

6.4 WASTE

Contaminated soils on the Macdonaldtown site are likely to include hazardous waste, special waste (asbestos) and restricted and general solid waste. Liquid waste will also be extracted, including free tar (sludge), impacted surface water, impacted groundwater and wastewater from decontamination activities on site. Table 2 (previously) provided a summary of impacted area, volume, and description of materials. Further details are available in the Remedial Strategy (JBS 2011e) and the RAP (CH2M Hill 2007b).

Details of the proposed remediation are provided in section 3.4, including options for treatment methods, storage options, disposal requirements, and geotechnical requirements for reuse of treated material at Macdonaldtown. The proposed Water Treatment System (WTS) will also generate various wastes, which may require sampling and analysis to determine the appropriate disposal location. These include (JBS 2011e):

- *'Free oil removed in the oil/water separator will require collection, most likely to be discharge to a 'drum' collection system. Any drums should be used and stored within a containment area to collect any spills. The collection system will be equipped with a level switch to advise the operator when the drums are full and require disposal, or systems shall be in place such that overflow of the drums does not occur;*
- *The filter bags in the sand bag filter system will have to be replaced and disposed of once the filters become filled with sediment. It is possible that these filter bags are classified as a hazardous waste due to the presence of hydrocarbons and/or metals, and will require appropriate disposal to landfill; and*
- *The activated carbon filter media will become fully loaded over time and require disposal. The replacement frequency will depend on the contaminant load in the water for treatment. In adopting a sustainable approach to the works it is recommended that where possible the spent activated carbon media be returned to the supplier for regeneration, rather than disposal.*

Appropriate disposal of wastes generated by the WTS may require sampling and analysis to determine the appropriate disposal location. A Waste Management Plan (WMP) will be required as part of the CEMP to demonstrate compliance with *NSW Government Waste Reduction and Purchasing Policy* and provide details on the waste tracking procedures, waste classification program, licensing requirements, disposal protocols and incident responses to be implemented.

The Waste Management Plan will include:

- An assessment of the waste management and resource recovery strategy proposed for the works;
- An indicative site layout to be adopted during the remediation program, including areas designated for treatment, decontamination, storage and vehicle movements;
- Estimates of types and quantities of waste to be generated as part of the remediation program, including the classification of each type of waste for off-site disposal in accordance with 'Waste Classification Guidelines' (DECCW 2008);
- Procedures for segregating reusable materials from waste during remediation, and intended uses for recovered material;
- A description of each waste type to be managed, including:
 - Methods for handling, assessment and transport of each waste type to be generated;
 - Methods for tracking waste generated at the site
 - Methods for disposal of each waste type, including the disposal location;

- Environmental controls required prior to removal of waste from site;
- Waste processing or pre-treatment methods required, and associated environmental controls; and
- Additional detail will be required on the safeguards to be adopted for management of Hazardous Waste material;
- Details of any chemical substances required on site for the remediation and waste management program, including requirements for safe use and storage.

W1	Via the CEMP a Waste Management Plan (WMP) is to be prepared and implemented, and to include details on the waste tracking procedures, waste classification program, licensing requirements, disposal protocols and incident responses to be implemented.
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6.5 HAZARDS

6.5.1 Preliminary Hazard Analysis

A screening test is provided in DUAP (1997) to assess whether a development is potentially hazardous. This is based on quantities of dangerous goods to be stored or handled with a particular development. By review of the proposed remediation works, the following storage / handling of dangerous goods has been identified:

- Storage / handling of tar on the Macdonaldtown and potentially Chullora sites. By review of CH2M Hill (March 2007) *'Delineation & Characterisation Sampling and Review of Remedial Options Former Macdonaldtown Gasworks – Burren Street, Erskineville, NSW'* there is estimated to be 420m³ of tar present on the Macdonaldtown site. Coal tar is generally classified as Class 9 dangerous good. Transportation screening thresholds only are provided for Class 9 dangerous goods, with a limit of more than 60 weekly movements of tar causing SEPP 33 to apply. It is unlikely that more than 60 truckloads of coal tar would be removed from the Macdonaldtown site, or received at the Chullora site, over the entire duration of the project;
- Storage / handling of a small quantity of diesel fuel to power generators / miscellaneous equipment on the Macdonaldtown / Chullora sites. Diesel is not classified as a dangerous good; and
- As thermal treatment is no longer under consideration as part of the project, there will be no need for storage of LPG on the Chullora site to power a thermal treatment process. Based on an assessment of potential hazard, SEPP 33 does not apply.

The development is considered not to be potentially offensive as the air quality assessments have demonstrated that the remediation works can be managed in a manner that does not cause offence to the surrounding environment (Macdonaldtown) or in a manner that will not cause offence (Chullora) (See Appendix K). On the basis of these assessments, a SEPP 33 assessment is not required for either the Macdonaldtown or Chullora site and a Preliminary Hazard Analysis is not required for either site.

6.5.2 Buildings and Infrastructure

Due to the extent of remediation works required at the Macdonaldtown site, there is a risk of destabilisation of structures on or adjacent to the site, e.g. gasholders, adjoining residential properties

and adjacent railway infrastructure.

The geotechnical report (Pells Sullivan Meynink 2010, Appendix W) noted that the estimated typical excavation depth is less than 4.0m with some deeper excavation up to 8.0m likely to be required in the vicinity of the northern gas holder and the tar wells. Excavation of fill on the site can be undertaken using conventional earth moving equipment.

Advice was provided for recommended temporary batter slopes (**Table 22**). These temporary batters will need to be protected from erosion, and are not to be left unsupported for more than one month (Pells Sullivan Meynink 2010). The report also noted that with regards to excavations adjacent to the existing southern gasholder, all water and fill within the tank is to be removed prior to undertaking any excavation adjacent to the tank.

Table 22: Temporary Batter Slopes (from Pells Sullivan Meynink 2010)

Distance between crest and structure	Geotechnical unit	Maximum batter height		
		<4 m	<6 m	<8 m
More than the batter height	Fill	1H:1V	1.5H:1V	2H:1V
	Residual clay	1H:1V	1H:1V	1.5H:1V
Less than the batter height	Fill	2H:1V	2H:1V	2.5H:1V
	Residual clay	2H:1V	2H:1V	2H:1V

As identified in Section 6.3 (and Appendix W), CFA/Bored piling in other areas of the site should be undertaken in lieu of impact piles to significantly reduce any vibration impacts upon the adjoining residents and to be within with the recommended vibration limit of 2mm/s PPV.

At the western boundary of the Macdonaldtown site, adjacent to the rear boundaries and fences of residential properties along Burren Street, temporary batter slopes may prevent full access to impacted material for remediation, specifically in the vicinity of 37-43 Burren St. A preliminary structural stability assessment has been obtained (Bill Jordan and Associates 2010, Appendix ZB), which recommended that excavation adjacent to the boundary of properties from 37 to 43 Burren Street should be done after negotiations with the property owners to determine the acceptable means of excavation, which may consist of a series of narrow trenches at right angles to the boundary which would be backfilled and compacted prior to adjacent trenches.

Additional detailed investigation and design will be completed prior to commencement of excavation adjoining residential properties. Pre- and post- work dilapidation studies will be required for adjoining properties to assist in preventing dilapidation and monitoring potential dilapidation. Remedial excavations and all associated design controls will be implemented with the objective that works will not result in subsidence which may cause damage to adjacent structures.

C1	A Construction Environmental Management Plan (CEMP) is to be prepared and implemented by the remediation contractor, which is to include: - Controls identified in the EMP submitted with this EA (Appendix ZA) - Controls identified via the Statement of Commitments
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G1	Pre- and post- work dilapidation study for residential properties adjoining Macdonaldtown to assist in preventing dilapidation during remedial works.
G2	Geotechnical and detailed Structural Engineer assessment of retaining structures, in particular in the vicinity of the Southern Gasholder and the western boundary.

