Construction Environmental Management Plan

ESR HORSLEY LOGISTICS PARK - LOTS 201 & 204

Job No: SC141 & SC140 | Doc No: HY-CEMP-0001-R3

Rev: 3

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Contents

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1 Document Information

1.1 Plan revision status information

Change Information			
Review	**Description**	**Issued by**	**Issue date**
Revision 1	Initial Submission of CEMP	P.Cassimatis	30 April 2021
Revision 2	HY Internal Review Comments & CTMP Appendix Updated	P.Cassimatis	07 May 2021
Revision 3	HSE Plan Added to Appendix. Ready for Issue	P.Cassimatis	10 May 2021

1.2 Document Control

This CEMP will be issued to the Site Manager and relevant extracts to other parties as controlled copies. A distribution list of documents issued will be maintained by the Project Manager.

Revisions to this CEMP may be required during the project to reflect changing circumstances. Revisions may result from:

- Management review;

- Audit (either internal or external);

- Complaints or non-conformance reports; and

- Changes in legislation.

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2 Definitions

The following definitions and abbreviations have been used in this Environmental Management Plan. Further definitions and abbreviations are provided in referenced procedures and plans.

BIM360 Field	Cloud based QHSE field management software application designed specifically for the construction industry.
EMP	Environmental Management Plan (this document)
EPA	State Environment Protection Authority
ESD	Ecologically Sustainable Development
HSE	Health, Safety & Environment
HY	Hansen Yuncken Pty Ltd
HYWAY	An information management platform developed by HY utilising Microsoft SharePoint
NC	Non-Conformance
NGER	National Greenhouse and Energy Reporting
NVMP	Noise and Vibration Management Plan
OEH	Office of Environment and Heritage
PLN	HY Plan
PMP	Project Management Plan
POEO	The Protection of the Environment Operations Act
PROJ	Project Management
REO	Regional Environmental Officer
RMS	Roads and Maritime Services
RTA	Roads and Traffic Authority
S/C	Subcontract(s) or Subcontractor(s) as the context requires
SM	Site Manager
SSO	Site Safety Officer
SWMS	Safe Work Method Statement
TMP	Traffic Management Plan

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3 Introduction

3.1 Purpose of the CEMP

The purpose of the site-based CEMP is to provide a structured approach to the management of environmental issues during construction of this project. Implementing this CEMP will ensure that the project meets regulatory and policy requirements, in a systematic manner. In particular, this CEMP:

- Describes the project in detail, including activities to be undertaken and relative timing
- Provides specific mitigation measures and controls that can be applied on site to avoid or minimise negative environmental impacts
- Provides specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation
- Describes the environmental management related roles and responsibilities of personnel
- States objectives and targets for issues that are important to the environmental performance of the Project
- Outlines a monitoring regime to check the adequacy of controls as they are implemented during construction

3.2 Project description

These two proposed projects would facilitate the construction of Lots 201 & 204 within the ESR Horsley Park Estate, located at 8 Johnston Crescent, Horsley Park and 10 Johnston Crescent, Horsley Park respectively.

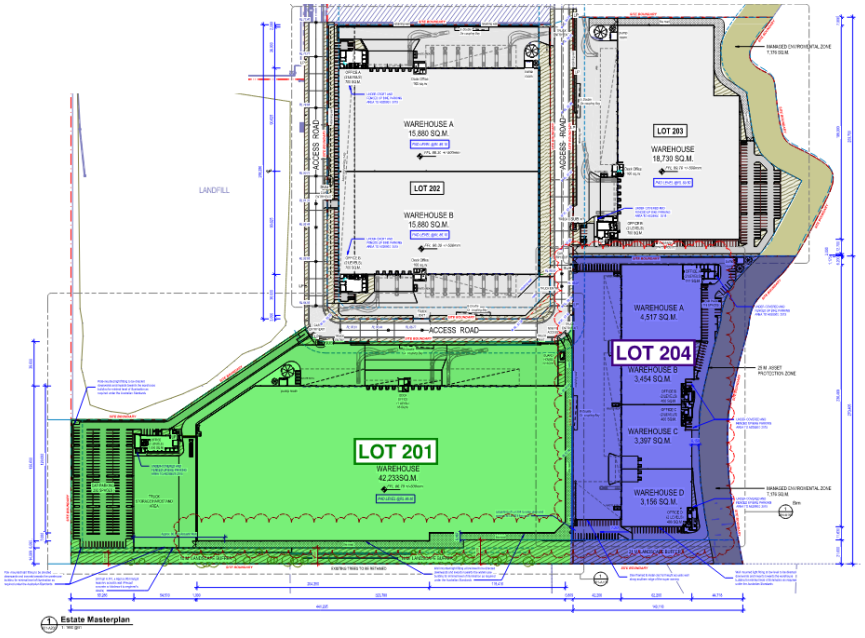

Figure 1 Proposed Site Layout for the ESR Horsley Park Estate, including Lots 201 & 204 (Shaded)

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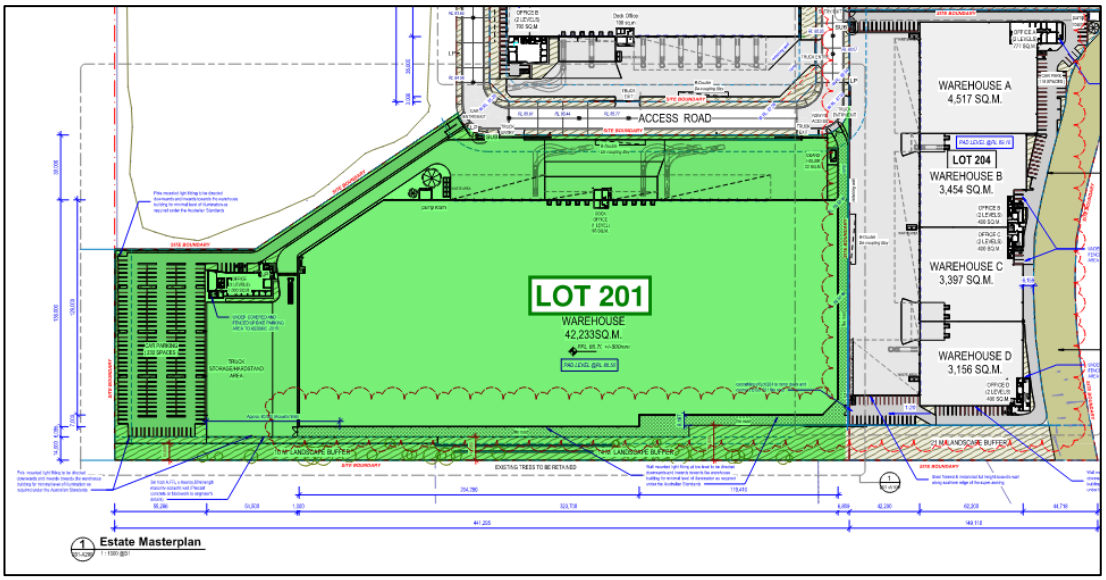
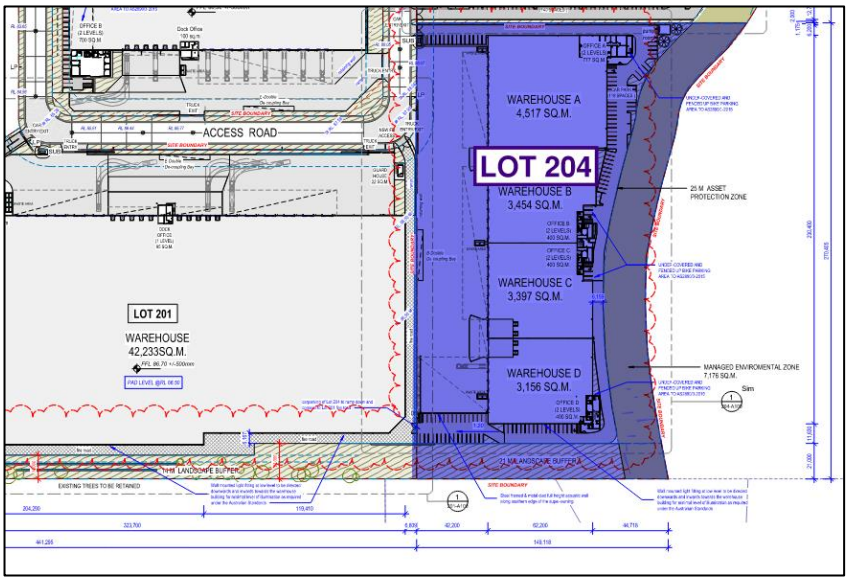


Lot 201 encompasses a 42,233 m2 warehouse facility consisting of a double storey office, flush and recessed docks, amenities, a pump room, a café, and a total of 232 car parking spaces.

Incoming and outgoing truck deliveries / movements will be via. Old Wallgrove Road toward the north of the estate and into the estate's internal access road loop (Johnston Crescent).

Warehouse 2 has been designed to UPS' tenant requirements for a 5,000m2 Ambient Warehouse (2A) and a 10,000m2 Controlled Room Temperature Warehouse (2B) – consisting of a cooler and freezer.



Lot 204 includes a 16,531m² facility consists of 4 subdivided tenancies with respective main & dock offices, mezzanines, flush & recessed docks, amenities, and a total of 118 carpark spaces. This lot has the same incoming and outgoing truck deliveries / movements as Lot 201 (via. Old Wallgrove Road / Johnston Crescent).

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3.3 Client

The Client is ESR Australia.

3.4 Project location

Lots 201 & 204 are located at 8 Johnston Crescent, Horsley Park and 10 Johnston Crescent, Horsley Park respectively, with access via. the nearest cross being Old Wallgrove Road, Horsley Park. The site footprint is approximately 117,500m². The proposed warehouse building footprint collectively is approximately 56,060m². The surrounding area is generally located near industrial warehouses. The nearest residents are located to the south-east of the estate (closest to Lot 204), directly adjacent the southern boundary.

3.5 Hours of Work

Construction activities shall be restricted to specified daytime construction hours permitted, as per the approved Development Consent:

- Monday to Friday 7am to 6pm;
- Saturday 8am to 1 pm; and
- No work on Sunday or public holidays.

Works may be considered outside the stipulated hours above under the following circumstances:

a) works that are inaudible at the nearest sensitive receivers; or

b) works agreed to in writing by the Planning Secretary; or

c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

3.6 Construction Activities

The proposed build of warehouses Lot 201 and Lot 204 comprises of the following scope of works:

- Site preparation; trimming and levelling of pad
- Underground services to commence including the drainage storm water system i.e. rainwater water tanks, electrical underground, water / sewer, and general underground conduit works
- Install of footings, slabs and structural steel for the warehouse and office structure
- Cladding roofs and walls to all buildings
- Enclosed buildings with Install of the roller shutter/rapid doors, PA doors and louvres
- Internal fit outs for the Warehouse building and offices which includes: electrical, plumbing and air-conditioning and internal partitions.

- Install joinery & FFE, tiling to office amenities and floor finishes. Painting the internal walls to office
- Installation of surrounding hardstand, outer building crossovers and driveways.
- Perimeter fencing/gates along boundary to site
- Landscaping to access road frontage boundary

3.7 CEMP Context

The CEMP will identify the project management structure and clearly identify the roles and responsibilities regarding managing and reporting during the construction phase of project.

An Environmental Risk Assessment will be undertaken when developing this CEMP. The risk assessment identifies all aspects of construction that could have an environmental impact and assesses the potential risk and impact of that activity on the environment. Management controls / strategies are then devised to mitigate and/ or minimise those identified impacts.

The assessment would address the potential impacts created during the construction period (e.g. construction dust and noise). Specific environmental issues would be addressed in the CEMP and strategic details on how these would be mitigated and controlled across the project.

3.8 Policy & Objectives

The HY Environmental Policy Statement provides the framework for the development of this Construction Environmental Management Plan (CEMP).

The objective of the CEMP is to:

- Encourage best practice environmental management through planning, commitment and continuous improvement;
- Prevent and minimize adverse impacts on the environment;
- Identify the potential for, and respond to, environmental incidents and emergency situations and take corrective actions;
- Identify and control possible environmental hazards with the works and HY activities;
- Identify and protect any special environmental characteristics of the site including cultural heritage significance;
- Define roles and responsibilities and allocate the necessary resources;
- Ensure environmental training and awareness programmes are provided to employees and subcontractors; and
- Establish mechanisms to monitor, evaluate and report progress.

The HY Environment Policy commits the company to achieve the following goals:

- Develop and promote a culture of environmental leadership, responsibility, and continual improvement across the HY business;
- Audit, monitor and ensure compliance with environmental legislative and regulatory obligations and other environmental commitments;

- Utilise the resources of HY to lead the way in defining and achieving best environmental practice; and
- Advance and disseminate environmental knowledge and applied environmental management through training, research, and engagement with the wider community

A copy of the Environment Policy is contained within the PMP and displayed at the project / site office and induction sheds. HY recognises this implementation will involve effective training of personnel to ensure they fully understand their responsibilities to comply with and monitor the management system. In addition, all site workers are consulted on HY environmental policies & procedures through the following mechanisms: site induction, notice board, site inspections, prestart meetings, subcontractor meetings, team meetings, toolbox talks.

3.9 Project Environmental Targets

Objective: Reduce waste

KPI: Waste minimisation and recycling

Target: Recycle > 60% of construction waste

Objective: Comply with all environmental legislation

KPI: Number of identified breaches of State or Commonwealth Environmental legislation

Target: Nil for duration of project.

Objective: Minimise impacts on the environment

KPI: Number of significant environmental incidents causing serious harm to the environment

Target: Nil for duration of project.

Objective: Conduct environmental site inspections to validate environmental conformance

KPI: Schedule and undertake regular site inspections

Target: > 90% of scheduled HSE inspections

Objective: Minimise and manage environmental complaints

KPI: Consult with impacted neighbours and promptly address all complaints

Target: ≤ 1 complaint per significant construction milestone

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4 Environmental Management.

4.1 Structure, Responsibility and Accountability

Hansen Yuncken is the Principal Contractor with overall control of the project's environment and performance. Therefore, all subcontractors, consultants, suppliers, and other workers are required to comply with this Management Plan, their employer's Environmental Management System and related Safe Work Method Statement(s), the HY HSE Site/Workplace Rules, and relevant legislative requirements.

The Project Manager prepares a site-specific organisational chart to define lines of reporting and key names and positions or roles with Environmental responsibilities specific to the project. The chart is outlined in Appendix 8.3.

The Project Manager is responsible for ensuring that adequate arrangements are established for recording and controlling variations, changes and concession that may be agreed during the project.

Individual roles and responsibility statements are also contained within specific environmental standards and procedures and within the relevant job and position description.

4.2 Organisational Structure

The organisational chart in Appendix 8.3 details the environmental organisational structure and the communication paths. The chart forms part of the overall organisation charts located in the Project Management Plan.

4.3 Environmental Duty of Care

4.3.1 Duties of Hansen Yuncken Management

Hansen Yuncken obligations as a PCBU (person conducting a business or undertaking) varies slightly depending on the Federal/state and, local legislation, but the general principles for environmental management remain and HY Management is committed to the following standards as far as is reasonably practicable:

- Ensure that the project activities are conducted in accordance with the requirements of the CEMP.
- Carry out environmental inspections and coordinate site activities as required by the CEMP.
- Promptly advise the PM of any environmental management action to be taken to maintain compliance with this CEMP and relevant statutory requirements.
- Ensure a copy of the CEMP is displayed in the site office at all times and be updated and amended as works progress.
- Advise the PM & HSE Manager immediately if environmental harm or potential harm occurs within or near the construction site.
- Ensure that site activities are conducted in accordance with the requirements of the CEMP.
- Undertake environmental management actions as directed by the PM.

- Ensure that all personnel under their direct control are aware of potential environmental impacts and required minimum environmental control measures before they commence any site works.

4.3.2 Duties of workers:

While at work, a worker must:

- Take reasonable care of the working environment;
- Take reasonable care that his or her acts or omissions do not adversely affect the environment;
- Comply, so far as is reasonably able, with any reasonable instruction that is given by HY;
- Cooperate with any reasonable policy or procedure of HY relating to the environment at the
- workplace that has been communicated to workers

4.3.3 Assessment of Project Risks

The Project Manager in consultation with the HSE manager completes a Project Environmental assessment prior to commencement of the construction stages of the project. The risk assessment must include any environmental aspects and impacts risks that require management in the construction stages of a project. The risk assessment must consider any specific undertakings from any formal environmental impact assessment, relevant development consent conditions, pollution control approvals/licenses/permits and any other statutory and contractual obligations.

4.3.4 Project Manager

The Project Manager is responsible for:

- Assisting in preparing and implementing the CEMP;
- Instructing project personnel on how to comply with environmental policy and procedures;
- Ensuring the Site Supervisor is aware of and complies with the environmental obligations as detailed within this CEMP;
- Ensuring that employees, contractors, and sub-contractors are aware of, and comply with, the conditions of approval and requirements of the CEMP relevant to their respective activities;
- Arranging periodic monitoring and inspection by suitably trained personnel;
- Regular site inspections and the active pursuit of opportunities to enhance environmental outcomes;
- Tracking and reporting environmental performance;
- Initiating remedial measures when environmental deficiencies are observed or in response to environmental complaints;
- Restriction of construction activities affected by an environmental deficiency until remedial action has been taken;
- Maintaining environmental performance records; and
- Engaging consultants where required to provide support in relation to implementing the CEMP.

4.3.5 Site Manager / HSE coordinator

Site Manager / HSE coordinator is responsible for:

- Managing employees / contractors and construction activities daily to ensure the appropriate

- Environmental controls are implemented and maintained in accordance with the requirements of the CEMP;
- Ensuring all staff are inducted into the site and undertake daily toolbox talks;
- Undertake daily site inspections of environmental controls and maintain records of environmental actions;
- Reporting any environmental management concerns or incidents immediately to the Project Manager;
- Recommending improvements to the CEMP to the Project Manager; and
- Implementing any corrective actions issued as a result of any site inspections, audits, or meeting.

4.4 Environmental Responsibility Matrix

Refer Appendix 8.4 for outlined role specific environmental responsibilities as

4.5 Environmental Awareness and Training

4.5.1 Site Induction

All employees, sub-consultants and sub-contractors must undertake a site induction prior to their commencement of work on site. The induction of employees and contractors is the Site Supervisor's responsibility.

The site induction will inform employees of their environmental responsibilities on site. It details the most

significant environmental aspects and introduces this CEMP as the management tool used to address the controls and mitigation measures required to minimise environmental impact on the Project.

The induction will cover the following:

- Contents of the CEMP;
- Critical environmental protection procedures including spill responses, emergency procedures;
- Hazardous substances and dangerous goods handling, and monitoring of imported fill quality;
- The location of the CEMP during works; and
- General obligations.

All visitors to the Site must undergo a visitor's induction. All visitors must be accompanied by a fully inducted member of staff. Site personnel shall be encouraged to be proactive and report any instances of environmental control measures not operating properly.

4.5.2 Toolbox Talks

Toolbox talks will be conducted daily by the Site Supervisor for employees and subcontractors. Toolbox talks will be undertaken in response to evolving issues on the ground, particularly in response to significant environmental and safety incidents and non-conformance issue

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This document applies to all HY and S/C employees, environmental awareness is the responsibility of every person working on and associated with the project.

4.5.3 Emergency Contacts

Situation	**Non-Project Emergency Contacts**	
Fire	Fire Brigade	000
	SafeWork NSW	131 050
Liquid chemical spill, into water or soil	EPA Environment Line	131 555
	Fire Brigade	000
	SafeWork NSW	131 050
Uncontrolled release of water	EPA Environment Line	131 555
	Sydney Water	132 090
Flood	SES	132 500
	EPA Environment Line	131 555
Storm	SES	132 500
	EPA Environment Line	131 555
Uncontrolled release of gas	EPA Environment Line	131 555
	Safe Work NSW	131 050
	Fire Brigade	000
	Police, if evacuation required off site	000
Explosion	Fire Brigade	000
	Police	000
	EPA Environment Line	131 555
	WorkCover	121 050
	Utility companies, if utilities damaged	131 388
Accident causing environmental damage, E.g. vehicular accident on site	Ambulance Service	000
	EPA Environment Line	131 555
	SafeWork NSW	131 050
	Police if required	000

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Loss of power endangering health, property, and environment	Police, if required	000
	SafeWork NSW	131 050
	Utility company (Energy Australia)	131 388
(UXO)-Unexploded Ordnance - (Ammunition which has been fired, but has not gone off)	Police	000

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5 Implementation

5.1 Environmental Risk Assessment

Environmental aspects and potential construction stage environmental impacts have been identified based on the general experience on Construction projects as show on Table 5.

The Risk Assessment Matrix in Table 3 has been used to assess the unmitigated risk of each individual environmental aspect relevant to the construction of the Warehouse.

The level of risk assessed from the matrix informs the level of mitigations required for that environmental aspect. These risks are to be mitigated through the application of measures identified in this CEMP.

Table 3 Risk Assessment Matrix

		Probability				
		A	B	C	D	E
Consequence	1	H	H	H	H	M
	2	H	H	H	M	M
	3	H	H	M	M	L
	4	M	M	M	L	L
	5	M	L	L	L	L

Table.4 Risk Assessment Matrix

Probability			**Consequence**		
A	Almost Certain	Expected to occur, quite common	1	Major	Major environmental harm. e.g. major pollution incident causing significant damage or potential to health or the environment
B	Likely	Will probably occur has happened	2	Significant	- Long term or serious environmental damage. - Numerous complaints received. - Potential for prosecution.
C	Possible	Might occur at some time	3	Moderate	- Moderate environmental impact. - Will cause complaints. - Possible fine.
D	Unlikely	Could occur at some time although unlikely	4	Minor	-Minimal environmental harm. - Potential for complaints. - Fine unlikely.
E	Rare	Might occur at some time in exceptional circumstances	5	Insignificant	Little or no environmental harm. - Little potential for fines or complaints.

A.6 Environmental Aspects and Environmental Risk Assessment

Aspect	Potential Construction Stage Impact	Probability	Consequence	Risk Ranking	Controls
Location and Land Use	Unauthorised dumping of waste materials on the site.	**D**	**3**	Low	Refer Section 5.2.1
	Entry of unauthorized persons or vehicles onto the site.	**D**	**4**	Low	
Environmental Complaints	Neighboring properties impacted by construction works due to construction noise and dust.	**D**	**3**	Low	
Sedimentation and Erosion Control and Construction	Erosion of sediments from stockpiles or exposed areas.	**C**	**3**	Medium	Refer Section 5.2.5
	Discharge of sediment laden runoff leading to stormwater system.	**C**	**3**	Medium	
Noise & Vibration	Excessive noise generated by truck and vehicle movements.	**D**	**4**	Low	Refer Section 5.2.2
	Disturbance from construction noise and heavy machinery.	**D**	**4**	Low	
Air Quality and Dust	Generation of dust from soil stockpiles and other exposed areas.	**C**	**3**	Medium	Refer section 5.2.4
	Generation of dust during handling of soil.	**C**	**3**	Medium	
	Generation of dust from vehicle movements.	**C**	**3**	Medium	
	Unacceptable emissions from vehicles / plant.	**D**	**4**	Low	
Hazardous Materials	Leaking or spillage of fuels or chemicals stored or used on the Site leading to potential impacts to soil.	**C**	**5**	Low	Refer Section 5.2.12
	Explosion of fuels or chemicals stored or used on the site.	**D**	**4**	Low	
Waste Management	Inappropriate disposal of waste.	**D**	**4**	Low	Refer Section 5.2.9
	Not minimising generation of waste.	**D**	**4**	Low	
Traffic and Access Management	Traffic causing congestion or damage on local roadways.	**D**	**4**	Low	Refer Section 5.2.3
	Traffic incident / accident.	**D**	**4**	Low	

Terrestrial Flora and Fauna	The removal of fauna during construction works poses minimal risk to landscaped species throughout the area.	**D**	**4**	Low	Refer section 5.2.7
Cultural Heritage	Undisturbed aboriginal artefacts due to the construction zone being in an existing site.	**E**	**4**	Low	Refer section 5.2.7
Site Contamination	There is a risk of unexpected finds being an existing site.	**D**	**4**	Low	Refer Section 5.2.8

5.2 Environmental Management Activities and Mitigation Measures

5.2.1 Location and Land Use

Site Location

The 2 adjacent sites within the Horsley Park Industrial Estate, Lots 201 and 204, are located at 8 Johnston Crescent, Horsley Park and 10 Johnston Crescent, Horsley Park respectively. The nearest cross is Old Wallgrove Road road, Horsley Road (which will eventually branch into the future internal access road of the estate). The total site footprint is approximately 117,500m². The proposed warehouse building footprints for Lots 201 and 204 are respectively 39,625m² and 16,435m². The surrounding area is generally industrial warehouses (Nu-Pure and PGH Bricks & Paver Industrial Warehouses within the immediate area). The nearest residents are located to the south-east of the estate (closest to Lot 204), directly adjacent the southern boundary.

Likely Impacts

The construction works would be short term in nature and would not interfere with the current use of the site. All construction activities would be carried out with due diligence, duty of care and best management practices.

Given the location of residential properties is in close proximity to the works area, some impacts associated with construction traffic, noise and dust are likely to affect adjacent residents. These likely impacts will be addressed below.

Mitigation Strategies

- The neighbouring landowners are to be consulted regarding the construction works, predicted program and any access requirements.
- Land disturbance during construction is to be limited to that required to undertake the construction works
- Construction works to be undertaken in consideration of adjacent vegetation
- Areas disturbed during construction to be returned to the pre-construction condition

Monitoring and report

Monitoring	Frequency	Person responsible	Record
Neighbours and nearing residential properties of any complaints as result of construction works due to construction noise and dust.	Fortnightly – expected dates of high construction activities.	Site Manager / HSE coordinator.	HSE Inspection Checklist

5.2.2 Noise & Vibration

Likely Impacts

Construction of the proposed warehouse development will result in short term noise impacts during the 8-month construction period. The nearest residents are located to the south-east of the estate (closest to Lot 204), directly adjacent the southern boundary. Noise would generally result from general construction activities including the movement and operation of heavy vehicles and larger construction plant such as delivery trucks, semi-trailers, concrete trucks, generators, cranes, bobcats, backhoes, water trucks, etc.

Adjacent streets to the construction sites, both Wallgrove and Burley Road and to the South Greenway Place, Horsley Park are generally located amongst open fields and rural residential holdings however the Contractor will ensure construction noise impacts from the site are managed so as to minimise the disturbance to surrounding property owners, in accordance with EPA guidelines. Please refer to the Construction Noise and Vibration Management Plan within Appendix 8.7.

Mitigation Strategies

- Site construction noise will be managed in accordance with the SLR Consulting Australia's "Noise and Vibration Impact Assessment (Rev. 2.1)" as part of the Environmental Impact Statement (EIS), as prepared in support of the development of 327-335 Burley Road, Horsley Park
- Construction activities shall be restricted to the SSD-10436 and EPA specified daytime earthworks and construction hours (i.e. 7am to 6pm Monday to Friday, 8am to 1 pm Saturday, no work on Sunday or public holidays). If it were deemed necessary to undertake work outside these hours, prior approval would be sought from Fairfield City Council.
- Keep the community informed in relation to noise intensive activities in the immediate area.
- Provide consultation with SLR Consulting Australia where prolonged or consecutive periods of noise intensive construction works of are planned.
- Any noise complaint received will be investigated as soon as practicable. Any practicable and feasible measures to minimise noise will be identified and implemented if required.
- All possible steps to be taken to silence construction equipment where possible.
- Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustical impacts will be minimised.
- All plant and machinery used for the project shall be well maintained

Monitoring and report

Monitoring	Frequency	Person responsible	Record
Construction noise levels and construction works within DA hours	Following any complaints related to noise.	Site Manager	Noise monitoring record if required

5.2.3 Traffic & Access

Likely Impacts

Construction of new warehouse facility would occur over an 8-month period with some increase in traffic in the local area expected. Construction vehicles and staff would enter the site via distribution drive. The construction workforce would vary according to the work being carried out, the construction method and contractor's program.

Access to the site for construction vehicles is proposed via Old Wallgrove Road. Trucks are to access the Site from the M7 Motorway to the east, or Lenore Drive and Mamre Road to the west. RMS currently identifies both routes as heavy vehicle routes.

It is anticipated that the number of construction staff on site daily is expected to grow progressively as the work increases in scale and then decrease as the works near completion. It is estimated that during the peak construction period an average of 60 construction workers will be on site per day.

The increased traffic is not predicted to have an impact on local traffic flow and only a minor inconvenience to local road users is expected. Whilst construction works may cause some inconvenience to local residents, any impacts would be minor, localised, and short-term.

Due to the minor nature of the works the additional traffic load is unlikely to impose any significant additional load upon the existing road network within the site. There are no significant construction-related issues or impacts that would not be mitigated by an appropriate Construction Traffic Management Plan. Please refer to Appendix 8.6 for Construction Traffic Management Plan specific to this project.

Mitigation Strategies

- Prepare a Traffic Management Plan (TMP) based on the detailed construction methodology and use of specific heavy vehicles and construction plant. The Traffic Management Plan is to include measures to minimise traffic impacts ensure public safety and is to be prepared in accordance with:
  - Traffic Control at Work Sites Manual (RTA, 2010).
  - Australian Standard 1742.3 - 2002 Traffic Control Devices for Works on Roads.
- The TMP will detail hours of operation, heavy vehicle volumes (numbers) and routes, construction staff parking, loading / unloading areas and site access arrangements, all temporary warning, guidance and information signage, and appropriate traffic control devices;
- Notify surrounding landowners at least one week in advance of the works;
- All vehicles accessing the sites will use the designated access roads. Construction and delivery vehicles would be restricted to using Old Wallgrove Road, Lenore Drive, M7 Motorway and Mamre Road;
- All roads will be kept clean and free of dust and mud. Where material is tracked onto sealed road, it will be removed so that road pavements are kept safe and trafficable;
- All roads, kerbs, gutters, and footpaths damaged as a result of construction are to be restored to their pre-construction condition. A dilapidation report will be carried prior to construction; and
- All traffic shall comply with all applicable traffic laws and regulations including speed limits. All construction vehicles shall comply with the speed limits set for the roads accessing the site.

Monitoring and report

Monitoring	Frequency	Person responsible	Record
Construction traffic, Deliveries in accordance to CTMP – correct entries used.	Weekly	Site Manager / HSE coordinator.	HSE Inspection Checklist

5.2.4 Air Quality & Dust Control

Likely Impacts

The main impact to air quality during construction is expected to arise from the generation of airborne localised dust associated with earthworks. Given the proximity of the southern residential areas and industrial properties in close proximity to the site there is the potential for neighbouring properties to be impacted by dust, particularly during hot, dry and windy conditions

Mitigation Strategies

- Construction vehicles and equipment to be suitably serviced prior to commencement of construction activities and all necessary maintenance to be undertaken during the construction period to meet EPA air quality requirements.
- Excessive use of vehicles and powered construction equipment will be minimised where possible
- All construction machinery will be turned off when not in use to minimise emissions where possible.
- Construction contractors to monitor dust generation progressively.
- Dust suppression methods including the use of water carts will be adopted where required (i.e. on windy days when earthworks and vehicle movements are generating dust).
- In the event of high wind and extreme heat, contractors will monitor dust suppression measure, if render ineffective, all earthworks will cease with only minor works to
- Any stockpiled spoil/fill will be protected to minimise dust generation to avoid sediment moving offsite.
- Vehicles transporting spoil from the site to be covered where required.
- The burning of waste materials will not be permitted on site

Monitoring and report

Monitoring	Frequency	Person responsible	Record
Visual inspection of site for excessive dust generation, weather conditions, truck load covers, condition of stabilised site access	Daily	Site Manager / HSE Coordinator.	HSE Inspection Checklist / Weekly Inspections
Visual inspection of stockpile stability.	Weekly	Site Manager / HSE Coordinator.	Weekly Inspections
Toolbox talks to include reminders about reporting excessive dust from either internal or external sources, covering loads, efficient use of plant and equipment.	Weekly	Site Manager / HSE Coordinator.	Toolbox Records

5.2.5 Soil, Erosion & Water Quality

Likely Impacts

Minimal earthworks and general ground disturbances associated with site works may result in sediment and other materials leaving the site via wind or water movement. This may have the potential to result in the water pollution such as turbidity and nutrient inputs, should sediment wash into stormwater or natural drainage lines.

Aspects of the site identified as potentially impacting on water quality includes: Excavation for foundations and site levelling; Stockpiling and transportation of excess spoil; and General construction waste entering drainage lines.

Given the relatively flat topography and long distance of the site from nearby creek, appropriate sediment and erosion controls will be implemented to effectively prevent runoff from entering the local stormwater system. All controls shall be in accordance with the Sediment and Erosion Management Plan and the NSW Government “Blue Book” [“Managing Urban Stormwater | Soils and Construction_ Vol.1 (March 2004)”].

The Erosion and Sediment Control Plan (Costin Roe Consulting) designed for this project will be a dynamic plan which will change with the different stages of construction.

Mitigation Strategies

- Construction is to be undertaken in accordance with the Erosion and Sediment Control Plan. (Appendix 8.5)
- All erosion and sediment control devices shall be properly maintained for the duration of the work. All structures are to be inspected after rain events and sediment to be removed
- Any temporary stockpiles should be stabilised using sediment fencing or similar.

- All fuels and other hazardous liquids shall be stored at designated construction compounds
- All chemicals used for construction shall be stored and used in accordance with the relevant Safety Data Sheets.
- An emergency spill kit shall be kept at the construction compound.
- Workers are to be made aware of the provisions of Section 120 of the POEO Act with regards to water pollution
- Notification to the EPA in accordance with Part 5.7 of the POEO Act is to be undertaken where a pollution incident occurs
- All construction vehicles and equipment are to be maintained in designated areas away from watercourses
- Construction vehicles shall be appropriately cleaned of any soil or mud prior to leaving each works site
- “Clean” stormwater shall be diverted around the site where possible
- All existing stormwater pits and drains subject to HY construction works will be silt protected with geo-fabric and/or granular socks. Drains will be monitored and maintained by HY
- Stockpiles to be established at HY approved locations
- Sediment fences shall be installed at required locations at the perimeter of the site
- Stormwater shall be diverted to retention basins
- The location and details of permanent controls shall be included on the Site Layout Plan
- Erosion and sediment controls shall be inspected as part of the Site HSE Inspection

Monitoring and report

Monitoring	Frequency	Person responsible	Record
Visual inspection of Site ESC controls and bordering street ESC to storm inlets	Weekly – After heavy rainfall events	Site Manager / HSE Coordinator.	HSE Inspection Checklist
Visual inspection of stabilised entry and exits – clean out regularly cattle grid	Weekly	Site Manager / HSE Coordinator.	HSE Inspection Checklist
Toolbox talks to include reminders about report heavy rainfall	After heavy rainfall events	Site Manager / HSE Coordinator.	Toolbox Records

5.2.6 Terrestrial Flora and Fauna

Likely Impacts

The majority of the land clearing was carried out prior to construction works. The site is located within a heavily disturbed and cleared area, consequently, it has been substantially cleared of habitat. Minimal risk of impacted Native fauna will result from these construction works.

Mitigation Strategies

- No vegetation removal or modification is to occur beyond the proposed works areas shown on the plans.
- Fireweed should be removed site prior to commencement of earth works
- Carry out landscaping in accordance with the landscape design
- Any areas of significant flora and fauna value which have been identified on the construction site will remain bunted/ flagged during construction.
- If any additional species are encountered the Site Manager shall arrange for works to be ceased in the area and contact the Superintendent for further directions. monitoring and report

5.2.7 Archaeology & Cultural Heritage

Likely Impacts

Most of the site clearing was carried out by others prior to construction works commencing (Under Development Consent SSD 10436). The site has been cleared of any habitat prior to commencement of bulk earthworks and in-ground services. There may be areas of minor disturbance and re-generation throughout the site.

No works are required outside of these disturbed areas. It is therefore unlikely that the proposed works would disturb any undisturbed Aboriginal objects or sites of historical relics as defined under the Heritage Act 1977.

Mitigation Strategies

- All workers (including contractors) should be made aware that it is illegal to harm an Aboriginal object or historic relics, and if a potential Aboriginal object or historic relic is encountered during activities, then all work at the site will cease and the Heritage NSW will be contacted to advise on the appropriate course of action to allow the record and collect the identified item(s).
- All workers (including contractors) should be inducted concerning Aboriginal cultural heritage values
- In the event that known or suspected Aboriginal skeletal remains are encountered during the activity, the following procedure will be followed:
    a. All work in the immediate vicinity will cease;
    b. The find will be immediately reported to the work supervisor who will immediately advise the environment manager or other nominated senior staff member;
    c. The environment manager or other nominated senior staff member will promptly notify the police and the state coroner (as required for all human remains discoveries);
    d. The environment manager or other nominated senior staff member will contact the OEH for advice on identification of the skeletal material as aboriginal and management of the material;

e. If the skeletal material is of aboriginal ancestral remains, the local aboriginal land council will be contacted, and consultative arrangements will be made to discuss ongoing care of the remains;

f. The project team will take all necessary measures to protect the artefacts from being damaged or destroyed; and

g. Works will not re-commence in the area until a written instruction from the superintendent is received.

5.2.8 Site Contamination

Contaminated Soil Risk Assessment

A risk assessment of contaminated soil shall be conducted at the start of the project in accordance with the following procedure for Contaminated Soil Assessment.

As soon as possible after possession of the site by HY, an assessment of actual or potential soil contamination and its impacts shall be undertaken using the Soil Contamination Assessment on BIM 360 Field.

The purpose of the assessment is to provoke whether HY should have an independent third party to provide recommendations or seek wider advice within the company so that the additional knowledge can reduce the risk profile of contaminated soil.

Projects which have the following criteria should fill in this form:

- Projects with a geotechnical report that nominates fill on bore logs
- Projects which do not have a geotechnical report but have a requirement for material to be exported off the site.

Identification of Contaminated Soil

During construction, it shall be necessary to monitor soil contamination levels (if any), dust levels and water runoff quality, to ensure that health and environmental standards are not compromised. This is especially important as contaminated soil may be excavated and transported around the site.

Upon discovery of contaminated soil, the HY Site Manager shall arrange for works to be ceased immediately in the area and contact the Superintendent for further directions.

Contaminated waste shall be collected, contained, stored, handled and disposed of in accordance with relevant legislation and codes of practice.

Risk of Exposure

It is important to minimise the risk of exposure of construction personnel to soil contaminants by adopting appropriate site controls and industrial hygiene practices. Site controls may include:

- Defining certain areas as contaminated and restricting access to them;
- Appropriate signage;
- Training construction employees in industrial hygiene procedures;
- Keeping non-essential motor vehicles such as personal cars out of contaminated areas;

- Regular medical checks of construction personnel who are exposed to contaminated soils;
- Keeping stockpiles of contaminated material watered down to minimise dust generation in accordance with any water restriction requirements and ensure that runoff is not generated from excessive watering;
- Covering truck loads with tarpaulins and watering material when loading and unloading;
- Wheel washes for trucks and vehicle leaving the contaminated areas;
- Regular road sweeping and cleaning;
- Dust monitoring and adjustment of construction programs to accommodate high risk periods when conditions are windy or very dry; and
- Monitoring of concentrations of volatiles.

Industrial hygiene practices may include:

- Wearing long sleeved shirts and trousers or overalls to minimise dermal exposure;
- Wearing gloves when handling soils;
- Washing hands and faces before eating, drinking or smoking;
- Leaving overalls at site for laundering;
- Showering and washing facilities; and
- Wearing respiratory equipment during times of high dust or volatile emissions.

Release of Contaminants to Soil and Groundwater

Water spraying of stockpiles and of soils being loaded and unloaded from trucks, covering of truck loads with tarpaulins and other measures described in the previous section would minimise the potential for dust to be generated.

If heavily contaminated soil is placed in contact with clean soils, contaminants could be mobilized by rainwater or chemical / physical reactions and affect the clean soils to a limited extent.

Similarly, there is a risk that contaminated soil is not clearly differentiated from clean soil and that mistakes could occur which cause the materials to be mixed or wrongly handled or disposed of.

This shall be overcome by implementing a material tracking system for all contaminated soils and ensuring that construction staff are trained how to use the system.

This shall involve documenting areas containing contaminated soil and putting signage near stockpiles that indicated the type of material present and its contamination status.

It shall also require supervision and documentation of all movements of contaminated materials around the site.

Avoiding contact between stormwater and contaminated soils is difficult to achieve if larger areas of a site are being exposed within a short period, because it does not allow for minimizing the amount of soil that is uncovered or placed in temporary stockpiles.

Therefore, it is necessary to manage stormwater in such a way that it does not mobilize contaminants and transfer them to clean areas.

This may be achieved by:

- Covering stockpiles of contaminated soil;
- Placing stockpiles of contaminated soil on bitumen or other sealed areas;
- Installation of adequate bunding or other approved method to contain runoff;
- Collecting stormwater run-off from stockpile areas; and
- Analytical testing of collected stormwater prior to its release.

Erosion and sediment control procedures in accordance with the relevant Code of Practice may also be applied, but with the additional objective of keeping water that is exposed to contaminated soils separate from water that has only come into contact with clean soils.

Groundwater could potentially be impacted by contaminants mobilized from stockpiled contaminated soil or by buried material.

Minimising runoff from stockpiles, as outlined above would reduce the risk to groundwater.

Land filling of contaminated material which is below the relevant criteria for soil contamination above the water table, and capping the landfill area with low permeability material would minimise the risk of groundwater contamination from infiltration of stormwater into buried soils.

Heavy Metal Contamination

Any suspicious industrial wastes encountered will be immediately isolated to enable these assumptions to be confirmed by analytical testing.

Mitigation Strategies

In the event that unexpected conditions are encountered during development work or between sampling locations which may pose a contamination risk, all works should stop and an environmental consultant shall be engaged to inspect the site and address the issue.

5.2.9 Waste Management

Waste Reduction

The main source of waste associated with the construction works would be demolished material (bricks, concrete, steel etc.) resulting from the demolition and refurbishment of existing buildings. It is likely that some excess building materials will be produced due to the construction work such as miscellaneous waste associated with packaging and transport of plant and equipment and various other manufactured items forming part of the augmentation works. Waste generated as a result of construction will be minimised, recycled, reused or recovered, where practical.

HY has accepted the challenge to reduce waste on construction projects, particularly in materials transferred to landfill.

The strategy for reducing the waste on the project will be made up of three strategies as detailed below in order of priority. The prime objective is to keep the amount of materials transferred to landfill from this project to the minimum possible amount.

1. Reduce the amount of waste material produced on the project by ensuring that only enough materials required to perform the works are ordered.
2. Any excess materials from particular work areas are to be retained and incorporated into other work areas where practical.
3. Encourage “just in time” delivery of construction materials (minimum storage on site) to reduce the potential of loss / waste due to damage prior to usage.

Waste Generation – Fill Material

The main source of waste to arise from the construction works would be excess spoil.

Non-Recyclable Waste

Non-recyclable waste will be disposed of at an EPA approved landfill or transfer station.

Waste Collection & Disposal

Appropriate waste bins are to be provided by HY and made available to all S/C.

All S/C shall be directed to place waste in the bins provided. This shall be included in the Site Induction.

Waste collection points are nominated on the Site Layout Plan.

Waste Reporting

Waste generation is monitored by HY on monthly basis to ensure that the company’s waste reduction objectives are achieved. Waste disposal quantities are monitored monthly by HY to ensure compliance.

The Project Administrator shall record waste disposal data on BIM 360 Field using the waste record checklist.

Waste quantities from the PMR shall be entered into the State HSE Database for analysis and reporting against HY Waste reduction targets.

Concrete Waste & Washout

Concrete trucks and pumps shall be washed out at designated locations as shown on the site layout plan. Washout of concrete pumps and concrete agitators in other areas will not be permitted.

Washout shall be captured using membranes or other suitable means and allowed to set.

Waste shall be placed in bins for disposal with site waste.

Excess concrete shall be returned to the concrete plant for disposal or re-use.

Mitigation Strategies

- Accurate written records are to be kept such as:
  - Who transported the waste (company name, ABN, vehicle registration and driver details, date and time of transport, description of waste)
  - Copies of waste dockets/receipts for the waste facility (date and time of delivery, name and address of the facility, it’s ABN, contact person).
- The construction contractor to ensure that waste generated by the works is transported to a place that can lawfully accept it as per Section 143 of the *Protection of the Environment Operations Act* 1997.
- The removal of any asbestos containing material if found is only to undertaken by an appropriately licenced contractor as per WorkCover NSW requirements and current guidelines.

- All waste, including excess spoil be recycled where practicable
- Trucks transporting spoil off site to be covered.
- The EPA is to be notified immediately of any pollution incidents or harm to the environment (as defined under Part 5.7 of the POEO Act).

Monitoring and report

Monitoring	Frequency	Person responsible	Record
Visual inspection of surface, loads, bins and portable toilets	Weekly	Site Manager / HSE Coordinator	HSE Inspection Checklist

5.2.10 Environmental Complaints

Complaints received regarding HY's Environmental Impacts or performance shall be recorded as Complaint in accordance with the HSE Incident Procedure. Actions to be taken to address the complaint.

