



A T Adams Consulting

**West Belconnen Project
Environment protection matters
Summary report**

report prepared for:

Riverview Group

9 April 2015

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1.0 Introduction

1.1. This report

A T Adams Consulting Pty Limited has been engaged by Riverview Projects (ACT) Pty Ltd on behalf of the ACT Land Development Agency to prepare this report. The report collates and summarises a number of reports prepared over the period 2007 – 2014 relating to the West Belconnen project and concerned with odour and other forms of contamination that do or may impact on the site. This report also outlines the proposed steps to be taken as the project is implemented in relation to various forms of environmental impact to ensure that any residential and other sensitive development is free of unacceptable levels of impact.

1.2. Background to the project

The West Belconnen proposal is for the development of the land at West Belconnen and in adjacent NSW for residential and related purposes and for a contiguous conservation corridor along the Murrumbidgee River and Ginninderra Creek. Refer to Figure 1 below. The urban residential area will include open space, community, school and recreation facilities, wetlands and creeks, roads, streets and an off-road movement system as well as retailing and employment uses. Ultimately the project area has the capacity to accommodate approximately 11,500 dwellings.

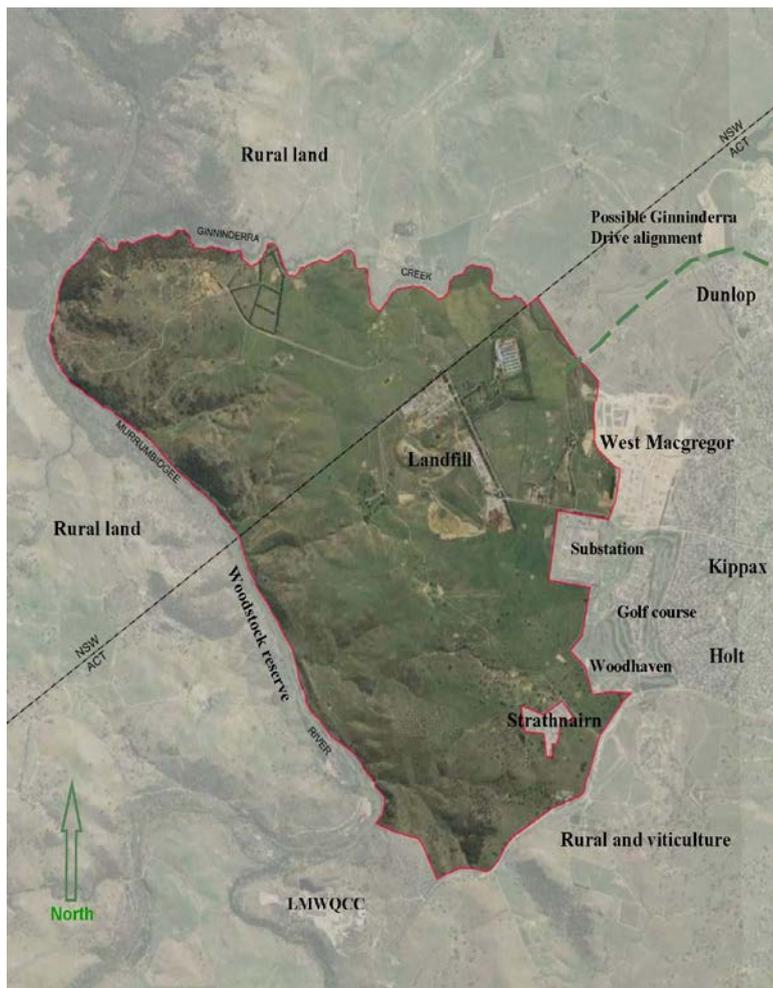


Figure 1: West Belconnen Project study area

The project will be implemented over a long timeframe. Estimates suggest a release rate of approximately 300 dwellings per year, on average, which would result in a total project implementation period of 30 – 40 years for the ACT and NSW components of the project. An indicative staging plan is shown at Figure 2. The processes and actions discussed in this report , and all necessary environmental remediation and other works, will be undertaken progressively as the project proceeds.