6.6 HERITAGE

6.6.1 Non-Aboriginal Heritage

The site of the Macdonaldtown gasworks remediation is recognised as an item of State significance within the heritage listings of the Eveleigh Railway Workshops on the State Heritage Register and the s170 Heritage and Conservation Register of the State Rail Authority, which includes the southern gasholder.

Archaeological testing was undertaken to determine the extent and condition of archaeological remains which had survived on the former Macdonaldtown Gasworks (City Plan Heritage 2010c, Appendix O). Five test trenches were opened on the site, all of which revealed ground level remains under an average of about 250mm of local demolition material, coke residue and introduced fill.

It is considered that the archaeological heritage significance of the site will be appropriately conserved by undertaking the recommendations in the archaeological assessment (City Plan Heritage 2010c, Appendix O). This assessment recommended:

1. *The remediation of the site, particularly machine excavation around the State heritage listed southern gasholder, is to be adequately planned and supervised by RailCorp in order to avoid any damage to the structure.*
2. *The contamination levels in and around the brick annulus of the northern gasholder will be assessed by separate assessments. The bricks themselves are not thought to be contaminated but this will need to be confirmed. The bricks may need to be removed because of the excavations inside the annulus and around the outside of the annulus. If so, the removal is to be undertaken with care, so that if possible, the bricks can be reused. Archaeological monitoring to record the removal, the depth of the annulus and its general construction details should be undertaken during excavation and removal of the annulus. Archival recording of the top of the annulus should be carried out prior to any removal - with minimal excavation recommended. If the bricks need to be removed and cannot be reused, the northern gasholder should be represented in some similar form. This recommendation is also discussed within the Heritage Interpretation Plan submitted by City Plan Heritage in August 2010.*
3. *An archaeological excavation in the area of the Retort House should be carried out to look specifically for the evidence of the retorts. This would entail machine stripping, hand excavation and recording of the uncovered features to Heritage Branch standards.*
4. *An archaeological excavation in the area probably containing the footprint of the superintendent's residence should be carried out to record the structural layout of the building. This would entail machine stripping, some hand excavation and recording of the uncovered features to Heritage Branch standards.*
5. *Due to the high contamination of the area resulting from the nature of coal gas production and the limited original information associated with the ground level remains - no further physical archaeological investigation or monitoring, apart from the recommendations under points 3, 4 and 5 should be necessary.*
6. *Heritage interpretation of the history of the site and its connection to NSW Railways and the Eveleigh Railway Workshops should be undertaken as part of the remediation phase of the project. This aspect has been outlined in City Plan Heritage's Macdonaldtown Gasworks*

Heritage Interpretation Plan, August, 2010.

All the heritage recommendations identified above will be implemented. In addition, a Heritage Interpretation Plan has been prepared (City Plan Heritage 2010b, Appendix M), and proposes interpretative devices at five locations (Figure 25) will be implemented.

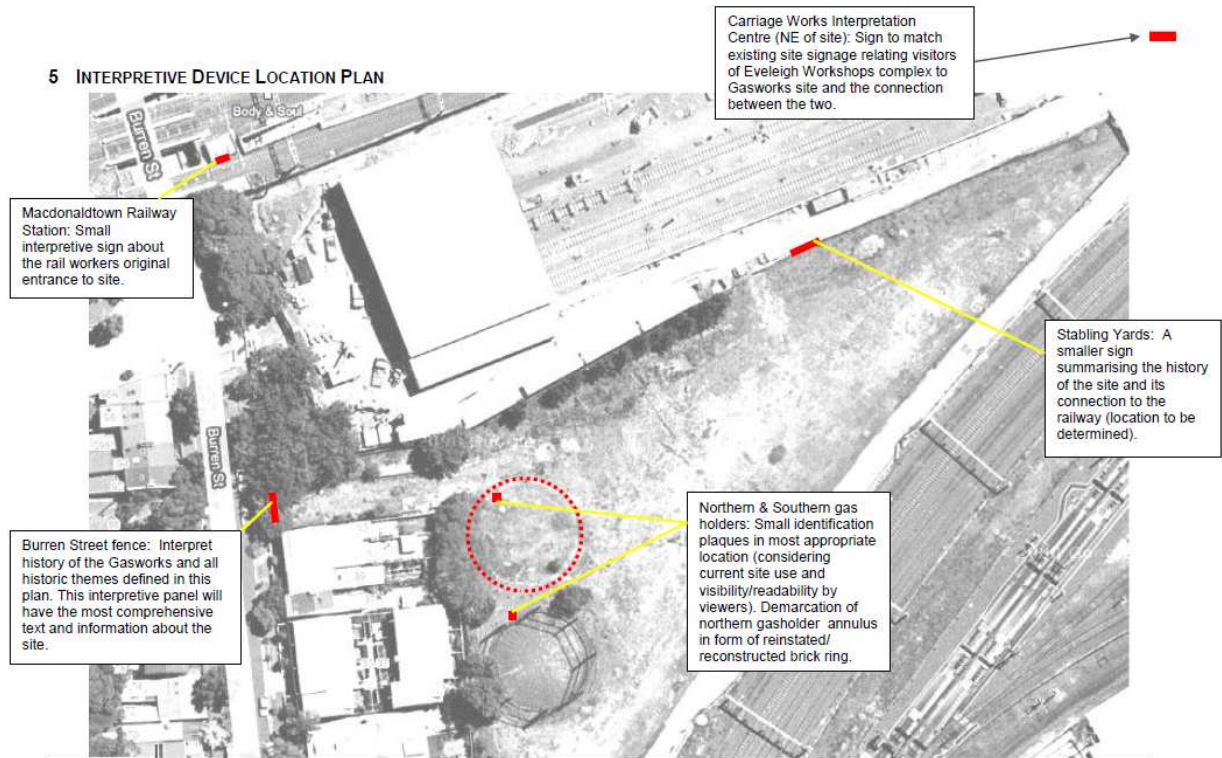


Figure 25: Macdonaldtown interpretative device locations (from City Plan Heritage 2010b)

Heritage Impact Assessment

The City of Sydney Council requested a Heritage Impact Assessment report of the work on the gasholder and other adjacent heritage structures. The text below prepared by City Plan Heritage responds to this matter:

'The site is listed on the NSW State Heritage Register (SHR 01140) as part of the Eveleigh Railway Workshops, and it is included in the RailCorp S.170 Heritage Register (SRA102) with particular listing for the standing gasholder. The site is bound to the north by the Macdonaldtown Stabling Yard, to the east and south by the Illawarra Rail Line, and to the west by privately owned residential properties on Burren Street. The only interface between the subject site and the conservation area, CA10, is therefore the western boundary of the site with the rear yards of the properties fronting to Burren Street east. In the event that substantial excavations are required in this area, the construction of any required retaining structures will be in compliance with the recommendations included in the structural report and the Environmental Assessment statement of commitments. Given that all works will be confined to the gasworks site and will be performed in compliance with the provided statement of commitments, there will be no heritage impacts on the conservation area.'

