

Appendix 1 – Plan showing location of sites



Appendix 2 – Consultation feedback

Consideration of matters raised during consultation on earthquake processing and disposal activities at the Burwood Resource Recovery Park and Burwood Landfill

Consideration and response by the consent applicants	Proposed mitigation (<i>proposed consent conditions in italics</i>)
<p>Issue 1: Risks to human health: asbestos and other contaminated materials Avoid transporting, storing, processing, and depositing asbestos or any other hazardous or toxic substance at the recovery park. Avoid impacts on drinking water supplies, coastal waters, and recreational activities. (Note: please also refer to the items 'Dust and other windblown emissions' below for further issues concerning public health.)</p>	
<p>Up to 5000 tonnes of asbestos containing materials (asbestos-cement pipes) were originally proposed to be disposed of at Site X. However, following feedback from the community the Council determined that Site X would no longer go ahead and would subsequently be deleted from the draft resource consent applications. Such material will be transported directly to the Kate Valley Regional Landfill. This was announced via media release and a mail-drop to residents in the vicinity of the recovery park on 17 May 2012.</p>	<p>Site X and any reference to any proposed processing or disposal of asbestos at the sites has been removed from the resource consent applications.</p>
<p>Only 'earthquake waste' is allowed to be receipted at Sites B, D, A, F and P. 'Earthquake waste' is defined as:</p> <p>(a) means—</p> <p>(i) solid waste resulting from the Canterbury earthquakes, including liquefaction silt; and</p> <p>(ii) solid waste resulting from any construction work (within the meaning of section 6 of the Construction Contracts Act 2002) undertaken as a result of the Canterbury earthquakes (within the meaning of section 4 of the Canterbury Earthquake Recovery Act 2011); but</p> <p>(b) does not include any of the following unless it is not reasonably practicable to separate it from the waste specified in paragraph (a):</p> <p>(i) general domestic refuse; or</p> <p>(ii) human waste; or</p> <p>(iii) building insulation and building materials containing asbestos; or</p> <p>(iv) hazardous waste; or</p> <p>(v) waste material from an industrial process or trade process.</p>	<p>All material received, stored, processed and recycled at Sites B and D shall meet the definition of 'earthquake waste' as follows:</p> <p>(a) means—</p> <p>(i) solid waste resulting from the Canterbury earthquakes, including liquefaction silt; and</p> <p>(ii) solid waste resulting from any construction work (within the meaning of section 6 of the Construction Contracts Act 2002) undertaken as a result of the Canterbury earthquakes (within the meaning of section 4 of the Canterbury Earthquake Recovery Act 2011); but</p> <p>(b) does not include any of the following unless it is not reasonably practicable to separate it from the waste specified in paragraph (a):</p> <p>(i) general domestic refuse; or</p> <p>(ii) human waste; or</p> <p>(iii) building insulation and building materials containing asbestos; or</p> <p>(iv) hazardous waste; or</p> <p>(v) waste material from an industrial process or trade process.</p>
<p>Sites F and P are designed to accept the following :</p> <ul style="list-style-type: none"> • Hardfill from the City's sewer, water and road network and • Liquid waste extracted from the City's infrastructure network 	<p>All material disposed of at Site A shall only be residual earthquake waste from the operations at Sites B and D.</p>
<p>All material processed or disposed of under the applications will meet the above definition:</p> <ul style="list-style-type: none"> • Material arriving for processing and recycling at Sites B and D is from building demolitions resulting from the earthquake events. • Material being deposited into Site A is the residual waste stream from the earthquake waste processing and recycling activities. • Material being deposited at Site F is mixed hardfill from the repair/removal of earthquake-damaged sewer, water and roading network and rivers and drains. • Material being deposited at Site P is silt and water contaminated by sewage removed from earthquake damaged sewer pipelines in order to keep those pipelines flowing and servicing residents in earthquake damaged areas. • Any other wastewater is processed and transferred to Christchurch Wastewater Treatment Plant or solid waste disposed of at transfer stations and/or Kate Valley Landfill directly. 	<p>Earthquake waste disposed of at Site F shall be limited to mixed hardfill and soils sourced from the removal or repair of potable water, wastewater and stormwater pipeline trenches and dredged material from rivers and drains within Christchurch City.</p> <p>Earthquake waste disposed of at Site P shall be limited to wastewater, water, silt and any contaminants removed from the wastewater and stormwater pipelines structures and trenches within Christchurch City.</p>
<p>Soil, gravel, rock and roading materials will also need to be brought into the sites for roading, cell construction, and restoration purposes.</p>	
<p>BRRP Ltd and the CCC do not manage the sites at the point of demolition or the material that gets loaded into the trucks – rather this is handled by the Canterbury Earthquake Authority (CERA), insurance companies, or contractors. However, for any material arriving at the recovery park, the CCC and BRRP will implement a number of procedures to ensure that material entering the sites meets the definition of 'earthquake waste' above. This will include signage at the kiosk and random</p>	<p>A notice shall be clearly positioned at the recovery park entrance (kiosk) to identify the wastes which are acceptable and unacceptable at the sites.</p> <p>Random visual inspections for the presence of unacceptable wastes, of a minimum of two incoming</p>


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<p>inspections at the tipping points at sites B and F twice a day.</p> <p>Note: the possibility of undertaking inspections at the gate or kiosk has been ruled out due to the impracticability of being able to identify the load (without tipping it out) and of the additional nuisance this would generate for nearby residents in terms of noise, dust and litter.</p> <p>Any vehicles transporting non-complying material to the site will be turned around and repeat offenders will be banned from future entry.</p>	<p><i>loads to each of Site B and Site F per day, shall be undertaken and recorded in a log book. This log book shall be provided to the Canterbury Regional Council and the Christchurch City Council upon request. The Canterbury Regional Council shall be immediately notified if any vehicles are turned away from Site B or Site F due to unacceptable wastes; this notification shall include the vehicle registration number and source of the waste (if known).</i></p> <p><i>A record of the estimated quantities of earthquake waste disposed of at Site A and Site P shall be maintained and provided to the Canterbury Regional Council upon request.</i></p>
<p>There are five key factors which make the Burwood site ideal for the disposal of earthquake waste, in terms of its natural ability to minimise risks to water quality:</p> <ol style="list-style-type: none"> 1. The flow of groundwater underneath the landfill is in a north-east direction towards the coastline. Any contaminants discharging to ground from the permanent disposal of landfill will also flow in this direction. All drinking water supplies are located at least 1.5 km up-gradient and south of the landfill and there is no potential to impact on these supplies. The Council routinely monitors water quality in the supply wells and has never recorded any issues with respect to the contaminants from the existing landfill, which is closer to the existing water supplies than any of the sites subject to the proposed consents. Council will continue with the monitoring programme. 2. There is more than 20 metres of 'confining' material between the base of the landfill and the first aquifer, which prevents contaminants migrating downwards into the aquifer. 3. There is an upwards hydraulic pressure (artesian) that helps prevent the downward movement of contaminants. 4. The monitoring of the liquid discharge from the old landfill shows that contaminants are being significantly diluted and dispersed by natural processes as the material moves towards the coastline. 5. Once the discharge reaches coastal waters, any contaminants are further significantly diluted by the marine waters. <p>Any residual risk to human health or ecology in the marine area is negligible. In other words, the proposals will not affect the ability for the coastline to be safely used for recreational activities.</p> <p>Notwithstanding the above, the Council has also undertaken detailed environmental assessments and contaminant modelling associated with the permanent disposal of material at Sites A, F and P, which concluded that the material to be disposed of is generally much more inert than material within the existing closed Burwood landfill, and that both the ongoing impact of the existing landfill coupled with the additional earthquake waste will have a negligible effect on the environment. Nevertheless, Council will continue with its programme of monitoring groundwater quality in the existing well network at the site (under the existing discharge permit for the landfill). This programme is comprehensive and requires regular (at least annually) monitoring and reporting of numerous water quality parameters. Under the programme a Remedial Action Plan has also been prepared (updated every three years), which requires remedial measures to be undertaken in the event that there are any concerns raised in monitoring results.</p> <p>(Full details of the existing discharge permit can be found at http://ecan.govt.nz/services/online-services/pages/consent-detail.aspx?Tab=0&ConsentNo=CRC011364.3)</p> <p>At Site P, water is decanted from the ponds and pumped via the Christchurch wastewater network, for full treatment at the Christchurch Wastewater Treatment Plant and eventual disposal via the ocean outfall.</p> <p>BRRP and the Council also propose a review condition which will allow the Canterbury Regional Council and the Christchurch City Council to review the consents under particular circumstances.</p>	<p><i>Monitoring and reporting of groundwater quality from the landfill site, inclusive of Sites A, F and P, shall be undertaken in accordance with conditions 6.1 to 6.16 of CRC011364.3 and any subsequent variations thereof.</i></p> <p><i>Water and wastewater at Site P shall be decanted and discharged to the piped wastewater network for treatment at the Christchurch Wastewater Treatment Plant.</i></p> <p><i>The Consent Authority may, once per year, on any working day of April or October each year, serve notice of its intention to review the conditions of this consent for the purposes of:</i></p> <ol style="list-style-type: none"> <i>(a) Ensuring that appropriate environmental monitoring and reporting is being undertaken;</i> <i>(b) Dealing with any adverse effects on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage.</i> <i>(c) Dealing with matters identified or resulting from any report required under this consent.</i> <i>(d) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.</i>
<p>Issue 2: Traffic</p>	

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<p>Impacts on residents from heavy vehicle use, both within the residential area and along Landfill Avenue. Limit hours of operation and/or use alternate access points.</p> <p>BRRP Ltd's ability to manage the routes of trucks carrying demolition material to Site B is very limited. The responsibility for the management of demolitions, loading of earthquake waste into trucks, and transport of that material to its destination lies with the Canterbury Earthquake Recovery Authority (CERA), insurance companies, or individual contractors. Due to the differing sources of demolition it is difficult to prescribe specific routes. However, CCC and BRRP will encourage truck drivers to utilise where possible routes that have been identified by CCC and CERA as the most appropriate.</p> <p>With respect to Sites F and P, the Christchurch City Plan requires: <i>"Vehicles carrying earthquake waste from various sources within the City and possibly from neighbouring Territorial Authorities to the landfill for permanent disposal shall adhere to the routes shown in Appendix 7 as soon as reasonably practicable"</i>. These routes were designed as transport routes for material from transfer stations during the time the landfill operated as a municipal facility, and are not suitable as routes for material going to Sites F and P, which come from all directions across the city.</p>	<p><i>With respect to waste going to Sites F and P the CCC and BRRP shall provide information to truck drivers to encourage them, where possible, to use routes that have been identified by CCC and CERA as the most appropriate.</i></p>
<p>To date, trucks accessing Site P (the 24-hour per day activity) have been using the Putake Drive entrance on a one week in three basis for deliveries outside normal landfill opening hours to provide some night-time relief to those residents living adjacent to Landfill Avenue. Potential concerns have been raised about alternating accesses. Consequently Putake Drive will not be used as an alternative entrance unless it is decided through the Community Liaison Group (CLG) process that alternating accesses is appropriate and desirable.</p>	
<p>Installation of an acoustic fence or barrier along Landfill Avenue, in the vicinity of residents, is a possibility that BRRP Ltd and the CCC are currently considering. However, this requires further analysis, the support of all affected residents, and potentially the need for a resource consent and/or building consent. This mitigation will continue to be considered with the assistance of the CLG. Issues to consider will be the likely effectiveness of the barrier (relative to its intended height) and the effects of height on shading and outlook for residential properties.</p>	<p>—</p>
<p>To minimise dust and noise and safety issues from traffic, speed limitations will be in place at the site and rigorously enforced with the aid of speed cameras. These will be used to monitor speed restriction compliance with repeat offenders being subject to enforcement i.e. access to the site revoked.</p> <p>Roads within the recovery park will be well maintained to reduce noise. This will include treating Landfill Avenue to reduce (e.g. milling the road surface to remove bumps)</p> <p>Outside the recovery park boundaries, the BRRP and CCC will continue to work closely with the NZ Police with respect to monitoring and enforcement of infringing vehicles.</p> <p>It is also anticipated that truck numbers will decline over the period of the consent, as demolitions and infrastructure repair works are completed.</p>	<p><i>The speed of all vehicles shall at all times comply with the speed limits identified in attached plan. Compliance with these speed limits will be monitored using speed cameras or other equivalent methods. Drivers of vehicles that breach these speed restrictions will be provided with a written warning. If a vehicle exceeds the speed restrictions on three occasions that vehicle and the driver will be prohibited from accessing the site.</i></p>

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<p>Many submissions suggested an alternative entrance point to the recovery park, e.g. off Lower Styx Road. Unfortunately this is not considered feasible for the following reasons:</p> <ul style="list-style-type: none"> • alternative access will dissect and interfere with recreational and forestry access and create numerous health and safety issues to manage; • a new access will not solve traffic and related issues such as noise, but rather just shift it to another area; • longer travel distances/times for vehicles will result (along with an increase in environmental effects such as vehicle emissions, noise, road wear) • the additional cost for construction of a new unsealed access road and associated infrastructure (weighbridge, kiosk, etc) is likely to be in the order of \$3 million. Additional road maintenance would be in the order of \$1 million per year. • NZTA is likely to have serious concerns with increased heavy vehicle traffic using the Styx Bridge on Marshlands Rd and the immediately adjacent intersection with Lower Styx Road, due to the narrowness of the bridge and the proximity of the intersection to the narrow bridge. 	 <p>At least one speed camera shall operate on site roads [note the camera may be mobile or hand held] within three months of the granting of this consent, and shall be operational for the duration of the consent. The camera shall operate at random times. The camera shall be capable of recording vehicle speed, registration plate details, and the time of offending.</p>
<p>Issue 3: Dust and other windblown emissions – from traffic outside the recovery park site boundaries</p> <p>Impacts of dust on residential properties from uncovered trucks. All trucks should be securely covered.</p> <p>The Canterbury Earthquake Recovery Authority (CERA), insurance companies and contractors are responsible for the</p>	

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<p>management of demolitions, loading of earthquake waste into trucks, and transport of that material to its destination. Covers have been trialled and because of repeated damage, which reduced their effectiveness, placing covers is voluntary. In addition, some loads due to their bulk cannot be covered. Loads are required to be wetted down to reduce dust.</p> <p>The Christchurch City Plan requires that refuse or earthquake waste going to the landfill “<i>shall be transported in a container or covered except where because of the nature of the load and/or the method of securing it, no problem of litter or dust can arise.</i>” Material going to Sites F and P is wet and does not require covering. Sites B and D are not covered by this rule in the City Plan.</p> <p>BRRP and CCC will continue to work closely with the CERA, insurance companies and contractors to reduce dust emissions from trucks carrying earthquake waste. The Council propose to develop an information flyer for those accessing the recovery park or landfill detailing best practice for securing loads, speed limitations, and the best route for transport.</p> <p>BRRP and CCC will continue to work closely with the NZ Police with respect to monitoring and enforcement of infringing vehicles exceeding speed limits and having insecure loads.</p> <p>A further mitigation measure being investigated by Council is increasing the frequency of road sweeping and dampening of the access roads to the recovery park and landfill.</p> <p>Notwithstanding the above, BRRP and the City Council have proposed comprehensive compliance requirements and mitigation within the boundaries of the recovery park sites – please see item ‘Dust and other windblown emissions – from traffic and operations inside the recovery park site boundaries’ below.</p>	
<p>Issue 4: Dust and other windblown emissions – from traffic and operations inside the recovery park boundaries</p> <p>Impacts of dust on residential properties and recreational users from traffic using Landfill Avenue and other internal roads, and from activities at the recovery park.</p> <p>Both BRRP and the Council intend to comply with the permitted activity standards for air discharges in Chapter 3 of the Natural Resources Regional Plan. This effectively requires that there is no objectionable or offensive impact beyond the site boundaries. A condition is also proposed to require all practicable measures to minimise emissions.</p>	<p><i>The dispersal or deposition of particles shall not cause an objectionable or offensive effect beyond the boundary of the property where the discharge originates.</i></p> <p><i>The consent holder shall adopt all practicable measures to minimise the emissions of dust beyond the property boundary. These may include but not be limited to:</i></p> <ul style="list-style-type: none"> <i>a) Ensuring that Landfill Avenue is regularly swept to remove sand, silt or other fine material that may become airborne;</i> <i>b) Ensuring that the shoulders of Landfill Avenue are regularly cleared of sand, silt or other fine material that may become airborne;</i> <i>c) Ensuring that measures are put in place to limit the transport of sand, silt or other fine material that may become airborne from the unsealed areas of the site onto Landfill Avenue.</i> <p><i>The consent holder shall install a continuous particulate monitor, on the property boundary adjacent to Landfill Avenue at a location to be approved by the Regional Council. This equipment:</i></p> <ul style="list-style-type: none"> <i>a) Shall Monitor PM₁₀ and be capable of providing 15 minute and 24 hour averages;</i> <i>b) Shall be designed to provide alerts to appropriate staff if concentrations exceed limits specified in the management plans;</i> <i>c) Shall be operated for at least 1 year following granting of consent.</i>

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<p>There are a number of different methods that individually or in combination, as the circumstances require, will ensure compliance with the conditions above. The key methods will be:</p> <ul style="list-style-type: none"> • restricting traffic speeds along internal roads; • cleaning roads of sand, silt or other fine material that may become airborne; and • use of water carts or other suppression measures (e.g. hydro-seeding) for dampening roads, road shoulders, stockpiles, processing, or deposition areas. <p>Comprehensive management plans for recovery park sites have already been drafted and will be submitted with the consent applications; once resource consents are granted these will be amended to reflect consent conditions-</p> <p>In addition to the above, BRRP and Council will maintain a complaints register.</p> <p>Both the CCC and BRRP will be undertaking periodic asbestos and respirable particulate sampling and analysis to ensure that concentrations of asbestos and respirable particulate are less than their respective Workplace Exposure Standards as part of their responsibility towards the health and safety of staff on site.</p> <p>Silt from liquefaction is being removed from the site and taken to the wastewater treatment plant at Bromley. Transport of this silt is potentially a source of dust on the landfill access road, as was noted when the liquefaction silt was originally brought into the site. The vehicles undertaking this are contracted by the CCC. As a consequence, the CCC has full control over how these vehicles operate and therefore can require these vehicles to be covered. This will help to reduce dust discharges from these vehicles.</p>	<p><i>After completion of one year of monitoring the consent holder may request that the Regional Council review the need for this monitoring. In reviewing the need for monitoring, the Regional Council will take into account:</i></p> <ol style="list-style-type: none"> <i>whether there have been any validated dust complaints from residences of properties adjacent to Landfill Avenue; and</i> <i>whether there have been any exceedance of the National Environmental Standard for PM10 as a result of particulate emissions associated with activities on the landfill during that time.</i> <p>Please refer to Issue 2. 'Traffic'.</p> <p>Please refer to Issue 9. 'Management plan'.</p> <p><i>The consent holder shall undertake occupational health monitoring for asbestos and respirable particulate on a six monthly basis. The monitoring shall:</i></p> <ol style="list-style-type: none"> <i>be undertaken in accordance with Membrane Filter Method for estimating Airborne Asbestos Fibres, 2nd Edition [NOHSC: 3003(2005) or equivalent for asbestos;</i> <i>be undertaken in accordance with NIOSH Method 0600 Particulates not otherwise regulated, respirable or equivalent for respirable particulate;</i> <i>be undertaken at at least one location near to the load-in hopper to the recover operation.</i> <i>The results shall be provided to the Regional Council within 14 days of sampling being undertaken.</i> <p>Please refer to Issue 7. 'Complaints register'.</p> <p><i>Trucks transporting material from the site that has the potential to generate dust will cover their loads before accessing Landfill Avenue.</i></p>
<p>Issue 5: Noise – from site operations Impacts of noise on residential properties and recreational users from activities at the recovery park and on internal roads.</p> <p>The distance of the recovery park to residences, and intervening buffer of landfill mound and trees, is the best mitigation</p>	<p>Hours of operation:</p>

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<p>available for noise from site operations. Notwithstanding that, several additional methods are proposed to limit noise impacts on residents and recreational users resulting from site operations and the transport of material along Landfill Avenue:</p> <ul style="list-style-type: none"> • Limit operational hours (note: Site P will by necessity continue to be a 24 hour operation). • Comply with New Zealand construction noise standards. • Limitation and enforcement of speeds on internal roads (see 'Traffic' Issue 2) • Roads within the site will be well maintained. • Keeping of a complaints register (see 'Complaints register' Issue 7) • Use of management plan (see 'Management plan' Issue 9) • The further investigation, in collaboration with the CLG, of noise mitigation options especially in relation to traffic noise on Landfill Avenue. 	<ul style="list-style-type: none"> • Sites B&D: <i>Hours of operation for delivery of demolition material shall be limited to 6am – 6pm Monday to Saturday.</i> <i>Hours of operation for earthquake waste processing activities shall be limited to 5am – 9 pm Monday-Saturday. The site shall not operate on public holidays.</i> • Site A: <i>Hours of operation for residual earthquake waste disposal shall be limited to 5am – 9 pm Monday-Saturday. The site shall not operate on public holidays.</i> • Site F: <i>Hours of operation for disposal of earthquake waste shall be limited to 7am – 5 pm Monday-Friday and 8am – 12pm Saturday. The site shall not operate on public holidays.</i> • Site P: No restrictions. <p>Construction noise standards: <i>Noise from site operations shall comply with NZS 6803:1999 Acoustics Construction noise.</i></p> <p><i>Roads within the site, including Landfill Avenue, will be well maintained to reduce vehicle noise. This may include but not be limited to:</i></p> <ol style="list-style-type: none"> <i>Repairing potholes; and</i> <i>Removing bumps from paved surfaces.</i> <p>Please see Traffic for further mitigation.</p>
<p>Issue 6: Community liaison Ensure adequate protocols are in place for the consent holders and community to communicate about any issues.</p> <p>BRRP and the City Council intend to set up a community liaison committee / group, made up of representatives of both the consent holders and the community, to foster communication and information sharing, and address any issues as they arise. The formation of this committee will be discussed over the coming weeks.</p>	<ol style="list-style-type: none"> <i>The Consent Holders shall, prior to the commencement of operations under this consent, advertise, by way of a local mail out, and hold a public meeting to offer local residents the opportunity to establish a Community Liaison Group.</i> <i>Any such Community Liaison Group shall consist of representatives of Residents Associations in the Burwood area; two representatives of the property owners adjacent to Landfill Road; and one representative of each of the Consent Holders.</i> <i>A representative from each of the consent authorities shall be invited to attend meetings in an observer capacity.</i> <i>The members of the liaison group shall be offered the opportunity of a quarterly site inspection, a quarterly meeting opportunity, and provision of any information to which the Councils are entitled by virtue of these conditions regarding the development and operation of the site, at the Consent Holders expense.</i> <i>The prime purpose of the quarterly meetings with the Community Liaison Group will be to:</i> <ul style="list-style-type: none"> ○ <i>Explain the progress of the site operations;</i> ○ <i>Listen to, and discuss as far as practicable any community and cultural concerns with the site operations;</i>