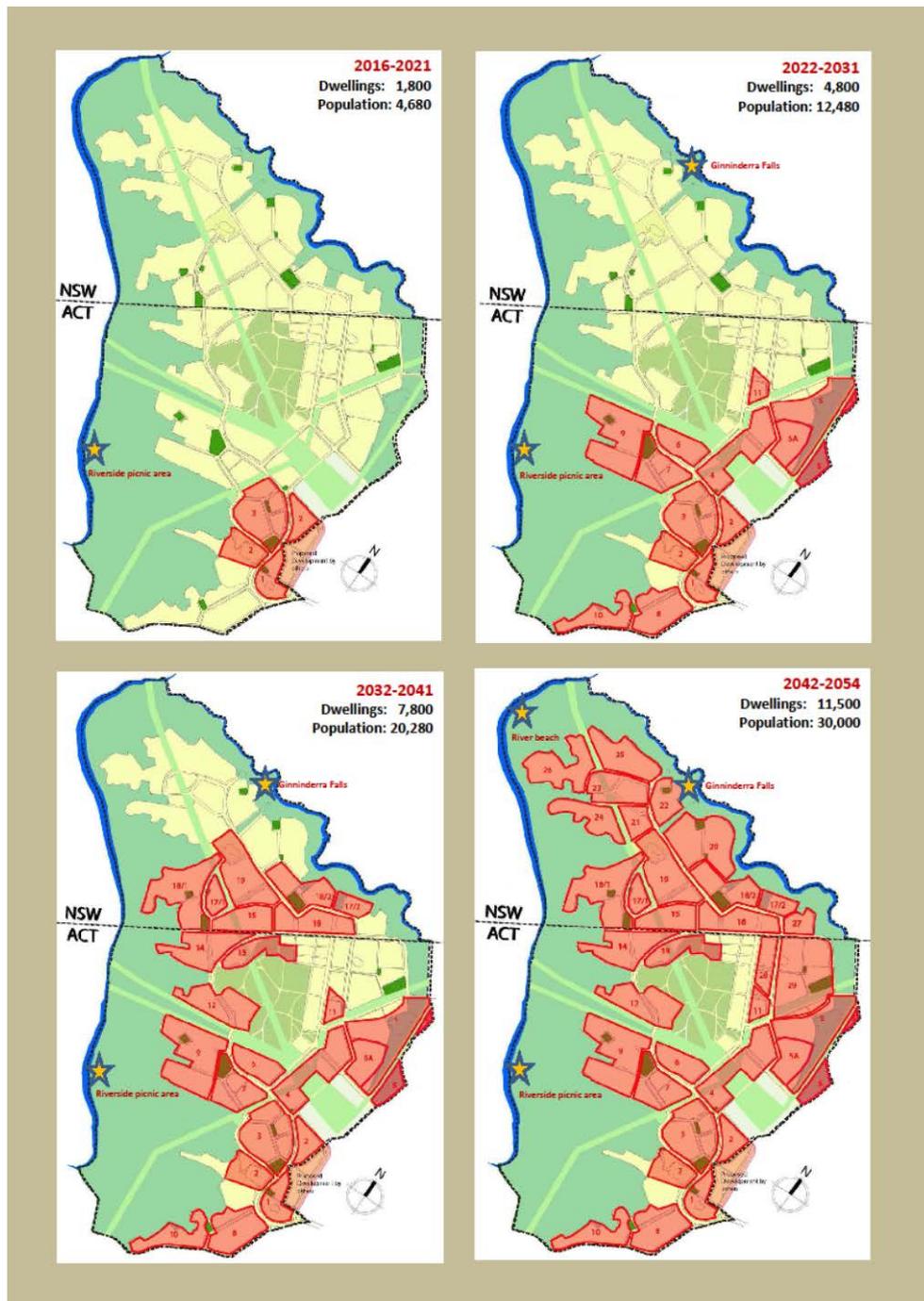


Figure 2: Indicative development staging

2.0 Reports prepared to date

The following suite of reports are discussed in this summary report:

