14 million for the first two cells (which includes water and leachate collection and management systems, access road, amenities) and $10 million for the remaining three cells, a total of $24 million over the life of the landfill. The annual operational cost is likely to be in the order of $1 million per year. The costs for implementing the safeguards and controls at the site have been incorporated into the cost estimates for the project with significant additional remediation costs not likely to be incurred. Detailed engineering and site operation plans would be prepared during the detailed design stage. As part of the approvals process, the relevant agencies will prescribe approval conditions the proposed landfill facility will be required to meet. These conditions would be incorporated into the detailed design plans and agreed with the government agencies such as DECCW and other relevant authorities prior to construction. Price negotiations for the purchase of the land for the proposed landfill have not yet commenced. Land acquisition will be undertaken only once Major Project approval has been granted by the Minister for Planning.
S041a_27	P3	Council has demonstrated its commitment to alternative technologies via its active pursuit of AWT processes over a number of years. Council is currently

		trialling and evaluating AWT at the Long Swamp Road Waste Transfer Facility before full scale adoption and implementation. Further facilities and processes to recover materials for re-use will be added in future as markets and recovery costs dictate. A review of the costs of AWT technologies would be undertaken should the trial be successful and more accurate costing information is available based on its trial and adoption at the existing facility.
S041a_28	SE4	The estimated cost for the construction of the landfill is $14 million for the first two cells (which includes water and leachate collection and management systems, access road, amenities) and $10 million for the remaining three cells, a total of $24 million over the life of the landfill. The annual operational cost is likely to be in the order of $1 million per year.
S041a_29	E3	Council recently incurred $10.13M in losses, predominantly caused by the requirement to write down its CDO investments reduced in the Global Financial Crisis as required by Australian Accounting Standards. Council recorded a $2.7M surplus for 2009/10 after capital grants, has healthy surpluses projected for the next 4 years and is currently working on a 10 year financial plan. Council has the ability to raise funds by loans and any loan will be serviced by the waste management charge that is set by Council. Council has identified their long term financial situation and is establishing a process with the community to ensure viability and sustainability. New statutory integrated planning and reporting will provide ratepayers with long-term financial plans that will ensure the long term capacity of Council to meet its obligations to the community and authorities, including its commitments to environmental management of the proposed landfill in the long-term.
S041a_30	P6	The design and management of the proposed landfill facility would meet or exceed the current landfilling guidelines and DECCW requirements. The proposed landfill facility would be operated in accordance with the conditions set out in the EPL, regulated by DECCW. Council will be required to operate within the limits and conditions imposed by the site's EPL and approval requirements. Should Council elect to use a Contractor to manage the proposed landfill on its behalf, the Contractor would work under a contract which states strict performance indicators to ensure correct operation of the landfill. The Contractor would also be required to operate the landfill in accordance with the EPL and any approval conditions.
S041a_31	SE4	Council will be required to operate within the limits and conditions imposed by the site's EPL and approval requirements. Should Council elect to use a Contractor to manage the proposed landfill on its behalf, the Contractor would work under a contract which states strict performance indicators to ensure correct operation of the landfill. The Contractor would also be required to operate the landfill in accordance with the EPL and any approval conditions.
S041a_32	P3	Comment noted. The issue raised regarding the management of the existing landfill is not the subject of the environmental assessment. Issues regarding the management and environmental impacts of the existing landfill facility should be raised with Council in a separate forum.
S041a_33	P6	Council has the ability to raise funds by loans and any loan will be serviced by the waste management charge that is set by Council. Council has continually advised ratepayers that the proposed new landfill will be paid for by ratepayers by means of a landfill levy that was established in 2006 to fund the new landfill. This levy will be increased and decreased over the period of the staged loans that are required as landfill cells are developed and closed.
S041a_34	SE4	Council has demonstrated its commitment via its active pursuit of AWT processes over a number of years. Council is currently trialling and evaluating

		AWT at the Long Swamp Road Waste Transfer Facility before full scale adoption and implementation. Further facilities and processes to recover materials for re-use will be added in future as markets and recovery costs dictate. The proponent is aware of the successful implementation of AWT technologies at several other sites including Kemps Creek and Port Macquarie where waste is composted in enclosed tunnels. A detailed analysis of AWT options was outside the scope of the environmental assessment, however Council is committed to finding, assessing and installing new waste disposal technologies which would, over time, significantly increase waste recovery and reduce the amount of waste being directed to landfill for disposal.
S041a_35	SE4	The Waste and Environment Levy is currently applied to Sydney Metropolitan Area (SMA), Extended Regulated Area (ERA) and Regional Regulated Area (RRA). The RRA is adjacent to the Armidale-Dumaresq LGA and Councils that are within the RRA and border Armidale-Dumaresq include Kempsey, Nambucca, Hastings and Bellingen. The RRA was included into the Regulated Area on 1 July 2009, Historically, the trend has been for levies to increase and for the size of regulated areas to increase. It would therefore be a reasonable assumption that the regulated area will extend to include the Armidale-Dumaresq LGA (and LGAs within the wider region) at some unknown point in the future, however there are no confirmed plans to include Armidale Dumaresq in the RRA at present, nor what the levy cost would be. Council has been investigating AWT to stabilise putrescibles waste. When implemented, AWT will supplement already high waste recovery rates. Implementation of the AWT will further contribute to the already impressive rates of waste diversion from landfill and therefore minimise any future waste levy charges.
S041a_36	P2	It was announced on 17 November 2010 that the proposed amalgamation will not proceed. The site selection process evaluated over 50 sites including sites in surrounding LGAs, of which a number were located in inland (west)-draining catchments. These sites were eliminated due to a number of unsatisfactory criteria ratings such as underlying geology, hydrogeology, access and distance of travel.
S041a_37	P4	The waste data presented in the EA is based on waste information between 1998 and 2009. Prior to the installation of a weighbridge in 2006, data from 1998 to 2005 (**Table 5** of the EA) was obtained from annual topographic survey which calculated annual volume change within the landfill mass. The volumes include waste as well as daily waste cover, bunds, decomposition, etc which are not actually part of the waste stream. Therefore the figures in Table 5 are not representative of actual waste volumes but were provided for information and context. With the installation of a weighbridge at the Waste Management Centre, the data captured was more representative of actual waste volumes to landfill (**Table 6**) and was used to guide the conceptual landfill design. As stated in Section 2.4.3, the average tonnage of waste to landfill was15,500 tpa (July 2007 to June 2009). Adjusted to account for pronounced reductions in waste tonnage over 5 years, an assumed estimate of 15,000tpa was used as a basis for the proposed landfill tonnage for the concept design of the landfill. Furthermore, the estimate conservatively assumed existing recycling rates will continue, however it is expected that there will be future improvements in recycling rates over time. Each cell has been designed to contain 211,000m^3. This includes 10 years of

		waste (15,000 tpa at current waste generation rates, i.e., assuming no improvements to waste reduction / recycling rates) and also accounts for the required volume of cover material (approximately 20% of the total void volume) and assumes a compaction rate of 0.85 t/m^3. There will be 5 cells of similar size and volume, with the total final volume of the landfill being 1,056,000m^3. The future waste profile presented in Section 2.4.3 of the EA incorporated consideration of the population in the region. Population data for member LGAs (Armidale-Dumaresq, Uralla, Guyra) shows a trend of a relatively stable population (**Table 8**). Analysis of further ABS data shows that the population for the member LGAs has seen an overall increase of only 0.38% between June 2001 and June 2009. The trend in waste volumes shows a pronounced downward trend since 2007, even with the minor increase in population. The downward trend in waste volumes to landfill is expected to continue with a greater emphasis on resource recovery and recycling/ reuse.

Submission S041b

Issue Number	Topic	Response
S041b_1	SE4	Refer to the response for **S041a_26 and So41a_29.**
S041b_2	P6 W4	Refer to response for **S041a_1** and **S041a_5**
S041b_3	W2 W3	No groundwater dependent ecosystems have been identified in the study area or in the OWRNP (refer to Flora and Fauna Assessment included as **Appendix E** of the EA). Furthermore, the proposed works are not likely to significantly impact on groundwater dependent ecosystems in the study area or further downstream in the OWRNP. Flooding and stormwater containment at the site are addressed in **Section 8.3** of the EA. The proposed landfill is located within the upper reaches of the catchment and the diversion drains that collect both the "clean" and "dirty" stormwater runoff will be designed to convey the peak flows from the 1 in 100 year Average Recurrence Interval (ARI) storm event from the catchment, in accordance with Australian Rainfall and Runoff guidelines. The proposed Dry Basin incorporates adequate freeboard storage to contain the 24 hour duration, 1 in 100 year ARI surface runoff volume (which equates to 153 mm rainfall or approximately 19 ML of storage) from the entire disturbed catchment area of the site, without further containment or storage actions needing to be implemented. This design event has been chosen to minimise the risk of contamination of downstream waters. The Water and Leachate Management Plan details all aspects of the design and operation of the proposed water management system for the site including the Leachate Pond, Sedimentation Basin and Dry Basin. The water management system would contain all dirty and leachate water on the site. The Surface and Groundwater Monitoring Program and Management Plan (appended to the LEMP) details procedures for the management of surface water and groundwater including water quality monitoring and reporting.
S041b_4	P4	Detailed engineering and site operation plans would be prepared during the detailed design stage. As part of the approvals process, the relevant agencies will prescribe approval conditions the proposed landfill facility will be required to meet. These conditions would be incorporated into the detailed design plans and agreed with the government agencies such as DECCW and other relevant authorities prior to construction.
S041b_5	P3	Alternatives considered were outlined in **Section 2.0 and Section 3.0** of the EA. In addition, further clarifications on the alternatives considered are included in **S023_15** and **S025_15**. The proposed landfill facility is part of Council's long term waste management strategy and has been planned to provide a service for the disposal of community waste for a period of 50 years or more. The landfill has been designed in accordance with the NSW EPAs Environmental Guidelines: Solid Waste Landfills and the detailed design will be aimed at achieving the most environmentally beneficial outcome for the effective treatment and disposal of waste, so that the landfill operates effectively into the future and does not give rise to any long term environmental effects. Throughout the development of the proposed landfill facility, Council has aimed to balance the need for this development with the need to reduce potential environmental impacts which may result as a consequence of the development. The precautionary principle has been incorporated into the proposal through the commitment to mitigation measures to reduce the likelihood or consequence of the identified environmental impacts, hence minimising potential impacts from the proposed landfill facility.
S041b_6	P4	It is proposed to install a leachate barrier system that provides lower leakage rate and improved performance than the standard Benchmark Technique 1 (BT1) for solid, waste landfills, to mitigate potential impacts on downstream environmental values. The leachate barrier will be based on a design incorporating 900 mm thick clay with in-situ coefficient of permeability of less than 10^{-9} m/s overlain by a flexible membrane liner (HDPE) with a minimum thickness of 1.5mm and permeability of 10^{-14} m/s. The combination of composite landfill liner with a leachate collection system ensures maximum prevention of leachate leakage from the landfill into the surrounding environment. A review of available literature on the efficiency of different landfill linings was undertaken (refer **Appendix I**). Although the Leachate Collection and Conveyance Systems have a finite life ranging from under 70 years to over 200 years, the system will have a higher operational life provided that it is installed in accordance with the construction specifications including the CQA/CQC programmes and protection of the liners during and after construction. The LEMP will dictate efficient operation and management of the landfill to ensure quality assurance of the landfill liner.
S041b_7	W1	A water balance for the site detailing water sources and quantity, water consumption and recycling, and estimated quantity of leachate and stormwater was undertaken and included as part of the LEMP appended as **Appendix B** to the EA. The water balance was used to determine the appropriate size of the leachate pond to accommodate modelled rainfall events.
S041b_8	W4	The potential risks of the proposed landfill have been identified in **Section 8.12** of the EA. The project was referred to DSEWPC (formerly DEWHA) who determined that proposal was a controlled action. This determination was made considering *no mitigation measures are implemented*. As described in the EA, several stringent environmental controls would be implemented to prevent downstream impacts on the GRAWHA. Refer to **S041_5** for further clarification on prevention and remediation of groundwater pollution.
S041b_9	W1	As outlined in **Section 6.2.11** of the EA, the water contained in the sedimentation basin and dry basin would be used for environmental management purposes, namely runoff capture, dust suppression and stormwater and leachate quality control. It is not intended to use surface water run-off, farm dams or groundwater sources to meet the proposed landfill facility water requirements. As such, NSW *Farm Dams Policy* does not apply to this project and a Harvestable Right Order is not required.
S041b_10	W1	Potential impacts on aquatic habitats and groundwater dependent ecosystems (GDEs) were addressed in **Section 4.1.2** of the Flora and Fauna Assessment

Armidale Regional Landfill
Environmental Assessment - Submissions Report
AECOM

	W2	(**Appendix E** of the EA). No GDE's were identified and thus no potential impacts are expected. Refer also to **S041a_12**.
S041b_11	FF4	The potential impacts from weeds are addressed in **Section 8.8** of the EA. Weed management has been identified in the Flora and Fauna Assessment and included in the EA. The preparation and implementation of a WMP and management measures therein would minimise the spread of weeds within the proposed landfill site and to adjacent areas of native vegetation and neighbouring properties. Mitigation measures include actions to control existing weed infestations on the site prior to construction, use of a wheel wash facility for all vehicles entering or leaving the site to prevent transport of weeds as well as targeted monitoring and control of invasive species that are harmful to threatened species and EEC or other potential habitat for fauna species.