The planned remediation works for the site will see it restored to its current state. The site is generally covered by low lying grass and weeds, shrubs and trees, and some stockpiles of gravel. The results from the program of archaeological test excavations, carried out in June 2010, revealed the following with regard to proposed work on the gasholder and former

structures on the site:

- *All the archaeological trenches revealed ground level remains under an average of about 250mm of local demolition material, coke residue and introduced fill. The former buildings were confirmed by the results of the test excavation as being shed like structures and it is likely that the Eveleigh Railway Workshops had or still have similar structures. Therefore from a heritage perspective these structures are not considered to be significant in themselves.*
- *The main site feature is a standing gasholder that is positioned close to the western site boundary. The gasholder consists of an aboveground steel frame, with a telescoping steel bell (in two sections) which rests inside a brick annulus (underground). The remediation of the site, particularly machine excavation around this State heritage listed southern gasholder, is to be adequately planned and supervised by RailCorp in order to avoid any damage to the structure.*
- *The contamination levels in and around the brick annulus of the northern gasholder will be assessed by separate assessments.*
- *An archaeological excavation in the area of the Retort House in the area probably containing the footprint of the superintendent's residence should be carried out to record the structural layout of the building and to look specifically for the evidence of the retorts.*
- *Heritage interpretation of the history of the site and its connection to NSW Railways and the Eveleigh Railway Workshops is to be undertaken as part of the remediation phase of the project.*
- *The heritage interpretation of the site, as the only publically accessible component for the site, also meets best heritage practice and has been conditioned by the Heritage Branch of the NSW Department of Planning.*

Burren Estate Heritage Conservation Area

The City of Sydney Council requested that a mitigation plan be prepared and implemented for Burren Estate Heritage Conservation Area. The text below prepared by City Plan Heritage responds to this matter:

The houses on the eastern side of Burren Street have heritage significance and are currently shown as contributory items to the Burren Estate conservation area. The proposed work for the Gasworks site should avoid any undermining or damage of the existing buildings and a mitigation plan is to be prepared to include:

- *Recommendations from the geotechnical engineers for maximum batter angles near this boundary.*
- *Recommendations from the structural engineer for the requirements of any retaining structure design.*
- *Recommendations from the acoustic engineer for damage and amenity limits of the neighbouring residences and the existing gasholders.*

Chullora

The proposed treatment area at the Chullora site does not contain any known items of heritage significance (Godden Mackay Pty Ltd 1990).

6.6.2 Aboriginal Heritage

Any potential for Aboriginal cultural heritage to remain on the Macdonaldtown site is assessed as very low based on historical evidence relating to the works associated with Railways and Gasworks uses of the site (City Plan Heritage 2010a, Appendix N), which includes extensive dumped bulk fill throughout the site. Furthermore, there are no clear references to Aboriginal occupation in this part of Sydney and the site location and characteristics are such that it is not likely to have been very attractive in this regard (Banksia Heritage & Archaeology 2004).

For the Chullora site, there have been no relics of Aboriginal occupation, nor burial sites discovered within the Strathfield Municipality, due to the geology of the area (Strathfield Municipal Council 2007). Thus the potential for Aboriginal cultural heritage remaining at the Chullora site is also likely to be very low.

H1	The Southern Gasholder will be retained and protected.
H2	Archaeological assessment and archival recording during excavation as per recommendations 1 - 4 in the Archaeological Assessment report by City Plan Services (Appendix O).
H3	The works are to avoid any undermining or damage of the existing houses on the eastern side of Burren Street (due to heritage significance). A mitigation plan (via the CEMP) is to be prepared and implemented based on geotechnical engineer, structural engineer, and acoustic engineer recommendations.
H4	Installation of interpretative signage as per Heritage Interpretation Plan by City Plan Services (Appendix M) at: a) Burren Street b) Eveleigh Railway Workshops (addition to existing panels) c) Macdonaldtown railway station platform (subject to railway safety considerations) d) Macdonaldtown stabling yards facility e) Macdonaldtown northern and southern gasholders

6.7 TRANSPORT AND TRAFFIC

A Traffic and Pedestrian Management Plan has been prepared (Transport and Traffic Planning Associates 2010, Appendix V). The plan includes:

- Identification of the road network and traffic conditions;
- Consideration of access, truck movements and a vehicle route map;
- Potential impacts on pedestrian movements;
- Signage and traffic control; and
- Risk assessment and Occupational Health and Safety Measures

As discussed above, due to the sensitivities of the surrounding landuses and limited space available on the site, the contaminated materials excavated from Macdonaldtown may need to be transported and treated at the site identified at Chullora, or to an appropriately licenced waste facility. The project is also likely to involve the transport/importation of appropriate materials, endorsed by the Site Auditor, to the Macdonaldtown site for use as backfill.

For the purposes of this transport and traffic assessment, it has been assumed that virtually all of the excavated material from the Macdonaldtown site (23,000m³ of soil etc) will be transported off-site. It has also been assumed that a similar volume of soil will be returned to this site, and the source of this material may involve a combination of appropriate materials endorsed by the Site Auditor.

The use of rail to transport material to/from the Macdonaldtown site was considered. However, this mode was discarded as a consequence of not only the adverse impacts on normal day to day

passenger and rail freight operations but also on neighbouring residents were the operation to be limited to night time only.

Access to the Macdonaldtown site will overwhelmingly be via an existing gated access road which connects the site to Erskineville Road running adjacent and parallel with the East Hills Bankstown/Illawarra railway corridor. As a consequence of a median in Erskineville Road all vehicle movements entering and exiting the site via this roadway will be so by making left in/left out movements only.

Access to the Chullora site is proposed via the existing security controlled driveway fronting Worth Street at the roundabout controlled intersection with Beaufort Place. 'The transfer of material between Macdonaldtown and Chullora will be carried out through the use of single unit of trucks with a 'dog trailer'. Articulated vehicles will not be utilised due to road geometry constraints when exiting the site at Macdonaldtown and at the intersection of Erskineville Road and Wilson Street.'

The maximum number of truck daily movements generated by the proposed activity will be between 65 – 70 (or 6 – 7 vehicles movements per hour). Transport and Traffic Planning Associates (2010) concluded that this level of activity will not have any measureable impact on the surrounding road network.

Traffic and pedestrian management requirements from Transport and Traffic Planning Associates (2010) to be implemented via the CEMP include:

- All vehicles transporting spoil and other material which is to be remediated or disposed off-site (ie. at Chullora) will secure the load in accordance with relevant authority requirements associated with the transport of hazardous materials.
- Truck drivers will take all precautions to prevent any excess dust or dirt particles depositing onto the roadway during travel to and from the site.
- Vehicles exiting the site (whether loaded or unloaded) will be required to travel over a 'grate' and be 'washed down' prior to exiting the site to minimise the potential for material to be dropped on the public road network.
- The respective vehicle operators will be inducted by the lead contractor into the above procedures. The lead contractor engaged to undertake the project will deploy qualified personnel to monitor all truck movements entering and exiting the site to ensure that all established procedures are met.
- The appointed contractors within the site will ensure that the entry and exit points are kept free from material which may be deposited by any site vehicles.
- The contractor will monitor the roadways leading to and from the site on a daily basis and take all necessary steps to have rectified any adversely impacted road deposits caused by site vehicles.
- The roads will also be cleaned on a regular basis when required to minimize dirt particles depositing externally from the site.
- Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration.
- No vehicle will stand/queue on the public road network to the extent that it impacts on access or the day to day activities of adjacent properties or businesses or cause disruption/delay to traffic flows.
- In the unlikely event that there is a requirement to operate any material handling machinery on public access roads, the contractor will be required to seek Council or police approval prior to the event occurring. All associated requirements and regulations relative to such work will be satisfied.

- The principal contractor shall ensure that all sub-contractors are aware of the permitted hours of operation and shall ensure that all vehicle activity occurs strictly within the hours stipulated by the Conditions of Consent. Should any works be required to take place within public roads (in the vicinity of the site), or necessitate access to the site (eg. transport of large equipment/machinery) outside these hours, such instances would be subject to prior approval from Council and/or other relevant authorities (RTA etc). In these events, the adjacent property owners will be informed in accordance with the Community Consultation protocols.
- A minimum of 2 RTA accredited traffic controllers will be deployed to manage all vehicle movements entering and exiting the site. The primary task of these traffic controllers will be to ensure that vehicles enter and exit the site in a safe manner and does not unduly disrupt traffic and pedestrian movements.'