- ACTEW. (2014a). West Belconnen Odour Impact Investigations of Emissions from Vent Stacks of the Ginninderra Sewer Tunnel Preliminary Assessment Report, ACTEW Water, 27 May 2014.
- Aecom. (2014b). West Belconnen Strategic Environmental Assessment Air Quality Review, Aecom, 18 June 2014.
- CEE. (2014a). Buffer Zone for Parkwood Egg Farm, Consulting Environmental Engineers, May 2014.
- CEE. (2014b). Buffer Zone for LMWQCC, Consulting Environmental Engineers, June 2014.
- GHD. (2009). Report for West Belconnen Estate, Stage One Environmental Assessment (amended) GHD, December 2009.
- GHD. (2012b). Report for West Belconnen Residential Development Risks Posed by Adjacent Landfill Discussion Paper, GHD, February 2012.
- GHD. (2014e). Riverview Projects (ACT) Pty Ltd Proposed Rezoning of West Belconnen Land ACT West Belconnen Landfill Site Landfill Related Advice, GHD. June 2014.
- GHD Landfill gas assessment, GHD Correspondence 13 March 2015.
- SLR. (2014a). West Belconnen Existing Industrial land Uses Preliminary Noise Impact Assessment, SLR, 13 June 2014.
- SLR. (2014b). West Belconnen Existing Road Network (Off site roads) Assessment of Road traffic Noise Impacts to Existing Receivers, SLR, 16 June 2014.
- SLR. (2014c). West Belconnen Ginninderra Drive Extension Options Noise Assessment, (memorandum), SLR 25 September 2014.
- SLR (2014e) West Belconnen Canberra Substation Noise Assessment, SLR 2 December 2014.
- Water quality records from ongoing monitoring program

3.0 EPA Separation Guidelines

In November 2014 the ACT Environment Protection Authority released “Draft Separation Distance Guidelines for Air Emissions” for public comment. The guidelines are intended “...for use as a tool in the development application process for new or expanding developments in the Australian Capital Territory...”

The Guidelines specify separation distances between land uses and activities where an activity may have the potential to impact negatively, due to noise, odour or some other matter on sensitive landuses, especially residential and community uses. Of particular relevance at west Belconnen are the separation distances specified in the guidelines for green waste processing and for poultry farms, which are respectively 1000m and 750m. Currently the Territory Plan provides clearance zones around the Belconnen land fill site (on which the green waste facility is located) and the poultry farm, each providing a 500m separation distance.

In light of this most recent information the West Belconnen project has proposed that the increased distances are to be incorporated in the Territory Plan by way of Draft Variation 351. The plan will

also include a provision for amendment to the separation distances when and if the relevant activities are modified to reduce impacts or relocated, or if more detailed assessment indicates that a reduced clearance zone is appropriate. Any such modification would be subject to an environmental audit process and the endorsement of the EPA.

4.0 Appointment of Auditor

Consistent with the ACT Government precautionary approach for the redevelopment of land where a more sensitive landuse is proposed where past practices may have caused land contamination, Riverview has appointed an independent, accredited site auditor, to provide independent technical review and guidance, consistent with current ACT Government policy¹.

- ACT EPA (2009) Contaminated Sites Environment Protection Policy, November 2009.
- ACT EPA (2014) Addendum – Contaminated Sites Environment Protection Policy, February 2014.