Submission S041c

Issue Number	Topic	Response
S041c		The attached political disclosure has been noted.

Submission S041d

Issue Number	Topic	Response
S041d		Refer to submission **S002** for a detailed response to the issues raised in this attachment.

Submission S041e

Issue Number	Topic	Response
S041e		Refer to submission **S082** for a detailed response to the issues raised in this attachment.

[redacted]

3 August 2010

Felicity Greenway
Major Development Assessment
Department of Planning
GPO Box 39 Sydney NSW 2001

Dear Felicity,

RE: PROPOSED ARMIDALE DUMARESQ LANDFILL 06_0220

We are writing to express our concern about the proposed Dumaresq Landfill site, for the following reasons:

1. The site is intended to be situated approximately 3.5 upstream from the Oxley Wild Rivers National Park, which is part of the Gondwana Rainforests of Australia World Heritage Area. The site is only 1km from the Gara River and upstream of the Blue Hole swimming hole which you know is enjoyed by many locals and tourists alike. We have enjoyed many holidays in this part of NSW and a valuable part of this enjoyment is an appreciation of the pristine environment. We are dismayed that the Dumaresq Shire Council should consider the proposed landfill site in such close proximity to a valuable tourist and environmental area. S042a_1

2. Council have proposed the site as a Class 1 landfill. This allows for a more toxic blend of leachates due to the wider range of waste materials that may be deposited. In turn this requires more stringent management to prevent spread of leachate material into the environment. This is particularly disquieting given potential Council amalgamation with Uralla and Guyra, and the potential higher demand on the landfill. Council should be required to demonstrate effective management, yet the mitigation proposals to contain leachate use ineffective technologies for long-term waste disposal (eg clay and plastic liners which break down over time). In addition, the community had expected a Class 2 landfill; and this change of plans by council indicates lack of accountability. S042a_2 S042a_3 S042a_4

3. The proposed site is situated at 12 km from the largest population centre in the region. This means that the trucks carrying the waste must travel at least 10 times further than they currently do. This imposes extra strain on road infrastructure and on the trucks, and increases carbon footprint by the increased fuel usage. Simple maths tells you that this is not best practise for waste management. We expect Council to think smarter than this. S042a_5

We urge council re-consider plans to construct a Class 1 landfill at this site. Further, we urge Council to undertake a best practise approach towards waste management that aims to address fundamental principles of waste management and develop best practice management waste facilities. The technologies to build these facilities are available: the challenge for council is to meet these aims and by so doing, best serve the Armidale community.

Best regards,

[redacted]

Submission S042a

Issue Number	Topic	Response
S042a_1	SE3	It is not expected the proposed landfill facility would significantly affect or impede tourism in the area. Armidale Dumaresq Council supports the promotion of tourism in the region through the Tourism Information Centre, provision of funding for local community infrastructure including public facilities for tourists and sponsorship of events to promote tourism in the region. The proposed landfill facility would utilise the Waterfall Way as an access route. It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. It is considered views from Waterfall Way would be partially masked by existing vegetation and further obscured once vegetation in the offset area has matured. Mitigation measures proposed in the EA, including stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage, would be implemented and would reduce the likelihood of impacts to surface and groundwater. Impacts on the recreation value of the Blue Hole are not expected. Water quality monitoring would be undertaken downstream of the proposed landfill (upstream of the Blue Hole).
S042a_2	W4	As described in **Section 5.5** of the EA, Council will seek an operating licence to landfill putrescible material to accommodate the essential intermittent need for disposal of material for which stabilisation or composting is not a practical option. However, once the appropriate additional off-site sorting and/or treatment technologies are able to be employed, Council is proposing to operate the proposed landfill as a non-putrescible facility until final closure. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. Specialist studies indicate that the risk of contamination of the Gara River is very low. Any toxicity of leachate would be detected in monitoring wells and appropriately remediated in order to prevent impacts to the Gara River and surrounding environment.
S042a_3	P4	The landfill and pond design are based on recommended DECCW Landfill Guidelines Benchmark Techniques. The combination of composite landfill liner with a leachate collection system ensures maximum prevention of leachate leakage from the landfill into the surrounding environment. A review of available literature on the efficiency of different landfill linings was undertaken (refer **Appendix I** for detailed study). Although the Leachate Collection and Conveyance Systems have a finite life ranging from under 70 years to over 200 years, the system will have a higher operational life provided it is installed in accordance with the construction specifications including the CQA/CQC programmes and that the liner is protected from accidental tearing/piercing during construction. The LEMP will dictate efficient operation and management of the landfill to ensure landfill structures are used appropriately and the risk of leachate leakage from the landfill site is minimised. Any toxicity of leachate would be detected in monitoring wells (refer Surface and Groundwater Monitoring Program and Management Plan appended to the LEMP, **Appendix B** of the EA) and appropriately remediated in order to prevent impacts to the Gara River. Council would be required to monitor the site until leachate generation ceases and comply with other post-closure conditions as specified by the EPL and/or approval

		conditions. Council is committed to monitoring and rehabilitating the site and the proposed offset post-closure for a time yet to be specified in any approvals.
S042a_4	E3	Council staff and consultants had previously identified in relation to Site 7 that the facility was intended to operate essentially as a Solid Waste Class 2 or Non-putrescible landfill but would be licencing the facility as a Solid Waste Class 1 or Putrescible landfill. This is in order to cover the odd occasion when disposal of difficult putrescible material would be required where such material is not suited to the composting or stabilising process that would be adopted for the proposed AWT facilities at the Long Swamp Road site. As described in **Section 5.5** of the EA, Council will seek an operating licence to landfill putrescible material to accommodate the essential intermittent need for disposal of material for which stabilisation or composting is not a practical option. However, once the appropriate additional off-site sorting and/or treatment technologies are able to be employed, Council is proposing to operate the proposed landfill as a non-putrescible facility until final closure.
S042a_5	T2 AQ4	Traffic modelling has been undertaken as part of the EA and has determined that Waterfall Way would continue operating at Level of Service A, assuming an increase in traffic movements from the proposed landfill facility of 6 movements per day (one way), of which only 4 would be heavy vehicles . Given that the volume of waste to be directed to landfill is expected to decrease over time due to increasing recycling rates (refer to **Section 2.4**), traffic movements to the proposed landfill facility will remain stable or may decrease over time and thus potential impacts on traffic generation are considered acceptable. As noted above, traffic volumes are likely to decrease over time and therefore GHG emissions from fuel consumption will also decrease. The estimated GHG released would not trigger facility thresholds identified by the National Greenhouse and Energy Reporting (NGER) requirements.

[redacted]

20 August 2010

Felicity Greenway
Major Development Assessment
Department of Planning
GPO Box 39 Sydney NSW 2001

Dear Ms Greenway,

RE: PROPOSED ARMIDALE DUMARESQ LANDFILL 06_0220

Further to my letter of 3rd August last, I write to object to the above proposal on the following additional grounds:

1. **The process by which the preferred site has been selected is flawed (and most probably biased)**

Eleven sites were evaluated in the site selection process from which the Councils currently proposed site was selected (Maunsell Australia, March 2004, *Regional Landfill Siting Study*). Seven of the sites evaluated were identified "*between 1996 and 1998, following consultation with local real estate agents as to availability of land*" (Regional Landfill Siting Study Final Report March 2004 page 1). Two sites were added in 2002 following "*a Landfill Siting Study by the NSW Department of Public Works*". Two additional sites, one "*known as Site 10 that was then being offered for sale and also another "site" that combined Sites 3 and 4*" were added in 2004 (Maunsell Australia, March 2004).

Thus, 9 of the 11 sites evaluated in the selection of this site were identified by Real Estate Agents, 7 of which became candidates based on their (supposed) availability for purchase 13 years ago.

There are clearly serious questions about the propriety of placing such a heavy emphasis in selecting candidate sites for a fundamental piece of community infrastructure (and a major investment of Council funds) on the advice of a very narrow sector of the community who (as people who make a living from the proceeds of brokering land) have a clear commercial interest in the outcome. Further, it is has to be asked why such a transient factor as current availability to market, is considered a sound basis for deciding on an investment with a 50 year projected time horizon. S042b_1

Council makes a pretence of the process being objective and rational through application of a set of negotiated criteria and weightings in the comparative evaluation of the 11 short-listed sites. However, it is self-evident that the process by which sites have been identified for consideration in that comparative evaluation is patently flawed. For the community to have any confidence in this

process and the outcome, Council must conduct a transparent comprehensive 'triple-bottom-line" evaluation of all land within the catchment area, not just those few parcels identified by a select group of vested interests. S042b_1

2. Inconsistencies in Information Provided by Council.

In its documentation, Council provides conflicting information about key aspects of the operation of the site. It is impossible to have confidence in Councils processes or its ability to make good decisions on matters such as this when such uncertainties remain. Specifically, Council needs to clarify:

a. Projected lifespan for the site:

This is variously stated as 50 years (e.g. page 3 of the PEA) or 100 years (e.g. Table 22 Overview of Relevant Criteria and Sub-criteria for Site Selection Process, which states "*Capacity To Accept Defined Waste A 50 year capacity site is being sought, however possible expansion to a 100 year capacity will be ideal*"). Can Council please come clean - is the site to be operated for 50 years or are they really planning to make a later application to further extend it? S042b_2

b. Proposed technologies:

In the Armidale EA_For Exhibition April 2010 (p70) document Council refers to consideration currently being given to "*baling of waste at the WTS*" but is then silent on this matter. Council also refers variously to the possibility of using technologies to part-treat waste before delivery to the site e.g. Armidale EA_For Exhibition April 2010 page 41 states "*trials of equipment and processes that would enable Council to operate its proposed landfill as a "non-putrescible" landfill*" but then goes on to say "*concluded that the cost to Council to conduct a suitable trial of any of the proposed processes would be prohibitive*".

Issues such as these have a major bearing on the operation of the site and on the impacts on surrounding residents and the environment. The community is entitled to know whether Council is committed to implementing them or not. As currently presented, there is a strong sense that Council is trying to "have its cake and eat it as well" by remaining uncommitted but leaving a "carrot" hanging out. S042b_3

3. Inadequate Consideration of Environmental hazard at proposed site

Soils in the area of the preferred site are highly sodic. Tests conducted at Councils request confirm this e.g. Armidale EA_For Exhibition April 2010 p131 Table 24: Summary of Soil Salinity Results shows a B horizon mean ESP for instance as 14.3%. Sodic soils are highly dispersible and where subsoil is highly sodic (as is the case in this instance) prone to gullying particularly once the hard-setting protective upper layer is disturbed (as will occur in the construction and operation of the landfill site) and the area is subjected to intense rain during periods of low groundcover (as is frequent in the Armidale area). There is evidence of gullying in the landscape around this site (including on the images presented in the various reports). This raises serious concerns about the stability of the earth retaining walls and bunds (and about their capacity to cope with likely sediment yields which at present are calculated assuming only sheet erosion) being relied upon to protect the Gara River and downstream high value conservation areas from dangerously polluted run-off. It also raises questions about the assessment of soil erosion as only of moderate risk and relatively easily addressed. S042b_4

I trust that the above comments assist Government in making a sound decision.

Regards,

(signed)

[redacted]

Submission S042b

Issue Number	Topic	Response
S042b_1	P2 E3	As part of the site selection process, over 50 sites were evaluated since the mid-1990s. Sites were identified through several preliminary investigations involving 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 and consideration of sites within appropriate geological areas. The principles outlined in the document *Landfilling – EIS Guidelines* (DUAP, September 1996) were then used to develop appropriate criteria and weightings for the assessment of the potential landfill sites identified from the preliminary investigations. Criteria analysed during the site selection process included: • Strategic planning guidelines; • Statutory planning issues; • Ground and surface water environment; • Local amenity and environmental considerations; • Level of Service; • Adequacy of existing services; • Set-up costs; • Operational costs; • Site features required; and • Social issues. The relative importance of each primary criteria was weighted using a scale ranging from 'relevant' to 'essential'. The ranking process was determined to account for potential environmental issues and constraints as well as giving weightings to those criteria considered to be of greater significance for design purposes. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA). This concluded that the current site was the most suitable of the sites considered with respect to the assessment criteria determined as part of the site selection process.
S042b_2	P5	The proposed landfill facility is designed to operate for approximately 50 years based on estimated waste disposal to the landfill (15,000 tonnes per annum). The life of the landfill may exceed its 50 year design life if disposal rates are less than those used in the estimate. Once the landfill has reached capacity it will be capped and closed in accordance with DECCW requirements.
S042b_3	P3 P5	Council have considered the implementation of various AWT technologies. AWT refers to technologies such as 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 is currently trialling and evaluating AWT at the Long Swamp Road Waste Transfer Facility before full scale adoption and implementation. Further facilities and processes to recover materials for re-use will be added in future as markets and recovery costs dictate. A review of the costs of AWT technologies would be undertaken should the trial be successful and more accurate costing information is available based on its trial and adoption at the existing facility.

I have looked at the project information and while it is a well constructed and thorough document, it does not allay my concerns about the proximity of the proposed landfill site to the Gara River.
I know the area well and have bush walked there for more then 20 years. Similarly the down stream area at Blue Hole and Gara gorge are fantastic wilderness areas much loved by tourists and Armidale residents alike.