In addition, an Incident Management Plan will be required for vehicles used to transport contaminated or treated soil to and/or from the Macdonaldtown site. The Incident Management Plan will need to detail the incident preparedness and response requirements, provisions for communication of an incident, procedure for clearance of an incident and a review procedure to improve incident management or prevention measures.

An Incident Management Plan will be prepared and implemented by the remediation contractor as part of the CEMP and include:

- Proposed Traffic Routes – including destinations, number and duration of traffic movements;
- Incident Preparedness – training and equipment requirements for vehicles to be used to transport material to and/or from site;
- Incident Responses – procedures to be adopted in the event of an incident on arterial and/or local roads, including emergency contacts, communication protocols, despatch of clean-up team(s), traffic controls and securing the area of the incident;
- Incident Site Management and Clearance – assessment of the incident and likely management required including safety and environmental controls and emergency routes to be utilised by unaffected vehicles if necessary;
- Review Process following an incident – procedures to be adopted to minimise future incidents and refine the response procedures.

T1	Via the CEMP traffic and pedestrian management to be carried out in accordance with the recommendations in the Traffic and Pedestrian Management Plan prepared by Transport and Traffic Planning Associates (Appendix V)
T2	Via the CEMP an Incident Management Plan is to be prepared for vehicles used to transport contaminated soil, and is to include: • Proposed traffic routes • Incident preparedness and response requirements • Provisions for communication of an incident • Procedure for clearance of an incident • A review procedure to improve incident management or prevention measures

C2	A sign will be erected on the boundary fence at the Macdonaldtown site, and Chullora site if utilised, during the period of the remediation works of the development which will advise of the following: • Contractor details • 24 hour emergency contact details
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6.8 OTHER ISSUES

6.8.1 Visual Amenity

Visual Impact Assessments were prepared for Macdonaldtown (JBS 2010b, Appendix X) and Chullora (JBS 2011g, Appendix Y).

Macdonaldtown

Site works at Macdonaldtown may extend to 12m in height due to the proposed enclosure tent to manage odours. The Visual Impact rating of the site during the proposed remediation works is considered to be 'Low' from all of the affected external viewing positions assessed, with the exception of the residences on Burren Street, adjacent to the western site boundary which were rated 'High'. In the context of the proposed remediation works, this means that the scenic value of the site, and/or views afforded of items of heritage significance present within, will not be devalued from external viewing locations, with the exception of the Burren Street residences, adjacent to the western site boundary. However, visual impacts to these residences will be temporary only, and are considered unavoidable to achieve the required remediation project objectives.

Moreover, the report prepared by JBS Environmental assessed the Visual Impact rating of the site post-remediation as 'Moderate' in the context of the proposed redevelopment, meaning that while the site does contain items of heritage significance, the final landscape will neither completely conceal nor devalue the visual impact of these items.

A number of trees are present within the Macdonaldtown site, and provide amenity to adjoining residents through shade and natural visual screening of the RailCorp lands. The maximum number of trees to be removed, across the entire site, is 47. Where possible trees will be retained and protected via protection fencing. If loss of trees cannot be avoided, each tree removed will be replaced, in consultation with local residents, with an advanced native tree species approximately 1m in height once the remediation works are complete. It is anticipated that plantings would be primarily located in the vicinity of the western boundary, adjacent to residences.

Mitigation measures from JBS (2011e) to reduce visual impacts to the residents on properties along the western Macdonaldtown site boundary are:

- *'Community consultation with the potentially affected parties to inform them of the proposed staging of works and likely impacts. The consultation process should benefit from emphasising the temporary nature of the proposed works, and enhancement of the neighbourhood on completion;*
- *Use of mesh screening in neutral colours around the perimeter of remediation areas to act as a partial visual screen at ground level to the remediation works;*
- *Maintenance of dust mitigation measures, surface runoff controls and general site housekeeping at all times to enhance the visual quality of the area;*
- *Completion of all earthworks within the enclosures, or screened off areas wherever possible to enhance the visual quality of the area;*
- *Vehicle entry gates and truck loading areas to be located away from the adjacent western*

- properties if possible; and,*
 - Where possible, the western boundary of the site should be revegetated post remediation’.*

Chullora

The Visual Impact rating of the site during remediation from all affected external viewing positions assessed by JBS Environmental is considered ‘Low’. In the context of the proposed treatment works, this means that the scenic value of the area or views afforded of it will not be devalued from these external viewing locations.

The Visual Impact rating of the treatment area post-completion of the works is considered ‘Low’. The area does not contain items of heritage or environmental significance, there is existing industrial land use, and the landscape at the project completion will not be concealed or devalued.

Nonetheless, mitigation measures proposed in JBS (2011g) to reduce visual impacts to properties adjacent to the eastern Railway Workshops boundary are:

- Community consultation with the potentially affected parties to inform them of the proposed staging of works and likely impacts. The consultation process should benefit from emphasising the temporary nature of the proposed works, and similar conditions to be reinstated on completion;*
- Minimise disturbance to established tree lines along the Railway Workshop boundary, to maintain the existing buffers and visual screen at ground level to the treatment works;*
- Maintenance of dust mitigation measures, surface runoff controls and general site housekeeping at all times to enhance the visual quality of the area; and,*
- Truck loading areas used within the workshop area should be located away from the adjacent eastern properties.*

V1	Via the CEMP implementation of visual mitigation measures identified in: - Macdonaldtown Visual Impact Assessment (Appendix X) - Chullora Visual Impact Assessment (Appendix Y)
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6.8.2 Final Landform following Remediation

A detailed Earthworks Specification is to be prepared for the Macdonaldtown site, as recommended in the Geotechnical report (Pells Sullivan Meynink 2010). It is likely that the final landform following remediation will return the site to levels very similar to the currently existing levels (as at December 2010).

For reuse of fill material present at Macdonaldtown, from a geotechnical perspective, it was noted that ‘...it is our opinion that an earthworks specification could be developed to allow placement of the majority of the excavated and remediated material as engineered fill’ (Pells Sullivan Meynink 2010).

There will be no change in levels at the Chullora site (if used), as materials are to be stored temporarily for treatment and then disposed to an appropriately licenced landfill.

SW5	Via the CEMP a detailed Earthworks Specification (as per Pells Sullivan Meynink 2010 in Appendix W) is to be prepared and implemented.
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6.8.3 Flora and Fauna

The Macdonaldtown and Chullora sites have been predominantly cleared of native vegetation as a result of their prior use for rail infrastructure, and contain limited vegetation. As part of the pre-remediation works, the majority of vegetation at Macdonaldtown will be removed.

Macdonaldtown

A Flora and Fauna Assessment was prepared for the Macdonaldtown site (Eco Logical Australia 2010, Appendix Z) which addressed the potential occurrence and assessment of impact for threatened and migratory flora and fauna listed under State legislation and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The vegetation recorded on the site was characterised by planted non-local native and exotic species trees around the margin of the site with the ground layer consisting of exotic species and bare ground. A total of 52 species of flora were observed on the site, one of which is listed as a threatened species, *Syzygium paniculatum* (Brush Cherry). It was concluded that the proposed works would not significantly impact upon *Syzygium paniculatum*, which typically occurs within littoral and riparian rainforests and the single individual recorded within the site was considered to have been planted.