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	<ul style="list-style-type: none"> ○ Develop additional mitigation measures where appropriate; ○ Present and discuss the complaints register and results of any monitoring and/or reporting as required by the conditions of regional and district council consents.
<p><u>Issue 7: Complaints register</u> Maintain a database of complaints.</p> <p>BRRP Ltd and the CCC agree that a complaints register would be a useful tool for keeping records and dealing with issues of concern raised by individuals within the local community. This register would be made available to the consent authorities. The community liaison committee would deal with wider issues.</p> <p>Please also note that the Canterbury Regional Council administer a 'pollution hotline' whereby members of the public can phone the Council. If any individual or organisation is seen to be harming the environment. The phone number is (03) 366 4663 or 0800 76 55 88. This service is available 24 hours- per-day 7 days-per-week. More information can be found at this website: http://ecan.govt.nz/services/pages/pollution-hotline.aspx</p>	<p>A complaints register shall be maintained and shall include:</p> <ul style="list-style-type: none"> (a) The location of the complaint detected by the complainant (b) A description of the event leading to the complaint, including date, time, weather conditions. (c) The most likely cause of the event; (d) Any corrective action undertaken to avoid, remedy or mitigate the event and any similar future events. <p>The Canterbury Regional Council and the Christchurch City Council shall be advised as soon as practicable via email or phone following any complaint. The complaints register shall be made available to the consent authorities upon request.</p>
<p><u>Issue 8: Consent duration</u> Limit the period in which the sites are able to operate.</p> <p>Provided there are no more significant earthquake events, both the BRRP and Council intend to completely cease operations, including all rehabilitation activities, at the sites by 31 March 2017. This date will be incorporated into the consent documents.</p> <p>However, because there is an on-going discharge to ground from Site A even when disposal ceases, a longer duration is required. On this consent a duration to 31 May 2037 will be sought, which is consistent with the discharge permit for the existing landfill, and entirely normal for landfill aftercare and monitoring requirements for such facilities.</p>	<p>All consents (except discharge permit for Site A): <i>Pursuant to Section 123 of the Resource Management Act 1991, this resource consent shall expire on 31 March 2017. For the avoidance of doubt, all activities subject to this consent shall cease by this date, including completion of all rehabilitation activities.</i></p> <p>Discharge permit for Site A: <i>All activities subject to this resource consent, with the exception of the on-going passive discharge from the site, shall cease by 31 March 2017. For the avoidance of doubt, this shall include completion of disposal activities and all subsequent rehabilitation activities. Pursuant to Section 123 of the Resource Management Act 1991, this resource consent shall expire on 31 May 2037.</i></p>
<p><u>Issue 9: Management plan</u> Ensure that on-site practices comply with resource consents and minimise impacts on the community.</p> <p>Comprehensive management plans have already been drafted for both the recovery park sites, and will be submitted with the resource consent applications. These have been prepared in accordance with recognised best practice. The plans will need to be updated following the issuing of resource consents to ensure they reflect consent conditions.</p>	<p>A Management Plan shall be submitted to Christchurch City Council and Environment Canterbury within two months after granting of resource consents. The plan shall:</p> <ul style="list-style-type: none"> (a) Define responsibilities for management of the site (b) Identify waste acceptance criteria and keeping of records (c) Identify methods for managing environmental effects at the landfill site, including but not limited to: <ul style="list-style-type: none"> (i) Signage (ii) Perimeter fencing (iii) Stormwater management (iv) Landfill gas management (v) Placement, compaction and capping of waste (vi) Control of nuisances including dust, noise, litter and vermin

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Consideration and response by the consent applicants	Proposed mitigation (<i>proposed consent conditions in italics</i>)
<p><u>Issue 10: Odour</u> <i>Impacts of odours/smell from the processing and disposal of earthquake waste</i></p> <p>Material being processed at the recovery park and disposed of at the landfill is largely inert hardfill material with very little potential for odour. The possible exception is from the material disposed of at Site P (sucker truck discharges). Consent conditions are proposed to ensure there are no noxious, offensive or objectionable effects beyond the site boundaries.</p> <p>Under the existing discharge permit for the landfill (CRC011364.3), the CCC already undertakes a community odour survey every two years. Landfill gas is also monitored under the existing permit. Both these activities will continue under the future resource consents.</p> <p>Consent condition 4.3 from CRC011364.3:</p> <ol style="list-style-type: none"> Within the last three months of 2004, and two-yearly thereafter, the consent holder shall undertake a community odour survey within the area identified in plan CRC024012B attached. The survey shall be prepared in consultation with the Canterbury Regional Council. The design and extent of the survey shall comply with recognised good practice for community surveys. The results of the survey shall be reported to the Canterbury Regional Council by 28 February of the year following the survey. If the results of the survey required in 4.3(a) indicate that 20 per cent or more of people in close proximity to the landfill who are "at least annoyed" (as defined in the Ministry for the Environment's report titled Odour Management Under the Resource Management Act, June 2001) exceeds the background percentage of the community who are "at least annoyed" then the consent holder shall prepare a report detailing the measures that will be undertaken to reduce odour emissions from the site. That report shall be provided to the Canterbury Regional Council by the end of May following the reporting to the Canterbury Regional Council of the survey to which it relates. 	<ol style="list-style-type: none"> (vii) Any other method to ensure compliance with other conditions on this resource consent (d) Identify emergency procedures (e) Identify reinstatement and rehabilitation procedures. (f) Where not listed above, address any other matter in Appendix 3 of the Land fill Guidelines (2000) published by Centre for Advanced Engineering, University of Canterbury. <p>The management plan shall be reviewed on an annual basis.</p> <p>The discharge of odour beyond the boundary of the site shall not be noxious, dangerous, offensive or objectionable to such an extent that is has an adverse effect on the environment.</p> <p>The consent holder shall adopt all practicable measures to minimise the emissions of odour.</p>
<p><u>Issue 11: Property values</u> Impacts of the activities on the monetary value of residential properties.</p> <p>BRRP and the CCC understand and sympathise with residents over the unfortunate but unavoidable events which have led to the need to open the recovery park and reopen the landfill. However, due to the unusual and unique circumstances Christchurch has been faced with, the government passed legislation that would enable the proposed activities to proceed, subject to the obtaining of resource consents to manage and minimise environmental effects. The activities will only be in place until 31 March 2017. The Resource Management Act 1991 can only deal with environmental effects, and does not allow direct consideration the issue of impacts on property values.</p>	<p>—</p>
<p><u>Issue 12: Rehabilitation/restoration</u> Ensure the sites are restored appropriately.</p>	

Consideration of matters raised during consultation on earthquake processing and disposal activities at the Burwood Resource Recovery Park and Burwood Landfill

Consideration and response by the consent applicants	Proposed mitigation (<i>proposed consent conditions in italics</i>)
<p>By 31 March 2017, the recovery park site will be completely cleared and returned to the Bottle Lake Forest Park either for recreation and/or forestry. The landfill will be rehabilitated in general accordance with the current Landfill Closure Plan (2002). This closure plan sets out the details for final rehabilitation, including capping, revegetation and landscaping. The principle of eventually allowing the landfill site to be used for public open space / recreation has not changed as a result of the proposed activities.</p> <p>Further consultation with the community will be required in terms of the final form of the rehabilitation plan. For that reason the CCC will request that the plan be prepared within 2 years of the grant of consent.</p>	<p>Sites B and D: <i>Upon completion of earthquake waste processing activities, all remaining waste, machinery, plant, and buildings shall be removed from the site, and as best as practicable the site contoured and rehabilitated to that which existing immediately prior to the depositing of waste.</i></p> <p>Sites A, F and P: <i>The Burwood Landfill Closure Plan (2002) shall be updated and submitted to the Canterbury Regional Council and Christchurch City Council within two years of the granting of resource consents. The plan shall identify:</i></p> <ul style="list-style-type: none"> <i>(a) the final capping details, likely contouring, and re-vegetation of the site;</i> <i>(b) any on-going aftercare and maintenance activities, including maintenance of capping, site fencing, and groundwater monitoring systems; and</i> <i>(c) suitable and unsuitable future uses, including any relevant health and safety matters.</i>
Issue 13: Volumes of earthquake waste Limit the total volume of waste entering the site.	
Certainty is required with respect to the total volumes of waste to be received at the recovery park sites.	<p><i>The maximum quantity of earthquake waste to be receipted at Site B is 750,000 tonnes.</i></p> <p><i>The maximum quantity of earthquake waste disposed of at Site A shall be 750,000 tonnes.</i></p> <p><i>The maximum quantity of earthquake waste disposed of at Site F shall be 250,000 tonnes.</i></p>

Community Meeting- Burwood Resource Recovery Park and Burwood Landfill Resource Consent applications

8 June 2012

Dear resident,

Following on from the consultation meeting last month regarding the Burwood Resource Recovery Park and Burwood Landfill resource consent applications, we are holding a community meeting later this month.

- **Day and time: Tuesday 26 June 2012, 7.00pm to 9.00pm**
- **Venue: Queenspark Baptist Church, 180 Queenspark Drive**

The purpose of the meeting is to provide you with:

- a summary of the feedback we have received and the changes to draft consent applications we have made as a result of that feedback.
- confirmation that disposal of asbestos at Burwood landfill is not included in the final consent documents
- provide you an indication of timeframes and the process of the consent being granted.
- discuss with you the re-establishment of a Burwood Landfill community liaison group, and how this may operate.

Thank you to those of you who provided us with valuable feedback. This meeting will be an opportunity to answer any questions you may have before the final consent documentation is lodged, and provide an opportunity to explore how we can keep you and the community informed going forward.

An independent facilitator will run the meeting. We will have a number of technical and regulatory representatives and advisors present from Burwood Resource Recovery Park, Burwood Landfill, City Council and Environment Canterbury and the Medical Officer of Health. Copies of a document containing a summary of issues raised during consultation and the consent applicants' responses will also be available at the meeting. If you would like a copy prior to the meeting, they will be available from 18 June 2012 and you can either:

- view or download online at www.ccc.govt.nz/burwoodresourcerecoverypark
- phone 03 9418999 or
- email info@ccc.govt.nz with Burwood Landfill in the subject line

We look forward to meeting you.

Yours sincerely,



Mark Christison
Unit Manager City Water & Waste
Christchurch City Council



Burwood Resource Recovery Park/Christchurch City Council Consultation
7 May 2012

Time	Speaker	
00.00	Nick Davidson:	<p><i>Well ladies and gentlemen welcome this evening. My name is Nick Davidson and I'm here to chair this meeting and the reason I am using this mic is that what is said here tonight is going to be recorded as part of the process that this meeting is part of itself. Now to explain the position, I'm not involved with the applicant, I'm not involved with the Council. I usually act as a lawyer against the Council and I haven't acted for or against Trans Waste so I'm truly neutral in this situation and that's the purpose of my being here. That I'm here to make sure that what you have to say, what you want to say and what you want to have asked is dealt with by the company, by the applicant and by the City Council. So the process that we're going to follow, once I put my glasses on, is to try and flesh out a bit of what the applications are all about. I just want to say these few things to you and I hope these are helpful to you understand what is proposed tonight. Now the first point is that the applications for various resource consents that are being sought by the Council and by the company are still draft applications and this meeting tonight and the submissions which you may choose to follow this will be brought to account by the applicants when they prepare the resource consent applications and put them forward for the formal consent process so this is a critical meeting for you both to ask questions and to make points with the applicant with a view in due course to having your submissions addressed in the applications which are made. So nothing is set in concrete in that sense. Now the, excuse me, I think you will understand that the emergency provisions which established the resource recovery park had been followed by various orders, an earthquake order and an amendment to the City Plan and the Natural Resources Regional Plan at Ecan to provide for the permanent disposal at the landfill of the residual earthquake waste and other earthquake waste and resource consents are required from Ecan and the City Council for that disposal. So if you look at the package of consents which are being told about tonight, they're for receipt, sorting and recycling of earthquake waste, the permanent disposal of residual earthquake waste, and after that sorting, and what's called other earthquake waste, so that's outside the recycling process. Now the thing about the process which is difficult for residents to understand, and to accept probably, is what are called controlled non-notified activities and the reason it's hard to understand and accept of course is that they must be granted. The consents will be granted in due course so the public participation in the processes here right now and when you file your submissions if you choose to, so what you say tonight can be addressed, you can ask questions and you can put forward propositions, then after this meeting before the 25th May you may file submissions to these applications, these draft applications, and then the two applicants have to decide the applications that they want to make. So the room for influence is right now and the next 17 days. So if you remember that this is really a pretty important meeting because it's going to set the scene for what follows. Now the, you know what the applicants are going to tell you broadly, it's not my role to do more than summarise the position that the park and the landfill sites have favourable conditions in terms of the hydrological to minimise the potential environmental effects and that's the case if you like for</i></p>

		<p>the City Council and for the company when they seek these consents. And you may hear tonight that they have made a significant effort to try and minimise the environmental impacts of which there will be some of course. But again this is where you can clarify the position with them, and you can make your own suggestions with regard to the things you hear tonight. Now the complexity of the situation is this, there are two applications, two applicants: the company and the City Council because different consents are required. So what the company and the City Council have done so far as you are concerned is to put the applications into three packages and the three packages are these: firstly package one is the sorting and recycling of earthquake waste at recovery park and that's called sites B and D. Package two is the permanent disposal of the residual waste from the recovery park at landfill site A and package three is permanent disposal of other earthquake waste at Burwood Landfill sites F, X and P. So they're clustered in this way and the intention of the meeting and the two applicants with the experts who are here tonight is to address them as a group, all three packages, but making sure you understand what each separate package is about. So the way its proposed be done is that Gill Cox who's the chair of the company is going to speak to you now about the process thats underway, perhaps not so much process now that I've introduced it in this way and get to the heart of the matter, and then Gareth James is going to, with the team of experts here, address all three packages. And my role is to make sure that we get through the evening with everything covered to make sure you all have a chance to ask questions and it truly is that opportunity so my suggestion is, speaking as another rate payer, is to listen to what you hear and when Gareth has finished discussing the three packages we'll start to move into discussion about each aspect so for example we might discuss traffic and different roads. We might discuss the fact of asbestos which has been going to this site for many, many years. We might move through categories of discussion and with the thoughts you've all got in your heads, lets try and group them, through me, to deal with them topic by topic so we don't randomly move around too much. So that's the start of the evening, and Gill would you like to now explain the applicant's position?</p>
07:35	Gill Cox	<p>Thanks Nick. My role is Chair of a company called Trans Waste and Trans Waste is the operator of the Kate Valley Landfill Site, the regional landfill site in North Canterbury. That company 100% owns Burwood Resource Recovery Park Ltd of which I'm also Chair and my role tonight really is just to introduce the experts to you so you know who you're going to be talking to and relating to as you ask questions later on and to introduce Gareth and outline the sort of stuff that he will cover during the evening. First of all the experts as I'm calling them, I'm sure that's the name that they like, can I just introduce them and ask each of you to stand so at least people can identify? Mark Christison who's the Manager of Water and Waste, Christchurch City Council.</p>
08:25	Mark Christison	<p>Good Evening.</p>
08:26	Gill Cox	<p>Jesse Burgess, Christchurch City Council Planning Team Leader, Catherine Chellis, Catherine is from Environment Canterbury- Consents Planner, Lynn Torgison –Lynn is from Pattle Delamore Consultants and is a planner, Daniel Murray – Daniel is from URS Consultants in the planning side, Ian Jenkins – Ian is from URS Consultants in the engineering side, Andrew Curtis – Andrew is again from URS Consultants and deals with air quality, and Gareth, I wonder if you could stand, Gareth is the Southern South Island Manager of</p>

		<p><i>Transpacific Industries Ltd who is the other partner with and will explain this in some detail, the other partner with the five Local Authorities in Trans Waste and therefore BRRP and Gareth has been instrumental in putting much of the proposals for this together and he's a Director of as I say Burwood Resource Recovery Park Ltd along with myself and he'll be doing the bulk of the explanation tonight and then myself and my role is just about finished. The areas that Gareth's going to cover so you get a feeling of the pattern we're going to go through. An outline of the work that's going to take place and is taking place at the site. He'll cover in more detail than I have just done who the applicants are and they are the Christchurch City Council and Burwood Resource Recovery Park Ltd but particularly with the latter one, to put it into a context for you, he'll talk about the consenting and consultation process so that you can see how and when you can engage in a little more detail than Nick Davidson has already. He'll go into quite some detail about the description of the works, so the first bit about the work is an overview so you can see how that fits but then we'll get into a detailed description of the work. He'll talk about why it's at Burwood, so why the selection of Burwood. He'll talk about where you can get further information because you may want to get further information and we'll talk about the process from here. Gareth, over to you. Nick is there anything else you wanted to say at this stage?</i></p>
10.42	Gareth James	<p><i>Thank you Gill and evening everyone. I hope you can see that it looks from where I'm standing like sort of shaded out. I don't know whether there's anything we can do with the lights, Simon, to make it slightly better? Is that a little bit better 'cause there are some photos which might help you understand what's actually happening out at Burwood at the moment as we go through. So as Gill said, I'm going to cover those topics, I'm probably going to go through it reasonably quickly, 'cause I think the main import of the evening is to give you the opportunity to ask questions of this illustrious panel and I'm sure they'll be really disappointed if they don't get at least one thorny question so hopefully we can give you plenty of time to do that, so we'll get straight into it, Nick has given you an overview of the work but we're really talking about three packages of work. The first one storing and recycling building demolition material so this is stuff that has come from the deconstruction of Christchurch, mostly from the CBD, but also from the suburbs and from all the other areas of Christchurch where buildings have had to be demolished. It's not all of that material 'cause a lot of it is going to other places, you've been reading about that in the Press lately, some of its gone into funny places it probably shouldn't have, but this site at Burwood, this is what it looked like probably three or four months ago, there's a slightly bigger pile there now, but its coming in at a slow trickle. Most of the early stuff March, April, May last year, most of that material came in then. Its been quite, a quiet but steady trickle since then because the demolition process is well advanced at this stage and as Nick said, that's on sites B & D and I'll explain a bit further shortly about where those are. Once we have gone through a process of sorting that material, which is a very, very difficult process, it's going to involve a state of the art recycling plant, be one of the most impressive ones in the Southern Hemisphere, very difficult job to sort the material and recover anything that's valuable in it, anything that can be reused or go back out for the rebuild of Christchurch, there will be some stuff left, the residual that you can't recycle and the ideal of this number 2 is that we can put that material into a new landfill that we're</i></p>

		<p>going to create in the same space as the old Burwood Landfill in the same footprint area right along side but it will be a completely new separate landfill. So that will be just for whatever comes out of this after we have sorted it and recovered anything valuable. Then there is the third stream of work which is happening on another part of the site further to the south on really on adjacent to the old Burwood Landfill and that is the disposal of a whole bunch of a different materials that have come out mainly from the infrastructure repair going on in Christchurch, in other words the sewers, the water supply, stormwater, roading, that type of area where there is many years ahead of us of trying to fix those systems and as we fix them there is material that comes out of it that has to be treated in some way or disposed of. So we'll talk about those three activities in a bit more detail and the sites involved shortly. So just a quick orientation of the whole site. This is an aerial photograph of the Burwood area that we're talking about. North up to the top of the screen, this is the sea out here, this yellow area is the footprint of the old Burwood Landfill that state was operating from 1984 to 2005 and closed down when Kate Valley opened up. Here is a section of the residential area around Queens Park. This is the road that comes in, so if you can think the entrance is quite a long way back over here somewhere. So we're just focussing in really on the zone where these activities are going to occur. There's no rhyme or reason why some are called A, B, C and then it goes to X. That's just an historical accident I think as much as anything and we've continued with those names because the people on the site understand what they mean. So apologies that we're not going in a nice general direction. Area B, that is the area that you see in this photograph. Here this is Area B. So that photograph was taken standing on the hill about here somewhere on the old landfill looking that way, looking to the north. That is where we expect most of the debris from the building demolition to be stored and where we're going to build the plant that is going to recycle it. We do have another area over here, Area D, way out in the middle of the forest. It's an overflow area if we run out of space on Area B but we're not expecting to have that to happen now, as we set it up in the early days 'cause nobody had a clue how much material there was going to be so we made sure we were covering all the bases. There is some material stored in here, it is what you might call the sensitive material from buildings where people have lost their lives, so that is an area that is under 24 hour security but we're not expecting to use that for any other overflow unless there is a sudden massive burst of demolition activity that nobody's expected. Area A is the area of the new landfill that we're talking about. It's within the footprint of the old landfill and it's an area of the landfill that was always going to be used had that landfill continued on in its life after 2005, which of course it didn't. So that is the site very close to where the recycling plant is, so we're talking about a very short distance between the two. Then we have three areas on this side of the landfill down to the south, Area P is an existing pond, P for pond I presume that's why it's called P. That is the area where the dewatering takes place of the sort of silts and sludges that come out of the sewer repairs where you have to separate out the silt from the liquid and the liquid is decanted off in those ponds and taken off to the sewage treatment plant and we can recover the silt and treat it and make it reusable again. Area X is the area for the disposal of asbestos cement pipes which a large chunk of Christchurch used back from the seventies and eighties. And Area F is another rehabilitation</p>
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		<p>area for silt, mainly, and organic material that needs time to clean itself up. So that's the overview of the sites we'll look at it all in a wee bit more detail shortly. Just briefing a little bit more about who the applicants are. Gill mentioned the Burwood Resource Recovery Park, he's the chairman of that group. That is the applicant for the storage of the material that's in there at the moment and the recycling of it. So Burwood Resource Recovery Park is going to be doing the recycling project. Christchurch City Council has the other two activities – the disposal of all those infrastructure wastes and the disposal in the new cell Area A. The complicating factor I suppose is that Burwood Resource Recovery Park will actually be managing all three of those activities so we're working very closely with the Christchurch City so that there's one agency in control of the whole site so that we can control things like the traffic and how drivers behave and all those other sorts of things but working very much in partnership. So the resource consents will be held for these two things by Christchurch City and for that by Burwood Resource Recovery Park but the whole site will be managed as one entity by Burwood Resource Recovery Park working for Christchurch City to a large extent. Just explaining a bit more about Burwood Resource Recovery Park or BRRP as its unfortunately come to be known, as Gill said it's a 100% owned by Trans Waste Canterbury. Trans Waste Canterbury is a joint venture between five Councils – Christchurch, Waimakariri, Ashburton, Hurunui and Selwyn and Transpacific Industries which is the company I work for. It's a 50/50 joint venture so both parties are equal partners. Its been running since 1999 and it has developed and operating the Kate Valley Landfills since 2005. So it's a well known entity, it's a very, very good partnership between if you like the community, community ownership side and the private sector using the private sectors expertise in this area and the community interest in the area and getting what many see as a very good outcome. The consenting process, now Nick's given you a bit of an insight into this. It is from a non-planners point of view extraordinarily complex and we're trying definitely to simplify it and try and make it easy for people to respond to but essentially the Government made some decisions following the earthquake. They brought in the Canterbury (oops a daisy) Canterbury Earthquake Recovery Act 2011 which gave the Government and particularly CERA quite a lot of power to do things and under that Act they have made two changes an order in Council which came in in July last year for the recycling operation on Area B and a Section 27 Ministerial Intervention for all the other operations on Burwood and that happened in November last year, just prior to the election. So the Government has set down the process by which resource consents for these activities must happen and what they've really done as they've really done with say Lyttelton Port and some of the other activities round the city is given what you might call a fast track process for resource consenting. So it's not your normal resource management act type process, it is short-circuited so that things can happen in a hurry so that people still get consulted and still have a say but the Government has determined because of the importance of these things that the consents must be granted. So Nick outlined that before so what we're talking really about is they're going to be granted, what are the conditions under which they should operate that can minimise the effect on other people. There is no public notification and there is no consent hearing required under this process. It will be decided by a commissioner appointed by the resource</p>
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		<p>consent agencies which are Christchurch City and Environment Canterbury and what the commissioner will be deciding is what are the appropriate conditions to manage any environmental effects. So that is the process that we've been given and which we have to work to. It does have an opportunity for consultation and Nick did discuss that briefly before. The process has listed, identified a set of stakeholders so we're not talking about the public. We're talking about specific groups and specific individuals and I'll show you who they are shortly who have been invited to comment. Now one of the processes requires this the other process doesn't, but the group that is, the two applicants have decided that we'll put it all together and treat it as though both processes do actually require the consultation 'cause then it's easier for people to understand, easier for people to give us some feedback and makes a slightly simplified process. So we are consulting the two applicants with the stakeholders before we lodge the applications in the hope that we get some feedback from you that we can consider and if there's some smart stuff in there which there usually is in these processes we can take account of that and we can modify our draft consents as they sit at the moment to take account of what might make sense and then we would lodge the consents. Once we've lodged the consents, one of the consents, only one of them, has an opportunity for a statutory process for consultation after lodgement and that is the one for site B, the BRRP for sorting there is a process that Environment Canterbury and Christchurch City will have to consult with the same stake holders again so in other words you'll get a second crack on that particular one, but it is not required for the disposal site at Area A or for the disposal at F X and P. The stake holders that are specifically identified in the legislation from the Government. They nominated it so, Ngai Tahu, Canterbury District Health Board, Burwood Pegasus Community Board, Parklands Residents Association, Queens Park Residents Association, Selwyn Plantation Board and the owners and occupiers of land adjacent to the BRRP site and the Burwood Landfill. And Environment Canterbury undertook to identify which particular property owners that group would be. One of the things that BRRP will be doing once we have the consents on this site and we're operational is setting up a community liaison group. Now this is something we've done at Kate Valley, works very, very well. The local community has an election every three years and appoints four or five people, whatever they choose in number who then meet with the land fill management every three months and it gives a really good forum and a good opportunity to discuss, you know, how things are going, what the issues are, anything that can be, you know, brought to the attention of the management in both directions. That's worked very well up there, so we would be looking to set up the same kind of liaison group in the Burwood Community and we would, you know, take advice from the community as to just how far that should stretch. So looking at some of this work in a little more detail going to site B where the sorting is going to happen, what's going to happen there specifically, we're stockpiling that earthquake demolition material, as you've seen in those earlier photographs. All that material is coming from sites that are tracked. We have a manifest system so that it starts right back at the building demolition, then its approved by CERA, it commences a process where the material from that building is tracked where ever its going to go and when it turns up at the weigh bridge at Burwood we know exactly where its come from, who signed it off, what's in it</p>
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		<p>and so on. We then check that what's in the truck is the same as what's in the manifest and we do that in two places, both at the weigh bridge and we also do it at the site itself where there's a spotter whose up at a height who can actually walk along the back of the truck and if necessary he can get in it and make sure that the material is what it is supposed to be which is building demolition material. We don't want any of these sorts of things like general rubbish, that's to go to Kate Valley, human waste, asbestos, any other kind of hazardous waste or any trade waste or industrial waste material. It has to be from earthquake demolition processes only. We're expecting somewhere between 300-500,000 tonnes. There's about 310,000 tonnes on site at the moment. It's quite a big pile but the way things are going in the demolition zone in Christchurch it's hard to see us getting more than 500,000 tonnes but we are applying for up to 750,000 tonnes capacity on that site which is probably all we can fit on Area B, just in case there is more demolition, or dare I say it, more earthquakes. But at this stage our expectation is its going to be somewhere between 3 and 500,000 tonnes and its really hard to predict because it's different every day and very, very hard to get a long term view of just how much is out there 'cause until the demolition permits are issued it's very hard to know. And the process is that this material will be sorted and as much of it as possible recovered from a sorting plant. So this is the sorting plant, it's quite a sophisticated beast, it's going to have to work very, very hard. We're expecting it to do about 150,000 tonnes a year and to do that it's going to have to work 15 hours a day, 6 days a week. So it's a double shift operation. We're expecting somewhere around 50 trucks a day, that's at the moment its between 30 and 50 trucks a day bringing in demolition material. We got as much as 2,000 trucks back in March/April so it's a very, very different level than we used to get back then, but we are expecting it to carry on for one, two years. I'd love someone to tell me how long, we don't really know, it depends what happens with the houses, if they're demolished and taken to Burwood or whether people rebuild them or whatever they do and it depends whether there are other sites that are taking this material which there certainly are at the moment. So we think probably we're looking at two or three years tops for that and that will gradually drop off over time. One of the things we propose doing and you'll see this with all the consents is that we can control the traffic once it gets on the site and we're proposing to limit the trucks to 20km/ph on the entrance of Burwood Road/Prestons Road corner there, right through to the weigh bridge to 20km/ph. So we know that that's an issue for one or two of the adjacent residents. The plant however will have to operate from five in the morning til nine at night, Monday to Saturday. Fortunately you'll see where its tucked away in the back of the site there is a large mound, the old earthquake, between it and the residences which are about 1.3 kms away so we're not expecting to have any noise issues from that plant operation and how long it goes, whether its two years, three years or longer depends totally on how much material there is to be sorted. So if we stop today there is just over 300,000 tonnes, it would take two years to sort through it. If we get up to 500,00 we could be looking at three, three and a half years, something of that order of that operation. These are some of the components, there's a whole swag of components from all over the world sitting on the ground waiting for us to get to a point when we can start putting it all together. This is what the plant looks like, schematic drawing of it. This</p>
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30:00