All environmental complaints will be registered in BIM360 Field as an Environmental issue, identifying details of:

- Complainant
- Concerns raised
- Mitigation and resolution measures
- Objective evidence (e.g. Photos, documentation, reports, etc)

5.2.11 Fuel & Chemical Spills

Response to major fuel spills shall be implemented in accordance with the fuel spill procedure in the Emergency Response Plan. The requirements for storage of large fuel and chemical quantities are not expected for this project.

A spill kit shall be located adjacent to fuel and chemical storage and dispensing areas.

5.2.12 Hazardous Materials

Hazardous materials shall be controlled in accordance with Hazardous Materials procedure. This will be outlined in 6.4.2 environmental emergencies.

6 Measurement & Evaluation

6.1 Environmental Inspections & Audit

In addition to monitoring identified in this CEMP, the following inspections will also be undertaken:

- On a daily basis, site supervisory staff will inspect the Site and any issues arising will be noted in the daily diaries and communicated to the Project Manager. The inspections will be conducted visually prior to commencement of each day's work and where appropriate during the working day. A final daily inspection will also be undertaken at the end of the workday to ensure that systems and structures are in place.

- A Fortnightly site inspection will be conducted by the HSE coordinator or delegate. Checklists will be used to record and report on activities for compliance with this CEMP and specific issues presenting significant environmental risks will be addressed, such as noisy works, sediment erosion controls. Checklists may be edited to reflect changing site conditions. Where necessary, any damage or reduced capacity of environmental control measures will be corrected. If required, environmental control measures may be upgraded

Inspections & audits of the site including environmental controls shall be conducted in accordance with the procedure for Site HSE Inspections. The following inspections will be conducted onsite throughout the time on the project:

- Fortnightly site inspections,
- Monthly task observations,
- 3 monthly internal audits,

Internal audits will be conducted on all project activities as well as company nominated activities to provide a further review process for the effective management of this project and the management systems generally.

6.2 Non-conformance/corrective action report

If criteria within the EMP are not fulfilled and appropriate and corrective action is not taken a non-conformance may be raised by the environmental manager. Examples of circumstances where this may arise include:

• Receipt of a complaint regarding pollution or other environmental impacts caused by the project

• Departure from approved or agreed procedures

• Non-conformance identified as a consequence of any self-assessment, formal audit or other environmental survey or inspection

Corrective action may include changes to work instructions (frequency of testing, test method etc.), alterations, further staff training etc. Non-conformances should be reviewed by the environmental manager and form part of construction meeting agendas.

In addition, non-conformance/corrective action report can be issued to the contractor by the HY. It is the responsibility of the contractor to immediately initiate corrective actions and, once completed, provide details of the actions undertaken on the non-conformance/corrective action report and return it signed to the within an agreed timeframe. If the non-conformance is considered to breach legislative requirements, the breach should be reported to the appropriate public authority.

6.3 Environmental Incidents & Emergencies

6.3.1 Environmental Incidents

Incidents resulting in potential or actual environmental damage shall be reported and investigated in accordance with the HSE Incident Procedure and recorded on BIM360 using the HSE incident report

6.3.2 Environmental Emergencies

Preparation for and response to the environmental impacts of emergency events shall be conducted in accordance with the project Emergency Response Plan. The environmental impacts controlled in ERP are;

Asbestos Exposure

In the event that during works, personnel become accidentally exposed to asbestos, the following procedures shall be followed:

1. Personnel in the immediate affected area shall cease work and immediately go to the emergency showers on site.
2. All contaminated clothing is to be removed and placed into a thick plastic bag. The plastic bag must then be tightly sealed and labelled as "Asbestos Contaminated Clothing".
3. Personnel are to immediately decontaminate themselves in a shower and a clean set of clothes to be re-issued.
4. Asbestos contaminated clothing is to be industrially cleaned or disposed of appropriately

Water Pollution

An incident involving actual or potential harm to human or environmental health must be reported immediately to the EPA.

Firstly, call 000 if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.

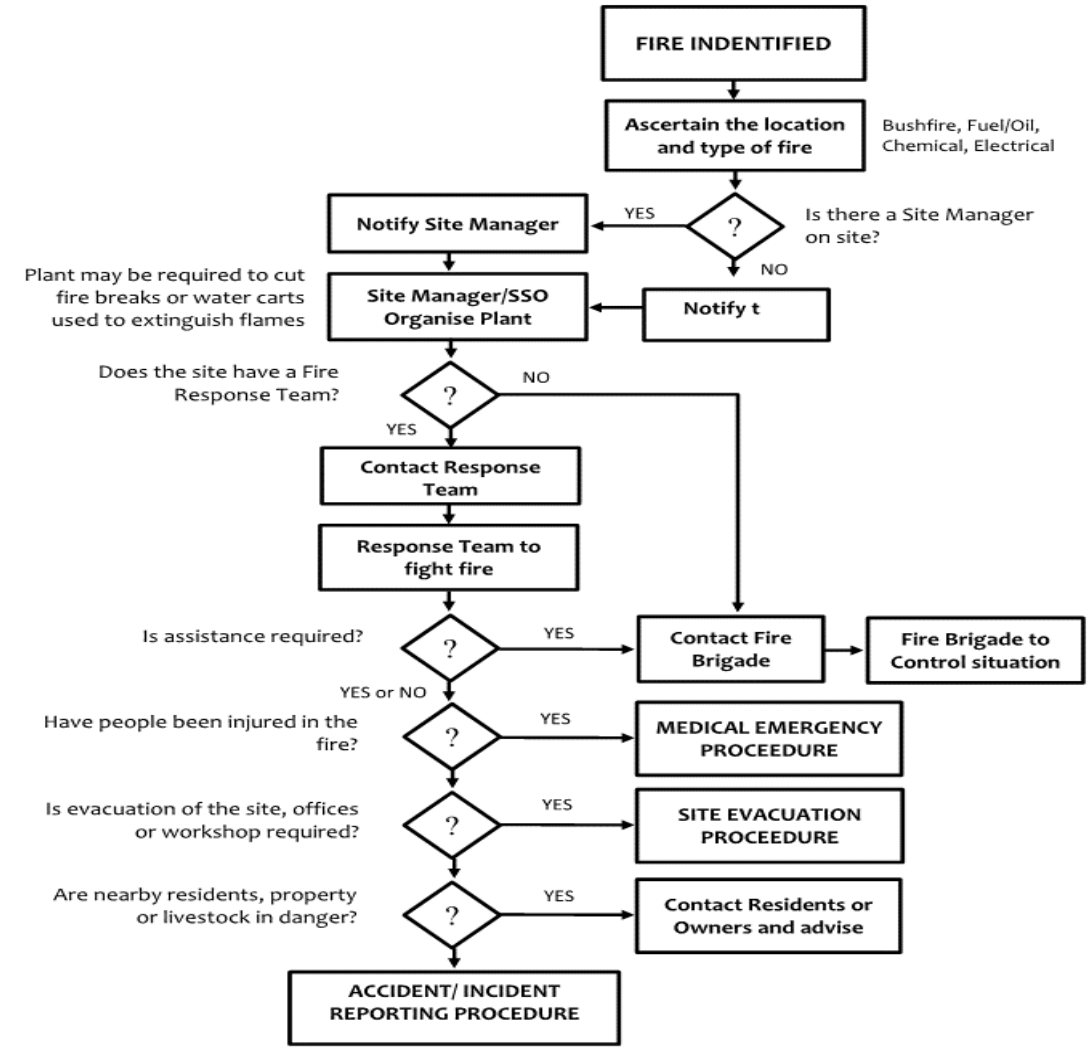
If the incident does not require an initial combat agency, or once the 000 call has been made, notify the HY Site Manager who will notify the relevant authorities in the following order. The 24-hour hotline for each authority is given when available:

EPA Environment Line on 131 555

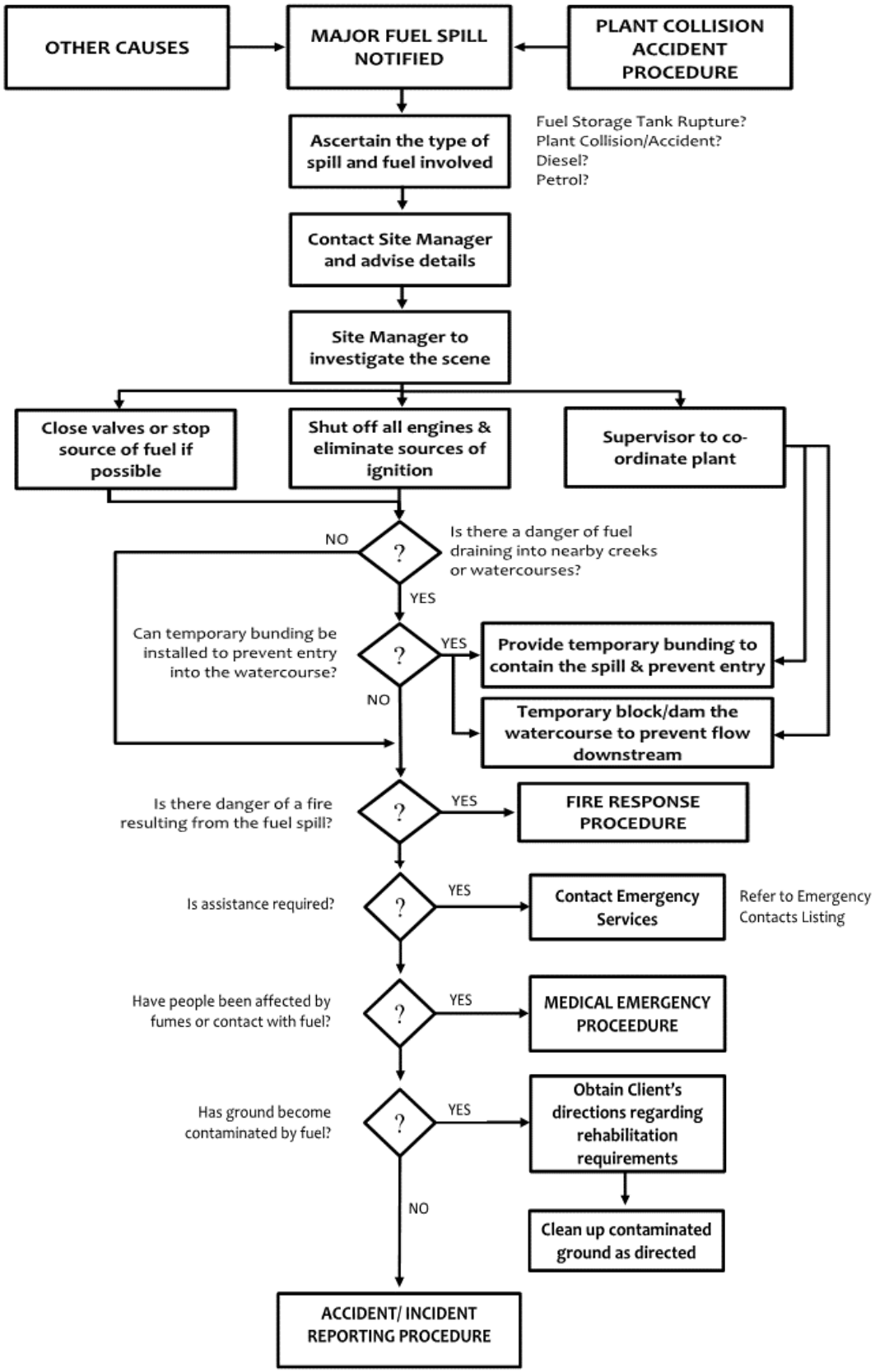
Safework NSW Authority – phone 13 10 50 (Where appropriate)

Fairfield City Council Telephone (02) 9725 0222

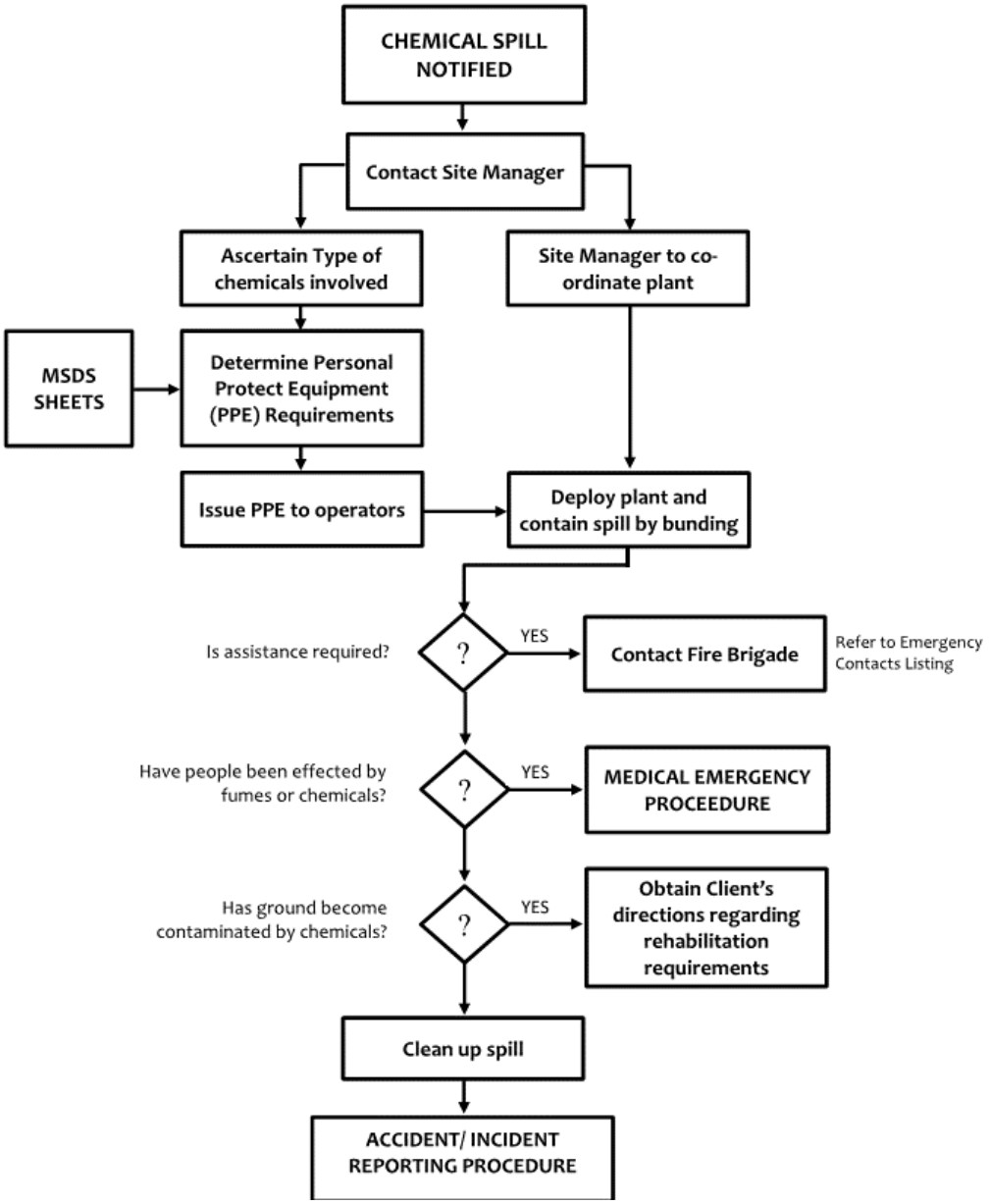
Fire


FIRE INDENTIFIED
Ascertain the location and type of fire
Bushfire, Fuel/Oil, Chemical, Electrical
Notify Site Manager
YES
?
Is there a Site Manager on site?
NO
Plant may be required to cut fire breaks or water carts used to extinguish flames
Site Manager/SSO Organise Plant
Notify t
Does the site have a Fire Response Team?
?
NO
YES
Contact Response Team
Response Team to fight fire
Is assistance required?
?
YES
Contact Fire Brigade
Fire Brigade to Control situation
YES or NO
Have people been injured in the fire?
?
YES
MEDICAL EMERGENCY PROCEEDURE
Is evacuation of the site, offices or workshop required?
?
YES
SITE EVACUATION PROCEEDURE
Are nearby residents, property or livestock in danger?
?
YES
Contact Residents or Owners and advise
ACCIDENT/ INCIDENT REPORTING PROCEDURE

Major Fuel Spill



Chemical Spill



7 References

7.1 Key Environmental Legislation and Regulations.

State/Region	Principal Legislation	Authority
New South Wales	Section 120 of the POEO Act	Environmental Protection Authority
New South Wales	Noxious Weed Act 1993	
New South Wales	Environmental Planning and Assessment Act 1979	NSW Government
New South Wales	Protection of the Environment Operations Act 1997	Environment Protection Authority

8 Appendices

8.1 Hansen Yuncken Environmental Policy Statement

HANSENYUNCKEN

ENVIRONMENT POLICY

Hansen Yuncken Pty Ltd is committed to providing a high quality environment in the building and construction industry, which meets the requirements and expectations of Clients, Statutory Authorities, Employees and Community Groups.

Hansen Yuncken recognises that impacts on the environment in the building and construction industry relate not only to the process of construction but also to the design and subsequent use of the buildings constructed. Hansen Yuncken affirms its commitment to applying sustainable development principles to all facets of the building and construction process and to continually improve our performance in minimising the impact on, and pollution of, the environment during the construction process.

In achieving this Hansen Yuncken is committed to the implementation, maintenance and improvement of a Management System meeting the requirements of Australian and International Standard AS/NZS ISO 14001.

The National Executive Committee shall review Environmental objectives and set performance targets each year. State Managers, through their line management structure, are accountable for ensuring all employees and subcontractors achieve these objectives and targets.

The Company's Environmental performance shall be monitored against established performance targets and the results reported to the Board of Directors on the regular basis.

Hansen Yuncken affirm that they have a legal obligation to comply with relevant Environmental legislation, standards and codes of practice as the minimum level of performance and a professional obligation to acknowledge the views of Environmental and Community Groups.

Hansen Yuncken acknowledges that environmental excellence can only be achieved and maintained by a clear unequivocal direction of all levels of management, stimulating a participative atmosphere and sense of pride in our environmental achievements by all employees and trade contractors, and through recognition by concerned groups in obtaining this.

Peter Salveson
Chief Executive Officer
May 2018

Page 1 of 1

8.2 Environmental Management Accreditation

CERTIFICATE OF REGISTRATION

Hansen Yuncken Pty Ltd

SCP, Building 1, Level 3, 75-85 O'Riordan Street, Alexandria NSW 2015 Australia
Suite 12, 125 Bull Street, Newcastle West NSW 2302 Australia
and transient sites
ABN 38 063 384 056

complies with the requirements of

ISO 9001:2015
Quality Management Systems – Requirements
and
ISO 14001:2015
Environmental Management Systems – Requirements with guidance for use

for the following capability:

This registration covers the Quality and Environmental Management Systems for the provision of project management and the design and construction of commercial, industrial and institutional buildings and civil engineering works.

Registered by:
Quality Control Services (Environmental) Pty Ltd
ABN 85 102 935 195
10 Rosina Street Woodcroft South Australia 5162 Australia

This certificate is subject to the Terms and Conditions for Certification, and relevant program rules. Currency of certification can be validated at www.qcse.com.au/certified-register, and www.jas-anz.org/our-directory/certified-organisations; it remains the property of QCSE Pty Ltd and must be returned upon request.

Certificate Number: 160052022
Issue Date: 26 February 2019

Original Certification: 23 February 2010
Expiry Date: 22 February 2022

Cheryl Stone
Certification Manager

QMS/EMS Certified Company
Licence Number: Q0160

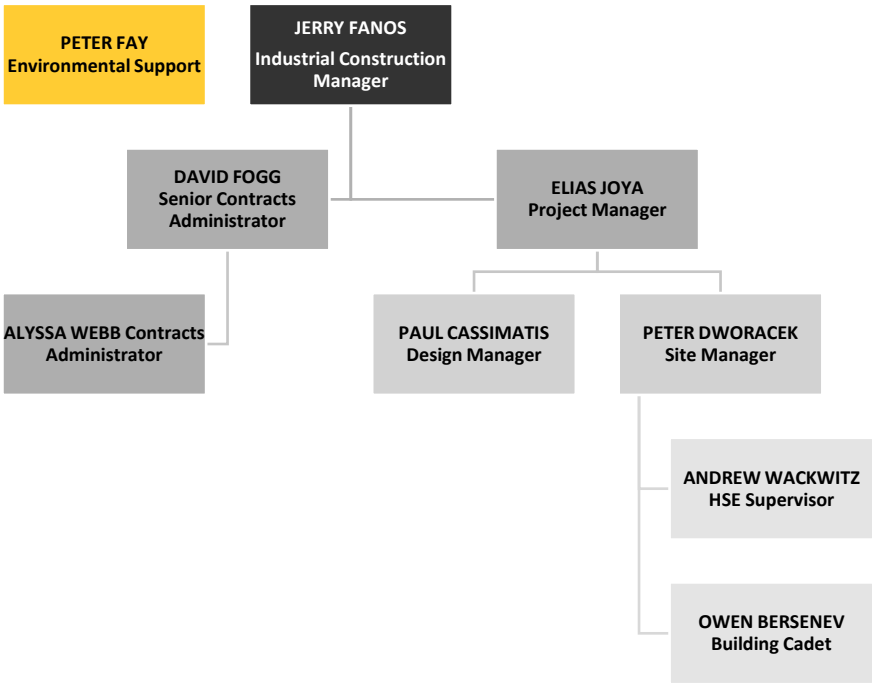
QMS 010

www.jas-anz.org/register

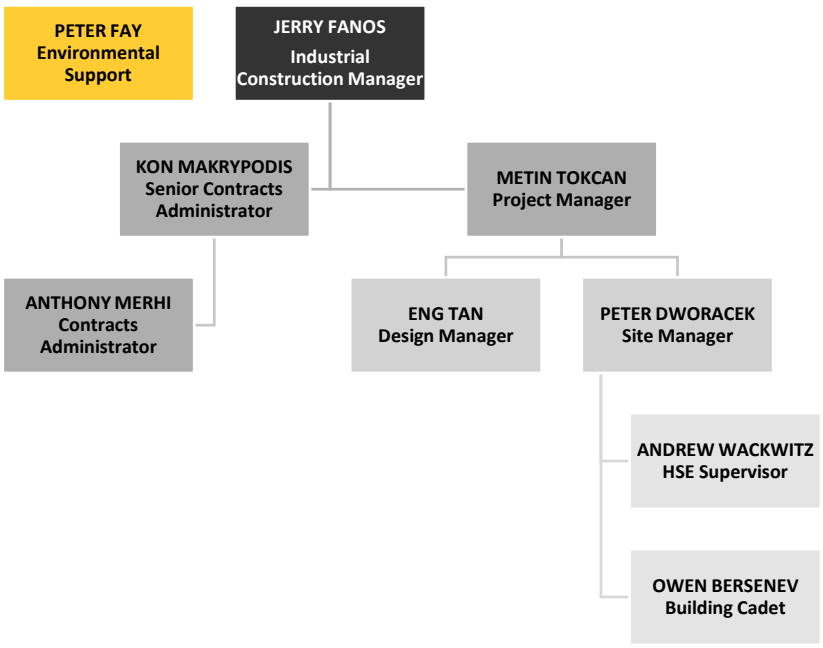
8.3 Site Management Organisational Chart

Arrows Depict usual chain of command and lines of communication

ESR LOT 201



ESR LOT 204



8.4 Landscape Management Plan

06.05.2021
DC001

SITE IMAGE
Landscape Architects

DESIGN CERTIFICATION

ATTENTION:	**Paul Cassimatis**
COMPANY:	**Hansen Yuncken Pty Ltd**
PROJECT:	**Lot 201, Horsley Logistics Park**
PROJECT NO:	**SS20-4538**
DA No:	**SSD-10436**

Dear Paul,

The drawings provided meet Item B1 of the DA consent dated 31st March 2021.

Relevant Landscape Documents

Document	Issue
SI-LA-201-000	02
SI-LA-201-101	01
SI-LA-201-102	01
SI-LA-201-103	02
SI-LA-201-104	02
SI-LA-201-105	01
SI-LA-201-501	01

Please do not hesitate to contact the undersigned should you have any further queries.

Kind regards,
Site Image (NSW) Pty Ltd

Nick Metcalf
BLArch Dip Hort
Director

06.05.2021
DC001

SITE IMAGE
Landscape Architects

DESIGN CERTIFICATION

ATTENTION:	**Paul Cassimatis**
COMPANY:	**Hansen Yuncken Pty Ltd**
PROJECT:	**Lot 204, Horsley Logistics Park**
PROJECT NO:	**SS20-4538**
DA No:	**SSD-10436**

Dear Paul,

The drawings provided meet Item B1 of the DA consent dated 31st March 2021.

Relevant Landscape Documents

Document	Issue
SI-LA-204-000	01
SI-LA-204-101	01
SI-LA-204-102	01
SI-LA-204-103	01
SI-LA-204-104	01
SI-LA-204-501	01

Please do not hesitate to contact the undersigned should you have any further queries.

Kind regards,
Site Image (NSW) Pty Ltd

Nick Metcalf
BLArch Dip Hort
Director

Lot 201,Horsley Logistics Park
Horsley Park, NSW 2175

Landscape Construction Certificate

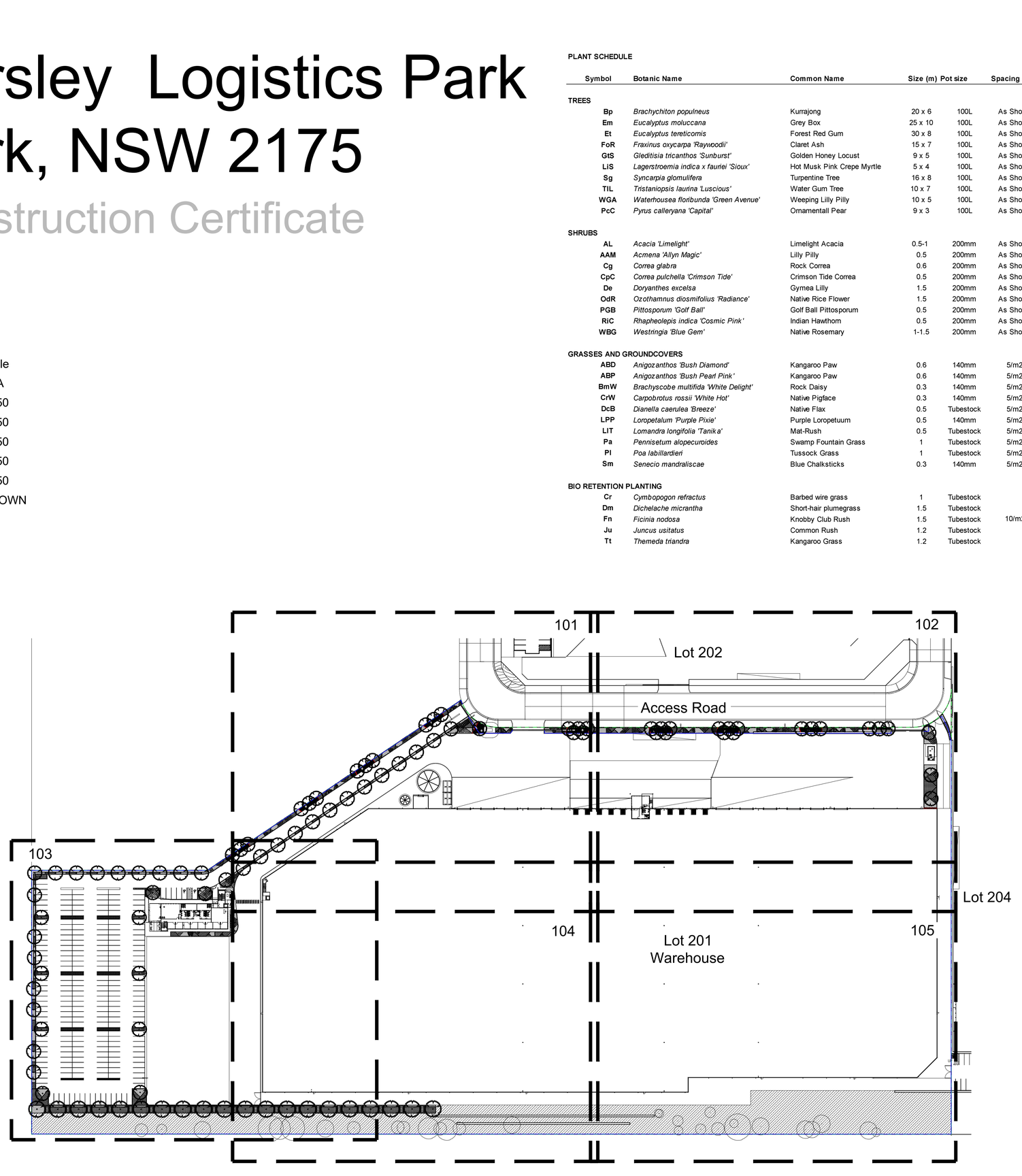
Drawing Schedule

Drawing Number	Drawing Title	Scale
SI-LA-201-000	Landscape Coversheet	N/A
SI-LA-201-101	Landscape Plan	1:250
SI-LA-201-102	Landscape Plan	1:250
SI-LA-201-103	Landscape Plan	1:250
SI-LA-201-104	Landscape Plan	1:250
SI-LA-201-105	Landscape Plan	1:250
SI-LA-201-501	Landscape Details	AS SHOWN

PLANT SCHEDULE

Symbol	Botanic Name	Common Name	Size (m)	Pot size	Spacing	Quantity
TREES						
Bp	*Brachychiton populneus*	Kurrajong	20 x 6	100L	As Shown	19
Em	*Eucalyptus moluccana*	Grey Box	25 x 10	100L	As Shown	12
Et	*Eucalyptus tereticornis*	Forest Red Gum	30 x 8	100L	As Shown	10
FoR	*Fraxinus oxycarpa 'Raywoodii'*	Claret Ash	15 x 7	100L	As Shown	15
GtS	*Gleditisia tricanthos 'Sunburst'*	Golden Honey Locust	9 x 5	100L	As Shown	3
LiS	*Lagerstroemia indica x fauriei 'Sioux'*	Hot Musk Pink Crepe Myrtle	5 x 4	100L	As Shown	2
Sg	*Syncarpia glomulifera*	Turpentine Tree	16 x 8	100L	As Shown	6
TIL	*Tristaniopsis laurina 'Luscious'*	Water Gum Tree	10 x 7	100L	As Shown	13
WGA	*Waterhousea floribunda 'Green Avenue'*	Weeping Lilly Pilly	10 x 5	100L	As Shown	15
PcC	*Pyrus calleryana 'Capital'*	Ornamentall Pear	9 x 3	100L	As Shown	2
SHRUBS						
AL	*Acacia 'Limelight'*	Limelight Acacia	0.5-1	200mm	As Shown	26
AAM	*Acmena 'Allyn Magic'*	Lilly Pilly	0.5	200mm	As Shown	119
Cg	*Correa glabra*	Rock Correa	0.6	200mm	As Shown	109
CpC	*Correa pulchella 'Crimson Tide'*	Crimson Tide Correa	0.5	200mm	As Shown	119
De	*Doryanthes excelsa*	Gymea Lilly	1.5	200mm	As Shown	65
OdR	*Ozothamnus diosmifolius 'Radiance'*	Native Rice Flower	1.5	200mm	As Shown	111
PGB	*Pittosporum 'Golf Ball'*	Golf Ball Pittosporum	0.5	200mm	As Shown	49
RiC	*Rhapheolepis indica 'Cosmic Pink'*	Indian Hawthorn	0.5	200mm	As Shown	99
WBG	*Westringia 'Blue Gem'*	Native Rosemary	1-1.5	200mm	As Shown	328
GRASSES AND GROUNDCOVERS						
ABD	*Anigozanthos 'Bush Diamond'*	Kangaroo Paw	0.6	140mm	5/m2	313
ABP	*Anigozanthos 'Bush Pearl Pink'*	Kangaroo Paw	0.6	140mm	5/m2	206
BmW	*Brachyscobe multifida 'White Delight'*	Rock Daisy	0.3	140mm	5/m2	108
CrW	*Carpobrotus rossii 'White Hot'*	Native Pigface	0.3	140mm	5/m2	449
DcB	*Dianella caerulea 'Breeze'*	Native Flax	0.5	Tubestock	5/m2	1367
LPP	*Loropetalum 'Purple Pixie'*	Purple Loropetuum	0.5	140mm	5/m2	251
LIT	*Lomandra longifolia 'Tanika'*	Mat-Rush	0.5	Tubestock	5/m2	1057
Pa	*Pennisetum alopecuroides*	Swamp Fountain Grass	1	Tubestock	5/m2	1923
Pl	*Poa labillardieri*	Tussock Grass	1	Tubestock	5/m2	2473
Sm	*Senecio mandraliscae*	Blue Chalksticks	0.3	140mm	5/m2	566
BIO RETENTION PLANTING						
Cr	*Cymbopogon refractus*	Barbed wire grass	1	Tubestock		206
Dm	*Dichelache micrantha*	Short-hair plumegrass	1.5	Tubestock		206
Fn	*Ficinia nodosa*	Knobby Club Rush	1.5	Tubestock	10/m2	206
Ju	*Juncus usitatus*	Common Rush	1.2	Tubestock		206
Tt	*Themeda triandra*	Kangaroo Grass	1.2	Tubestock		206

Issue	Revision Description	Drawn	Check	Date
02	Minor Landscape Amendments	JW	NM	07.05.21
01	For Comment	JW	NM	28.04.21



Site Plan | 1:1000

NOT FOR CONSTRUCTION

A1

Client:
ESR

Project:
Lot 201, Horsley Park NSW 2175

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Redfern NSW 2016
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Fax: (61 2) 9698 2877
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Landscape Architects

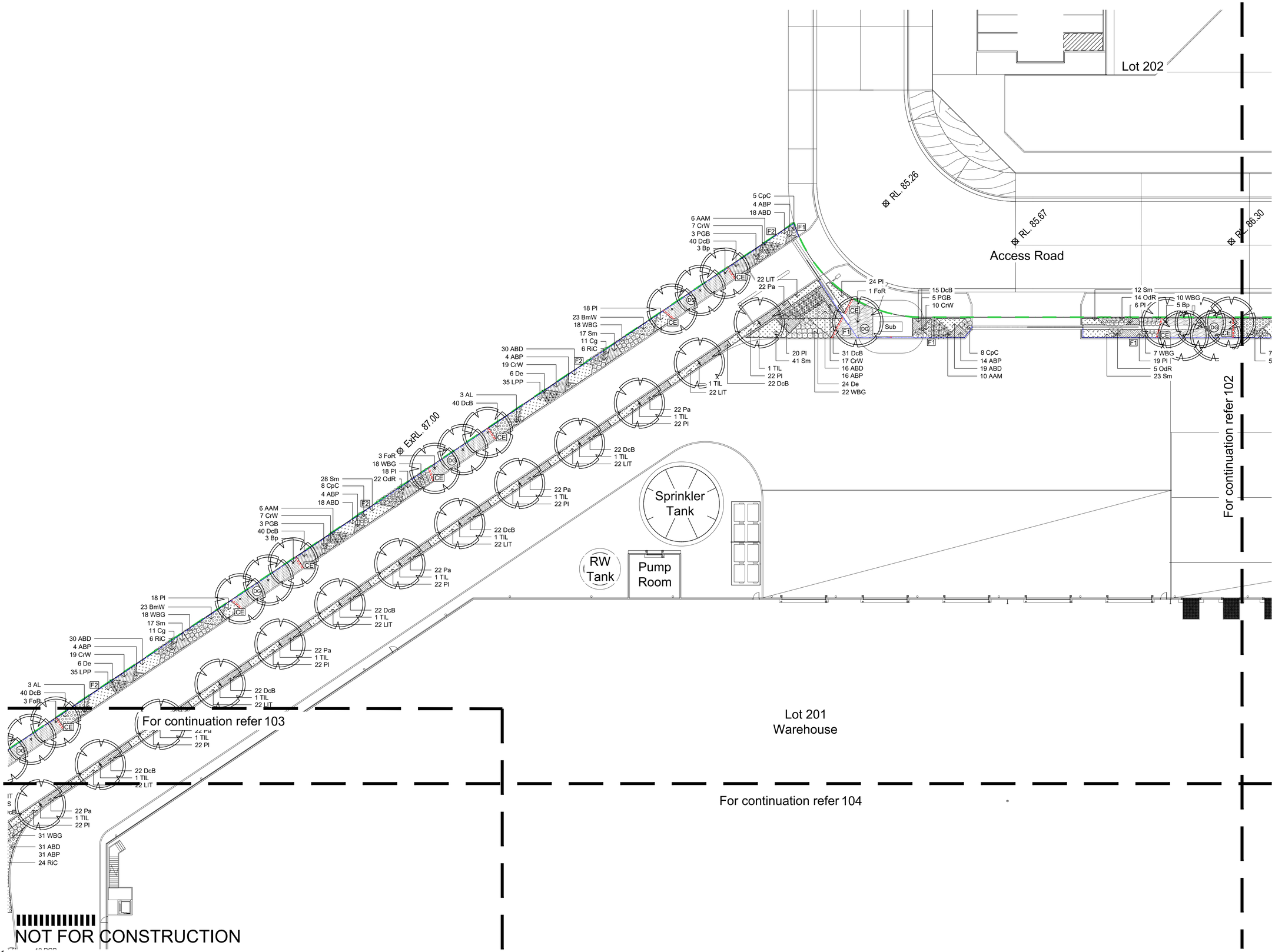
CONSTRUCTION CERTIFICATE

Drawing Name:
Landscape Coversheet

Scale:

Job Number:	Drawing Number:	Issue:
SS20-4538	SI-LA-201-000	02

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.



NOT FOR CONSTRUCTION

A1

Issue	Revision Description	Drawn	Check	Date
01	For Comment	JW	NM	28.04.21

LEGEND

- Property Boundary
- Proposed Trees
- Proposed Shrubs and Accents
- Proposed Grasses and Groundcovers
- Bioretention Planting Matrix
- CE — Concrete Edge
- DG — Decomposed Granite Paving
- Landscape Buffer Managed by Others
- CS — Concrete Strip
- F1 — Fence Type 1: Metal Picket Fence
- F2 — Fence Type 2: Chain Wire Fence

Key Plan:

Client:
ESR

Project:
Lot 201, Horsley Park NSW 2175

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Landscape Architects

CONSTRUCTION CERTIFICATE

Drawing Name:
Landscape Plan

Scale: 1:250 @ A1
0 1 2 4 6 10m

Job Number: SS20-4538
Drawing Number: SI-LA-201-101
Issue: 01

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Lot 202

RL. 86.30

RL. 87.28

RL. 87.58

RL. 87.78

RL. 87.93

RL. 88.04

Access Road

51 LPP
10 De
19 CrW
31 ABP
7 AL
53 DcB
30 Sm
9 RiC
14 Cg
36 ABD
33 Pl
23 BmW
31 WBG
10 CrW
10 AAM
19 ABD
15 ABP
9 CpC
5 PGB
53 DcB
5 FoR
21 WBG
33 Pl
22 OdB
47 Sm
7 AL
53 DcB
5 Bp
45 LPP
7 De
19 CrW
6 ABP
19 Sm
9 RiC
11 Cg
32 ABD
8 CrW
7 AAM
19 ABD
6 ABP
9 CpC
21 Pl
23 BmW
21 WBG
Retaining Wall
5 PGB
43 DcB
3 FoR
10 Pl
22 OdR
32 Sm
10 WBG
3 Bp
53 Sm
14 ABP
24 ABD
20 Cg
19 CpC
35 LPP
31 LIT
35 Pa
1 GtS
15 Pl
108 CrW
16 CpC
16 PGB
1 LiS
66 DcB
171 Pa
66 Pl
1 LiS
16 RiC
16 OdR
96 LIT

CE DG CS F1 F2

For continuation refer 101

Lot 201
Warehouse

Fire Road For Emergency Access Only

For continuation refer 105

NOT FOR CONSTRUCTION

A1

Issue	Revision Description	Drawn	Check	Date
01	For Comment	JW	NM	28.04.21

LEGEND

- Property Boundary
- Proposed Trees
- Proposed Shrubs and Accents
- Proposed Grasses and Groundcovers
- Bioretention Planting Matrix
- Concrete Edge (CE)
- Decomposed Granite Paving (DG)
- Landscape Buffer Managed by Others
- Concrete Strip (CS)
- Fence Type 1: Metal Picket Fence (F1)
- Fence Type 2: Chain Wire Fence (F2)

Key Plan:

Client:
ESR

Project:
Lot 201, Horsley Park NSW 2175

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CONSTRUCTION CERTIFICATE

Drawing Name:
Landscape Plan

Scale: 1:250 @ A1
0 1 2 4 6 10m

Job Number: SS20-4538
Drawing Number: SI-LA-201-102
Issue: 01

Issue	Revision Description	Drawn	Check	Date
02	Minor Landscape Amendments	JW	NM	07.05.21
01	For Comment	JW	NM	28.04.21

LEGEND

- Property Boundary
- Proposed Trees
- Proposed Shrubs and Accents
- Proposed Grasses and Groundcovers
- Bioretention Planting Matrix
- CE — Concrete Edge
- DG — Decomposed Granite Paving
- Landscape Buffer Managed by Others
- CS — Concrete Strip
- F1 — Fence Type 1: Metal Picket Fence
- F2 — Fence Type 2: Chain Wire Fence

Key Plan:

Client:
ESR

Project:
Lot 201, Horsley Park NSW 2175

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CONSTRUCTION CERTIFICATE

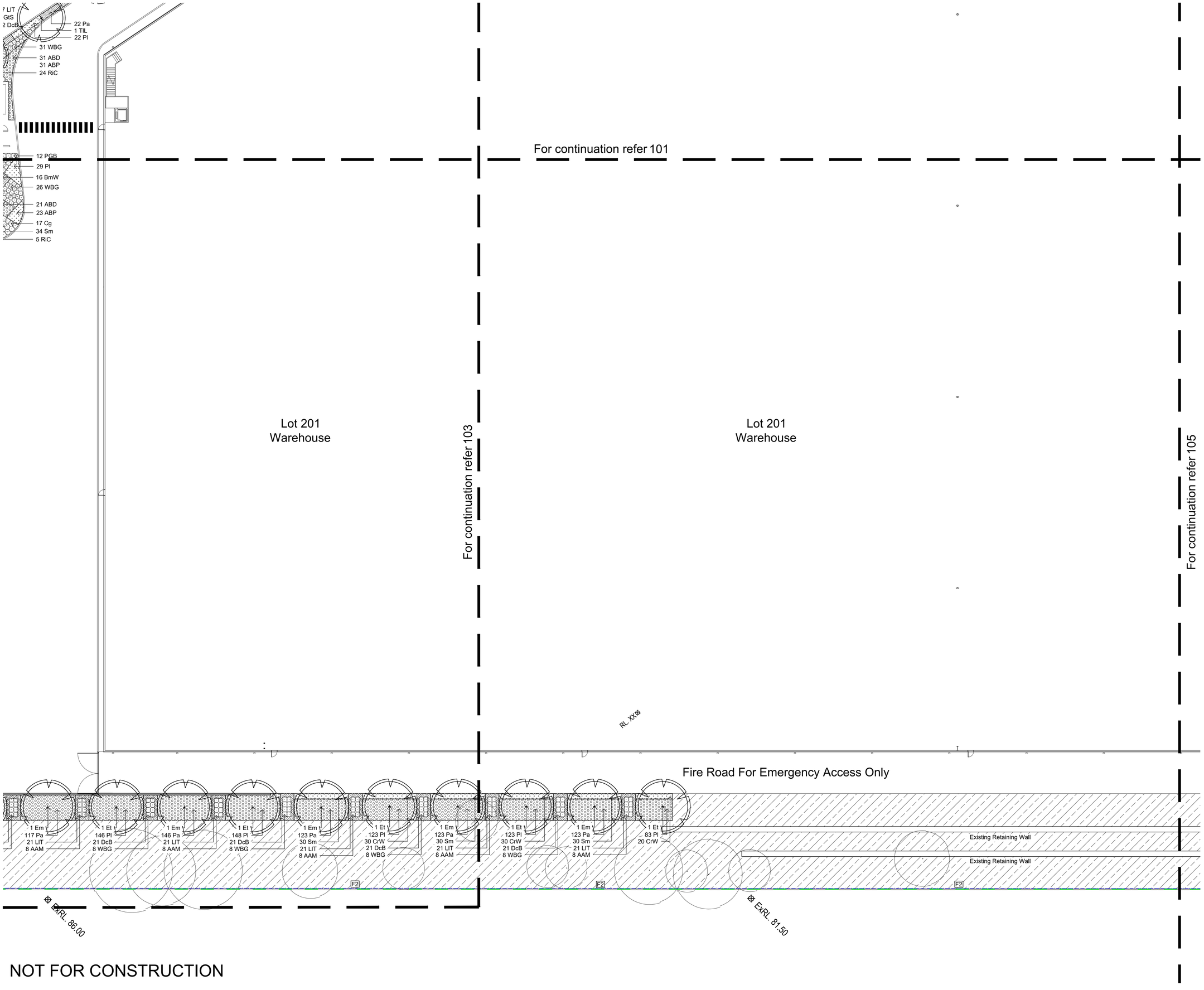
Drawing Name:
Landscape Plan

Scale: 1:250 @ A1 (0 1 2 4 6 10m)