My major concern is seepage from the landfill site and its impact on the Gara River and the Macleay river system. S043_1

This is not to object to a new landfill site, but to question why an area so close to the Gara River has been proposed. S043_2

Are there no other sites of far less environemtal sensitivity available given the size of Armidale Dumaresq? S043_2

I hope that concerns and comments from Armidale residents will be taken into consideration of the proposal .

Name: [redacted]

Address:
[redacted]

IP Address: [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhlive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhiive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

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Submission S043

Issue Number	Topic	Response
S043_1	W4	Community concerns have been noted regarding potential for pollution of the Gara and Macleay Rivers through surface water runoff and leachate migration from the landfill and these issues are addressed in **Sections 8.3** and **8.4** of the EA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. The Hydrogeological (Leachate) Assessment (**Appendix I** of the EA) demonstrated that in the event that leachate enters the groundwater, diluted concentrations reaching downstream would not have significant impacts on the water quality of the Gara River or the Macleay River further downstream.
S043_2	P2	As part of the site selection process, over 50 alternative sites were considered for the proposed landfill facility since the mid-1990s. The principles outlined in the document *Landfilling – EIS Guidelines* (DUAP, September 1996) were used to develop appropriate criteria and weightings for the assessment of the potential landfill sites identified from the preliminary investigations. This considered heritage and ecological constraints. The outcome of the weighting and assessment identified that the current location was most suitable. It is considered that environmental impacts to the Gara River and surrounding area can be adequately managed with the mitigation measures identified in the EA.

As A concerned resident of Armidale I would like to oppose strongly to the new super dump. After driving the water fall way for more than twenty years the shear beauty of this experience has made this trip so enjoyable. Voted as one of the the fifth most scenic drives in Australia why would any one want to spoil that Please come to your senses and put the dump in A more appropriate place. Yours Faithfully [redacted] S044_1

Submission S044

Issue Number	Topic	Response
S044_1	SE3	It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. Impacts on visual amenity are addressed in **Section 8.16** of the EA. The proposed landfill is not expected to detract from the scenic value of the Waterfall Way. Visual montages of the various viewpoints considered existing trees and known tree heights in addition to the final profile of the proposed landfill mass (refer **Figures 30** to **35** of the EA). It should be noted that these montages did not take into account future screening from the proposed biodiversity offset area. It is noted that views towards the Project Site from Receivers 4 and 5 (and indicatively of the Waterfall Way) are considered to be reasonably significant, however these views would be partially masked by existing vegetation and further obscured once vegetation in the offset area has matured.

This is an issue that has been totally mismanaged by the Armidale Dumaresq Council . It is clearly an innapropriate site , and even a cursory examination of the geography of the site , would demonstrate this .Council , of course , have spent $1000's of our ratepayer dollars , on arriving at a totally stupid decision .
There are alternatives . Waste disposal is not going to go away despite positive developments w.r.t. recycling .Other population centres in our region , such as Tamworth , Inverell , Uralla , Gunnedah? and all the smaller centres in between , all face the same issues . How do we dispose of our un-recyclable waste ? S045_1
Near Barraba , which is geographically central to our region , there exists a large problem/solution in the form of the old asbestos mine site . This site has never been properly cleaned up , but at the same time , presents a perfect opportunity to "kill several birds with the same stone" . The economics would be compelling for the councils involved , it would put a totally disused site to work , and geographically / environmentally would be a solution .
But I very much doubt that several councils , several state authorities (EPA etc)and the feds on top , could agree on anything as a group . But for what it is worth , I put forward this solution to a common problem .

Name [redacted]
Organisation: private submission

Address:
[redacted]

IP Address [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhiive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhiive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

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Submission S045

Issue Number	Topic	Response
S045_1	P3	The need and strategic justification for the proposal is presented in **Section 2** of the EA. The existing Armidale Waste Management Centre landfill, currently used by both Armidale Dumaresq and Guyra Shire Councils, is almost at full capacity with only limited and unapproved possibilities for further expansion. In addition, other landfills in the region, used by Walcha and Uralla Shire Councils, will progressively reach their final capacities within 15 years and cannot accommodate the ongoing landfill needs of Armidale Dumaresq and Guyra Shire Councils. Therefore, Armidale Dumaresq Council proposes to develop a new regional landfill which would service the waste management needs of several local government areas within the region, as opposed to multiple, smaller scale landfills for each individual council area. The development of a regional landfill is considered to be the most efficient waste disposal solution for this region. The abandoned Woodsreef asbestos mine site near Barraba requires significant rehabilitation and safety works and there are potential health and safety risks associated with the site. The timeframe that would be required for rehabilitation of the site and feasibility analysis would likely be inappropriate to meet the urgent need for a new landfill for the Armidale region.

Armidale Dumaresq Council is 'unsustainable'.

How are we going to afford a new landfill that will cost at least 35 million dollars ? S046_1

Council have also said that a new waste processing treatment plant will be in operation prior to the tip being operational.

How much will this cost in addition to the new tip ?

If a large portion of the landfill cost is to ensure that the World Heritage Environment is protected then it also follows that a site which does not require the same levels of environmental security will be substantially cheaper.

I therefore wish to voice my strong objection to this proposal.

[redacted]

Submission S046

Issue Number	Topic	Response
S046_1	SE4	The estimated cost for the construction of the landfill is $14 million for the first two cells (which includes water and leachate collection and management systems, access road, amenities) and $10 million for the remaining three cells, a total of $24 million over the life of the landfill. The annual operational cost is likely to be in the order of $1 million per year. Council have considered the implementation of various AWT technologies. AWT refers to technologies such as MBT, thermal treatment or a combination of both MBT and thermal treatment. Council is currently trialling and evaluating AWT at the Long Swamp Road Waste Transfer Facility before full scale adoption and implementation. Further facilities and processes to recover materials for re-use will be added in future as markets and recovery costs dictate. A review of the costs of AWT technologies would be undertaken should the trial be successful and more accurate costing information is available based on its trial and adoption at the existing facility.

[redacted]
proposed Armidale Dumaresq Regional Landfill, 06_0220

this is my objection to the proposal landfill on the waterfall way, because:

S047_1

- My Family lives near by,it is one of the top three drives in australia and a major contributer to tourism in armidale and the New England.
- I go swimming in the blue hole which is three kilometres down stream and i dont want to be swimming in polluted water. S047_2
- noxious weeds and rubbish will spead in to near by properties. S047_3
- plus our waste removal rates could increase by more than 100% to pay for this. S047_4

Submission S047

Issue Number	Topic	Response
S047_1	SE3	It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. The proposed landfill facility would not significantly affect or impede tourism in the area and the proposed landfill is not expected to detract from the scenic value of the Waterfall Way. It is envisaged that views of the proposed landfill facility from Waterfall Way would be partially masked by existing vegetation and further obscured by offset vegetation once matured.
S047_2	SE2 W4	Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of the proposed landfill having downstream impacts to surface and groundwater. Impacts on the recreation values of the Blue Hole are not expected. Water quality monitoring would be undertaken upstream of the Blue Hole.
S047_3	FF4 V3	The potential impacts from weeds and litter are addressed in **Section 8.8** and **5.5.6** of the EA, respectively. The preparation and implementation of a WMP and management measures therein would minimise the spread of weeds within the proposed landfill site and to adjacent areas of native vegetation and neighbouring properties. Mitigation measures include actions to control existing weed infestations on the site prior to construction, use of a wheel wash facility for all vehicles entering or leaving the site to prevent transport of weeds and targeted monitoring and control of invasive species that are harmful to threatened species and EEC or other potential habitat for fauna species. Measures would also be identified in the VMP which would outline ongoing monitoring and follow-up controls of weeds that establish on disturbed areas, with particular attention to the eradication of noxious weeds.
S047_4	SE4	Council has the ability to raise funds by loans and any loan will be serviced by the waste management charge that is set by Council. Council has continually advised ratepayers that the proposed new landfill will be paid for by ratepayers by means of a landfill levy that was established in 2006 to fund the new landfill. This levy will be increased and decreased over the period of the staged loans that are required as landfill cells are developed and closed.

Dear Madam ,I am writing to convey my objection to the proposed Armidale Dumaresq Regional Landfill ,application number 06_0220.I have two main concerns S048_1

1 I have lived in this area all my life and therefore I know what happens when we have a rain event. Even a mild rain event (not storm) of 50 to 100mm is enough to cause uncontrollable runoff.With the proximity of this proposal to the Gara River (on which I live) I find this unacceptable.This leads to my second concern

2 Down stream from this Land fill will be the Oxley Wild Rivers National Park ,including the "Blue Hole",a popular recreation and swimming area .The Gara River is also habitat for platypus and other wildlife S048_2

I find it inconceivable that the dangerous leachate known to be contained in these landfills,could be allowed to be located so close to such areas knowing their containment was not assured. I hope you will too,thank you S048_3

[redacted]
ARMIDALE NSW

2350

Submission S048

Issue Number	Topic	Response
S048_1	W1 W3	Management measures proposed for the landfill are designed to prevent dirty water runoff during construction and operation of the proposed landfill facility. Mitigation measures include a geosynthetic liner system, water management system and leachate barrier and collection system. These measures have been designed in accordance with the DECCW Landfill Guidelines Benchmark Techniques. An assessment of potential construction and operational impacts on the surface water environment is provided in **Section 8.3** of the EA. With the implementation of environmental controls and mitigation measures to manage dirty stormwater runoff, leachate containment and emergency storage, the magnitude of impacts to surface water would be negligible. The water management system includes diversion drains that collect both the "clean" and "dirty" stormwater runoff. These drains will be designed to convey the peak flows from the 1 in 100 year ARI storm event from the catchment in accordance with Australian Rainfall and Runoff guidelines. The proposed Dry Basin incorporates adequate freeboard storage to contain the 24 hour duration, 1 in 100 year ARI surface runoff volume, which equates to 153 mm rainfall from the entire catchment area of the site. This design capacity will minimise the risk of contamination of downstream waters and is considered to provide adequate protection against heavy rainfall and ensure containment of onsite dirty water and leachate. The Water and Leachate Management Plan details all aspects of the design and operation of the Leachate Pond, Sedimentation Basin and Dry Basin.
S048_2	FF3 SE2 FF1	Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of downstream impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching downstream would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area. Impacts on the recreation values of the Blue Hole are not expected. Water quality monitoring would be undertaken downstream of the proposed landfill (upstream of the Blue Hole). An assessment of biodiversity including potential impacts of the proposed landfill facility on flora, fauna, habitat and the OWRNP is presented in **Appendix E** of the EA and summarised in **Section 8.8** of the EA. The assessment concluded that it is unlikely that the proposed landfill would have significant impacts on threatened species, such as the platypus, or EECs that may occur in the OWRNP.
S048_3	W4	The landfill and pond design are based on recommended DECCW Landfill Guidelines Benchmark Techniques. The combination of composite landfill liner with a leachate collection system ensures maximum prevention of leachate leakage from the landfill into the surrounding environment. The LEMP will set out procedures to ensure the efficient operation and management of the landfill and to minimise the risk of leachate leakage from the landfill site.

Re: Armidale Dumaresq Landfill Project (06_0220)

Dear Felicity,

I strongly object to the proposal to construct a dump on the Waterfall Way.

I have spent much time travelling overseas and around Australia and understand the significance of Armidale having a UNESCO World Heritage Property on our doorstep.

I would hate to see Armidale lose the Oxley Wild Rivers National Park World Heritage listing because of a poor and short-sighted decision by Council. Due to its International significance, a local council should not be allowed to jeopardise such an icon. Council has been typified by poor financial and environmental decisions in the past that have cost ratepayers. S049_1

I believe the construction of a dump in clearly the wrong location is setting up future generations for a hefty 'clean up' bill. S049_2

If it is going to cost $35 million dollars to build the dump it would be best to cut our losses now in order to save ourselves the future financial pain and save our World Heritage area. S049_3

[redacted]

Submission S049

Issue Number	Topic	Response
S049_1	H1	The heritage values of the GRAWHA have been considered in **Section 8.12** of the EA. The impact on the GRAWHA has been assessed under the EPBC Act and a referral lodged with DSEWPC (formerly DEWHA). The Commonwealth determined that the proposal constitutes a controlled action under the EPBC Act, however proposed environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching downstream would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area.
S049_2	SE4	The proposed landfill has been designed in accordance with the recommended DECCW Landfill Guidelines Benchmark Techniques. The costs for implementing the safeguards and controls at the site have been incorporated into the cost estimates for the project and significant additional remediation costs are not likely to be incurred as the management measures to be incorporated into the site, such as a surface water management system, leachate containment and storage system , will reduce the likelihood of off-site environmental and social issues. Consideration of the principles of Ecologically Sustainable Development (ESD), including Intergenerational Equity, is outlined in **Section 11.2** of the EA. The proposed landfill facility is part of Council's long term waste management strategy and has been planned to provide a service for the disposal of community waste for a period of 50 years or more. The landfill has been designed in accordance with the NSW EPAs Environmental Guidelines: Solid Waste Landfills and the detailed design will be aimed at achieving the most environmentally beneficial outcome for the effective treatment and disposal of waste so that the landfill operates effectively into the future and does not give rise to any long term environmental effects.
S049_3	SE4	The estimated cost for the construction of the landfill is $14 million for the first two cells (which includes water and leachate collection and management systems, access road, amenities) and $10 million for the remaining three cells, a total of $24 million over the life of the landfill. The annual operational cost is likely to be in the order of $1 million per year.