is where the material will come in it will go through a shredder. The first thing that happens to all the material it gets cut to a size where nothing is bigger than 250mm or 10 inches in the good old numbers and it then goes through a system here which is all vacuum controlled so you know if we're going to have any dust this is where it'll be in this front end where we're shredding it. We're separating it into fine material and coarse material. So all of the fine material will head off into this zone here and a whole lot of automated systems will sift it and move it around until we can take out the soils, we'll take out the rubbles, clean them up, get all the wood fraction out of them so that they can be reused back out there for roading or other aggregate purposes and we can reuse the soil and there will be a residual of waste of rubbish, main wood fractions, bits of insulation, those sort of things which we'll capture over here. Anything, so that will take everything that's below 70mm in size which is what, nearly 3 inches. So everything 3 inches and smaller goes out through this (oops a daisy) this fine system here and that is all under a negative pressure so its dust controlled and we can control the atmosphere around that site. Everything between 70 mm and the 250 mm maximum size goes over this sort line, this is an elevated conveyer and you have people standing on here picking off material, so they'll be taking off the gib board, the untreated timber, cardboard, anything that has any value and there are magnets and other devices that extract the metals: aluminium, steel and so on, all of which have value. So that happens as it goes across this process as they pick the material off it drops into these bins underneath and then they can be taken away when they're full and replaced with empty bins and so on. So that's where we'll recover the valuable material as well as some of the recovery over here of the small stuff and then the residual comes off the end and that has to go for disposal. So at this stage that looks like it will be predominantly things like building insulation and other material from the innards of buildings that really can't be recycled: old carpet and stuff like that. So this is the site pretty much maybe three or four weeks ago. Just wanted to show you this one because it gives you a general indication of where the location of the plant is going to be on that site and I don't know how familiar you all are with the Burwood area but I'm standing in this shot about half way up the face of the old Burwood Landfill and this is the pad, it's just a gravel area we've laid out ready to show where the pad's going to go but there will be a large concrete slap put on there and all the components of the sort plant bolted together, electricity and everything put in there, we'll turn the key and away it'll go. This particular piece here is covered where the workers will be standing is an air conditioned portacom if you like but the rest of it is actually out in the open. So that's the sorting plant. The cell, the disposal of what comes out of that sorting plant that can't be recycled is going to go into this area here, Area A, so it's going to travel from somewhere around about here, across the road maybe 300 m maybe slightly less to Area A. So this is for disposal purely of that residual waste from the sorting and recycling process, not for anything else, just the earthquake waste that's left over that we can't recycle. It won't have any traffic effects outside the site 'cause its just going to be going, truck going backwards and forwards between the plant and the cell and it will operate for exactly the same length of time as the sort plant operates because the day we start sorting we've got residual waste coming out the end, has to go in the cell. The day we stop sorting has to go in the cell, so

33:53		<i>that's exactly the same length of time so whether its two or three years of operation will match exactly the disposal needs for the plant apart from once we finish we will then have to cover the landfill over and do the normal finishing process that you do for any landfill which might take, you know, another three to six months to get the proper cover over the top of it and establish the landscaping and so on. How big that landfill needs to be, this is the area here looking to the north from the old landfill, there's a big pile of silt there at the moment but that'll be moved. How big it is going to be depends totally on how much material we have to sort and how good we are at sorting it. So if we can recover say 50% of the material that's come in at the moment and reuse it, the amount we have to put in the landfill will be 50% of whatever we started sorting. We don't know until we start, how good we're going to be. If we can recover 70%, fantastic. We might find we can only recover 30%, so we do have to size this landfill area to take account of the big unknowns on that really and until we're operating, until we see what we're dealing with it's very, very hard to say but there's plenty of room there in that old part of the landfill that was never developed for what we'll conceivably ever need. The material that's going to go in is very different to the sort of material that we send to Kate Valley every day, you know, we send about a thousand tonnes to Kate Valley. That's the organic mixed refuse that comes from the houses and businesses in Canterbury. This material is quite different from the demolition of our buildings and in comparison with our normal rubbish its relatively inert. It still has timber in it and timber does decay, its an organic material but that's pretty much the only organic material we expect to see in it. It's not like your normal rubbish stream and it will have very, different characteristics in the landfill accordingly, better characteristics.</i>
34:57	Audience member:	<i>(Inaudible) ...it's all very nice the way you put it in a nice proposed way but when you say about building material, what about all the sewer pipes that contain all the asbestos?</i>
35:08	Gareth James:	<i>We're going to talk about that shortly</i>
35:10	Audience member:	<i>(Inaudible)</i>
35:12	Gareth James:	<i>...I'm going to, it's further on.</i>
35:16	Audience member:	<i>(Inaudible)</i>
35:17	Gareth James:	<i>Yeah, that's the Area X that you're interested in.</i>
35:18	Audience member:	<i>I'd certainly like to hear about that.</i>
35:19	Gareth James:	<i>Yes, yes, we'll do our best for you. So just following on, Area A again, this is another shot but on a slightly different angle north this time. There's the beach along there, it'll give you the idea, but this is the old zone and here is the mound if you like, of the old landfill that went for twenty odd years. So it's tucked in behind to the east and north of the old landfill. The design of the landfill, and we've got some of the designers here so we can certainly fire the questions at them later, it's going to be sheltered to some extent so noise and dust and things like that are sheltered by the old landfill mound, still within the footprint of the Burwood Landfill so its actually in the consented zone, and one of the things that we're going to do because there is leachate coming from the old landfill quietly moving towards the sea in this general direction here that way we some day in the future, at this stage it doesn't look very likely</i>

37.23		<p>there may be a need one day in the future to collect that leachate and send it off to the sewer system. Because any interceptive drain to do that would have to be in this area here, we're going to put that in first, just as a, as you like, a catch all, just in case it's ever needed in the future because once we have the new landfill on top of it, it will be very hard to go back and put it in later. So there will be a ground water interceptor drain put in there just in case it's ever needed in the future, but at this stage and the experts here know about this and can explain but it doesn't look like it will be needed but you know we may as well have a belts and braces approach. The new landfill, it will have a material liner. It won't be a manmade type line. It will be made with natural materials and that will help it work better with the old landfill. There is a need for the two landfills to be able to work together in terms of controlling leachate and how that works. So they are actually going to be of a similar liner compared to what was on the old landfill. We won't need to dig into the old landfill which is a good thing because the old rubbish is likely to smell a bit so we don't have to do that, but we will fit this new landfill into the contours of the old one so that it looks like a natural part of it when it's all finished. And if there is gas that comes out of this landfill, and it's a big if because the nature of the material is there might not be or might not be very much, if there is we'll be able to detect it and at that point its a very simple fix to connect it to the existing gas system that's on the old Burwood Landfill 'cause its only right next door to it. So we have a, if you like, a plan for the gas should there be some. Now F, X and P, this is the area that everyone's interested in. These three sites further to the south and there's a range of activities occurring here. On site F, so site F is, if you like, the one on the top of the old landfill, that is taking mixed hard fill from all the wastewater and water infrastructure and by mixed hard fill I think we probably mean predominantly silt. Liquefaction silt that has got into the sewer pipes that has to be sucked out for the sewer pipes to work and some of the material from the trenches and so on, that's got contaminated with sewerage which has to be taken out and cleaned up. There's quite a lot of that 250,000 tonnes and that's going to keep coming over the period while we're fixing the infrastructure in Christchurch. Site X, this one here, this small area which is on the eastern face of the old landfill that is where the burial of the asbestos cement pipes will go. Christchurch like every other city in New Zealand used pretty much exclusively asbestos cement pipes back for sewer and water supply back from about 1960 into the 1990's, so that is what we are pulling out of the ground and replacing, with usually plastic pipes. But that material as it's in a pipe form and it's bound together its perfectly safe. It can be buried, we just don't want it to be broken up or made friable in any way so that dust can occur and we've got some experts here on that side as well so we can address that in detail if you like</p>
39:41	Audience member	Tell me, what other asbestos materials are going into site X other than the pipes?
39:46	Gareth James	I don't, I'm not aware that there's any. Is there? Anybody know?
39:52	Audience member	So where's the rest of the asbestos material going?
39:55	Gareth James	The asbestos material goes to Kate Valley, there's a steady stream of asbestos going to Kate Valley every day. Large volumes of it and that's very, very tightly controlled.

40:05	Audience member	(Inaudible)
40:06	Gareth James	<i>Yes it is, yes, yes CERA is in charge of that aspect and if you are a demolition contractor, demolishing a building and the building's first inspected by experts to make sure, you know, if there's any asbestos. If there's any there, there's a very rigid protocol kicks in and it has to be demolished according to that and the material has to be taken to Kate Valley in the regular way which is, you know, a very rigorous kind of a process.</i>
40:30	Audience member	<i>You're saying that hopefully these pipes won't be broken up but they must be surely. I mean they're broken in the first place aren't they?</i>
40:37	Gareth James	<i>Well if you like we can put that to our experts later 'cause I think that's a fair question, but I, cause I don't know the exact answer.</i>
40:49	Audience member	(Inaudible)... truck that's covered going to that landfill... (inaudible)
40:51	Gareth James	<i>Sure, that's a fair question, we'll make a note of that one and we'll come back and address that one if you like. There's an expectation that there's around 5,000 tonnes of that kind of pipe material. Then site P is the dewatering pond. This is the area over here which is an existing dewatering pond, it's been there for quite some time but its really been pressed into service since the earthquake and that is for the material that is sucked out of the mainly sewer pipes, unfortunately the sewer pipes, every time there's another shake they fill up again and there's an awful lot of work, probably years of work sucking that material out. It gets picked up in the sucker trucks of which there are quite a few you've probably noticed, brought to this site and its tipped out, it's a mixture of liquid and solid and the idea of the pond is to separate the liquid from the solid and we can then treat the liquid in the Bromley sewage treatment plant and the solid can be taken out periodically from the pond put on top of the landfill in area F and is allowed to dry out and the bugs over time clean themselves up and it becomes just general, regular silt all over again. So all that material in Areas F, X and P is from infrastructure damage, so this is a view of the pond and a bit of a blurry one unfortunately from the seaward side looking at the sucker trucks backing up, tipping in. This is the activity that has the largest traffic volume associated with it. We're talking about (and again that's a bit fuzzy), but I think 370 trucks per day at the moment of those sucker trucks, so there's a steady stream of them and they're going 24 hrs a day 7 days a week and they will be for some time. It is starting to drop off and I guess, I'm sure that we'd all love somebody to tell us when its going to drop off but it does come down to what they find when they dig the roads up and the sewers but we're predicting say five years but the volumes will diminish over that time. Most of it comes in between 7.00 am and 5.00 pm Monday to Friday and there's a bit on Saturday morning, but there is still on site P the 24 hour operation and we think there's an additional 50 trucks a day that are outside those normal hours of operation, so there's fewer of them but they're still coming in all through the night and that area is lit up at night so they can work there. Again we're talking about limiting the traffic speeds to 20 km and probably these are the guys that need to be limited 'cause they're smaller trucks, more agile, faster trucks, they need to be tightly controlled and they're all working, you know, extremely hard 'cause the more loads they do the faster they can repair the sewers so they've all got time pressures on them and any asbestos that comes into the site on F is dealt with in accordance with the</i>

		<p>regulations. If it's pipes we bury it there. Any other material has to go to Kate Valley. And the wastewater treatment, all this water here, gets pumped off, there's a bit of the pump sitting there, pumped off down the coast to the Bromley sewage treatment plant. It's dealt with in the normal fashion goes out through the Ocean Outfall. And we also have quite a lot of dust control around these roads 'cause these roads on this part of the site is unsealed, unsealed roads. So just going on to why is Burwood being used for these purposes? I suppose its reasonably a simple answer really, it's the largest area suitable for this sort of activity close to the city. I know the City and CERA scoured really, really hard to find other areas as well 'cause the thought was we would need more than one but really, the reality is, everywhere else is on top of the old drinking water aquifer or in places that just aren't environmentally suitable so it is quite close to the central city but it also has this confined aquifer underneath it so the aquifer is protected plus there are no wells down stream of the site. So it's a big enough site to enable that bulk recovery and the sorting. By doing that bulk recovery and particularly recovering the recyclables, we reduce the total amount that has to be land filled and by land filling it at this site we avoid possibly up to 40,000 truck movements out of Burwood to Kate Valley 'cause if we had to landfill that material at Kate Valley it'd be 20,000 trucks go up the road and 20,000 come back again to pick up that material. So by doing it in Area A we eliminate potentially up to 40,000 truck movements which I'm sure is a blessing for everybody who lives near it and all the way up the road to Kate Valley. The other reason for burying it in Area A is it avoids shortening the life of Kate Valley which is a very highly engineered land fill because it has to deal with all the difficult waste and it would really be a big shame to fill it up and put a lot of inert material in there wasting the space that we really all need for the Canterbury community for the next 30 odd years. So if we put this material up there it would be a shorter period of time before we would have to find a replacement for Kate Valley. And of course we also have existing infrastructure at Burwood, got all the roads, the sewage system, the gas collection on the land fill and so on plus we have the plantation which gives us good screening, good distances from neighbours. Just going on to the detailed information, what you've received hopefully, I see there's a few there, is a very short summary of the material, but of course what we have is some draft applications that are there if anybody wants to read them. There's hundreds of pages but they are going to be put on the Christchurch City Council website hopefully from tomorrow and if anybody would like their own personal DVD of all of those applications so you can go through them in great detail we're very happy to mail them out to you. All you have to do is contact that address or email the address on the brochure that was sent out and we'll send you the full set. They are predominantly technical documents, I guess you might say, but there's certainly a lot of detail in there if you're interested. The process from here, we are hoping in the next 19 days, I think Nick said, between now and the 25 May to receive feedback from people who are interested in this process who have a view about any aspect of it so that we can take that into account when we finalise the draft consents and make them into a final application. We're expecting to do that between the 25th May and some time in June and we hope to lodge the applications in June then ECan and Christchurch City, the consents side of Christchurch City not the applicant side, will start the formal</p>
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		<i>consultation process needed for the sorting plant, not for the other applications but for the sorting plant and there is a ten working day window for people to provide written comments once they've been contacted through that process. So you can have a first bite of the cherry by the 25th May and then if you want to have another go once you see what the final consent says, what the final consent application says, then there's an opportunity again for some of it there and we would expect the Commissioner to make a decision sometime in July 'cause they have a time frame set out in the CERA Act as well, so they can't take longer than a so many working days to make a decision, so it is a very fast process. So that's very much once over lightly. We've got a very skilled panel of experts here I hope who've heard some of the issues raised and are very, very keen to answer any of your questions.</i>
48:39	Nick Davidson	<i>Thank you Gareth, do you mind our audience if we turn the microphone towards you so we can record what you're saying? Is that okay? Its going to be recorded and if you might want to you can give us your name but you don't have to give a name.</i>
48:51	Madeline Finlay	<i>I'm Madeline Finlay from the North Shore Residents. We don't appear to be on the stakeholders list. We'd like to be added please.</i>
48:58	Nick Davidson	<i>Well you're on right now.</i>
49:02	Madeline Finlay	<i>I'm just saying I'm Madeline Finlay from the North Shore Residents. We're not on the stakeholders list and we are just as interested in the outcome of this as anybody and have views also so could we please be added?</i>
49:13	Nick Davidson	<i>Would you like to ask a question as well or is that just a request?</i>
49:17	Madeline Finlay	<i>That was for the general (inaudible)</i>
49:20	Unknown	<i>Probably doesn't need an answer.</i>
49:17	Madeline Finlay?	<i>Yes it does.</i>
49:22	Nick Davidson	<i>It will be.</i>
49:25	Unknown	<i>Can I suggest one of the planners, Daniel or Jessie?</i>
49:31	Daniel Murray	<i>Essentially that decision of who was on the list was made by the Government. I think Gareth mentioned earlier in the presentation, the Order of Council for the Recovery Park and the interventions made by the Minister with respect to the City Plan and Natural Resources Regional Plan essentially bullet points out the parties who should be consulted under this process as to what process they followed to come up with that list, I'm certainly not aware of that, Jessie might be a bit more familiar with that. The list is essentially defined in that legislation.</i>
50:12	Jesse Burgess	<i>Yeah, I think the answer to your question is no problem.</i>
50:20	Nick Davidson	<i>Thank you.</i>
50:21	?	<i>Sorry, just with the Burwood Recovery Park, the processing plant consent, the Council does have the, under the consultation process in the order in Council the ability to invite written comments from any other person or organisation that the consent authority considers would be adversely affected if the applications were granted so for that consent we do have the opportunity to invite comment from the North Shore Residents Association. But in terms of the permanent landfill no we don't. Does that answer your question?</i>
51:01	Nick Davidson	<i>But the answer to that is you can attach yourself to any other person who is a stakeholder and make your submissions in that way. Yes?</i>
51:08	?	<i>I think what Mark was alluding to that as far as the City Council and BRRP</i>

		<i>the applicant's are concerned, we'd be very happy to receive a submission from your organisation. I mean, that's what the Government has said, those particular groups, but the reality is if people want to make a submission we're not going to stop them and will certainly consider them will that be alright Gill?</i>
51:32	Gill Cox	<i>Absolutely.</i>
51:34.	Nick Davidson	<i>I'll do the rounds. Sorry.</i>
51:38	Linda Stewart	<i>Linda Stewart Chair Burwood Pegasus Community Board, This information that you've got for the affected parties is out of date information. Parklands and Queens Park are actually a combined group now and there's also Waitakari and To??? Group that have recently formed as well. It's nobody's fault except if they'd consulted perhaps even with their board advisors they'd get that information correct. Thank you.</i>
52:09	Nick Davidson	<i>Thank you. That can be corrected can't it? At the ? end that can be corrected?</i>
52:20	Audience Member (Alan?)	<i>I'd just like to ask our learned panel at the front, how many are residents in the Burwood area within the proximity of the proposed ? site. Can I see a show of hands please?</i>
52:35	?	<i>Sorry I didn't hear the question sorry.</i>
52:36	Audience Member (Alan?)	<i>Well I'd like to ask our learned panel, you guys, how many of you people are actually residents in the Burwood area? I mean what empathy do you have with the actual area as opposed to an occupational situation? Could I have a show of hands please?</i>
52:50	?	<i>What's the relevance?</i>
52:50	Audience Member	<i>Well this relevance will be certified, how many of you people live in the Burwood area?</i>
52:56	Members of the panel	<i>No, no.</i>
52:57	Audience Member (Alan?)	<i>No okay, so you don't really have the empathy with having toxic waste dumped in your own residential back yard. And I mean, the fact is you guys proposal to put a site X. Asbestos, I mean we all know about what happened when they pulled down the Bell Fletcher factory over in Riccarton and we all know, anyone with a little bit of knowledge on toxics, just how toxic asbestos is and I mean a lot of that asbestos your proposing to dump in that area, I suppose the guys who are actually handling it will all be clothed up like martians just to protect every living cell within their body from any carcinogenic vapour or air vapour that might be, that could be carried through on the prevailing winds. I felt actually, I have empathy with you guys, you've got to find a place to dump all this rubbish but I think it's a little bit, I think it doesn't really take a panel of experts to propose putting asbestos basically right in an area, a recreational area which is used by thousands of people, kids playing on the sports ground over in the park there and all that residential area so I mean, if you can make some alterations to the fact that the most toxic of the waste area should be basically put on an area further away from the proposed or what is actually a recreational area and residential area. And as I said you guys don't live in the areas so you don't have that same empathy that we do and I'm quite surprised that no one sitting up in that panel has. Thank you.</i>
54:32	Nick Davidson?	<i>Thank you</i>
54:38	Andrew Curtis	<i>Hi, I appreciate your comments, I guess the important thing to remember with the asbestos its not asbestos insulation so its not the more friable types of</i>