Job Number:	Drawing Number:	Issue:
SS20-4538	SI-LA-201-103	02

NOT FOR CONSTRUCTION

A1



NOT FOR CONSTRUCTION

A1

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Issue	Revision Description	Drawn	Check	Date
02	Minor Landscape Amendments	JW	NM	07.05.21
01	For Comment	JW	NM	28.04.21

LEGEND

- Property Boundary
- Proposed Trees
- Proposed Shrubs and Accents
- Proposed Grasses and Groundcovers
- Bioretention Planting Matrix
- Concrete Edge (CE)
- Decomposed Granite Paving (DG)
- Landscape Buffer Managed by Others
- Concrete Strip (CS)
- Fence Type 1: Metal Picket Fence (F1)
- Fence Type 2: Chain Wire Fence (F2)

Key Plan:

Client:
ESR

Project:
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CONSTRUCTION CERTIFICATE

Drawing Name:
Landscape Plan

Scale: 1:250 @ A1
0 1 2 4 6 10m

Job Number: SS20-4538
Drawing Number: SI-LA-201-104
Issue: 02

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

For continuation refer 102

For continuation refer 104

FFL 86.70 +/-500mm

PAD LEVEL @RL 86.50

Lot 201
Warehouse

Fire Road For Emergency Access Only

UP

Retaining Wall

Existing Retaining Wall

Existing Retaining Wall

EXRL 82.00

F2

Issue	Revision Description	Drawn	Check	Date
01	For Comment	JW	NM	28.04.21

LEGEND

- Property Boundary
- Proposed Trees
- Proposed Shrubs and Accents
- Proposed Grasses and Groundcovers
- Bioretention Planting Matrix
- CE — Concrete Edge
- DG — Decomposed Granite Paving
- Landscape Buffer Managed by Others
- CS — Concrete Strip
- F1 — Fence Type 1: Metal Picket Fence
- F2 — Fence Type 2: Chain Wire Fence

Key Plan:

Client:
ESR

Project:
Lot 201, Horsley Park NSW 2175

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CONSTRUCTION CERTIFICATE

Drawing Name:
Landscape Plan

Scale: 1:250 @ A1 (0 1 2 4 6 10m)

Job Number:	Drawing Number:	Issue:
SS20-4538	SI-LA-201-105	01

NOT FOR CONSTRUCTION

A1

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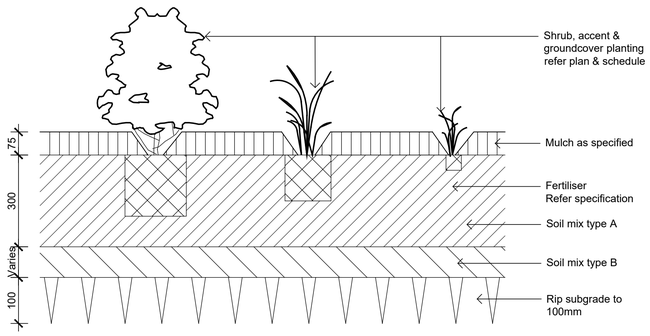
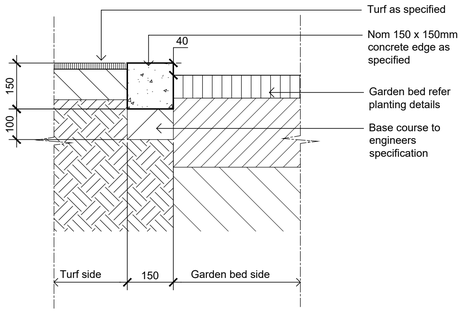
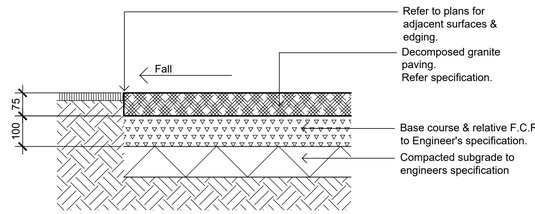


01 Shrub & Groundcover Planting on Grade
1:10

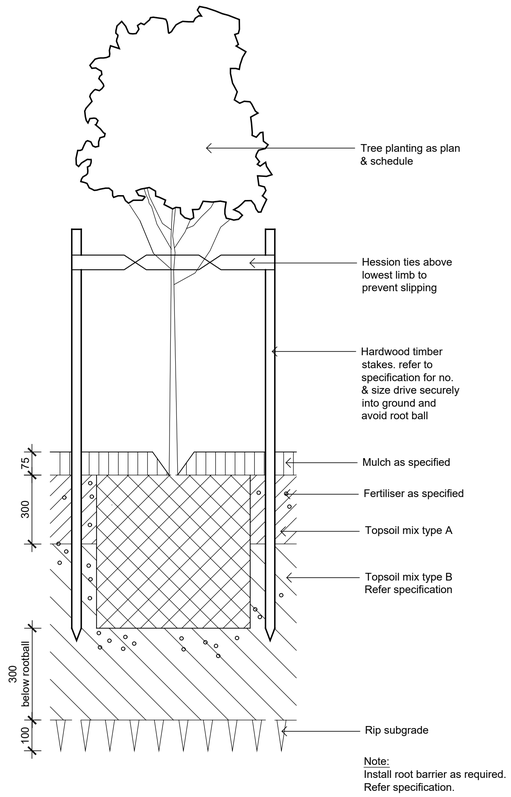


03 CE - Typical Concrete Edge
1:10

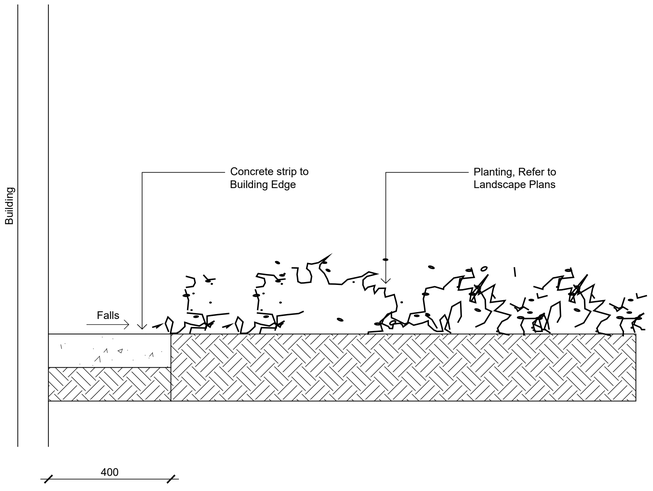


04 DG - Decomposed Granite Paving on Grade
1:10

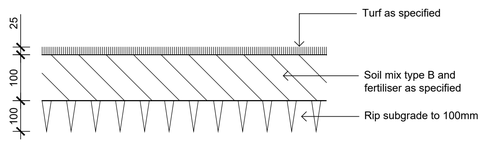
Issue	Revision Description	Drawn	Check	Date
01	For Comment	JW	NM	28.04.21



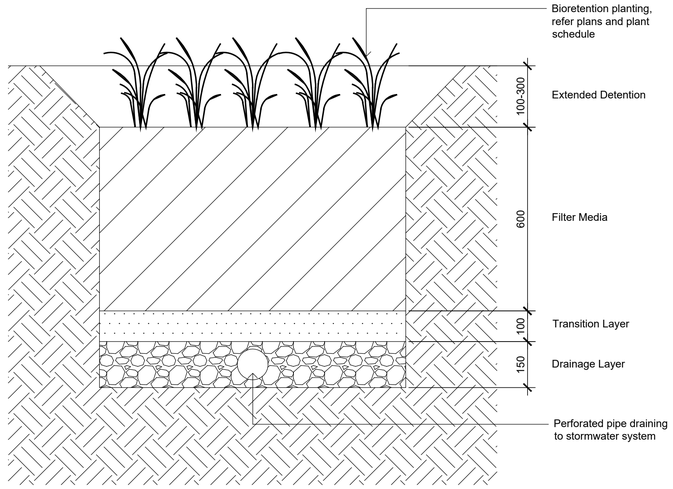
02 Detail 75-200L Tree Planting on Grade
1:10



05 CS - Detail Concrete Strip to Building Edge
1:10



06 Detail Turf on Even Grade
1:10



07 Typical Bioretention Planting
1:10

NOT FOR CONSTRUCTION

A1

Client:
ESR

Project:
Lot 201, Horsley Park NSW 2175

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CONSTRUCTION CERTIFICATE

Drawing Name:
Landscape Details

Scale: As Shown

Job Number:	Drawing Number:	Issue:
SS20-4538	SI-LA-201-501	01

Lot 204, Horsley Logistics Park, Horsley Park, NSW 2175

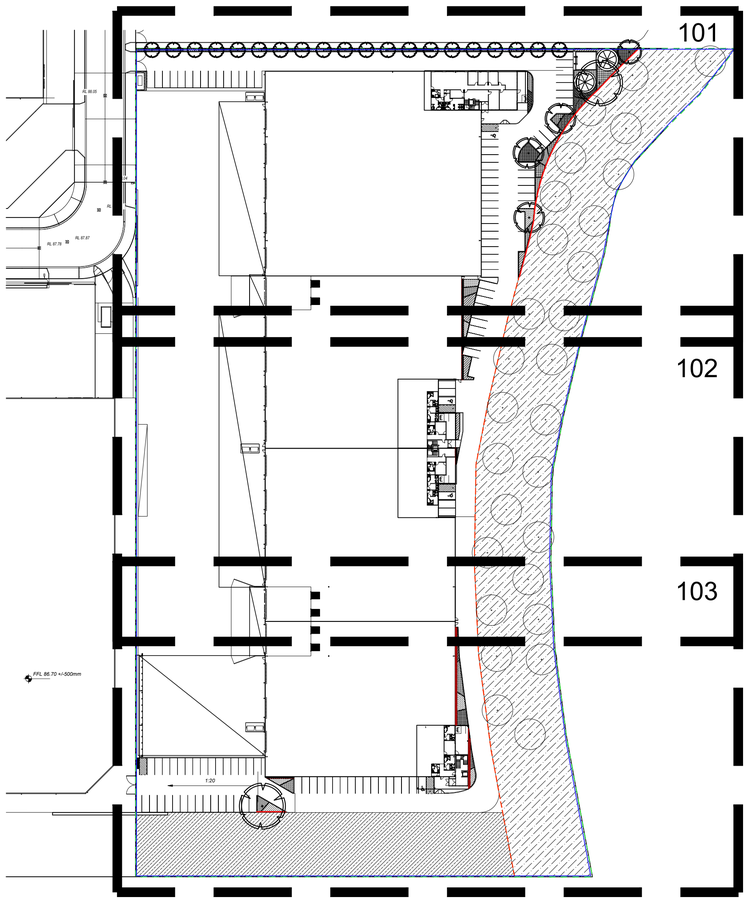
Landscape Construction Certificate

DRAWINGS

DWG NO.	DRAWING TITLE	SCALE
SI-LA-204-000	COVER SHEET	
SI-LA-204-101	LANDSCAPE PLAN	1:250
SI-LA-204-102	LANDSCAPE PLAN	1:250
SI-LA-204-103	LANDSCAPE PLAN	1:250
SI-LA-204-501	LANDSCAPE DETAILS	AS SHOWN

PLANT SCHEDULE

Symbol	Botanic Name	Common Name	Size (m)	Pot size	Spacing	Quantity
TREES						
Et	*Eucalyptus tereticornis*	Forest Red Gum	30 x 5	100L	As Shown	1
Sg	*Syncarpia glomulifera*	Turpentine Tree	16 x 8	100L	As Shown	3
TIL	*Tristaniopsis laurina 'Luscious'*	Water Gum Tree	9 x 7	100L	As Shown	3
WGA	*Waterhousea floribunda 'Green Avenue'*	Weeping Lilly Pilly	10 x 5	100L	As Shown	15
GRASSES AND GROUNDCOVERS						
DcB	*Dianella caerulea 'Breeze'*	Native Flax	0.5 x 0.6	Tubestock	5/m2	516
Dl	*Dianella longifolia var. longifolia*	Blueberry Lily	1.3 x 1	Tubestock	5/m2	105
Lf	*Lomandra filiformis subsp. Filiformis*	Wattle Mat-rush	0.5 x 0.3	Tubestock	5/m2	430
Lm	*Lomandra multiflora subsp. Multiflora*	Mat-rush	0.5 x 0.3	Tubestock	5/m2	121
Ms	*Microleana stipoides var. stipoides*	Weeping Grass	0.6 x 0.3	Tubestock	5/m2	141
Ta	*Themeda australis*	Kangaroo Grass	1.5 x 0.5	Tubestock	5/m2	277
Pa	*Pennisetum alopecuroides*	Swamp Fountain Grass	1 x 1.5	Tubestock	5/m2	147
Pl	*Poa labillardieri*	Tussock Grass	0.5 x 0.4	Tubestock	5/m2	147
LT	*Lomandra longifolia 'Tanika'*	Mat-rush	0.5 x 0.5	Tubestock	5/m2	429



Scale 1:1000

NOT FOR CONSTRUCTION

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LEGEND

Issue	Revision Description	Drawn	Check	Date
01	Construction Certificate	JW	NM	28.04.2021

A1

Key Plan:

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Client:
ESR

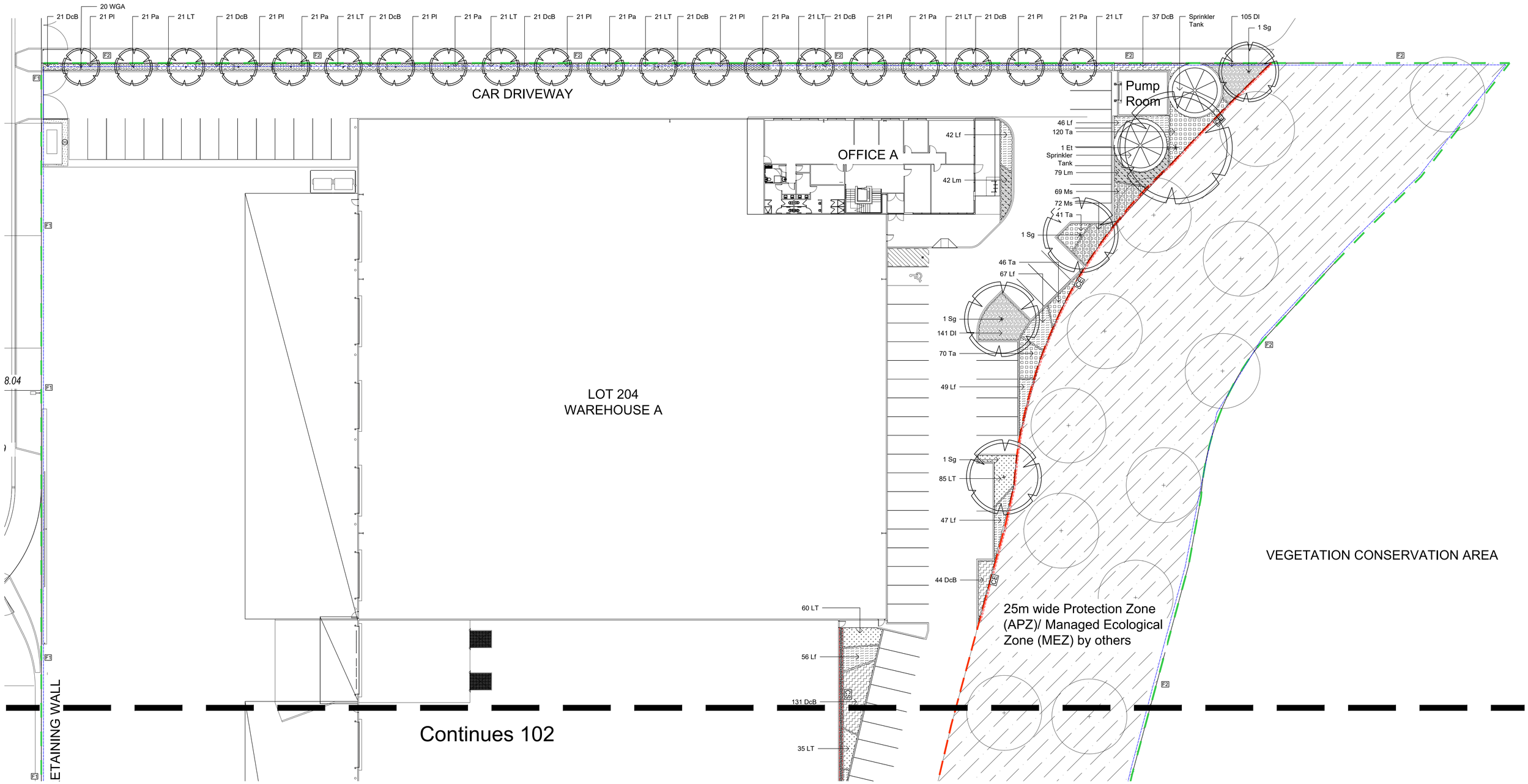
Project:
Lot 204, Horsley Logistics Park, NSW 2175

Drawing Name:
Cover Sheet

CONSTRUCTION CERTIFICATE

Scale:

Job Number:	Drawing Number:	Issue:
SS20-4538	SI-LA-204-000	01



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Issue	Revision Description	Drawn	Check	Date
01	Construction Certificate	JW	NM	28.04.2021

A1

LEGEND

- Property Boundary
- Extent of APZ Boundary
- Proposed Trees
- Environmental Zone Managed by Others
- Proposed Shrub Planting
- Proposed Grasses and Goundcovers
- Concrete Edge (CE)
- Decomposed Granite Paving (DG)
- Landscape Buffer Managed by Others
- Concrete Strip (CS)
- Fence Type 1: Metal Picket Fence (F1)
- Fence Type 2: Chain Wire Fence (F2)

Key Plan:

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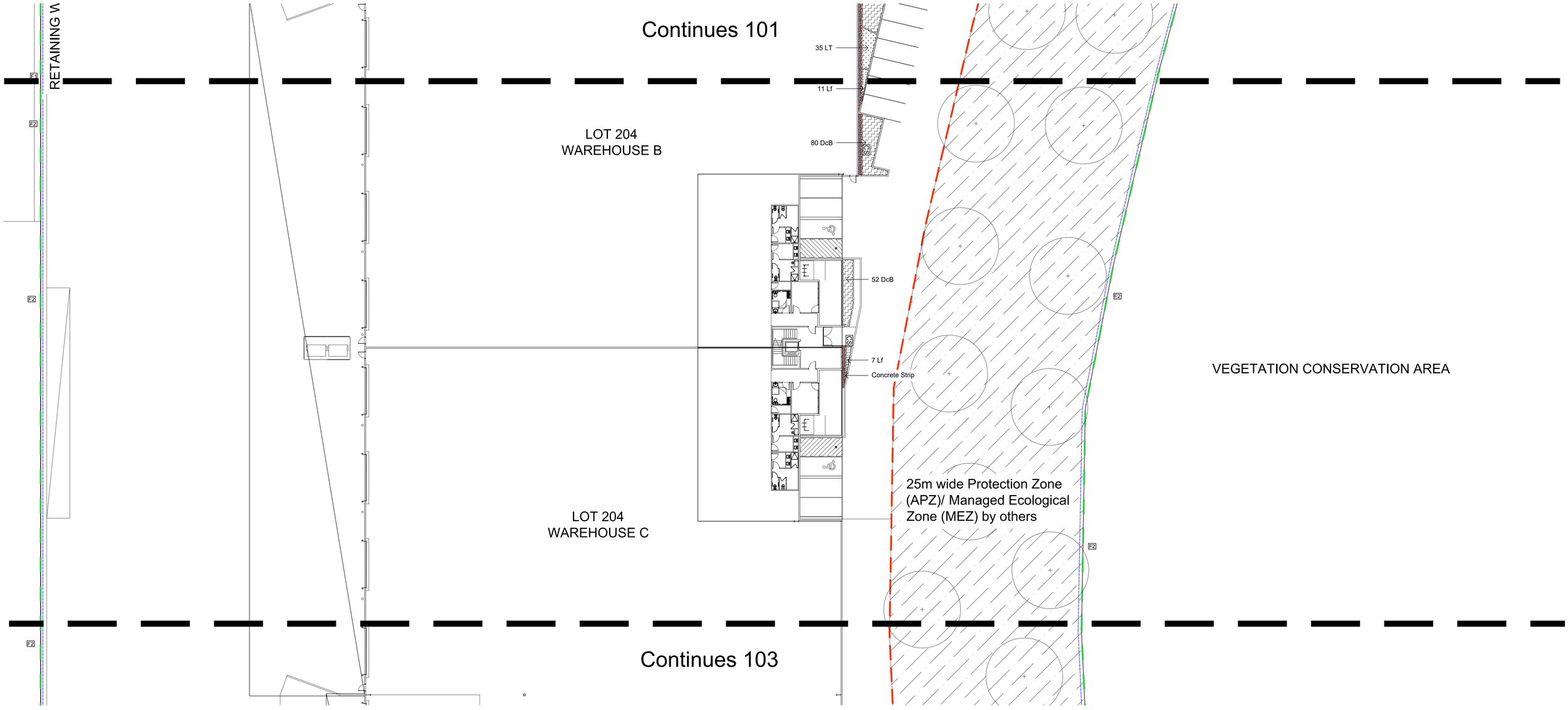
Client:
ESR

Project:
Lot 204, Horsley Logistics Park,
NSW 2175

Drawing Name:
Landscape Plan

CONSTRUCTION CERTIFICATE

Scale: 1:250 @ A1 (0 1 2 4 6 10m)
Job Number: SS20-4538
Drawing Number: SI-LA-204- 101
Issue: 01



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LEGEND

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- Concrete Strip (CS)
- Fence Type 1: Metal Picket Fence (F1)
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Key Plan:

Issue	Revision Description	Drawn	Check	Date
01	Construction Certificate	JW	NM	28.04.2021

A1

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Fax: (61 2) 9698 2877
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Client: ESR

Project: Lot 204, Horsley Logistics Park, NSW 2175

Drawing Name: Landscape Plan

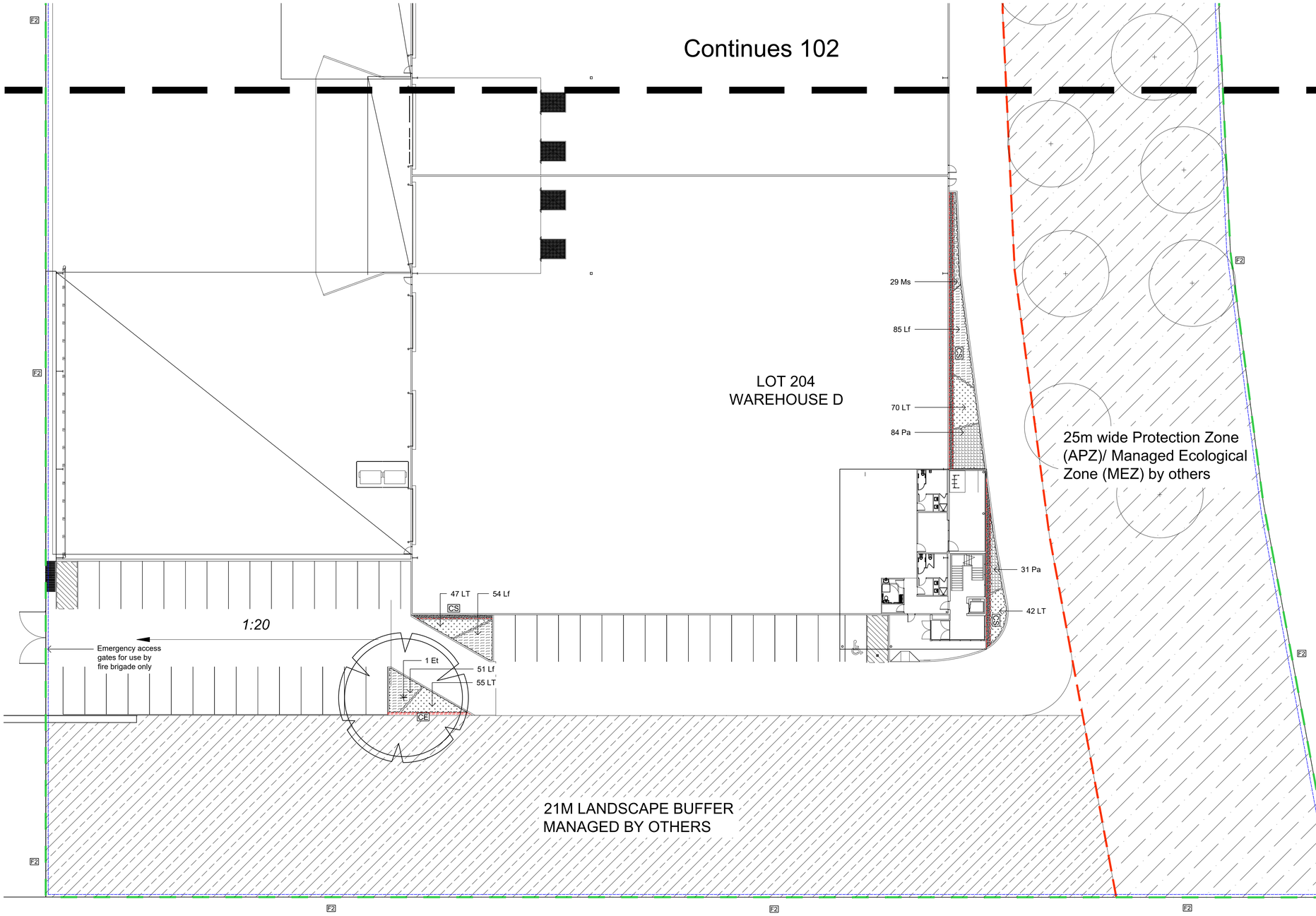
CONSTRUCTION CERTIFICATE

Scale: 1:250 @ A1 (0 1 2 4 6 10m)

Job Number: SS20-4538

Drawing Number: SI-LA-204- 102

Issue: 01



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Issue	Revision Description	Drawn	Check	Date
01	Construction Certificate	JW	NM	28.04.2021

A1

LEGEND

- Property Boundary
- Extent of APZ Boundary
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Drawing Name:
Landscape Plan

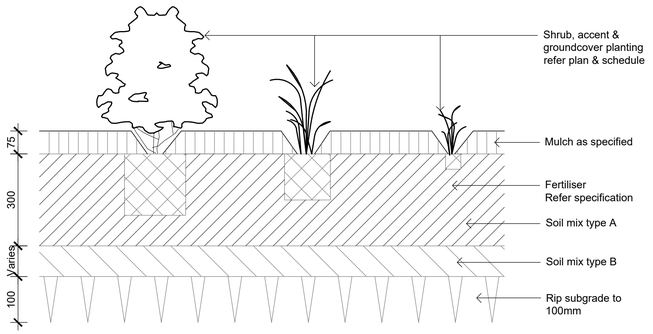
CONSTRUCTION CERTIFICATE

Scale: 1:250 @ A1
0 1 2 4 6 10m

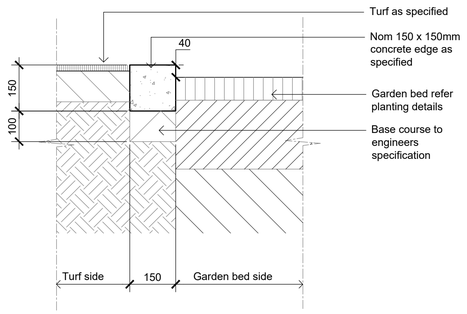
Job Number: SS20-4538

Drawing Number: SI-LA-204- 103

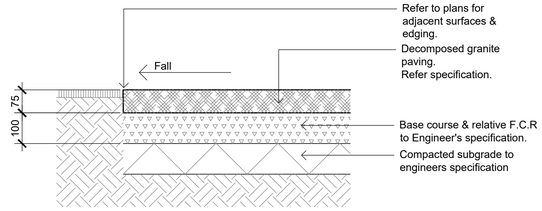
Issue: 01



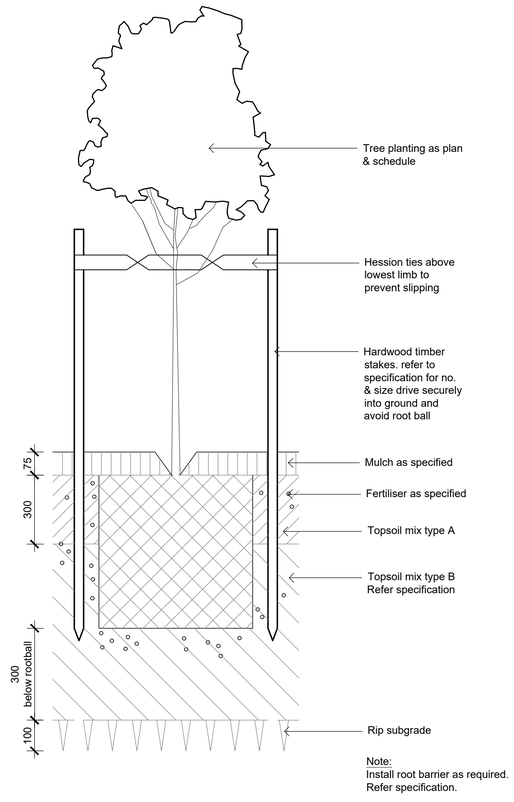
01 Shrub & Groundcover Planting on Grade
1:10



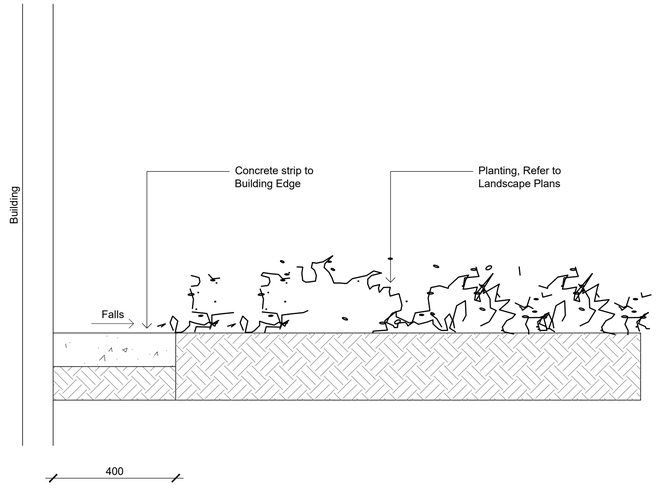
03 CE - Typical Concrete Edge
1:10



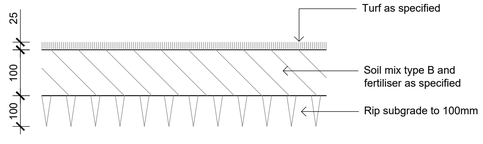
04 DG - Decomposed Granite Paving on Grade
1:10



02 Detail 75-200L Tree Planting on Grade
1:10



05 CS - Detail Concrete Strip to Building Edge
1:10



06 Detail Turf on Even Grade
1:10

Note:
Provide concrete strip or wall at where planting and building meet to prevent water ingress

NOT FOR CONSTRUCTION

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

LEGEND

Key Plan:

Issue	Revision Description	Drawn	Check	Date
01	Construction Certificate	JW	NM	28.04.2021

A1

SITE IMAGE
Landscape Architects
Level 1, 3-5 Baptist Street
Redfern NSW 2016
Australia
Tel: (61 2) 8332 5600
Fax: (61 2) 9698 2877
www.siteimage.com.au

Client:
ESR

Project:
Lot 204, Horsley Logistics Park, NSW 2175

Drawing Name:
Lanscape Details

CONSTRUCTION CERTIFICATE

Scale: AS SHOWN

Job Number:	Drawing Number:	Issue:
SS20-4538	SI-LA-204- 501	01

8.5 Construction Noise & Vibration Management Plan

Horsley Logistics Park, Lots 201 and 204

SSD-10436
Construction Noise and Vibration Management Plan

Hansen Yuncken

Report number: 210182 -Horsley Logistics Park Lot 201 & 204 - CNVMP - R0.docx
Date: 30 April 2021
Version: For Information

PULSE WHITE NOISE ACOUSTICS Level 5, 73 Walker Street, North Sydney NSW 2060
P 1800 4 PULSE (1800 478 573) **E** info@pwna.com.au **pwna.com.au** ABN 95 642 886 306

DOCUMENT CONTROL

Project Name	Horsley Logistics Park, Lots 201 and 204
Project Number	210182
Report Reference	210182 -Horsley Logistics Park Lot 201 & 204 - CNVMP - R0.docx
Client:	Hansen Yuncken

Revision	Description	Reference	Date	Prepared	Checked	Authorised
1	For Information	210182 -Horsley Logistics Park Lot 201 & 204 - CNVMP - R0.docx	30 April 2021	Ben White	Matt Furlong	Ben White

PREPARED BY:

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Level 5, 73 Walker Street, North Sydney, 2060
1800 4 PULSE

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FIGURES

1 INTRODUCTION

Pulse White Noise Acoustics has been engaged to undertake the acoustic assessment of the noise and vibration impacts during the construction stage of the Horsley Logistics Park Lots 201 and 204 projects located at 8 and 10 Johnston Crescent, Horsley Park.

The assessment has been undertaken in conjunction with the requirements of Item B10 of the projects *Conditions of Consent* and the EPA's Interim Construction Noise Guideline which is detailed in this report.

This report includes the recommended noise and vibration mitigations and management controls for the operation of construction activities on the site to ensure impacts to surrounding receivers are minimised in accordance with the relevant requirements.

2 DEVELOPMENT DESCRIPTION

The proposed development includes the construction of a new warehouse development to be located on Lots 201 and 204, 8 and 10 Johnston Crescent, Horsley Park. The required construction of the project will include construction of the proposed new warehouse development.

The surrounding receivers to the site include residential receivers located to the south and west of the site and existing commercial/industrial properties to the north and east.

The site location, in relation to surrounding buildings, is shown in Figure 1 below.

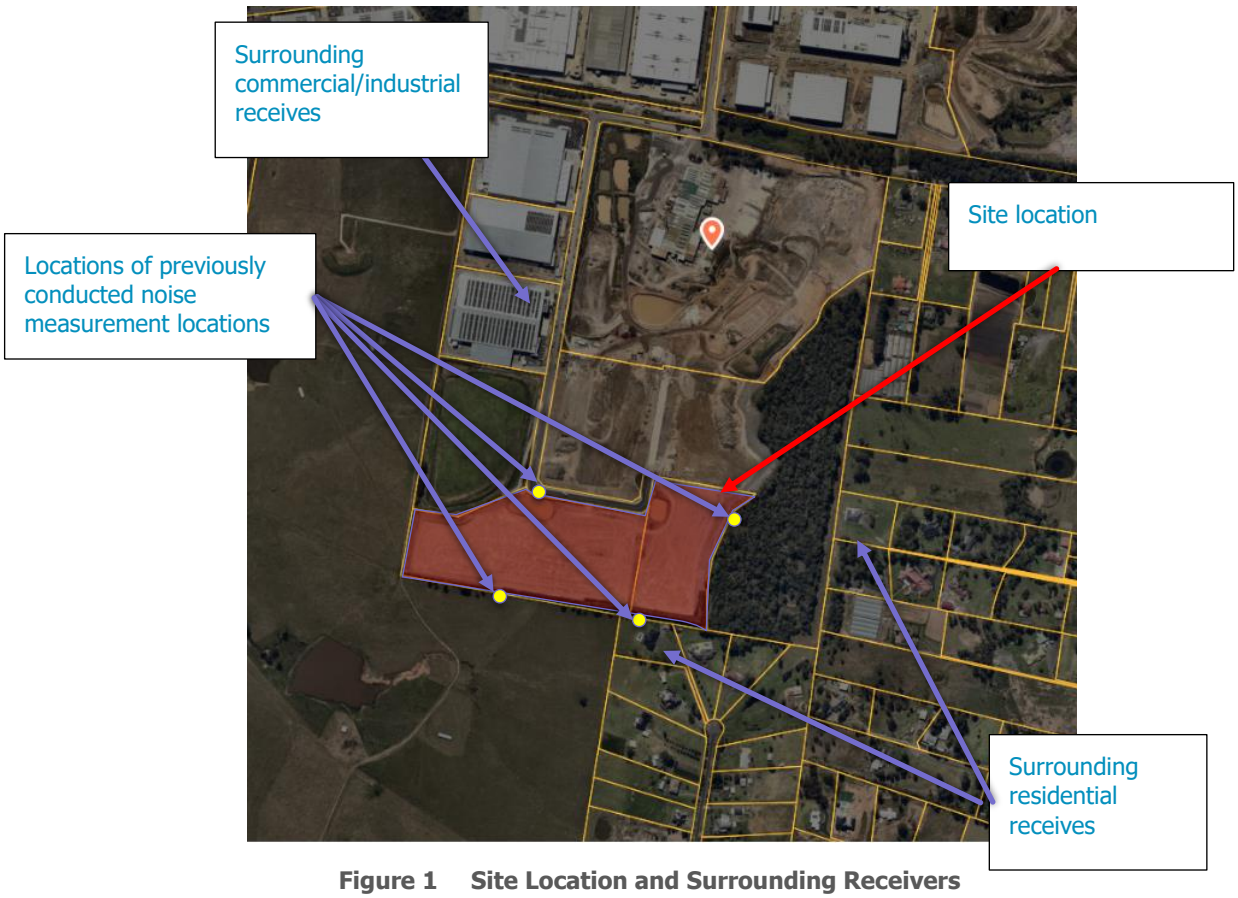

Figure 1 Site Location and Surrounding Receivers

3 CONDITIONS OF CONSENT

The management of noise and vibration assassinated with the required construction works to be undertaken as part of the project will be undertaken in conjunction with the requirements of the DA Conditions of Consent, including Item B10 that requires the construction of the project to comply with NSW Dept of Env & Climate Change *"Interim Construction Noise Guideline"* 2009 and includes the following:

This report has been undertaken in compliance with the items above and details the required management controls to comply with the Conditions of Consent, which includes the following:

Construction Noise and Vibration Management Plan

B10. The Applicant must prepare a Construction Noise and Vibration Management Plan (CNVMP) for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must:

(a) be prepared by a suitably qualified and experienced noise expert whose appointment is approved by the Planning Secretary;

(b) be approved by the Planning Secretary prior to the commencement of construction of each stage of the development;

(c) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time);

(d) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;

(e) include strategies that have been developed with the community for managing high noise generating works;

(f) describe the community consultation undertaken to develop the strategies in condition B57; and

(g) include a complaints management system that would be implemented for the duration of the development.

B11. The Applicant must:

(a) not commence construction of any relevant stage until the CNVMP required by condition B10 is approved by the Planning Secretary; and

(b) implement the most recent version of the CNVMP approved by the Planning Secretary for the duration of construction.

4 EXISTING ACOUSTIC ENVIRONMENT

The Horsley Logistics Park Lots 201 and 204 project is located to the industrial estate at 8 and 10 Johnston Crescent, Horsley Park and includes the SSD-10436. See Figure 1 above.

Existing environmental noise levels at the site are dominated by traffic noise generated predominantly from surrounding roadways and existing environmental noise levels.

As part of the SSD-10436 approval of the site SLR has undertaken a *Noise and Vibration Impact Assessment* of the site which is included in their report dated 17 July 2020 and ref:610.19360-R02-v1.3. As part of the *Noise and Vibration Impact Assessment* a background noise survey of the site has been undertaken, the results of which have been used as the basis of this report.

4.1 Noise Survey Results

The Wilkinson Murray *Noise Impact Assessment* dated 16/7/2019 and ref:19138 Version B includes a noise surcvey of the site, a summary of the noise assessment is included in Table 1 below.

Table 1 Results of Noise Survey at the Site

Measurement Location	Time of Measurement	$L_{Aeq, 15min}$ dB(A)	$L_{A90, 15min}$ dB(A)	Comments
Location 1 – to the north of the site	Day	66	37	Noise level at the site dominated by vehicle movements on surrounding roadways and natural noise levels
	Evening	42	35	
	Night	50	34	
Location 2 – To the south east of the site	Day	66	35	
	Evening	57	39	
	Night	60	38	
Location 3 – to the south west of the site	Day	63	39	
	Evening	64	39	
	Night	61	38	
Location 4 – To the east of the site	Day	53	39	
	Evening	46	38	
	Night	42	36	

The results of the noise survey previously undertaken at the site (and detailed above) have been used as the basis of this report.

5 CONSTRUCTION NOISE ASSESSMENT

This section of the report details the assessment of noise associated with the proposed construction activities associated with the development. The assessment has been undertaken to assess the potential noise impacts from construction on surrounding receivers to the site.

The proposed construction activities to be undertaken on the site include the ground works and construction of the site. The proposed construction of the project does not include major demolition or excavation on the site.

5.1 Construction Noise

The assessment of construction noise impacts generated from the site has been undertaken in accordance with the requirements of the EAP Interim Construction Noise Guideline.

The EPA's Interim Construction Noise Guideline defines normal day time hours as the following:

2.2 Recommended standard hours

The recommended standard hours for construction work are shown in Table 1; however, they are not mandatory. There are some situations, as described below, where construction work may need to be undertaken outside of these hours. The likely noise impacts and the ability to undertake works during the recommended standard hours should be considered when scheduling work.

Table 1: Recommended standard hours for construction work

Work type	Recommended standard hours of work*
Normal construction	Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays
Blasting	Monday to Friday 9 am to 5 pm Saturday 9 am to 1 pm No blasting on Sundays or public holidays

* The relevant authority (consent, determining or regulatory) may impose more or less stringent construction hours.

5.1.1 Approved Hours of Work

Works on the site will be undertaken in accordance with the requirements of Items B7 and B8 of the *Consent* which includes the following.

Hours of Work

B7. The Applicant must comply with the hours detailed in Table 3, unless otherwise agreed in writing by the Planning Secretary.

Table 3 *Hours of Work*

Activity	Day	Time
Earthworks and construction	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
Operation	Monday – Sunday	24 hours

B8. Works outside of the hours identified in condition B7 may be undertaken in the following circumstances:

(a) works that are inaudible at the nearest sensitive receivers; or

(b) works agreed to in writing by the Planning Secretary; or

(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

5.2 Proposed Appliances

The proposed appliances which will be used as part of the construction of the project are detailed in the table below.

Table 2 Noise Level from Expected Demotion Appliances

Tasks	Equipment	Sound Power Levels per task dB(A) L_{10}	Aggregate Sound Power Level per Task dB(A) L_{10}
Ground Works	Excavators and bulldozers	115	120
	Materials Movements	105	
	Bulldozers	115	
	Trucks	109	
Construction Works	Piling	115	118
	Welder	101	
	Saw cutter	109	
	Dump truck	109	
	Concrete saw	119	
	Power hand tools	109	
	Cranes	110	

Note: Noise levels of proposed equipment to be used on the site based on the Australian Standard AS2436-2010 and noise level measurements previously undertaken of similar equipment on construction sites.

5.3 Construction Noise Criteria

This section of the report details the relevant construction noise criteria which is applicable to the site including the EPA's *Interim Construction Noise Guideline* (ICNG).

5.3.1 Interim Construction Noise Guideline

Noise criteria for construction activities are discussed in the *Interim Construction Noise Guideline* (ICNG). The ICNG also recommends procedures to address potential impacts of construction noise on residences and other sensitive land uses. The main objectives of the ICNG are summarised as follows:

- Promote a clear understanding of ways to identify and minimise noise from construction works;
- Focus on applying all "feasible" and "reasonable" work practices to minimise construction noise impacts;
- Encourage construction to be undertaken only during the recommended standard hours unless approval is given for works that cannot be undertaken during these hours;
- Streamline the assessment and approval stages and reduce time spent dealing with complaints at the project implementation stage; and
- Provide flexibility in selecting site-specific feasible and reasonable work practices in order to minimise noise impacts.

The ICNG contains a quantitative assessment method which is applicable to this project. Guidance levels are given for airborne noise at residences and other sensitive land uses.

The quantitative assessment method involves predicting noise levels at sensitive receivers and comparing them with the Noise Management Levels (NMLs). The NML affectation categories for receivers have been reproduced from the guideline and are listed in the table below.

Table 3 Noise Management Levels from Construction

Receiver Type	Time of Day	Noise Management Level $L_{Aeq(15minute)}$[1,2]	How to Apply
Residential	During approved working hours detained with the conditions of consent	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq(15minute)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
		Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences. 2. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
	Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community.

Table 3 Continued

Receiver Type	Time of Day	Noise Management Level $L_{Aeq(15minute)}$[1,2]	How to Apply
offices, retail outlets: external	When is use	$L_{Aeq\ (15\ min)}$ 70 dB(A)	During construction, the proponent should regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work.

Note 1 *Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.*

Note 2 *The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Industrial Noise Policy (EPA 2000).*

Based on the table above the suitable construction noise management levels for works undertaken on the site is detailed in Table 6 below.

Table 4 Site Construction Noise Management Levels

Noise Source	Time Period	Receiver Type	Construction Noise Management Level[1]	'High Noise Affected' Level[1]
Construction Noise	During period of approved hours of works as detailed within of the DA *Conditions of Consent*	Residential Receivers to the south	49 dB(A) L_{Aeq} (15min)	75 dB(A) L_{Aeq} (15min)
		Residential Receivers to the east	49 dB(A) L_{Aeq} (15min)	75 dB(A) L_{Aeq} (15min)

Note 1: Construction noise management levels based on the Interim Construction Noise Guideline

5.4 Construction Noise Management – Qualitative Assessment

Based on the assessment conducted of the expected construction noise levels generated from the site, levels are generally expected to require the building contractor to engage in management of activities on the site and engagement with the local community.