The audit will strictly conform with the requirements of the ACTEPA's Contaminated Land Policy and Guidelines as well as having reference to other specific key guidance as may be appropriate for the unique characteristics of the development project. For example, the Riverview development proposal has identified odour arising from a number of local sources (landfill, sewer vents, intensive poultry operations) which may impact on the proposed redevelopment. In consultation with ACT Government, Riverview has sought the independent technical support of the Site Auditor to review these odour issues and their proposed resolution, having regard to (but not limited to):

- ACT EPA (2014) Draft Separation Distance Guidelines for Air Emissions, November 2014 (draft for consultation).
- SA EPA (2007) Guidelines for Separation Distances, December 2007.
- QLD Department of Natural Resources (1997) Planning Guidelines Separating Agricultural and Residential Land Uses, Reference DNRQ 97088, September 1997.
- NSW DEC (2006) Guidelines for the Site Auditor Scheme (second edition), Reference DEC2006/121, April 2006 (including specific reference to aesthetic considerations).
- VIC EPA (2012) Recommended Separation Distance for Industrial Residual Air Emissions (Draft for Consultation), Publication No. 1506, October 2012.
- VIC EPA (2012) Closed Landfill Guidelines. Publication No. 1490, December 2012.

Other specific guidelines will also be applied as appropriate to audit other contamination issues as they are identified (such as the ACT EPA's guidance for the assessment and management sheep dip sites).

Consistent with current ACT Government policy, the Site Auditor will maintain an independent technical reviewer role, while keeping in close contact with ACT EPA during the ongoing audit of the Riverview development, especially during the preparation of any Auditor's Interim Advice, Site Audit Reports and Site Audit Statements.

¹ See:

http://www.environment.act.gov.au/environment/environment_protection_authority/business_and_industry/contaminatedsites

5.0 Summary of report Findings and proposed further action

Report	Commentary
Odour	
<p>ACTEW. (2014a). West Belconnen Odour Impact Investigations of Emissions from Vent Stacks of the Ginninderra Sewer Tunnel Preliminary Assessment Report, ACTEW Water, 27 may 2014.</p>	<p>Report finding was as follows:</p> <p><i>“Although preliminary assessment suggests a minor odour impact to the proposed land development, further work is required to verify the parameters used in the model and to take into consideration the impacts of the inversion layers in this area. Consideration also needs to be given to the siting of odour scrubbers should they be required in the future.</i></p> <p><i>Based on this, it is recommended that a more detailed technical and planning study of the potential odour impacts at West Belconnen be carried out.”</i></p> <p>The required detailed investigations will be conducted prior to the submission of estate Development plans for development of land in the vicinity of the stacks, taking into account detailed planning for residential land use in the vicinity of the stacks.</p>
<p>CEE. (2014a). Buffer Zone for Parkwood Egg Farm, Consulting Environmental Engineers, May 2014.</p>	<p>Report recommendation for a clearance zone was as follows:</p> <p><i>“1. The existing ACT buffer zone for the egg farm of 500 m corresponds to the minimum buffer distance in Guidelines from other jurisdictions;</i></p> <p><i>2. A buffer of 600 m should be allowed down-slope from the sheds (the path of night drainage breezes) to the north-east, north and west of the sheds;</i></p> <p><i>3. There should be a buffer of 800 m from the sheds to any constructed wetland, to provide adequate biosecurity against transmission of disease from wild water birds to the farm.”</i></p> <p>Since the completion of this report the EPA has published draft separation guidelines (see below) which propose a separation distance for a poultry facility of 750m. This distance is now proposed for incorporation in draft Territory Plan variation 351.</p>
<p>CEE. (2014b). Buffer Zone for LMWQCC, Consulting Environmental Engineers, June 2014.</p>	<p>The report findings are summarised in the following extract:</p> <p><i>“.....the existing 1 km radius buffer zone around LMWQCC is consistent with the buffer zones provided in other States for comparable treatment plants. Thus it is expected that the current clearance zone will remain in place although this could be reviewed within the next 2 to 5 year period. When ACTEW technical investigations are concluded, ACTEW could request an adjustment to the clearance zone which would be done through the usual processes involved in varying the Territory Plan.”</i></p> <p>This is consistent with discussions that have been held with ACTEW which is undertaking further detailed odour modelling. In the interim the portion of the project area along Stockdill</p>