In general, the study area was considered to represent minimal habitat for common species able to tolerate disturbance. Only one threatened species recorded within the locality was considered to have the potential to occur within the study area, the Grey Headed Flying Fox (*Pteropus poliocephalus*). It was concluded that the proposed works were unlikely to significantly impact upon this species as the site represents only a very minor area of potential foraging habitat.

The remaining threatened flora and fauna were considered unlikely to occur within the site due to its highly disturbed nature, lack of any native vegetation community and the surrounding urban landscape.

Whilst the site will essentially be cleared for the remediation works, a CEMP will incorporate strategies to prevent spread of weeds including:

- Cleaning of machinery before and after it enters the site, so as to not introduce new weed species or transport propagules from the site to other areas;
- Noxious weeds are to be removed or controlled using appropriate weed control techniques;
- Weed vegetative material removed is to be taken to a site licensed to receive green waste; and
- Native tree species used preferentially in revegetation along boundaries.

Chullora

A Flora and Fauna Assessment was prepared for the Macdonaldtown site (Eco Logical Australia 2011, Appendix ZG) which addressed the potential occurrence and assessment of impact for threatened and migratory flora and fauna listed under State legislation and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The vegetation recorded within the study area was characterised by scattered native trees over an understorey dominated by exotic grasses and herbs. A total of 57 flora species were observed within the study area, including seven indigenous species, two non-indigenous native species and 48 exotic species. Of the 48 exotic species recorded within the study area, five are listed as noxious weeds for the Municipality of Strathfield Local Government Area. No threatened flora species or Endangered Ecological Communities were recorded within the study area.

Two (2) threatened species recorded within 10km of the study area were considered to have the potential to occur: Green and Golden Bell Frog (*Litoria aurea*) and Grey Headed Flying Fox (*Pteropus poliocephalus*). A 'key population' of the green and golden bell frog has been identified at Greenacre. The study area consists primarily of open grassland dominated by exotic species, with some small depressions observed to have shallow water after heavy rainfall. The depressions were considered unlikely to provide breeding habitat for green and golden bell frog because of their ephemeral nature and the 6-12 week time period required for metamorphosis in this species.

The impacts of the proposed works on Green and Golden Bell Frog and Grey Headed Flying Fox were considered against the Part 3A Threatened Species Assessment guidelines, and against the EPBC Act Administrative Guidelines on Significance. It was concluded that the proposed works were unlikely to significantly impact upon these threatened species, as the proposal would result in the temporary impacts on a very minimal amount of highly degraded marginal habitat.

While the proposed works were considered unlikely to impact significantly upon threatened species, it was recommended that noxious weed control strategies and stormwater runoff management measures be adopted into the Construction Environmental Management Plan (CEMP).

F1	The CEMP is to incorporate a weed control protocol
F2	Boundary replanting at Macdonaldtown will be undertaken in consultation with adjacent residents on Burren St with a preference for advanced native trees.

6.8.4 Environmental Management Plans

A 'Demolition and Remediation Environmental Management Plan (EMP)' has been prepared, and specifies controls to be implemented at both the Macdonaldtown and Chullora sites (Appendix ZA, JBS 2011f). The EMP describes measures that will be implemented to manage risks to the environment.

The EMP procedures for Macdonaldtown are shown in Table 23 and for Chullora in Table 24.

Table 23: Macdonaldtown Environmental Procedures Responsibilities (from JBS 2011f)

Procedure		Principal Contractor	Environmental Consultant	Council
EMP 01	Airborne Hazards Control	X		
EMP 02	Flora & Fauna	X	X	
EMP 03	Heritage / Archaeological	X	X	
EMP 04	Visual Impacts	X		
EMP 05	Emergency Response	X	X	
EMP 06	Noise Control	X	X	
EMP07	Traffic	X	X	
EMP08	Protection of Adjoining Structures	X		
EMP09	Handling of Contaminated Soil	X		
EMP10	Soil Storage Area	X	X	
EMP11	Sediment Control	X		
EMP13	Operation of Site Office	X		
EMP13	Decontamination of Heavy Equipment	X		
EMP14	Environmental Monitoring	X	X ¹	
EMP15	Waste Classification	X	X ¹	
EMP16	Groundwater Treatment	X	X ¹	
EMP17	Environmental Criteria	X	X ¹	
EMP18	Management of Unexpected Free Tar	X	X ¹	
EMP19	Community Consultation	X	X ¹	
EMP20	Incident Reporting	X	X ¹	
EMP21	EMP Review	X	X ¹	X
EMP22	Training	X	X ¹	

Table 24: Chullora Environmental Procedures (from JBS 2011f)

Procedure		Principal Contractor	Environmental Consultant
EMP 23	Dust and Airborne Hazards Control	X	
EMP 24	Emergency Response	X	X
EMP 25	Noise Control	X	X
EMP 26	Traffic	X	X
EMP 27	Odour Control	X	X
EMP 28	Handling of Contaminated Soil	X	
EMP 29	Sediment Control	X	
EMP 30	Operation of Site Office	X	
EMP 31	Decontamination of Heavy Equipment	X	X ¹
EMP 32	Environmental Monitoring	X	X ¹
EMP 33	Community Consultation	X	X
EMP 34	Incident Reporting	X	X ¹
EMP 35	EMP Review	X	X ¹
EMP 36	Training	X	X ¹

Notes 1: To include consultation with and/or endorsement by the appointed Site Auditor

A 'Construction Environmental Management Plan' (CEMP) is also to be prepared by the principal contractor to fully specify all their environmental controls based on their staging of works (commitment C1). The contractor will also need to implement the Demolition and Remediation EMP controls. Achieving both requirements may be streamlined by integrating the Demolition and Remediation EMP controls into the CEMP.

The EMP does not override specific plans developed for this project such as Air Quality Management Plan or Heritage Interpretation Plan.

C1	A Construction Environmental Management Plan (CEMP) is to be prepared and implemented by the remediation contractor, which is to include: • Controls identified in the EMP submitted with this EA (Appendix ZA) • Controls identified via the Statement of Commitments
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6.8.5 Remediation Acceptance Criteria

Acceptance that the remediation works are complete will require:

- A Remediation Works and Validation Plan for the Macdonaldtown site (pre remediation) which will detail how the contractor will meet the requirements of the RAP and RS;
 - A 'Validation Report' (VR) for the Macdonaldtown site (post remediation) detailing the remedial work outcomes, results and remnant impact;
 - A 'Site Audit Statement' (SAS) for the Macdonaldtown site (post remediation)
 - A 'Baseline and Post Treatment Assessment' for the Chullora site if this site is used (both pre and post remediation); and
- A Long Term EMP for the Macdonaldtown Site to manage any remnant impact, detail monitoring and site management.

Remediation Works and Validation Plan

A 'Remediation Works and Validation Plan' (RWVP) will be required prior to the commencement of works and will require endorsement by the appointed Site Auditor. The appointed site auditor is Andrew Kohlrusch, Principal Environmental Scientist, GHD. The Remedial Strategy (JBS 2011e) states that as a minimum the RWVP will need to detail the following items:

- *'Compliance with the requirements of the RAP, the Environmental Management Plan (EMP) prepared for the site and this Remedial Strategy document will be met;*
- *Compliance with any additional requirements arising out of the Part 3A approval;*
- *The validation program (frequencies and analytical suites) to be adopted for material to remain in-situ;*
- *The validation program (frequencies and analytical suites) to be adopted for treated material to be reused on site;*
- *The preferred off-site disposal location(s) for material to be disposed to landfill;*
- *Details of the treatment methods to be adopted, both on-site and off-site;*
- *An indicative layout of the likely treatment operation relative to site boundaries and adjacent land uses;*
- *Details of the baseline sampling program to be adopted on the treatment site; and*
- *Details of the post-treatment sampling program and the criteria to be met at the completion of off-site treatment works.'*

The Remedial Strategy contains details of remediation acceptance criteria, a proposed soil validation

sampling and analytical program, and rules that are to apply to use of remediation acceptance criteria for material to be retained on site. It is noted that implementation of the Remedial Strategy (JBS 2011e) will also require endorsement of the site specific leachability criteria by the appointed Site Auditor.