Notwithstanding, the following management controls are recommended to mitigate construction noise levels on the site:

1. Construction to be undertaken within the approved hours detailed within the projects *Conditions of Consent.*
2. All plant and equipment are to be maintained such that they are in good working order.
3. A register of complaints is to be recorded in the event of complaints being received, including location, time of complaint, nature of the complaint and actions resulting from the complaint.
4. If required a noise level measurement of the offending plant item generating complaints is to be conducted and noise mitigations undertaken to reduce noise levels to within Noise Management levels in the event magnitude of noise levels is found to be above suitable levels.
5. The use of percussive and concrete sawing should be undertaken behind a closed façade when possible.
6. The use of percussive equipment including hydraulic hammering should be limited such that they are not undertaken prior to 7.30am on weekdays and prior to 8.30am on Saturdays.
7. Where possible any excavation to be undertaken on the site is to include ripping of material where possible.

In addition to the recommended mitigations above details of the proposed construction works to be conducted on the site, including type of activities to be conducted as well as the expected duration of activities should be provided to the neighbouring receivers.

In the event noise levels are found to required additional noise reduction then all possible and practical mitigations are required to be included in the construction of the project. Possible acoustic treatments and controls may include the following:

1. Use of alternative appliances to complete the required works which result in reduced noise impacts on surrounding neighbours.
2. Period when noisy appliances are undertaken, such as undertaking noisy works on locations with the greatest distance to residential receivers during morning periods if possible.
3. Construction of acoustic screening to permanently located high noise generating equipment such as pumps and generators.
4. Scheduling of high noise generating works outside of noise sensitive periods if possible.
5. Other site specific treatments and controls which may become possible once works commence.

5.5 Construction Noise Assessment – Quantitative Assessment

A quantitative assessment of the construction noise levels resulting from the proposed works to be undertaken as part of the project on surrounding receivers has been undertaken.

The assessment has been based on the expected noise levels to be generated on the site including those detailed in Section 4.3.1 above. Calculations of the resulting construction noise levels of the receivers within proximity to the site is detailed in the table below.

Table 5 Quantitative Assessment of Construction Noise to Residence

Source Noise	Equipment	Sound Power Levels dB(A) L_{10}	Site Cumulative Sound Power Level dB(A) L_{10}	Calculated Construction Noise Level – Residential Receivers
	Residence to the East			
Site Excavations	Excavators and bulldozers	115	120	Up to 67 dB(A)
	Materials Movements	105		
	Bulldozers	115		
	Trucks	109		
Construction Works	Piling	115	118	Up to 67 dB(A) when items used externally.
	Welder	101		
	Saw cutter	109		
	Dump truck	109		Up to 44 dB(A) once items used internally within the building structure.
	Concrete saw	119		
	Power hand tools	109		
	Cranes	110		
	Residence to the South East			
Site Excavations	Excavators and bulldozers	115	120	Up to 72 dB(A)
	Materials Movements	105		
	Bulldozers	115		
	Trucks	109		
Construction Works	Piling	115	118	Up to 72 dB(A) when items used externally.
	Welder	101		
	Saw cutter	109		
	Dump truck	109		Up to 50 dB(A) once items used internally within the building structure.
	Concrete saw	119		
	Power hand tools	109		
	Cranes	110		

Note 1: Calculated qualitative noise levels are based on the overall Aggregate Sound Power Level for the expected construction works to be undertaken in the site.

Based on the qualitative assessment of construction noise suitable management controls and community notifications are required to be conducted.

The required management of construction noise impacts are included in Section 4.4 above and the Community Consultation included in Section 5 of this report.

6 CONSTRUCTION VIBRATION ASSESSMENT

This section of the report details the assessment of construction vibration impacts on surrounding receivers.

Effects of ground borne vibration on buildings may be segregated into the following three categories:

- Human comfort – vibration in which the occupants or users of the building are inconvenienced or possibly disturbed. Refer to further discussion in Section 5.1.
- Effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects. Refer to further discussion in Section 5.2.
- Effects on building structures – where vibration can compromise the integrity of the building or structure itself. Refer to further discussion in Section 5.3.

6.1 Vibration Criteria – Human Comfort

Vibration effects relating specifically to the human comfort aspects of the project are taken from the guideline titled *"Assessing Vibration – A Technical Guideline"*. (AVTG) This type of impact can be further categorised and assessed using the appropriate criterion as follows:

- Continuous vibration – from uninterrupted sources (refer to Table 6).
- Impulsive vibration – up to three instances of sudden impact e.g. dropping heavy items, per monitoring period (refer to Table 7).
- Intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously (refer to Table 8).

Table 6 Continuous vibration acceleration criteria (m/s²) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

Table 7 Impulsive vibration acceleration criteria (m/s²) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 8 Intermittent vibration impacts criteria ($m/s^{1.75}$) 1 Hz-80 Hz

Location	Daytime		Night-time	
	Preferred Values	Maximum Values	Preferred Values	Maximum Values
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

6.2 Vibration Criteria – Building Contents and Structure

The vibration effects on the building itself are assessed against international standards as follows:

- For transient vibration: British Standard BS 7385: Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration" (BSI 1993); and
- For continuous or repetitive vibration: German DIN 4150: Part 3 – 1999 "Effects of Vibration on Structure" (DIN 1999).

6.3 Standard BS 7385 Part 2 - 1993

For transient vibration, as discussed in standard BS 7385 Part 2-1993, the criteria are based on peak particle velocity (mm/s) which is to be measured at the base of the building. These are summarised in

Table 9 and illustrated in the Figure below.

Table 9 Transient vibration criteria as per standard BS 7385 Part 2 - 1993

Line in Error! Reference source not found.	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Standard BS 7385 Part 2 – 1993 states that the values in

Table 9 relate to transient vibration which does not cause resonant responses in buildings.

Where the dynamic loading caused by continuous vibration events is such as that results in dynamic magnification due to resonance (especially at the lower frequencies where lower guide values apply), then the values in

Table 9 may need to be reduced by up to 50% (refer to Line 3 in the Figure below).

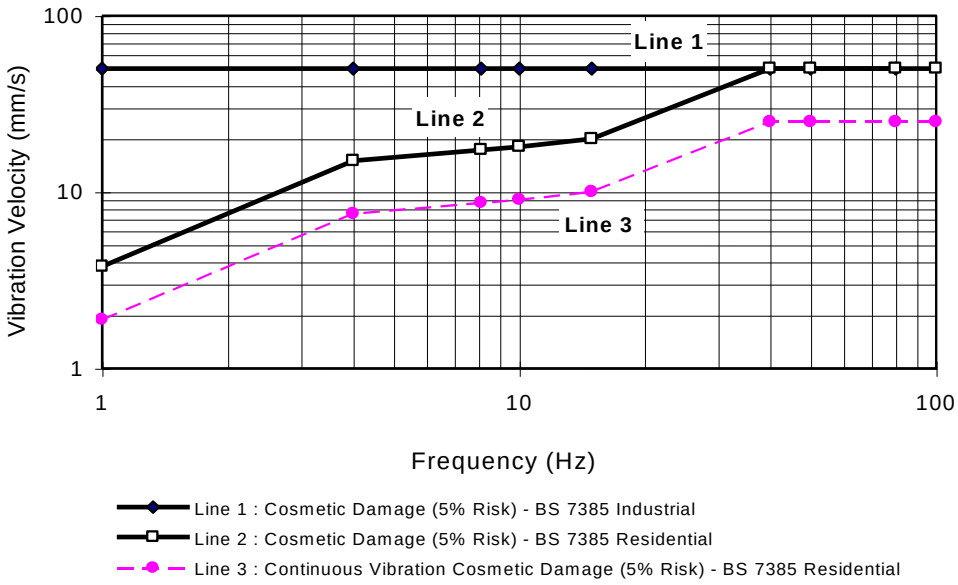

Figure 2 BS 7385 Part 2 – 1993, graph of transient vibration values for cosmetic damage

In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the recommended values corresponding to Line 2 are reduced. Below a frequency of 4 Hz where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard also states that minor damage is possible at vibration magnitudes which are greater than twice those given in Table 8, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the values in Table 8 should not be reduced for fatigue considerations.

6.3.1 Standard DIN 4150 Part 3 - 1999

For continuous or repetitive vibration, standard DIN 4150 Part 3-1999 provides criteria based on values for peak particle velocity (mm/s) measured at the foundation of the building; these are summarised in 10. The criteria are frequency dependent and specific to particular categories of structures.

Table 10 Structural damage criteria as per standard DIN 4150 Part 3 - 1999

Type of Structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz[1]	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

Note 1: For frequencies above 100Hz, at least the values specified in this column shall be applied.

6.4 Project Vibration Criteria

Based on the details included in the sections above the project specific vibration criteria to protect the surrounding residential receivers from structural or architectural damage includes the following:

1. Project construction vibration criteria at all surrounding building structures – 7 mm/s

6.5 Construction Vibration Impacts

An assessment of the potential for vibration generated as part of the required construction activities on the project (including ground works and construction) has been undertaken.

As the proposed building to be demolished on the site are not attached to neighbouring structures and the proximity of neighbouring structures to the development site (which include residential receives) vibration levels generated from the proposed construction on the site are expected to comply with all vibration criteria detailed in this report without additional treatments or mitigations.

7 NOISE AND VIBRATION MEASUREMENTS AND MONITORING

As part of the management of noise from the proposed construction activities to be undertaken on the site the following noise and vibration measurements are recommended to be undertaken:

1. Noise – Attended noise level measurements of typical ground works and construction activities should be undertaken at site.

   Attended construction noise surveys of the site and surrounding impacts on neighbours should be undertaken during the following as a minimum:

   a. In response to any ongoing complaints received from neighbours.

2. Vibration – Based on the proximity of the surrounding receivers to the works attended vibration measurements of typical ground works and construction activities are expected to comply with all vibration criteria detailed in this report without additional treatments or mitigations and therefore ongoinf vibration measurements or monitoring is not recommended.

8 COMMUNITY ENGAGEMENT

During the proposed construction of the project (including ground works and construction) the building contractor is required to engage in community interaction. The community interaction and notification is required to include the following:

1. Notification of the proposed works to be undertaken on the site and the periods when works will be conducted, including information regarding the programme of works such as ground works. This should include the expected period when activities such as hydraulic hammering, rock breaking, concrete or rock sawing is required to be undertaken.

2. Details of the relevant site representative where complaints can be registered.

3. Details of the methodology to respond to complaints raised from the surrounding receivers.

4. A register of complaints, to be kept on site including record of time and nature of the complaint as well as the outcomes and comments regarding investigations resulting from the complaint.

9 CONCLUSION

This report details the construction noise and vibration assessment of the proposed construction of the Horsley Logistics Park Lots 201 and 204 warehouse projects, located at 8 and 10 Johnston Crescent, Horsley Park.

An assessment of noise and vibration impacts from the required processes to be undertaken during the construction period of the project (including ground works and construction) has been undertaken and suitable treatments, management controls, perioding measurements and community engagement has been detailed in this report.

Providing the recommendations in this report are included in the construction of the site, compliance with the relevant EPA's Interim Construction Noise Guideline and Item B10 of the SSD-10436 *Consent* will be achieved.

For any additional information please do not hesitate to contact the person below.

Regards

Ben White
Director

Pulse White Noise Acoustics

10 APPENDIX A – GLOSSARY OF TERMS

Ambient Sound The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.

Audible Range The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.

Character, acoustic The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.

Decibel [dB] The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds;

0dB	the faintest sound we can hear
30dB	a quiet library or in a quiet location in the country
45dB	typical office space. Ambience in the city at night
60dB	Martin Place at lunch time
70dB	the sound of a car passing on the street
80dB	loud music played at home
90dB	the sound of a truck passing on the street
100dB	the sound of a rock band
115dB	limit of sound permitted in industry
120dB	deafening

dB(A) *A-weighted decibels* The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.

Frequency Frequency is synonymous to *pitch*. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.

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

L_{Max} The maximum sound pressure level measured over a given period.

L_{Min} The minimum sound pressure level measured over a given period.

L_1 The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.

L_{10} The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.

L_{90} The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L_{90} noise level expressed in units of dB(A).

L_{eq} The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.

Background Sound Low The average of the lowest levels of the sound levels measured in an affected area in the absence of noise from occupants and from unwanted, external ambient noise sources. Usually taken to mean the L_{A90} value

Ctr A frequency adaptation term applied in accordance with the procedures described in ISO 717.

dB (A) 'A' Weighted overall sound pressure level

Noise Reduction	The difference in sound pressure level between any two areas. The term "noise reduction" does not specify any grade or performance quality unless accompanied by a specification of the units and conditions under which the units shall apply
NR Noise Rating	Single number evaluation of the background noise level. The NR level is normally around 5 to 6 dB below the "A" weighted noise level. The NR curve describes a spectrum of noise levels and is categorised by the level at 1000 Hz ie the NR 50 curve has a value of 50 dB at 1000 Hz. The NR rating is a tangential system where a noise spectrum is classified by the NR curve that just encompasses the entire noise spectrum consideration.
R_w	Weighted Sound Reduction Index - Laboratory test measurement procedure that provides a single number indication of the acoustic performance of a partition or single element. Calculation procedures for Rw are defined in ISO 140-2:1991 "Measurement of Sound Insulation in Buildings and of Building Elements Part 2: Determination, verification and application of precision data".
R'_w	Field obtained Weighted Sound Reduction Index - this figure is generally up to 3-5 lower than the laboratory test determined level data due to flanked sound transmission and imperfect site construction.
Sound Isolation	A reference to the degree of acoustical separation between any two areas. Sound isolation may refer to sound transmission loss of a partition or to noise reduction from any unwanted noise source. The term "sound isolation" does not specify any grade or performance quality and requires the units to be specified for any contractual condition
Sound Pressure Level, L_P dB	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.
Sound Power Level, L_W dB	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt
Speech Privacy	A non-technical term but one of common usage. Speech privacy and speech intelligibility are opposites and a high level of speech privacy means a low level of speech intelligibility. It should be recognised that acceptable levels of speech privacy do not require that speech from an adjacent room is inaudible.
Transmission Loss	Equivalent to Sound Transmission Loss and to Sound Reduction Index in terminology used in countries other than Australia. A formal test rating of sound transmission properties of any construction, by usually a wall, floor, roof etc. The transmission loss of all materials varies with frequency and may be determined by either laboratory or field tests. Australian Standards apply to test methods for both situations.

8.6 Construction Traffic Management Plan

Construction Traffic Management Plan

Proposed Warehouse and Office Developments

Lots 201 and 204, Horsley Park

10/05/2021

AG1717r01v3

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Document Control

Project No	1717
Project	Lots 201 and 204, Horsley Park, Construction Traffic Management Plan
Client	Hansen Yuncken Pty Ltd
File Reference	

Revision History

Revision No.	Date	Details	Author	Approved by
01	03/05/2021	Draft	O. Hashmi / W. Zheng	D. Choi
02	07/05/2021	Draft	O. Hashmi / W. Zheng	D. Choi
03	10/05/2021	Issue I	O. Hashmi / W. Zheng	D. Choi

Contents

Contents continued

Figures

APPENDICES

1 Introduction

1.1 Introduction

Ason Group have been engaged by Hansen Yuncken Pty Ltd to prepare a Construction Traffic Management Plan (CTMP) for the construction of a warehouse and office development at Lots 201 and 204, Horsley Park (the Site).

This CTMP details the measures and strategies to be undertaken during construction to minimise the effects of work on the surrounding road network, and to ensure the safety and efficiency of the community, all workers, and all road users.

A Construction Environmental Management Plan (CEMP) has been prepared by Hansen Yuncken Pty Ltd.

This report has been prepared by a consultant who holds a Transport for NSW (formerly Roads and Maritime Services) Prepare a Work Zone Traffic Management Plan certification. Details of the accredited consultant is provided below:

- Dora Choi Ticket No. 0051848825

1.2 Project Details

The project involves the construction of warehouses, offices and car parking spaces at Lots 201 and 204 within the ESR Horsley Park Estate (located at 8 Johnston Crescent and 10 Johnston Crescent, respectively). The breakdown for the constructions works at the respective lots is as follows:

- **Lot 201**
    - A 42,233 m^2 warehouse facility consisting of a double storey office, flush and recessed docks, amenities, a pump room, a café and a total of 232 car parking spaces.
- **Lot 204**
    - A 16,513 m^2 facility consisting of 4 subdivided warehouse tenancies (warehouses A, B, C and D) that each have their own double storey offices, flush and recessed docks, amenities and a total of 118 car parking spaces.

The Site is located on the southern and eastern part of the Johnston Crescent (which connects to Burley Road and Old Wallgrove Road). The overall site area is approximately 117,500 m^2.

The Site is currently undeveloped.

1.3 State Significant Development Application – SSD-10436

The proposed development received a Development Consent for Application No. SSD-10436 from Minister for Planning and Public Spaces (NSW Government – Department of Planning, Industry and Environment) on 31 March 2021.

Condition B23 of the SSD-10436 required the preparation and submission of a Construction Traffic Management Plan (CTMP) prior to commencement of construction. The condition specified the following:

"Prior to the commencement of construction of each warehouse building, the Applicant must prepare a Construction Traffic Management Plan (CTMP) for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by condition C2 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with Council;

(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;

(d) detail heavy vehicle routes, access and parking arrangements;

(e) include a Driver Code of Conduct to:

(i) minimise the impacts of earthworks and construction on the local and regional road network;

(ii) minimise conflicts with other road users;

(iii) minimise road traffic noise; and

(iv) ensure truck drivers use specified routes;

(f) include a program to monitor the effectiveness of these measures; and

(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes."

This CTMP forms part of the CEMP and outlines the proposed construction traffic management arrangements associated with the construction phases for the development.

1.4 Road Network

The surrounding road network near the vicinity of the site is shown in **Figure 1**.

Figure 1: Surrounding Road Network (near the vicinity of the Site).

1.4.1 Johnston Crescent

Johnston Crescent is a road that runs in a north-south and east-west direction, starting from Old Wallgrove Road. It is important to note that this road is partially completed. Currently, Johnston Crescent is classified as a Local Road.

Within vicinity of the Site, it has a carriageway width of approximately 13 metres (as measured on NearMap), comprising a travel lane and a parking lane in each direction. On-street car parking is unrestricted.

Johnston Crescent (within the vicinity of the Site) has a posted speed limit of 60 km/h.

Footpaths are available on both sides of the carriageway. In general, footpaths along the west and south side of Johnston Crescent are 1.2 metres wide (as measured on NearMap). Footpath along the east side of Johnston Crescent are 2.5 metres wide (as measured on NearMap). As construction is taking place at the time of preparation of this report, sections of footpath along the east side of Johnston Crescent are being completed.

1.4.2 Old Wallgrove Road

Old Wallgrove Road is a road that runs in a north-south direction between Burley Road and Telopea Place and in an east-west direction between Telopea Place and Wallgrove Road. It is classified as Collector Road between Burley Road and Telopea Place and an Arterial Road between Telopea Place and Wallgrove Road.

Within vicinity of the Site, it has a carriageway width of approximately 18 metres (as measured on NearMap), comprising two travel lanes in each direction.

Old Wallgrove Road (between Milner Avenue and Burley Road) is restricted to a posted speed limit of 60 km/h. Old Wallgrove Road (between Milner Avenue and Telopea Place and Telopea Place and Wallgrove Road) is restricted to a posted speed limit of 80 km/h.

Footpaths are available on both sides of the carriageway.

1.4.3 Burley Road

Burley Road is a road that runs in an east-west direction between Old Wallgrove Road and Walworth Road. It is classified as a Local Road.

Burley Road has a carriageway width of approximately 7 metres (as measured on NearMap), comprising one travel lane in each direction. There is currently no on-street parking opportunities along this road.

Burley Road operates under a posted speed limit of 60 km/h in the general vicinity of the site.

There are no footpaths on both sides of the carriageway.

1.5 Truck Routes

It is proposed that construction vehicles enter and exit the Site via the routes shown in **Figure 2**. A copy of the truck route maps shall be provided to all drivers prior to attending the Site.

All construction vehicles are to access the site from the Old Wallgrove Road to the east or Lenore Drive and Mamre Road to the west. Both routes are currently identified as heavy vehicle routes by TfNSW.

The access and egress routes are to be utilized by all construction vehicles associated with the Site and represents the shortest route between the local and arterial road network – hence minimising the impacts of the civil and construction phases. No trucks are to be queued on local roads. Mobile phones, two-way radios or application-based solutions should be used to coordinate truck arrivals.

Figure 2: Construction Vehicle Route Map

1.6 Construction Hours

Construction hours shall be in accordance with the Development Consent (SSD-10436) condition B7 and B8. Conditions B7 and B8 specify the following:

"B7. The Applicant must comply with the hours detailed in Table 3, unless otherwise agreed in writing by the Planning Secretary.

Table 3 Hours of Work

Activity	***Day***	***Time***
Earthworks and construction	*Monday – Friday* *Saturday*	*7 am to 6 pm* *8 am to 1 pm*
Operation	*Monday – Sunday*	*24 hours*

B8. Works outside of the hours identified in condition B7 may be undertaken in the following circumstances:

(a) works that are inaudible at the nearest sensitive receivers; or

(b) works agreed to in writing by the Planning Secretary; or

(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(d) *where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.*

It is anticipated that construction works will not be conducted outside of the hours outlined above. Should out of work hours be required, Hansen Yuncken Pty Ltd will lodge an application for an Out of Work Hours Permit with Fairfield City Council to seek approval for these works.

1.7 Site Contact

Refer to Section 4 of the Construction Environmental Plan (prepared by Hansen Yuncken Pty Ltd) for further details.

1.8 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in **Appendix A.**

1.9 Site Access

Access to the site will be via temporary driveways from Johnston Crescent located at the north-western and north-eastern boundary of the site.

A swept path assessment has been undertaken at the temporary driveways (from Johnston Crescent) which indicated that that the site can accommodate the necessary vehicle movements, with the largest vehicles being 20 m Articulated Vehicles (AV), 19 m truck and dog trailers and 12.5 m Heavy Rigid Vehicles (HRVs). Refer to **Appendix B** for further details.

It is proposed to use the whole site (Lots 201 and 204) for construction. Mobile cranes will set up within the site when required. Refer to **Figure 3** for the site plan, showing the location of fencing, access points and site accommodation and parking for site personnel.

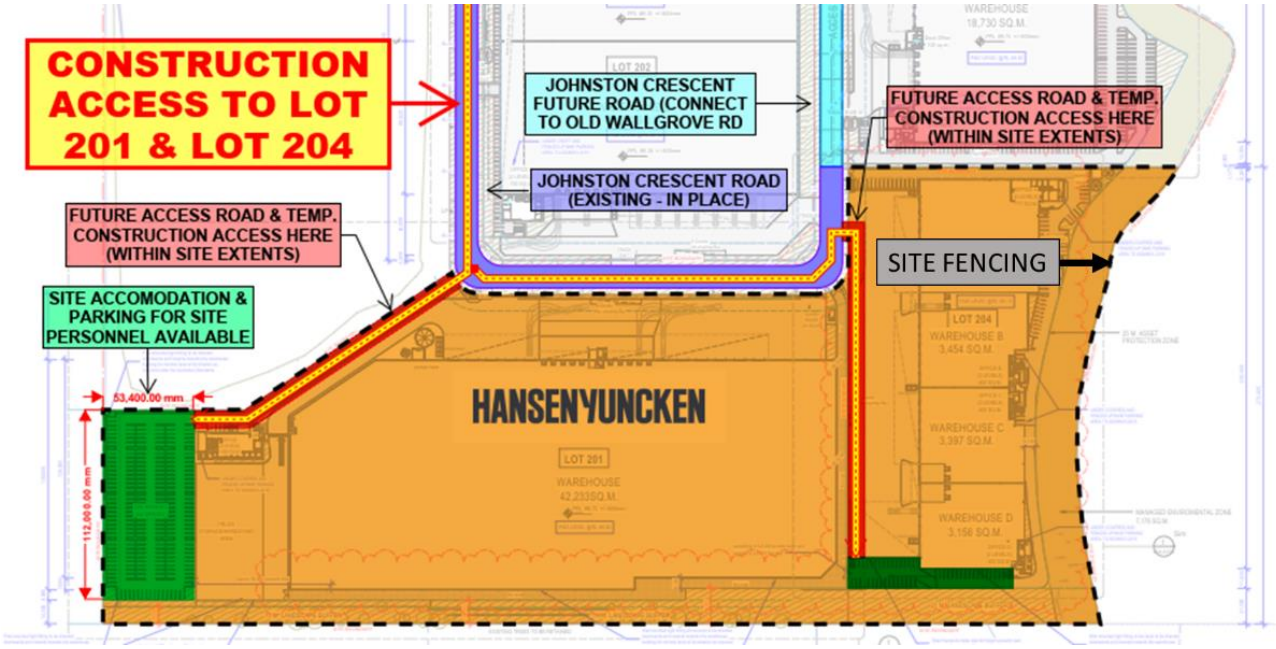


Figure 3: Site Plan (Source: Hansen Yuncken Pty Ltd)

1.10 Works Zone

No Works Zones along Johnston Crescent are proposed. All Civil and Construction Works will take place within the work site.

1.11 Worker Induction

All workers and subcontractors engaged on-site would be required to complete a site induction. The induction should include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain would be suitably trained and covered by adequate and appropriate insurances.

1.12 Authorised Traffic Controller

There is a requirement for an authorised traffic controllers to be present throughout the bulk earthworks, and construction stages of the project. The responsibilities include:

- Implementation of the Traffic Control Plan.
- Pedestrian and cyclist management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur.
- Supervision of all vehicle movements across pedestrian footpaths at all times, and
- Supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project.

Refer to **Appendix C** for the Traffic Guidance Scheme for details of the proposed work zone, location of traffic controllers and associated traffic management measures.

1.13 Pedestrian and Cyclist Management

During construction, pedestrian movements will be maintained along the Johnston Crescent frontage of the site. It is expected that site fencing is to be located as close as possible to the property boundary, maintaining maximum footpath width along the Johnston Crescent frontage of the site to minimise impact on pedestrian amenity.

Specifically, there will be no anticipated footpath closure along Johnston Crescent.

Construction hoarding / fencing arrangement shall be as per the arrangement documented in the Project's CEMP.

Traffic controller(s) will be present at the site accesses to manage pedestrian and vehicular traffic to ensure public safety while construction vehicles enter and exit the site. Pedestrians will not be directed to use the other footpath by use of signage alone. Also, traffic controls would need to be in accordance with AS1742.3 and TfNSW 'Traffic Control at Worksites' manual at all times.

Should any unforeseen activities require the temporary closure of any pedestrian access, a TCP should be developed and implemented by the contractor to ensure a safe alternative for pedestrians traversing these routes in the vicinity of the site.

2 Construction Activities, Site Access and Parking Arrangements

2.1 Staging and Duration of Works

It is anticipated that the total duration of works will be approximately 25 weeks (6 months) from the commencement date (18 May 2021) and includes the following Stages:

Stage 1 – Civil Works: approximately 7-8 weeks (2 months)

Stage 2 – Construction Works: approximately 16-17 weeks (4 months)

2.2 Stage 1 – Civil Works

Civil Works will take place during Stage 1, which is expected to comprise the following:

1. Site establishment
    (a) Temporary accommodation will be established; and
    (b) Sediment and erosion controls will be undertaken.
2. Earthworks
    (a) Setting up retaining walls;
    (b) Bulk excavation will take place; and
    (c) Formwork, reinforcement and concrete pouring will occur.

The traffic arrangement proposed include:

- The provision of a temporary driveway into Lots 201 and 204;
    - Footpath closures are not proposed as this footpath is not connected to any completed buildings and rarely used by pedestrians. Footpath activity will be monitored by the Traffic Controllers when required.
- The provision of a temporary construction access into Lots 201 and 204; and
- Display of associated traffic management signage at Johnston Crescent.

2.2.1 Traffic

During the bulk excavation phase, it is estimated that there would be a peak of 300 truck movements a day, which is equivalent to approximately 14 trucks per hour.

As this development is located within a greenfield industrial development area, that currently have very low traffic volumes, the increased traffic associated with construction activities will have minor impacts on the existing road network.

It is important to note that trucks removing spoil from the site and delivering materials will access the site via Johnston Crescent (as shown in **Figure 3**).

During the bulk earthworks stage, truck and dog trailers approximately 19 m in length (for bulk earthworks) and 20 m AVs (for deliveries) will enter and leave the site in a forward direction (without reversing) via the proposed site access points. Smaller deliveries (for plants such as excavators) will be made by vehicles up to 12.5 m HRVs, where it will enter and leave the site in a forward direction (without reversing).

On days where concrete delivery is scheduled, a mobile concrete pump will be located within the site receiving concrete from concrete mixer trucks parked within the site as well.

Refer to **Appendix C** for the Traffic Control Plan which outlines the traffic management arrangement that will be implemented to facilitate construction access arrangements.

2.3 Stage 2 – Construction Works

Construction Works will take place during Stage 2, which is expected to comprise the following:

1. Structural Items
    (a) Pour slabs on the excavated trenches (on the ground);
    (b) Install structural steel; and
    (c) Set up suspended slabs.
2. Façade wrap
    (a) Set up the roof (including safety meshes, cladding, gutters and down-pipes);
    (b) Install wall cladding; and
    (c) Complete the office façade (including glazing).
3. Fit-out and finishes
    (a) Complete the services fit-off;
    (b) Set up partitions;
    (c) Procurement and set up of the Fixtures, Furniture and Equipment; and
    (d) Paint the floor coverings.
4. Externals
    (a) Complete works on the Concrete Hardstands;
    (b) Complete works on the car park, asphalt and associated line marking (with the required accessories);
    (c) Complete landscaping works; and

(d) Set up fit-out items (such as bollards, boom gates, crash barriers, chain wire fencing and handrails).

The proposed traffic management arrangement for the Site consists of:

- Provision of a temporary driveway into Lots 201 and 204;
    - Footpath closures are not proposed as this footpath is not connected to any completed buildings and rarely used by pedestrians. Footpath activity will be monitored by the Traffic Controllers when required.
- Provision of a temporary construction access route into Lots 201 and 204; and
- Display of associated traffic management signage at Johnston Crescent.

Refer to **Appendix B** for the swept path analysis and **Appendix C** for Traffic Control Plan for further details.

2.3.1 Traffic

The peak period for construction would be during the concrete pour phases, where it is estimated that there would be a peak of 60 truck movements a day, which is equivalent to approximately 2-3 trucks per hour.

As this development is located within a greenfield industrial development area, that currently have very low traffic volumes, the increased traffic associated with construction activities will have minor impacts on the existing road network.

During this Stage, a mobile crane (weighing between 40 Tonne to 60 Tonne) will be used to lift and set up the precast panels. The mobile cranes will access the site from the proposed driveway (established in Stage 1) and be located within the site.

Larger deliveries (such as structural steel deliveries and precast panels) will be made by vehicles up to 20 m AVs where it will enter and exit the site in a forward direction. Vehicles up to 12.5 m HRVs will deliver plants (including booms, excavators and cladding materials) and will also enter and exit the site in a forward direction.

2.3.2 After Care Works

After the completion of activities, an aftercare arrangement will be implemented removing all implemented traffic management signage and treatments from the Site's frontage to Johnston Crescent.

2.3.3 Contractor Parking

It is estimated that during the peak construction works, there would be a maximum of 60 site personnel. Most of the contractors will be asked to park within the site.

Furthermore, contractors would be actively encouraged to carpool to the Site and actively discouraged from using on-street parking.

Appendix A. Driver Code of Conduct

Drivers Code of Conduct

Safe Driving Policy for Lots 201 and 204 (located at 8 and 10 Johnston Crescent), Horsley Park.

Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks on the local and regional road network;
- To minimise conflict with other road users;
- To minimise road traffic noise; and
- To ensure truck drivers use specified heavy vehicles routes between the Site and the sub-regional road network.

Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care for his or her own personal health and safety;
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons;
- Notify their employer if they are not fit for duty prior to commencing their shift;
- Obey all applicable road rules and laws at all times;
- In the event an emergency vehicle behind your vehicle, pull over and allow the emergency vehicle to pass immediately;
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness;
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas;
- Ensure all loads are safely contained / restrained, as necessary;
- Drive over devices – located at the site's access – to vibrate off and wash off any loose material attached to heavy vehicles;
- Operate their vehicles in a safe and professional manner, with consideration for all other road users;
- Hold a current Australian State or Territory issued driver's licence;
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way;
- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs;

- Not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device;
- Advise management of any situations of which you know, or think, may present a threat to workplace health and safety;
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary; and
- Have necessary identification documentation at hand and ready to present to security staff on entry and departure from the Site, as necessary, to avoid unnecessary delays to other vehicles.

Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers;
  - Names and addresses of the other vehicle drivers;
  - Names and addresses of witnesses; and
  - Insurers details.
- Give the following information to the involved parties:
  - Name;
  - Address; and
  - Company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash;
  - If there are injuries; and / or
  - If you damage property other than your own.
- As soon as reasonably practical, report all incident details to your manager.

Appendix B. Swept Path Analysis

Appendix C. Traffic Control Plans

8.7 Stormwater Management Plan

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C012990.09-C25.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY FOR FAIRFIELD (31.5mm).

SEDIMENT BASIN 201:

CATCHMENT AREA	= 10.44ha
REQUIRED BASIN VOLUME	= 2,466m³
BASE DIMENSION (LxB)	= 21.0m x 40.0m
TOP DIMENSION (LxB)	= 33.0m x 52.0m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 2.0m
PROVIDED BASIN VOLUME	= 2,504m³

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
3. Cv = 0.5 & LENGTH TO WIDTH RATIO OF 2 (MIN.)

SOIL TYPE TO BE ASSESSED BY A GEOTECHNICAL ENGINEER

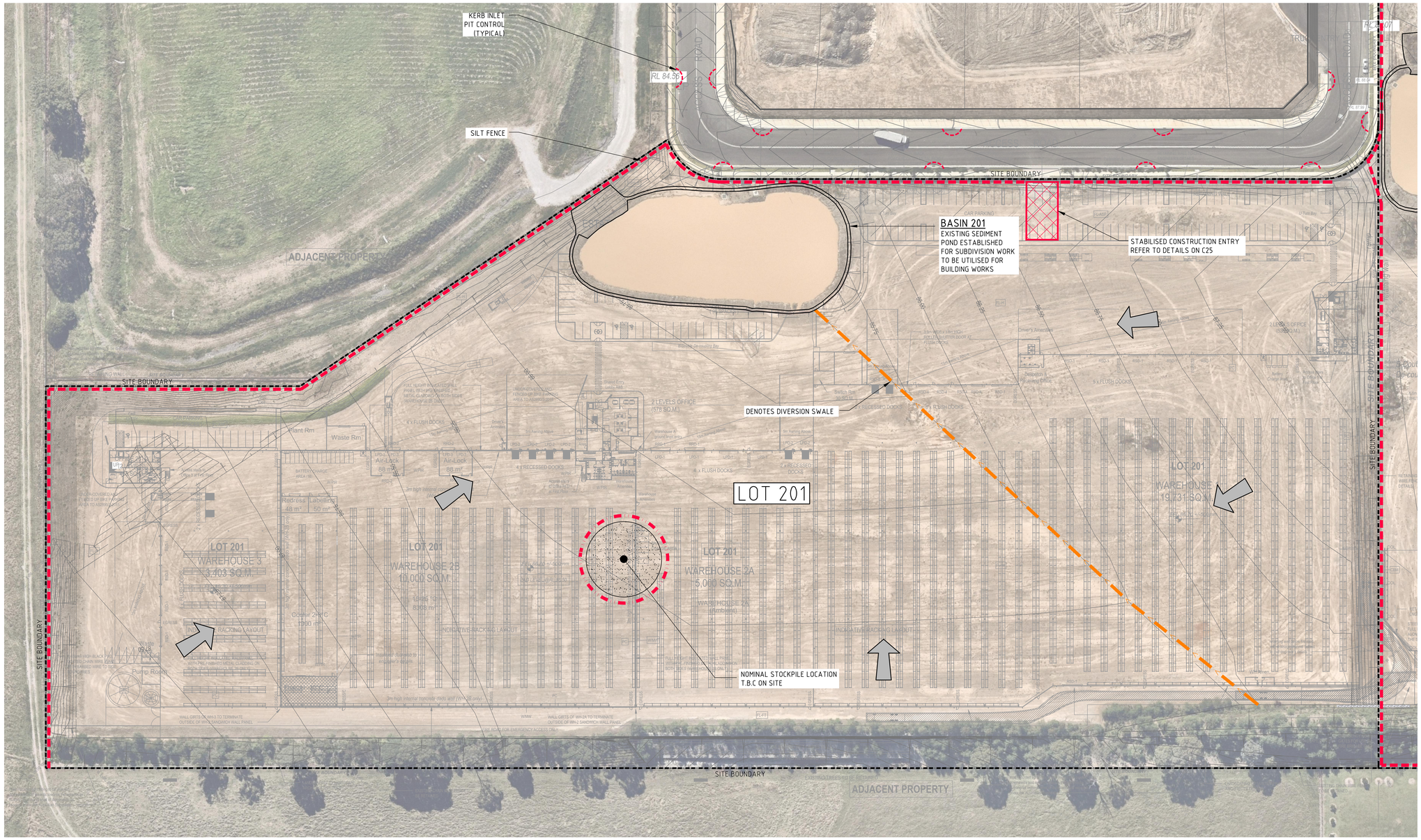
POND DEWATERING NOTES:

1. DRAIN PONDS OF WATER & DISCHARGE CLEAN WATER TO STORMWATER DRAINAGE SYSTEM (AS PER NOTES 2 & 3) - REFER TO STORMWATER PLAN FOR LOCATIONS.
2. DEWATERING TO BE PERFORMED IN SUCH A MANNER AS TO REMOVE CLEAN WATER WITHOUT REMOVING OR DISTURBING SILT, SEDIMENT OR OTHER ORGANIC MATERIAL FROM THE BASE OF THE PONDS.
3. DISCHARGE OF WATER FROM PONDS TO HAVE A PH RANGE OF 6.5-8.5 AND TSS < 50mg/L. PONDS TO BE DOSED WITH GYPSUM (APPROX. 30mg PER CUBIC METRE) TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS.
4. REMOVE ALL SILT, ORGANIC AND WATER LOGGED MATERIAL FROM BASE OF POND (NOM. DEPTH 0.5-1.0m) AND DISPOSE OF IN ACCORDANCE WITH THE ACCEPTABLE PRACTICE.
5. EXPOSE NATURAL SITE SOILS AND COMPACT SUBGRADE IN ACCORDANCE WITH THE SITE PREPARATION NOTES (REFER DRG. SSDA10) REMOVING ANY SOFT ZONES AS REQ'D.
6. PLACE AND COMPACT FILL AS PER SITE PREPARATION NOTES ON DRAWING C10.
7. INFORMATION PROVIDED ON THIS DRAWING SHALL BE USED TO GUIDE THE DEVELOPMENT OF THE COSNTRUCTION ENVIRONMENTAL MANAGEMENT PLAN THAT SHALL BE IMPLEMENTED DURING CONSTRUCTION

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS.
TYPICAL (N.S.O.P.)

- DENOTES DIVERSION DRAIN
- DENOTES SILT FENCE WITH CATCH DRAIN
- DENOTES SILT FENCE ONLY
- DENOTES OVERLAND FLOW PATH
- DENOTES CONSTRUCTION ENTRY



EROSION & SEDIMENT CONTROL NOTES:

REFER TO DRAWING C10 FOR EROSION & SEDIMENT CONTROL NOTES

EROSION SEDIMENT CONTROL PLAN
SCALE 1:500

5m 0 10 20 30 40 50m
SCALE 1:500 AT A0 SIZE SHEET

FOR APPROVAL

AMENDMENTS	DATE	ISSUE
ISSUE FOR APPROVAL	07.05.21	A

ARCHITECT: hla architects

CLIENT: HANSEN YUNCKEN ESR

PROJECT: ESR HORSLEY LOGISTICS PARK
LOT 201
327-335 BURLEY ROAD, HORSLEY PARK, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
TF	ML	MAY '21	XC	A0	AS SHOWN	C012990.09-C20

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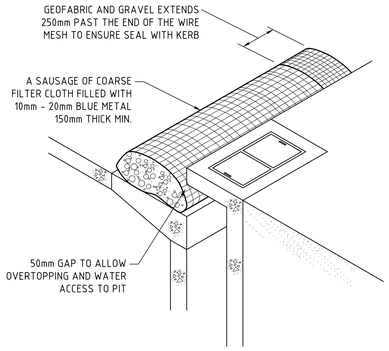
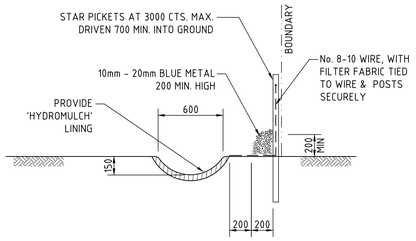
Costin Roe Consulting
PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: EROSION SEDIMENT CONTROL PLAN
DRAWING No: C012990.09-C20
ISSUE: A



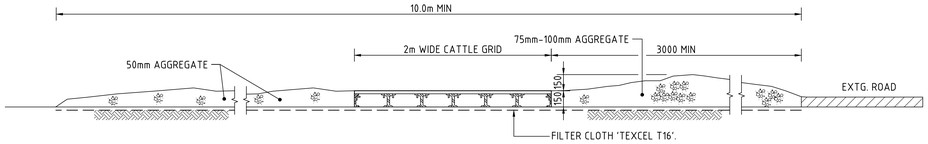
KERB INLET CONTROL

N.T.S

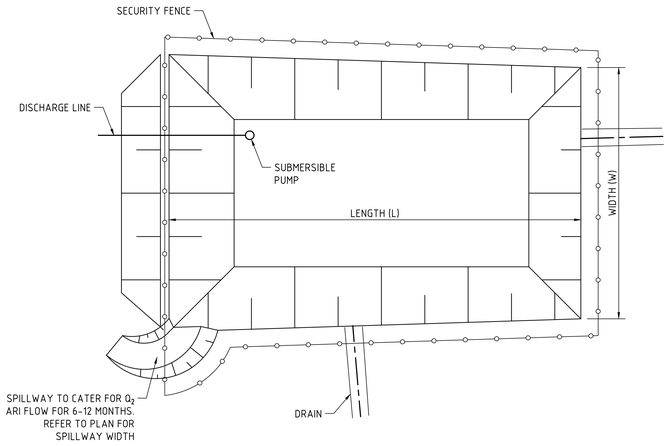


TYPICAL OPEN DRAIN & SILT FENCE

SCALE 1:20

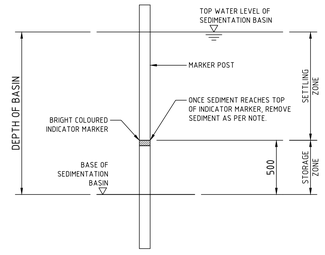


SECTION 1:20 (1) : STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'



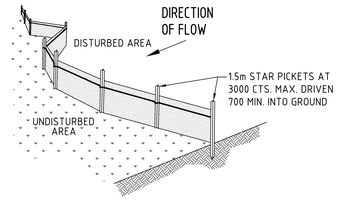
TYPICAL SEDIMENT CONTROL POND PLAN

SCALE 1:250



SEDIMENT STORAGE MARKER

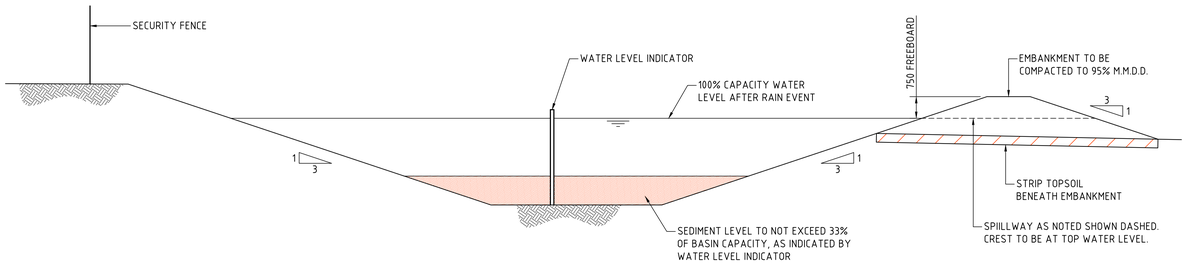
SCALE 1:20



TYPICAL SILT FENCE DETAIL

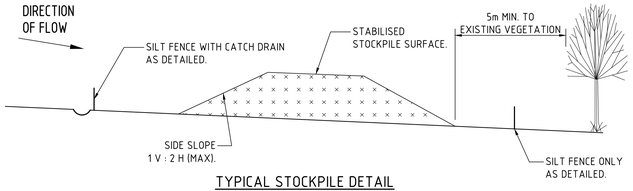
N.T.S

NOTE: PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL



TYPICAL SEDIMENT CONTROL BASIN SECTION

SCALE 1:50



TYPICAL STOCKPILE DETAIL

N.T.S

STOCKPILE NOTES

1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.