My primary objection to the proposed new landfill is based on the close proximity of the facility to the Gara River and the World Heritage-listed National Parks a short distance downstream. S050_1

This is compounded by the fact that:
- Armidale Dumaresq Council (ADC) has a history of poor management of it's existing landfill (a number of breaches of environmental legislation have been recorded at the existing landfill) S050_2
- ADC has engaged in what can only be called an obfuscation campaign with regards to the new landfill, applying for a licence which would allow it to accept all types of waste, yet publicly claiming that only inert waste would be accepted S050_3
- while the landfill will no doubt be constructed with state of the art materials, there is no guarantee that the design or the materials will forever prevent leakage into the Gara River and hence the World Heritage areas S050_4

On a more general point, you would think in the year 2010 that we would be in a position to use more advanced techniques for handling waste, rather than simply burying it in a big hole. And indeed, such techniques do exist, yet ADC does not appear to have explored any other options with any real enthusiasm. S050_5

Thank you.

Name: [redacted]
Organisation: Private

Address:
[redacted]

IP Address [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhiive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhiive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

Submission S050

Issue Number	Topic	Response
S050_1	E3	The proposed new landfill would be managed in accordance with the conditions of approval and conditions of the EPL for the site. Environmental management measures to be implemented on site would be documented in a suite of management plans to be prepared and implemented prior to construction.
S050_2	P6	The proposed new landfill facility will accept General solid waste (putrescible) in accordance with the EPL. No toxic or chemical wastes would be disposed of at the proposed landfill facility. Waste would be sorted at the existing Waste Management Centre prior to transportation to the proposed landfill. Compliance with EPL conditions would be regulated by DECCW.
S050_3	E3	Council staff and consultants had previously identified in relation to Site 7 that the facility was intended to operate essentially as a Solid Waste Class 2 or Non-putrescible landfill but would be licencing the facility as a Solid Waste Class 1 or Putrescible landfill. This is in order to cover the odd occasion when disposal of difficult putrescible material would be required where such material is not suited to the composting or stabilising process that is adopted for the proposed AWT facilities at the Long Swamp Road facility. It is noted that references to the disposal of inert waste may have been inadvertently misused. As described in **Section 5.5** of the EA, Council will seek an operating licence to landfill putrescible material to accommodate the essential need for disposal of material for which stabilisation or composting is not a practical option. However, once the appropriate additional off-site sorting and/or treatment technologies are able to be employed, Council is proposing to operate the proposed landfill as a non-putrescible facility until final closure.
S050_4	P4	The landfill and pond design are based on recommended DECCW Landfill Guidelines Benchmark Techniques. The combination of composite landfill liner with a leachate collection system ensures maximum prevention of leachate leakage from the landfill into the surrounding environment. The LEMP will set out procedures to ensure the efficient operation and management of the landfill and to minimise the risk of leachate leakage from the landfill site. A review of available literature on the efficiency of different landfill linings was undertaken (refer **Appendix I** of the EA). The LEMP will set out measures to be implemented to ensure the risk of leachate leakage from the landfill site is minimised. Council would be required to monitor the site until leachate generation ceases and comply with other post-closure conditions as specified by the EPL and/or approval conditions. Council is committed to monitoring and rehabilitating the site and the proposed offset area post-closure for a time yet to be specified in any approvals.
S050_5	P3	Council have considered the implementation of various AWT technologies. AWT refers to technologies such as 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 is currently trialling and evaluating AWT at the Long Swamp Road Waste Transfer Facility before full scale adoption and implementation. Further facilities and processes to recover materials for re-use will be added in future as markets and recovery costs dictate. A review of the costs of AWT technologies would be undertaken should the trial be successful and more accurate costing information is available based on its trial and adoption at the existing facility.

I object to the "Proposed Armidale Dumaresq Regional Landfill, 06_0220"

Please see below;

Some years ago I wrote a letter to the editor on this subject.
I feel compelled to send it again 6 years later.

Recently, I learned of the Armidale Dumaresq Council's plan to implement a dump site 10kms from Armidale on the Waterfall Way and it is with dismay that I write expressing my feelings regarding this topic.

I find it hard to believe that the ADC would even consider this location for a dump. Maybe they could have their trucks unload their rubbish directly into the scenic Gara gorge or turn the pristine waters of the "Blue Hole" into a disgusting quagmire more aptly named the "Muck Hole"? S051_1

Has council sort the opinions of the locals in that area regarding the proposed dump? Have their concerns been considered? One would hope and even assume that council has considered the effects of its actions not only on the environment but also on those living within close proximity to the proposed site. However I'm not sure that is necessarily the case. S051_2

We are lucky in Armidale to have the beauty of the Waterfall Way as our entrance to city. Many travelers stop by the roadside to break their journey while enjoying the majestic scenery of the Waterfall Way. A dump just outside the city on such a scenic route is not what this city needs or wants. S051_3

Tourists pay good money to enjoy Scenic fights over the gorge country. Will they be treated to a big muddy mess in the form of Council's contribution to the landscape. S051_4

Has the ADC really thought about the overall picture this is creating for our city? I believe not.

I'm know I am not alone when I recommend that council take their toxic dump to an area that will not impact on the environment. Maybe even make use of the rail network ? S051_5

[redacted]

Submission S051

Issue Number	Topic	Response
S051_1	P2	As part of the site selection process, over 50 alternative sites have been considered for the proposed landfill facility since the mid-1990s. The principles outlined in the document *Landfilling – EIS Guidelines* (DUAP, September 1996) were used to develop appropriate criteria and weightings for the assessment of the potential landfill sites identified from the preliminary investigations. The outcome of the weighting and assessment identified that the current location was most suitable. It is considered that environmental impacts to the Gara River and surrounding area can be adequately managed with the mitigation measures identified in the EA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of downstream impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching downstream would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area. Impacts on the recreation values of the Blue Hole are not expected. Water quality monitoring would be undertaken downstream of the proposed landfill (upstream of the Blue Hole).
S051_2	C1	**Section 7** of the EA describes the consultation that has been undertaken during the environmental assessment process to date. Consultation with the community was strategically planned and targeted to include landowners nearest the proposal, as well as residents along the transport route, specialist interest groups and the wider community. A range of media have been used during community consultation, including newsletters, website updates, media releases, public displays and direct contact with neighbouring landowners. Key issues raised by the public have been considered during the preparation of the EA and specialist studies to support the EA.
S051_3	SE3	The proposed landfill facility would utilise the Waterfall Way as an access route. It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. It is also noted that the Waterfall Way is an existing haulage route for several existing facilities in the region. It is envisaged that views of the proposed landfill facility from Waterfall Way would be partially masked by existing vegetation and further obscured by offset vegetation once matured. The proposed landfill facility would not significantly affect or impede tourism in the area and the proposed landfill is not expected to detract from the scenic value of the Waterfall Way.
S051_4	V1	Visual montages from various receptors were considered as part of the EA. All existing trees and known tree heights were included in the visual montages in addition to the final profile of the proposed landfill mass (refer **Figures 30** to **35** of the EA). It should be noted that these montages did not take into account future screening from the proposed biodiversity offset area. It is acknowledged that views from the air are not able to be masked to the extent of ground level views. However, several measures will be implemented during the operation of the proposed landfill that will indirectly accommodate visual absorption capacity such as daily covering of waste, capture and removal of windblown litter and sympathetic building design (including suitable colour schemes).
S051_5	P3	The use of the existing road network to transport waste to the proposed site on Waterfall Way would result in a minor increase in traffic (up to 6 movements per day) and would not decrease the level of service of the road (refer **Section 8.14** of the EA). Considering the volume of waste expected to be disposed of at the proposed landfill facility each day, transport via rail is unlikely to be economically viable.

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With regard to the proposed new landfill site east of Armidale just off the Waterfall Way I as a ratepayer of the Armidale council request that council must put up alternative sites for a new landfill. There have to be better options for the location of a landfill than in an area where the potential of contamination of a waterway and an adjacent World Heritage area exists. Council follows strict environmental guidelines when it comes to new developments and erection of new dwellings in its rural surroundings and it should apply the same rules to its own activities.

S052_1

Name: [redacted]

Address:
[redacted]

IP Address: [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhiive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhiive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

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Submission S052

Issue Number	Topic	Response
S052_1	P3	As part of the site selection process, over 50 alternative sites have been considered since the mid-1990s for the proposed landfill facility. Sites were identified through several preliminary investigations, in consultation with the Department of Mineral Resources regarding the availability of current and former extractive industry sites and consideration of sites within appropriate geological areas. The principles outlined in the document *Landfilling – EIS Guidelines* (DUAP, September 1996) were then used to develop appropriate criteria and weightings for the assessment of the potential landfill sites identified from the preliminary investigations. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA) and provided further detail of the site selection process. The landfill siting study concluded that the current site was the most suitable of the sites considered with respect to the assessment criteria determined as part of the site selection process.

[redacted]

Dear Sir/Madam,

We wish to lodge an objection to the proposed Armidale Dumaresq Regional landfill proposal.

It will have significant detrimental impact on our business 300 metres from the Landfill site boundary. S053_1

The establishment of a new Regional Council and possible management and operation of the Landfill by external contractors means that the raft of 'commitments' supplied by the proponent is fanciful. S053_2

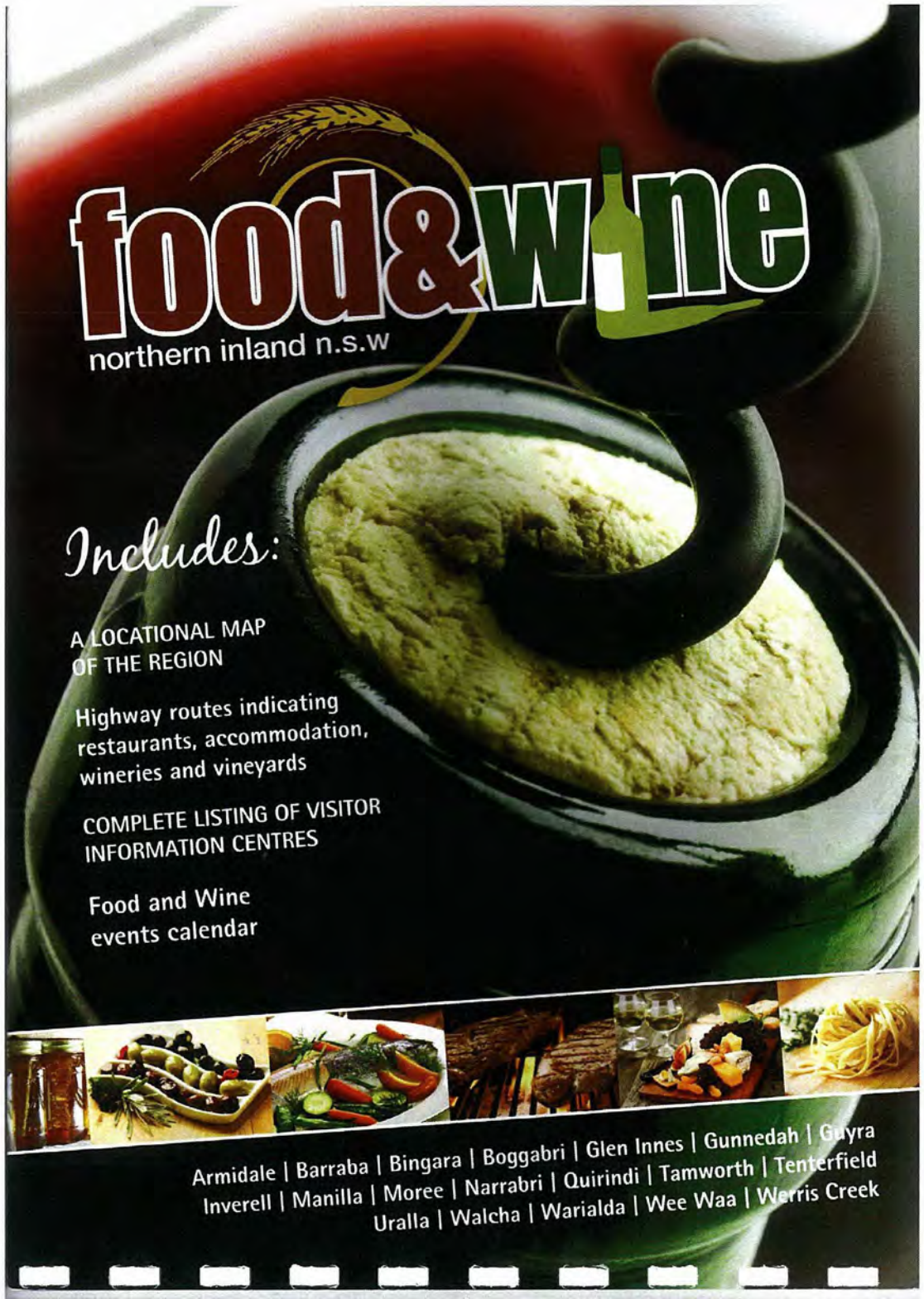
In 50 years time and 20 changes of Councillors is anyone really going to remember Council's commitment to inspect the landfill site daily for faecal droppings. S053_2

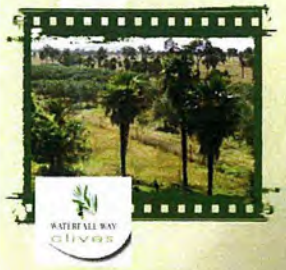
The prime consideration by the contractor is not impacts on neighbouring businesses but making financial gain. S053_2

Due to loss of amenity, dust, insect, noise, disease, predatory bird and vermin impacts we fear that the grove 'amidst the pristine ranges' will be referred to as the 'grove next to the tip' and will lose its reputation as described in the below Food and Wine Guide S053_3

Guests attending the olive and feijoa grove for tastings, field days and cellar door operations will be struck by the landuse and amenity conflict resulting from an adjoining regional dump. Tasting a delicious 'Spanish Style' olive to the sound of compactor 'reversing beepers', low frequency rumblings and the 'whiff' of the rotting waste and animals next door is unacceptable. S053_4

Guests will also be greeted by a new intersection adjacent to our boundary on the Waterfall Way proudly displaying signage to the new REGIONAL LANDFILL. S053_5





39 (I8) WATERFALL WAY OLIVES
"Strathaven" 1060 Waterfall Way, Armidale NSW 2350

Sarah & Christian Quaife • Telephone(s): 02 6771 2721 • Mobile: 0447 712 722 • Email: waterfallwayolives@activ8.net.au

Amidst the cool pristine ranges of New England's Waterfall Way lies the home of exceptional quality cool-climate premium extra virgin olive oil and olive products. Waterfall Way Olives are located 10km East of Armidale on the scenic Waterfall Way. The quality of our oil is the result of an early-harvest, cold-pressed process, resulting in a unique and prized extra-virgin olive oil, recently winning a medal at the 2008 Sydney Royal Show Fine Food Show.
Our products are available from the Armidale Visitor Information Centre and Monk's Health Emporium in Armidale.