	Drive will be excluded from the early stages of development to provide for the possible expansion of the clearance zone, subject to the outcomes of the odour modelling.
Landfill	
GHD. (2012b). Report for West Belconnen Residential Development Risks Posed by Adjacent Landfill Discussion Paper, GHD, February 2012.	<p>This report examined the range of “risks” associated with the land fill site and past operations, including gas, leachate and odour impacts. It makes a number of recommendations for additional research and investigations on a site specific basis to determine required buffer distances for various activities, noting also that removal of the activities (e.g. the emergency landfill) would avoid the need for buffers.</p> <p>The response to this has been that the current 500m clearance zone specified in the territory plan will be retained by DV351, pending research and investigations and possible relocation or cancellation of impacting activities that may allow its modification of removal in the future.</p> <p>It should also be noted that the EPA separation Guidelines published since the GHD report suggest a 1000m buffer for the green waste facility that is on the land fill site. This proposed separation requirement was not available at the time the GHD report was prepared; it has since been recognised and is proposed for incorporation in DV351.</p>
GHD. (2014e). Riverview Projects (ACT) Pty Ltd Proposed Rezoning of West Belconnen Land ACT West Belconnen Landfill Site Landfill Related Advice, GHD. June 2014.	<p>The recommendations of this report were as follows:</p> <p><i>“1. For Riverview to discuss and agree with the relevant stakeholders precisely what the future land uses of the WBLS will be in the future (short, medium and long term) and locations of these land uses at the WBLS; 2. Following determination of the above, for Riverview to subsequently refine and undertake the relevant additional investigative works referred to in this report (both on and off-site). Completion of these works would allow further understanding of the opportunities and constraints presented by the WBLS as they relate to the proposed future on-site and offsite developments; 3. Finalise the Master Plan design on the basis of new information that has arisen from the additional investigation works; and 4. Develop guidelines for future development of specific areas in the vicinity of the WBLS.”</i></p> <p>These recommendations will be implemented progressively as the project proceeds.</p>
GHD Landfill Gas assessment	Research results presented to date have indicated that land fill gas will not impose an impediment to the residential development of the project site, noting that the matter should however be monitored with further more detailed investigations being undertaken. The findings of this research are currently being compiled into a brief report which will include recommendations for further confirmatory site testing and analysis.

Soil contamination	
<p>GHD. (2009). Report for West Belconnen Estate, Stage One Environmental Assessment (amended) GHD, December 2009.</p>	<p>The conclusions of the report are as follows:</p> <p><i>“1. The desk based assessment and site inspections indicated that the Site has been used for rural purposes, crops and grazing since at least the 1960s. Potential sources contaminants associated with agricultural practices include but are not limited to the potential use of pesticides and the storage and use of fuels; 2. All structures present on site may contain hazardous building materials such as asbestos; 3. Two septic tanks may represent a potential source of localised contamination; 4. Minor quantities of chemicals stored in the corrugated iron sheds located near House 3 may be a potential source of localised contamination associated with the storage of chemicals, fuels, pesticides and paints; 5. Contamination may exist in the vicinity of the sheep dip and sheep spraying area. 6. The nature of the fill material used to backfill the formed pits is not known and the potential that contamination exists in these areas cannot be excluded. 7. The stock yards and old stock yards may be a potential source of contamination associated with but not limited to the application of agricultural chemicals; 8. The material recently placed in an eroded gully on Block 1605 may be a potential source of contamination if it is not certified as material suitable for importation; and 9. The potential exists for leachate, groundwater and landfill gas to migrate from the WBRMC. It is recommended that The Riverview Group pursue regular groundwater quality results from ACT NoWaste and the ACT EPA to quantify the potential impact on the Site (if any). GHD recommends that limited sampling be undertaken in the areas of concern identified in this Stage One”.</i></p> <p>These conclusions will be treated as recommendation and implemented as the project proceeds.</p> <p>This report relates to blocks 1605 and 1606 Belconnen, the balance of the project site, the area north of Parkwood road has not to date been subject to a stage one assessment. An assessment will be required prior to residential development proceeding. The nature of the land is such that, similarly to blocks 1605 and 1606, it is considered that it will be generally suitable for residential development.</p>
Noise	
<p>SLR. (2014a). West Belconnen Existing Industrial land Uses Preliminary Noise Impact Assessment, SLR, 13 June 2014.</p>	<p>This report was a preliminary assessment, the findings were as follows:</p> <p><i>“Canberra Substation – Using a computer noise prediction model based on preliminary noise measurements at the site, an indicative setback distance of approximately 200 to 250 m from the substation boundary was determined to comply with the residential Zone Noise Criteria. It is noted that some existing residential premises are located around 200 m from the</i></p>