2m 0 5 10 15 20 25m

SCALE 1:250 AT A0 SIZE SHEET

500mm 0 1 2 3 4 5m

SCALE 1:50 AT A0 SIZE SHEET

200mm 0 500 1000 1500 2000mm

SCALE 1:20 AT A0 SIZE SHEET

FOR APPROVAL

ISSUE	DATE	AMENDMENTS
A	07.05.21	ISSUE FOR APPROVAL

ARCHITECT: hla

CLIENT: HANSEN YUNCKEN ESR

PROJECT: ESR HORSLEY LOGISTICS PARK
LOT 201
327-335 BURLEY ROAD, HORSLEY PARK, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
TF	ML	MAY '21	XC	A0	AS SHOWN	C012990.09-C25

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Consulting Engineers ACN 003 696 448
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
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email: mail@costinroe.com.au

Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: EROSION SEDIMENT CONTROL PLAN DETAILS

DRAWING No: C012990.09-C25

ISSUE: A

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C012990.08-C25.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY FOR FAIRFIELD (31.5mm).

SEDIMENT BASIN 204:

CATCHMENT AREA	= 5.69ha
REQUIRED BASIN VOLUME	= 1,344m³
BASE DIMENSION (LxB)	= 14.0m x 28.0m
TOP DIMENSION (LxB)	= 26.0m x 40.0m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 2.0m
PROVIDED BASIN VOLUME	= 1,380m³

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
3. Cv = 0.5 & LENGTH TO WIDTH RATIO OF 2 (MIN.)

SOIL TYPE TO BE ASSESSED BY A GEOTECHNICAL ENGINEER

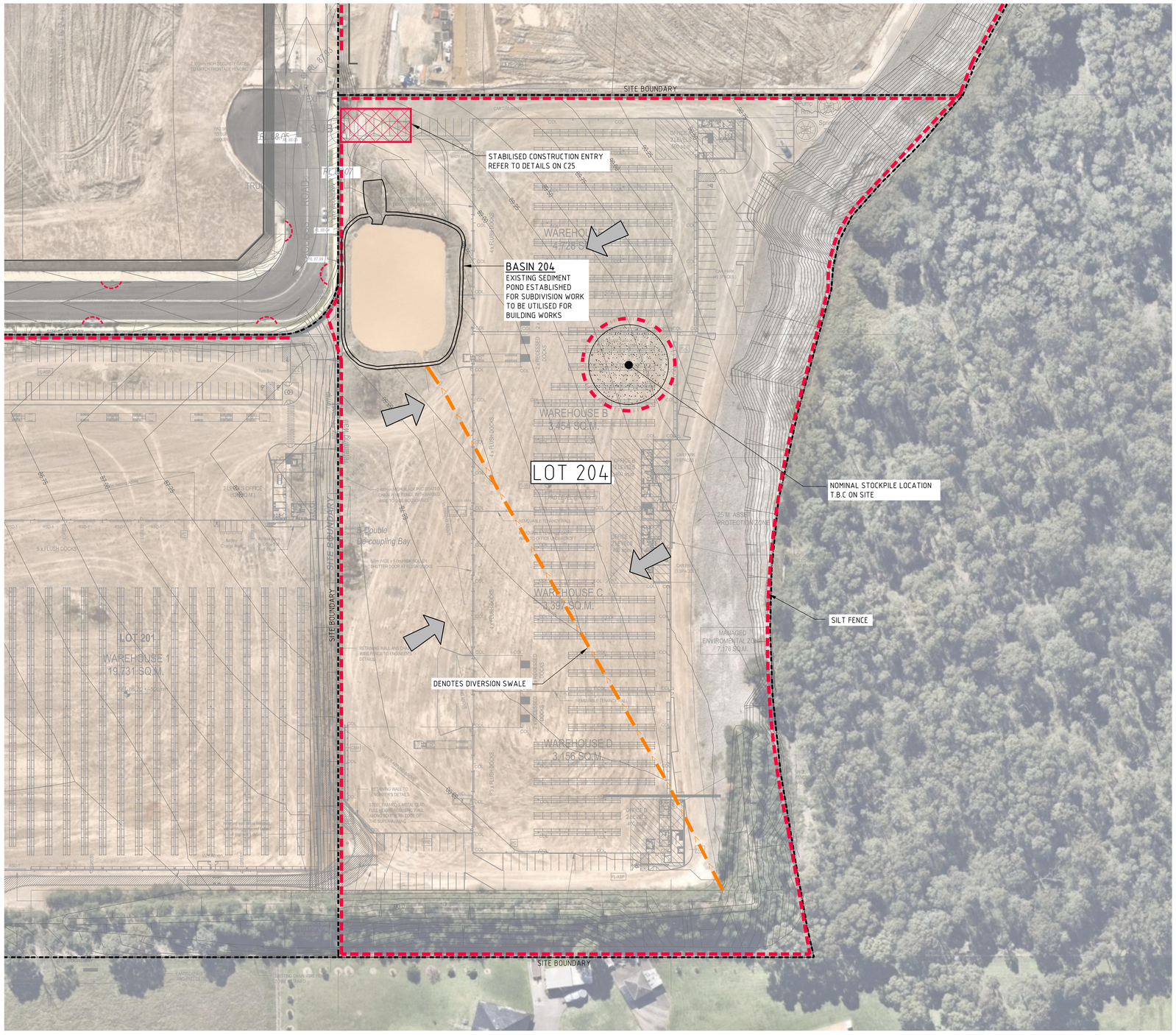
POND DEWATERING NOTES:

1. DRAIN PONDS OF WATER & DISCHARGE CLEAN WATER TO STORMWATER DRAINAGE SYSTEM (AS PER NOTES 2 & 3) - REFER TO STORMWATER PLAN FOR LOCATIONS.
2. DEWATERING TO BE PERFORMED IN SUCH A MANNER AS TO REMOVE CLEAN WATER WITHOUT REMOVING OR DISTURBING SILT, SEDIMENT OR OTHER ORGANIC MATERIAL FROM THE BASE OF THE PONDS.
3. DISCHARGE OF WATER FROM PONDS TO HAVE A PH RANGE OF 6.5-8.5 AND TSS < 50mg/L. PONDS TO BE DOSED WITH GYPSUM (APPROX. 30mg PER CUBIC METRE) TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS.
4. REMOVE ALL SILT, ORGANIC AND WATER LOGGED MATERIAL FROM BASE OF POND (NOM. DEPTH 0.5-1.0m) AND DISPOSE OF IN ACCORDANCE WITH THE ACCEPTABLE PRACTICE.
5. EXPOSE NATURAL SITE SOILS AND COMPACT SUBGRADE IN ACCORDANCE WITH THE SITE PREPARATION NOTES (REFER DRG. SSDA10) REMOVING ANY SOFT ZONES AS REQ'D.
6. PLACE AND COMPACT FILL AS PER SITE PREPARATION NOTES ON DRAWING C10.
7. INFORMATION PROVIDED ON THIS DRAWING SHALL BE USED TO GUIDE THE DEVELOPMENT OF THE COSNTRUCTION ENVIRONMENTAL MANAGEMENT PLAN THAT SHALL BE IMPLEMENTED DURING CONSTRUCTION

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS.
TYPICAL (N.S.O.P.)

- DENOTES DIVERSION DRAIN
- DENOTES SILT FENCE WITH CATCH DRAIN
- DENOTES SILT FENCE ONLY
- DENOTES OVERLAND FLOW PATH
- DENOTES CONSTRUCTION ENTRY



EROSION & SEDIMENT CONTROL NOTES:

REFER TO DRAWING C10 FOR EROSION & SEDIMENT CONTROL NOTES

EROSION SEDIMENT CONTROL PLAN
SCALE 1:500

5m 0 10 20 30 40 50m
SCALE 1:500 AT A0 SIZE SHEET

FOR APPROVAL

AMENDMENTS	DATE	ISSUE
ISSUE FOR APPROVAL	07.05.21	A

ARCHITECT: hlc Architects

CLIENT: HANSEN YUNCKEN ESR

PROJECT: ESR HORSLEY LOGISTICS PARK
LOT 201
327-335 BURLEY ROAD, HORSLEY PARK, 2175

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF.
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Consulting Engineers ACN 065 475 149
Level 1, 6 Windmill Street
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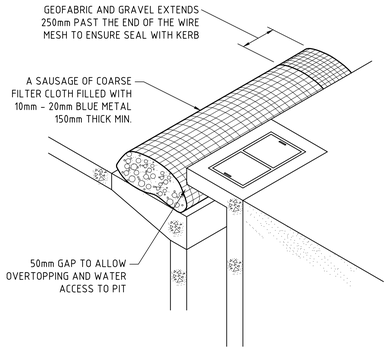
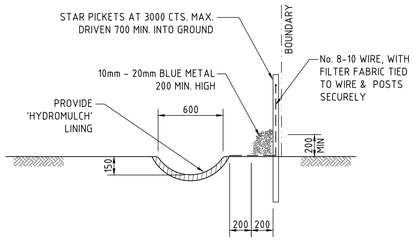


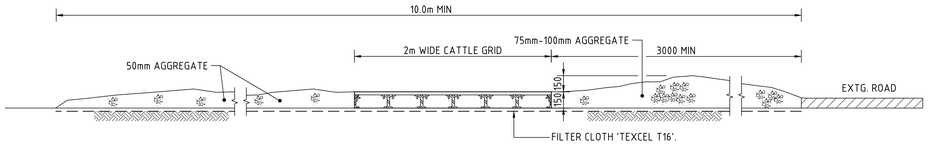
KERB INLET CONTROL

N.T.S



TYPICAL OPEN DRAIN & SILT FENCE

SCALE 1:20



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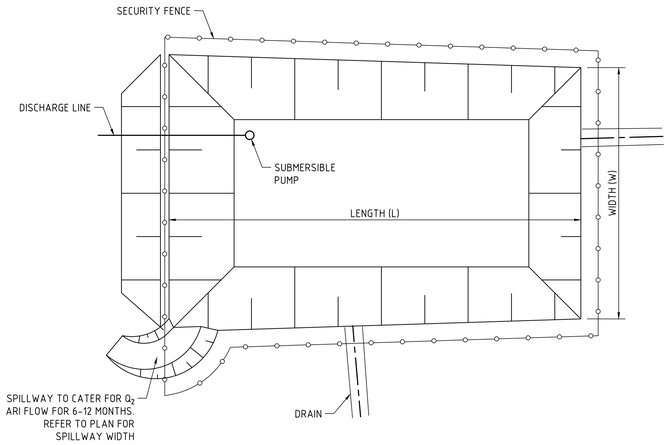
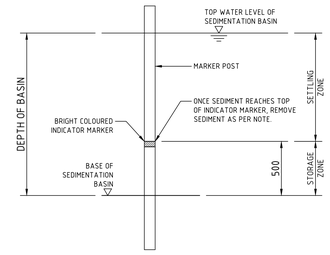


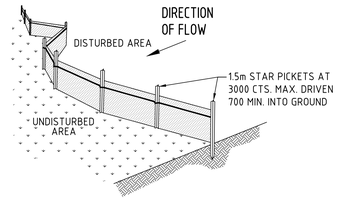
TYPICAL SEDIMENT CONTROL POND PLAN

SCALE 1:250



SEDIMENT STORAGE MARKER

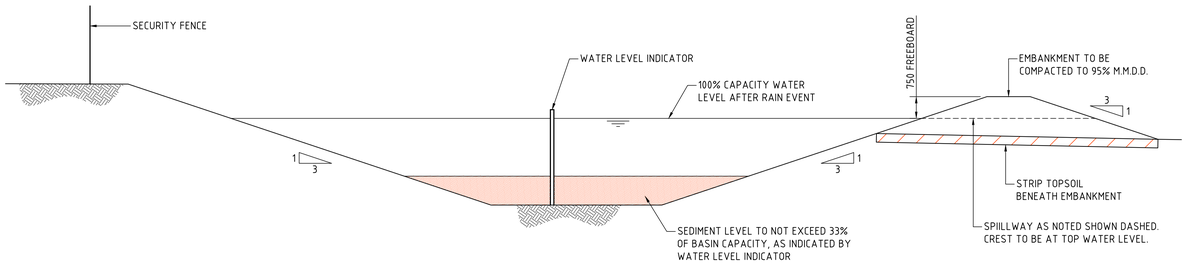
SCALE 1:20



TYPICAL SILT FENCE DETAIL

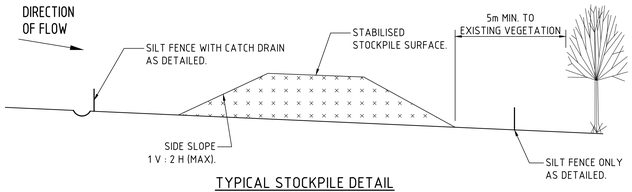
N.T.S

NOTE: PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL



TYPICAL SEDIMENT CONTROL BASIN SECTION

SCALE 1:50



TYPICAL STOCKPILE DETAIL

N.T.S

STOCKPILE NOTES

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3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
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2m 0 5 10 15 20 25m

SCALE 1:250 AT A0 SIZE SHEET

500mm 0 1 2 3 4 5m

SCALE 1:50 AT A0 SIZE SHEET

200mm 0 500 1000 1500 2000mm

SCALE 1:20 AT A0 SIZE SHEET

FOR APPROVAL

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ARCHITECT: hla projects

CLIENT: HANSEN YUNCKEN ESR

PROJECT: ESR HORSLEY LOGISTICS PARK
LOT 201
327-335 BURLEY ROAD, HORSLEY PARK, 2175

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Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: EROSION SEDIMENT CONTROL PLAN DETAILS

DRAWING No: C012990.08-C25

ISSUE: A

8.8 Biodiversity Management Plan

Paul Cassimatis

From: Gorey, Alex <AlexG@ecoaus.com.au>
Sent: Friday, 7 May 2021 2:25 PM
To: Paul Cassimatis
Subject: RE: 210503 - Biodiversity Management Plan - ESR HLP Lot 201 & Lot 204

Hi Paul,

Thanks for your patience with this one. I have spoken to CSR and they have instructed that any requests for existing documents needs to go through ESR, who will then contact CSR.

To clarify, a Biodiversity Management Plan normally covers such things as removal of fauna habitat (i.e. hollow bearing trees) and management of other impacts that could occur to fauna during the construction process. However, given that CSR have cleared your block there should be no biodiversity to manage.

I would recommend very strict erosion and sediment controls in your CEMP and ensuring that you have a 'incidental finds protocol' for any fauna that may turn up unexpectedly.

I hope this is helpful.

Cheers,

Alex Gorey
Ecologist

Eco Logical Australia - A Tetra Tech Company
T +61 2 9259 3773 | M +61 429 707 150

From: Paul Cassimatis <PCassimatis@hansenyuncken.com.au>
Sent: Thursday, 6 May 2021 1:39 PM
To: Gorey, Alex <AlexG@ecoaus.com.au>
Subject: RE: 210503 - Biodiversity Management Plan - ESR HLP Lot 201 & Lot 204

Thanks Alex

Kind Regards,

Paul Cassimatis
Design Manager

Annual Compliance Report 2018 - 2019
14 Lot industrial subdivision, Lot 1 DP 106143 Burley Road Horsley Park

CSR Building Products Pty Ltd

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Annual Compliance Report 2018 - 2019 14 Lot industrial subdivision, Lot 1 DP 106143 Burley Road Horsley Park
Project Number	17SYD - 8900
Project Manager	Alex Gorey
Prepared by	Alex Gorey
Reviewed by	David Bonjer
Approved by	David Bonjer
Status	**Final**
Version Number	**2**
Last saved on	**6 February 2020**

This report should be cited as 'Eco Logical Australia 2020. *Annual Compliance Report 2018 - 2019, Horsley Park*. Prepared for CSR Building Products Pty Ltd.'

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from CSR Building Products Pty Ltd and Calibre Consulting Group.

Template 2.8.1

Contents

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List of Tables

1. Introduction

1.1 Project Background

CSR Building Products Pty Ltd (CSR) lodged a development application (893.1/2013) with Fairfield City Council in December 2013 to subdivide the current lot (Lot 1 DP106143) into a 14 lot industrial subdivision, including one residual conservation lot (the study area). The development was approved by the NSW Land and Environment Court (Case CSR Building Products Ltd v Fairfield City Council [2015] NSWLEC 1284).

The 14 lot subdivision would occur over three stages and result in the creation of employment purposes, environmental conservation, public roads and associated stormwater infrastructure. The site (incorporating both development and conservation areas) is about 72.55 ha.

The development site is still partially used as a brick quarry and production facility. A majority of the site is cleared of vegetation. Some remnant patches of *Cumberland Plain Woodland and Shale Gravel Transition Forest in the Sydney basin bioregion* – a critically endangered community listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are present in the study area.

The action was referred to the Department of Environment and Energy (DotEE) due to a significant impact to *Cumberland Plain Woodland and Shale Gravel Transition Forest*. A referral was submitted in 2016 (EPBC 2016/7744). The proposed development was approved on 8 November 2017 with conditions.

Eco Logical Australia Pty Ltd (ELA) has prepared this Compliance Report on behalf of the proponent, CSR Building Products Pty Ltd, to assess compliance with the conditions for the period **November 2018 - November 2019** as set out in Industrial Subdivision of Lot 1 DP 106143, 327 – 335 Burley Road Horsley Park NSW (EPBC 2016/7744) (*Environment Protection and Biodiversity Conservation Act 1999* (EPBC) 2013/6979) approval signed 8 November 2017 (the Approval). This report has been prepared to address the requirements of Condition 11 (EPBC 2016/7744).

1.2 Project status

1.2.1 Commencement of works

Prior to the commencement of any works in the study area, sediment fencing, animal friendly fencing and *Phytophthora cinnamomic* controls were placed around the boundary of the Conservation Lot. These controls formed part of the conditions of consent and the Vegetation Management Plan (VMP) (Travers Bushfire and Ecology 2016) (**Appendix A**)

Stage 1 commenced on 9 November 2017 with the works limited to minor earthworks and tree clearing. Stage 1 has since been completed. Stage 2 commenced on 16 March 2018 with earthworks and tree clearing continuing throughout this stage. Implementation of the VMP commenced with the protective fencing. On ground VMP works commenced in March 2018 and have continued throughout 2019, including weed management (**Appendix B**).

Remediation of land in Stage 2 has commenced to allow the implementation of the Planting Plan in the Managed Ecological Zone. Sediment fencing and permanent fencing to prevent unlawful access has also

been completed. Implementation of the Planting Plan will commence once all land remediation has been completed (**Appendix C**), which is anticipated to be in early – mid 2020.

1.2.2 Securing the conservation lot

Consistent with condition 6 of the conditions of approval, the conservation area must be secured using a conservation mechanism within one year of the completion of the 10 year VMP. If this condition is not pursued, the proponent must adhere to condition 5(a) and legally secure the conservation area within two years of the commencement of works in stage 2.

The proponent liaised with the Department and secured the conservation area through the application of a Section 88B instrument under the NSW Conveyancing Act which outlines the following which is registered on title for the conservation lot:

- EPBC Act conditions of approval relevant to the conservation lot
- requirement to implement the VMP until such time as a Biodiversity Stewardship Agreement is established for the site
- the intention to manage and conserve the conservation lot in-perpetuity.

The Department agreed to the application of a Section 88B instrument provided that a Stewardship Agreement is established within one year of the completion of the VMP. The Section 88B instrument was registered with Fairfield City Council on 26 August 2019 and signed by all relevant parties (Appendix F).

A Biodiversity Stewardship Site Assessment Report, consistent with the *Biodiversity Conservation Act 2016* (BC Act) Biodiversity Assessment Methodology has been prepared and submitted to Department of Planning, Industry and Environment (DPIE) for assessment and approval. This would conserve and manage the Cumberland Plain Woodland and other ecological values in the conservation area (Appendix G).

1.2.3 Implementation of on-site works

The following works have also continued within the on-site conservation area;

- installation of fauna friendly fencing around the conservation lot
- installation of *Phytophthora cinnamomic* controls
- installation of sediment fencing
- commencement of earthworks in Stage 1 and 2
- primary weed control
- maintenance weed control
- grassland weed control
- follow up weed control
- reintroduction of woody debris
- spreading recovered topsoil
- remediation of batters in Stage 1 and Stage 2.

These undertakings are guided by the site-specific vegetation management plan prepared by Travers Bushfire and Ecology (2016) and implemented by ELA.

1.3 Variations

The proponent has not applied for any variations under the current EPBC Act approval.

1.4 Reason for this report

This report has been prepared in compliance with condition 11 of the EPBC Approval which states:

Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any conditions of this approval must be provided the Department at the same time as the compliance report is published. Reports must remain on the website for the life of the approval. Reports must continue to be published until such time as advised by the Minister in writing.

ELA has prepared this compliance report on behalf of CSR examining compliance of the conditions set out by DotEE. As the works commenced 9 November 2017, the annual reporting is accordingly due 9 February 2018 (i.e. within 3 months of the 12-month anniversary). The following sub-sections discuss the conditions which required detail. Section 2 illustrates the compliance relative to each condition.

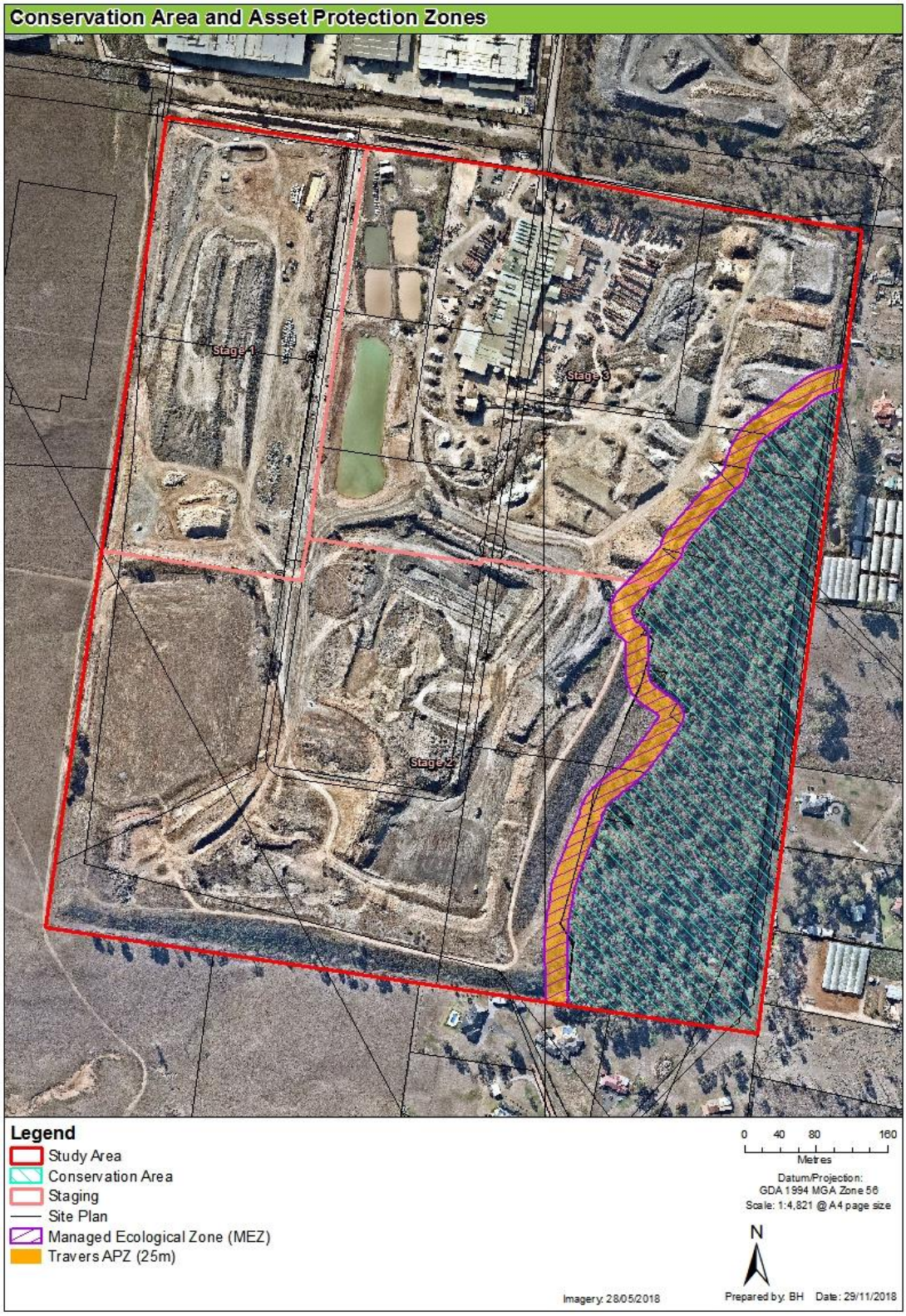

Figure 1: Staging map

2. Compliance reporting

The following table provides a summary of the approved condition and their respective compliance status, outcomes achieved and whether further action is required. Additional information for some of the conditions of approval are presented in **Section 3**.

Table 1: Compliance with conditions of approval

Number	Condition	Compliance Y/N	Date due	Status	Details
1	The approval holder must not clear more than 2.85 hectares of EPBC Act listed Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (CPW) at the proposed action area.	Y	Ongoing	Ongoing	All clearing of EPBC Act CPW contained within approved development footprint and has not exceeded 2.85 ha. Currently 2.04 ha has been cleared (Figure 2)
2	Before commencement of the action, the approval holder must construct a fence around the conservation area, shown in the map at Appendix A. The fence must enclose the full conservation area along a boundary that has been located by a registered surveyor and must ensure the conservation area is a minimum 10.14 hectares in size.	Y	Prior to commencement of the action	Complete	Constructed prior to commencement of action (**Appendix E**).
3	The approval holder must not commence works in either Stage 2 or Stage 3 until it has commenced implementation of the Vegetation Management Plan (VMP) for the conservation area shown in the map at Appendix A. Once implementation of the VMP has commenced, it must continue as described in the VMP for the full period covered by the VMP.	Y	Prior to commencement of Stage 2 and Stage 3	Complete	Implementation of VMP commenced March 2018. Commenced with fencing and weed removal (**Appendix E**). Stage 2 works commenced on 16 March 2018. Permanent fencing around conservation area will be complete March 2020
4	No clearing of EPBC Act listed CPW may occur in the conservation area shown in the map at Appendix A. The approval holder also must not commence works in either Stage 2 or Stage 3 until it has implemented measures to prevent construction run-off from impacting CPW in the conservation area.	Y	Ongoing / prior to commencement of Stage 2 and Stage 3	Ongoing	No clearing in the conservation lot has occurred. Sediment fencing and exclusion fencing was constructed around the conservation lot in November 2017 (**Appendix E**).

Number	Condition	Compliance Y/N	Date due	Status	Details
5a	To compensate for the loss of 2.85 hectares of EPBC Act listed CPW and habitat for Grey-headed Flying-fox (*Pteropus poliocephalus*), the approval holder must: legally secure the conservation area shown indicatively in the map at Appendix A in perpetuity for conservation purposes. The offset mechanism used to legally secure the offset site must be in place within two years of the commencement of works in Stage 2, and must remain in place for the life of the approval, unless replaced as per Condition 6. The approval holder must: notify the Department within 30 calendar days of the offset mechanism being created notify the Department within 10 business days of the commencement of Stage 2	Condition 6 pursued – BSSAR in preparation	2029	Ongoing	Subject to condition 6 (Section 3)
5b	not begin the transfer of ownership for any of the lots to be created by the action in Stage 2 or Stage 3 until the offset mechanism is in place and the Department has been satisfied of the mechanism's legal security (subject to Condition 6)	Y	Post creation of offset mechanism	Complete.	Section 88B established in August 2019. Sales contract entered in to in October 2019. S88B will be followed by the establishment of a Stewardship Agreement
5c	implement the VMP dated 14 July 2017 across the conservation area (including buffer areas) as it relates to EPBC Act listed matters for at least 10 years from the date of this approval decision, including meeting the specified restoration performance targets in chapter 4.3, as well as an additional performance target of: at least four groundcover I grass plants characteristic of EPBC Act listed CPW per square metre within the conservation area	Y	Prior to commencement of Stage 1	Ongoing	Commenced November 2017
5d	prepare and implement a Planting Plan for the managed ecological zone (MEZ) adjoining the conservation area to achieve the quality metrics specified in the VMP, including but not limited to: at least six native groundcover / grass plants characteristic of EPBC Act listed CPW per square metre within the MEZ.	Y	No timing specified	Ongoing	MEZ will be planted out as per the Planting Plan once land remediation has been completed. Land remediation in stage 2 has commenced.

Number	Condition	Compliance Y/N	Date due	Status	Details
6a	If the offset mechanism used to legally secure the offset site under Condition 5 was not biobanking or a Commonwealth-endorsed New South Wales Government successor mechanism, the offset mechanism must include: provisions requiring the consent of the Department before the mechanism may be removed				
6b	provisions requiring that, within one year of the expiry of the 10 year period covered by the VMP, the title holder must: secure a biobank site within the conservation area as shown in the map at Appendix A, through a Biobanking Agreement obtain an approved Biobanking Agreement, for the establishment of the Biobank site (required by Condition 6(b)(i)), with the NSW Office of Environment and Heritage. The Biobanking Agreement for the biobank site must: contain a specific reference to EPBC Act listed ecological communities and species impacted by the proposed action reference relevant EPBC Act guidelines and policies, and the requirements of these conditions prevent any future development activities include a provision that ensures the active conservation management of the biobank site to maintain the conservation area at the same quality metrics outlined in the VMP.	Y	Within two years of commencement of Stage 2 (condition 5a)	Complete.	Section 88B instrument implemented and placed on title on 26 August 2019

Number	Condition	Compliance Y/N	Date due	Status	Details
	implement the Biobanking Agreement once it is established retire all credits generated by the Biobank site, and not use those credits to offset the impacts of another action nor allow another party to use those credits to offset the impacts of another action. If this Condition is activated, but the biobanking scheme no longer operates and has been replaced by an endorsed New South Wales Government successor mechanism, all references to biobanking in this Condition shall be taken to refer to equivalent provisions of the endorsed successor mechanism.				
7	The approval holder must include clauses in any sale contract covering the conservation area that require any buyer or buyers of land including all or part of the conservation area must: implement the VMP abide by, and implement any requirements of, the offset mechanism described in Condition 5 not seek to remove, or consent to the removal of, the offset mechanism described in Condition 5 except with the consent of the Department not re-sell land including all or part of the conservation area unless any new sales contract or contracts transfer to the new buyer or buyers all obligations imposed under Condition 7 (including this obligation).	Y	after the establishment of a conservation agreement for the conservation area	Complete	Contracts of sale have been prepared for the following: Lot 201, Lot 202, Lot 204, Lot 206 6 Johnston Crescent Horsley Park between CSR Building Products Limited and ESR Investment Management 2 (Australia) Pty limited. Each agreement was entered in to on 31 October 2019, which was after the establishment of a legal instrument to secure the conservation area (established on 26 August 2019)
8	The person taking the action must ensure that all appropriate hygiene measures are implemented for all works associated with the action, to prevent the spread of *Phytophthora cinnamomi* onto the site or the conservation area.	Y	Before works commenced in conservation lot	Complete	Implemented through placement of boot wash down facility complete with dirt remover and spray disinfectant on 9 November 2017
9	Within 30 days after substantial commencement of the action, the person taking the action must advise the Department in writing of the actual date of commencement.	Y	Within 30 days of commencement of the action	Complete	8 December 2017 Wayne Pasalich of CSR emailed Kat Dunstan of DotEE to notify of commencement of action.

Number	Condition	Compliance Y/N	Date due	Status	Details
10	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the VMP, the Planting Plan, the MEZ, the offset mechanism, and any Biobanking Agreement for the conservation area, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	Y	After completion of each stage / reporting requirement	Ongoing	Reports available at https://www.csr.com.au/about-us/workplace-health-safety-environment/environment)
11	Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain on the website for the life of the approval. Reports must continue to be published until such time as advised by the Minister in writing.	Y	Within three months of every 12 month anniversary of the commencement of the action	Ongoing	Annual compliance report prepared by ELA with assistance from CSR and Calibre Group
12	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	N/A	N/A	N/A	Independent audit not requested during 18/19 compliance period
13	The person taking the action may choose to revise a management plan, program or strategy approved by the Minister under Conditions 3, 5, or 10 without submitting it for approval under section 143A of	N/A	N/A	N/A	No revisions have been requested during 18/19 compliance period

Number	Condition	Compliance Y/N	Date due	Status	Details
	the EPBC Act, if the taking of the action in accordance with the revised plan, program or strategy would not be likely to have a new or increased impact. If the person taking the action makes this choice they must: notify the Department in writing that the approved plan, program or strategy has been revised and provide the Department with an electronic copy of the revised plan, program or strategy; implement the revised plan, program or strategy from the date that the plan, program or strategy is submitted to the Department; and for the life of this approval, maintain a record of the reasons the approval holder considers that taking the action in accordance with the revised plan, program or strategy would not be likely to have a new or increased impact.				
13A	The person taking the action may revoke their choice under Condition 13 at any time by notice to the Department. If the person taking the action revokes the choice to implement a revised plan, program or strategy, without approval under section 143A of the EPBC Act, the plan, program or strategy approved by the Minister must be implemented.	N/A	N/A	N/A	No revisions have been requested during 18/19 compliance period
13B	Condition 13A does not apply if the revisions to the approved plan, program or strategy include changes to environmental offsets provided under the plan, program or strategy in relation to a matter protected by a controlling provision for the action, unless otherwise agreed in writing by the Minister. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised plan, program or strategy would, or would not, be likely to have new or increased impacts.	N/A	N/A	N/A	No revisions have been requested during 18/19 compliance period
13C	If the Minister gives a notice to the person taking the action that the Minister is satisfied that the taking of the action in accordance with the revised plan, program or strategy would be likely to have a new or increased impact, then:	N/A	N/A	N/A	No revisions have been requested during 18/19 compliance period

Number	Condition	Compliance Y/N	Date due	Status	Details
	Condition 13 does not apply, or ceases to apply, in relation to the revised plan, program or strategy; and The person taking the action must implement the plan, program or strategy approved by the Minister. To avoid any doubt, this condition does not affect any operation of Conditions 13, 13A and 138 in the period before the day the notice is given. At the time of giving the notice the Minister may also notify that for a specified period of time that Condition 13 does not apply for one or more specified plans, programs or strategies required under the approval.				
13D	Conditions 13, 13A, 138 and 13C are not intended to limit the operation of section 143A of the EPBC Act which allows the person taking the action to submit a revised plan, program or strategy to the Minister for approval.	N/A	N/A	N/A	No revisions have been requested during 18/19 compliance period
14	If, at any time after five years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.	N/A	N/A	Complete	The action has substantially commenced
15	Unless otherwise agreed to in writing by the Minister, the person taking the action must publish all management plans, reports, strategies, agreements referred to in these conditions of approval on their website. Each rnanaqernent plan, report, strategy, agreement must be published on the website-within one month of being approved by the Minister or being submitted under Condition 13(a).	Y	Within one month from DotEE approval	Ongoing	Reports available at https://www.csr.com.au/about-us/workplace-health-safety-environment/environment)

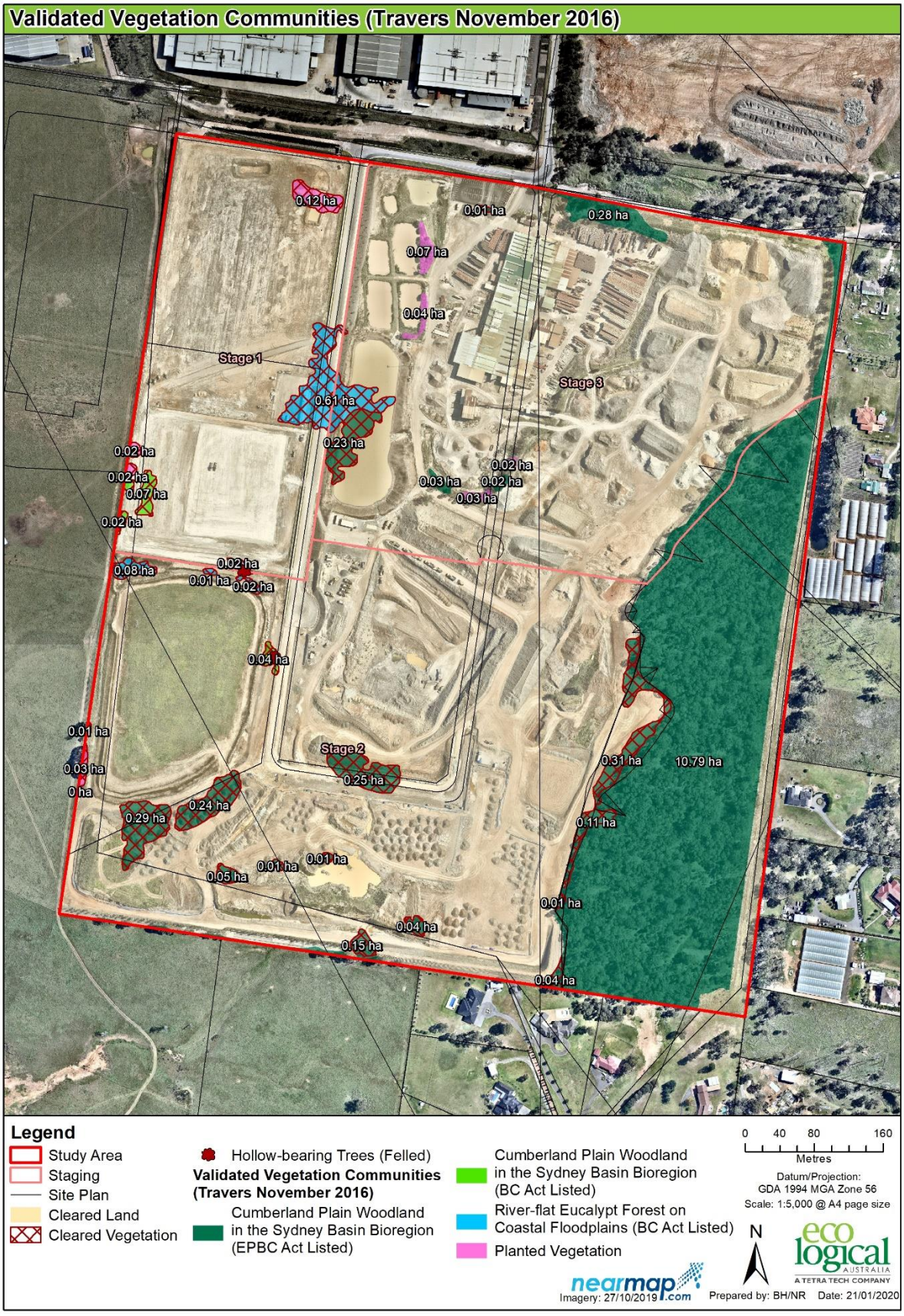

Figure 2: Cumberland Plain Woodland (EPBC Act) removed and retained in the study area (January 2020)

3. Additional information

3.1 Offset mechanism for the Conservation Lot

Condition 6 of the EPBC consent conditions specifies:

If the offset mechanism used to legally secure the offset site under Condition 5 was not biobanking or a Commonwealth-endorsed New South Wales Government successor mechanism, the offset mechanism must include:

a. *provisions requiring the consent of the Department before the mechanism may be removed*
b. *provisions requiring that, within one year of the expiry of the 10 year period covered by the VMP, the title holder must:*
    i *secure a biobank site within the conservation area as shown in the map at Appendix A, through a Biobanking Agreement*
    ii *obtain an approved Biobanking Agreement, for the establishment of the Biobank site (required by Condition 6(b)(i)), with the NSW Office of Environment and Heritage. The Biobanking Agreement for the biobank site must:*
        - *contain a specific reference to EPBC Act listed ecological communities and species impacted by the proposed action*
        - *reference relevant EPBC Act guidelines and policies, and the requirements of these conditions*
        - *prevent any future development activities*
        - *include a provision that ensures the active conservation management of the biobank site to maintain the conservation area at the same quality metrics outlined in the VMP.*
        - *implement the Biobanking Agreement once it is established*
        - *retire all credits generated by the Biobank site, and not use those credits to offset the impacts of another action nor allow another party to use those credits to offset the impacts of another action.*

If this Condition is activated, but the biobanking scheme no longer operates and has been replaced by an endorsed New South Wales Government successor mechanism, all references to biobanking in this Condition shall be taken to refer to equivalent provisions of the endorsed successor mechanism.

The proponent has chosen to place a Stewardship Agreement over the conservation lot consistent with 6(b); within one year of the expiry of the 10 year VMP.

The mechanism to secure the conservation lot for the interim period is a Section 88B instrument under the *NSW Conveyancing Act 1919*. Such an instrument is required under the court approval (case name CSR Buildings Products Ltd v Fairfield City Council – 10634/2014). The court order specifies that:

> *2. Prior to the issue of any subdivision certificate, written certification from a suitable qualified person(s) shall be submitted to the Principal Certifying Authority and Fairfield City Council, stating that all works, methods, procedures, control measures and recommendations approved by Council in the following reports have been completed as appropriate to each stage of development:*

a. *b. Flora Fauna Assessment, prepared by Travers Bushfire and Ecology, File no.A13140TSS, dated 10 March 2014*

Recommendation 1 of the FFA specifies:

1. An 88B instrument that requires the Conservation Lot and surrounding 25 m APZ to be managed in accordance with the approved Vegetation Management Plan (Travers Bushfire and Ecology 2017).

The Department agreed to the application of a Section 88B instrument provided that a Stewardship Agreement is established within one year of the completion of the VMP. The Section 88B instrument was registered with Fairfield City Council on 26 August 2019 (Appendix F).

A Biodiversity Stewardship Site Assessment Report, consistent with the *Biodiversity Conservation Act 2016* (BC Act) Biodiversity Assessment Methodology has been prepared and submitted to Department of Planning, Industry and Environment (DPIE) for assessment and approval. This would conserve and manage the Cumberland Plain Woodland and other ecological values in the conservation area (Appendix G).

4. Conclusion

Eco Logical Australia Pty Ltd, on behalf of CSR Building Products Pty Ltd has prepared this Compliance Report to fulfil condition 11, and in doing so, all conditions of the project Approval (EPBC 2016/7744). Since the commencement of the action there has been no non-compliances.

Appendix A - Vegetation Management Plan (Travers Bushfire and Ecology 2016)

Appendix B - VMP Implementation Progress Report (ELA 2018)

Appendix C - Planting Plan (ELA 2018)

Appendix D - Flora and Fauna Assessment Report (Travers Bushfire and Ecology 2017)

Appendix E - Site photos

Figure 3: Retention of hollow sections for installation in the conservation lot

Figure 4: Placing logs in conservation lot, sediment fencing and animal friendly fencing

Figure 5: Placement of retained logs and hollows in the conservation lot

Appendix F - Section 88B Instrument

Appendix G - Biodiversity Stewardship Site Assessment Report (ELA 2019)

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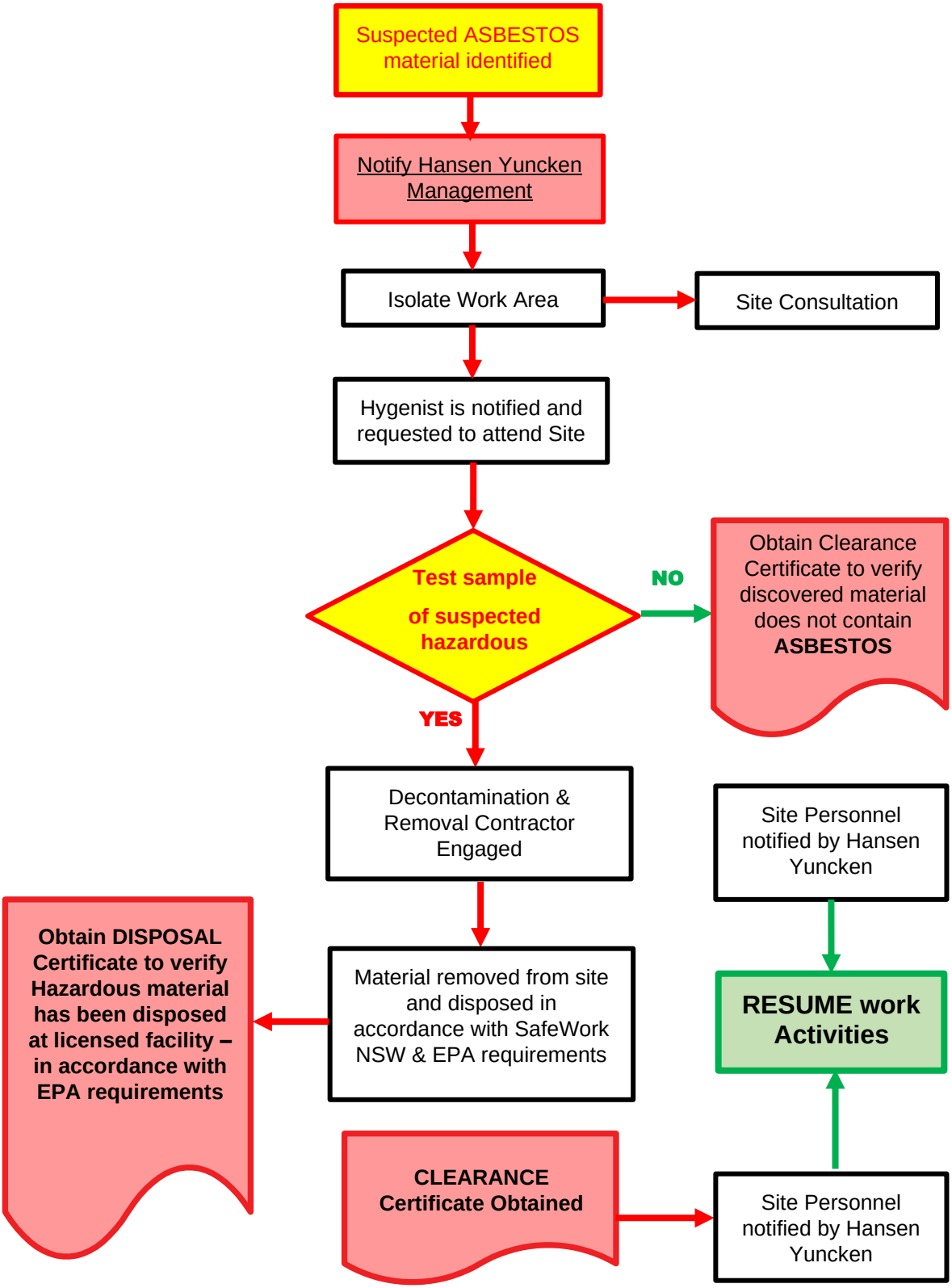
8.9 Unexpected Finds Protocol

Unexpected Finds Protocol - ASBESTOS



8.10 Unexpected Contamination Procedure

- Refer to Appendix C (Pages 227-237)

Remediation Action Plan

327 – 335 Burley Road
Horsley Park
NSW 2175

Prepared for:

Browns Consulting c/-
CSR Australia
Triniti 3
39 Delhi Road
North Ryde NSW 2113

December 2014

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Document Quality Information

Document	**Remediation Action Plan**		
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Prepared by	Steve McAleer	Author	
Reviewed by	David Lane	General Manager	

Revision History Date	**Details**	**Authorised By** (name/position)	**Signature**
Draft 28.11.14	For review by Site Auditor	**David Lane** General Manager	

Distribution of Current Report

Copies	**Recipient**
1 (Electronic) 1 (Bound)	**CSR Australia** Triniti 3 39 Delhi Road North Ryde NSW 2113
1 (Electronic)	**DLA Environmental** On File

Executive Summary

DLA Environmental Services Pty Ltd (DLA) was commissioned by CSR Australia to prepare a Remediation Action Plan (RAP) for the property identified as:

Lot 1 in DP 106143, 327 – 335 Burley Road, Horsley Park NSW (the Site).