SW1	A Remedial Works Validation Plan is to be prepared. The Remedial Works Validation Plan is to be approved by the Site Auditor prior to implementation.
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Validation Report

The Validation Report details the outcomes of remediation and requires Auditor approval. It will be prepared in accordance with NSW EPA (1997) *Guidelines for Consultants Reporting on Contaminated Sites*, and to meet requirements of the NSW DEC (2006) *Guidelines for the NSW Site Auditor Scheme*. The validation report will include the following:

- Details on the implementation of the RAP and RWVP;
- Verification of regulatory compliance;
- A clear statement on whether the Site is considered suitable for its intended land use and whether it is considered to present an unacceptable risk to human health and the environment; and
- Any limitations, assumptions and uncertainties relevant to the conclusions of the report.

SW8	A Validation Report will be prepared for the Site Auditor in accordance with NSW EPA (1997) <i>Guidelines for Consultants Reporting on Contaminated Sites</i> , and to meet requirements of the NSW DEC (2006) <i>Guidelines for the NSW Site Auditor Scheme</i> .
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Site Audit Statement

At the completion of the remediation works at Macdonaldtown the site should be in a condition such that a Site Audit Statement (SAS) can be prepared declaring the site suitable for commercial/industrial land use.

SW2	A 'Site Audit Statement' (SAS) for the Macdonaldtown site will be obtained.
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Baseline and Post Treatment Assessment

A 'Baseline and Post Treatment Assessment' will be required for the Chullora site (if this site is used). The Remedial Strategy (JBS 2011e) describes this assessment as:

'A baseline assessment of the treatment area to be used within the Chullora Railway Workshops must be completed prior to commencement comprising investigation of the potential chemicals of concern (PCOC) in soil and groundwater in accordance with relevant guidelines. The scope of the groundwater investigation as part of the baseline assessment should be appropriate to the nature of the proposed treatment works and their likelihood to result in contamination reaching the water table. At the completion of works, the treatment area must be restored to its pre-treatment works condition. A post treatment assessment of the area, of the same scope as the baseline assessment, will therefore be required to demonstrate that no adverse impacts have occurred or to determine the scale of restoration works.'

SW3	A 'Baseline and Post Treatment Assessment' for the Chullora site (if this site is used) will be undertaken
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6.8.6 Long Term EMP

Once remediation works are complete, and the Baseline and Post Treatment Assessment has demonstrated no adverse impacts have occurred, no ongoing site management is proposed at the Chullora site.

For the Macdonaldtown site, a program of Monitored Natural Attenuation (MNA) is proposed, as per section 10.3.3 of the RAP (CH2M Hill 2007b). The MNA program will consist of two phases of monitoring. The first phase (monthly event) will include frequent data collection to establish baseline conditions, contaminant presence/occurrence and establish statistical analysis and rates. The second phase (year 2 – biannual event) will include assessment of existing and new data to confirm the stability of the plume. If required, and with input from OEH, a third stage may be conducted to further assess plume stability. The staged approach will enable an end point to be selected for the MNA program and effectively an end to the site remediation process.

The post remediation groundwater monitoring regime outlined in the RAP (CH2M Hill 2007b), may be altered or updated following the collection of additional data. All amendments to the monitoring regime will require endorsement by the OEH Accredited Auditor prior to implementation.

The Long Term EMP will also detail all required management protocols associated with remnant soil contamination (if any). Management measures may include:

- Safe work methodologies for work undertaken in proximity to remnant soil impacts;
- Excavation restrictions;
- Capping and containment maintenance measures; and
- Restrictions on possible future development.

The Long Term EMP will require endorsement by the Site Auditor and will be specific to the status of the Site at the completion of the active remediation works.

SW10	A long term Environmental Management Plan will be prepared for the Macdonaldtown site, including a Program of Monitored Natural Attenuation (MNA), as per section 10.3.3 of the RAP (CH2M Hill 2007b, Appendix F) or subsequent Auditor approved variations. The long term Environmental Management Plan will also include management protocols for remnant soil impact (if any). The long term Environmental Management Plan and Program of MNA will need to be approved by the site auditor. Subsequent to Site Auditor endorsement a copy of the Long Term EMP is to be issued to the NSW Office of Water to demonstrate compliance with groundwater licencing (refer to commitment SW11).
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7 Consultation

7.1.1 Agency Consultation

Consultation has been undertaken with the following state agencies, who in turn have informed the proposal and the preparation of this EA:

- Department of Planning and Infrastructure (DPI);
- Office of Environment and Heritage (OEH);
- Heritage Branch of Office of Environment and Heritage (OEH);
- City of Sydney Council;
- Strathfield Council;
- NSW Health; and
- Roads and Transport Authority (RTA).

The agency and council consultation are summarised below.

Department of Planning and Infrastructure

Discussions with DPI have been ongoing throughout the life of the project.

DATE	DISCUSSIONS
22 March 2010	Initial briefing meeting on the project
1 June 2010	Further briefing on the project and discussion of the Preliminary Environmental Assessment
11 January 2011	Briefing meeting prior to the EA submission.
3 February 2011	Correspondence regarding the Director General's requirement for the preparation of a Preliminary Hazard Assessment.

Department of Environment and Heritage

Discussions with OEH have been ongoing throughout the duration of the project prior to the declaration of the project as Part 3A. Monthly status emails issued by RailCorp have kept OEH up to date on the progress of the project. A series of meeting and discussions with OEH have been completed to finalise the remedial strategy, environmental management plan and air quality management plan.

Andrew Kohlrusch has been appointed as the NSW EPA accredited auditor for the project. There has been continued consultation and review by Andrew Kohlrusch during the preparation of the Remedial Strategy, Environmental Management Plan, and Air Quality Management Plan.

DATE	DISCUSSIONS
7 September 2010	Meeting held on-site between OEH, RailCorp, Savills Project Management and JBS Environmental to present and discuss the proposed remediation methodology. A site inspection was also completed.

20 September 2010	Initial discussions between RailCorp and OEH to discuss licensing requirements on the POEO Act.
3 November 2010	Further discussions between RailCorp and OEH regarding POEO licensing requirements.
28 October 2010	OEH and JBS Environmental met to review the approach to air quality modelling to inform the air quality management plans.
30 May 2011	Meeting to discuss air quality, waste, noise and biodiversity comments from the test of adequacy review

Heritage Office

Ongoing discussions with the heritage office regarding Section 60 application prior to archaeological test digs, requirements for Archaeological Research Design, and general compliance with S60 consent conditions.

DATE	DISCUSSIONS
1 April 2010	Lodged Section 60 Application to the Heritage Office.
14 May 2010	Section 60 application Approval issued by the Heritage Office
07 February 2010	A Heritage Interpretation Strategy and an Archaeological Excavation Report were issued to the Heritage Office.

City of Sydney Council

RailCorp meet with City of Sydney Council twice during the preparation of the Environmental Assessment to discuss issues outlined in their submission to the EA. Ongoing correspondence and discussions regarding Section 60 application prior to archaeological test digs, requirements for Archaeological Research Design, and general compliance with S60 consent conditions.