Orders: Phone, Email
Open: By appointment only.

40 (H9) FRESHLY BERRIED – "Jarradene" 819 Sandon Road, Armidale NSW 2350

Cheryl & Shane Andrews • Telephone(s): 02 6775 3807 (message bank only) • Mobile: 0427 753 808 • Email: shandrews@bigpond.com

Our blackberries and raspberries are locally grown east of Armidale, nestled on the edge of Baker's Creek Gorge. We offer the discerning consumer a range of home-made berry jams and sauces, with unique combinations to provide a true taste sensation! Our charming selection of preserves range from family favourites to gourmet delights. Many offer an individual blend of flavours for a modern twist on traditional jams. From our farm direct to you:- Home grown, Hand-picked and Home-made! We are regionally famous for our berry ice-creams and desserts. Our fresh berries are marketed locally when in season (usually Dec. & Jan). Freshly Berried ..... berries to die for!

Orders: Phone, Email. Local wineries, cafes & Visitors Centre stock our products
Open: Seasonally attend Armidale monthly markets (last Sun. of each month)
Facilities: Market stall, Food & Wine festivals, sorry – berry farm not open direct to the public.

41 (H9) MIHI CREEK VINEYARD – "Mihi Creek" 1292 Enmore Road, Mihi NSW
22km south-east of Armidale on the Enmore Road and 30klms east of Uralla

Andrew & Belinda Close • Telephone(s): 02 6778 2166 • Mobile: 0428 782 166 • Email: mihicreek@nsw.chariot.net.au • Website: mihicreek@bluepin.net.au

Mihi Creek Vineyard is situated at 1000 metres above sea level in the cool climate region of New England Australia. It was originally part of a large sheep and cattle property Mihi Station and the current owners Andrew & Belinda Close purchased (178.1Ha) 440 acres in 2001 with the first vines planted in 2003. The (1.82Ha) 4.5 acre boutique vineyard consists of four varieties, sauvignon blanc, viognier, pinot noir and merlot. The first four vintages have produced wines of distinction and attractive qualities.

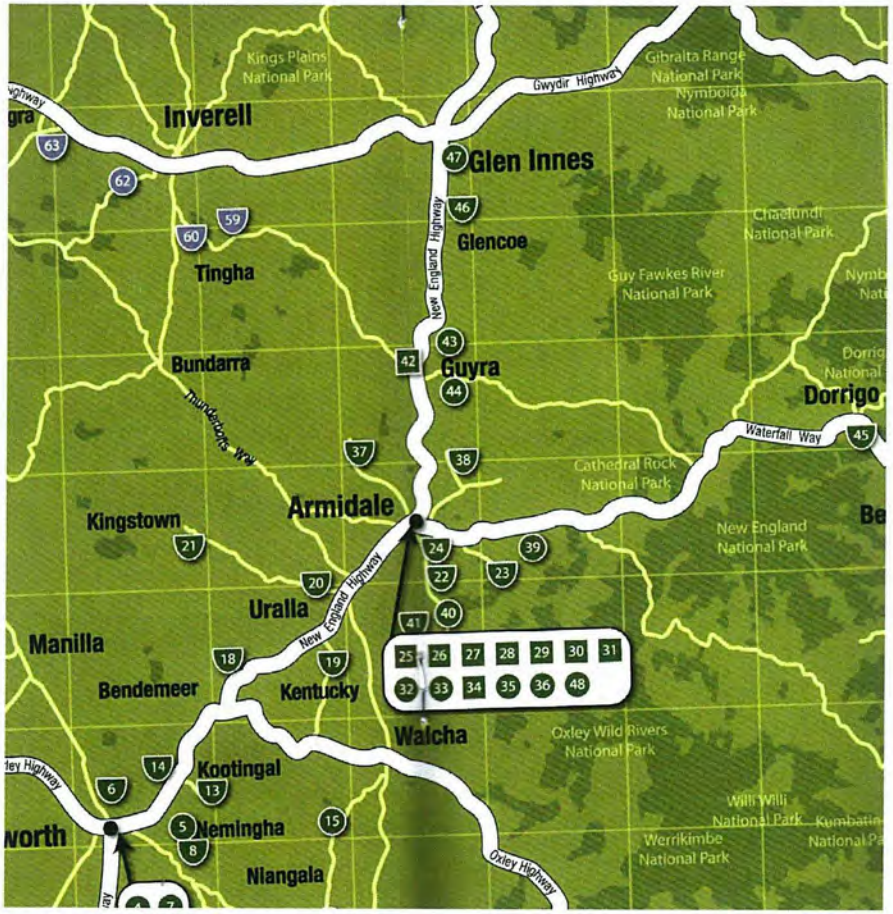
Orders: Mail order, Phone, Email
Open: By appointment only
Facilities: Accommodation, Vineyard Tours, Disabled Access

42 (H7) RAFTERS RESTAURANT - New England Highway, Guyra NSW 2365

Peter and Narelle Malcolm • Telephone(s): 02 6779 1876 • Mobile: 0411 182 935 • Fax: 02 6779 2806 • Email: raftersofguyrainfo@bigpond.com

Rafters for a la carte dining, cosy log fire, relaxed atmosphere. Café for great coffee, breakfast, cakes and lunches - choose from hearty or light, even take away. Our Thai Menu is available day and night. Our Dine or Drink Licence allows you to drop in for a quiet drink. Regional foods and wines our speciality. With recent extensions we are able to cater for all types of functions. Also incorporated within our business is the Guyra Visitor Information Centre.

Orders: Shopfront sales, Phone
Open: Tues to Sat 8 am till late, Sun 8am till 3pm,closed Mon unless group booking, Christmas Day, New Years Day and Good Friday
Facilities: Buses welcome, Disabled facilities, Café, Restaurant



Submission S053

Issue Number	Topic	Response
S053_1	SE1	An analysis of the socio-economic impact of the proposed landfill facility was undertaken and described in **Section 8.9** of the EA. Management measures have been provided throughout the EA relating to visual (including amenity issues), transport and traffic, air quality, noise, surface water, groundwater, flora, fauna, heritage issues and land use issues where they may have socio-economic impacts. The proposed management measures to be implemented at the new landfill site are designed to ensure all contaminants are contained on site and will minimise other environmental impacts (such as noise, visual amenity, disease/pest management, air quality) on adjacent land uses. The proposed landfill facility would not restrict the development of other agricultural industries or businesses in the vicinity.
S053_2	P6 P3	Council will be required to operate within the limits and conditions imposed by the site's EPL and approval requirements. Should Council elect to use a Contractor to manage the proposed landfill on its behalf, the Contractor would work under a contract which states strict performance indicators to ensure correct operation of the landfill. The Contractor would also be required to operate the landfill in accordance with the EPL and any approval conditions. The need and strategic justification for the proposal is presented in **Section 2** of the EA. **Section 1.3** of the EA sets out the objectives of the proposal, including the key objective which is to provide a new regional landfill which would service the waste management needs of several local government areas within the region. Financial gain for the Council is not an objective for the project and the development of a regional landfill is considered to be the most efficient waste disposal solution for this region.
S053_3	SE1	Armidale Dumaresq Council supports the promotion of tourism in the region and has considered the potential impacts of the proposal on tourism, including potential impacts on the olive grove on the adjoining property. The proposed management measures to be implemented at the new landfill site are designed to ensure that environmental impacts (such as noise, visual amenity, disease/pest management, air quality) are minimised on-site as well as to adjoining properties. It is also anticipated that there will be minimal impact on the reputation of the region as a centre for food tourism as a result of the proposal.
S053_4	N1 AQ1	Noise impacts during construction are expected to arise from the equipment used in ancillary site preparation works, including the partial clearing of the site, the construction of the site access and maintenance roads, drainage works, landscaping works and some excavation of the landfill area. A worst-case scenario was used to model construction noise where the equipment is predominantly working at the extremities of the construction area nearest to Receiver 1 (Strathaven). Similarly, a worst-case scenario was used to model operational noise from the Project Site and traffic noise generated from haulage trucks and other vehicles. With the mitigation measures implemented, including noise attenuation on dozers, excavators, scrapers and compactors and use of sound output adjusting reversing alarms, the proposed development would be expected to comply with the environmental criteria for the site under the neutral meteorological conditions that have been shown to be typical of the site. Noise levels at Receiver 1 (Strathaven) and in the vicinity of the olive grove would comply with the environmental criteria for the site, with minimal impacts to noise level amenity. An Air Quality Impact Assessment (AQIA) was undertaken as part of the EA. The

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		impacts of emissions from the proposed landfill facility have been assessed by comparing predicted dust and odour levels with the existing ambient air quality and the relevant air quality criteria. Odour emissions from the site are predicted to be within acceptable levels as set by DECCW (i.e. 7 odour units at the 99th percentile) at the nearest receivers and at the boundary of the site.
S053_5	T4	Suitable signage for the landfill is required to ensure safety at the intersection is maintained, however signage provided would be visually sympathetic, informative and of an appropriate size so as not to be too intrusive.

S054_1

This is one of the most short-sighted and potentially damaging plans I have come across in quite some time. The potential for pollution of the surrounding water table and river systems is massive and such a project should NEVER be considered as suitable for a location within or even remotely near World Heritage National Parks OR waterways, especially waterways that will ultimately end up in other people's drinking water. The entire proposal is utter stupidity.

S054_2

And yes, that is strong, because it really IS a stupid idea.

The Oxley Wild Rivers area is one of very few that are still relatively pristine and the biodiversity in this region is amazing. Enough of the world and Australia has been trashed already. PLEASE do NOT trash this area!!

S054_3

Essentially this project will cause irreparable damage to World Heritage National Parks, including the Gara River, Gondwana Rainforests, Macleay River and Oxley Wild Rivers National Park. It is already well-proven that the leachate from landfill is highly corrosive and will eventually degrade the landfill liners and escape into the groundwater and river systems. Proposing to place a dump of this nature near areas of pristine wilderness and/or high biodiversity is nothing short of environmental vandalism and Council should be criminally liable if the project goes ahead.

S054_3

S054_4

Added to that, the escape of weeds and noxious plant species from the dump into the surrounding natural environment will result in further degradation of habitat in these beautiful areas of high natural biodiversity. Just some of the species that will be detrimentally affected are koalas, rare birds such as the Diamond Firetail and Speckled Warbler and the already critically-endangered Box Gum woodland.

S054_5

Landfill is well known for emitting toxic and greenhouse gases and chemicals. Landfill gas from breakdown of rubbish is about 40-60% methane and the rest carbon dioxide. Council is considering flaring the landfill gas, but if they go ahead and do this, the resulting gases will contain of highly toxic and carcinogenic compounds, such as dioxin and mercury, which will ultimately end up in the surrounding natural environment. This is nothing short of deliberately proposing to trash a highly valued World Heritage wilderness area!

S054_6

In 2007, the Australian Government?s Environmental Protection and Biodiversity Committee (EPBC) ruled that the Council?s proposed landfill ?will, or is likely to, have a significant impact upon World Heritage values? in the Oxley Wild Rivers National Park.

The evidence and reports are already in. Why is Council continuing to even consider this project? Please explain how this location was EVER able to be considered for such a project.

S054_7

In summary, the proposed project is totally inappropriate for such a location and should be abandoned. PLEASE do NOT trash one of our few remaining World Heritage areas. Council does NOT have the right to destroy an area National Significance. This project MUST not go ahead.