		<i>material. This asbestos is all used in the construction of cement pipes so its all bound up in the cement. At the sites when its excavated, they have to follow the asbestos regulations which set out very specifically how you handle it and you may comment about, you know, people being suited up and that's what they should be doing if they know that the material is asbestos containing. The material has to be placed into lined containers, either bags or thick plastic linings before it leaves the site or it's excavated. Those bags have to be sealed up or the plastic has to be folded over and it has to be transported to the site in such a way that you can't generate dust. The other thing which is important to remember is that material is all very damp, so its not dry material that's being excavated so it is damp as it's excavated. When it's brought to the site those bags are, if it's in bags the bags aren't opened. The material is placed in site X. If it's plastic lined again those have to be transferred in such a way that you don't split the plastic, you don't let any material out and once it's placed it is covered straight away with clean inert material. So while the material will be exposed for a short period of time at Burwood, as soon as it's been placed it is covered so the expectation is that there is very little potential for any asbestos fibres to be released.</i>
56:37	Audience Member	<i>That was a problem a number of months ago, a problem a number of months ago, where a lot of blue asbestos was, sorry, I heard there was a problem a number of months ago, where there was a lot of blue asbestos supposedly accidentally dumped in the landfill over here so I mean these things do happen but I mean I appreciate, you know, your safeguards if they can be adhered to all well and good, but even the consideration to put that site somewhere else because its not a very nice thing, to say you know, for a residential area (inaudible) living on just basically an asbestos dump.</i>
57:10	Andrew Curtis	<i>I appreciate that. One of the jobs that Ian and myself were involved in quite a few years ago now, I'm trying to remember, ten years ago, was the removal of a whole lot of asbestos in a residential area in Auckland, and you may've, you may remember that we had to excavate material within about a hundred houses within a hundred metres of the site and we put in place some pretty stringent control measures and we had monitoring all around the site and over the three or four months of excavation we got no asbestos measurements beyond the site so I accept your concern, there were people who were living still very close to those sites but if you manage it well and have appropriate safeguards in place</i>
58:05	Audience member	<i>(Inaudible).</i>
58:10	Andrew Curtis	<i>The majority of them are, you're making sure that material's been excavated, it's been placed into sealed containers, transported. In that case from memory the material was going to Hampton Downs, yeah, so it was going to a registered site so the material is placed and controlled as much as you can. You use water to control it if you need to keep the dust down.</i>
58:32	Audience member	<i>(Inaudible)... how far away from residents was it?</i>
58:38	Andrew Curtis	<i>In that case it would have been a similar situation to taking it to Hampton, to Kate Valley. It would have been a similar sort of thing. There was that facil...</i>
58:46	Audience member	<i>(Inaudible)... 3 kms away from a residential area... (Inaudible)...</i>
58:50	Andrew Curtis	<i>It was a similar sort of distances as to some houses but not a residential area,</i>

		<i>no.</i>
58:57	Audience member	<i>Gareth, is there an asbestos plant at Kate Valley?</i>
59:02	Gareth James	<i>Kate Valley Landfill is the place where any friable asbestos has to go to and it goes through the same process that Andrew has talked about, that it's bagged up and goes through an extremely rigorous process. We're not ? at the landfill, we have other people handling it who are suited up and they would be at Burwood as well, because the biggest risk from our point of view is the people who have to actually bury it because they are the ones exposed and the people at the other end who have to dig it up, so we have to have very tight controls because we have to make sure our staff are safe. So you can guarantee that we certainly do that and at Kate Valley it's quite a rigorous exercise</i>
59:39	Audience member	<i>You say that by putting the landfill here on sites...no, no, on B and A that you've saved 40,000 trucks going to Kate Valley.</i>
59:53	Gareth James	<i>20,000 up and 20,000 back truck movements, yep.</i>
59:56	Audience member	<i>So there's would you say, 5,000 tonnes of asbestos piping.</i>
01:00:01	Gareth James	<i>That's the guess, yes.</i>
01:00:03	Audience member	<i>So...</i>
01:00:05	Gareth James	<i>Well its er...So probably, yes, it...</i>
01:00:07	Audience member	<i>(Inaudible).</i>
01:00:09	Gareth James	<i>...it would certainly be a possibility, although I suppose one of the issues is I'm not sure of the format the pipes are coming in, I presume they're mixed up with the other material?</i>
01:00:19	Mark Christison	<i>Yes that's likely cause that's when they dig up the old sewer pipes that they'll be coming out in partially mixed loads with other material.</i>
01:00:27	Audience member	<i>(Inaudible).</i>
01:00:31	Gareth James	<i>At Kate Valley we don't normally get asbestos pipes, we get the building asbestos the insulation material which is the dangerous stuff, because that is the stuff that can create dust, so that has to be handled under a special process. There is a process for pipes but it's, you know, its not seen, I guess, by the experts as anywhere near as risky, but you still, you know, have to take care when you're handling it, but as long as it's transported safely with bag and it's buried immediately there shouldn't be any opportunity for it to create any dust which is where the issue comes.</i>
01:01:06	Audience member	<i>Why was site X chosen? Was it just historical convenience because it was used before?</i>
01:01:11	Gareth James	<i>You probably know this, the answer to that. Do you know the answer to that? Does anybody know why site X was the chosen site? Or is it...</i>
01:01:20	Audience member	<i>Considering it's the most offensive place you could put the substance of all the sites that you choose on your map, you put the most toxic substances right closest to the residential area. It's not something that most people would be overly comfortable with. If you have a whole choice of how many, five or six different sites and yet you choose the one closest to where people live and closest to where you have 50,000 or more recreational activities. Why did you</i>

		<i>choose that site? Just looking at this, thinking about the emotional state of mind all the people who actually live here and reside in this area who are not only worried about the fact that their property values are probably going to go down because of this why not have some empathy to actually put the site as far away from people as is humanly possible when you've got all of these other sites far away from here? That's what I want to say.</i>
01:02:11	Audience Member	<i>I totally agree, no, I'd just... (Inaudible)... Kate Valley or somewhere else because we're all paying in the long run for your gain with money because we lose our property values.</i>
01:02:23	Audience Member	<i>Or our lives.</i>
01:02:25	Audience Member	<i>Yes. More importantly.</i>
01:02:26	Gareth James	<i>Yes, I think the, sorry...</i>
01:02:27	Nick Davidson	<i>(Inaudible)... your questions into the mike please? (inaudible)... the transcript.</i>
01:02:34	David East	<i>I'm David East from the Burwood/Pegasus Community Board. Yes I probably empathise totally with the location of site X. It was a question that I was going to ask. What process did you go through to decide where you were going to locate the burial of these asbestos pipes? And secondly, knowing this landfill site reasonably well, you were talking about creating a site more or less on top of the landfill and presumably you've got to excavate to bury the things, so are you actually disturbing the landfill itself and creating a more of a, and a potential for smell from existing landfill mass there?</i>
01:03:20	Gareth James	<i>The landfill expert who is sitting in the audience clearly doesn't want to answer this question I don't know, but I do my best to explain why I think it's there. Now this is a two dimensional photo, so you can't actually see the contours but the top of the landfill's actually along here and that is sloping out towards the sea and that is sloping back this way and I guess this area here, given that it's right next to where we've got the silt and where sort of, the trucks carrying the material that needs both dewatering and has pipes in it are adjacent to each other, that's a good place to locate, plus there is air space. If you know anything about air space there is space to be able to excavate into this area and bury something like the 5,000 tonnes. Might be a little more difficult to do in some of this other areas but it is possible and it could certainly probably go into that area. It's a possibility.</i>
01:04:10	David East	<i>I did mention on your, what's the site? The big one up a top of the yellow line there?</i>
01:04:17	Gareth James	<i>That one there?</i>
01:04:18	David East	<i>No the next one down. That one.</i>
01:04:19	Gareth James	<i>Area A yes.</i>
01:04:20	David East	<i>You did mention earlier that you weren't going to excavate into the landfill. You didn't want to disturb it, but presumably on site X you are going to disturb the landfill.</i>
01:04:31	Gareth James	<i>Well I believe this area here and area F had (?) been used for years for this kind of activity for the organic material. You're the landfill designer you should know.</i>
01:04:47	Panel Member	<i>Yes, yes the area X is, I think, the last stage of the landfill that was placed is exactly in that same area immediately to the west of it. So the area is actually</i>

01:05:29		<i>not up on top of the landfill as Gareth was saying, it's set down in the side of the landfill so it's a sheltered area. It's quite enclosed by the landfill on three sides and it's also the practical aspect that the trucks that bring in the septage (?) are coming into the same area. So the reality it's a material that will have soil bound in with it, so burying it in that area is practical now. You could, in the other comment was made about, someone made reference to digging into the landfill. It's not, it's buried in holes within the ground using soil.</i>
01:05:40	David East	<i>Okay, thanks and my second question really was, relates to your drainage system and your installation. There, is there any, you're saying there's no wells and there's no natural features or no access to the aquifer but leachate can get through. Is there any risk at all of leachate or any materials actually getting to the coastal water and given potential for water quality degradation out there?</i>
01:06:14	Panel Member	<i>Ground water from the existing landfill, it does move towards the coast that is correct. So the (?) aquifer, which we just talked about, which still extends under the site, the groundwater in the shallow aquifer are separated from that by a confining layer and the (?) aquifer is an (?) aquifer so it has upward pressure, so the flow is upward and toward the coast. So the leachate from the landfill does currently move towards the coast that is correct. The site has been monitored for 20 years there's a network of 55 wells that monitor water quality and the rate of movement of that leachate is very, very slow. In terms of the cells and the materials we are talking about here compared to the landfill waste they're all very inert in terms of what they will leach into the ground water so the risk is very, very low in that regard. There, yeah, sorry there's a couple more questions there.</i>
01:07:18	Audience Member	<i>Just a couple of questions, if I may, firstly are we to assume that all of the pipes that have been extracted will be in an unbroken condition or are there chances of broken pipes mixed with silt and therefore the silt being contaminated being exposed to dry and the material blowing from the site over residential areas. This concerns me because I have just recovered from stage four cancer. I don't particularly want to go through a similar circumstance again due to asbestos or other substances, now that's the other thing that I wanted to ask, is there, we've all focused on asbestos 'cause it's very easy for us to focus on that but is amongst the waste that's being disposed on this site, other things that we should be concerned about? Heavy metals or other such things that can have long term dangerous effects on the environment?</i>
01:08:	?	<i>Two, two parts to that.</i>
01:08:08	Panel Member	<i>I'll deal with the asbestos bit first and then give it to Ian at the end. Your concern about the silts, anything that is dug up with the asbestos pipe will be contained and will be disposed of in the same way as the asbestos so it will be placed in bags into the landfill or in plastic and covered so no potential for any of those sorts of materials to blow around anywhere.</i>
01:08:43	Ian Jenkins	<i>Yeah, okay, so the second part of your question about the constituents within the waste so we're talking now about the materials within site B as opposed to. The main risk in (?) sort of waste is basically it contains a cocktail of constituents. Okay the material that we're dealing with here is very much more controlled in that it is essentially the material from the demolition of the buildings and a large part of that has been recovered. Now, yes, those materials will contain trace elements. I mean trace elements occur naturally</i>

		<i>in the soils and these materials will contain trace elements at concentrations that will be above that. It's inevitable with some of the materials that are used. Those materials also have value so where they can be recovered they will be recovered and we've done testing of the material and it is, that testing shows that the, what does leach from this material is very low level, so it's a completely different (?) from the waste that has gone into the landfill there. Does that cover the question?</i>
01:09:52	Mark Christison	<i>Can I just...? There is a risk that has been recognised by the Ministry of the Environment, that particularly with the demolition of the red zone houses, you know we all keep chemicals and that for the garden and that longer than we should and it has been recognised that as people've withdrawn from these houses some of them will never come back and they've probably left some chemicals in those properties so the Government has provided funding for those materials to be dropped off free at the transfer stations around the city and in Waimak as well for the purposes of making sure that those chemicals get disposed of properly and don't end up in a demolition waste stream.</i>
01:10:47	Audience Member	<i>Can you tell me where the nearest artesian(?) well is to this site?</i>
01:10:52	Panel Member	<i>There's a number of monitoring wells which have artesian water pressures so these were wells that were installed as part of the requirements of the landfill consents to confirm that the gradients and pressures were as indicated so there is one of those located there and there are some older wells which aren't routinely monitored further to north as well. Over, there is a spring over here, which is you'll see if you walk up and down the coast there's a pool there. It is actually fed by artesian flow from the deeper aquifers.</i>
01:11:37	Audience Member	<i>I'm talking about aquifers supply 'cause I, because my understanding from the developer was that there is in fact a well in the North Shore subdivision</i>
01:11:45	Panel Member	<i>The nearest water supply wells are actually down in, much further south so theres, it's actually in terms of actual metres distance the nearest one would actually be off the bottom of this figure. Sorry, sort of just off.</i>
01:12:00	?	<i>(Inaudible)... 50 metres, round about here somewhere</i>
01:12:05	Audience Member	<i>Did you mention something about artesian flow or something (inaudible)...X... (inaudible)...</i>
01:12:13	Panel Member	<i>The artesian flow is beneath the whole site so there is an upwards flow through the confining layer beneath the whole site.</i>
01:12:20	Audience Member	<i>So is there an artesian well in the North Shore subdivision?</i>
01:12:25	Panel Member	<i>Yes, any wells that are installed to the depth of the Riccarton aquifer will be artesian yes.</i>
01:12:32	Audience Member	<i>Okay so is there anything monitoring between that well and the site?</i>
01:12:37	Panel Member	<i>Well as I indicated there is a number of deeper wells...</i>
01:12:38	Audience Member	<i>Yes, but that's over there.</i>
01:12:42	Panel Member	<i>Yes, there's also, there's monitoring wells around the whole site. (Inaudible).</i>
01:12:45	Audience Member	<i>Well could you show me where they are south of that?</i>
01:12:49	Panel Member	<i>So you're interested in monitoring wells around here?</i>
01:12:52	Audience	<i>Well do you know where North Shore is?</i>

	Member	
01:12:55	Panel Member	<i>Can I just...? So you can see on there, sorry I've switched back so now north is off to the top of the page. These letters here are all monitoring wells, so the site and these red ones down here, these are upgradient wells so you can see the site is surrounded by monitoring wells. There is no direction we do not monitor ground water. So the groundwater flow beneath the site is from effectively the south-west out...(inaudible).</i>
01:13:26	Audience Member	<i>Well actually you've answered my question 'cause you've told me that there are monitoring sites between the site and the subdivision. That's all I wanted to know. Thank you.</i>
01:13:34	Panel Member	<i>Okay, Sorry, thank you.</i>
01:13:36	Audience Member	<i>Can you tell me what percentage of fibres are in the cement?</i>
01:13:40	Panel Member	<i>I'll come back to you. I'll get back.</i>
01:13:42	?	<i>Sorry I can't...</i>
01:13:44	Nick Davidson	<i>Sorry can we just get the question please again?</i>
01:13:47	Audience Member	<i>I was wondering if people are worried about asbestos, I wondered how much asbestos fibre makes up a percentage of the material.</i>
01:13:56	Panel Member	<i>I'm sorry really I can't tell you off the top of my head, but we can get that information and provide it.</i>
01:14:01	Nick Davidson	<i>There's a point to the question I presume. Do you want to, do you want to...?</i>
01:14:05	Audience Member	<i>I assume it's quite low, so when you were talking about dust, most of it will be cement if it was dust.</i>
01:14:12	Panel Member	<i>Yes, the majority of what you're getting there is cement dust. It's just unfortunate that I can't tell you off the top of my head what that percentage is.</i>
01:14:22	Audience Member	<i>Well all I can say is I hope it's very low, 'cause when I was a young engineer I built several rural water supplies in the North Island and we used to chainsaw the asbestos cement pipe out in the open to join them all up, so I hope it's a really low percentage.</i>
01:14:38	Audience Member	<i>And also just for the reassurance of the residents just because remember we don't know what type of asbestos is used, if you could actually let us know what type of asbestos is used because there's obviously good and bad in asbestos as well. Ta, thanks.</i>
01:14:54	Gareth James	<i>I guess the other thing we could mention of course is that most of Christchurch's water supply flows through these pipes. So obviously people haven't had a concern while they are intact pipes, but I take your point.</i>
01:15:09	Audience Member	<i>It's when it's broken is when it becomes dangerous material. It's alright when it's in a compound material... (Inaudible)</i>
01:15:19	Audience Member	<i>It was mentioned before and we seem to have got away from the topic. Why can we not have section X there put somewhere else? It would make us, this is why most of us are here, is about is about the asbestos. Why can it not be moved somewhere else? It would make the whole community happy and you know if there's already asbestos at Kate Valley why can't this 5,000 tonnes of it go there where its not encroaching on residential and recreational land? You know that's our biggest concern. You know, we've had enough problems over this site without that. And also I have another if you want to answer that.</i>
01:16:03	Mark Christison	<i>Yeah you know, that concern has come across loud and clear tonight so you know we'll have a talk to the team and have a think about that so</i>
01:16:12	Audience	<i>'Cause it's quite ironic that no-one can really say why it was there when asked</i>

	Member	<i>it's like "Oh well..." (inaudible)...pin the tail on the donkey.</i>
01:16:17	Mark Christison	<i>The thing is there's sort of been a response to that but it's been a round about response. It's to do with the shape of the land fill and where the space is available. It was certainly taken on board, you know, the concerns here tonight and we'll have a look at that.</i>
01:16:32	Audience Member	<i>Yeah, I think it would make your job a lot easier and there'll be a lot less aggravation for you if it was moved. A lot less. Let you get on with your jobs, everything else. The other question I have was under the Resource Management Act you cannot create an effect beyond the boundary of the property. Now on the 27th of April, I'm sure a lot of people here will not remember the date, but I'm sure they remember the smell on this particular Friday, a couple of Friday's ago. Absolutely terrible. Now that is going, making an effect beyond your boundary and I don't know if it was coming from your P pond or from something else you were doing there but under that you were breaking the Resource Management Act by having this going on and I think that needs to be addressed because the smell absolutely horrendous. If that's a sign of things to come, I mean you know we don't want to be known as the up and coming Bexley. You know, I just think it's disgusting. You know, our house prices and everything else go down because of this. We're already the majority of us here are TC3 which already, you know, affects the house prices as it is and wondering how you can control that.</i>
01:17:52	Mark Christison	<i>Sorry, I don't know anything about that. What I would suggest is that Ecan run a pollution hotline and you should, you know, if you have, notice any odours in the area you should ring that number and they have protocols where they'll get in touch with us straight away and then our operational staff can have a look straight away at what's going on.</i>
01:18:13	Audience Member	<i>But I'm getting in touch with you now though and telling you what's happening.</i>
01:18:18	Mark Christison	<i>Yeah, yeah and I'm saying we're not aware of it and I'm not aware of what was happening on that day so...</i>
01:18:23	Audience Member	<i>Okay.</i>
01:18:24	Mark Christison	<i>...but there is definitely a process under the consents where the pollution hotline can be used and those odour events get investigated and get sorted out.</i>
01:18:35	Audience Member	<i>And how many people does it take to ring the hotline for you to act?</i>
01:18:38	Mark Christison	<i>One. One.</i>
01:18:39	Audience Member	<i>Just one, so you don't take it verbally like this it has to go through the hotline so if I call them tomorrow you're gonna act?</i>
01:18:46	Mark Christison	<i>No. I mean we'll talk to our operational staff but it's hard to investigate a complaint like this when it's not on the day that it occurs or as soon as it occurs. I mean it's the same issues that we have with other facilities and other industrial users have it as well, whether they're a fish processor or operating a wastewater plant or operating a compost plant. You know the city does look to comply fully with its resource consents and that includes odour boundaries and you know we'll do what we have to do to do that, but we also need to know if we're not, we're not picking it up on site we do need to know if residents are affected and there are either our call centre or Ecan's hotline and then the message gets back to operations.</i>
01:19:31	Audience	<i>Okay, thank you.</i>

	Member	
01:19:33	Nick Davidson	<i>Just before, I know there are other questions still to come but did other people experience that smell that's just been referred to? Raise your hand if you did please? Okay, so that message should be... Did anyone actually complain? We deserve to know.</i>
01:19:48	Audience Member	<i>Until today I didn't know who to complain to.</i>
01:19:52	Nick Davidson	<i>Okay.</i>
01:19:53	Audience Member	<i>(Inaudible)...</i>
01:19:54	Nick Davidson	<i>Okay, so...</i>
01:19:55	Audience Member	<i>I think something that would obviously help residents is....(inaudible)...contact numbers....(inaudible)...It's fine to have as an example an 0800 number....(inaudible)...</i>
01:20:	Nick Davidson	<i>I'll ask them to record that. That these numbers be advised to the community in an obvious way and then people obviously they've got to respond to it. Otherwise if you just tolerate it that's what's going to happen.</i>
01:20:23	Audience Member	<i>(Inaudible)</i>
01:20:26	Nick Davidson	<i>Just before we go on, there's other questions I know, can I just ask a question which I hope represents the view of you all in various ways and I've had a lot of experience involved in not exactly this but dangerous activities and things that go very wrong and one question I've got for the panel or the company I guess is when you take decisions about mitigation measures, you have a range of options available to you and use what is usually called best practice in terms of the mitigation effect but there's usually more than one measure you may employ and so one thing that usually drives the decision is cost in terms of the effect of mitigation. We can go from absolute avoidance to mitigation and the law recognises the difference in New Zealand. Are there mitigation measures that could be increased in this proposal by more expensive processes? Or have the mitigation proposed been devised entirely on best practice?</i>
01:20:41	Gareth James?	<i>I'm sure Mark'll be very happy to, ...(inaudible)... can you hear me? ... (inaudible)... Mark'll be very happy to talk about the ?side but from the Burwood Resource Recovery side of it this has been quite an issue for us because you will have noticed in the paper there are at last count there were about 26 other sites in Canterbury doing the same thing that we're proposing to do on Burwood here. Most of them smaller but every demolition contractor in Christchurch is trying very hard not to bring the stuff to Burwood because it costs too much from their point of view and we have priced what we have to do at Burwood and know exactly what it is. It's a community project. We're trying, you know, not to make profit but we don't want to make a loss so in order to do the proper recycling process it's going to cost a certain amount and that is resulted in the charge that demolition contractors, insurance, building owners and insurance companies have to pay when they bring the material in. There's been huge resistance to that as they've perceived it as being too high so they're all trying to do it on the cheap and as a result you'll see lots of interesting litigation and I'm sure over the next few months as Ecan catches up with these other sites there'll be lots of interesting fires during the winter to get rid of the material.. Unfortunately people are trying to short</i>

01:23:31		<i>circuit it because of the cost. So it has been an issue for us. We obviously have tried to cut the cost to the minimum price at the gate that we can possibly have but we can't afford to expose those rate payers and Councils and our company to a loss but at the same time we're not looking to make any major massive profit out of it. This is something that has to be done. It's for the good of the rebuild and the recovery in Canterbury so we're trying to strike a balance so cost has been an issue from that side and by having the landfill in site A it has definitely enabled us to keep that cost as low as possible because it does avoid those 40,000 odd truck movements up to Kate Valley which would add a very large amount of money and would have meant the price would have to be higher. So there is an element of mitigation there. In terms of the rest of the site and the other activities, I think it's a much, much bigger job. Christchurch is looking at, you know, billions of dollars of money to repair the infrastructure and I don't know how much we could save them by doing something different. You got any thoughts?</i>
01:24:01	Mark Christison	<i>I think just to add to Gareth's comments the, from the city's perspective this isn't about doing the job cheaply. The new cell that's been designed has been designed to high engineering standards to make sure that when the management of this cell is handed back to the city, because they then have to be looked after for the next 30-100 years, you know the city wants to make sure it's got a very well engineered cell there even though the material in it is fairly inert. So you know there is a lot of engineering resource going into these solutions. The ponds there which may look fairly basic on the surface is actually an investment of nearly \$1.5 million already made in those ponds to make sure that that liquid gets decanted off properly, gets pumped back to Bromley, goes through the wastewater treatment process and is to the same standard as all the other effluent that gets discharged with the ocean outfall. So there is serious money being invested in this proposal to protect the environment and the people who'll use these areas .</i>
01:25:12.	Nick Davidson or Gill Cox?	<i>Perhaps one thing I can just add it's probably appropriate Gareth that I do this than anyone else. All I can also do is point to the track record of Trans Waste at Kate Valley. Kate Valley would be recognised as one of the best engineered and one of the best managed land fills I would say in the Southern Hemisphere. I'm not sure whether that's right Gareth but I mean that's the feedback we get from others in fact in the world I mean for the size of it but it's a relatively small landfill compared with others. That is operated by as Gareth explained before a joint venture between five councils and a commercial operator Trans Pacific Industries. I can say in all the years I've been there and I'm appointed by the Councils to that. The issue of cost, while we're always conscious of it 'cause we're trying to run a very efficient operation that cost has not driven decisions about quality because we're engineering that for the long term and it's that assurance that I can give you in respect, in looking at another operation that's run in a sense by exactly the same partners and the same people, that cost has not been a driver of the operation. Quality has been the driver in everything we've done because we've got a responsibility, I believe we've got a responsibility for the future citizens of this area.</i>
01:26:33	Audience Member	<i>At \$200 at time..(inaudible).</i>
01:26:35	Gill Cox?	<i>Pardon?</i>
01:26:36	Audience	<i>At \$200 at tonne.</i>