DATE	DISCUSSIONS
30 June 2010	Meeting Attendees City of Sydney (Col Warne); RailCorp (Luke Speechley); TTPA (Richard West); Savills Project Management (John Dawson). Briefing on project and outline of proposed traffic management plan (including proposed transport routes) to submitted with the EA.
23 August 2010	Discussion between JBS (Andrew Lau) and City of Sydney (Peter Goaley) regarding the proposed remediation methodology to be included in the Environmental Assessment.
24 August 2010	Meeting Attendees City of Sydney (Vanessa Aziz, Kylie-Anne Pont); RailCorp (Daniel Wedgewood) Savills Project Management (Marcus Paget-Wilkes, John Dawson). Issues for EA consideration regarding health, heritage and vegetation.
07 February 2010	Letter issued to City of Sydney detailing the status of the Environmental Application and included copies of the Heritage Interpretation Strategy and an Archaeological Excavation Report.

Strathfield Council

RailCorp meet with Strathfield Council during the preparation of the Environmental Assessment to discuss issues outlined in their submission to the Department of Planning.

DATE	DISCUSSIONS
3 September 2010	Meeting Attendees Strathfield Council (Sabra Azinullah, George Wong); RailCorp (Luke Speechley); JBS Environmental (Sumi Dorairaj); Savills Project Management (Marcus Paget-Wilkes; John Dawson). Briefing on proposed project and the documentation proposed to be submitted with the EA.

NSW Health

Discussions with NSW Health during the preparation of the Environmental Assessment.

DATE	DISCUSSIONS
24 September 2010	Discussion with Public Health Unit (PHU) Sydney South West Area Health Service to brief them on the project. No material concerns were raised by PHU.
25 September 2010	Follow up email providing further project information, and directing the PHU to the Preliminary Assessment on the Department of Planning website.

Roads and Transport Authority (RTA)

Discussions with Roads and Traffic Authority during the preparation of the Environmental Assessment.

DATE	DISCUSSIONS
25 January 2011	Phone call and email to Chris Goudanas detailing how the RTA's comments on the Preliminary Assessment will be addressed in the EA, specifically the preparation of a Traffic Management Plan and Incident Management Plan.

The requests received during consultation with agencies and councils have been incorporated into the requirements of the technical studies which support this EA.

7.1.2 Community Consultation

Elton Consulting prepared a Community Consultation Report (Appendix ZC) based on community consultation undertaken during the preparation of this EA. This sets out those matters that were raised in consultation with the community and the subsequent proponent responses and amendments to the project application.

Community engagement activities included:

- Two project newsletters to approximately 1,500 local Macdonaldtown residents (in April and August 2010) and a newsletter to residents directly adjacent to the Chullora site
- Establishment of an 1800 phone information line (ongoing)
- A letter to 36 properties directly adjacent to the Macdonaldtown site (in Burren Street) advising them of the planning process and offering individual briefings for residents and

- property owners
- One-on-one meetings with five residents following on from the letter to Burren Street dwellings
- Community information and feedback session at Brown Street Community Hall, 8-10 Brown Street Newtown, between 6.00 and 8.00pm on Tuesday 31 August 2010

Elton Consulting (2010, Appendix ZC) noted that most commonly identified issues raised were:

- Traffic and access arrangements (including preference for manning of Erskineville Road access gate with a traffic controller)
- Ecological issues such as onsite flora and fauna
- The importance of retaining the heritage value of the existing southern gasholder
- Noise and other amenity impacts now and during the remediation process (eg. odour and vibration)
- Health and safety impacts now and during the remediation process
- Program, timeframe and time of day for commencement and conduct of remediation works
- General queries regarding remediation of the site and the proposed future use of the site (including proposed hours of operation)
- The importance of ongoing opportunities for community input to the consultation process

These actions have been included under the Statement of Commitments (CC1, CC2, and CC3). RailCorp may undertake additional consultation beyond the committed engagement identified herein.

CC1	RailCorp will issue newsletters to keep the community abreast of the progress of the project.
CC2	RailCorp will complete future consultation and information sessions as necessary to communicate the progress of the project.
CC3	RailCorp will consult with local Macdonaldtown stakeholders on pre- and post- work dilapidation studies for these adjoining properties

8 Statement of Commitments

The proponent will undertake all draft statement of commitments identified in Table 25, should approval be granted to this project application.

Table 25: Draft Statement of Commitments

Issue	Ref #	Commitment
Safety	S1	Via the CEMP a Remedial Health and Safety Management Plan is to be prepared and implemented.
	S2	Licensing requirements for both Macdonaldtown and Chullora will be determined in consultation with OEH and all regulatory requirements of such licences will be complied with in undertaking the project.
	S3	Incident Management Plan is to be prepared and implemented.
Construction Management	C1	A Construction Environmental Management Plan (CEMP) is to be prepared and implemented by the remediation contractor, which is to include: - Controls identified in the EMP submitted with this EA (Appendix ZA) - Controls identified via the Statement of Commitments
	C2	A sign will be erected on the boundary fence at the Macdonaldtown site, and Chullora site if utilised, during the period of the remediation works of the development which will advise of the following: - Contractor details 24 hour emergency contact details
	C3	Via the CEMP and works will be carried out within the following times: 7:00 am and 6:00pm Monday to Friday 8:00am to 1:00pm on Saturdays. No work shall be conducted on Sundays or public holidays, or outside the above hours, unless approved by RailCorp and deemed to be crucial to the control of potential environmental emissions from the site.
Heritage	H1	The Southern Gasholder will be retained and protected.
	H2	Archaeological assessment and archival recording during excavation as per recommendations 1 - 4 in the Archaeological Assessment report by City Plan Services (Appendix O).

Issue	Ref #	Commitment
Heritage	H3	The works are to avoid any undermining or damage of the existing houses on the eastern side of Burren Street (due to heritage significance). A mitigation plan (via the CEMP) is to be prepared and implemented based on geotechnical engineer, structural engineer, and acoustic engineer recommendations.
	H4	Installation of interpretative signage as per Heritage Interpretation Plan by City Plan Services (Appendix M) at: f) Burren Street g) Eveleigh Railway Workshops (addition to existing panels) h) Macdonaldtown railway station platform (subject to railway safety considerations) i) Macdonaldtown stabling yards facility j) Macdonaldtown northern and southern gasholders
Flora and Fauna	F1	The CEMP is to incorporate a weed control protocol
	F2	Boundary replanting at Macdonaldtown will be undertaken in consultation with adjacent residents on Burren St with a preference for advanced native trees.
Air Quality	A1	Via the CEMP implementation of air emission controls and mitigation measures identified in: - Macdonaldtown Air Quality Management Plan (Appendix ZE) - Chullora Air Quality Management Plan (Appendix ZF)
Soil and Water Management	SW1	A Remedial Works Validation Plan is to be prepared. The Remedial Works Validation Plan is to be approved by the Site Auditor prior to implementation.
	SW2	A 'Site Audit Statement' (SAS) for the Macdonaldtown site will be obtained.
	SW3	A 'Baseline and Post Treatment Assessment' for the Chullora site (if this site is used) will be undertaken
	SW4	Via the CEMP a Soil Treatment Plan to demonstrate management of soil requiring remediation in a manner that achieves the objectives of the project while preventing any unacceptable risks to the surrounding environment or health of exposed populations.
	SW5	Via the CEMP a detailed Earthworks Specification (as per Pells Sullivan Meynink 2010 in Appendix W) is to be prepared and implemented.