Name [redacted]

Address:
[redacted]

IP Address: [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhiive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhiive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

Submission S054

Issue Number	Topic	Response
S054_1	W4	Community concerns have been noted regarding potential for pollution of the Gara River through leachate migration from the landfill and these issues are addressed in **Sections 8.3** and **8.4** of the EA. **Section 8.12** of the EA addresses National Environmental Heritage (Oxley Wild Rivers National Park) which supports the GRAWHA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater to negligible levels and the proposal is unlikely to have adverse impacts on the OWRNP or the World Heritage Area.
S054_2	O1	Management measures proposed for the landfill are designed to prevent dirty water runoff during construction and operation of the proposed landfill facility. Mitigation measures include a geosynthetic liner system, water management system and leachate barrier and collection system. These measures have been designed in accordance with the DECCW Landfill Guidelines Benchmark Techniques. With the implementation of environmental controls and mitigation measures to manage dirty stormwater runoff, leachate containment and emergency storage, the magnitude of impacts to surface water, including drinking water, would be negligible. It is considered that the proposed development would not pose a significant risk to human health or the biophysical environment, either during construction or operation. This is due to the implementation of comprehensive measures that will ensure that neither hazardous nor offensive discharges from the development site would occur. Council is committed to ensuring the proposed landfill facility is operated so that any emissions are in accordance with environmental health regulations and guidelines stipulated within relevant local, State and Federal Government policies and legislation.
S054_3	FF3	An assessment of biodiversity including potential impacts of the proposed landfill facility on flora, fauna and habitat was presented in **Appendix E** of the EA and summarised in **Section 8.8** of the EA. **Section 8.12** of the EA addresses National Environmental Heritage including the OWRNP which supports the GRAWHA. Direct and indirect impacts to flora and fauna will be managed through implementation of the mitigation measures proposed in the EA, which will be documented in a suite of management plans to be prepared for the site. Further details of the contents of these plans are provided in Section 4 of the Flora and Fauna Assessment (**Appendix E** of the EA). These plans will be developed during detailed design of the landfill and prior to construction. The plans would be prepared in consultation with relevant government agencies (e.g. DECCW and DSEWPC) and in accordance with best practice guidelines, to ensure that measures to mitigate potential impacts of the proposal on flora and fauna are implemented and effective.
S054_4	W4	The landfill and pond design are based on recommended DECCW Landfill Guidelines Benchmark Techniques. The combination of composite landfill liner with a leachate collection system ensures maximum prevention of leachate leakage from the landfill into the surrounding environment. A review of available literature on the efficiency of different landfill linings was undertaken (refer **Appendix I** for detailed study). Although the Leachate Collection and Conveyance Systems have a finite life ranging from under 70 years to over 200 years, the system will have a higher operational life provided it is installed in accordance with the construction specifications including the CQA/CQC programmes and that the

		liner is protected from accidental tearing/piercing during construction. The LEMP will dictate efficient operation and management of the landfill to ensure landfill structures are used appropriately and the risk of leachate leakage from the landfill site is minimised. Any toxicity of leachate would be detected in monitoring wells (refer Surface and Groundwater Monitoring Program and Management Plan appended to the LEMP, **Appendix B** of the EA) and appropriately remediated in order to prevent impacts to the Gara River. Council would be required to monitor the site until leachate generation ceases and comply with other post-closure conditions as specified by the EPL and/or approval conditions. Council is committed to monitoring and rehabilitating the site and the proposed offset area post-closure for a time yet to be specified in any approvals.
S054_5	FF4 FF2	The potential impacts from weeds are addressed in **Section 8.8** of the EA. The preparation and implementation of a WMP would aim to minimise the spread of weeds within the proposed landfill site and to adjacent areas of native vegetation. The plan would provide actions to control existing weed infestations on the site prior to construction, utilise a wheel wash facility for all vehicles entering or leaving the site to prevent transport of weeds, and provide targeted monitoring and control of invasive species that are harmful to threatened species and EEC or other potential habitat for fauna species. Measures would also be identified in the VMP which would outline ongoing monitoring and follow-up controls of weeds that establish on disturbed areas, with particular attention to the eradication of noxious weeds. An assessment of biodiversity including potential impacts of the proposed landfill facility on threatened species such as the Box-gum woodland and threatened birds was presented in **Appendix E** of the EA and summarised in **Section 8.8** of the EA. The impacts will be minimised through implementation of the mitigation measures outlined in **Section 8.8.16** of the EA and **Section 4** of the Flora and Fauna Assessment. Mitigation measures proposed include minimising the extent of clearing; staged approach to clearing; progressive rehabilitation and revegetation of spent landfill areas; and provision of approximately 61 hectares of compensatory habitat (biodiversity offset). Impacts to threatened species such as the Box-gum woodland and threatened birds, will also be managed through implementation of a suite of management plans including a VMP, Biodiversity Offset Management Plan (**Appendix H** of the EA), Vegetation Clearing Protocol and Native Fauna Management Plan. Further details of the contents of these plans are provided in Section 4 of the Flora and Fauna Assessment (**Appendix E** of the EA). These plans will be developed during detailed design of the landfill and prior to construction. The plans would be prepared in consultation with relevant government agencies (e.g. DECCW and DSEWPC) and in accordance with best practice guidelines and Recovery Plans for threatened species.
S054_6	AQ4 HR2 W4	GHG emission sources for the proposed landfill include emissions resulting from fuel use on site, vegetation clearance, landfill gas emissions and use of electricity. A GHG assessment has been undertaken as part of the EA (refer **Section 8.6** of the EA) and in accordance with EPA Landfill Guidelines Benchmark Technique Number 11 – Extraction and Disposal of Landfill Gas. The assessment considered construction and operational greenhouse gas emissions. Landfill methane emissions were considered as part of the GHG assessment. Suitable options to manage landfill gas have been presented, including: • Methane oxidation cap; • Passive venting and using a filter (e.g. activated carbon or the like) to reduce emissions; and

		• Landfill gas collection system and flaring of methane (combustion conversion to CO2). The most suitable option would be determined and implemented at the proposed landfill facility once data confirming landfill gas quantities is collected from the operational landfill. Substances such as mercury and dioxin compounds are not expected to be produced within the landfill due to the type of waste received – no hazardous or chemical waste would be received. As such, the release of these compounds in the local surface water system would not occur. Further, stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater.
S054_7	P2	As part of the site selection process, several alternative sites were considered for the proposed landfill facility including sites within several of the surrounding LGA's. During the site selection process over 50 potential sites were evaluated. The site selection process included consideration of environmental impacts and their likely magnitude at each site. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA) and concluded that the current site was the most suitable of the sites considered with respect to the identified criteria.

Being an avid fisherman and canoeist in the Macleay River, I do not want toxic ?garbage juice? to impact on this highly sensitive area. S055_1

Bags, paper and other pollution that will blow into the Gara River will end up in the Macleay floating downsteam. S055_2
Already contamination from the tablelands, notably from the Hillgrove mine has made its way downstream to the Kempsey area.

If Council manage their proposed site as poorly as their current tip site we will have another Armidale Gasworks, Martin St, Yarrandoo or Hinton Collection debacle. S055_3

I support the views of the Gara Valley Environment Preservation group and object to this proposal.

Name: [redacted]

Address:
[redacted]

IP Address: [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhlive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhlive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

Submission S055

Issue Number	Topic	Response
S055_1	W4	Community concerns have been noted regarding potential for pollution of the Gara River and downstream waterways, such as the Macleay River, through surface water runoff and leachate migration from the landfill. These issues are addressed in **Sections 8.3** and **8.4** of the EA. A range of environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater.
S055_2	V3	A Pollution and Litter Management Plan for the operation of the landfill would be prepared and implemented for the site to ensure litter is contained. Measures to be included in this plan include a combination of the following: • Portable litter fences around the tipping face. • Ensuring that all wind blown litter that leaves the site is retrieved and clearing of litter from fences and gates as required. • Regular inspection of all litter fences, perimeter fences and gates. • Suitable covering procedures (refer Section 5.5 of the EA). The Pollution and Litter Management Plan would comply with the relevant conditions set out in the EPL and Project Approval regarding litter management. These measures will reduce the likelihood of windblown litter escaping the site thereby minimising the likelihood of litter from the proposed site ending up in the Gara or Macleay Rivers.
S055_3	P6	The design and management of the proposed landfill facility would meet or exceed the current landfilling guidelines and DECCW requirements. The proposed landfill facility would be operated in accordance with the conditions set out in the EPL, regulated by DECCW.

[redacted]

Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

SUBJECT: ARMIDALE DUMARESQ LANDFILL PROJECT PROPOSAL (06 0220) – OBJECTION TO PROPOSAL

To Whom It May Concern:

We are strongly opposed to the new Landfill that Armidale Dumaresq Council wants to build just off Waterfall Way next to the Gara River.

We voice our objections because we are extremely concerned about the following major issues, which we will break into 2 broader categories.

1. Everyday issues.
2. Long term effects.

There are numerous '*everyday*' concerns that we firmly believe need to be investigated further. These potential issues are:

- The quality of air –including offensive odours and omissions of highly toxic and carcinogenic compounds, which may occur if council were to consider flaring and high temperature incineration of the landfill in the future. As residents in this area we do not want to subject our health to any risks by breathing in such toxins. S056_1
- Our primary business is to produce fine wool. We are not in favour of the insects- such as flies that the landfill would produce. We will therefore have to spend a lot more money on preventative chemical products to keep the flies at bay from our sheep. S056_2
- Fire is of great concern, especially with regards to the waste being condensed and transported to the proposed site, which will possibly lead to combustion. As there is no fulltime caretaker (to our knowledge) at the landfill site- who will be there to control any outbreak? S056_3
- The noise will detract from the tranquillity of country life with constant 'beeping' from machinery reversing. S056_4

The '*long-term*' effects that we are concerned about include:

- We are members of the Cooney Creek Land Care Group (adjacent to Gara) and do not want to see the Gara catchment put under any duress as there are potentially significant leachates that could eventually end up in the river system. S056_5

- It is currently a joy for our young family to cross the Gara River (on Gara Road) daily, as it is habitat to numerous species of water birds such as wood duck, black duck and water hens. There is a growing black swan population that breed at this site and the crossing is also home to many platypus colonies. It would be devastating if these species were to be put at risk- being so close to the proposed landfill site. S056_6

- Finally, we are not happy at the thought of our land value decreasing as a result of this proposed landfill development so close to Armidale and the Gara River. S056_7

Yours truly,

[redacted]

Submission S056

Issue Number	Topic	Response
S056_1	AQ1 HR2 O1	Odour emissions from the site are predicted to be within acceptable levels at the nearest receivers and at the boundary of the site. Standard management strategies for landfill sites would be employed including a sub surface gas and surface gas monitoring programme, and the daily covering of waste. A complaints hotline would be set up in accordance with EPL requirements. Substances such as mercury and dioxin compounds are not expected to be produced within the landfill due to the type of waste received – no hazardous or chemical waste would be received. As such, the release of these compounds would not occur. Actively collecting landfill gasses with a landfill gas collection system and flaring the methane has been considered an option for the future of the landfill with regard to management of landfill gas. Other options include: • The application of a methane oxidation cap; and • Passive venting and using a filter (e.g. activated carbon or the like) to reduce emissions. The most suitable option would be implemented at the proposed landfill facility however this would not be known until the facility has been in operation and once accurate quantities of gas produced by the landfill have been determined. High temperature incineration of the landfill has not been considered as an option. The proposed development would not pose a significant risk to human health during construction or operation. This is due to the implementation of comprehensive measures that will ensure that neither hazardous nor offensive discharges from the development site would occur. Council is committed to ensuring the proposed landfill facility is operated so that any emissions are in accordance with environmental health regulations and guidelines stipulated within relevant local, State and Federal Government policies and legislation.
S056_2	O2	It is unlikely that the proposed landfill will significantly increase insect numbers, including flies, in areas outside of the immediate vicinity of the landfill footprint. Daily cover of the landfill would discourage insects, such as flies, and vermin and reduce odour emissions. A complaints hotline would also be set up in accordance with EPL requirements.
S056_3	HR1 P6	A Fire Management Plan would be prepared and implemented for the landfill site (including the surrounding bushland) which would provide for monitoring of fuel loads, fuel reduction techniques and other management controls. The potential for explosions will be minimised through the implementation of gas accumulation monitoring, remediation of uncontrolled landfill gas emissions, as well as controlled burning at the site periphery. Suitable fire fighting equipment would be kept on site and an Emergency Response Plan would be prepared to provide management measures for identified hazards during construction and operation.
S056_4	N3	An assessment of noise impacts was undertaken and is summarised in **Section 8.7** of the EA. A worst-case scenario was used to model construction noise where the equipment is predominantly working at the extremities of the construction areas nearest to sensitive receivers. Similarly, a worst-case scenario was used to model operational noise from the Project Site and traffic noise generated from haulage trucks and other vehicles. Considering the low existing background noise levels at the site and surrounding areas, reversing alarms which automatically adjust output sound levels based on ambient noise levels would be fitted to heavy vehicles. In addition noise attenuation on dozers, excavators, scrapers and compactors would be