	<p><i>substation.</i> <i>Noise control measures proposed to reduce this setback distance include the construction of a noise wall at the substation boundary. From the initial study, it appears that a barrier formed of a combination of earth bund and wall would be required to provide a useful increase to the area of land that is suitable for residential development in this vicinity.</i> <i>These distances and indicative mitigation should be confirmed in a detailed assessment of noise sources at the substation, in particular the operation of transformers and circuit breakers.</i></p> <p>WBRMC – <i>Based on initial assumptions for equipment on this site, an indicative setback distance in the region of 300 m was determined to be required to comply with the Zone Noise Criteria. This assumes operation during the daytime (7am to 10pm) only. The future operation of this site is not well understood, and is likely to be phased out over time. As such, it may be the case that setbacks are not necessary for this site, depending on the relationship between residential development progress and reduction in operation over time.</i></p> <p>LMWQCC – <i>Noise levels are expected to comply with the residential Zone Noise Criteria at the boundary of the project development area.”</i></p> <p>Further assessment will be undertaken as required as the development proceeds. A more detailed assessment of the potential noise impacts of the Canberra substation has been conducted and is reported on below.</p>
<p>SLR. (2014b). West Belconnen Existing Road Network (Off site roads) Assessment of Road traffic Noise Impacts to Existing Receivers, SLR, 16 June 2014.</p>	<p>This report provides the results of an assessment of potential impacts of traffic noise on residents along the three arterial roads that will service the west Belconnen development. It finds that some noise mitigation measures are warranted along Ginninderra drive, may be warranted along Southern Cross drive and not warranted on Drake Brockman drive (refer to more detailed recommendations in the report).</p> <p>This work is based on traffic volumes generated by traffic modelling analysis as agreed with EPD at the time that the analysis was conducted. Alteration to the assumptions that are input to the models will affect the results; work is ongoing on alternative model scenarios and will continue for the life of the project. Because of the long time frame of the project the growth of traffic volumes will be slow, and with differing traffic parameters (for example changes in public transport mode share) and other external influences (for example the impact of traffic from east Molonglo) the actual requirements for noise mitigation may vary from these initial findings. This situation will be monitored as the project proceeds; any amendments to the currently proposed mitigation measures that may be required by EPD will be implemented.</p>
<p>SLR. (2014c). West Belconnen Ginninderra Drive Extension Options Noise Assessment, (memorandum), SLR 25</p>	<p>This memorandum reports on an analysis of potential noise impacts arising from several alternative alignments for the proposed completion of Ginninderra drive. An ultimate decision as to which alignment, if any, is selected will have regard to</p>