Issue	Ref #	Commitment
Soil and Water Management	SW6	Establishment of a Water Treatment System (WTS) at Macdonaldtown to treat water which is intercepted during the excavation and remediation process. Treated (or untreated) water is to meet criteria specified in Table 9.3 of the Remedial Strategy (JBS 2011e, Appendix I) for reuse on-site or discharge to sewer. Alternatively, discharge of water to stormwater may also occur if the water meets the criteria specified in section 8.3 of the Remedial Strategy (together with an application to City of Sydney).
	SW7	If required, a Trade Waste Permit with Sydney Water will be obtained for discharge of water from the Wastewater Treatment System to sewer.
	SW8	A Validation Report will be prepared for the Site Auditor in accordance with NSW EPA (1997) <i>Guidelines for Consultants Reporting on Contaminated Sites</i> , and to meet requirements of the NSW DEC (2006) <i>Guidelines for the NSW Site Auditor Scheme</i> .
	SW9	Containment and Capping will only be undertaken following endorsement of the Site Auditor and will comply with the “Guidelines for the Assessment of On-Site Containment of Contaminated Soil” (ANZECC 1999).
	SW10	A long term Environmental Management Plan will be prepared for the Macdonaldtown site, including a Program of Monitored Natural Attenuation (MNA), as per section 10.3.3 of the RAP (CH2M Hill 2007b, Appendix F) or subsequent Auditor approved variations. The long term Environmental Management Plan will also include management protocols for remnant soil impact (if any). The long term Environmental Management Plan and Program of MNA will need to be approved by the site auditor. Subsequent to Site Auditor endorsement a copy of the Long Term EMP is to be issued to the NSW Office of Water to demonstrate compliance with groundwater licencing (refer to commitment SW11).
	SW11	Licences under the Water Act 1912 for all proposed groundwater monitoring wells at the Macdonaldtown site proposed to be installed as part of the remedial works will be obtained in consultation with the NSW Office of Water prior to works commencing. No unlicensed monitoring wells will be used for dewatering, and any unlicensed wells at the Macdonaldtown site will either be decommissioned or appropriately licensed with NSW Office of Water prior to the completion of the works.
Traffic	T1	Via the CEMP traffic and pedestrian management to be carried out in accordance with the recommendations in the Traffic and Pedestrian Management Plan prepared by Transport and Traffic Planning Associates (Appendix V)

Issue	Ref #	Commitment
	T2	Via the CEMP an Incident Management Plan is to be prepared for vehicles used to transport contaminated soil, and is to include: • Incident preparedness and response requirements • Provisions for communication of an incident • Procedure for clearance of an incident • A review procedure to improve incident management or prevention measures
Noise	N1	Via the CEMP works will be carried out within the following times: • Monday to Friday: 7:00 am to 6:00 pm • Saturday: 8:00 am to 1:00 pm • Sunday and Public Holidays: No work No work shall be conducted outside the above hours unless approved by RailCorp and deemed to be crucial to the control of potential environmental emissions from the site.
	N2	Via the CEMP noise mitigation measures to be implemented in accordance with the recommendations in the Macdonaldtown Noise and Vibration report (Appendix T), and Chullora Noise and Vibration report (Appendix U), prepared by Acoustic Logic
	N3	Via the CEMP vibration is to be monitored and managed in accordance with the Macdonaldtown Noise and Vibration report (Appendix T) prepared by Acoustic Logic

Issue	Ref #	Commitment
	N4	Preparation of a Noise and Vibration Management Plan(s) for both Macdonaldtown and Chullora (if required) which are to include a detailed study of each of the proposed activities which will occur as a part of the remediation works. Controls for the Macdonaldtown plan to include (amongst other controls): • Community consultation to be undertaken. • Enclosure of the excavation site with Polyvinyl with a minimum wall thickness of 7mm facing residential sides with no doors facing the western facade and all gaps to be acoustically sealed. • Acoustic silencers and/or external lagging for fans, extractors and generators used for the polyvinyl enclosure. • The Excavator with Hydraulic Hammer to keep a minimum of 8m distance from the nearest residential property. • CFA/Bored piling to be undertaken in lieu of impact piles to significantly reduce any vibration impacts upon the adjoining residents. • Practical management methods such as restricting the operation hours of piling, and changing the speed of CFA piling. • Vibration monitors should be installed on the heritage structure or residential properties close to the project site. SMS messages shall be sent to the site manager if the vibration to the heritage structure exceeds 2mm/s PPV. • Static equipment shall be located as far as possible from noise receivers. Controls for the Chullora plan to include (amongst other controls): • Community consultation to be undertaken. • Equipment shall be well maintained. • A Polyvinyl enclosure with a minimum wall thickness of 7mm shall be installed. • The ventilation system serving the enclosure shall be acoustically treated to ensure that the noise emission to the residential properties to the east boundary is less than 51 dB(A). • Static equipment shall be located as far as possible from receivers. The Noise and Vibration Management Plan(s) are to be submitted to the Director General for approval and comment prior to the commencement of any works on-site.
Waste	W1	Via the CEMP a Waste Management Plan (WMP) is to be prepared and implemented, and to include details on the waste tracking procedures, waste classification program, licensing requirements, disposal protocols and incident responses to be implemented.
Geotechnical	G1	Pre- and post- work dilapidation study for residential properties adjoining Macdonaldtown to assist in preventing dilapidation during remedial works.
	G2	Geotechnical and detailed Structural Engineer assessment of retaining structures, in particular in the vicinity of the Southern Gasholder and the western boundary.

Issue	Ref #	Commitment
Visual	V1	Via the CEMP implementation of visual mitigation measures identified in: • Macdonaldtown Visual Impact Assessment (Appendix X) • Chullora Visual Impact Assessment (Appendix Y)
	CC1	RailCorp will issue newsletters to keep the community abreast of the progress of the project.
	CC2	RailCorp will complete future consultation and information sessions as necessary to communicate the progress of the project.
Community Consultation	CC3	RailCorp will consult with local Macdonaldtown stakeholders on pre- and post- work dilapidation studies for these adjoining properties

9 Conclusion

Due to past use of the Macdonaldtown site as a gasworks, contaminated soils on the site are considered to pose a significant risk of harm to human health and the environment. Under the *Contaminated Land Management Act 1997* RailCorp has responsibilities for managing this risk. In undertaking these works RailCorp's proposed remediation is in line with industry standards and compliant to regulatory requirements.

The proposal involves the excavation, treatment and disposal of contaminated soils located at the Macdonaldtown site. Residential dwellings are in close proximity, and space is limited at Macdonaldtown. Consequently this proposal also assesses a proposed alternative (optional) site for temporary treatment of contaminated materials, namely Chullora Railway Workshops and Yards. The Chullora site allows flexibility in the remediation treatment process.

This EA reviewed key environmental risks associated with the remediation works. These included transport and traffic issues, surface water management, archival recording and heritage interpretation, stability of structures, visual amenity, and environmental emissions including air, noise and vibration. These key risks will be controlled in accordance with the EMP for the works and the preparation of supporting documentation agreed to in the Statement of Commitments section of this EA. With the exception of periodic noise exceedances for short periods (7 – 14 days) the proposed control measures facilitate compliance with relevant legislative criteria and requirements as well as providing practical measures to eliminate or minimise risks.

The assessment of the overall impacts of the proposal contained in this report concludes that those impacts are acceptable and reasonable subject to the measures outlined in the Statement of Commitments section of this EA.

The Project Application would result in remediation of the site so that it is no longer considered to pose a significant risk of harm to human health and the environment. No change to site usage or zoning is proposed, and it is anticipated that the site will continue to be used for rail infrastructure storage purposes. The project is justified on economic, social and environmental grounds and consistent with the objects of the EP&A Act and therefore the granting of project approval under Section 75E of the EP&A Act is recommended.

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Limitations

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and Savills Project Management Pty Ltd. This report has been prepared for use by the client who commissioned the works in accordance with the project brief and has been based in part on information obtained from other parties. This report is limited to the scope defined by the reports of those parties.

The advice herein relates only to this project and all results conclusions and recommendations made by other parties should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements and site history, not on sampling and analysis of all media at all locations for all potential contaminants.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

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