	Member	
01:26:38	Gill Cox?	<i>Well, I mean you get what you pay for and that's what Gareth has been talking about here. You get what you pay for, it is not cheap. You know people think that land fills are a hole in the ground. You chuck stuff in. It is, it just ain't like that and whether it's the transport or whether it's what's happening to the stuff once it gets to the site, it's highly engineered and quality is the driver on that so all I can do is point to the record we've got at Kate Valley which I think seven years of operations Gareth?</i>
01:27:05	?	<i>Thanks Gill.</i>
01:27:10	Audience Member	<i>A hand written from a forest drive resident. A question aimed at your planning team: when you ascertained site X, can you tell me how many other sites you evaluated?</i>
01:27:26	?	<i>Site x is part of the Burwood facility so it's, it's, if you refer to the earlier comments it's one area within that site where you could operate in a way that was contained and screened. So in terms, are you asking... (inaudible).</i>
01:27:42	Audience Member	<i>Well the concerns that I'm hearing from my neighbours is that site X is about as close as you can get to where we live. Is there no where else that was evaluated in terms of placing site X?</i>
01:27:52	?	<i>The requirement around placing asbestos and burying it as part of the regulations is that you ... (inaudible)... an area that is restricted so we're taking on board your comments and we can certainly look at how it could be...</i>
01:28:06	Audience Member	<i>How many sites did you evaluate then? None at all?</i>
01:28:08	?	<i>Well in terms of the Burwood site there's a number of places it could have gone on the site and that locality is certainly one of the optimum ones in terms of...</i>
01:28:17	Audience Member	<i>Sure.</i>
01:28:18	?	<i>...being sheltered...</i>
01:28:19	Audience Member	<i>I've no doubt it was the best one but were other's looked at at all? Also you're an engineer...</i>
01:28:23	?	<i>Sorry you're a planner aren't you?</i>
01:28:25	Panel Member?	<i>Yeah, that's correct... but you're referring to, sorry you are referring to sites other than at Burwood then?</i>
01:28:29	Audience Member	<i>Well, no I can see within that site there there's a hell of a lot of room you could be a lot further away from our fences. I mean it doesn't take a jigsaw puzzle expert to see that.</i>
01:28:42	Panel Member?	<i>Sorry, sorry, I think that, one of the key points in siting something like this where you're trying to control dust is that the site is actually sheltered. So, while, admittedly, all this area of the site is further away. You'll be familiar with the landfill and that is all very elevated land so to place it in that area is not good practice, you're putting it in the most exposed area. So you've got to get down off that, so there's two options, there's Area X... (inaudible)... and then there's the area over here – site A. Okay those are really the only two places on site that are low lying sheltered and have available air space.</i>
01:29:23	Audience Member	<i>Nothing further to the north at all?</i>
01:29:24	Panel Member?	<i>Well that's outside the landfill designation.</i>
01:29:29	Audience	<i>It doesn't take too much to construct... (inaudible)...</i>

	Member (Alan?)	
01:29:32	Panel Member?	<i>Buy some land and dump it.</i>
01:29:33	Audience Member (Alan?)	<i>... (Inaudible).... a residential area. I mean As I said you guys don't live in the area so you don't have empathy with us, the way we feel about it. You know you're in another part of town. You know, we're in a situation, a unique situation we've had an earthquake, we've had massive upheaval, massive loads of rubble with all sorts of contaminants and you know you are proposing... (inaudible)... toxic in an area confined so close to a housing area. It doesn't make sense mate.</i>
01:29:58	Audience Member	<i>My neighbour Alan's right cause the prevailing wind there's easterly mate. You wanna see where it goes off that.</i>
01:30:02	Audience Member (Alan?)	<i>... (inaudible)...</i>
01:30:05	Panel Member	<i>I understand your concern.</i>
01:30:07	Nick Davidson	<i>Well out of that you're really raising the question whether this has been sited optimally in terms of the locality and proximity to residents. That's the question you're raising.</i>
01:30:15	Audience Member	<i>Exactly but I also think thought it would be a planning question as opposed to an engineering question.</i>
01:30:21	Nick Davidson?	<i>Well land fill site selection is an engineering exercise.</i>
01:30:24	Audience Member	<i>Have you looked at... inaudible....that's the optimal position to put it and that was it?</i>
01.30.30	Nick Davidson?	<i>Well as I explained...yes within the designation of the site, Ok. There is really only two places that it could be put and they are the Site A area and Site X area. Well, I think we have taken that on board, we can take that away and look at it but the worst thing that you could do is place it in an area where its going to become intermingled with other materials, it has to be delineated. So, the uncertainty around Site A is the uncertainty of how much is going to be in there. So, to be able to say at day 1 its OK to go here, you can't do that practically, so in terms of security a single delineated site that is separate from everything else is the way to go in engineering terms.</i>
01.31.28	Female audience member	<i>You did say it was in a low lying area because of dust... inaudible....wrapped in plastic bags, no dust..... inaudible.</i>
01.31.39	Nick Davidson?	<i>Well no, the point is if you are handling a material where you do not want that activity.... you know.... if there was absolutely no dust from within those bags but the vehicles moving around and there was dust blowing away, I'm sure that people would be uncomfortable with that because they would be concerned that some of that could potentially be asbestos and best practice is to locate it in a low lying sheltered area and that's the two options.</i>
01.32.07	Female audience member	<i>Is it possible for it to go to Kate Valley is what we really want to know? Is it possible to have that little 5,000 tonne..... inaudible... .. 40,000 trucks.... Inaudible.</i>
01.32.20	Nick Davidson?	<i>I think that is something that we are going to have to take away.</i>
01.32.24	Audience members	<i>.... inaudible...</i>
01.32.32	Nick?	<i>I think that is what Mark was alerting to earlier was that we will take that point on board and there are other parties obviously involved in the infrastructure rebuild, SCIRT, their big alliance and lots of others and that is</i>

		<i>something we will have to consider.</i>
01.32.47	Female audience member	<i>At the end of the night when you are all going to bed the last thing.... inaudible... when you buy a property where we are living and live there knowing this was going on.... Inaudible.... dump in backyard, would you, would you really?</i>
01.33.07	Nick?	<i>There are few other questions still to come and we are trying to work towards a 9 – 9.30am finish so just, some of this didn't get on the tape so I just want to record that the issues raised are, is it necessary, is it absolutely necessary to have the asbestos here and secondly there is a clear refrain from the residents to maximise the distance between the activities and the residential boundaries and that does not apply to asbestos so if there is substantial, even anything of consequence that could be done in terms of the separation distance that is obviously significant to all of you here tonight and thirdly one point that I did pick up with regard to the Auckland example that was given as to monitoring the asbestos dust emission at a point, I think was described as 100 metres from the residences, is there that sort of monitoring proposed on this site in terms of what could be potentially toxic material. That strikes me as quite a significant and rigid boundary of emission.</i>
01.34.03	Mark?	<i>That monitoring is underway already. We have actually done some specific dust testing on some of the residences on the route on the way in particularly when the silt was being hauled in, liquefaction silt, people were concerned there might be material, asbestos material in that. We were able to demonstrate that there isn't but it is part of our proposed consent conditions that there be, I mean we need to monitor it for our own security, making sure our staff are safe. We need to know if there is any asbestos in the air we need to know. If there is any risk of it at all we have to monitor it to make sure. We will be monitoring the air quality.</i>
01.34.40	??	<i>You will obviously face enforcement proceedings if you don't?</i>
01.34.42	??	<i>Well, it is risk because I guess there is a very very vigorous process in place with the buildings but we have to assume and work on the basis that somehow something might have slipped through and we can't afford to let our staff be exposed so we have to monitor to make sure.</i>
01.35.01	Nick?	<i>I will try to get around the questions.</i>
01.35.03	Audience member	<i>Inaudible</i>
01.35.04	Male ??	<i>Well, it will have the same effect.</i>
01.35.05	Audience member	<i>Inaudible.</i>
01.35.12	Nick?	<i>We have got a few questions here so we will just move on. I have identified the others who want to ask and I will get to each of you but there are a few questions here.</i>
01.35.21	Female audience member	<i>I will do this as quick as I can. I have been working on this potential resource consent for quite a few months and in light of what I have heard tonight it looks to me like Site X has been added fairly recently. It certainly wasn't intended in the initial advise that I got from Council. So I have got some questions. I am going to stay away from X and look at some other issues that a really feel you need to answer. These are going on tape so even if we don't get time to answer them I would like them said. What is the land classification for Bottle Lake because there is liquefaction issues through there? What toxins in Site X that are being decanted off – what are the toxins? You will</i>

		<i>have a breakdown of those. Will waste water management plant manage the treatment of those toxins before discharge? And also, how will our recreation be managed. It is quite, by experience, most of us here that use Bottle Lake take a track and then find there is a fence around it and so I think the area that Site X, there are tracks around there as well. Noise, dust and, oh no I will go to this one. Does effects include only within the park or does it include the transporting and demolition issues related to the residential areas of the ward and other wards because I was under the impression that they would be effects when I spoke with Jane Parfitt who is City Environment Manager. So it would be good to have an answer to that one because there will be issues for residents regardless of where they live red zone or not when the house next door comes down. I have been through this myself and it was a good insight. So noise, dust, vibration will be issues throughout the ward and also one big concern I have been dealing with for months is the routes of transport. I am wondering if another entrance could be made further away and an example that comes to mind is Lower Styx Road. You would be away from the residential areas there and would acoustic buffers be considered to make living immediately adjacent to the landfill road more bearable? And I think I have covered them.</i>
01.38.37	Nick?	<i>Well there is a whole battery of things there. As the questions are asked various panel members will have identified them for them so if we can go around the panel and address them as within your expertise please.</i>
01.38.50	Panel member (with OZ accent?)	<i>I'll try and answer all those questions that I can remember. Burwood landfill is part of the Burwood landfill special purpose landfill zone. The Bottle Lake Forest as I understand is part of the open space zone so it is a separate zone under the City Plan and has its own rules around governing the activities that can occur within that zone. The City Plan rules were obviously changed as part of the amendments to the plan to allow Burwood to go ahead so not too sure where you were going with the question in terms of why the zoning of Bottle Lake Forest, if you could clarify that.</i>
01.39.35	Female ??	<i>That would be because if it was a liquefaction zone then you have got some other issues to really consider. I have walked all through the forest and there is liquefaction zones throughout, and springs, sorry to say.</i>
01.39.49	Panel member (with Oz accent)	<i>I'm not quite sure what you mean by liquefaction zones as such.</i>
01.39.53	??	<i>Evidence of liquefaction.</i>
01.39.54	Female ??	<i>Trees unrooted, create volcanoes, that type of thing.</i>
01.40.02	Panel member (with oz accent)	<i>So there has been land damage you are saying in that sort of respect. I'll pass you over to Ian.</i>
01.40.11	Ian	<i>In terms of the liquefaction that is certainly something that was considered in relation to Site X and Site A and so there has been site specific investigations that have been done to assess that risk, specifically in the Site A area but yes I am aware that there has been liquefaction to the north of the forest.</i>
01.40.33	Panel member	<i>I'll try and deal with one of them. You asked the question about, I think you might have meant Site P whether the material that is being put in there, the liquid material and anything that might be in there that contaminants might being treated, the short answer is the pond isn't intended to do any treatment, there will be some bacterial die off in there but not particularly so any liquid that is in there will be transferred back to the main waste water treatment plant at Bromley and will be treated to the same standard as any other effluent</i>

		<i>that goes to that site.</i>
01.41.09	Nick?	<i>Another question here is could another entranceway be made further away. An example given was Lower Styx Road. So was the transport decision taken, what was the basis of the decision as to the entrance/s.</i>
01.41.26	?Panel member?	<i>I think the answer to that simply is that obviously the existing entrance seemed to be the most appropriate but as to looking at other locations that is again another issue we can go away and have a look at.</i>
01.41.40	Nick?	<i>I don't want to do a disservice to this but what else is there? Acoustic buffers? There is a question here in the same vain, what acoustic buffers could be considered to improve or to remediate the noise of trucks entering and leaving the site. Has any consideration been given to that?</i>
01.42.00	Panel member	<i>Again, the short answer is no. The mitigation that has been proposed is in respect to limiting vehicle speeds but again that is another issue we can go away and talk to our acousticians about whether there is any option that would work in that regard.</i>
01.42.18	??	<i>There was another question about how will recreation be managed.</i>
01.42.26	Nick?	<i>Yes, did you get the question.</i>
01.42.29	Warren Hunt – Ranger Bottle Lake Forest	<i>You talk about me putting gates up. Well I am very proud of my gates and keeping people out and it has been really effective. We are now looking at reopening back parts of the forest and the exclusion zone is now 10% of what it was, however there are still fences in there and we are going to keep those in there cause we don't know what's in the future. The other thing is to remember there has got to be normal forestry operations occurring as well and there will be some trees come down October in and around near the landfill. Nothing to do with the landfill, forestry operations.</i>
01.43.10	Audience member	<i>...inaudible... where abouts the trees are coming down.... inaudible.</i>
01.43.30	Warren Hunt	<i>The trees around up in here in this area B and up in here and what has actually happened is Selwyn plantation board have sold, they are not in the plantation business anymore and this has occurred since the earthquakes and they have sold to Matariki Forest who now manage the forest. The cutting rights etc where the Council retain an ownership of the land and we keep it as a recreational asset obviously. They are just coming in to tidy some blocks up north of that Area B.</i>
01.44.00	Audience member	<i>Inaudible. As you made a statement earlier about trees being like a filter between the landfill site and the residents of North Shore, its very important, Forest Park, Tumara Park and obviously heading over to Waitakiri, are you going to be able to stop the milling of all of those trees which are actually a barrier? Can any of you answer that?</i>
01.44.26	Warren Hunt	<i>We have got to careful here because my phone is running red hot from those residents down that road wanting to know when those trees are getting felled.</i>
01.44.35	Nick?	<i>What we will do is go away and talk to the forest owner and just check on what foreseeable milling plan they have got in the forest and we can come back with that information.</i>
01.44.51	??	<i>The trees are nearly mature?</i>
01.44.52	??	<i>I'm not a forrester so I can't answer your question but we will talk to the people who can.</i>
01.44.58	Audience member	<i>Are you going to talk them to stop them being milled ... audible.</i>

01.45.05	Nick?	<i>We will talk to them about the plans for the forest and what they intend to do with that and I can't say any more than that until we have talked to them about what their plans are for those areas.</i>
01.45.17	Audience member	<i>So you aren't going to try and stop them?</i>
01.45.19	?	<i>I'm not saying that, I am saying what we will do is we will find out the information on whether there are any plans to do any felling of the forestry strip sort of to the south of the landfill there which provides the current screening for the residents between there and the landfill.</i>
01.45.35	?	<i>It also works as a filter for the dust as well which would actually be quite good.</i>
01.45.40	?	<i>Another question, legal roads. Normally we don't travel across boundaries except on legal roads etc and trucks are taking short cuts basically through subdivisions to get other accesses onto landfill road. So they go from a legal road across a boundary which is not actually a legal access, rather than going through landfill road they take like a shortcut up Putaki Avenue in the middle of the night. I would say a lot of people are getting fed up with that but....</i>
01.46.29	Female audience member	<i>We live right on the gateway in Landfill Ave and we have had those trucks running 24/7 since September 2010 and now we have been granted one week's peace in three and it goes through Tumara Park, the gates are open there. Do we get the peace? No the truck drivers are so thick, they come to the gates, they back round the corner with their beep, beep going all bloody night so we don't get no peace at all. Then sometimes they have a little conversation at the gates and its not really very easy.</i>
01.47.12	Nick?	<i>Thank you. Are there others here who want to speak to this traffic effect that adds something to that?</i>
01.47.18	Female audience member	<i>I also back on to Landfill Avenue and I would like to know how they are going to monitor this 20km speed limit because they don't stick to 20km.</i>
01.47.30	Male audience member?	<i>You might get an answer from the panel.</i>
01.47.32	Panel member	<i>Yes, we have had the police monitoring the trucks quite a bit of late and they are not only doing the speed they are also doing the weights, making sure that the trucks aren't overweight. We will certainly want to continue that but once we actually have control of this site in total there will be a vigorous enforcement by the staff on the site which will mean if the trucks are not following it and it will be by radar gun, that if the trucks are not following the speed they will be unable to continue to use the site which will cost them an awful lot of money. We believe we will have the power through the contract arrangements with those companies to ensure that they follow that speed limit and we will certainly be policing it internally and externally by using the police.</i>
1.48.31	Male audience Member	<i>Well that's important but I don't see why its not tomorrow, let's start with tomorrow. These people here are traumatised. Just take consideration there's probably a whole street load of people like that. From tomorrow can you give us assurance form tomorrow that you will do it.</i>
1.49.18	Male Panel Member	<i>I hear what you are saying, at the moment there are two agencies on the site the site is under the control of Christchurch City and the staff that are involved in that are working very hard to try and get better behaviour from the drivers. We hear what you are saying, it's causing a problem and we need to try and</i>

		<i>get on top of it.</i>
1.49.45	Male Audience Member	<i>Could I just talk about the trees for a minute and a little bit of history. When the trees were planted they were not planted particularly well and they don't have a high value because they weren't planted well. Can the panel approach the owner of the trees and perhaps compensate the owner of the trees so the trees actually remain.</i>
1.50.14	Male Panel Member	<i>That's certainly a possibility and we have done exactly that for the trees that have been chopped down around this area to create a fire break. We have had to compensate the tree owners who are no longer the Selwyn plantation board, the matiriki forest I think and yes that is a possibility we could discuss that with them.</i>
1.51.14	Male Panel Member?	<i>Can I make a comment on the dust, I was going to do it before someone else, someone asked a question before about mitigation so let me go back a few steps. You asked about if the site is being operated well and whats in place. My responsibility was to work out what were the most appropriate measures to control dust on the site, now I wasn't involved in the actual PRRP application. Lynn and her team were doing that, the mitigation that's being used on that part, the use of covers, extraction system to control dust is going to deal with 99 percent of the dust of that unit and there is a picture Gareth had up in his presentation, you can see how dusty the material is when you work it, the thing is there is a lot of dust coming from it. Controlling dust is very important the measures that are in cell A, the material that's going to be coming off the finer material is going to be damp, its going to be paste, there will be water trucks on it to control dust the material will have cover put over it. The area if the material there is largely going in damp and again there was a photo earlier on where you could see the material going in. It's not highly dust generating but where necessary the material is being covered as well to prevent dust Rory talked about site X a bit. The material that's going in there is being controlled, there is no dust that is coming from that. Probably the largest source of dust on the site is from the transport and again Gareth made that comment from his presentation. There are water trucks running around the site controlling dust on those un-sealed portions of the road. The trees have a dubious advantage for dust control to be perfectly honest. The mitigation measures are all on the landfill site. The potential for dust from that is reduced as far as practical with the measures that we have proposed, the operating practices that the City Council will have in place and is comprehensive management plan that sets out all those measures, what have to be done when its started and who does it to control that dust. So I appreciate the concern about the trees, from a dust point of view I don't really care if they are there or not, but they have an advantage out of sight out of mind is a wonderful thing from dust control so if the trees make you feel better that's good take the ones away that are dangerous but removing a row of trees ten metres, twenty, fifty metres around the boundary of the residential areas isn't going to have any substantial difference in the amount of dust or the potential for dust is being controlled on the main site already.</i>
1.54.43	Gareth James	<i>I think the question was has there been instances of asbestos dust. I'm aware of only one incident and we don't know if it was a real incident or not because when we were alerted to the fact that there may have been some material taken to Burwood that may have contained asbestos we sealed off the area where those trucks had been and we tested the living daylight out of that entire area</i>

		<i>for a considerable amount of time and found no asbestos whatsoever. So I think it goes down into the sort of the tales of the site, it was a scare it was a very good dry run from our point of view to check things out but we have absolutely no evidence of whether there is asbestos there or not and it would appear that there wasn't but we cannot be sure and that's why we treat everything as though it is there, and while we have systems in place that protect our staff.</i>
1.55.42	Nick Davidson	<i>Just going back to the question of the trees and it was asked the resident are you ok with that issue, there's been so many different perspectives to the trees and which they filter dust and provide protection otherwise visual protection and theres been two opposing perspectives but I understand that the idea of them coming down to protect the housing could be accommodated by a buff area is that right? Of about 50 metres, yeah, so maybe there is a compromise in that issue.</i>
1.56.18	Male Panel Member	<i>Yes I think we hear that point and I'm sure Gill, I would be right in saying that from BRRP and the city council point of view if we are able to be reassured by the people who own the trees that they aren't planning to cut them down while these activities occur we would be very pleased. If they are planning to I guess we would want to consider if there is anything we could do to persuade them otherwise.</i>
1.56.38	Female Audience Member	<i>Hello I'd just like to ask after all this is finished will the landfill then be filled and never touched again?</i>
1:56:52	Mark Christison	<i>When we closed Burwood in 2005 the intention was to close Burwood, rehabilitate it and never open it again and then we had earthquakes in Canterbury so, you know, its just impossible at this point in time for us to give a cast iron reassurances like that. I mean we're in a period of seismic activity in Christchurch. The landfill has only been reopened to, for construction and demolition waste. We have a well engineered landfill at Kate Valley which deals with all other forms of waste and the intention is that is the regional landfill, in fact the agreement between the shareholders of that landfill is very specific that material needs to go to that landfill so the, all I can say is the, under the CERA Act the Burwood Landfill has only been reopened for the purposes of handling this residual waste and demolition waste.</i>
1:57:56	Female Audience Member	<i>Okay and just another question there, what asset will we be left with? What will you do when you've finished and what will we be left with? Will it be a native forest? What will you do for us at the end?</i>
1:58:09	Mark Christison	<i>Like Burwood there'll, well Burwood has a rehabilitation plan and the city has been working on that plan for a number of years and that includes revegetation of this site and after the capping of the landfill and then handing over to Warren's team for recreational tracks and that through the landfill once, you know, it's in a condition to do that. The intention will be to do the same. Unfortunately its going to be delayed by these C and B operations because we'll have another cell to cap, revegetate and hand back but the aspirations haven't changed at all and that will be handed back as a recreational area when its in a suitable condition to be handed over.</i>
1:59:00	Nick Davidson	<i>Just before I come back to another question, is sort of broad question which everyone has and will be concerned with and that is the material that has been discussed tonight and your further consideration and answers to some questions – how will that be disseminated to the people here and to others who</i>