A RAP has been prepared to address contamination identified during previous environmental investigations at the Site, in particular:

- Contamination associated with known Underground Storage Tank (UST) locations;
- Potential contamination associated with USTs in presently unknown locations;
- Minor hydrocarbon contamination from on-site Above ground Storage Tanks (ASTs);
- Previously identified Benzo-a-Pyrene (BaP) TEQ contamination hotspots;
- Contamination from former oil storage areas and associated service lines;
- Potentially asbestos containing materials used in on-site bunds;
- Surface water contamination in on-site dams; and
- Sediment contamination in on-site dams.

The RAP has also been developed in consideration of the potential for unidentified contamination existing on-site due to historical and industrial land uses.

This purpose of this report is to set remediation goals and document the management procedures and environmental safeguards to be implemented to ensure the Site will be rendered suitable for the proposed land use and will pose no unacceptable risk to the human health or the environment generally.

Based on the previous investigations and DLA's observations during Phase 2 works, the areas of environmental concern for the Site are:

- The two missing USTs and tank pits at the northern side of the factory;
- The presence of a BaP TEQ and PAH concentration hotspot in TP3 at a depth of 0.5m;
- Aged oil observed on the eastern side of factory at BH51 in former oil storage area;

- The hydrocarbon contamination located on the western side of factory (with possible UST) in the location of BH24 and BH25, including the potential of hydrocarbon contamination of groundwater in the vicinity;
- The presence of the AST and minor elevated hydrocarbon concentrations within one sample at a depth of 0.3m;
- The presence of large bunds around the site with potential for ACM to be present, (this would be dealt with as an unexpected find as no ACM was observed or located during investigation);
- The pH of Dam surface water is outside of the criteria range;
- The heavy metals within water of Dams 1-5; and,
- Sediments within the dams investigated following dewatering of dams.

Given the long history of the site as a highly disturbed area with changes to the topography and landform through the use of imported materials, and the variety of stored petroleum products on-site, DLA Environmental Services Pty Ltd is of the opinion that it is possible that not all site contamination has been identified and/or delineated during previous investigations. Remediation of the Site will be undertaken in a precautionary manner including classification and tracking to isolate any potential areas of unidentified contamination persisting on-site which were not encountered during previous investigations. This includes, but is not limited to, the processes outlined in the response to the request for additional information under Section 6e of the Statement of Facts and Contentions on 9 October 2014 (DL3233_S002187).

The Site strategy selected must be the most cost-effective solution, which does not bring about unacceptable long-term liabilities, and which does not impose unreasonable constraints on future Site developments or present operations. The strategy must also be capable of achieving the technical, environmental and economic objectives outlined in this report.

Based on the analysis undertaken in previous sections, the preferred method is:

Excavate, Classify, Reuse and Dispose

This method has been formulated on the basis of the **Excavate and Off-Site Disposal** Strategy. The strategy has been supplemented with an option for **Reuse** of excavated materials if land use suitability has been demonstrated. This formulation has been developed due to the potential designation of material reuse areas on-site where basement excavation is not proposed and over-excavation of VENM can occur. The steps of excavation, classification, reuse and disposal will be contingent upon contaminant type. This combination of remedial methods is considered

to offer a more cost-effective outcome, whilst at the same time ensuring end land-use suitability with no ongoing liability following remediation.

At the completion of the management and clean-up works, a Validation Report documenting the works as completed will be prepared. The Validation Report will describe the strategic works undertaken at the Site, assess the result of the validation testing, demonstrate that the objectives of this RAP have been achieved and provide justifications for any deviation, statistically confirm that the managed site complies with the Validation Criteria and include any other information as deemed appropriate.

Validation activities will be required for the following areas:

- Validation of hotspot areas;
- Validation of UST removal; and
- Validation of any potential unidentified contamination source areas.

The Site can be made suitable for the intended land-use through remedial action as part of the redevelopment works in accordance with *State Environmental Planning Policy No.55 Managing Land Contamination: Planning Guidelines SEPP 55*.

In conclusion this RAP:

- Has been developed in a manner consistent with current industry practice;
- Has selected a preferred remediation strategy based on the site-specific issues and currently available technologies;
- Has presented an outline of the Site Environmental Management Plan (SEMP) and associated health and safety and remediation management plans to ensure human health and the environment are appropriately protected during the proposed works (**Appendix B**);
- Has presented an information and consultation program to ensure the stakeholders are informed of the works as they proceed (**Appendix B**); and,
- Has outlined the means of validation for the completed works.

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FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 General

DLA Environmental Services Pty Ltd (DLA) was commissioned by CSR Australia to prepare a Remediation Action Plan (RAP) for the property identified as:

Lot 1 in DP 106143, 327 – 335 Burley Road, Horsley Park NSW 2175 (the Site).

A RAP has been prepared to address contamination identified during previous environmental investigations at the Site, in particular:

- Contamination associated with known Underground Storage Tank (UST) locations;
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- Minor hydrocarbon contamination from on-site Above ground Storage Tanks (ASTs);
- Previously identified Benzo-a-Pyrene (BaP) TEQ contamination hotspots;
- Contamination from former oil storage areas and associated service lines;
- Potentially asbestos containing materials used in on-site bunds;
- Surface water contamination in on-site dams; and
- Sediment contamination in on-site dams.

The RAP has also been developed in consideration of the request for further information under Section 6e of the *Statement of Facts and Contentions* following proceeding in the NSW Land and Environment court.

1.2 Objectives

This purpose of this report is to set remediation goals and document the management procedures and environmental safeguards to be implemented to ensure the Site will be rendered suitable for the proposed land use and will pose no unacceptable risk to the human health or the environment generally.

In achieving this end, the report will provide:

- A brief summary of the history and environmental setting of the Site;
- A summary of the previous environmental investigations at the Site;
- A review of the currently available remediation options;

- Details of the preferred remediation strategy and an outline of the methodology for the implementation of the selected strategy;
- Document appropriate procedures for the handling and tracking of materials;
- Details of the adopted validation programme;
- A brief outline of environmental pollution control, community health and safety, and occupational health and safety measures that should be implemented during remedial works; and,
- An outline of regulatory approvals and licenses which may be required to adopt the preferred remedial strategy.

1.3 Remediation Guidelines

The RAP has been prepared with consideration to the following guidelines and legislation:

- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) (NEPC, 1999 as amended 2013);
- Managing Land Contamination, Planning guidelines, SEPP 55: Remediation of Land (DUAP, 1998);
- Contamination Sites: Sampling Design Guidelines (EPA, 1995);
- Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (OEH, 2011);
- Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (DEC, 2006);
- Australian and New Zealand Guidelines for Assessment and Management of Contaminated Sites (ANZECC, 1992);
- Code of Practice for the Safe Removal of Asbestos, 2nd Edition (NOHSC, 2005);
- Work Health and Safety Act 2011 and associated regulations;
- How to Safely Remove Asbestos: Code of Practice (WorkCover, 2011);
- Storage and Handling of Dangerous Goods Code of Practice 2005; and,
- Guidelines for Assessing Service Station Sites (1994).

SITE DETAILS

1.4 Site Identification

The Site identification details are summarised in **Table 1** below:

Table 1 – Site Identification Summary

ITEMS	DETAILS
Site Name	N/A
Address	Lot 1 in DP 106143, 327 – 335 Burley Road, Horsley Park NSW 2175.
Local Government Authority	Fairfield City Council
Site Zoning	*Zoned 1(b) Non-Urban Extractive Industries* (Fairfield City Council Local Environment Plan 2013).
Current Use (NEPM 2013 Table 1A(1)	Commercial / Industrial
Proposed Use (NEPM 2013 Table 1A(1)	Commercial / Industrial
Site Area (approx.)	72ha
Locality Map	Refer to **Figure 1 –** Site Location

1.5 Environmental Setting

1.5.1 Boundaries and Surrounding Land Use

The boundary and surrounding landscape features of the Site are summarised in **Table 2** below:

Table 2 – Boundaries and Surrounding Land Use

DIRECTION	DETAILS
North	Industrial Commercial Precinct
East and South East	Residential and Rural Residential properties
South	Rural Properties
West	Rural Property in Penrith City Council Area

1.5.2 Topography

The Site topography comprises hills that slope gently to the south and south-west (in the western half of the site) and to the south and south east (in the eastern half of the site). These slopes fall from an east-west trending ridge that lies to the north of the site.

1.5.3 Hydrology and Hydrogeology

The hydrology and hydrogeology of the Site are provided in **Table 3** below:

Table 3 – Site Hydrology and Hydrogeology

ITEM	DETAILS
Hydrology	Surface runoff is follows the local topography except where artificial on-site dams and bunds intercept natural flow paths. Where surface water leaves site the nearest receptor in line with the on-site topography is Ropes Creek to the west and Reedy Creek to the east. Both creeks are tributaries of larger creeks which eventually flow to the Hawkesbury River approximately 12 km to the north.
Hydrogeology	Regional groundwater flow is expected to be consistent with the on-site topography, that is, south to southwest for the western half of the site and south to south-east for the eastern portion of the site, towards the two nearest surface water receptors. A search of the NSW Natural Resources Atlas identified 1 groundwater bore within a 1 km radius of the Site. Information obtained from the works reports obtained during the bore search indicated that the bore was registered for domestic stock purposes. The final depth of the bore was 25 metres with standing water level reported as 3.6 metres below ground surface level.

1.5.4 Site Geology and Soils

The 1:100,000 Soil Landscape Sheet for Penrith (9030, 1989) shows the landform to comprise the Blacktown Unit with gently undulating rises on Wianamatta Group bedrock with slopes usually <5% and broad round hill crests.

The Blacktown Unit is described as a 'Residual Landscape'. The soils of this unit comprise hard setting, mottled texture contrast soils, including shallow (<1.5m) red and brown podsols on the crests, grading to deeper (>2m) yellow podsols on the lower slopes and near drainage lines. This unit is associated with known salinity and dispersive hazard, particularly in lower slopes and streamlines where soils have the potential to become waterlogged.

Previous investigations have indicated that the site is covered by a thin layer of topsoil over residual clay soils, which are in turn underlain by weathered sandstone, shale and siltstone bedrock encountered at depths ranging from 0.9 to 5.2 metres.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS

Previous environmental investigations carried out at the Site are listed and described below:

2.1 Phase 1 & 2 Environmental Site Investigations –327-335 Burley Road, Horsley Park NSW (DLA, June 2013 H0033 and September 2013 H0068)

Historical searches indicated that chemical USTs were located immediately to the west of the factory. In the location BH24 and BH25 olfactory and analytical evidence indicated contamination by hydrocarbons from surface to 4.0m. A UST which has not been located may still exist within this area, however investigation at BH26 approximately five metres to the south did not record any hydrocarbon odours or hydrocarbon concentrations within samples.

The area immediately to the east of the factory at location BH51 was a former oil storage area. During the Phase 2 investigation a visual encounter with old oil occurred and was sampled. More former supply lines are expected to be located under the concrete at a depth of 0.3 to 1.0m.

At TP3 located within the north-west corner of the former quarry an exceedance for BaP TEQ at a depth of 0.5m (58 mg/kg) was reported. No other samples or test pit within the local vicinity had concentrations of BaP TEQ indicating that this may be a contamination hotspot and not indicative of broader contamination.

At BH14 near the existing above ground diesel storage tank and septic tank an elevated concentration of hydrocarbons was reported, however the concentration was below the site accepted criteria for a sample collected at 0.3m.

The dangerous goods search indicated that there were two USTs near the former front gate with no record of both of them being removed (only one). The Phase 2 investigation could not locate the tanks or former tank pit areas (even if they had been backfilled).

The results concluded that concentrations of the following analytes were reported below the Laboratory limit of Reported and / or the adopted Soil Assessment Criteria for the samples submitted for analysis:

- Eight Heavy Metals as recommended by NSW EPA;
- Volatile Total Recoverable Hydrocarbons (vTRH);
- Monocyclic Aromatic Hydrocarbons (BTEX);
- Organochlorine Pesticides (OC);

- Organophosphorus Pesticides (OP); and
- Polychlorinated Biphenyls (PCBs).

Refer to, **Appendix A** – NATA Certified Analytical Data, and Refer to **Figures 2,3 and 4** – Sample Locations.

2.2 Environmental Site Assessment – 327 to 335 Burley Road, Horsley Park NSW (GHD, Sept 2009, ref: 21/18584/151190)

This report relates to the Camide Landfill which is not part of this proposal. The report also refers to a previous report by *Environmental Auditors of Australia* report from 2000 relating to removal of one UST at the north of factory.

2.3 Contamination Status

Based on the previous investigations and DLA's observations during investigation works, the areas of environmental concern for the Site are:

- The two missing USTs and tank pits at the northern side of the factory;
- The presence of a BaP TEQ and PAH concentration hotspot in TP3 at a depth of 0.5m;
- Aged oil observed on the eastern side of factory at BH51 in former oil storage area;
- The hydrocarbon contamination located on the western side of factory (with possible UST) in the location of BH24 and BH25, including the potential of hydrocarbon contamination of groundwater in the vicinity;
- The presence of the AST and minor elevated hydrocarbon concentrations within one sample at a depth of 0.3m;
- The presence of large bunds around the site with potential for ACM to be present, (this would be dealt with as an unexpected find as no ACM was observed or located during investigation);
- The pH of Dam surface water is outside of the criteria range;
- The heavy metals within water of Dams 1-5; and,
- Sediments within the dams investigated following dewatering of dams.

Given the long history of the site as a highly disturbed area with changes to the topography and landform through the use of imported materials, and the variety of stored petroleum products on-site, DLA Environmental Services Pty Ltd is of the opinion that it is possible that not all site contamination has been identified and/or delineated during previous

investigations. Remediation of the Site will be undertaken in a precautionary manner including classification and tracking to isolate any potential areas of unidentified contamination persisting on-site which were not encountered during previous investigations. This includes, but is not limited to, the processes outlined in the response to the request for additional information under Section 6e of the Statement of Facts and Contentions on 9 October 2014 (DL3233_S002187).

3.0 SELECTION OF PREFERRED REMEDIATION STRATEGY

3.1 Overview

The *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme* (Second Edition, DEC, 2006) outlines the hierarchical management of wastes as preferred by the EPA. This scheme adopts the *Australian and New Zealand Guidelines for Assessment and Management of Contaminated Sites* (ANZECC, 1992). The Site preferred order of options for management is:

- Excavate and Dispose; and
- Cap and Contain.

3.2 Technical Appraisal

Important considerations (from a technical perspective) in selecting and effectively implementing one of the available remediation strategies for the Site are provided below in **Table 4**.

Table 4 – Technical Considerations

Technical Considerations	Option 1 Capping & Containment	Option 2 Excavate and Off-Site Disposal
Human Health Risks	Low – contaminants do not generally constitute a significant risk when contained. Limited personal contact. The excavation is part of regular quarrying and involves minimal soil disturbance.	Low – excavation and direct off-site disposal will minimise personal contact.
Reliability	Sound – some potential may exist for contaminant break though if cap breached or not maintained properly. Design and management will ensure minimal access to cap surface is possible.	Excellent – system ensures the removal of all contaminated materials.
Regulatory Approvals	Satisfactory – whilst on-site containment is not the EPA's preferred option; it is often accepted as a feasible option.	Satisfactory – waste will satisfy the 2008 NSW DECC *Waste Classification Guidelines*. Compliance with Regulatory Authorities
Site Suitability	Poor – widespread excavations and on-site water storage dams.	Good – Site is accessible by road transport.
Disruption to Site Structures and Activities	Poor – operating site.	Moderate –. Remediation areas can be excavated and treated, but on-site plant movement will need to managed.
Ongoing Liabilities	Moderate – capping system needs to be maintained.	Minimal – all contaminated materials removed.
Contractor Experience	Moderate – contractors available with experience in the implementation of cap and contain systems.	Good – relatively simple strategy involving only basic technologies.
Availability of Disposal Sites	N/A.	Good – landfills available to accept waste.
Implementation Time Frame	Short to moderate.	Short.

Based on the analysis undertaken in **Table 4**, the following salient conclusions are made regarding the technical suitability of the various remediation options available for the Site:

- Excavation and off-site disposal is quick and offers no constraints on future land use;
- Capping and containment method has low health risks as it does not involve a substantial disturbance of the contaminated soils. The option is also a reliable technology and can be implemented on as short time frame; and
- The major disadvantages associated with capping and containment include maintenance requirements and notation that the Site is regarded as containing contamination and is titled accordingly.

Consideration must also be given to the EPA endorsed remediation hierarchy of the *Australian and New Zealand Guidelines for Assessment and Management of Contaminated Sites* (ANZECC, 1992), where excavation and disposal are preferable to capping and containment.

3.3 Economic Appraisal

DLA has performed a precursory cost-benefit analysis to assess the viability of the two most applicable remediation options for the Site – Excavation and Off-Site Disposal and Capping and Containment. A review of typical project component costs, in conjunction with wider considerations regarding long-term liabilities and potential impacts on property value, have concluded that the option of Excavation and Off-Site Disposal is expected to be the most appropriate strategy for the Site to achieve the stated remediation objectives.

3.4 Preferred Strategy

The Site strategy selected must be the most cost-effective solution, which does not bring about unacceptable long-term liabilities, and which does not impose unreasonable constraints on future Site developments or present operations. The strategy must also be capable of achieving the technical, environmental and economic objectives outlined in this report.

Based on the analysis undertaken in previous sections, the preferred method is:

Excavate, Classify, Reuse and Dispose

This method has been formulated on the basis of the **Excavate and Off-Site Disposal** Strategy. The strategy has been supplemented with an option for **Reuse** of excavated materials if land use suitability has been demonstrated. This formulation has been developed due to the

potential designation of material reuse areas on-site where basement excavation is not proposed and over-excavation of VENM can occur. The steps of excavation, classification, reuse and disposal will be contingent upon contaminant type. This combination of remedial methods is considered to offer a more cost-effective outcome, whilst at the same time ensuring end land-use suitability with no ongoing liability following remediation.

Refer to **Figure 4** – Potential Material Reuse Areas

4.0 IMPLEMENTATION OF THE SELECTED STRATEGY

The On-site Remediation strategy proposed incorporates the following elements:

1. Stakeholder consultation;
2. Implementation of an accepted Site Environmental Management Plan (SEMP);
3. Site Establishment and Pre-Remedial Works;
4. Remediation Works; and,
5. Validation Plan.

4.1 Stakeholder Consultation

On approval of the strategy, the Stakeholders including on-site Management and relevant regulatory bodies will be informed of the intentions and the progress at all stages of the management works.

4.2 Implementation of Environmental Management Plan

A SEMP covering the remedial works will be prepared for the Site. Before work commences it is imperative that all issues relating to potential impacts have been reviewed. The SEMP including Remediation Works Management and Health and Safety Plans have been included as **Appendix B**.

4.3 Site Establishment and Pre-Remedial Works

4.3.1 Site Establishment

Initial activities at the Site shall involve the establishment of all plant and equipment necessary for the remediation works. This shall include:

- Establishment of a Project Manager/Contractor's site office of temporary work sheds and amenities for Site workers;
- Establishment of a car parking area for Site workers and visitors to the Site; and
- Establish the Site Environmental Monitoring Program.

Prior to the commencement of any earthmoving activities, it will also be necessary to install environmental protection safeguards, as well as Site security measures. These measures are included as part of the SEMP contained in **Appendix B.**

4.3.2 Site Pre-Works

To facilitate the excavation of contamination, the following Site preparation is required in the first week:

- Demolition of all existing structures on-site.
- Removal of overlying hardstand.
- Construction of bunded and hardstand Designated Treatment Areas (DTAs) to preclude run-off onto the surrounding Sites:

4.4 Remediation Works

The remedial works envisioned at the Site and in the following staging order are:

4.4.1 Designation of Material Reuse Consolidation Areas

The RAP incorporates the **Reuse** of excavated materials if land use suitability has been demonstrated following excavation and classification. Prior to the performance of any remediation steps outlined below, the reuse consolidation areas will require designation:

1. Designation of proposed Potential Material Reuse Areas. It is understood that there are no preliminary restrictions on re-use areas on-site.
2. Excavation of soils within the marked areas to the depth of natural soils or where visual or olfactory contaminant indicators are no longer present.
3. Classification and disposal of excavated spoil in accordance with *Waste Classification Guidelines* (NSW DECCW, 2009).

4.4.2 Remediation of Identified BaP/PAH Contamination

Concentrations of BaP have been identified above the Site Acceptance Criteria in soil sample TP3 – 0.5 (53 mg/kg). For the purposes of this remediation strategy, the impacted soils within the vicinities of this borehole will be treated and remediated as a hotspot area. The main activities to be undertaken during the remediation of this soil will include:

1. Delineation of excavation areas by marking a 5m x 5m grid around borehole TP3.
2. Excavation of identified gridded areas to the required depth of 1.0m.
3. Excavated materials will be relocated and consolidated within a separate area.

4. These soils will be sampled for waste classification purposes in accordance with *Waste Classification Guidelines* (NSW DECCW, 2009) and any WorkCover requirements.
5. If waste characterisation results do not identify chemical contamination in exceedance of the Validation Criteria (refer to **Section 4.5.5**) to be present, the material may be deemed suitable for reuse on-site. These soils will be placed within designated material reuse areas.
6. If contaminants exist at concentrations unsuitable for the proposed land use, the material will be disposed of in accordance with the *Waste Classification Guidelines* (NSW DECCW, 2009).

4.4.3 Remediation of Identified USTs/ASTs

Previous investigations have revealed the presence of one UST on-site which is yet to be located. DLA Environmental Services Pty Ltd intend to use ground penetrating radar to locate any remaining USTs on-site. If located, the removal of the USTs will be undertaken by a suitably licensed contractor in accordance with *Storage and Handling of Dangerous Goods Code of Practice 2005* and Australian Standard *AS4976-2008: The removal and disposal of underground petroleum storage tanks*.

Hydrocarbon contamination potentially associated with a UST on the western side of the factory in the vicinity of BH24 and BH25, and with a currently operational diesel AST on-site, will be treated as a hotspot area and treated as per points 1 to 6 in section **4.4.2** above.

4.4.4 Remediation of groundwater hydrocarbon contamination

Previous investigations have identified that groundwater on-site may be contaminated with hydrocarbons from former and current USTs, in addition to the evidence that petroleum hydrocarbons were present in on-site monitoring wells.

A Groundwater Monitoring Program at the Site will be prepared and implemented in consultation with the Site Auditor. The requirement for further groundwater remediation will be discussed with the Site Auditor upon receipt of groundwater monitoring results.

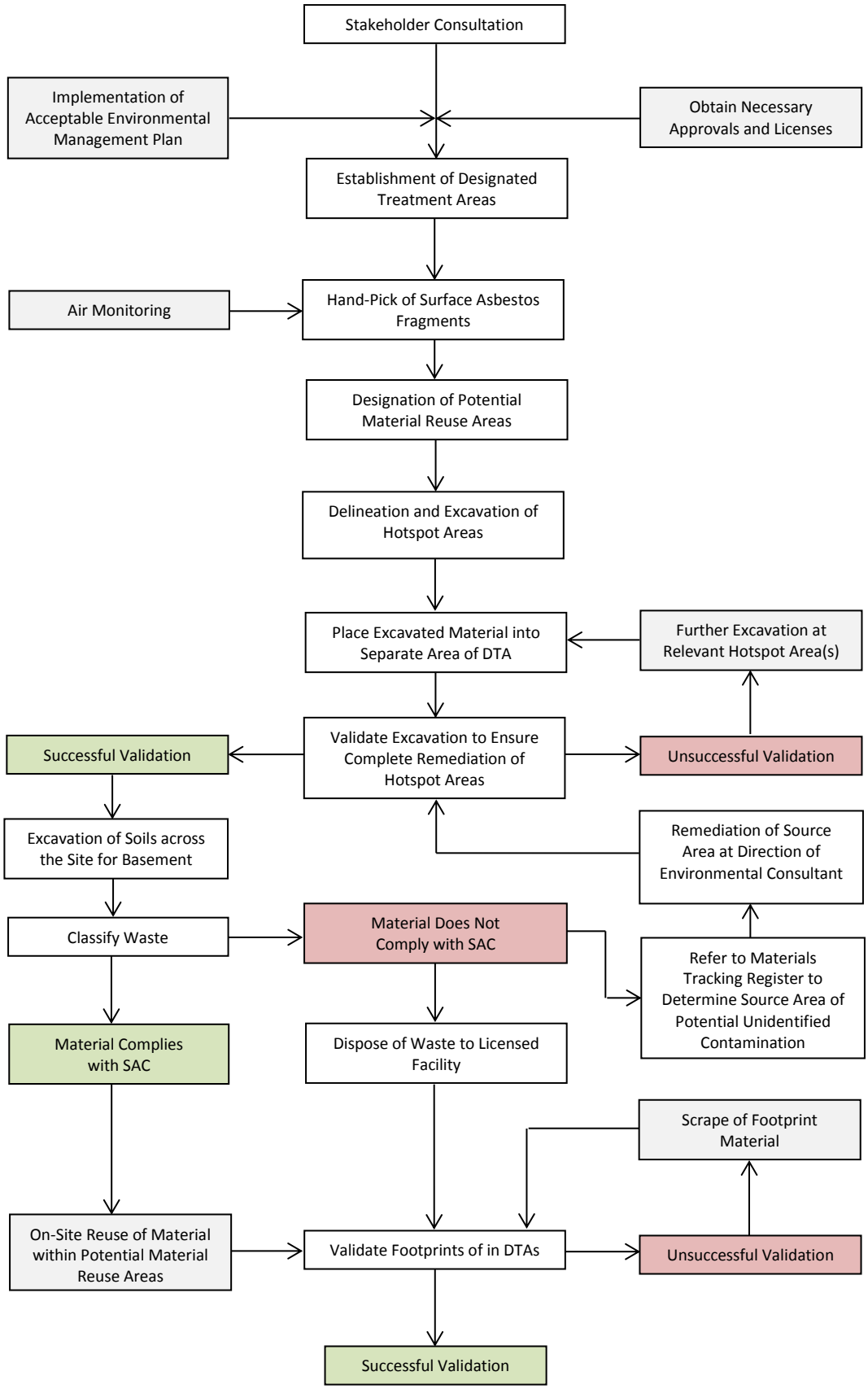
4.4.5 Remediation of Surface Water and Sediment Contamination

Contamination within on-site dams has been detected, however as no water is being discharged from the dams, with the water being transferred between the dams to reduce suspended sediments prior to re-use in the factory, the water is deemed suitable for re-use on-

site for dust suppression. As the water would not be discharged from the site, no further remediation action is considered necessary.

Sediments will be further analysed following dewatering or sufficient lowering of the dams with the results compared against the adopted site criteria.

A schematic of the **Remediation Process** is shown below:



4.5 Validation Plan

4.5.1 Extent of Validation

Validation activities will be required for the following areas:

- Validation of former oil storage area (east side of factory);
- Validation of former chemical storage area (west side of factory), and including validation of UST removal if identified;
- Validation of UST removal of two missing USTs (north of factory);
- Validation of Bap TEQ and PAH hot spot within the northwest of the former quarry at TP3;
- Validation of AST removal and surrounding area; and,
- Validation of any potential unidentified contamination source areas.

4.5.2 Validation Procedure

The Validation of the hotspot areas and USTs (if present) will be performed by way of visual inspection and soil sampling. Validation sample collection should include soil samples from the excavation walls and from the base of the excavation, to be analysed for the Contaminants of Concern. Sample numbers and analysis will be dependent on the area and a review of initial assessment data to conform to Australian Standards 4482.1 and 4482.2, EPA NSW Contaminated Sites*: Sampling Design Guidelines* (EPA, 1995) and *Guidelines for Assessing Service Station Sites* (EPA, 1994*.;*

Where excavations have been identified to contain potential unidentified contamination, validation will consist of soil sampling and visual inspection as above at the direction of the Environmental Consultant.

4.5.3 Validation Criteria

The investigation will be undertaken in consideration of the following documents:

- Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (NSW OEH, 2011);
- Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2nd Edition (NSW EPA, 2006);
- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) (NEPC, 2013);
- Contaminates Sites: Guidelines on Duty to Report Contamination under the Contamination Land Management Act 1997 (NSW DECC, 2009);
- Guidelines for the Assessment of On-Site Containment of Contaminated Soil (ANZECC, 1999);
- Australia and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000;
- Australian Drinking Water Guidelines, National Water Quality Management Strategy 2011;
- Guidelines for Assessing Service Station Sites (EPA, 1994).

The Validation Criteria for the acceptable concentrations of contaminants at the Site have been derived from the *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1)* (NEPM 2013) Table 1A(1) Column Commercial Industrial. The criteria are provided in **Tables 7-11**.

Table 7 – Criteria for Soils (mg/kg)

Analytes	Commercial / Industrial [1]
Arsenic	3000
Cadmium	900
Chromium	3600
Copper	240000
Lead	1500
Mercury	730
Nickel	6000
Zinc	400000
BaP TEQ	40
Total PAHs	4000
PCB	7
Pesticides: **(Aldrin/Dieldrin)** **Chlordane** **DDT+DDE+DDD**	 45 530 3600
Asbestos: **Bonded ACM[2]** **FA[3] / AF[4]** **Surface Asbestos (0.1m)**	 0.05% 0.001% No Visible
Aesthetic: **Upper 1m of soil**	No Odours No Staining <5% Anthropogenic Material

1 – Criteria adopted for proposed Commercial/Industrial areas of the Site –NEPM 2013 Table 1A(1) and Table 7.

2 – Bonded ACM (bonded Asbestos) - asbestos-containing-material which is in sound condition and where the asbestos is bound in a matrix such as cement or resin (e.g. asbestos fencing and vinyl tiles). Bonded ACM refers to, in this instance, material that cannot pass a 7 mm x 7 mm sieve.

3 – Fibrous Asbestos - friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This material is in a degraded condition such that it can be broken or crumbled by hand pressure.

4 – Asbestos Fines - AF includes free fibres, small fibre bundles and also small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

Table 8 – Criteria for Total Recoverable Hydrocarbons (mg/kg)

Analytes	HSL-D[1] (Clay) 0-1.0m	HSL-D[2] (Clay) 1-<2.0m
Benzene	4	6
Toluene	NL	NL
Ethylbenzene	NL	NL
Xylenes	NL	NL
F1: C_6-C_{10}	310	480
F2: C_{10}-C_{16}	NL	NL
F3: C_{16}-C_{34}	N/A	N/A
F4: C_{34}-C_{40}	N/A	N/A

NL = Not Limiting (i.e. the soil vapour concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario).
N/A = Not applicable as F3 and F4 are non-volatile and hence are not of concern for vapour intrusion.
1 – NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion* – 0-1.0m
2 – NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion* – 1-<2.0m

Table 9 – Criteria for Total Recoverable Hydrocarbons (ESL and ML)

Analytes	Ecological Screening Limits[1] (Fine*)	Management Limits[2] (Fine*)
Benzene	95	--
Toluene	135	--
Ethylbenzene	185	--
Xylenes	95	--
Benzo(a)pyrene	0.7	--
F1: C_6-C_{10}	215	800
F2: C_{10}-C_{16}	170	1000
F3: C_{16}-C_{34}	2500	5000
F4: C_{34}-C_{40}	6600	10000

***** Fine refers to the soil texture grading as per NEPM 1999.
1 – NEPM 2013 Amendment *Table 1B(6)* – ESLs for TPH fractions, BTEX and benzo(a)pyrene in soil.
2 – NEPM 2013 Amendment Table 1B(7) – Management Limits for TPH fractions F1-F4 in soil

Table 10 – Criteria for Groundwater

Analytes	Service Station Guidelines	NEPM 2013 Fresh Water (µg/L)	NHMRC Drinking Water Guidelines 2011 (µg/L)
Benzene	300	700	1
Toluene	300	--	800
Ethylbenzene	80	80	300
M+P-Xylene	--	75	600
Total Xylene	380	--	
TRH: C10 - C40	600[1]	7[2]	ID
Arsenic (III)	--	24	--
Arsenic (V)	--	13	7
Cadmium	--	0.2	2
Chromium (III)	--	--	--
Chromium (VI)	--	1	50
Copper	--	1.4	2000
Lead	5	3.4	10
Mercury	--	0.6	1
Nickel	--	11	20
Zinc	--	8	3000[3]
PAH's	--	--	
Napthalene	--	16	
Anthracene	--	0.4*	ID
Phenanthrene	--	2*	
Fluoranthene	--	1.4*	
B(a)P	--	0.2*	0.01
PCB (Total)	--	1-0.001	0.05
Phenolics	--	320	ID

ID=Insufficient Data

* Low reliability trigger values are provided where possible as an indicative guideline only in the absence of a high reliability 95% value.

1 – The NSW EPA Guidelines for Assessing Service Station sites and the ANZECC water quality Guidelines do not provide any reference for TRH levels in groundwater. In the absence of accepted criteria, the Dutch Intervention guidelines have been referenced as a guide only. The Dutch guidelines do not provide criteria for the C6-C9 hydrocarbon fractions, but provide values for mineral oil hydrocarbons (C10-C36 chain). The Dutch Intervention guideline for mineral oil is 600µg/litre. This guideline is health based rather than ecosystem based.

2 – The ANZECC threshold criteria of 7µg/L is a low reliability trigger level for protection of aquatic ecosystems and is derived from a study on the effects of petroleum hydrocarbons on tropical marine organisms. This level has not been adopted as it is below the most sensitive detection level of the laboratory.

3 – The NHMRC drinking water guideline for Zinc is an aesthetic guideline based on taste rather than risk to human health.

4.5.4 Application of Criteria

Validation for chemically tested soils will be determined when concentrations are reported below the criteria, thereby not posing an unacceptable risk. For chemical analysis, the following statistical criteria shall be adopted with respect to the health-based criteria:

- The 95% Upper Confidence Limit (UCL) of the arithmetic mean for chemical contaminates does not exceed the Validation Criteria;
- The individual contaminant concentration should not exceed the Validation Criteria by more than 250%, and;
- The standard deviation of individual contaminants should not exceed 50% of the Validation Criteria.

4.5.5 Validation Report

At the completion of the management and clean-up works, a Validation Report documenting the works as completed will be prepared. The Validation Report will describe the strategic works undertaken at the Site, assess the result of the validation testing, demonstrate that the objectives of this RAP have been achieved and provide justifications for any deviation, statistically confirm that the managed site complies with the Validation Criteria and include any other information as deemed appropriate.

4.5.6 Quality Control

The Quality Assurance (QA) program for the Site will ensure the representativeness and integrity of samples and accuracy and reliability of the analysis results. This includes cleaning of tools before and between sampling, cleaning of containers and delivery of samples to the laboratory within holding times, and in good condition.

The Quality Control (QC) program for the Site will monitor and measure the effectiveness of the QA procedures. This will involve the use of field duplicates, inter and intra laboratory checks, trip blanks, rinsate checks, trip spikes, surrogate spikes, and the use of laboratory internal standards. Duplicate samples will be collected to verify the QA/QC of the soil samples collected at a frequency of 1/10 (10%) intra-laboratory, and 1/20 (5%) inter-laboratory. The samples will be transported in a chilled and security sealed portable cooler to a NATA registered laboratory and analysed for Contaminants of Concern.

4.6 Remediation Contingency

If there are events or discoveries made at the Site that would prevent the proposed works complying with the Validation Criteria, or if the selected management strategy is not able to proceed, then the following contingencies are devised and should be discussed with the Site Auditor prior to implementation:

Excavation does not effectively remove all buried / contaminated material

Option A Continue controlled excavation until validation is achieved.

Option B Reassessment of remedial options for excavated materials, including the feasibility of the Capping and Contain remedial strategy.

5.0 CONCLUSION

The Site can be made suitable for the intended land-use through remedial action as part of the redevelopment works in accordance with *State Environmental Planning Policy No.55 Managing Land Contamination: Planning Guidelines SEPP 55*.

In conclusion this RAP:

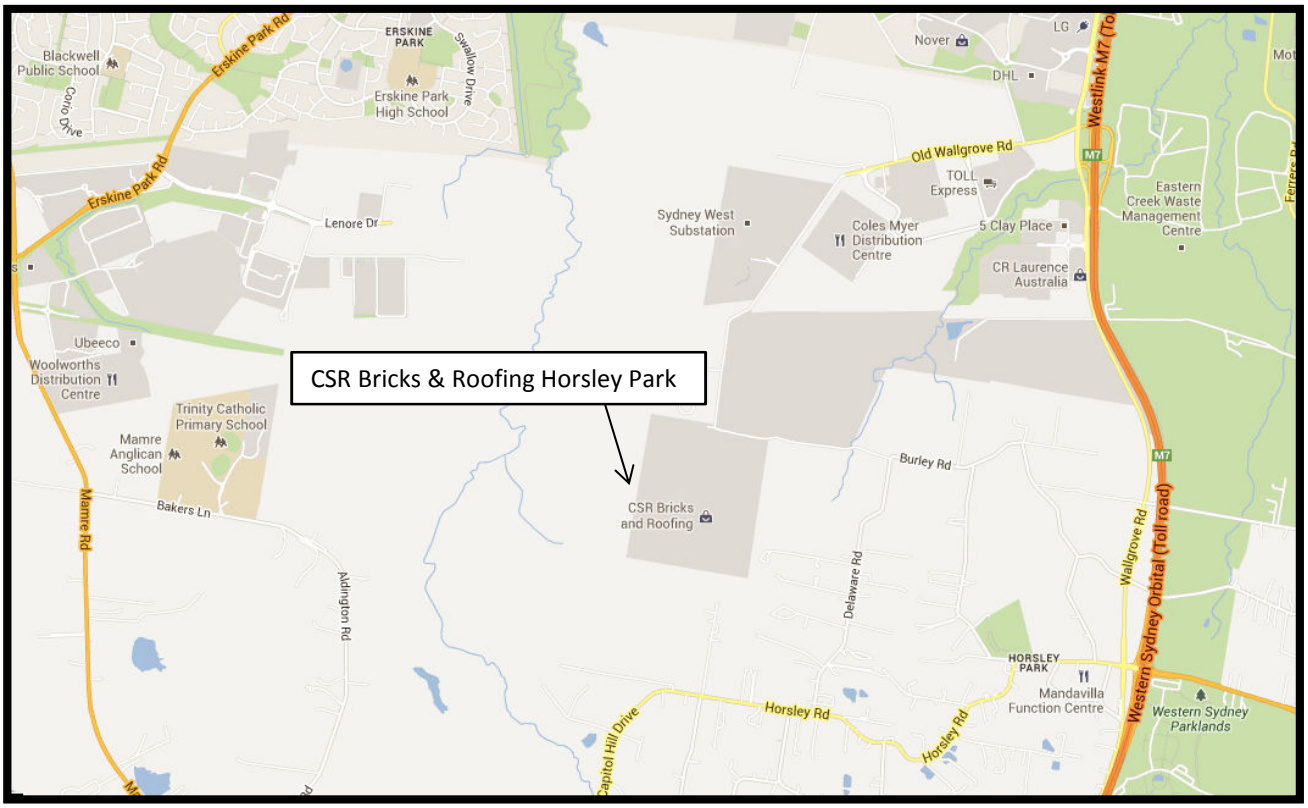
- Has been developed in a manner consistent with current industry practice;
- Has selected a preferred remediation strategy based on the site-specific issues and currently available technologies;
- Has presented an outline of the Site Environmental Management Plan (SEMP) and associated health and safety and remediation management plans to ensure human health and the environment are appropriately protected during the proposed works (**Appendix B**);
- Has presented an information and consultation program to ensure the stakeholders are informed of the works as they proceed (**Appendix B**); and,
- Has outlined the means of validation for the completed works.