		implemented. With the implementation of these noise mitigation measures, the proposed development would be expected to comply with the environmental criteria for the site under the neutral meteorological conditions that have been shown to be typical of the site, with minimal impacts to noise level amenity.
S056_5	W4	Community concerns have been noted regarding potential for pollution of the Gara River through leachate migration from the landfill and these issues are addressed in **Sections 8.3** and **8.4** of the EA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching the downstream Gara River would not degrade the existing water environment.
S056_6	FF1	An assessment of biodiversity including potential impacts of the proposed landfill facility on flora, fauna, habitat and the OWRNP is presented in **Appendix E** of the EA and summarised in **Section 8.8** of the EA. The assessment concluded that it is unlikely that the proposed landfill would have significant impacts on threatened species, such as the platypus, or EECs that may occur in the OWRNP. In addition, adverse impacts on water quality as a result of the proposal are not likely; therefore there would be minimal impact to water birds using the Gara River.
S056_7	SE5	The Project Site is located some 10 km from the town of Armidale, and maintains some screening from the north at the Waterfall Way where an area of dense vegetation abuts the road. The closest residential property is located approximately 400 m south of the Project Site. A report by Reichert *et al.* (1992) found whilst negative impacts on market value are historically experienced in major metropolitan areas, dependent on distance from landfill, negative impacts on property value in predominantly rural areas are generally minimal to nonexistent. Significant effects on property/land values of the main township of Armidale are not expected. As the town of Armidale is located some 10 km from the Project Site, it is unlikely that there would be impacts to property/land values within the main township. With respect to rural properties generally located within 2 km of the Project Site (refer to **Figure 5** of the EA), it is also unlikely that property/land values would be significantly affected as the proposed landfill facility will be: • Well managed in accordance with the LEMP; • Screened with landscaping provided around the entrance and boundaries to the Waterfall Way; and • Fully secured and locked when not in operation. It is also noted that research points to the large number of variables used to determine the impact of a landfill on property prices including: • Design features of the landfill, including its physical profile, volume and nature of waste handled and other site characteristics; • A well designed landfill, built and operated to modern standards (can be a good neighbour and have no statistically negative impact on surrounding property values (Bleich, Findlay and Phillips, An Evaluation of the Impact of a Well-Designed Landfill on Surrounding Property Values. The Appraisal Journal [April 1991]); • Nature of housing for sale – size of lot, number of rooms, internal layout, condition of building and so on; • Location, siting and position; and • Local, regional, national and global economic variables.

[redacted]

August 6, 2010.

To whom it may concern.

Proposed Landfill

I wish to lodge my objection to the proposed Landfill site adjacent to the Gara River and the Grafton road to the east of Armidale.
The possible pollution of the Gara watertable through leaching from a landfill site is a risk far too big to take. I find it quite astounding that any Council would consider such an action with the possibility of legal action at some future date. S057_1
Regardless of the hint of conflict of interest around the sale of the land – it is beyond imagining how a landfill site within a stone's throw of a major tributary of the Macleay River catchment could be proposed at all. S057_2
I urge the Armidale Dumaresq Council to reconsider this proposal.

Yours sincerely,

[redacted]

Submission S057

Issue Number	Topic	Response
S057_1	W4	The potential for leachate pollution of the Gara River from the proposed landfill has been addressed in **Sections 8.3** and **8.4** of the EA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching the downstream Gara River would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area.
S057_2	P2	During the site selection process over 50 potential sites were evaluated. The site selection process included consideration of environmental impacts and their likely magnitude at each site. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA) and concluded that the current site was the most suitable of the sites considered with respect to the identified criteria.

[redacted]

5 August, 2010

Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

SUBJECT: ARMIDALE DUMARESQ LANDFILL PROJECT PROPOSAL (06 0220) – OBJECTION TO PROPOSAL

We strongly object to the proposed development on the following grounds:

1. The site is very close to Waterfall Way and will be visually objectionable. S058_1
2. Air and noise pollution will affect a large area. S058_2
3. In the event of high temperature incineration technology being introduced at the site, an even greater risk to health and amenity is possible. S058_3
4. There can be no guarantee that there will not be leaching from the site at some future date into a World Heritage listed area. S058_4
5. The proposal effectively ends further close development in the area. A precedent has already been set with subdivisions relatively close to the site. In any case it will consign the area to a lower standard of development than it certainly has at the moment. S058_5
6. Other landholders in the area of the site should not have to bear the cost of diminished land values in an area of prime real estate.
7. It is simply too close to the City of Armidale. S058_6
8. As ratepayers we are concerned that Class Action for loss of land values, and possibly pollution in all its forms, may be taken against Armidale Dumaresq Council. S058_7
9. The considerable cost to plan and costs associated with planning other regional landfills that councils will not be able to afford. Hence, our concern that this will become a super landfill site to cater for other surrounding councils. S058_8

Signed

[redacted]

Submission S058

Issue Number	Topic	Response
S058_1	V1	Visual montages of the various viewpoints were considered as part of the EA. All existing trees and known tree heights were included in the visual montages in addition to the final profile of the proposed landfill mass (refer **Figures 30** to **35** of the EA). It should be noted that these montages did not take into account future screening from the proposed biodiversity offset area. It is shown that these views (including those from the Waterfall Way) would be partially masked by existing vegetation however it is expected these views would be further obscured by offset vegetation once matured. Further, several mitigation measures would be implemented to accommodate visual absorption capacity such as daily covering of waste, capture and removal of windblown litter and building design (including suitable colour schemes).
S058_2	N1 AQ1	Both air quality and noise modelling was undertaken as part of the EA in order to assess the potential for impacts on the surrounding environment. Air quality and noise contours were presented in the respective appendices to the EA (refer **Appendix O** and **Appendix Q** of the EA). Odour emissions from the site are predicted to be within acceptable levels at the nearest receivers and at the boundary of the site. Dust concentrations and deposition levels at all residential receivers are predicted to be very low. Standard management strategies for landfill sites would be employed in addition to the daily covering of waste and landfill gas monitoring. A complaints hotline would be set up in accordance with EPL requirements. With the implementation of mitigation measures, noise emissions are expected to comply with the environmental criteria for the site under the neutral meteorological conditions that have been shown to be typical of the site. Minor exceedances of the criterion of up to 3dB(A) may occur at Receiver 2 (Sherraloy) at certain times near the end of the operating life of Cell 1, however the modelling assumed a worst case scenario where all equipment would be working in unison at the extremities of construction area. In general however, the equipment and therefore the noise generated, would generally be distributed across the site, with minimal impacts to noise level amenity.
S058_3	O1	High temperature incineration has not been considered for the proposed landfill. Council is however committed to the adoption of AWT as part of a sustainable waste disposal strategy. Council has demonstrated its commitment via its active pursuit of AWT processes over a number of years. Council is currently trialling and evaluating AWT at the Long Swamp Road Waste Transfer Facility before full scale adoption and implementation.
S058_4	W4	The potential for impacts on water quality of the Gara River and GRAWHA as a result of leachate migration from the landfill is addressed in **Sections 8.3** and **8.4** of the EA. Potential impacts on the values of the GRAWHA have been assessed in **Section 8.12** of the EA. The impact on the GRAWHA has been assessed under the EPBC Act and a referral lodged with DSEWPC (formerly DEWHA), who determined that the proposal constitutes a controlled action under the EPBC Act. The nature of the assessment process under the EPBC Act is such that determinations are made without having regard to mitigation measures that would be implemented. However, the measures proposed in the EA will ensure that there will be no significant impacts on the environment including the World Heritage Area. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the

		likelihood of impacts to surface and groundwater. In the un likely event of a leak, diluted concentrations reaching downstream would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area.
S058_5	SE5	The Project Site is located 12km east of Armidale, and maintains some screening from the north at the Waterfall Way where an area of dense vegetation abuts the road. The closest residential property is located approximately 400 m south of the Project Site. A report by Reichert *et al.* (1992) found whilst negative impacts on market value are historically experienced in major metropolitan areas, dependent on distance from landfill, negative impacts on property value in predominantly rural areas are generally minimal to nonexistent. Significant effects on property/land values of the main township of Armidale are not expected. As the town of Armidale is located some 10 km from the Project Site, it is unlikely that there would be impacts to property/land values within the main township. With respect to rural properties generally located within 2 km of the Project Site (refer to **Figure 5** of the EA), it is also unlikely that property/land values would be significantly affected as the proposed landfill facility will be: • Well managed in accordance with the LEMP; • Screened and landscape provided around the entrance and boundaries to the Waterfall Way; and • Fully secured and locked when not in operation. It is also noted that research points to the large number of variables used to determine the impact of a landfill on property prices including: • Design features of the landfill, including its physical profile, volume and nature of waste handled and other site characteristics; • A well designed landfill, built and operated to modern standards (can be a good neighbour and have no statistically negative impact on surrounding property values (Bleich, Findlay and Phillips, An Evaluation of the Impact of a Well-Designed Landfill on Surrounding Property Values. The Appraisal Journal [April 1991]); • Nature of housing for sale – size of lot, number of rooms, internal layout, condition of building and so on; • Location, siting and position; and • Local, regional, national and global economic variables.
S058_6	P2	The Project Site is located approximately 12km east of the town of Armidale. As part of the site selection process, over 50 alternative sites were considered for the proposed landfill facility including sites within several of the surrounding LGA's. Site evaluation included consideration of environmental impacts, proximity to sensitive receivers and their likely magnitude at each site. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA) and concluded that the current site was the most suitable of the sites considered with respect to the identified criteria. Further, an analysis of the socio-economic impact of the proposed landfill facility was undertaken and described in **Section 8.9** of the EA. Management measures for social impacts have been provided throughout the EA relating to visual (including amenity issues), transport and traffic, air quality, noise, surface water, groundwater, flora, fauna, heritage issues and land use impacts. Significant impacts on the Armidale township are unlikely given the implementation of mitigation measures identified in the EA.
S058_7	SE5	Comment noted.
S058_8	SE4	The existing Armidale Waste Management Centre landfill, currently used by both

Armidale Regional Landfill
Environmental Assessment - Submissions Report

AECOM

		Armidale Dumaresq and Guyra Shire Councils, is almost at full capacity with only limited and unapproved possibilities for further expansion. In addition, other landfills in the region, used by Walcha and Uralla Shire Councils, will progressively reach their final capacities within 15 years and cannot accommodate the ongoing landfill needs of Armidale Dumaresq and Guyra Shire Councils. Therefore, Armidale Dumaresq Council proposes to develop the new regional landfill which would service the waste management needs of several local government areas within the region, as opposed to multiple, smaller scale landfills for each individual council area. The development of a regional landfill is considered to be the most efficient waste disposal solution for this region.

As an Armidale ratepayer I find it completely incomprehensible why a landfill site would even be considered for the Waterfall Way. This is a major tourist drive linking Armidale to the Coast through World Heritage areas. We should not think so little of the tourist industry's contribution to the Armidale economy. S059_1

Surely there would be other potential sites not on a major road in and out of Armidale and closer than 12km to the ratepayers who'll want to (and are paying to) use it. S059_2

Over Christmas I had the pleasure of touring the Great Ocean Road with my family - another great tourist drive. Interestingly, there were no landfills forming part of the scenery. Does it take a Victorian to see common sense?

I submit that the site for the landfill is wrong and not in the best interests of Armidale nor the World Heritage areas it would neighbour. S059_2

Name: [redacted]
Organisation: [redacted]

Address:
[redacted]

IP Address: [redacted]

Submission for Job: #81 Armidale Landfill Project
https://majorprojects.onhiive.com/index.pl?action=view_job&id=81

Site: #74 Armidale-Dumaresq Waste Facility
https://majorprojects.onhiive.com/index.pl?action=view_site&id=74

Felicity Greenway

E: Felicity.Greenway@planning.nsw.gov.au

Submission S059

Issue Number	Topic	Response
S059_1	SE3	It is not expected the proposed landfill facility would significantly affect or impede tourism in the area. It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. It is envisaged that views of the proposed landfill facility from Waterfall Way would be partially masked by existing vegetation and further obscured by offset vegetation once matured. Armidale Dumaresq Council supports the promotion of tourism in the region through the Tourism Information Centre, provision of funding for local community infrastructure including public facilities for tourists and sponsorship of events to promote tourism in the region.
S059_2	P3	As part of the site selection process, over 50 alternative sites were considered for the proposed landfill facility including sites within several of the surrounding LGA's and both within and outside of the World Heritage Area catchment. Site evaluation included consideration of environmental impacts, proximity to sensitive receivers and their likely magnitude at each site. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA) and concluded that the current site was the most suitable of the sites considered with respect to the identified criteria. It is noted that there would be no public access to the proposed landfill. All waste would be separated at the existing Armidale Waste Management Centre prior to being transported to the proposed landfill for disposal.

Dear Sir/Madam,

I am writing to encourage you to reject the proposed new dumpsite for the Armidale/Dumaresq region.
Concerning this site I note that:

This is a tip for all domestic and commercial waste S060_1
The tip will be clearly visible from the 'Waterfall Way' S060_2
It's on the upstream edge of a World Heritage Area S060_3
It will cost more than $35 million, pushing up rates
It's the only site that's been seriously assessed
Council's original site selection report said it was "not necessarily the best site" and "not ideal" S060_4

I further note that it is conjectured that:

Toxic juices from the landfill will contaminate the Gara River then the Blue Hole, then into the National Park S060_5
Clearing will put 7 threatened bird species at further risk S060_6

Further reasons for rejecting this site are that:

The Federal Government has already said it "will or is likely to have a significant impact on the World Heritage area", S060_7
which the government is obliged to protect
Even if approved it will have costly conditions attached S060_8
Tourists are drawn to the natural beauty of our National Park yet we are making a highly visible statement that
Armidale does not care about its environmental assets S060_9
There may be other sites and better solutions S060_4

Thank you for your time and attention.