		<i>have the same interest? A lot of that has been raised here so how will you get it back because on the 25th of May the submission is or closes and yet the answers to some of the questions may not have come back to the people here and others with the same interest.</i>
1:59:37	Panel member	<i>Yes, I think that goes in the category of a very good question. I'm not sure if any of us would actually know the answer to that right this moment. There are things we have to consider and they will have to go to both the City Council and the BRRP Board, two different entities at the moment and they need to go and be considered in some response ? prior to a final consent being launched. So that is a relatively short period of time. How we will get that information back I guess will have to be considered. An obvious route is through the notification of the final consents on our website so people can see the applications and people can look at them, but they maybe another more user friendly way of getting that information out that we'll have to contemplate.</i>
2:00:24	Nick Davidson	<i>Well, we think picking up on the reason for the question of course there was a sense of urgency amongst a lot the people here wanting to see responses on some of the key issues quickly and clearly its not going to be easy for them to absorb the fact application to file with the process not necessarily shown to them having been worked through to these questions raised tonight. So that seems the reasons for the questions put to you.</i>
2:00:48	Gill Cox	<i>I think we'll look at both the use of you know questions and answers on the website. I think that's one way and I guess people have given their, if, it would be useful if people gave their names and addresses. At least we'll know who was here and I think for somebody to do that at the table at the back isn't it?, Yeah, we'll make sure we do that anyway 'cause I think we've got a duty to go back to people and tell them the answers to the specific questions that both have been recorded and I think we've got a note of as well.</i>
2:01:26	Nick Davidson	<i>So Gill could they get the answers to those questions could go to all those who sign their names here tonight, amongst others? Okay. Does that answer your question?</i>
2:01:36	Audience Member	<i>Just further to that you've got your list of effective partners so that's the Burwood Pegasus Community Board, Parklands Residents Association, Declans? Park (inaudible) I think that would be, that would go a long way towards getting the group in, letting people know whether they are in the Parklands Residents Association or not, area. I think that would work that just leaves Waikari, North Shore. North Shore needs to be listed and (Inaudible)</i> ...
2:02:08	<i>Inaudible discussion between two female audience members</i>	
2:02:19	Audience Member	<i>... Yes it would be nice if they could be on that list as well.</i>
2:02:21	Nick Davidson	<i>I just wondered if there was another aspect to this too. It strikes me that a lot of the questions here can't be answered for obvious reasons, they're good questions and they raise really difficult issues for the applicants, but if people after tonight, they'll all have more questions arising from the responses and other questions. How do they get more information between now and the submission date closing? You want to come back with information to these, all these residents but if they've got more information they want, legitimate questions, where do they go in the meantime?</i>
2:02:58	Panel member	<i>There's an address on the...</i>
2:03:00	Gill Cox?	<i>Yeah I was just wondering can you flick up to that slide because people may</i>

		<i>not have taken that down? I think one of the things for people to do is if they can, sounds difficult I know, but if they can submit material on a feedback form and the feedback forms are where Gareth?</i>
2:03:26	Gareth James	<i>The feedback forms have been circulated with the information brochure...</i>
2:03:29	Gill Cox?	<i>So get it in in writing 'cause that helps and make sure that we actually understand it exactly the way, you know I've written some notes down here and we've got this, but it's exactly the way you've asked the question and the best way is to get it in in writing by what date is it Gareth? 25th of May so that's 3 weeks.</i>
2:03:50	Nick Davidson	<i>Well there's two categories here, one is a submission that the residents are being asked to put in and the other is the answer to questions which they're raising as to what submission they wish to make.</i>
2:04:02	Gareth James	<i>The process is, this fine gentleman here – stand up, Daniel. Daniel is the person whose email address is on the feedback form and whose fax number is on there and also physical mailing address but he is the one who is coordinating all the questions and responses that's where your comments will go but if you have any questions in the interim that's the first point of contact and he will make sure that gets to the whoever is the person to answer the question.</i>
2:04:28	Female audience member	<i>(Inaudible).</i>
2:04:35	Male audience member	<i>(Inaudible).</i>
2:04:42	Nick Davidson	<i>There are a pile of forms over here on the table. Excuse me ...</i>
2:04:53	Male Audience Member	<i>Just playing the devils advocate here. We're all concerned about X and everything else but your opening statement right at the very beginning of this process was that sites F, X and P are fact. And (Inaudible) what does the paragraph say? The resource consent must be granted. So discussions we've been having here, to hear about our concerns and everything else but it doesn't make any difference at the end of the day does it because resource consent must be granted... or have I got that wrong?</i>
2:05:26	Gareth James	<i>In terms of, no you're absolutely right we, the applications must be granted but they are granted with conditions decided by the Commissioner based on feedback he gets from the process and, you know, through this consultation process we'll provide that information to the Commissioner. The Commissioner can then set conditions of operation so he cannot, or she cannot make a decision that it won't happen but it is a case of regulating how it will happen so that the environmental effects or other effects are mitigated to, you know, whatever extent. That person determines is appropriate so what this process tonight is about is us hearing your concerns, deciding whether as a Council or as a company or both, we want to modify what we've proposed as a result of what you've said and I think there's clearly some issues there for us to consider and decide but we will have to decide. Will we make a change to what we've proposed or not and obviously we need to communicate that back, but that will inform the final nature of our application which then goes into the formal process which is then in the hands of an independent Commissioner who makes the final decision.</i>
2:06:39	Male Audience Member	<i>So following along then what's the likelihood of you people considering our concerns, the reality of site X being (inaudible).</i>

2:06:50	Gareth James	<i>I think probably this panel, we tend to be the experts. Certainly some of the panel are experts but most of us are officers if you like of other decision making bodies, in Mark's case the Christchurch City Council and in my case the BRRP Board. So it those bodies who will actually make the final decisions on whether we are going to change anything from what we have at the moment. So we can't really say.</i>
02:07:16	?	<i>Gareth, can you just answer that in terms of the application that we've lodged.. There is a process post-application prior to the Commissioner making his decision with respect of one of the applications and that allows people to have seen the application.</i>
2:07:37	Gareth James	<i>Yes the process in relation to the sorting plant, so area B we're talking about that. There is a 10 day window for this same group to be consulted Environment Canterbury and Christchurch City who are the people who employ the Commissioner to make the decision so there's a second opportunity based on looking at what the final application actually was so if something changes in it and you're happy with it – great. If it hasn't and you're still concerned you have another opportunity there. But it is only in regard to the sorting plant. It is not in regard to the landfill area A or F, X and P under that process that has been set down by the Government.</i>
2:08:16	?	<i>So therefore it's highly likely that F, X and P are going to stay exactly as they are, nothing will change?</i>
2:08:20	Gareth James	<i>I don't think we could say that.</i>
2:08:22	Mark Christison	<i>No I think there's some of the points raised here tonight need careful consideration and you know, just can't give a black and white answer so taking the asbestos issue for instance we've got to look at can that be moved into area A, what's the impact of bagging it and taking it straight to Kate Valley? We've got to go and talk away to the Alliance who are going to be digging this stuff out of the ground, what impact does that change have on them, so there's a whole range of attached issues to this which lead to the proposal as it's been put up now so we certainly heard the concern around area X and you know we're taking it on board seriously.</i>
2:09:05	?	<i>So shifting area X to area A is 2 or 3 hundred metres so it's neither here nor there, really if it's a change, it needs to, a change for the sake of change it's stupid but to change it needs to be a significant change, i.e. Kate Valley or something significant. 2 to 3 hundred metres is neither here nor there in the scale of things.</i>
2:09:19	Mark Christison	<i>No, but you've heard the landfill experts here tonight so that there's engineering considerations...</i>
2:09:24	?	<i>Yeah I understand that point of view and it's good information we'd like to have and I do understand their point of view and I understand the logic of where they've come to that decision but the reality is its either here or its not and it needs to be well away. 2 to 3 hundred metres is neither here nor there. Shifting it from X to A is in the scale of things is just moving across the street. As I thought...</i>
2:09:47	?	<i>(Inaudible).. it to Kate Valley, are you talking about washing it there or washing it and then transporting it?</i>
2:09:54	Mark Christison	<i>It would be, it wouldn't be, it would go into the bagging at the construction site and it would go. (Inaudible) ..you don't want to... yeah, yeah, yeah. You don't want to handle or debug or do anything to this stuff at all. You bundle it up securely and then you dispose of it.</i>

2:10:17	Nick Davidson	<i>The woman back here...</i>
2:10:20	Female Audience Member	<i>It's okay. Just as well as consulting the residents associations I think it would be good to keep the pre-schools and the schools as well updated on what is happening. There are a number of families. Our children go to the ABC in Tammara? Park and I know there are a number of families who aren't here tonight that I know they'd have their opinion on it as well so that's also... yeah. If you can add that to your list Linda and like the lovely people who actually live on Reka Street and the corner of Putake Drive and it's like living on a motorway some days. I was home today with my daughter and those trucks don't go 20k's an hour down there. And all hours of the night you're awake. I live alone with two small children and you've got the trucks as well.</i>
2:11:02	Nick Davidson	<i>Thank you. I think we'd all like to know the answer to this question: When this goes to the Commissioner, the three applications for consent, do you put the competing view points to the Commissioner as part of your application evidence? So that you decide after this process what your application will be? And why? But the Commissioner still has to make a decision about the conditions attached to the consent. So he or she hear the debate?</i>
2:11:29	Gareth James	<i>The normal process we'd use for a project like this is we would provide a report on the consultation process that we have used and any issues that have come up in that process and what we have decided to do about those issues, which can range from nothing to doing something. That is provided as part of the application. We also provide a , if you like, our proposed conditions of operation then it is up to the Commissioner to make the decision based round that.</i>
2:12:00	Nick Davidson	<i>And the Commissioner would normally expect to hear contest over the conditions... (inaudible)</i>
2:12:05	Gareth James	<i>Environment Canterbury</i>
2:12:07	Catherine (ECAN)	<i>Hi I'm Catherine from Environment Canterbury. What would happen once the application has been launched is it would it come through to the consenting team at Ecan and we would carry out an audit of that application and we'll make a recommendation as well, and that recommendation may fit what the applicant is proposing or it may be something that's different as well. So what the Commissioner will get is he'll get the application and also Ecan's view on it too and that is something that we carry out impartially and we also use our experts within Ecan to provide some help with that as well. So it's really good for us to hear the feedback here today too, although we're not connected exactly with the applicant, this is really helpful for preparing our audit of the application and what recommendations we're going to put through the Commissioner as well.</i>
2:12.52	Nick Davidson	<i>Okay.</i>
2:12:55	Male Audience Member	<i>Just to go on with what you were saying, does that also mean that dissenting views are also presented at the time or only the views of the two authorities?</i>
2:13:05	?	<i>(Inaudible)... Paul ? from Environment Canterbury. The comments that are received post notification of the application that'll be included in the recommendations to the decision maker.</i>
2:13:18	Nick Davidson	<i>Thank you.</i>
2:13:20	Jesse Burgess (?)	<i>The same applies to the City consenting teams as well. We carry out an assessment of the applications when they come in to make sure they've addressed all of the areas over which we have control, which are listed in both the plan change document as well as also the order in Councils so noise,</i>

		<i>vibration, dust, all those effects have been considered. We need to consider the conditions that are put forward by the application to address those effects and our experts within the Council, same for Ecan, will assess those conditions and see whether they will address the effects of concern. In terms of the written comments from the community and interested parties in terms of the consultation period, that is to be provided to the Councils in terms of written comments, and so under the Order of Council, sorry I'm just reading from the document here but it talks about the consent authority makes a decision on the application, a summary of the written comments must be prepared and considered by the consenting authority and the summary prepared under the sub clause together with the consenting authority's response to the issues raised in the written comments must be included in the notification of the decision. So the Commissioner who gets the final decision, makes the final decision on both sets of consents will be provided with the written consultation from the community. So they can see the issues that are being raised and then they can see whether the conditions of consent will address those effects from those different issues. Does that answer the question?</i>
2:15:06	Nick Davidson	<i>Thank you. First time tonight the hands have been down. Is there any panel member who hasn't said anything who wants to say something that he thinks important. Hands remain down.</i>
2:15:20	?	<i>Can I say one thing? I just want to say in respect to the, you know, consultation process from here on in, I mean, we do need to go away and discuss how we do come back to you and all the questions we've been asked tonight but just to make 100% sure, if you do want to hear back from us on the answers to questions that have been raised tonight, to be 100% sure, be good, useful to sort out a bit of paper or something you can (?) name and addresses on the way out and contact details, would be much appreciated.</i>
2:15:47	Nick Davidson	<i>Okay. Time's not the issue here really it's the question of your asking the questions you want and us, a terrific range of questions and I can, I'm certain the panel, the company and the Council will have, will get a lot to think about and that's the whole purpose of this meeting. I would say to you that, speed is important. We've got some issues across here tonight, you've had a meeting and you've been able to hear them. You now must get them across clearly in writing and quickly, so time is against you in that regard. I'm afraid that's the way the process works. So working together as a group, you may not all know one another or hardly anyone here but working collectively is a very strong way of dealing with things through the residents groups, but as individuals you may share the same views in a street for example, the noise issue that's come through here so clearly tonight. The hard evidence of that is crucial in this process. So when you hear people have been kept awake and not slept properly, talking about the reversing trucks and so forth, that's the kind of thing that really counts when it comes to conditions attaching the consents. So that story has to be told. It's not just a private story to be kept to yourselves. You get it out there and I know that the company and the Council would agree with that because if you don't deal with it now and its addressed in the conditions of consent perhaps as to the hours of the operation of trucks, the number of trucks, the speed of trucks, all those things; if you don't do it now, not only do you have a problem forever but the Council and the applicant has the problem because the next thing you're going to face is enforcement action of some kind and trouble. Politically and otherwise so these are really, you</i>

		<i>think of them as personal but they're very, very important in this context of consenting and conditions.</i>
2:17:47	Female Audience Member	<i>Sorry, just on the question of the asbestos pipes again. Pre-earthquake, if there were broken pipes that everybody knew contained asbestos or they were replacing them; where did those pipes go before earthquake?</i>
2:18:01	Mark Christison	<i>Kate Valley.</i>
2:18:04	Female Audience Member	<i>Thank you.</i>
2:18:05	Mark Christison	<i>Yeah, but just keep in mind that its an order of magnitude. Pre earthquake we replaced less than 10 kms of , we replaced less than 10kms of water pipe in the city a year. 60% of that or less was AC pipe (Asbestos Cement). We're replacing 150km of water pipe and up to 500km of sewer pipe so, you know, it's a totally different scenario and this is why we've had to look at these special circumstances.</i>
2:18:40	Male Audience Member	<i>Because this process is a process of haste. Meaning there's a limited time for what we need to consider to be considered, once these things go into effect, is there anything evolutionary process afterwards to mitigate against unforeseen circumstances? Examples: traffic flow, noise, dust. In the future, if we agree to something and the process goes through, we don't (inaudible) really, is there anyway that it can mitigated in the future? I know you were talking about, you had community groups. What sort of powers do they have and what sort of effect do they really have? Just a question.</i>
2:19:24	Gareth James	<i>Well the community liaison group is very much a forum for discussion. It, the community liaison group has, for example the one we have at Kate Valley, has no power. It does have the ability to receive reports that go to peer review panels and other expert independent groups but its primary purpose is to provide a good channel of communication from the community to the management and back the other way as well. And it does work very effectively. It's a good will thing and it requires both parties, you know, to use it that way, but it doesn't have teeth if you like. That process is reserved to the consent authorities, in this case Christchurch City and Environment Canterbury. There is always in every consent I've ever seen, there's always a provision for them to review conditions particularly if there's something unexpected or adverse, adverse effect not considered, but there's other people here who know more about it than me. Do you?</i>
2:20:21	Catherine Chellis	<i>Yeah, is that working? Can you hear me? No? Yes? Okay the review condition as Gareth has talked about is something that's very common on consents and you'll probably find that almost all consents have a condition allowing the regional Council to review the conditions of that consent if it turns out that something is happening that we hadn't anticipated happening before the consent was granted. So that's one way it can been addressed. The other way it can be addressed is through conditions that have sort of a feedback loop in them where perhaps monitoring is carried out and if monitoring results show something is happening then maybe that triggers further action. The details of that will have to be worked out at the time the consent is submitted and when the Commissioner makes their decision but there are options like that that can address.</i>
2:21:20	Male Audience Member	<i>'Cause I think those are hugely important because all of this are so unforeseen. We can all accept that we have a panel of experts who I don't</i>

		<i>doubt are quite expert in what they're saying but it is very hard to foresee such an unforeseen event.</i>
2:21:34	Catherine Chellis	<i>It's completely impossible, I mean we're all talking about what is most likely to happen. I mean who knows, we've just had a huge earthquake and you know we didn't expect that would happen either so, yeah, I think you make a very good point.</i>
2:21:49	Nick Davidson	<i>Thank you.</i>
2:21:51	Female Audience Member	<i>The shredder isn't actually operational is it? (Inaudible) ... what do we do once that starts?... (Inaudible)</i>
2:22:22	Gareth James?	<i>The nature of the shredder that I think your... (Inaudible)... at the beginning of the process, its not a shredder like you might see say, shredding bark chips or a tree, you know a high speed, high rise, High rotation. It's a slow, very slow high tork(?) shredder so it doesn't make anything like the same kind of noise. It just has an immense power and just shreds things on along two screws turning together very slowly. So it's a lot quieter. It's going to be in an enclosed zone and our, the work that our noise experts have done is that it the noise it won't be aimed to be heard from, you know the distances we were talking about, but do you?</i>
2:23:02	Female panel member	<i>Yeah I get to say something. There is a kind of a QA or a feedback loop... (inaudible) ... that Catherine had mentioned when she was talking about consent conditions and (inaudible)..and among those feedback loops would be lets say a noise register, a complete register so that we can hear what the or be notified what the noise is and see what kinds of things contributed to that noise that day and what things could be do to be mitigating it so there might be a one off circumstance for instance, winds blowing the wrong direction or something, but there is a process and that's something that's very typical of some of the management procedures that have been proposed for the processing side.</i>
2:23:42	Nick Davidson	<i>Thank you.</i>
2:23:44	Jesse Burgess?	<i>Just one other comment, with other consents the City has dealt with in the past, a good example is where we've had complaints registers at the quarries around the city, where obvious noise issues and dust issues that are associated with those activities so that's something that we can consider in terms of the consent conditions for Burwood as well. I think also with the port of Lyttelton when they did the a similar process to this with a controlled non notified consent for the reclamation after the earthquakes, there was review conditions associated with that I believe as well so, and also a complaints registers with the port. So anybody who was affected by noise vibration, those type of effects, truck movements etc. they were able to complain to the port and the port kept a register of those complaints and addressed those when they came in. So there is that feedback loop that the other experts who have spoken about.</i>
2:24:44	Nick Davidson	<i>Thank you. There's a question here which ... (inaudible) ...</i>
2:24:50	Male Audience Member	<i>How many years is this going to carry on for before you start finishing up and putting it back to its natural state?</i>
2:24:59	Lynn Torgison (?)	<i>With respect to the processing its actually a defined discreet time that's put together in the order in Council so its up to five years and the Burwood people have made an agreement with the City in terms of the lease that they're using for the processing portion to be able to complete their operations and then restore the site to what it was pre.</i>

2:25:25	Gareth James	<i>But the simple answer is it comes down totally to how much material has to be processed and land filled. For the building demolition material, we think its somewhere between 2 and 3½ years seems to be the most likely. It would have to be something completely unexpected to happen for it to be longer or else our plant doesn't work as fast as we thought. But we certainly have to be completed within that five years. For the infrastructure material that's probably not quite as clear as to how long that's going to take, 'cause nobody out there at the moment can even tell you how big the problem is let alone how long it's going to take to fix it but I think the thinking is probably somewhere near 5 years is likely, could be 10, but very unlikely 10.</i>
2:26:11	Mark Christison	<i>As CERA's been established for 5 years under the Act and the rebuild of the infrastructure is currently programmed for a 5 year period. However to date only a third of the underground assets have been fully assessed so there's still another year to 15 months of assessment work to do to fully understand the state of damage to the underground assets so 5 years is a very tough target for the rebuild.</i>
2:26:44	Nick Davidson	<i>Thank you, I think we've come towards the end of this process. Thank you Gareth, Mark and Gill for providing the information but I really think the primary thanks goes to you for coming here and expressing these views. You are anxious, you have very real reservations about the unpredictable effects which we're confronting and what I've taken from this is that what you have said has been heard and will be carried forward into the process. And you must follow this up now by responding to what you next hear and making sure your submissions get in promptly as fully as you can and express them they way you have expressed them tonight. And I think I can speak for Gareth and Mark and Gill that this is the message that applicants like these need to hear now. Its very hard to shift things down the track. You're in the vital part of the process right now and this is just the first night of it so stay on it and you'll get the best mutual outcome possible if you stay on it from here on in. So thank you very much for coming and I think if the experts here are prepared to answer any other questions informally there is probably a few minutes to do so but you should sign in before you leave here tonight. Thank you very much for coming.</i>
2:28:12		<i>Applause.</i>

Appendix 3 – Russell Malthus report

IN THE MATTER OF The Resource Management Act 1991

AND

**IN THE MATTER OF Resource Consent Applications to the
Christchurch City Council:**

- **RMA92020447:**

Burwood Resource Recovery Park

- **RMA92020450:**

**Disposal of Earthquake Waste at
Burwood Landfill**

**Environmental Health Assessment for the
Christchurch City Council**

**Russell Charles Malthus
Senior Environmental Health Consultant, Novo Group Limited**

1. INTRODUCTION

- 1.1. My name is Russell Charles Malthus, and I am Senior Environmental Health Consultant with Novo Group Limited, a Christchurch-based Traffic Engineering and Planning consultancy. I am a qualified Environmental Health Officer with over thirty years' previous employment by the Christchurch City Council. As a consultant in private practice since leaving the Council in 2004, I have provided expert advice to territorial authorities and private clients on the assessment of environmental health effects of land use proposals, including Plan Changes.
- 1.2. I have been engaged by the Council's Senior Planner, Jesse Burgess to prepare an expert assessment of environmental health effects of the activities described in the application documents for the Burwood Resource Recovery Park (BRRP) and the disposal of Earthquake Waste at Burwood Landfill.
- 1.3. I have read the application documents, and I have visited the application sites. I also attended the public consultation meetings held by the applicants in May and June.
- 1.4. I have carried out my assessments with appropriate regard to the provisions of the Christchurch City Plan, the Operational Natural Resources Regional Plan (NRRP), NZ standards and guidelines, and other relevant information.
- 1.5. I have limited my assessment to matters which are within my expertise and experience.

2. EXECUTIVE SUMMARY

- 2.1. Applications and assessments of effects on the environment (AEEs) prepared by Pattle Delamore Partners Ltd (PDP) and URS New Zealand Ltd (URS) for the establishment of the Burwood Resource Recovery Park (BRRP) and for the disposal of earthquake waste at Burwood Landfill are assessed in this report.
- 2.2. The applications largely treat the BRRP activities and the Landfill Disposal activities as totally separate activities. In terms of effects generated within the individual sites within the Landfill Zone (Sites A, B, D, F and P as indicated in Figure 2 of the BRRP AEE) this is appropriate, as the sites are sufficiently remote from residential areas to avoid common effects issues.
- 2.3. While insufficient consideration has been given to common effects issues arising from all truck movements associated with the proposed activities using a single access to the BRRP area and transporting materials near the Living 1 zone, this matter has now been addressed in further information and assessments provided by the applicants.
- 2.4. In my opinion, sufficient information has now been provided on the scale and nature of effects and means of mitigating those effects for the Commissioner to grant the consents that have been applied for, subject to appropriate consent conditions.

3. THE PROPOSED ACTIVITIES

- 3.1. The activities covered by the applications are in summary:
 - the establishment of the Burwood Resource Recovery Park (BRRP) for the receipt, stockpiling, and processing of Earthquake Waste (Demolition Materials) in Sites B and D of the Burwood Landfill, and the recovery of resources from those materials in Site B.

- the disposal of earthquake waste - unrecoverable waste demolition material from the BRRP process at Burwood Landfill Site A
 - the disposal of earthquake waste - infrastructure rebuild demolition material at Burwood Landfill Site F; and of waste silts and sludges from the infrastructure rebuild at Burwood Landfill Site P.
- 3.2. Demolition materials are currently stockpiled at sites B and D, and infrastructure wastes are currently disposed of at Sites F and P, under temporary provisions set in place by CERA. The consents will formalise these processes, and in addition they will provide for the BRRP resource recovery process to be established at Area B and for residual, non-recoverable wastes from the BRRP to be disposed of in Area A.
- 3.3. Figure 1 below, which is reproduced from Figure 2 of the BRRP application, shows the location of the various Sites to the Living 1 zone boundary.