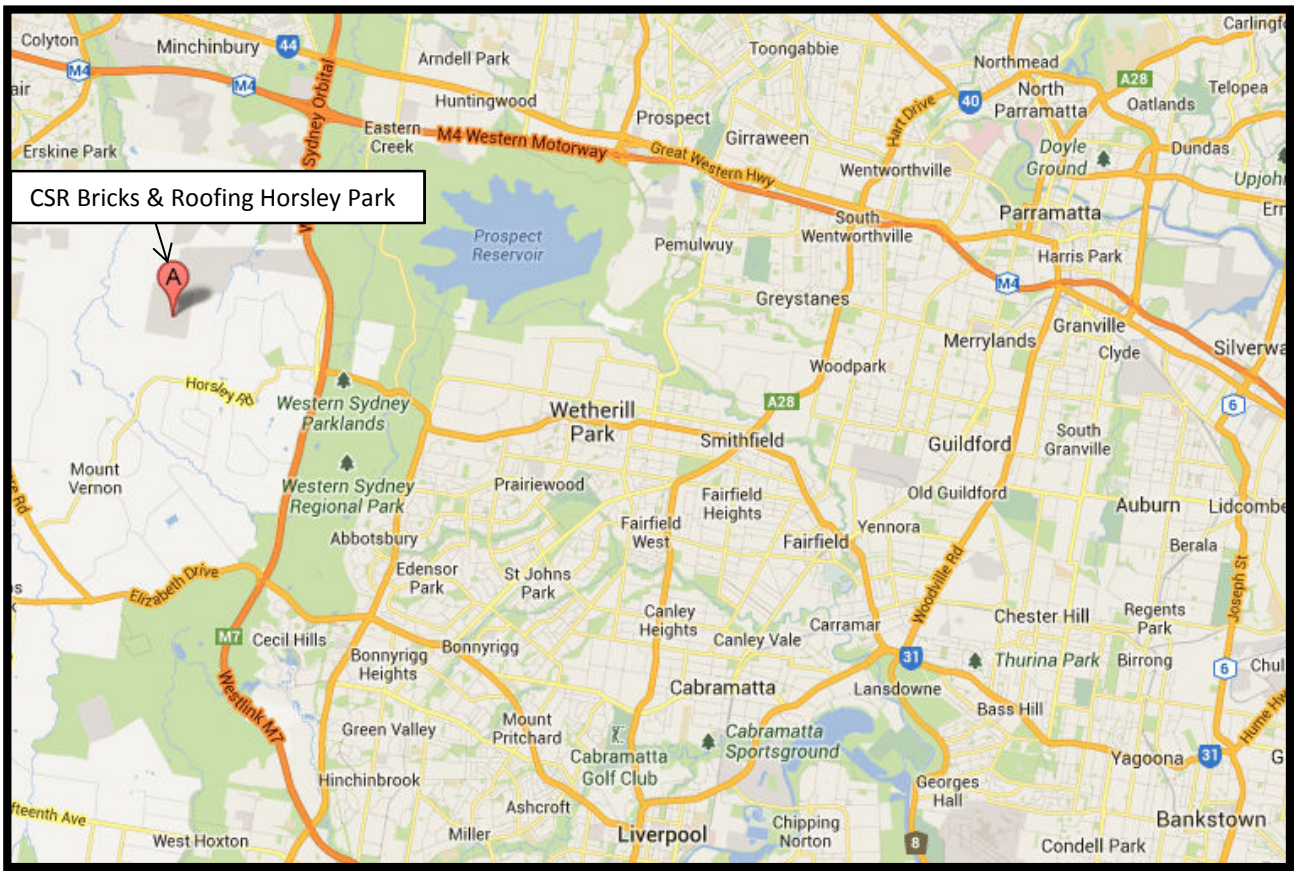
6.0 REFERENCES

- Australian and New Zealand Guidelines for the Management of Contaminated Sites, 1992, Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council (ANZECC/NHMRC 1992).
- Guidelines for the Assessment of On-Site Containment of Contaminated Soil (ANZECC, 1999);
- Australia and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000;
- Australian Drinking Water Guidelines, National Water Quality Management Strategy 2011;
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) (NEPC, 1999 as amended 2013);
- Health - Based Soil Investigation Levels, 1998, Imray, P & Langley, A, National Environmental Health Forum Monographs, Soil Series No. 2 (2nd Ed), South Australian Health Commission (NEHF 1998b).
- Contaminated Sites: Assessing Service Station Sites, 1994, NSW Environment Protection Authority (NSW EPA 1994).
- Contaminated Sites: Sampling Design Guidelines 1995, NSW Environment Protection Authority (NSW EPA 1995).
- Contaminates Sites: Guidelines on Duty to Report Contamination under the Contamination Land Management Act 1997 (NSW DECC, 2009);
- Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites, 1998, NSW Environment Protection Authority (NSW EPA 1998).
- Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2nd Edition, 2006,
- Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination (NSW DEC 2007).
- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (NEPM).
- Contaminated Sites: Guidelines on Significant risk of Harm from Contaminated land and the Duty to Report, 1999, NSW Environment Protection Authority (NSW EPA 1999).
- Managing Land Contamination: Planning Guidelines, SEPP 55 - Remediation of Land (1998), Department of Urban Affairs and Planning/ NSW EPA.
- Contaminated Land Management Act (1997), NSW Government, Sydney, NSW.
- Waste Classification Guidelines, NSW DECCW 2009.
- Environmental Guidelines: Solid Waste Landfills (1996) NSW EPA.
- Managing Land Contamination, Planning guidelines, SEPP 55: Remediation of Land (DUAP, 1998);
- Code of Practice for the Safe Removal of Asbestos, 2nd Edition (NOHSC, 2005);

Figure 1

Site Location





DLA environmental

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Hornsby NSW 2077
2335
Tel: 02-94761765
Fax: 02-94761557

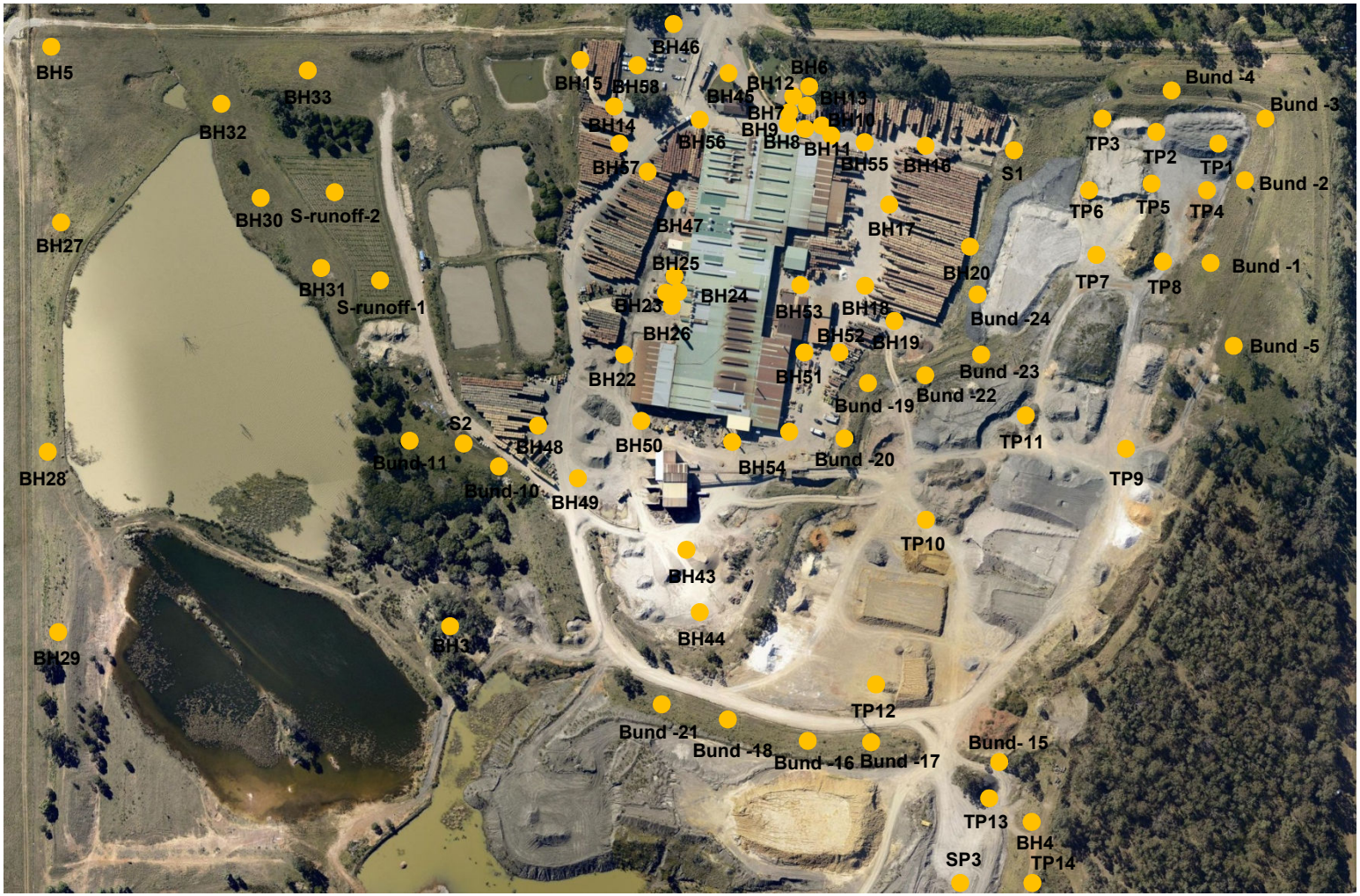
Maitland
42B Church Street
Maitland NSW

Tel: 02-49330001

Title: CSR Bricks & Roofing, 327-355 Burley Road Horsley Park NSW	
Figure: 1	Project no:: DLH1121
Date: 28/11/2014	Revision: 1

Figure 2

Sample Locations - North



LEGEND

Sample Location

DLA environmental

Sydney
Unit 2B/30 Leighton Place
Hornsby NSW 2077
Tel: 02-94761765
Fax: 02-94761557

Maitland
42B Church Street
Maitland NSW 2335
Tel: 02-49330001

Title: Sample Location- North- CSR Horsley Park. Burley Road, Horsley Park, NSW

Figure:	Project no::
2	DLH1121
Date:	Revision:
28.11.2014	0

Figure 3

Sample Locations- South

LEGEND

Sample Location

DLA environmental

Sydney
Unit 2B/30 Leighton Place
Hornsby NSW 2077
Tel: 02-94761765
Fax: 02-94761557

Maitland
42B Church Street
Maitland NSW 2335
Tel: 02-49330001

Title: Sample Locations–South- CSR- Horsley Park. Burley Road, Horsley Park, NSW

Figure:	Project no::
3	DLH1121
Date:	Revision:
28.11.2014	0

Figure 4

Water Sample Locations

LEGEND

● Sample Location

DLA environmental

Sydney
Unit 2B/30 Leighton Place
Hornsby NSW 2077
Tel: 02-94761765
Fax: 02-94761557

Maitland
42B Church Street
Maitland NSW 2335
Tel: 02-49330001

Title: Water Sample Locations– CSR Horsley Park. Burley Rd, Horsley Park, NSW

Figure:	Project no::
4	DLH1121
Date:	Revision:
28.11.2014	0

Figure 5

Areas of Environmental Concern

Legend

- Existing AST
- Missing UST & associated pits
- Hydrocarbon contamination area
- BaP & PAH hotspot @ 0.5 depth
- Former oil storage area

N

DLA environmental

Sydney Office
Phone (02) 9476 1765
Fax (02) 9476 1557

Maitland Office
Phone (02) 4933 0001

Title: Areas of environmental concern

Client	Project No.	Figure No	Date
CSR Australia	DLH 1121	5	28/11/2014
	Scale: As Shown	Compiled: AS	Revision: R00

Appendix A

NATA Certified Analytical Data

Appendix A

NATA Certified Analytical Data

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 97971

Client:
David Lane Associates (Maitland)
42B Church St
Maitland
NSW 2320

Attention: Malcolm Adrian

Sample log in details:

Your Reference:	**DLH1121 - Horsley Park**
No. of samples:	68 soils, 16 waters
Date samples received / completed instructions received	18/09/13, 20/09/13 20/09/2013

This report replaces ROO dated 01/10/13 due to the addition of depths in samples.

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	1/10/13	/	8/10/13
Date of Preliminary Report:	Not issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97971-3	97971-11	97971-16	97971-23	97971-29
Your Reference	----------	Bund - 12	Bund - 16	Bund - 20	BH54	BH56
Depth	----------	-	-	-	0.5	2.5
Date Sampled		18/09/2013	18/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	118	131	109	112	123

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97971-31	97971-33	97971-34	97971-36	97971-37
Your Reference	----------	BH57	BH58	BH58	BH47	BH47
Depth	----------	2.0	1.0	3.0	0.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	125	111	110	116	104

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97971-38	97971-39	97971-41	97971-43	97971-44
Your Reference	----------	BH47	BH47	BH49 (48)	BH49	BH50
Depth	----------	2.5	3.5	0.5	0.5	0.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	115	130	128	120	130

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97971-46	97971-47	97971-48	97971-51	97971-53
Your Reference	----------	BH51	BH51	BH52	SP1-2	SP1-4
Depth	----------	0.5	1.4	0.5	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	126	119	115	130	121

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	97971-60
Your Reference	----------	SP2-3
Depth	----------	-
Date Sampled		20/09/2013
Type of sample		Soil
Date extracted	-	25/09/2013
Date analysed	-	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	121

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97971-3	97971-11	97971-16	97971-23	97971-29
Your Reference	----------	Bund - 12	Bund - 16	Bund - 20	BH54	BH56
Depth	----------	-	-	-	0.5	2.5
Date Sampled		18/09/2013	18/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	93	95	108	92

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97971-31	97971-33	97971-34	97971-36	97971-37
Your Reference	----------	BH57	BH58	BH58	BH47	BH47
Depth	----------	2.0	1.0	3.0	0.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	160	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	160	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	91	90	96	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97971-38	97971-39	97971-41	97971-43	97971-44
Your Reference	----------	BH47	BH47	BH49 (48)	BH49	BH50
Depth	----------	2.5	3.5	0.5	0.5	0.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	98	95	90	96	99

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97971-46	97971-47	97971-48	97971-51	97971-53
Your Reference	----------	BH51	BH51	BH52	SP1-2	SP1-4
Depth	----------	0.5	1.4	0.5	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	160	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	510	150	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	180	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	340	99	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	340	99	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	450	140	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	120	<100	<100	<100	<100
Surrogate o-Terphenyl	%	#	111	92	101	102

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	97971-60
Your Reference	----------	SP2-3
Depth	----------	-
Date Sampled		20/09/2013
Type of sample		Soil
Date extracted	-	25/09/2013
Date analysed	-	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100
Surrogate o-Terphenyl	%	91

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	97971-1 Bund - 10 - 18/09/2013 Soil	97971-2 Bund - 10a - 18/09/2013 Soil	97971-3 Bund - 12 - 18/09/2013 Soil	97971-4 Bund - 12a - 18/09/2013 Soil	97971-5 Bund - 13 - 18/09/2013 Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	<0.1	0.2	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.3	0.1	0.3	0.6
Pyrene	mg/kg	0.1	0.3	0.2	0.3	0.7
Benzo(a)anthracene	mg/kg	<0.1	0.1	<0.1	0.1	0.3
Chrysene	mg/kg	<0.1	0.2	0.1	0.1	0.3
Benzo(b+k)fluoranthene	mg/kg	<0.2	0.3	<0.2	0.2	0.6
Benzo(a)pyrene	mg/kg	0.07	0.22	0.11	0.14	0.38
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	<0.1	<0.1	0.2
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.41	1.9	0.53	1.4	3.6
Surrogate p-Terphenyl-d14	%	99	97	97	95	99

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	97971-6 Bund - 13a - 18/09/2013 Soil	97971-7 Bund - 14 - 18/09/2013 Soil	97971-8 Bund - 14a - 18/09/2013 Soil	97971-9 Bund - 15a - 18/09/2013 Soil	97971-10 Bund - 15 - 18/09/2013 Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	<0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.9	0.2	0.2	<0.1	<0.1
Pyrene	mg/kg	0.9	0.2	0.2	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.5	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.5	0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.9	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.63	0.1	0.09	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	1	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	5.5	0.55	0.51	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	98	95	99	97

PAHs in Soil						
Our Reference:	UNITS	97971-11	97971-12	97971-13	97971-14	97971-15
Your Reference	----------	Bund - 16	Bund - 16a	Bund - 17	Bund - 18	Bund - 19
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	102	99	95	97	99

PAHs in Soil						
Our Reference:	UNITS	97971-16	97971-17	97971-18	97971-19	97971-20
Your Reference	----------	Bund - 20	Bund - 21	Bund - 21a	Bund - 22	Bund - 23
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.07	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.070	NIL (+)VE	NIL (+)VE	0.10	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	101	104	96	99

PAHs in Soil						
Our Reference:	UNITS	97971-21	97971-22	97971-23	97971-24	97971-25
Your Reference	----------	Bund - 24	BH53	BH54	BH54	BH55
Depth	----------	-	0.8	0.5	1.5	0.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.4	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.15	NIL (+)VE	0.79	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	93	103	98	96

PAHs in Soil						
Our Reference:	UNITS	97971-26	97971-27	97971-28	97971-29	97971-30
Your Reference	----------	BH55	BH56	BH56	BH56	BH57
Depth	----------	1.2	0.5	1.5	2.5	0.2 (0.5)
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	103	83	95	99	101

PAHs in Soil						
Our Reference:	UNITS	97971-31	97971-32	97971-33	97971-34	97971-35
Your Reference	----------	BH57	BH57	BH58	BH58	BH58
Depth	----------	2.0	3.0	1.0	3.0	4.0
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	97	99	100	103

PAHs in Soil						
Our Reference:	UNITS	97971-36	97971-37	97971-38	97971-39	97971-40
Your Reference	----------	BH47	BH47	BH47	BH47	BH48
Depth	----------	0.5	1.5	2.5	3.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.13	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	102	99	98	109

PAHs in Soil						
Our Reference:	UNITS	97971-41	97971-42	97971-43	97971-44	97971-45
Your Reference	----------	BH49 (48)	BH49	BH49	BH50	BH50
Depth	----------	0.5	1.5	0.5	0.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	94	99	97	99	97

PAHs in Soil						
Our Reference:	UNITS	97971-46	97971-47	97971-48	97971-49	97971-50
Your Reference	----------	BH51	BH51	BH52	BH52	SP1-1
Depth	----------	0.5	1.4	0.5	1.5	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.7	0.3	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.8	0.2	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	1.9	0.6	<0.1	<0.1	0.1
Anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	4.4	1.2	NIL (+)VE	NIL (+)VE	0.13
Surrogate p-Terphenyl-d14	%	93	99	99	102	99

PAHs in Soil						
Our Reference:	UNITS	97971-51	97971-52	97971-53	97971-54	97971-55
Your Reference	----------	SP1-2	SP1-3	SP1-4	SP1-5	SP1-5a
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	0.1	0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.13	0.14	0.13	0.14	0.13
Surrogate p-Terphenyl-d14	%	98	100	98	99	103

PAHs in Soil						
Our Reference:	UNITS	97971-56	97971-57	97971-58	97971-59	97971-60
Your Reference	----------	SP1-6	SP1-6a	SP2-1	SP2-2	SP2-3
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.14	0.14	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	97	102	99	99

PAHs in Soil						
Our Reference:	UNITS	97971-61	97971-62	97971-63	97971-64	97971-65
Your Reference	----------	SP2-4	Bund - 11	Bund - 11a	S2	S2a
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.2	0.2	0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Chrysene	mg/kg	<0.1	0.1	<0.1	0.2	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.19	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	0.34	0.35	1.6	0.12
Surrogate p-Terphenyl-d14	%	92	101	104	101	111

PAHs in Soil				
Our Reference:	UNITS	97971-66	97971-67	97971-68
Your Reference	----------	S3	SP3a	SP3
Depth	----------	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil
Date extracted	-	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	0.15	0.14
Surrogate p-Terphenyl-d14	%	113	111	103

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-1	97971-2	97971-3	97971-4	97971-5
Your Reference	----------	Bund - 10	Bund - 10a	Bund - 12	Bund - 12a	Bund - 13
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	7	7	<4	8	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	23	13	27	18
Copper	mg/kg	35	34	7	15	23
Lead	mg/kg	85	69	11	27	56
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	18	17	4	8	11
Zinc	mg/kg	130	120	10	24	82

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-6	97971-7	97971-8	97971-9	97971-10
Your Reference	----------	Bund - 13a	Bund - 14	Bund - 14a	Bund - 15a	Bund - 15
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	7	8	8	9	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	16	16	16	18
Copper	mg/kg	25	23	26	17	18
Lead	mg/kg	55	19	20	17	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	12	14	9	9
Zinc	mg/kg	78	43	54	35	35

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-11	97971-12	97971-13	97971-14	97971-15
Your Reference	----------	Bund - 16	Bund - 16a	Bund - 17	Bund - 18	Bund - 19
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	5	5	6	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	12	19	17	10
Copper	mg/kg	35	35	24	28	12
Lead	mg/kg	18	16	17	18	41
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	17	15	12	13	3
Zinc	mg/kg	61	57	41	51	31

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-16	97971-17	97971-18	97971-19	97971-20
Your Reference	----------	Bund - 20	Bund - 21	Bund - 21a	Bund - 22	Bund - 23
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	<4	6	6	5	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	17	17	12	10
Copper	mg/kg	19	22	23	40	24
Lead	mg/kg	59	20	20	46	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	10	10	20	9
Zinc	mg/kg	35	39	40	80	49

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-21	97971-22	97971-23	97971-24	97971-25
Your Reference	----------	Bund - 24	BH53	BH54	BH54	BH55
Depth	----------	-	0.8	0.5	1.5	0.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	13	<4	7	4	<4
Cadmium	mg/kg	0.7	<0.4	<0.4	0.4	<0.4
Chromium	mg/kg	7	16	10	12	11
Copper	mg/kg	60	46	31	42	85
Lead	mg/kg	23	15	18	19	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	19	29	14	20	15
Zinc	mg/kg	120	86	53	75	46

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-26	97971-27	97971-28	97971-29	97971-30
Your Reference	----------	BH55	BH56	BH56	BH56	BH57
Depth	----------	1.2	0.5	1.5	2.5	0.2 (0.5)
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	15	6	6	10	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	19	21	16	19
Copper	mg/kg	66	16	20	43	27
Lead	mg/kg	22	9	16	16	18
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	30	16	14	20	14
Zinc	mg/kg	83	110	45	77	54

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-31	97971-32	97971-33	97971-34	97971-35
Your Reference	----------	BH57	BH57	BH58	BH58	BH58
Depth	----------	2.0	3.0	1.0	3.0	4.0
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	6	14	7	8	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	15	10	21	14
Copper	mg/kg	21	26	55	20	20
Lead	mg/kg	14	16	19	18	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	10	69	9	6
Zinc	mg/kg	36	38	100	25	27

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-36	97971-37	97971-38	97971-39	97971-40
Your Reference	----------	BH47	BH47	BH47	BH47	BH48
Depth	----------	0.5	1.5	2.5	3.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	<4	7	6	7	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	17	14	16	8
Copper	mg/kg	25	21	31	29	16
Lead	mg/kg	15	17	15	16	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	27	9	13	11	3
Zinc	mg/kg	64	36	56	56	19

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-41	97971-42	97971-43	97971-44	97971-45
Your Reference	----------	BH49 (48)	BH49	BH49	BH50	BH50
Depth	----------	0.5	1.5	0.5	0.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	10	<4	9	<4	11
Cadmium	mg/kg	<0.4	0.5	<0.4	<0.4	<0.4
Chromium	mg/kg	13	9	11	14	13
Copper	mg/kg	16	36	14	47	57
Lead	mg/kg	12	15	5	17	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	3	6	5	14	22
Zinc	mg/kg	18	33	27	62	91

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-46	97971-47	97971-48	97971-49	97971-50
Your Reference	----------	BH51	BH51	BH52	BH52	SP1-1
Depth	----------	0.5	1.4	0.5	1.5	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	5	<4	<4	9	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	14	9	11	6
Copper	mg/kg	29	43	45	37	39
Lead	mg/kg	16	17	15	17	16
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	27	17	19	15	20
Zinc	mg/kg	52	70	63	56	70

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-51	97971-52	97971-53	97971-54	97971-55
Your Reference	----------	SP1-2	SP1-3	SP1-4	SP1-5	SP1-5a
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	7	6	6	5	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	6	7	11	10
Copper	mg/kg	43	40	43	42	43
Lead	mg/kg	16	17	18	18	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	23	23	21	20	20
Zinc	mg/kg	78	71	72	71	70

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-56	97971-57	97971-58	97971-59	97971-60
Your Reference	----------	SP1-6	SP1-6a	SP2-1	SP2-2	SP2-3
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	4	7	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	9	8	8	9
Copper	mg/kg	36	38	23	19	11
Lead	mg/kg	16	17	12	13	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	17	18	7	8	5
Zinc	mg/kg	63	67	25	30	16

Acid Extractable metals in soil						
Our Reference:	UNITS	97971-61	97971-62	97971-63	97971-64	97971-65
Your Reference	----------	SP2-4	Bund - 11	Bund - 11a	S2	S2a
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	<4	6	7	6	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	8	9	13	13
Copper	mg/kg	12	35	36	27	28
Lead	mg/kg	11	27	25	34	38
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	15	16	14	14
Zinc	mg/kg	22	130	140	91	140

Acid Extractable metals in soil				
Our Reference:	UNITS	97971-66	97971-67	97971-68
Your Reference	----------	S3	SP3a	SP3
Depth	----------	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil
Date digested	-	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013
Arsenic	mg/kg	7	6	15
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	13	4	4
Copper	mg/kg	32	40	42
Lead	mg/kg	19	16	16
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	19	15	21
Zinc	mg/kg	65	68	72

Moisture						
Our Reference:	UNITS	97971-1	97971-2	97971-3	97971-4	97971-5
Your Reference	----------	Bund - 10	Bund - 10a	Bund - 12	Bund - 12a	Bund - 13
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	13	14	10	10	10

Moisture						
Our Reference:	UNITS	97971-6	97971-7	97971-8	97971-9	97971-10
Your Reference	----------	Bund - 13a	Bund - 14	Bund - 14a	Bund - 15a	Bund - 15
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	12	8.3	8.5	7.6	7.1

Moisture						
Our Reference:	UNITS	97971-11	97971-12	97971-13	97971-14	97971-15
Your Reference	----------	Bund - 16	Bund - 16a	Bund - 17	Bund - 18	Bund - 19
Depth	----------	-	-	-	-	-
Date Sampled		18/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	10	11	11	11	7.9

Moisture						
Our Reference:	UNITS	97971-16	97971-17	97971-18	97971-19	97971-20
Your Reference	----------	Bund - 20	Bund - 21	Bund - 21a	Bund - 22	Bund - 23
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	6.6	11	11	14	12

Moisture						
Our Reference:	UNITS	97971-21	97971-22	97971-23	97971-24	97971-25
Your Reference	----------	Bund - 24	BH53	BH54	BH54	BH55
Depth	----------	-	0.8	0.5	1.5	0.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	11	12	9.8	7.9	12

Moisture						
Our Reference:	UNITS	97971-26	97971-27	97971-28	97971-29	97971-30
Your Reference	----------	BH55	BH56	BH56	BH56	BH57
Depth	----------	1.2	0.5	1.5	2.5	0.2 (0.5)
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	8.9	6.8	13	15	20

Moisture						
Our Reference:	UNITS	97971-31	97971-32	97971-33	97971-34	97971-35
Your Reference	----------	BH57	BH57	BH58	BH58	BH58
Depth	----------	2.0	3.0	1.0	3.0	4.0
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	20	19	39	18	16

Moisture						
Our Reference:	UNITS	97971-36	97971-37	97971-38	97971-39	97971-40
Your Reference	----------	BH47	BH47	BH47	BH47	BH48
Depth	----------	0.5	1.5	2.5	3.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	9.2	17	18	13	16

Moisture						
Our Reference:	UNITS	97971-41	97971-42	97971-43	97971-44	97971-45
Your Reference	----------	BH49 (48)	BH49	BH49	BH50	BH50
Depth	----------	0.5	1.5	0.5	0.5	1.5
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	13	14	8.4	10	6.9

Moisture						
Our Reference:	UNITS	97971-46	97971-47	97971-48	97971-49	97971-50
Your Reference	----------	BH51	BH51	BH52	BH52	SP1-1
Depth	----------	0.5	1.4	0.5	1.5	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	20	13	12	8.4	6.5

Moisture						
Our Reference:	UNITS	97971-51	97971-52	97971-53	97971-54	97971-55
Your Reference	----------	SP1-2	SP1-3	SP1-4	SP1-5	SP1-5a
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	4.7	7.5	6.3	4.0	4.3

Moisture						
Our Reference:	UNITS	97971-56	97971-57	97971-58	97971-59	97971-60
Your Reference	----------	SP1-6	SP1-6a	SP2-1	SP2-2	SP2-3
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	4.2	4.1	11	7.2	6.2

Moisture						
Our Reference:	UNITS	97971-61	97971-62	97971-63	97971-64	97971-65
Your Reference	----------	SP2-4	Bund - 11	Bund - 11a	S2	S2a
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Moisture	%	12	11	10	11	11

Moisture				
Our Reference:	UNITS	97971-66	97971-67	97971-68
Your Reference	----------	S3	SP3a	SP3
Depth	----------	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013
Type of sample		Soil	Soil	Soil
Date prepared	-	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013
Moisture	%	17	4.6	4.9

vTRH(C6-C10)/BTEXN in Water					
Our Reference:	UNITS	97971-81	97971-82	97971-83	97971-84
Your Reference	----------	MW2	MW3	MW5	MW6
Depth	----------	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water
Date extracted	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Date analysed	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013
TRHC$_6$ - C$_9$	µg/L	34	37	<10	<10
TRHC$_6$ - C$_{10}$	µg/L	50	120	<10	<10
TRHC$_6$ - C$_{10}$ less BTEX (F1)	µg/L	50	92	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	2	<1	<1
m+p-xylene	µg/L	<2	17	<2	<2
o-xylene	µg/L	<1	8	<1	<1
Naphthalene	µg/L	43	3	<1	<1
Surrogate Dibromofluoromethane	%	92	99	101	96
Surrogate toluene-d8	%	91	89	96	93
Surrogate 4-BFB	%	92	95	97	91

svTRH (C10-C40) in Water					
Our Reference:	UNITS	97971-81	97971-82	97971-83	97971-84
Your Reference	----------	MW2	MW3	MW5	MW6
Depth	----------	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water
Date extracted	-	26/09/2013	26/09/2013	26/09/2013	26/09/2013
Date analysed	-	27/09/2013	27/09/2013	27/09/2013	27/09/2013
TRHC$_{10}$ - C$_{14}$	µg/L	1,200	72	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	4,000	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	990	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	2,000	74	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	2,000	71	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	3,900	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	650	<100	<100	<100
Surrogate o-Terphenyl	%	113	94	95	93

PAHs in Water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	97971-69 S - Dam 1 - 20/09/2013 Water	97971-70 S - Dam 2 - 20/09/2013 Water	97971-71 S - Dam 3 - 20/09/2013 Water	97971-72 S - Dam 4 - 20/09/2013 Water	97971-73 S - Dam 5 - 20/09/2013 Water
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	97	91	87	90

PAHs in Water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	97971-74 S - Dam 6 - 20/09/2013 Water	97971-75 S - Dam 7 - 20/09/2013 Water	97971-76 S - Dam 7a - 20/09/2013 Water	97971-77 S - Dam 8 - 20/09/2013 Water	97971-78 S - Dam 9 - 20/09/2013 Water
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	108	100	109	103

PAHs in Water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- -	97971-79 S - Dam 10 - 20/09/2013 Water	97971-80 S - Dam 11 - 20/09/2013 Water	97971-81 MW2 - 20/09/2013 Water	97971-82 MW3 - 20/09/2013 Water	97971-83 MW5 - 20/09/2013 Water
Date extracted	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Naphthalene	µg/L	<1	<1	38	2	<1
Acenaphthylene	µg/L	<1	<1	1	<1	<1
Acenaphthene	µg/L	<1	<1	10	<1	<1
Fluorene	µg/L	<1	<1	13	<1	<1
Phenanthrene	µg/L	<1	<1	15	<1	<1
Anthracene	µg/L	<1	<1	1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	79	1.6	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96	98	111	111	103

PAHs in Water		
Our Reference:	UNITS	97971-84
Your Reference	----------	MW6
Depth	----------	-
Date Sampled		20/09/2013
Type of sample		Water
Date extracted	-	25/09/2013
Date analysed	-	25/09/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96

HM in water - dissolved						
Our Reference:	UNITS	97971-69	97971-70	97971-71	97971-72	97971-73
Your Reference	----------	S - Dam 1	S - Dam 2	S - Dam 3	S - Dam 4	S - Dam 5
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic-Dissolved	µg/L	<1	1	2	2	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	1	3	2	2	2
Copper-Dissolved	µg/L	3	26	22	29	32
Lead-Dissolved	µg/L	<1	3	2	7	5
Mercury-Dissolved	µg/L	<0.05	0.07	0.06	<0.05	0.06
Nickel-Dissolved	µg/L	3	9	5	10	10
Zinc-Dissolved	µg/L	17	8	6	11	9

HM in water - dissolved						
Our Reference:	UNITS	97971-74	97971-75	97971-76	97971-77	97971-78
Your Reference	----------	S - Dam 6	S - Dam 7	S - Dam 7a	S - Dam 8	S - Dam 9
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	2	<1	1	2	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	2	<1	<1	1	<1

HM in water - dissolved						
Our Reference:	UNITS	97971-79	97971-80	97971-81	97971-82	97971-83
Your Reference	----------	S - Dam 10	S - Dam 11	MW2	MW3	MW5
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Arsenic-Dissolved	µg/L	<1	<1	3	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	1
Copper-Dissolved	µg/L	11	2	1	<1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	<1	14	8	3
Zinc-Dissolved	µg/L	<1	2	42	39	6

HM in water - dissolved		
Our Reference:	UNITS	97971-84
Your Reference	----------	MW6
Depth	----------	-
Date Sampled		20/09/2013
Type of sample		Water
Date prepared	-	25/09/2013
Date analysed	-	25/09/2013
Arsenic-Dissolved	µg/L	4
Cadmium-Dissolved	µg/L	0.3
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	7
Zinc-Dissolved	µg/L	57

Miscellaneous Inorganics						
Our Reference:	UNITS	97971-69	97971-70	97971-71	97971-72	97971-73
Your Reference	----------	S - Dam 1	S - Dam 2	S - Dam 3	S - Dam 4	S - Dam 5
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
pH	pH Units	8.4	7.8	8.0	7.6	7.7
Electrical Conductivity	µS/cm	1,200	970	1,100	990	1,000
Total Suspended Solids	mg/L	31	480	1,300	210	380
BOD	mg/L	<5	[NA]	[NA]	[NA]	[NA]

Miscellaneous Inorganics						
Our Reference:	UNITS	97971-74	97971-75	97971-76	97971-77	97971-78
Your Reference	----------	S - Dam 6	S - Dam 7	S - Dam 7a	S - Dam 8	S - Dam 9
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
pH	pH Units	8.1	8.7	8.1	8.7	8.8
Electrical Conductivity	µS/cm	830	1,200	1,200	1,200	1,700
Total Suspended Solids	mg/L	1,000	<5	<5	28	8

Miscellaneous Inorganics						
Our Reference:	UNITS	97971-79	97971-80	97971-81	97971-82	97971-83
Your Reference	----------	S - Dam 10	S - Dam 11	MW2	MW3	MW5
Depth	----------	-	-	-	-	-
Date Sampled		20/09/2013	20/09/2013	20/09/2013	20/09/2013	20/09/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
Date analysed	-	25/09/2013	25/09/2013	25/09/2013	25/09/2013	25/09/2013
pH	pH Units	8.2	7.9	7.1	7.1	8.0
Electrical Conductivity	µS/cm	830	830	2,500	20,000	1,500
Total Suspended Solids	mg/L	<5	24	[NA]	[NA]	[NA]
BOD	mg/L	<5	<5	[NA]	[NA]	[NA]

Miscellaneous Inorganics		
Our Reference:	UNITS	97971-84
Your Reference	----------	MW6
Depth	----------	-
Date Sampled		20/09/2013
Type of sample		Water
Date prepared	-	25/09/2013
Date analysed	-	25/09/2013
pH	pH Units	7.2
Electrical Conductivity	µS/cm	19,000

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA 22nd ED 2510 and Rayment & Lyons.
Inorg-019	Suspended Solids - determined gravimetrcially by filtration of the sample, in accordance with APHA 22nd ED, 2540-D. The samples are dried at 104+/-5oC.
Inorg-091	BOD - Analysed in accordance with APHA 22nd ED 5210 D and in house INORG-091.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2013	97971-23	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
Date analysed	-			25/09/2013	97971-23	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	97971-23	<25 || <25	LCS-4	124%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	97971-23	<25 || <25	LCS-4	124%
Benzene	mg/kg	0.2	Org-016	<0.2	97971-23	<0.2 || <0.2	LCS-4	125%
Toluene	mg/kg	0.5	Org-016	<0.5	97971-23	<0.5 || <0.5	LCS-4	135%
Ethylbenzene	mg/kg	1	Org-016	<1	97971-23	<1 || <1	LCS-4	128%
m+p-xylene	mg/kg	2	Org-016	<2	97971-23	<2 || <2	LCS-4	116%
o-Xylene	mg/kg	1	Org-016	<1	97971-23	<1 || <1	LCS-4	129%
naphthalene	mg/kg	1	Org-014	<1	97971-23	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	125	97971-23	112 || 109 || RPD: 3	LCS-4	118%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2013	97971-23	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
Date analysed	-			25/09/2013	97971-23	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	97971-23	<50 || <50	LCS-4	132%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	97971-23	<100 || <100	LCS-4	123%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	97971-23	<100 || <100	LCS-4	101%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	97971-23	<50 || <50	LCS-4	132%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	97971-23	<100 || <100	LCS-4	123%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	97971-23	<100 || <100	LCS-4	101%
Surrogate o-Terphenyl	%		Org-003	93	97971-23	108 || 105 || RPD: 3	LCS-4	101%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2013	97971-1	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
Date analysed	-			25/09/2013	97971-1	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	LCS-4	119%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	LCS-4	117%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	0.1 || <0.1	LCS-4	106%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	0.1 || <0.1	LCS-4	102%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	0.1 || <0.1	LCS-4	129%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	LCS-4	103%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	97971-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	97971-1	0.07 || 0.06 || RPD: 15	LCS-4	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	97971-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	97	97971-1	99 || 97 || RPD: 2	LCS-4	105%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			25/09/2013	97971-1	25/09/2013 || 25/09/2013	LCS-1	25/09/2013
Date analysed	-			25/09/2013	97971-1	25/09/2013 || 25/09/2013	LCS-1	25/09/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	97971-1	7 || 6 || RPD: 15	LCS-1	102%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	97971-1	<0.4 || <0.4	LCS-1	98%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	97971-1	22 || 24 || RPD: 9	LCS-1	105%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	97971-1	35 || 36 || RPD: 3	LCS-1	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	97971-1	85 || 63 || RPD: 30	LCS-1	104%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	97971-1	<0.1 || <0.1	LCS-1	81%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	97971-1	18 || 22 || RPD: 20	LCS-1	106%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	97971-1	130 || 110 || RPD: 17	LCS-1	106%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/09/2013	[NT]	[NT]	LCS-W1	26/09/2013
Date analysed	-			26/09/2013	[NT]	[NT]	LCS-W1	26/09/2013
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	110%
TRHC$_6$ - C$_{10}$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	110%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	106%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	113%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	110%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	110%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	101	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	94%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W1	96%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/09/2013	[NT]	[NT]	LCS-W1	26/09/2013
Date analysed	-			27/09/2013	[NT]	[NT]	LCS-W1	27/09/2013
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	102%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	107%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	92%
TRH>C$_{10}$ - C$_{16}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	102%
TRH>C$_{16}$ - C$_{34}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	107%
TRH>C$_{34}$ - C$_{40}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	92%
Surrogate o-Terphenyl	%		Org-003	105	[NT]	[NT]	LCS-W1	94%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2013	[NT]	[NT]	LCS-W1	25/09/2013
Date analysed	-			25/09/2013	[NT]	[NT]	LCS-W1	25/09/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	105%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	102%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	91%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	87%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	110%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	87%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	86%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	99	[NT]	[NT]	LCS-W1	104%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			25/09/2013	97971-75	25/09/2013 || 25/09/2013	LCS-W1	25/09/2013
Date analysed	-			25/09/2013	97971-75	25/09/2013 || 25/09/2013	LCS-W1	25/09/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	97971-75	<1 || <1	LCS-W1	99%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	97971-75	<0.1 || <0.1	LCS-W1	98%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	97971-75	<1 || <1	LCS-W1	97%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	97971-75	<1 || <1	LCS-W1	95%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	97971-75	<1 || <1	LCS-W1	96%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	97971-75	<0.05 || [N/T]	LCS-W1	104%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	97971-75	<1 || <1	LCS-W1	99%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	97971-75	<1 || <1	LCS-W1	95%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			25/09/2013	97971-69	25/09/2013 || 25/09/2013	LCS-W1	25/09/2013
Date analysed	-			25/09/2013	97971-69	25/09/2013 || 25/09/2013	LCS-W1	25/09/2013
pH	pH Units		Inorg-001	[NT]	97971-69	8.4 || 8.4 || RPD: 0	LCS-W1	102%
Electrical Conductivity	µS/cm	1	Inorg-002	<1	97971-69	1200 || 1200 || RPD: 0	LCS-W1	108%
Total Suspended Solids	mg/L	5	Inorg-019	<5	97971-69	31 || 43 || RPD: 32	LCS-W1	94%
BOD	mg/L	5	Inorg-091	<5	97971-69	<5 || <5	LCS-W1	96%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-43	25/09/2013 || 25/09/2013	LCS-5	25/09/2013
Date analysed	-	97971-43	25/09/2013 || 25/09/2013	LCS-5	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	97971-43	<25 || <25	LCS-5	100%
TRHC$_6$ - C$_{10}$	mg/kg	97971-43	<25 || <25	LCS-5	100%
Benzene	mg/kg	97971-43	<0.2 || <0.2	LCS-5	71%
Toluene	mg/kg	97971-43	<0.5 || <0.5	LCS-5	100%
Ethylbenzene	mg/kg	97971-43	<1 || <1	LCS-5	109%
m+p-xylene	mg/kg	97971-43	<2 || <2	LCS-5	111%
o-Xylene	mg/kg	97971-43	<1 || <1	LCS-5	109%
naphthalene	mg/kg	97971-43	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97971-43	120 || 131 || RPD: 9	LCS-5	91%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-43	25/09/2013 || 25/09/2013	LCS-5	25/09/2013
Date analysed	-	97971-43	25/09/2013 || 25/09/2013	LCS-5	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97971-43	<50 || <50	LCS-5	130%
TRHC$_{15}$ - C$_{28}$	mg/kg	97971-43	<100 || <100	LCS-5	120%
TRHC$_{29}$ - C$_{36}$	mg/kg	97971-43	<100 || <100	LCS-5	102%
TRH>C$_{10}$-C$_{16}$	mg/kg	97971-43	<50 || <50	LCS-5	130%
TRH>C$_{16}$-C$_{34}$	mg/kg	97971-43	<100 || <100	LCS-5	120%
TRH>C$_{34}$-C$_{40}$	mg/kg	97971-43	<100 || <100	LCS-5	102%
Surrogate o-Terphenyl	%	97971-43	96 || 97 || RPD: 1	LCS-5	101%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-12	25/09/2013 || 25/09/2013	LCS-5	25/09/2013
Date analysed	-	97971-12	25/09/2013 || 25/09/2013	LCS-5	25/09/2013
Naphthalene	mg/kg	97971-12	<0.1 || <0.1	LCS-5	118%
Acenaphthylene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97971-12	<0.1 || <0.1	LCS-5	116%
Phenanthrene	mg/kg	97971-12	<0.1 || <0.1	LCS-5	105%
Anthracene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97971-12	<0.1 || <0.1	LCS-5	101%
Pyrene	mg/kg	97971-12	<0.1 || <0.1	LCS-5	128%
Benzo(a)anthracene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97971-12	<0.1 || <0.1	LCS-5	102%
Benzo(b+k)fluoranthene	mg/kg	97971-12	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97971-12	<0.05 || <0.05	LCS-5	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97971-12	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97971-12	99 || 97 || RPD: 2	LCS-5	106%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97971-12	25/09/2013 || 25/09/2013	LCS-2	25/09/2013
Date analysed	-	97971-12	25/09/2013 || 25/09/2013	LCS-2	25/09/2013
Arsenic	mg/kg	97971-12	5 || 4 || RPD: 22	LCS-2	101%
Cadmium	mg/kg	97971-12	<0.4 || <0.4	LCS-2	102%
Chromium	mg/kg	97971-12	12 || 14 || RPD: 15	LCS-2	103%
Copper	mg/kg	97971-12	35 || 38 || RPD: 8	LCS-2	103%
Lead	mg/kg	97971-12	16 || 19 || RPD: 17	LCS-2	102%
Mercury	mg/kg	97971-12	<0.1 || <0.1	LCS-2	80%
Nickel	mg/kg	97971-12	15 || 16 || RPD: 6	LCS-2	104%
Zinc	mg/kg	97971-12	57 || 59 || RPD: 3	LCS-2	104%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	97971-69	25/09/2013 || 25/09/2013	97971-76	25/09/2013
Date analysed	-	97971-69	25/09/2013 || 25/09/2013	97971-76	25/09/2013
Arsenic-Dissolved	µg/L	97971-69	<1 || [N/T]	97971-76	99%
Cadmium-Dissolved	µg/L	97971-69	<0.1 || [N/T]	97971-76	98%
Chromium-Dissolved	µg/L	97971-69	1 || [N/T]	97971-76	97%
Copper-Dissolved	µg/L	97971-69	3 || [N/T]	97971-76	95%
Lead-Dissolved	µg/L	97971-69	<1 || [N/T]	97971-76	96%
Mercury-Dissolved	µg/L	97971-69	<0.05 || <0.05	97971-76	100%
Nickel-Dissolved	µg/L	97971-69	3 || [N/T]	97971-76	99%
Zinc-Dissolved	µg/L	97971-69	17 || [N/T]	97971-76	95%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	97971-79	25/09/2013 || 25/09/2013
Date analysed	-	97971-79	25/09/2013 || 25/09/2013
pH	pH Units	97971-79	8.2 || 8.2 || RPD: 0
Electrical Conductivity	µS/cm	97971-79	830 || 830 || RPD: 0
Total Suspended Solids	mg/L	97971-79	<5 || <5

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-51	25/09/2013 || 25/09/2013	97971-44	25/09/2013
Date analysed	-	97971-51	25/09/2013 || 25/09/2013	97971-44	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	97971-51	<25 || <25	97971-44	102%
TRHC$_6$ - C$_{10}$	mg/kg	97971-51	<25 || <25	97971-44	102%
Benzene	mg/kg	97971-51	<0.2 || <0.2	97971-44	104%
Toluene	mg/kg	97971-51	<0.5 || <0.5	97971-44	104%
Ethylbenzene	mg/kg	97971-51	<1 || <1	97971-44	101%
m+p-xylene	mg/kg	97971-51	<2 || <2	97971-44	101%
o-Xylene	mg/kg	97971-51	<1 || <1	97971-44	99%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
naphthalene	mg/kg	97971-51	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97971-51	130 || 120 || RPD: 8	97971-44	99%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-51	25/09/2013 || 25/09/2013	97971-44	25/09/2013
Date analysed	-	97971-51	25/09/2013 || 25/09/2013	97971-44	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97971-51	<50 || <50	97971-44	131%
TRHC$_{15}$ - C$_{28}$	mg/kg	97971-51	<100 || <100	97971-44	123%
TRHC$_{29}$ - C$_{36}$	mg/kg	97971-51	<100 || <100	97971-44	102%
TRH>C$_{10}$-C$_{16}$	mg/kg	97971-51	<50 || <50	97971-44	131%
TRH>C$_{16}$-C$_{34}$	mg/kg	97971-51	<100 || <100	97971-44	123%
TRH>C$_{34}$-C$_{40}$	mg/kg	97971-51	<100 || <100	97971-44	102%
Surrogate o-Terphenyl	%	97971-51	101 || 102 || RPD: 1	97971-44	123%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-23	25/09/2013 || 25/09/2013	LCS-6	25/09/2013
Date analysed	-	97971-23	25/09/2013 || 25/09/2013	LCS-6	26/09/2013
Naphthalene	mg/kg	97971-23	<0.1 || <0.1	LCS-6	117%
Acenaphthylene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97971-23	<0.1 || <0.1	LCS-6	116%
Phenanthrene	mg/kg	97971-23	0.4 || 0.4 || RPD: 0	LCS-6	105%
Anthracene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97971-23	0.1 || 0.1 || RPD: 0	LCS-6	101%
Pyrene	mg/kg	97971-23	0.1 || 0.1 || RPD: 0	LCS-6	129%
Benzo(a)anthracene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97971-23	0.1 || 0.2 || RPD: 67	LCS-6	102%
Benzo(b+k)fluoranthene	mg/kg	97971-23	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97971-23	0.05 || 0.06 || RPD: 18	LCS-6	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97971-23	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97971-23	103 || 102 || RPD: 1	LCS-6	107%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97971-23	25/09/2013 || 25/09/2013	LCS-3	25/09/2013
Date analysed	-	97971-23	25/09/2013 || 25/09/2013	LCS-3	25/09/2013
Arsenic	mg/kg	97971-23	7 || 7 || RPD: 0	LCS-3	97%
Cadmium	mg/kg	97971-23	<0.4 || <0.4	LCS-3	98%
Chromium	mg/kg	97971-23	10 || 10 || RPD: 0	LCS-3	100%
Copper	mg/kg	97971-23	31 || 34 || RPD: 9	LCS-3	100%
Lead	mg/kg	97971-23	18 || 19 || RPD: 5	LCS-3	98%
Mercury	mg/kg	97971-23	<0.1 || <0.1	LCS-3	85%
Nickel	mg/kg	97971-23	14 || 17 || RPD: 19	LCS-3	101%
Zinc	mg/kg	97971-23	53 || 66 || RPD: 22	LCS-3	100%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	97971-79	25/09/2013 || 25/09/2013
Date analysed	-	97971-79	25/09/2013 || 25/09/2013
Mercury-Dissolved	µg/L	97971-79	<0.05 || <0.05