Yours sincerely,

[redacted]

Submission S060

Issue Number	Topic	Response
S060_1	V1	Visual montages of the various viewpoints were considered as part of the EA. All existing trees and known tree heights were included in the visual montages in addition to the final profile of the proposed landfill mass (refer **Figures 30** to **35** of the EA). It should be noted that these montages did not take into account future screening from the proposed biodiversity offset area. It is noted that views towards the Project Site from Receivers 4 and 5 (and indicatively of the Waterfall Way) are considered to be reasonably significant, however these views would be partially masked by existing vegetation and further obscured once vegetation in the offset area has matured.
S060_2	H1	Community concerns have been noted regarding the site location in the catchment of the Gara River upstream of the Oxley Wild Rivers National Park. **Section 8.12** of the EA addresses National Environmental Heritage (Oxley Wild Rivers National Park) which supports the GRAWHA. The impact on the GRAWHA has been assessed under the EPBC Act and a referral lodged with DSEWPC (formerly DEWHA). DSEWPC determined that the proposal constitutes a controlled action under the EPBC Act. However, stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching the downstream Gara River would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area.
S060_3	SE4	The estimated cost for the construction of the landfill is $14 million for the first two cells (which includes water and leachate collection and management systems, access road, amenities) and $10 million for the remaining three cells, a total of $24 million over the life of the landfill. The annual operational cost is likely to be in the order of $1 million per year. Council has continually advised ratepayers that the proposed new landfill will be paid for by ratepayers by means of a landfill levy that was established in 2006 to fund the new landfill. This levy will be increased and decreased over the period of the staged loans that are required as landfill cells are developed and closed.
S060_4	P2	As part of the site selection process, over 50 alternative sites have been considered since the mid-1990s for the proposed landfill facility. Sites were identified through several preliminary investigations, in consultation with the Department of Mineral Resources regarding the availability of current and former extractive industry sites and consideration of sites within appropriate geological areas. The principles outlined in the document *Landfilling – EIS Guidelines* (DUAP, September 1996) were then used to develop appropriate criteria and weightings for the assessment of the potential landfill sites identified from the preliminary investigations. Site evaluation included consideration of environmental impacts, proximity to sensitive receivers and their likely magnitude at each site. The *Regional Landfill Siting Study Final Report* (Maunsell, 2004) was appended to the EA (refer **Appendix C** of the EA) and provided further detail of the site selection process. The landfill siting study concluded that the current site was the most suitable of the sites considered with respect to the assessment criteria determined as part of the site selection process.
S060_5	W4	Community concerns have been noted regarding potential for pollution of the Gara River through leachate migration from the landfill and these issues are addressed

		In **Sections 8.3** and **8.4** of the EA. **Section 8.12** of the EA addresses National Environmental Heritage (Oxley Wild Rivers National Park) which supports the GRAWHA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of downstream impacts to surface and groundwater. In the unexpected event that leachate enters the groundwater, diluted concentrations reaching the downstream Gara River would not pollute the existing environment at the OWRNP or have a significant impact on the World Heritage Area. Impacts on the recreation values of the Blue Hole are not expected. Water quality monitoring would be undertaken upstream of the Blue Hole and would monitor any changes to water quality.
S060_6	FF2	Potential impacts to threatened birds in the area were addressed in the Flora and Fauna Assessment (**Appendix E** of the EA) and summarised in **Section 8.8** of the EA. Known habitat is present within the study area for a number of threatened birds. Assessments of Significance were undertaken for these species and are provided in **Appendix A** of the Flora and Fauna Assessment. The Flora and Fauna Assessment concluded that the proposed works would have a significant impact on local populations of five threatened birds. This will be offset by setting aside adjacent areas of similar vegetation type that are likely to respond to conservation measures which will permanently improve biodiversity values of the offset area. The impact to the threatened birds will be greatly reduced by provision of this biodiversity offset area, which will be approximately 61 hectares in area.
S060_7	H1	**Section 8.12** of the EA addresses National Environmental Heritage (Oxley Wild Rivers National Park) which supports the GRAWHA. The impact on the GRAWHA has been assessed under the EPBC Act and a referral lodged with DSEWPC (formerly DEWHA). DSEWPC determined that the proposal constitutes a controlled action under the EPBC Act. The determination made by the Commonwealth Minister was made with respect to the impacts of the proposed landfill facility *without* mitigation measures implemented. It is considered that the EA has identified appropriate mitigation measures to manage potential impacts and prevent downstream contamination of the GRAWHA. Stringent environmental controls to manage dirty stormwater runoff, leachate containment and emergency storage would be implemented and would reduce the likelihood of impacts to surface and groundwater.
S060_8	SE4	Council will construct and operate the proposed landfill in accordance with any conditions of approval for the project and EPL for the site. The costs for implementing the mitigation measures proposed in the EA have been incorporated into the cost estimate for the proposed landfill.
S060_9	SE3	It is not expected the proposed landfill facility would significantly affect or impede tourism in the area. It is noted that the Waterfall Way is a National tourist drive and this is acknowledged in the EA. It is envisaged that views of the proposed landfill facility from Waterfall Way would be partially masked by existing vegetation and further obscured by offset vegetation once matured. Armidale Dumaresq Council supports the promotion of tourism in the region through the Tourism Information Centre, provision of funding for local community infrastructure including public facilities for tourists and sponsorship of events to promote tourism in the region.

Dear Ms Greenway

I wish to associate myself completely with the remarks of my friend, Mrs [redacted] reproduced below.

Yours sincerely

[redacted]

S061 - REFER TO SUBMISSION #36

----- Original Message -----
From [redacted]
To: Felicity.Greenway@planning.nsw.gov.au
Sent: Thursday, August 05, 2010 2:44 PM
Subject: Armidale Landfill Proposals

Dear Ms Greenway,

I herewith wish to voice my absolute opposition to the proposed landfill near the Waterfall Way, Armidale. Besides objecting to the environmental consequences of such a landfill, I have other objections. They are as follows:

The owner of the land is Mr Ken Waters. He was, until recently, an Armidale Dumaresq Councillor. In about 2003 the local newspaper announced the proposed sale of this land to the Council by Councillor Ken Waters, which is an imprisonable offence.

My information on this matter (from another Councillor) is that the sale price is far, far above its true value and that everyone knew that the land was never suitable (has 2,000 trees, aboriginal sacred sites and adjacent to the Gara River).

The reason for the Council's persistence in this matter is that it is highly likely that certain Councillors, including the General Manager, have been promised pecuniary rewards by the landholder, Councillor Ken Waters.

In the event, though unexpectedly, the Gara River Landholders have mounted spirited opposition to the proposal, on environmental grounds, and managed to delay the permission.

I do not know if the sale by Ken Waters to the Armidale Dumaresq Council has been effected. He was not re-elected to the Council in 2008. If the situation is what I think it is, he may have received some legal advice on the illegality of his sale to the ADC, is no longer a Councillor, and thus able to sell the land without fear of imprisonment. He had, in any case, become a liability to the Council for other reasons.

It is extraordinary that the Armidale Dumaresq Council still persists with this proposal which leads me to suspect their motives in relation to the proceeds of a sale by Ken Waters, purchased from him by them.

This Council has been investigated by Gabrielle Kibble, resulting in the Kibble Report, which has been accepted by the Minister. Mrs Kibble identified many financial problems and, overall, a 'failure of governance.' It has been recommended that an Admistrator be appointed and a 'new' General Manager employed.

Even if the Council has gone, if the landfill proposal were to be accepted, this means that those members, who have been so dishonest in much of the Council's management over the last ten years, even though they are no longer on the scene, will yet benefit by its purchase of the site.

This is unconscionable and I hope the State will not allow this landfill proposal to eventuate.

You may refer to Leigh Plater, Senior Solicitor, at the Crown Solicitor/Attorney-General's Department. She will vouch for my integrity and correct factual analysis in connection with Armidale Dumaresq Council matters. I have been particularly involved with substantiated criticism of its

management of the Hinton Trust, successful hearings in the Supreme Court against it and resulting investigation by the Attorney-General into the ADC's financial exploitation of Hinton Trust Funds.

Yours sincerely,

[redacted]

Submission S061

Issue Number	Topic	Response
S061_1		Submission noted. Refer to Submission S036.

[redacted]

August 6, 2010

NSW Department of Planning
Attention: Ms. Felicity Greenway
Felicity.Greenway@planning.nsw.gov.au

Re: Objection to proposed Armidale Dumaresq Regional Landfill 06_0220

As a citizen of Armidale who wants to see all human waste on the planet managed 'sustainably', I am writing to object to this landfill. I and my family, together with all other residents of Armidale (and all residents of the world!), generate waste and I wish to see my government representatives (at all levels) ensure it is managed so that there is zero impact on our natural resources, such as, for example, the World Heritage listed Oxley Wild Rivers National Park. However, my concerns are broader that just this landfill and its proposed location.

Unfortunately, this proposed Class 1 tip is just another 'bury-it-and-hope-for-the-best' landfill, in spite of the many words written by the proponents about how safe it will be (e.g. using liners and planning for rare rainfall events). The submission from the Gara Valley Environmental Preservation Association (GVEPA) has provided a comprehensive list of the technical issues relating to this proposed tip; whilst I endorse that submission, I wish to make a number of other points from the point of view of a concerned citizen of Armidale whose property is not directly affected by the proposed landfill site.

Some years ago, I was the President of a protest group (Citizens Against Minimbah Landfill) on the Mid North Coast of NSW (where, for 50 years, our family had owned some rural land) which objected to a proposed new landfill in the Great Lakes Shire – upstream from the Wallis Lakes and the Nabiac bore field supplying drinking water to 40,000 residents of Taree, Forster and Tuncurry. Sadly, in spite of our protest group's best efforts, we lost that battle and the tip/quarry is currently under construction at Minimbah (http://www.greatlakes.nsw.gov.au/content/Public/Facilities/Landfills__Recycling_Centres/Minimbah_Landfill.aspx) having received approval from a range of NSW government departments, contrary to the submissions from many concerned citizens.

At that time, our protest group had similar problems to the GVEPA group in getting our message across – either to the media or to most politicians or to any government department. On reflection, I believe that the central problem preventing human societies from developing more sustainable solutions regarding waste – that is not widely recognised – is that ALL of us create waste and hence we ALL are responsible to see that the problems are solved. But most people just don't care, as long as the landfill is not in THEIR back yards. This point of view was incorporated in an editorial in the Armidale Express (August 4, 2010). My view is that we must not allow landfills in ANYONE'S back yard.

I would like to point out that this proposed landfill is contradictory to Armidale Dumaresq Council's desired outcomes stated in its draft Strategic Plan (2011-2021) where it espouses the environmental objectives of a "Clean biosphere (Land, Water, Air)", "Living Sustainability", "Improve conservation and enhancement of habitat and biodiversity" and "Implement effective Climate Change mitigation and adaptation strategies" (Armidale Dumaresq Council Discussion Document, July 2010). S062_1

Instead of paying 'lip service' to 'sustainability', our Council, as well as State and Federal governments, should recognise that if we are to strive for 'sustainability' we must acknowledge that 'sustainability' means handing on our natural resources to the next generation in no worse condition than we inherited them. This means that we need strategies for waste management (as well as for all other activities such as housing, food production, etc.) that will be viable over inter-generational timescales for all human communities on the planet! As you would know only too well, NSW has a sustainability policy that articulates aspects of this important principle and demands that sustainability be taken into account in its decision making (http://www.environment.nsw.gov.au/government/policy.htm). I trust that your department will adhere to this principle in this case.

Instead of spending more than $35m burying this generation's waste in the ground where it will eventually leak and pollute, we need to adopt a strategy towards zero waste. S062_2

Armidale could be a leader in this endeavour by continuing to invest in improvements to our excellent, existing recycling centre, reclaiming old waste and extending the life of our existing landfill, investing in alternative waste technologies and supporting research into novel techniques to ensure that ALL of our waste is recovered, recycled or made totally inert so that our children and grandchildren will not have to clean up this generation's mess by having to remediate this precious environment at great cost some decades from now. In my view, we must not create another landfill – in anyone's back yard! S062_3

In considering this matter, I ask that the Department of Planning take a sustainable, inter-generational stance and reject this 'old technology' landfill and instead, request that the Armidale Dumaresq Council adopt a different strategy and strive for zero waste. Surely the NSW Government could assist in this matter by providing some support to ensure that Armidale can develop and adopt technologies leading eventually to a regional city achieving zero waste. I am aware that the University of New England researches and teaches in the area of waste management and they may well be an effective partner in such an endeavour. S062_3

I note that the Hon. Peter Garrett spoke to the recent Zero Waste Australia conference (March, 2010) and announced a National Waste Policy that apparently was agreed to by Local, State and Federal governments in November 2009 – this is surely a good step forward and suggests that now is not the time to create a new landfill at the front gate of an important National Park. S062_4

I live in hope that 2010 might be the year that signals a halt to all new landfills!

In making this submission, I declare that neither I nor any associate of mine have made any political donation relating to any matter at any time.

Kind regards,

Yours sincerely,

[redacted]

Cc: Mr. Richard Torbay, Member for Northern Tablelands (for information)