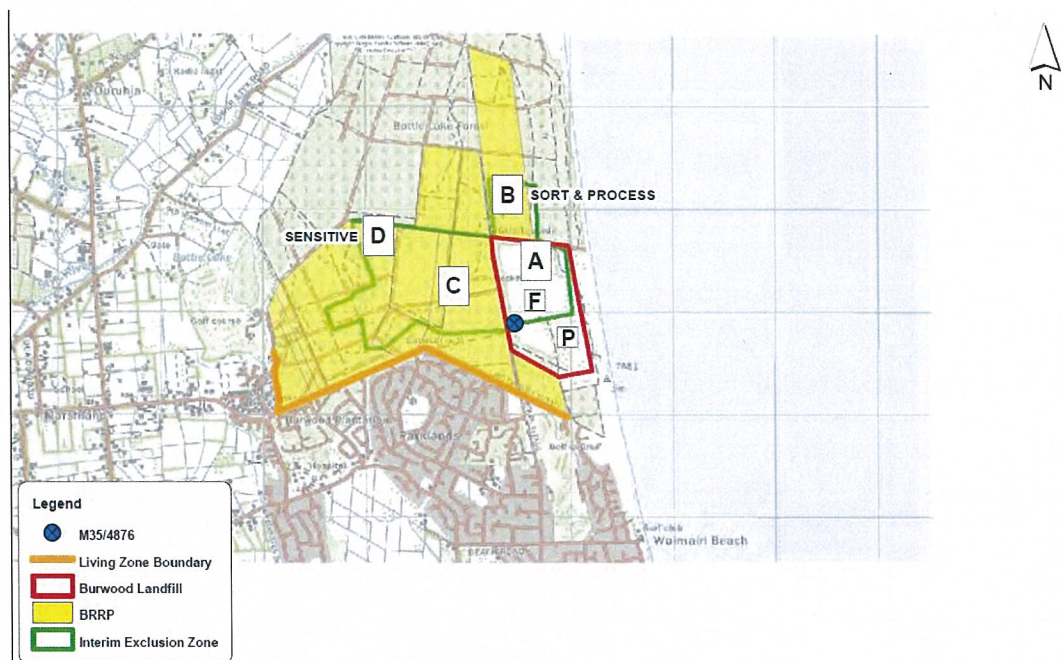


Figure 1
Site locations and L1 zone boundary

4. POTENTIAL ENVIRONMENTAL HEALTH EFFECTS

4.1. The following environmental health effects are associated and identified with the proposed activities:

- Management of unacceptable materials
- Operational noise and Construction noise
- Effects of truck movements
- Dust discharges from processing, and fugitive dust
- Odour
- Hazardous substances
- Land contamination
- Lighting
- Landfill gas

- 4.2. In assessing these effects, the applications largely treat the BRRP activities and the Landfill Disposal activities as totally separate activities. In terms of effects generated within the individual sites within the Landfill Zone (Sites A, B, D, F and P as indicated in Figure 2 of the BRRP AEE) this is appropriate, as the sites are sufficiently remote from residential areas to avoid common effects issues. However there is insufficient assessment of common effects issues (noise, dust, litter, vehicle lights), arising from all trucks using a single access to the BRRP area and transporting materials on Landfill Avenue near the Living 1 zone. This has been addressed in further information and undertakings provided by the applicant, which I will discuss below.
- 4.3. The applicants have also now provided a draft list of conditions which appropriately combines and coordinates the conditions that were submitted in the separate applications. The final list of conditions that will be submitted for the Commissioner's approval includes changes that I have recommended, arising from my assessment in this report. The draft conditions also appropriately provide for a joint Management Plan which will cover all the proposed activities. In my opinion, this combined approach provides appropriate certainty that there will be a high level of consistency in the management of effects from the separate proposed activities.

5. EFFECTS OF TRUCK MOVEMENTS

- 5.1. The proposed activities involve the transport of waste materials by trucks through the site access on Landfill Avenue, close to residential properties in the Living 1 zone. This has occurred since the earthquakes began, and has gradually scaled down to current levels which are stated in section 6.3 of the BRRP application (up to 200 movements per day between 6 am and 6 pm) and section 5.8 of the Sites F and P application (740 movements for Site F between 7 am and 5 pm, and 100 movements for Site P between 5 pm and 7 am).
- 5.2. Notwithstanding that truck movements have decreased significantly, residents have continued to object to nuisance effects from noise, dust, litter and warning lights on the trucks particularly at night-time. As a mitigation measure, Putake Drive has been used as an access in rotation with the main access, to relieve effects on residents near the main access and those adjacent to Landfill Avenue. However, this has simply transferred effects to a more sensitive area, and the applicants have now agreed to close this access and concentrate on mitigation of effects at the main access.
- 5.3. The close relationship of the Living 1 zone residential area to the site accesses and the waste transport route on Landfill Avenue are shown in Figure 2 below.

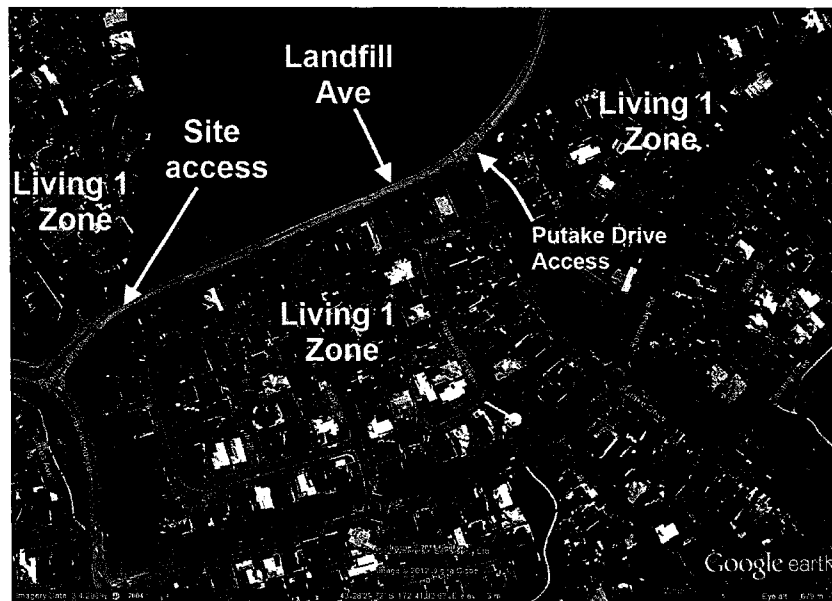


Figure 2

Site accesses and Landfill Avenue, and L1 zone residential properties

- 5.4. While the applications acknowledge that truck noise is a potential adverse effect, no technical or objective assessment of truck noise or its effect on Living 1 zone residents is provided. Furthermore each AEE considers only the effects of trucks associated with the BRRP or the Landfill activities and does not consider any cumulative effect of noise from all trucks using the same access and route between 6 am and 6 pm. In my opinion it is appropriate to consider total truck noise and not to assess each activity in isolation, because any affected persons would react to the total noise and would not make any distinction in noise from trucks which access the site for different purposes. This approach also provides for mitigation measures to be coordinated and not duplicated unnecessarily.
- 5.5. In the absence of any technical information, I have carried out my own calculations using generic data from truck movements elsewhere, which indicate that noise from the cumulative truck movements exceeds accepted guideline limits in NZS 6802:2008 Acoustics – Environmental Noise for avoidance of serious annoyance, for residential amenity and sleep protection at residential properties near the main site access and Landfill Avenue. Those limits are 55 dBA Leq during daytime and 45 dBA during night-time. It should be noted that the land use zone noise limits in Volume 3 Part 11 of the City Plan do not apply to road traffic, under an exemption in Section 1 clause 1.2.3 (a).
- 5.6. In terms of mitigation, the dwellings on the south side of Landfill Avenue as far as Putake Drive are set back from the site access and road by about 10 m. Within this setback is an earth bund approximately 1.5 m high and standard wooden paling boundary fences approximately 1.8 m high on the residential boundaries. These physical barriers do not provide adequate or reliable attenuation to keep noise within the guideline limits in NZS 6802:2008. Although the proposed additional mitigation measures in the applications (i.e. restricting “open gate” hours, maintenance of road surfaces, and instating of “no stopping” signs and speed limits) would help to mitigate noise, they would also not be sufficient to reduce noise to the appropriate levels.

- 5.7. In previous information exchanges with the applicants, I had recommended that additional attenuation should be provided by installing a continuous acoustic barrier between the access/road and the affected residential properties. However I now understand that this is impracticable due to Planning constraints.
- 5.8. Furthermore, although an alternative access away from a built-up area remains a possibility, the feasibility of this has not been examined fully, and a thorough evaluation would take up to three months to complete (refer Pattle Delamore Partners letter dated 7 September 2012).
- 5.9. After further consideration, the applicants have undertaken to resolve the truck noise issue by realigning the access road so that it is further away from the residents, and to install acoustic barriers as described in the report of Michael Smith, URS's acoustics engineer (refer Attachment 1 of this report). Having participated in Mr Smith's field measurements to quantify the truck noise on 10 September, I am satisfied that the general methodology of the assessment is robust. However referring to Section 5 and the noise contour map in Appendix A of the report, I consider that the fence height should be maintained at 4 m for the entire length of the south side, as I am concerned that the proposed 2 m high section may not provide sufficient noise attenuation for the closest residents in Putake Drive and Orewa Close. A height of 4 m would also shield the trucks from view of residents and contain dust, litter and light generated by vehicles.
- 5.10. My main reason of concern that a lower fence would not provide sufficient noise attenuation is that the number of trucks used by Mr Smith to model the contours is not representative of the busiest night-time hour. Referring to section 4.4 of the report, the figure of 20 tanker movements per hour during night-time is associated only with Site P; however haulage trucks from the BRRP will also use the site access and road between 6 am and 7 am, which is a noise-sensitive time of the day. I also note that the number of trucks during daytime (320) is inconsistent with the number of truck movements in the AEEs (refer paragraph 5.1 above) which indicate there would be 940 truck movements involving 470 trucks (i.e. 740 movements for Site F, and 200 for the BRRP during daytime).
- 5.11. I have discussed this with Mr Smith, who agrees that the figures may not be correct, and that he would endeavour to get realistic truck counts for this overlap period when confirming the final barrier locations in liaison with the civil engineers for the project.
- 5.12. To provide certainty, I have recommended a condition of consent requiring that:

In conjunction with the construction of the realigned access road, acoustic barriers shall be installed adjacent to the road. The finished height of the barriers shall be no less than 4 m above the finished surface of the road, and shall be constructed with a surface mass of not less than 10 kg/m², and shall be maintained with no gaps in their structure or at ground level. Prior to installation of the barriers, the consent holder shall engage an experienced acoustics engineer to verify that the final location and design of the barriers will ensure that truck noise does not exceed a level of 45 dBA Leq (1 hr) between 7 pm and 6 am on any day. The verification modelling shall use a representative number of truck movements for the 6 am to 7 am period based on actual counts at the landfill weighbridge over the busiest 3 months in 2012.
- 5.13. On this basis, I consider that the proposed road realignment and barrier will provide an effective nuisance mitigation measure, and will achieve an appropriate

level of noise protection for residential amenity and the avoidance of sleep disturbance.

6. SITE SPECIFIC EFFECTS: SITE B - BRRP PROCESS

6.1. Receiving, stockpiling, sorting, processing and management of demolition materials

6.1.1. Section 3.3 of the AEE identifies the types of demolition wastes that can be accepted at the BRRP, and indicates that asbestos, silt and private resident's waste will not be accepted. However referring to subclause b) of the Order in Council (OIC), the definition of "earthquake wastes" provides that such unacceptable wastes can be received when it is not reasonably practicable to separate them out of the waste stream. In my opinion, the AEE and Management Plan for the BRRP and the proposed conditions in Section 9.1 of the AEE do not provide sufficient certainty that such wastes will be managed to avoid adverse effects. Although section 3.4 of the AEE and section 3.2 of the Draft Management Plan describe how unacceptable materials will be detected by a series of visual inspections when they are received and tipped at Area B, and will be diverted to a more appropriate location, no procedures are stated for the detection and diversion of such materials when stockpiles are being worked, or during the sorting process.

6.1.2. Nor is there any information about how such materials will be handled, or where and how they will be stored so as to avoid or mitigate hazards, while awaiting removal to Kate Valley or some other appropriate location.

6.1.3. There are also no provisions for cleaning up and managing spillage of demolition materials from trucks at the access or on the road, which could cause nuisance litter and dust effects.

6.1.4. It should be noted that although the demolition materials could contain traces of asbestos, Christchurch's Medical Officer of Health Dr Alistair Humphrey advised the residents at one of the public meetings that the risk to anyone's health would be insignificant because concentrations would be at non-occupational levels. He reiterated this in a Press article on 25 August 2012 (refer Attachment 2 of this report).

6.1.5. Nevertheless, given the close proximity to the Living 1 zone, in my opinion it is essential for the Management Plan for the BRRP to make appropriate provision for the detection, handling and disposal of unacceptable wastes, and contingency arrangements for spillage.

6.1.6. These matters are addressed in the final draft of the combined conditions.

6.2. Noise

6.2.1. Noise from BRRP activities in Site B is assessed in Section 6.1.1 against noise limits in the City Plan and NZS 6803:1999 *Acoustics – Construction noise*. The City Plan limits apply to noise from the processing plant, and the NZS 6803 limits apply to any construction work on the site. The limits apply at residential properties in the Living 1 zone which are approximately 1.3 km from Site B.

6.2.2. In Table 6 in Section 6.1.1, the parameter for decibel levels is not stated. However from the NZS 6803 and City Plan noise standards that are included in the Table it is deduced to be Leq.

6.2.3. On page 28 it is stated that as a worst case, a level of around 96 dBA Leq at 10 m could occur if all machinery operated in one part of the site at the same time. This would theoretically result in a noise level of about 54 dBA Leq at the Living 1 zone when only distance attenuation is taken into account. While this exceeds the City Plan Group 1 zone Development Standards for Daytime and Night-time, in practice I would expect the noise to comply, and possibly to be inaudible at any residential property, because the plant and equipment will be spread out over the site, and noise will also be attenuated by covers on the proposed plant, forest and ground cover, landfill mounds, rough open ground and atmospheric absorption.

6.2.4. While no technical or objective assessment of noise levels on recreational users of the Bottle Lake Forest Park is provided in the AEE I agree with the comment that recreational users could notice more significant noise but for short periods. It should be noted that there are no performance standards in the City Plan or relevant guidance in NZ standards or guidelines for recreational noise.

6.2.5. On this basis, I consider that any noise effects from activities in Sites B and D would be insignificant at the Living 1 zone and in recreational areas in the vicinity of the BRRP.

6.3. Dust and Odour

6.3.1. There are no specific requirements for the management of dust and odour in the City Plan.

6.3.2. It can be expected that Environment Canterbury will fully and appropriately evaluate potential dust and odour effects in its consideration of the application to discharge contaminants to air. This would also apply to their assessment of air discharges from Sites A, F and P.

6.3.3. However the proposed sweeping of the access road and its shoulders would exacerbate dust emissions by lifting dust from the road. In my opinion, a suction method should be used on the stretch of road from the site access to the landfill kiosk.

6.3.4. The proposed requirement that trucks carrying materials that may generate dust shall be covered when leaving the BRRP complements Critical Standard 7.2.3(a) in the City Plan rules for the Special Purpose (Landfill) Zone, which requires such materials in earthquake waste going to the Landfill site to be covered.

6.3.5. It has been suggested the applicants should consider providing a truck wash or wheel wash to avoid tracking of materials onto public roads. I do not consider that this is essential, as any dust on vehicles is unlikely to carry onto roads near the Living 1 Zone, given the distance of 2 – 3 km between Sites B and D and the kiosk. However, I do not oppose this being included as a matter for consideration in the Management Plan.

6.3.6. These matters have been addressed in the final draft of the combined conditions.

6.4. Hazardous substances

6.4.1. The need for resource consent from Environment Canterbury for the storage and use of substances is identified (one 10,000 litre aboveground diesel tank and minor quantities of hydraulic oil, lubricants and coolants). That consent will address any adverse effects on ground water and soils.

6.4.2. However the requirements of the City Plan have not been fully considered. Referring to Volume 3 Part 11 Section 3, Schedule 2, the diesel tank exceeds the permitted quantity limit of 2000 litres aboveground storage for class 3.3 flammable liquids for the Rural Landfill zone and is thus a restricted discretionary activity. Notwithstanding this I am satisfied that compliance with HSNO, which is mandatory, and ECan's consent conditions, and the proposed conditions and provisions in the Management Plan for control of spillage and management of hazardous substances will provide reasonable assurance that effects will be controlled. These provisions would also ensure that the Development standards in Volume 3 Part 11 Section 3.3.3 (b) to (e) which require secure containment of hazardous substances and wastes and appropriate signage are complied with.

6.4.3. The only possible potential effect on other sites would be the accidental spillage of diesel from a tanker on the BRRP access road close to the Living 1 zone. However such events would be extremely rare, as vehicles used for the transport of hazardous substances are designed and operated under strict conditions in order to comply with the NZ Land Transport Authority's "Dangerous Goods Rule" which is enforced by the Police. The use of public roads by such vehicles is not restricted. In any case, diesel does not have a significant fire risk and at worst would cause a short-term odour and vehicle tracking nuisance.

6.4.4. On this basis, I consider that any adverse effects of the storage and use of hazardous substances on any other land use would be insignificant.

6.5. Lighting

6.5.1. I concur with the AEE that operational lighting effects will be internalised and isolated to the operating area, due to shielding by forests. Together with the existing landfill mound and distance, these factors provide sufficient assurance that there would be no adverse effects at the Living 1 zone.

6.5.2. In consultation, residents have raised the issue of flashing warning lights on trucks being used unnecessarily accessing the site during hours of darkness. I consider that this effect would be mitigated satisfactorily by the proposed road realignment and the noise barriers. Notwithstanding this, to provide certainty, the draft conditions require any lighting effects to be addressed in the Management Plan.

6.6. Land contamination

6.6.1. The *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (the NES) which came into force on 1 January 2012. The NES controls the establishment of new activities on contaminated land. The information from Environment Canterbury's Listed Land Use Register (LLUR) in Appendix B of the BRRP application indicates that the land is identified as potentially contaminated because of the previous landfilling activities.

6.6.2. Ministry for the Environment's Users' Guide to the NES¹ explains on page 11 that:

Existing uses are not affected by the regulations. The NES only applies if you intend to do one of these five activities – removing or replacing a fuel storage system, sampling the soil, disturbing the soil, subdividing land, and changing the use of the land – as defined in regulation 5 of the NES.

*...
A land use consent or subdivision consent granted before 1 January 2012 will prevail over the NES.*

6.6.3. The applications do not include any evaluation of the proposed activities in terms of the NES. However from the information provided, the aspects of the activities which need to be considered under the NES are disturbing the soil (excavation for site works) and change of use (processing of demolition materials).

6.6.4. Under the NES, resource consent is required if the volume of soil disturbed exceeds 25 m³ per 5000 m² of the land area, or if soil taken away from the site exceeds 5 m³ per 500 m² per year; or if a preliminary site investigation (PSI) states that the change of use is highly unlikely to cause a risk to human health.

6.6.5. From the information provided, it is not clear what the total volume of disturbed soil will be, however from Section 3.9 of the BRRP application it appears that site works for the BRRP will involve levelling and compaction of ground and the excavation of a stormwater infiltration basin in Site B for the purpose of the resource recovery plant and processes.

6.6.6. From the applications for Sites A, F and P, and information provided by Mr David Harris, the Council's Landfill Aftercare Officer, it would appear that any site works have been completed, or would involve scraping and stockpiling of previous landfill cover material for reapplication as final cover. There is no indication that it is intended to remove any disturbed soils from any of the sites.

6.6.7. While no PSI has been provided for any of the sites to state that there is no likelihood of human health risk from the land, the isolation of the sites from the Living 1 zone would ensure that any risk to human health will be an occupational health matter to be addressed by the BRRP management under the Health and Safety in Employment Act, and is therefore not a matter of concern to public health. In any case I consider the potential is likely to be low as Sites A and B are in areas have not previously been used for sanitary land filling, and Sites F and P involve areas that have been previously capped with clean cover material.

6.6.8. The final draft conditions require the Management Plan to include management provisions for the avoidance and mitigation of environmental effects of hazardous substances and unacceptable wastes.

6.6.9. On the basis of the information above, I consider that any public health risk of soil contamination will be avoided.

¹ <http://www.mfe.govt.nz/publications/rma/users-guide-nes-for-assessing-managing-contaminants-in-soil/guide-nes-for-assessing-managing-contaminants-in-soil.pdf>

6.7. Landfill gas

6.7.1. The AEE identifies the potential for landfill gas infiltration affecting the proposed activity, and discusses the means by which risks and hazards would be mitigated. This is also an occupational health and safety issue that would not affect persons or property beyond the boundaries of the BRRP, and need not be addressed by conditions.

7. SITE SPECIFIC EFFECTS - LANDFILL SITES A, F AND P

- 7.1. While no technical assessment of operational or construction noise has been provided, many of the noise mitigation factors identified for the BRRP would also apply to these sites (i.e. distance, shielding, forest and ground cover, landfill mounds, rough open ground and atmospheric absorption). Noting that fewer machinery units are involved, levels within the sites will be lower than for the BRRP. I would expect that noise from activities at these sites would not exceed the City Plan noise limits for operating noise or the NZS 6803 standards for construction work, and would most likely be inaudible at any site in the Living 1 zone for most of the time. I do not consider that there will be any cumulative effects with noise from the BRRP.
- 7.2. Given the isolation of the sites from the Living Zone, and the proposed management of all the sites under common general conditions and a common Management Plan, my assessment of effects of dust, odour, litter and spillage of materials, lighting and landfill gas for the BRRP applies equally to Sites A, F and P.
- 7.3. No storage of hazardous substances has been applied for, as I understand that equipment will be refuelled and maintained using materials held at the BRRP site.
- 7.4. After public consultation, the applicants have withdrawn any permission for infrastructure-related wastes containing asbestos to be received at Area F. This is confirmed in the final draft of the combined conditions.

8. CONCLUSIONS AND RECOMMENDATIONS

- 8.1. Applications and assessments of effects on the environment for the establishment of the Burwood Resource Recovery Park (BRRP) and for the disposal of earthquake waste at Burwood Landfill have been assessed with appropriate regard to the provisions of the Christchurch City Plan, the NRRP, NZ standards and guidelines, and other relevant information.
- 8.2. In my opinion, sufficient information has now been provided on the scale and nature of effects and means of mitigating those effects for the Commissioner to grant the consents that have been applied for, subject to the final draft consent conditions that have been submitted for the Commissioner's consideration.

Russell Malthus
Senior Environmental Health Consultant
NOVOGROUP LIMITED

13 September 2012

ATTACHMENT 1

URS ROAD REALIGNMENT AND ACOUSTIC BARRIER ASSESSMENT

ATTACHMENT 2

THE PRESS 25 AUGUST 2012

<http://www.stuff.co.nz/the-press/news/christchurch-earthquake-2011/7545933/Asbestos-fears-unlikely-to-be-realised>

ASBESTOS FEARS UNLIKELY TO BE REALISED

Rumours persist in Christchurch that asbestos inhaled from earthquake dust and debris will cause death and disease. DEIDRE MUSSEN investigates the risks.

A photograph capturing Christchurch on February 22 last year shows a thick pall of dust cloaking the city. Within 24 hours, health officials were out spreading warnings of asbestos risks. Since then, the city's asbestos management has been under the spotlight as numerous buildings are demolished and rubble mountains created.

Fears have been fanned by a handful of horror stories, the latest an abandoned demolition dump in Sydenham. In May, a protest by residents over proposed asbestos dumping at Burwood Resource Recovery Centre forced the Christchurch City Council to send it instead to Kate Valley landfill in North Canterbury.

So what is the asbestos health risk to Christchurch residents post-quake?

Extremely low, according to Canterbury medical officer of health Dr Alistair Humphrey, who is eager to dispel community concerns. "The question is, 'could people have been exposed at the time to asbestos?' The evidence suggests not."

Other asbestos experts agree but admit they won't know for decades.