September 2014.	these findings.
SLR (2014d) West Belconnen Strathnairn Arts Noise Impact Assessment, SLR 25 September 2014.	The analysis presented in this report indicates potential for noise impacts to be created by Strathnairn on-site activities that would be incompatible with adjacent residential development. Mitigation measures or set backs for residential development are recommended. These will be implemented as appropriate as development approvals are sought for adjacent areas.
SLR (2014e) West Belconnen Canberra Substation Noise Assessment, SLR 2 December 2014.	<p>The findings of this report are summarised as follows:</p> <p><i>“Long-term noise measurements and audio recordings were undertaken at the west boundary of the Substation and gave more precise information on noise levels generated by the Canberra Substation and the associated transmission lines. It has been possible to characterise noise levels due to the operation of transformers and circuit breakers within the Substation and due to corona discharge along transmission lines.</i></p> <p><i>Using a computer noise prediction model based on noise measurements at the site and no mitigation, an indicative setback distance of approximately 150 to 250 m from the substation boundary (depending on direction) was determined to comply with the residential noise limits.</i></p> <p><i>Noise control measures proposed to reduce this setback distance include the construction of a noise wall at the substation boundary. It appears that a barrier approximately 8m in height, formed of a combination of earth bund and solid masonry/concrete wall would be required to provide a useful increase to the area of land that is suitable for residential development (i.e. land that meets the relevant ACT Zone Noise Limits) in this vicinity.”</i></p> <p>Whilst setbacks for residential development are recommended it is noted that residential development within the immediate vicinity of the substation will be limited due to the presence of several 330kv power lines to the west and south west of the site, and a proposed zone substation to the south. A more detailed evaluation will be conducted when design approval for subdivision (EDP) is sought.</p>
Air quality	
Aecom. (2014b). West Belconnen Strategic Environmental Assessment Air Quality Review, Aecom, 18 June 2014.	This report recommends strict control, and possible banning of wood heaters, pending resolution of further work that is being undertaken by Government. This situation will be monitored closely and bans or appropriate limitations on wood heaters will be imposed on residential development if appropriate and in accord with government policy.
Water quality	
Water quality records have been collected from samples taken in Spring Creek (below the land fill site)	The records collected to date have been reviewed and no issues have been identified. Ongoing monitoring is recommended.

6.0 Proposed Territory Plan provisions

The Environment and Planning Directorate has proposed that the West Belconnen planning proposal be published as a Draft Variation to the Territory Plan (DV351).

DV351 will incorporate features that will provide surety that future development will occur in a controlled fashion with appropriate measures in place to guard against unacceptable environmental impacts, as follows:

The project site will be rezoned for a range of urban purposes. It is important to understand that in the ACT (which varies from the position in other state jurisdictions) the zoning status of land does not confer any actual or implied rights to develop. Development approval processes must be subsequently undertaken for any actual development, such as a subdivision stage and following that individual houses, to occur. The development application processes include steps to ensure that appropriate referrals are made to agencies such as the EPA.

The land will be defined as a "Future Urban Area" (FUA). The FUA status provides for flexibility with the distribution of land uses within the site but also requires that all of the site must be subjected to an "Estate Development Plan" (EDP) development application before final land uses are determined. The EDP assessment and approval process includes referral to relevant agencies including the EPA.

Clearance zones will be included in the Territory Plan, as at present but also incorporating the requirements specified in the Separation Guidelines discussed above. An additional clearance zone providing a 1000m clearance around the green waste facility will be included and the existing 500m zone around the poultry farm will be extended to 750m. All clearance zones will be subject to a provision whereby they can be modified subject to the approval of an accredited environmental auditor and consequent endorsement by the EPA.

7.0 Further work

The various reports listed above have in several cases identified the need for further work and this will be undertaken progressively as the project proceeds. The further work will include but will not necessarily be limited to, the following:

- Finalization of ACTEW studies into odour associated with the Lower Molonglo Water Quality Control Centre.
- Odour studies associated with the green waste facility and other activities on the land fill site.
- Further investigations in to possible gas emanation from the land fill site.
- Progressive remediation of identified contaminated sites, especially sheep dips.
- A phase one report and subsequent work as required on the portion of the site north of Parkwood Road.
- Detailed odour assessment of the Ginninderra tunnel vent stacks.
- Continued monitoring of water and possible leachate from the land fill site
- Detailed evaluation of noise impacts associated with the substation.