Typically, people need heavy exposure to asbestos fibres and usually for a long time, but there is a long time lag between exposure and becoming sick. This is borne out by New Zealand's two asbestos registers, which began 20 years ago and gather data on exposure and disease. Of the 1246 people registered with asbestos-related diseases since 1992, 99 per cent were caused by exposure many years earlier, before people understood its dangers.

"It's probably people who worked without any protection," Humphrey says.

More than two-thirds worked in the building industry, including plumbers, fitters, ladders, carpenters, builders and electricians. Most of the rest were asbestos processors or sprayers, although a few breathed in fibres from their partners' asbestos-laden clothes or hair.

Asbestos, a known carcinogen, can cause mesothelioma, a rare fatal cancer of the lining of lungs or abdominal cavity, lung cancer, asbestosis or scarring of lung tissue, and pleural plaques.

Humphrey says there has been a background level of asbestos in our lives since it began being imported into New Zealand in the 1920s in brake linings and clutch pads. It was commonly used from the 1940s to the 1980s in roofing, wall and ceiling claddings, insulating boilers and pipes, and as a fire retardant on structural steelwork.

"You and I will probably have thousands of asbestos fibres in our lungs but will never get sick from them."

He says brief possible exposure to asbestos by people inhaling dust near collapsing buildings or during early rescue attempts was extremely unlikely to be enough to cause disease. Plus, asbestos monitoring since the February 22 quake has failed to detect any unsafe levels and many buildings that fell were built in the pre- asbestos era. Controls on work safety in the red zone were quickly instituted, including strict precautions for rescue workers and those removing asbestos.

A proposed new study into asbestos in New Zealand may shed more light on the issue. Massey University's Centre for Public Health Research associate director, Associate Professor Barry Borman, says his study will link asbestos exposure records with mortality, hospitalisation databases and the New Zealand Cancer Register.

"Therefore, we will be able to see what causes of death, hospitalisation, or cancer that these people have experienced since the register started in the early 1990s," he says.

The asbestos registers are an incomplete record of asbestos-related disease cases because notification is voluntary, whereas the cancer register is compulsory. According to it, 1024 cases of mesothelioma were diagnosed in the 15 years to 2009.

ACC's Dr John Monigatti, who has reviewed all claims for compensation for asbestos-related disease for the past 15 years, says it is unlikely Cantabrians will suffer from asbestos-related diseases from the earthquake but he is keen to see the proposed study's results.

"It is feasible and no one will know for 30 to 40 years that there could be a peak."

He says lung cancer and mesothelioma may require only short periods of exposure over a few weeks but in high levels.

Those with asbestos- related diseases can get lump sum payouts from ACC, with \$57 million paid out in the past six years to 701 people, the vast majority for mesothelioma. However, only about half those diagnosed with mesothelioma gain lump sum compensation, which raises concerns people are not seeking compensation they are entitled to.

The latest cancer statistics show 91 people registered as being diagnosed with mesothelioma in 2009, including 76 men and 15 women. That year, 101 people died of it, while only 51 people got compensation. One of New Zealand's leading asbestos researchers, Professor Bill Glass, says most asbestos-related diseases are dose-related, although this may be less true with mesothelioma.

"The length of time of exposure doesn't have to be long but the quantity of asbestos over that time does have to be high."

He has led the asbestos medical panel for 20 years and has intimate knowledge of the hundreds of people who have suffered the consequences of asbestos.

The time lag between exposure to asbestos and diagnosis with mesothelioma varies from 12 to 74 years for the register's 227 cases, with an average time of 45 years.

Post-February 22, there has been a surge in notifications of asbestos exposure, according to the Ministry of Business, Innovation and Employment's Labour Group, which replaced the Labour Department. Last year, 61 Cantabrians put their names on the asbestos exposure register, 46 more than the previous year and more than double the region's annual average of 25 people for the previous four years. That increase has slowed this year.

The New Zealand Demolition and Asbestos Association says that is no surprise. In the past eight months, it has had 15 new applications by contractors wanting to do asbestos removal in Christchurch, says president Diana Stil. Only those with a certificate of competency can legally remove friable, or easily crumbled, asbestos, which is more likely to release fibres into the air if disturbed. It has been a challenging environment; some earthquake-stricken buildings were unsafe to enter to remove asbestos, forcing "dirty demolitions", Stil says.

"Also, there have been buildings where it was assumed prior to the earthquake that a clean-out had been done, then asbestos has been found after the demolition."

The association's 200-plus page New Zealand Guidelines for the Management and Removal of Asbestos was published only weeks after February's earthquake, after gaining endorsement by the then Labour Department.

She says the vast majority of operators have been very careful in managing asbestos when demolishing earthquake-damaged buildings.

"But you are always going to get the odd rogue. The most important thing is getting the public aware. There is a lot of fear about asbestos."

The Labour Group's Christchurch service manager, Margaret Radford, agrees, saying the community wrongly believes asbestos risks from the earthquake are high. She too is eager to change that. "I do think it is an emotive subject."

Most contractors have adhered to asbestos regulations, with only 22 "events" since the quake until mid-June, despite thousands of hours in earthquake-related work, she says. "The departmental perspective is asbestos has been handled extremely well since the beginning, though maybe not in the first few days only."

Since February 22, the ministry has stepped up monitoring health and safety for the Christchurch recovery. Post-earthquake, the ministry has been notified of about 320 "hazardous" demolition sites because of asbestos removal.

New Zealand is not the first country to face issues with asbestos risks from earthquakes.

The 1989 San Francisco earthquake prompted the United States Environmental Protection Agency to develop its first guidelines two years later for catastrophic emergency situations involving asbestos.

According to the International Ban Asbestos Secretariat, a rubble collector in Japan became the first to gain worker's compensation in 2009 for developing mesothelioma after being exposed to asbestos while cleaning up debris after the 1995 Kobe earthquake.

On that earthquake's 15th anniversary in 2010, the former co-director of America's Mount Sinai School of Medicine's centre for occupational and environmental health, Dr Stephen Levin, addressed a conference in Japan on lessons about asbestos risks from Kobe and the World Trade Center disaster. Before he died in February, Levin helped to lead a study of more than 27,000 responders and recovery workers for 9/11, a group set to become one of the most examined groups for health impacts of an international disaster.

Researchers say the huge plume of dust and smoke that spewed into the air when the twin towers collapsed after the terrorist attack on September 11, 2001, contained dangerous levels of asbestos. Humphrey says it is unhelpful to compare to Christchurch's earthquakes to the World Trade Center because the disasters are so different.

Regardless, the message from health experts is clear: fears over earthquake-related asbestos have been blown way out of proportion. In fact, a far greater health risk is that smoking levels have risen in Canterbury since the earthquake, despite reducing nationwide.

Smoking is far more likely to cause premature deaths than misplaced anxiety over post-earthquake asbestos, Humphrey says.



12 September 2012
Project No. 42186640

Christchurch City Council
Hereford Street
Christchurch 8011

Burwood Resource Recovery Park
C/- Transpacific Waste Management South Island
PO Box 11 337 Sockburn, Christchurch

Attention Dave Harris / Gareth James

**Subject: Burwood Landfill and Burwood Resource Recovery Park
Noise assessment of realigned access road**

1 Introduction

Following the lodgement of resource consent applications for the above sites, URS has been requested to perform noise measurements of existing truck movements and to design a noise barrier for the proposed realignment of Landfill Avenue. The newly aligned road will increase the separation distance between it and the nearest houses, thereby decreasing noise levels. Further reduction in noise will be achieved through noise barriers.

URS previously provided¹ an options assessment for noise barriers along Landfill Avenue, as well as outlining a hierarchy of noise control treatment options, including management controls, which should still be considered.

This letter details the measurement results, noise modelling performed, and the extent and detailing of the proposed noise barrier. Consent conditions are proposed which specify an appropriate level of detail.

A site plan is provided in Figure A-1 in Appendix A.

2 Criteria

The Christchurch City Plan specifies 41 dB $L_{Aeq(1h)}$ as the development standard for Living 1 zones, which permitted activities must meet, and 49 dB $L_{Aeq(1h)}$ as the critical standard which is the upper limit for discretionary activities. Under the fast-track process for the sites set up following the Canterbury earthquakes, the proposal is a controlled activity under the City Plan, and therefore neither the development nor critical standards apply, however they do provide a point of reference.

¹ URS letter to CCC dated 20 August 2012

In reviewing the application, the Council's environmental consultant Novo Group have proposed 45 dB $L_{Aeq(1h)}$ as an appropriate the design target. This is supported by WHO internal noise criteria² of 30 dB $L_{Aeq(8h)}$ and external criteria in NZS 6802³.

We agree that achieving this noise level at night will provide reasonable residential amenity and provide appropriate protection from sleep disturbance.

3 Noise measurements

3.1 Procedure

A noise survey was conducted by URS as follows:

Personnel:	Michael Smith
Times/dates:	0900–1030h, 10 September 2012
Instrumentation:	Brüel and Kjær Type 2250L hand-held sound analyser, serial number 2638850, calibration date 21/03/12. Brüel and Kjær Type 4231 acoustic calibrator, calibration date 22/03/12.
Microphone position:	The analyser was mounted on a tripod with the microphone approximately 1.4 m high. The microphone as oriented towards Landfill Avenue.
Field checks:	Prior to the measurements a field check was performed and the analyser adjusted. After the measurements, a second field check was performed and the difference in calibration levels was less than 0.1 dB.
Procedure:	Noise measurements were performed of 30 vehicle movements at a location approximately 10 metres to the south of the road. A further 10 vehicle movements were measured at a second location approximately 20 metres to the north of the road.
Weather:	There was no precipitation during the survey period, with a clear sky. The temperature ranged from 13 to 18 degrees. A light breeze was present at times from the north to east.

3.2 Results

The results were separated by vehicle type with haul trucks and liquid tankers considered separately. The sound exposure level (L_{AE}) and maximum sound level (L_{AFmax}) were statistically analysed for each passby.

Table 1 shows the arithmetic average, and the standard deviation of the sample set.

² Berglund, Lidvall and Schwela (1999), Guidelines for community noise. World Health Organisation

³ NZS 6802:2008. Acoustics – Environmental noise

Table 1 Measured noise levels

Location	Vehicle type	Number of samples	Average sound exposure level, L_{AE}	Average maximum sound level, L_{AFmax}
Position 1 (10 m)	Haul truck	19	76.0 dB ($\sigma = 3.3$ dB)	68.6 dB ($\sigma = 2.1$ dB)
	Tanker	12	73.1 dB ($\sigma = 2.9$ dB)	66.1 dB ($\sigma = 2.9$ dB)
Position 2 (20 m)	Haul truck	6	68.0 dB ($\sigma = 1.4$ dB)	60.8 dB ($\sigma = 2.2$ dB)
	Tanker	2	65.5 dB	57.2 dB

The measured L_{AFmax} were not attributed to specific events during a passby (e.g. banging trailer door, or impact noise from a wheel hitting a pot hole) and are considered representative of the L_{Aeq} at the closest distance. The sound power level for a single truck has been determined using the following relationship:

$$L_{WA} = L_{AFmax} + 20 \log_{10}(10m) + 8 \quad (1)$$

3.3 Observations

In previous site visits it was observed that a number of vehicles were speeding, and excessive acceleration and braking noise was present. On this occasion, these characteristics were less prominent, which may be attributed to efforts by management to increase compliance with site protocols. No noise events were attributable to surface defects in the road, and only one empty haul truck was observed to have significant noise from the vehicle body compared to the typical engine/exhaust/tyre noise.

4 Noise model

4.1 Details

A computer acoustics model has been used to predict noise levels from vehicle movements along the realigned Landfill Avenue and to test the performance of the proposed noise barrier. Table 2 lists the key model settings.

Table 2 Acoustics model settings

Parameter	Setting / Source
Software	Cadna/A 4.2
Algorithm	ISO 9613-2
Temperature / humidity	20 degrees / 70% humidity
Order of reflections	2
Terrain	Flat
Barrier reflection loss	2 dB
Parameter	$L_{Aeq(60 \text{ min})}$
Ground absorption	0.5 (50% soft ground)
Receiver height	1.5 m
Sound contour grid	1.5 m height, 2 m resolution

4.2 Input data

A truck is a moving point noise source, however it is necessary to model it as a line source in the computer software. The sound power is distributed along the length of the road, and the total power is determined using Equation 2, which takes into consideration the length of the road, vehicle speed, and the number of movements in the time period.

$$L_{w,line} = L_{w,point} + 10\log_{10}(t) + 10\log_{10}(n) - 10\log_{10}(T) \quad (2)$$

Where:

- t is the time to traverse the line;
- n is the number of vehicle movements; and
- T is the reference time interval.

4.3 Model calibration

A model scenario was prepared of the existing alignment of Landfill Avenue, with a line source entered from the main gate up until the weighbridge, a length of approximately 606 metres. The time to traverse the road has been calculated as 109 seconds, based on a speed of 20 km/h. The total sound power level for the line was 114 dB.

A single tanker movement has been modelled, with a reference time interval of 1 second, to allow comparison with the measured sound exposure level.

A receiver was placed at the measurement location, and the modelled noise level is within 0.5 dB of the mean L_{AE} at that location.

4.4 Realignment Scenario

A model scenario was prepared of the proposed realignment of the access road, with a line source entered from the main gate up until the weighbridge, a length of approximately 544 metres, which is shorter than the existing alignment. This is shown in Appendix A. The time to traverse the road has been calculated as 98 seconds, based on a speed of 20 km/h.

The sound power level for a single truck in Equation 1 has been increased by the following factors:

- + 2.9 dB, which is the standard deviation of the measured set. Approximately 84% of all vehicles will be below this level, assuming there are normally distributed about the mean; and
- + 5 dB, which is a safety factor to allow for potential changes in driver behaviour (e.g., speeding).

During the day there can be up to 320 haul trucks accessing the site and a further 50 tanker trucks during the night.

A total of 20 tanker movements (in or out) was modelled over a 1 hour period, which is considered to be a conservative estimate for a busy night-time hour. The total sound power level for the line source was 99 dB.

5 Proposed barrier

A 4 metre high noise barrier has been modelled for approximately 200 metres from the main gate towards heading east, on both the northern and southern sides. A 2 metre high noise barrier continues on the southern side for a further 150 metres until the road enters the forested area. The extent of the barriers are shown in Figure A-2

Where the noise barrier has been modelled with a total height of 4 metres, it could be constructed as a 2 metre high timber fence on a 2 metre high earth bund, or a different combination.

Noise contours are shown for the proposed arrangement in Figure A-3. The predicted noise level at the most affected property is 43 dB, although this does not include any attenuation provided by the boundary fence at this property.

6 Barrier constructions

To act as an effective barrier, the barriers investigated above should be constructed using materials with a surface mass of at least 10 kg/m² and should have no gaps in their structure. Suitable materials include concrete, fibre cement board, steel and timber.

Further details on barrier construction and the other considerations can be found in the *NZTA state highway noise barrier design guide*⁴.

7 Indicative costs

The indicative costs for these barriers are presented below and include planning, design, and construction. These have been obtained from the above reference for 2008 and increased for inflation to 2012 using the change in CPI between these two dates (11%).

Table 3 Indicative barrier costs

Location	Height	Construction	Indicative rate (per linear metre)	Length	Indicative cost
Northern side	4 m	2 m timber wall 2 m bund (1:3 slope)	\$268 \$390 Total \$658	200 m	\$131,600
Southern side	4 m	2 m timber wall 2 m bund (1:3 slope)	\$658	230 m	\$151,340
	2 m	timber wall	\$268	150 m	\$40,200
Total					\$323,140

⁴ NZTA (2010). *State highway noise barrier design guide*, v1.0. www.acoustics.nzta.govt.nz

8 Consent conditions

The realigned road and noise barriers have been designed to achieve a noise level of 45 dB $L_{Aeq(1h)}$ at night, which is a lower level than the critical standard in the City Plan. However, given the controlled activity status of the proposal, and that the usual discretionary / critical noise standards do not apply, we do not consider a specific noise standard as a condition of consent appropriate.

We consider that the realigned road with noise barriers proposed is the best practicable option to avoid and mitigate unreasonable noise as required under section 16 of the Resource Management Act. We consider that specifying the road location, noise barrier heights and design parameters (Figure A-2) are sufficient controls for noise.

The location, extent and total height of the proposed noise barriers are shown in Appendix B, and should be specified in a condition such as:

- N1. A noise barrier shall be installed along the realigned access road in accordance with the attached plan [URS Plan A-2 dated 12 September 2012]. The noise barrier to the north of the access road shall be installed prior to heavy vehicles using the access road. The southern noise barriers shall be installed within 6 weeks of completion of the access road.*

In addition, the Management Plan should require the consent holder to implement procedures to control speed, minimise acceleration and braking in the vicinity of the main gate, and other behaviours which can cause excessive noise.

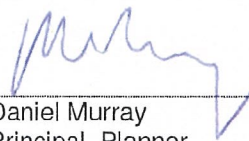
9 Conclusions

Truck noise has been modelled from the proposed realignment of the access road to the Burwood Landfill. Noise barriers have been designed to achieve a design target of 45 dB $L_{Aeq(1h)}$ at night, using conservative estimates of tanker movements. Ongoing efforts to manage the behaviour of truck drivers will still be required.

Yours sincerely
URS New Zealand Limited



Michael Smith
Acoustics Engineer



Daniel Murray
Principal, Planner

Limitations

URS New Zealand (URS) has prepared this letter in accordance with the usual care and thoroughness of the consulting profession for the use of Christchurch City Council and only those third parties who have been authorised in writing by URS to rely on this letter.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this letter.

Where this letter indicates that information has been provided to URS by third parties, URS has made no independent verification of this information except as expressly stated in the letter. URS assumes no liability for any inaccuracies in or omissions to that information.

This letter was prepared between 10–11 September 2012 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This letter should be read in full. No responsibility is accepted for use of any part of this letter in any other context or for any other purpose or by third parties. This letter does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

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Any estimates of potential costs which have been provided are presented as estimates only as at the date of the letter. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.



Dave Harris / Gareth James

12 September 2012
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Appendix A - Plans

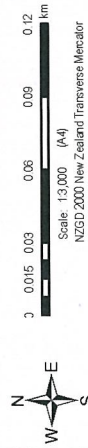


Legend

- Measurement locations
- Proposed road
- Existing road

NOTES:

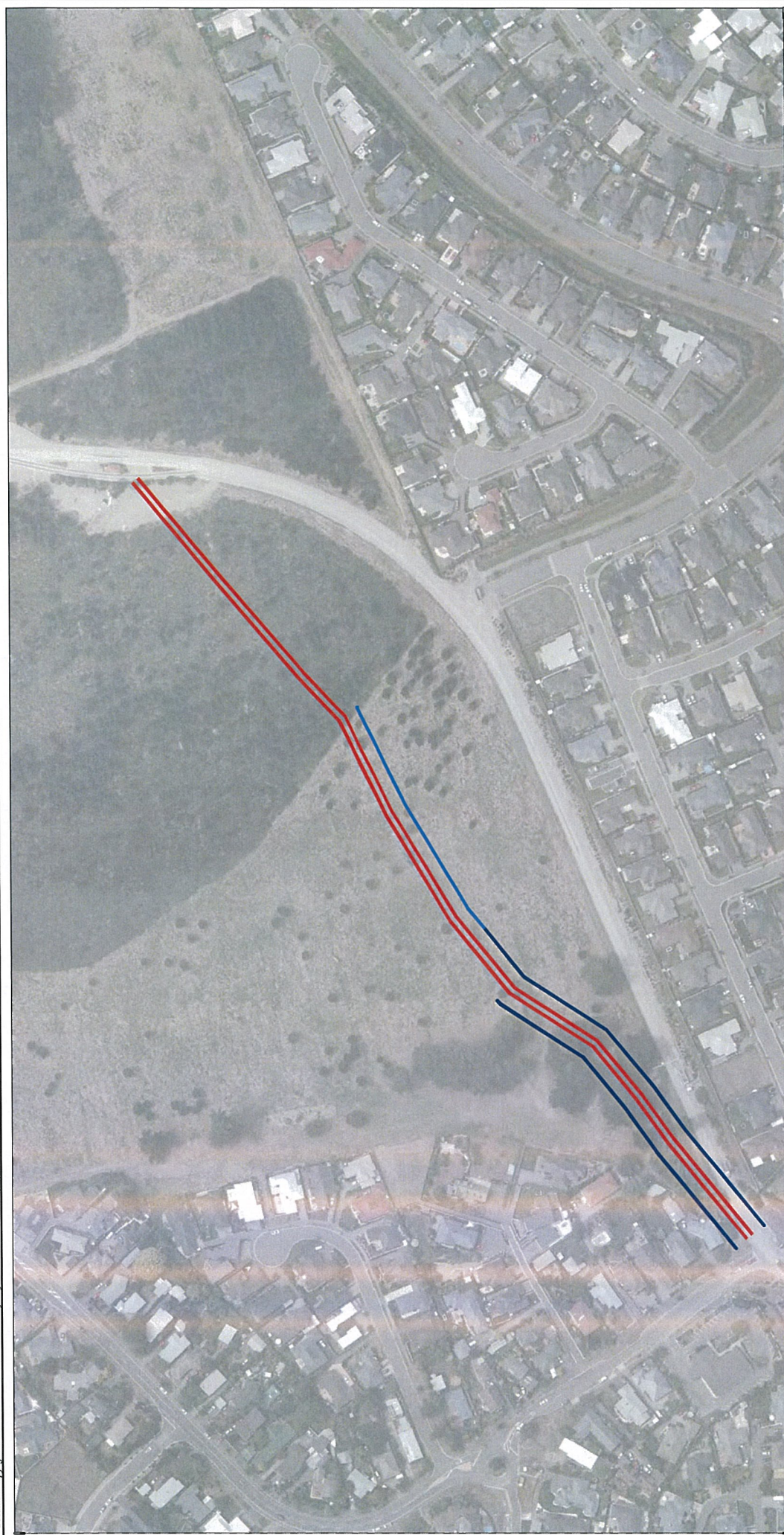
Road realignment is only indicative and subject to changes during detailed design.
This drawing is for consenting and is not for construction.



Source: F:\Jobs\Burwood\Burwood - Site Plan.mxd

While every care is taken by URS to ensure the accuracy of the digital data, URS makes no representation or warranties about its accuracy, reliability, completeness, suitability for any particular purpose and disclaims all responsibility and liability (including without limitation, liability in negligence) for any expenses, losses, damages (including indirect or consequential damage) and costs which may be incurred as a result of data being inaccurate in any way for any reason. Electronic files are provided for information only. The data in these files is not contract or subject to automatic updates for errors outside of URS.

SITE PLAN



NOTES:

The barrier height specified is relative to the level of the road, and may be a combination of walls and bunds.
 The noise wall to be constructed of timber panels with a surface mass of at least 10 kg/m² and be free of gaps.
 Road realignment is only indicative and subject to changes during detailed design.
 This drawing is for consenting and is not for construction.

While every care is taken by URS to ensure the accuracy of the digital data, URS makes no representation or warranties about its accuracy, reliability, completeness, suitability for any particular purpose and disclaims all responsibility and liability (including without limitation, liability in negligence) for any expenses, losses, damages (including indirect or consequential damage) and costs which may be incurred as a result of data being inaccurate in any way for any reason. Electronic files are provided for information only. The data in these files is not contract or subject to automatic updates for errors outside of URS.

Barrier heights



Scale: 1:3,000 (A4)

NZGD 2000 New Zealand Transverse Mercator

Source: F:\Jobs\Burwood\Burwood - Barrier location plan.mxd

NOISE BARRIER LOCATIONS



NOTES:
 Predicted noise levels assuming 20 tanker movements in a 1 hour period.
 Road realignment is only indicative and subject to changes during detailed design.
 This drawing is for consenting and is not for construction.

Barrier height
 2 m
 4 m

Predicted noise levels
 40-45 dB
 45-50 dB
 50-55 dB
 55-60 dB

0 0.015 0.03 0.06 0.09 0.12 km
 Scale: 1:3,000 (A4)
 NZGD 2000 New Zealand Transverse Mercator

Source: F:\Jobs\Burwood\Burwood - Predicted noise levels.mxd
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PREDICTED NOISE LEVELS