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97971-60	25/09/2013
Date analysed	-	[NT]	[NT]	97971-60	25/09/2013
TRHC$_6$ - C$_9$	mg/kg	[NT]	[NT]	97971-60	123%
TRHC$_6$ - C$_{10}$	mg/kg	[NT]	[NT]	97971-60	123%
Benzene	mg/kg	[NT]	[NT]	97971-60	114%
Toluene	mg/kg	[NT]	[NT]	97971-60	127%
Ethylbenzene	mg/kg	[NT]	[NT]	97971-60	123%
m+p-xylene	mg/kg	[NT]	[NT]	97971-60	126%
o-Xylene	mg/kg	[NT]	[NT]	97971-60	123%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	97971-60	99%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97971-60	25/09/2013
Date analysed	-	[NT]	[NT]	97971-60	25/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	[NT]	[NT]	97971-60	124%
TRHC$_{15}$ - C$_{28}$	mg/kg	[NT]	[NT]	97971-60	115%
TRHC$_{29}$ - C$_{36}$	mg/kg	[NT]	[NT]	97971-60	94%
TRH>C$_{10}$-C$_{16}$	mg/kg	[NT]	[NT]	97971-60	124%
TRH>C$_{16}$-C$_{34}$	mg/kg	[NT]	[NT]	97971-60	115%
TRH>C$_{34}$-C$_{40}$	mg/kg	[NT]	[NT]	97971-60	94%
Surrogate o-Terphenyl	%	[NT]	[NT]	97971-60	102%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-32	25/09/2013 || 25/09/2013	LCS-7	25/09/2013
Date analysed	-	97971-32	25/09/2013 || 25/09/2013	LCS-7	25/09/2013
Naphthalene	mg/kg	97971-32	<0.1 || <0.1	LCS-7	120%
Acenaphthylene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97971-32	<0.1 || <0.1	LCS-7	122%
Phenanthrene	mg/kg	97971-32	<0.1 || <0.1	LCS-7	108%
Anthracene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97971-32	<0.1 || <0.1	LCS-7	101%
Pyrene	mg/kg	97971-32	<0.1 || <0.1	LCS-7	130%
Benzo(a)anthracene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97971-32	<0.1 || <0.1	LCS-7	98%
Benzo(b+k)fluoranthene	mg/kg	97971-32	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97971-32	<0.05 || <0.05	LCS-7	107%
Indeno(1,2,3-c,d)pyrene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97971-32	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97971-32	97 || 99 || RPD: 2	LCS-7	110%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97971-32	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
Date analysed	-	97971-32	25/09/2013 || 25/09/2013	LCS-4	25/09/2013
Arsenic	mg/kg	97971-32	14 || 18 || RPD: 25	LCS-4	97%
Cadmium	mg/kg	97971-32	<0.4 || <0.4	LCS-4	98%
Chromium	mg/kg	97971-32	15 || 14 || RPD: 7	LCS-4	99%
Copper	mg/kg	97971-32	26 || 32 || RPD: 21	LCS-4	99%
Lead	mg/kg	97971-32	16 || 17 || RPD: 6	LCS-4	97%
Mercury	mg/kg	97971-32	<0.1 || <0.1	LCS-4	90%
Nickel	mg/kg	97971-32	10 || 8 || RPD: 22	LCS-4	100%
Zinc	mg/kg	97971-32	38 || 39 || RPD: 3	LCS-4	99%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-43	25/09/2013 || 25/09/2013	97971-2	25/09/2013
Date analysed	-	97971-43	25/09/2013 || 25/09/2013	97971-2	25/09/2013
Naphthalene	mg/kg	97971-43	<0.1 || <0.1	97971-2	114%
Acenaphthylene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97971-43	<0.1 || <0.1	97971-2	116%
Phenanthrene	mg/kg	97971-43	<0.1 || <0.1	97971-2	104%
Anthracene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97971-43	<0.1 || <0.1	97971-2	101%
Pyrene	mg/kg	97971-43	<0.1 || <0.1	97971-2	127%
Benzo(a)anthracene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97971-43	<0.1 || <0.1	97971-2	103%
Benzo(b+k)fluoranthene	mg/kg	97971-43	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97971-43	<0.05 || <0.05	97971-2	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97971-43	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97971-43	97 || 104 || RPD: 7	97971-2	97%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97971-43	25/09/2013 || 25/09/2013	97971-2	25/09/2013
Date analysed	-	97971-43	25/09/2013 || 25/09/2013	97971-2	25/09/2013
Arsenic	mg/kg	97971-43	9 || 7 || RPD: 25	97971-2	92%
Cadmium	mg/kg	97971-43	<0.4 || <0.4	97971-2	86%
Chromium	mg/kg	97971-43	11 || 10 || RPD: 10	97971-2	92%
Copper	mg/kg	97971-43	14 || 13 || RPD: 7	97971-2	107%
Lead	mg/kg	97971-43	5 || 5 || RPD: 0	97971-2	77%
Mercury	mg/kg	97971-43	<0.1 || <0.1	97971-2	90%
Nickel	mg/kg	97971-43	5 || 4 || RPD: 22	97971-2	96%
Zinc	mg/kg	97971-43	27 || 24 || RPD: 12	97971-2	81%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97971-51	25/09/2013 || 25/09/2013	97971-24	25/09/2013
Date analysed	-	97971-51	25/09/2013 || 25/09/2013	97971-24	25/09/2013
Naphthalene	mg/kg	97971-51	<0.1 || <0.1	97971-24	111%
Acenaphthylene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97971-51	<0.1 || <0.1	97971-24	118%
Phenanthrene	mg/kg	97971-51	0.1 || 0.1 || RPD: 0	97971-24	106%
Anthracene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97971-51	<0.1 || <0.1	97971-24	101%
Pyrene	mg/kg	97971-51	<0.1 || <0.1	97971-24	128%
Benzo(a)anthracene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97971-51	<0.1 || <0.1	97971-24	105%
Benzo(b+k)fluoranthene	mg/kg	97971-51	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97971-51	<0.05 || <0.05	97971-24	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97971-51	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97971-51	98 || 99 || RPD: 1	97971-24	99%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97971-51	25/09/2013 || 25/09/2013	97971-24	25/09/2013
Date analysed	-	97971-51	25/09/2013 || 25/09/2013	97971-24	25/09/2013
Arsenic	mg/kg	97971-51	7 || 5 || RPD: 33	97971-24	85%
Cadmium	mg/kg	97971-51	<0.4 || <0.4	97971-24	81%
Chromium	mg/kg	97971-51	6 || 6 || RPD: 0	97971-24	92%
Copper	mg/kg	97971-51	43 || 43 || RPD: 0	97971-24	106%
Lead	mg/kg	97971-51	16 || 16 || RPD: 0	97971-24	85%
Mercury	mg/kg	97971-51	<0.1 || <0.1	97971-24	89%
Nickel	mg/kg	97971-51	23 || 20 || RPD: 14	97971-24	87%
Zinc	mg/kg	97971-51	78 || 70 || RPD: 11	97971-24	85%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97971-44	25/09/2013
Date analysed	-	[NT]	[NT]	97971-44	25/09/2013
Naphthalene	mg/kg	[NT]	[NT]	97971-44	116%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	97971-44	115%
Phenanthrene	mg/kg	[NT]	[NT]	97971-44	104%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	97971-44	101%
Pyrene	mg/kg	[NT]	[NT]	97971-44	128%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	97971-44	101%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	97971-44	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	97971-44	95%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97971-59	25/09/2013 || 25/09/2013	97971-44	25/09/2013
Date analysed	-	97971-59	25/09/2013 || 25/09/2013	97971-44	25/09/2013
Arsenic	mg/kg	97971-59	4 || 4 || RPD: 0	97971-44	85%
Cadmium	mg/kg	97971-59	<0.4 || <0.4	97971-44	85%
Chromium	mg/kg	97971-59	8 || 9 || RPD: 12	97971-44	89%
Copper	mg/kg	97971-59	19 || 23 || RPD: 19	97971-44	100%
Lead	mg/kg	97971-59	13 || 13 || RPD: 0	97971-44	83%
Mercury	mg/kg	97971-59	<0.1 || <0.1	97971-44	92%
Nickel	mg/kg	97971-59	8 || 9 || RPD: 12	97971-44	87%
Zinc	mg/kg	97971-59	30 || 33 || RPD: 10	97971-44	88%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	97971-79	25/09/2013 || 25/09/2013
Date analysed	-	97971-79	25/09/2013 || 25/09/2013
pH	pH Units	97971-79	8.2 || 8.2 || RPD: 0
Electrical Conductivity	µS/cm	97971-79	830 || 830 || RPD: 0
Total Suspended Solids	mg/L	97971-79	<5 || <5

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97971-60	25/09/2013
Date analysed	-	[NT]	[NT]	97971-60	25/09/2013
Naphthalene	mg/kg	[NT]	[NT]	97971-60	114%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	97971-60	112%
Phenanthrene	mg/kg	[NT]	[NT]	97971-60	102%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	97971-60	99%
Pyrene	mg/kg	[NT]	[NT]	97971-60	125%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	97971-60	93%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	97971-60	99%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	97971-60	92%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	97971-60	25/09/2013
Date analysed	-	[NT]	[NT]	97971-60	25/09/2013
Arsenic	mg/kg	[NT]	[NT]	97971-60	90%
Cadmium	mg/kg	[NT]	[NT]	97971-60	89%
Chromium	mg/kg	[NT]	[NT]	97971-60	94%
Copper	mg/kg	[NT]	[NT]	97971-60	105%
Lead	mg/kg	[NT]	[NT]	97971-60	95%
Mercury	mg/kg	[NT]	[NT]	97971-60	92%
Nickel	mg/kg	[NT]	[NT]	97971-60	89%
Zinc	mg/kg	[NT]	[NT]	97971-60	95%

Report Comments:

Total Recoverable Hydrocarbons in soil:# Percent recovery is not possible to report as the high concentration of analytes in the sa have caused interference.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

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CERTIFICATE OF ANALYSIS 97778

Client:
David Lane Associates (Maitland)
42B Church St
Maitland
NSW 2320

Attention: Malcolm Adrian

Sample log in details:

Your Reference:	**DLH1121 - Horsley Park**
No. of samples:	46 Soils
Date samples received / completed instructions received	20/09/2013 / 20/09/2013

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	27/09/13 / 26/09/13
Date of Preliminary Report:	None Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97778-1	97778-2	97778-22	97778-24	97778-27
Your Reference	----------	BH26	BH26	BH39	BH39	BH41
Depth	----------	1.0	4.0	3.0	7.5	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	86	90	89	89

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97778-28	97778-29	97778-30	97778-31	97778-32
Your Reference	----------	BH41	BH41	BH41	BH41	BH42
Depth	----------	5.0	7.5	12.0	15.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	88	86	84	95

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	97778-33	97778-34
Your Reference	----------	BH42	BH42
Depth	----------	3.0	8.0
Date Sampled		18/09/2013	18/09/2013
Type of sample		Soil	Soil
Date extracted	-	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	80	93

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97778-1	97778-2	97778-22	97778-24	97778-27
Your Reference	----------	BH26	BH26	BH39	BH39	BH41
Depth	----------	1.0	4.0	3.0	7.5	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	160	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	410	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	300	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	300	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	560	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	#	88	91	84

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97778-28	97778-29	97778-30	97778-31	97778-32
Your Reference	----------	BH41	BH41	BH41	BH41	BH42
Depth	----------	5.0	7.5	12.0	15.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	85	91	91	89	94

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	97778-33	97778-34
Your Reference	----------	BH42	BH42
Depth	----------	3.0	8.0
Date Sampled		18/09/2013	18/09/2013
Type of sample		Soil	Soil
Date extracted	-	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100
Surrogate o-Terphenyl	%	90	90

PAHs in Soil						
Our Reference:	UNITS	97778-1	97778-2	97778-3	97778-4	97778-5
Your Reference	----------	BH26	BH26	BH27	BH27	BH28
Depth	----------	1.0	4.0	1.0	2.5	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.6	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	1.4	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	2.9	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	92	99	97	96	97

PAHs in Soil						
Our Reference:	UNITS	97778-6	97778-7	97778-8	97778-9	97778-10
Your Reference	----------	BH29	BH29	BH30	BH30	BH31
Depth	----------	1.0	3.0	1.0	3.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	95	96	101	99

PAHs in Soil						
Our Reference:	UNITS	97778-11	97778-12	97778-13	97778-14	97778-15
Your Reference	----------	BH31	BH32	BH32	BH33	BH33
Depth	----------	3.0	0.7	2.5	1.0	3.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	99	96	99	99

PAHs in Soil						
Our Reference:	UNITS	97778-16	97778-17	97778-18	97778-19	97778-20
Your Reference	----------	BH34	BH35	BH36	BH37	BH38
Depth	----------	1.0	1.0	1.0	1.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	99	99	95	99

PAHs in Soil						
Our Reference:	UNITS	97778-21	97778-22	97778-23	97778-24	97778-25
Your Reference	----------	BH39	BH39	BH39	BH39	BH39
Depth	----------	1.0	3.0	5.0	7.5	9.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.11	NIL (+)VE	0.10	0.11	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	98	99	98	99

PAHs in Soil						
Our Reference:	UNITS	97778-26	97778-27	97778-28	97778-29	97778-30
Your Reference	----------	BH40	BH41	BH41	BH41	BH41
Depth	----------	3.0	1.0	5.0	7.5	12.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	0.6
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	0.6
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.5
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.3
Benzo(a)pyrene	mg/kg	0.06	<0.05	<0.05	<0.05	0.18
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.30	NIL (+)VE	NIL (+)VE	0.15	2.8
Surrogate p-Terphenyl-d14	%	98	96	95	96	97

PAHs in Soil						
Our Reference:	UNITS	97778-31	97778-32	97778-33	97778-34	97778-35
Your Reference	----------	BH41	BH42	BH42	BH42	BH44
Depth	----------	15.0	1.0	3.0	8.0	0.5
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	0.15	0.12	0.21	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	96	99	101	98

PAHs in Soil			
Our Reference:	UNITS	97778-36	97778-37
Your Reference	----------	BH46	BH46
Depth	----------	1.0	2.5
Date Sampled		18/09/2013	18/09/2013
Type of sample		Soil	Soil
Date extracted	-	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	99

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-1	97778-2	97778-3	97778-4	97778-5
Your Reference	----------	BH26	BH26	BH27	BH27	BH28
Depth	----------	1.0	4.0	1.0	2.5	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	4	5	<4	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.5	0.6
Chromium	mg/kg	14	10	28	200	210
Copper	mg/kg	31	14	8	44	38
Lead	mg/kg	16	8	8	6	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	16	16	13	190	160
Zinc	mg/kg	66	56	7	78	68

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-6	97778-7	97778-8	97778-9	97778-10
Your Reference	----------	BH29	BH29	BH30	BH30	BH31
Depth	----------	1.0	3.0	1.0	3.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	<4	4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	0.5	0.6	<0.4
Chromium	mg/kg	9	14	260	160	12
Copper	mg/kg	12	21	41	43	25
Lead	mg/kg	11	6	4	6	8
Mercury	mg/kg	<0.1	0.2	0.1	0.1	<0.1
Nickel	mg/kg	4	11	160	170	6
Zinc	mg/kg	9	41	66	71	26

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-11	97778-12	97778-13	97778-14	97778-15
Your Reference	----------	BH31	BH32	BH32	BH33	BH33
Depth	----------	3.0	0.7	2.5	1.0	3.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	<4	6	5	<4	<4
Cadmium	mg/kg	<0.4	0.5	0.5	<0.4	<0.4
Chromium	mg/kg	12	210	150	32	16
Copper	mg/kg	44	38	38	23	39
Lead	mg/kg	10	7	7	9	11
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	0.1
Nickel	mg/kg	17	140	130	21	21
Zinc	mg/kg	71	63	63	34	78

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-16	97778-17	97778-18	97778-19	97778-20
Your Reference	----------	BH34	BH35	BH36	BH37	BH38
Depth	----------	1.0	1.0	1.0	1.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	4	21	10	10	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	15	14	10	11
Copper	mg/kg	25	33	14	17	10
Lead	mg/kg	14	17	9	4	7
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	15	4	5	3
Zinc	mg/kg	42	51	18	38	9

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-21	97778-22	97778-23	97778-24	97778-25
Your Reference	----------	BH39	BH39	BH39	BH39	BH39
Depth	----------	1.0	3.0	5.0	7.5	9.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	11	16	8	9	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	17	16	23	16
Copper	mg/kg	35	37	34	35	34
Lead	mg/kg	12	16	14	13	12
Mercury	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	22	26	20	19	25
Zinc	mg/kg	70	73	66	64	77

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-26	97778-27	97778-28	97778-29	97778-30
Your Reference	----------	BH40	BH41	BH41	BH41	BH41
Depth	----------	3.0	1.0	5.0	7.5	12.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	11	12	11	8	6
Cadmium	mg/kg	0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	17	17	22	17
Copper	mg/kg	24	35	34	40	42
Lead	mg/kg	34	20	13	17	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	25	21	21	19
Zinc	mg/kg	86	81	66	74	70

Acid Extractable metals in soil						
Our Reference:	UNITS	97778-31	97778-32	97778-33	97778-34	97778-35
Your Reference	----------	BH41	BH42	BH42	BH42	BH44
Depth	----------	15.0	1.0	3.0	8.0	0.5
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arsenic	mg/kg	4	6	4	<4	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	11	10	9	12
Copper	mg/kg	38	43	44	33	41
Lead	mg/kg	14	16	16	13	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	17	20	18	15	15
Zinc	mg/kg	69	73	73	59	68

Acid Extractable metals in soil			
Our Reference:	UNITS	97778-36	97778-37
Your Reference	----------	BH46	BH46
Depth	----------	1.0	2.5
Date Sampled		18/09/2013	18/09/2013
Type of sample		Soil	Soil
Date digested	-	24/09/2013	24/09/2013
Date analysed	-	24/09/2013	24/09/2013
Arsenic	mg/kg	6	4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	16	7
Copper	mg/kg	22	12
Lead	mg/kg	15	5
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	9	2
Zinc	mg/kg	35	12

Moisture						
Our Reference:	UNITS	97778-1	97778-2	97778-3	97778-4	97778-5
Your Reference	----------	BH26	BH26	BH27	BH27	BH28
Depth	----------	1.0	4.0	1.0	2.5	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	21	19	16	20	19

Moisture						
Our Reference:	UNITS	97778-6	97778-7	97778-8	97778-9	97778-10
Your Reference	----------	BH29	BH29	BH30	BH30	BH31
Depth	----------	1.0	3.0	1.0	3.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	20	14	22	14	16

Moisture						
Our Reference:	UNITS	97778-11	97778-12	97778-13	97778-14	97778-15
Your Reference	----------	BH31	BH32	BH32	BH33	BH33
Depth	----------	3.0	0.7	2.5	1.0	3.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	11	19	15	18	9.0

Moisture						
Our Reference:	UNITS	97778-16	97778-17	97778-18	97778-19	97778-20
Your Reference	----------	BH34	BH35	BH36	BH37	BH38
Depth	----------	1.0	1.0	1.0	1.0	1.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	15	17	15	16	18

Moisture						
Our Reference:	UNITS	97778-21	97778-22	97778-23	97778-24	97778-25
Your Reference	----------	BH39	BH39	BH39	BH39	BH39
Depth	----------	1.0	3.0	5.0	7.5	9.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	6.4	9.0	9.4	8.8	10

Moisture						
Our Reference:	UNITS	97778-26	97778-27	97778-28	97778-29	97778-30
Your Reference	----------	BH40	BH41	BH41	BH41	BH41
Depth	----------	3.0	1.0	5.0	7.5	12.0
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	19	13	12	13	10

Moisture						
Our Reference:	UNITS	97778-31	97778-32	97778-33	97778-34	97778-35
Your Reference	----------	BH41	BH42	BH42	BH42	BH44
Depth	----------	15.0	1.0	3.0	8.0	0.5
Date Sampled		18/09/2013	18/09/2013	18/09/2013	18/09/2013	18/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	15	5.4	6.8	5.0	8.8

Moisture			
Our Reference:	UNITS	97778-36	97778-37
Your Reference	----------	BH46	BH46
Depth	----------	1.0	2.5
Date Sampled		18/09/2013	18/09/2013
Type of sample		Soil	Soil
Date prepared	-	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013
Moisture	%	14	15

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97778-1	23/09/2013 || 23/09/2013	LCS-13	23/09/2013
Date analysed	-			24/09/2013	97778-1	24/09/2013 || 24/09/2013	LCS-13	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	97778-1	<25 || <25	LCS-13	94%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	97778-1	<25 || <25	LCS-13	94%
Benzene	mg/kg	0.2	Org-016	<0.2	97778-1	<0.2 || <0.2	LCS-13	76%
Toluene	mg/kg	0.5	Org-016	<0.5	97778-1	<0.5 || <0.5	LCS-13	104%
Ethylbenzene	mg/kg	1	Org-016	<1	97778-1	<1 || <1	LCS-13	106%
m+p-xylene	mg/kg	2	Org-016	<2	97778-1	<2 || <2	LCS-13	93%
o-Xylene	mg/kg	1	Org-016	<1	97778-1	<1 || <1	LCS-13	108%
naphthalene	mg/kg	1	Org-014	<1	97778-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	97	97778-1	86 || 89 || RPD: 3	LCS-13	94%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97778-1	23/09/2013 || 23/09/2013	LCS-13	23/09/2013
Date analysed	-			24/09/2013	97778-1	24/09/2013 || 24/09/2013	LCS-13	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	97778-1	<50 || <50	LCS-13	130%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	97778-1	<100 || <100	LCS-13	116%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	97778-1	<100 || <100	LCS-13	130%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	97778-1	<50 || <50	LCS-13	130%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	97778-1	<100 || <100	LCS-13	116%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	97778-1	<100 || <100	LCS-13	130%
Surrogate o-Terphenyl	%		Org-003	95	97778-1	93 || 95 || RPD: 2	LCS-13	106%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97778-1	23/09/2013 || 23/09/2013	LCS-12	23/09/2013
Date analysed	-			23/09/2013	97778-1	23/09/2013 || 23/09/2013	LCS-12	23/09/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	LCS-12	111%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	LCS-12	108%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || 0.1	LCS-12	96%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	LCS-12	93%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	LCS-12	117%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	LCS-12	90%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	97778-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	97778-1	<0.05 || <0.05	LCS-12	92%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	97778-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	96	97778-1	92 || 97 || RPD: 5	LCS-12	97%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			23/09/2013	97778-1	24/09/2013 || 24/09/2013	LCS-1	23/09/2013
Date analysed	-			23/09/2013	97778-1	24/09/2013 || 24/09/2013	LCS-1	24/09/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	97778-1	4 || <4	LCS-1	100%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	97778-1	<0.4 || <0.4	LCS-1	103%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	97778-1	14 || 12 || RPD: 15	LCS-1	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	97778-1	31 || 32 || RPD: 3	LCS-1	102%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	97778-1	16 || 17 || RPD: 6	LCS-1	102%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	97778-1	<0.1 || <0.1	LCS-1	88%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	97778-1	16 || 15 || RPD: 6	LCS-1	103%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	97778-1	66 || 63 || RPD: 5	LCS-1	103%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97778-32	23/09/2013 || 23/09/2013	97778-2	23/09/2013
Date analysed	-	97778-32	24/09/2013 || 24/09/2013	97778-2	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	97778-32	<25 || <25	97778-2	87%
TRHC$_6$ - C$_{10}$	mg/kg	97778-32	<25 || <25	97778-2	87%
Benzene	mg/kg	97778-32	<0.2 || <0.2	97778-2	62%
Toluene	mg/kg	97778-32	<0.5 || <0.5	97778-2	97%
Ethylbenzene	mg/kg	97778-32	<1 || <1	97778-2	100%
m+p-xylene	mg/kg	97778-32	<2 || <2	97778-2	89%
o-Xylene	mg/kg	97778-32	<1 || <1	97778-2	103%
naphthalene	mg/kg	97778-32	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97778-32	95 || 92 || RPD: 3	97778-2	86%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97778-22	23/09/2013 || 23/09/2013	97778-2	23/09/2013
Date analysed	-	97778-22	24/09/2013 || 24/09/2013	97778-2	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97778-22	<50 || <50	97778-2	#
TRHC$_{15}$ - C$_{28}$	mg/kg	97778-22	<100 || <100	97778-2	#
TRHC$_{29}$ - C$_{36}$	mg/kg	97778-22	<100 || <100	97778-2	120%
TRH>C$_{10}$-C$_{16}$	mg/kg	97778-22	<50 || <50	97778-2	#
TRH>C$_{16}$-C$_{34}$	mg/kg	97778-22	<100 || <100	97778-2	#
TRH>C$_{34}$-C$_{40}$	mg/kg	97778-22	<100 || <100	97778-2	120%
Surrogate o-Terphenyl	%	97778-22	88 || 88 || RPD: 0	97778-2	120%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	97778-11	23/09/2013 || 23/09/2013
Date analysed	-	97778-11	23/09/2013 || 23/09/2013
Naphthalene	mg/kg	97778-11	<0.1 || <0.1
Acenaphthylene	mg/kg	97778-11	<0.1 || <0.1
Acenaphthene	mg/kg	97778-11	<0.1 || <0.1
Fluorene	mg/kg	97778-11	<0.1 || <0.1
Phenanthrene	mg/kg	97778-11	<0.1 || <0.1
Anthracene	mg/kg	97778-11	<0.1 || <0.1
Fluoranthene	mg/kg	97778-11	<0.1 || <0.1
Pyrene	mg/kg	97778-11	<0.1 || <0.1
Benzo(a)anthracene	mg/kg	97778-11	<0.1 || <0.1
Chrysene	mg/kg	97778-11	<0.1 || <0.1

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Benzo(b+k)fluoranthene	mg/kg	97778-11	<0.2 || <0.2
Benzo(a)pyrene	mg/kg	97778-11	<0.05 || <0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	97778-11	<0.1 || <0.1
Dibenzo(a,h)anthracene	mg/kg	97778-11	<0.1 || <0.1
Benzo(g,h,i)perylene	mg/kg	97778-11	<0.1 || <0.1
Surrogate p-Terphenyl-d14	%	97778-11	99 || 99 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97778-11	24/09/2013 || 24/09/2013	LCS-2	26/09/2013
Date analysed	-	97778-11	24/09/2013 || 24/09/2013	LCS-2	26/09/2013
Arsenic	mg/kg	97778-11	<4 || 4	LCS-2	98%
Cadmium	mg/kg	97778-11	<0.4 || <0.4	LCS-2	101%
Chromium	mg/kg	97778-11	12 || 14 || RPD: 15	LCS-2	101%
Copper	mg/kg	97778-11	44 || 51 || RPD: 15	LCS-2	99%
Lead	mg/kg	97778-11	10 || 11 || RPD: 10	LCS-2	100%
Mercury	mg/kg	97778-11	<0.1 || <0.1	LCS-2	88%
Nickel	mg/kg	97778-11	17 || 19 || RPD: 11	LCS-2	102%
Zinc	mg/kg	97778-11	71 || 80 || RPD: 12	LCS-2	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	97778-32	23/09/2013 || 23/09/2013
Date analysed	-	97778-32	24/09/2013 || 24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97778-32	<50 || <50
TRHC$_{15}$ - C$_{28}$	mg/kg	97778-32	<100 || <100
TRHC$_{29}$ - C$_{36}$	mg/kg	97778-32	<100 || <100
TRH>C$_{10}$-C$_{16}$	mg/kg	97778-32	<50 || <50
TRH>C$_{16}$-C$_{34}$	mg/kg	97778-32	<100 || <100
TRH>C$_{34}$-C$_{40}$	mg/kg	97778-32	<100 || <100
Surrogate o-Terphenyl	%	97778-32	94 || 96 || RPD: 2

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97778-22	23/09/2013 || 23/09/2013	97778-2	23/09/2013
Date analysed	-	97778-22	23/09/2013 || 23/09/2013	97778-2	23/09/2013
Naphthalene	mg/kg	97778-22	<0.1 || <0.1	97778-2	120%
Acenaphthylene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97778-22	<0.1 || <0.1	97778-2	116%
Phenanthrene	mg/kg	97778-22	<0.1 || <0.1	97778-2	125%
Anthracene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97778-22	<0.1 || <0.1	97778-2	95%
Pyrene	mg/kg	97778-22	<0.1 || <0.1	97778-2	118%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97778-22	<0.1 || <0.1	97778-2	91%
Benzo(b+k)fluoranthene	mg/kg	97778-22	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97778-22	<0.05 || <0.05	97778-2	93%
Indeno(1,2,3-c,d)pyrene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97778-22	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97778-22	98 || 100 || RPD: 2	97778-2	96%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97778-22	24/09/2013 || 24/09/2013	97778-2	23/09/2013
Date analysed	-	97778-22	24/09/2013 || 24/09/2013	97778-2	24/09/2013
Arsenic	mg/kg	97778-22	16 || 17 || RPD: 6	97778-2	98%
Cadmium	mg/kg	97778-22	<0.4 || 0.4	97778-2	92%
Chromium	mg/kg	97778-22	17 || 17 || RPD: 0	97778-2	98%
Copper	mg/kg	97778-22	37 || 44 || RPD: 17	97778-2	110%
Lead	mg/kg	97778-22	16 || 17 || RPD: 6	97778-2	95%
Mercury	mg/kg	97778-22	0.1 || 0.1 || RPD: 0	97778-2	83%
Nickel	mg/kg	97778-22	26 || 28 || RPD: 7	97778-2	96%
Zinc	mg/kg	97778-22	73 || 79 || RPD: 8	97778-2	114%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97778-32	23/09/2013 || 23/09/2013	97778-23	23/09/2013
Date analysed	-	97778-32	23/09/2013 || 23/09/2013	97778-23	24/09/2013
Naphthalene	mg/kg	97778-32	<0.1 || <0.1	97778-23	108%
Acenaphthylene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97778-32	<0.1 || <0.1	97778-23	111%
Phenanthrene	mg/kg	97778-32	0.1 || 0.2 || RPD: 67	97778-23	98%
Anthracene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97778-32	<0.1 || <0.1	97778-23	93%
Pyrene	mg/kg	97778-32	<0.1 || <0.1	97778-23	118%
Benzo(a)anthracene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97778-32	<0.1 || <0.1	97778-23	95%
Benzo(b+k)fluoranthene	mg/kg	97778-32	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97778-32	<0.05 || <0.05	97778-23	95%
Indeno(1,2,3-c,d)pyrene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97778-32	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97778-32	96 || 98 || RPD: 2	97778-23	99%

Client Reference: DLH1121 - Horsley Park

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97778-32	24/09/2013 || 24/09/2013	97778-23	23/09/2013
Date analysed	-	97778-32	24/09/2013 || 24/09/2013	97778-23	23/09/2013
Arsenic	mg/kg	97778-32	6 || 5 || RPD: 18	97778-23	97%
Cadmium	mg/kg	97778-32	<0.4 || <0.4	97778-23	89%
Chromium	mg/kg	97778-32	11 || 10 || RPD: 10	97778-23	96%
Copper	mg/kg	97778-32	43 || 42 || RPD: 2	97778-23	113%
Lead	mg/kg	97778-32	16 || 14 || RPD: 13	97778-23	90%
Mercury	mg/kg	97778-32	<0.1 || <0.1	97778-23	89%
Nickel	mg/kg	97778-32	20 || 19 || RPD: 5	97778-23	92%
Zinc	mg/kg	97778-32	73 || 72 || RPD: 1	97778-23	94%

Report Comments:

TRH_S_NEPM in soil # Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

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CERTIFICATE OF ANALYSIS 97800

Client:

David Lane Associates (Maitland)
42B Church St
Maitland
NSW 2320

Attention: Malcolm Adrian

Sample log in details:

Your Reference:	**DLH1121 - Horsley Park**
No. of samples:	109 soils
Date samples received / completed instructions received	18/09/13, 20/09/13 20/09/2013

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	27/09/13	/	27/09/13
Date of Preliminary Report:	Not issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-5	97800-12	97800-16	97800-20	97800-45
Your Reference	----------	TP2	TP4	TP6	TP8	Bund - 8
Depth	----------	1.5	1.5	1.0	1.0	2.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	13/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	78	75	75	74	81

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-48	97800-49	97800-50	97800-54	97800-55
Your Reference	----------	Bund - 9	BH14	BH14	BH15	BH15
Depth	----------	3.5	2.4	3.5	2.0	5.0
Date Sampled		12/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	75	77	79	75	78

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-61	97800-63	97800-64	97800-66	97800-67
Your Reference	----------	BH19	BH3-S	BH3	BH4	BH4
Depth	----------	0.1	Surface	0.5	0.3	1.4
Date Sampled		16/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	78	76	77	78	72

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-68	97800-69	97800-75	97800-76	97800-77
Your Reference	----------	BH4	BH4	BH7-S	BH7	BH8
Depth	----------	2.2	4.5	Surface	0.5	0.3
Date Sampled		13/09/2013	13/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	77	80	75	98	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-78	97800-79	97800-80	97800-81	97800-82
Your Reference	----------	BH8	BH9	BH9	BH10	BH11
Depth	----------	0.6	0.3	1.2	0.8	1
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	96	100	98	96	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-83	97800-84	97800-85	97800-86	97800-87
Your Reference	----------	BH11	BH12	BH13	BH14	BH14
Depth	----------	1.8	0.6	0.3	0.3	0.8
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	96	96	102	103	102

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-88	97800-93	97800-94	97800-100	97800-101
Your Reference	----------	BH14	BH21	BH22	BH24-S	BH24-SA
Depth	----------	1.7	0.3	0.1	Surface	Surface
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	102	101	97	103	102

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	97800-102	97800-103	97800-104	97800-105	97800-106
Your Reference	----------	BH24	BH24	BH24	BH24	BH25
Depth	----------	0.6	1.3	1.3	2	0.2
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	106	107	81	87	88

vTRH(C6-C10)/BTEXN in Soil				
Our Reference:	UNITS	97800-107	97800-108	97800-109
Your Reference	----------	BH25	BH25	BH25
Depth	----------	0.6	1.4	2.7
Date Sampled		16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	81	81

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-5	97800-12	97800-16	97800-20	97800-45
Your Reference	----------	TP2	TP4	TP6	TP8	Bund - 8
Depth	----------	1.5	1.5	1.0	1.0	2.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	13/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	92	94	99	87

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-48	97800-49	97800-50	97800-54	97800-55
Your Reference	----------	Bund - 9	BH14	BH14	BH15	BH15
Depth	----------	3.5	2.4	3.5	2.0	5.0
Date Sampled		12/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	470	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	1,200	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	970	<100	<100	<100	<100
Surrogate o-Terphenyl	%	115	92	89	86	83

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-61	97800-63	97800-64	97800-66	97800-67
Your Reference	----------	BH19	BH3-S	BH3	BH4	BH4
Depth	----------	0.1	Surface	0.5	0.3	1.4
Date Sampled		16/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	190	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	170	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	310	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	114	88	88	82	83

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-68	97800-69	97800-75	97800-76	97800-77
Your Reference	----------	BH4	BH4	BH7-S	BH7	BH8
Depth	----------	2.2	4.5	Surface	0.5	0.3
Date Sampled		13/09/2013	13/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	82	80	83	84	86

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-78	97800-79	97800-80	97800-81	97800-82
Your Reference	----------	BH8	BH9	BH9	BH10	BH11
Depth	----------	0.6	0.3	1.2	0.8	1
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	84	90	83	83	88

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-83	97800-84	97800-85	97800-86	97800-87
Your Reference	----------	BH11	BH12	BH13	BH14	BH14
Depth	----------	1.8	0.6	0.3	0.3	0.8
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	150	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	180	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	280	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	82	85	84	93	85

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-88	97800-93	97800-94	97800-100	97800-101
Your Reference	----------	BH14	BH21	BH22	BH24-S	BH24-SA
Depth	----------	1.7	0.3	0.1	Surface	Surface
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	70	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	570	220
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	170	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	170	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	520	230
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	86	90	#	133

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	97800-102	97800-103	97800-104	97800-105	97800-106
Your Reference	----------	BH24	BH24	BH24	BH24	BH25
Depth	----------	0.6	1.3	1.3	2	0.2
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	240	470	180	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	590	1,100	1,900	770	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	110	560	1,100	400	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	110	560	1,100	400	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	540	800	1,300	550	150
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	#	#	#	#	102

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	97800-107	97800-108	97800-109
Your Reference	----------	BH25	BH25	BH25
Depth	----------	0.6	1.4	2.7
Date Sampled		16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	100	160
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	61
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	61
TRH>C$_{16}$-C$_{34}$	mg/kg	110	<100	120
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	99	115	119

PAHs in Soil						
Our Reference:	UNITS	97800-1	97800-2	97800-3	97800-4	97800-5
Your Reference	----------	TP1	TP1	TP1	TP2	TP2
Depth	----------	0.5	1.5	3.0	0.5	1.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	0.8
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	0.7
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.7
Benzo(a)pyrene	mg/kg	0.06	0.07	<0.05	<0.05	0.44
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	1
Total +ve PAH's	mg/kg	0.060	0.36	NIL (+)VE	NIL (+)VE	4.6
Surrogate p-Terphenyl-d14	%	107	99	103	98	103

PAHs in Soil						
Our Reference:	UNITS	97800-6	97800-7	97800-8	97800-9	97800-10
Your Reference	----------	TP2	TP2	TP3	TP3	TP3
Depth	----------	3.0	4.0	0.5	1.5	3.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	2.0	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	1.5	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	2.2	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	3.3	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	73	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	16	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	88	<0.1	0.1
Pyrene	mg/kg	0.1	<0.1	85	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	37	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	32	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	55	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	<0.05	37	0.05	0.08
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	19	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	3.6	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	19	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	53	<0.5	<0.5
Total +ve PAH's	mg/kg	0.28	NIL (+)VE	470	0.05	0.32
Surrogate p-Terphenyl-d14	%	109	100	127	100	103

PAHs in Soil						
Our Reference:	UNITS	97800-11	97800-12	97800-13	97800-14	97800-15
Your Reference	----------	TP4	TP4	TP4	TP5	TP5
Depth	----------	0.5	1.5	2.5	1.0	3.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.6	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.8	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.8	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.3	0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	0.5	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.35	0.11	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	4.3	0.58	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	99	99	102	99

PAHs in Soil						
Our Reference:	UNITS	97800-16	97800-17	97800-18	97800-19	97800-20
Your Reference	----------	TP6	TP6	TP7	TP7	TP8
Depth	----------	1.0	3.0	1.0	3.0	1.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.3	0.1	0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.7	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	0.7	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.07	0.46	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	1	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.070	4.3	0.10	0.13	0.10
Surrogate p-Terphenyl-d14	%	99	100	98	103	113

PAHs in Soil						
Our Reference:	UNITS	97800-21	97800-22	97800-23	97800-24	97800-25
Your Reference	----------	TP8	TP9	TP11	TP12	TP12
Depth	----------	1.5	1.0	1.0	2.0	3.0
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	0.34	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	107	103	104	102	103

PAHs in Soil						
Our Reference:	UNITS	97800-26	97800-27	97800-28	97800-29	97800-30
Your Reference	----------	TP13	TP13a	TP13	TP14	TP14
Depth	----------	1.5	1.5	3.0	0.3	0.8
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	101	101	110	103

PAHs in Soil						
Our Reference:	UNITS	97800-31	97800-32	97800-33	97800-34	97800-35
Your Reference	----------	TP15	TP15	TP16	TP16	TP16
Depth	----------	0.5	1.0	0.5	1.5	3.0
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	100	99	102	100

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	97800-36 Bund - 1 - 12/09/2013 Soil	97800-37 Bund - 2 - 12/09/2013 Soil	97800-38 Bund - 2a - 12/09/2013 Soil	97800-39 Bund - 3 - 12/09/2013 Soil	97800-40 Bund - 4 - 12/09/2013 Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.2	<0.1	0.1
Pyrene	mg/kg	<0.1	<0.1	0.3	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.17	0.05	0.09
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	1.5	0.20	0.37
Surrogate p-Terphenyl-d14	%	99	103	98	101	99

PAHs in Soil						
Our Reference:	UNITS	97800-41	97800-42	97800-43	97800-44	97800-45
Your Reference	----------	Bund - 5	Bund - 6	Bund - 7	Bund - 8	Bund - 8
Depth	----------	-	-	-	1.0	2.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	0.5	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.4	1.0	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.4	1.0	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	0.5	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	0.5	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	0.4	1.0	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.26	0.68	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1	0.4	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	0.4	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	1	<0.5	<0.5
Total +ve PAH's	mg/kg	0.10	2.4	6.4	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	100	101	98	109	101

PAHs in Soil						
Our Reference:	UNITS	97800-46	97800-47	97800-48	97800-49	97800-50
Your Reference	----------	Bund - 9	Bund - 9	Bund - 9	BH14	BH14
Depth	----------	1.0	2.5	3.5	2.4	3.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.7	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	2.2	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	2.6	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	2.0	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	2.3	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	6.9	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	4.2	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	3.3	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.6	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	3.4	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	6.0	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	29	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	96	97	91	87

PAHs in Soil						
Our Reference:	UNITS	97800-51	97800-52	97800-53	97800-54	97800-55
Your Reference	----------	BH15	BH15	BH15	BH15	BH15
Depth	----------	0.3	0.5	1.0	2.0	5.0
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	88	89	89	91	92

PAHs in Soil						
Our Reference:	UNITS	97800-56	97800-57	97800-58	97800-59	97800-60
Your Reference	----------	BH16	BH16	BH17	BH17	BH18
Depth	----------	0.3	1.0	0.2	0.5	0.3
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.17	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	92	91	91	91	93

PAHs in Soil						
Our Reference:	UNITS	97800-61	97800-62	97800-63	97800-64	97800-66
Your Reference	----------	BH19	BH1	BH3-S	BH3	BH4
Depth	----------	0.1	0.5	Surface	0.5	0.3
Date Sampled		16/09/2013	12/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.11	NIL (+)VE	0.11	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91	92	93	93	91

PAHs in Soil						
Our Reference:	UNITS	97800-67	97800-68	97800-69	97800-70	97800-71
Your Reference	----------	BH4	BH4	BH4	BH5-S	BH5
Depth	----------	1.4	2.2	4.5	Surface	1.2
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	95	93	91	119	94

PAHs in Soil						
Our Reference:	UNITS	97800-72	97800-73	97800-74	97800-75	97800-76
Your Reference	----------	BH5	BH6	BH6-1A	BH7-S	BH7
Depth	----------	2.2	1	1	Surface	0.5
Date Sampled		13/09/2013	12/09/2013	12/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	90	101	89	92	93

PAHs in Soil						
Our Reference:	UNITS	97800-77	97800-78	97800-79	97800-80	97800-81
Your Reference	----------	BH8	BH8	BH9	BH9	BH10
Depth	----------	0.3	0.6	0.3	1.2	0.8
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	0.17	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91	91	93	93	92

PAHs in Soil						
Our Reference:	UNITS	97800-82	97800-83	97800-84	97800-85	97800-86
Your Reference	----------	BH11	BH11	BH12	BH13	BH14
Depth	----------	1	1.8	0.6	0.3	0.3
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	4.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.9
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	9.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	9.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	3.4
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	3.7
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	7.8
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	5.6
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	4.7
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	3.6
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	8.0
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	54
Surrogate p-Terphenyl-d14	%	92	92	91	95	94

PAHs in Soil						
Our Reference:	UNITS	97800-87	97800-88	97800-89	97800-90	97800-91
Your Reference	----------	BH14	BH14	S1	BH20-S	BH20
Depth	----------	0.8	1.7	Surface	Surface	0.4
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	0.3	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	0.4	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	0.2	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	0.06	<0.05	0.06	0.17	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.060	NIL (+)VE	0.52	2.1	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	94	97	95	94

PAHs in Soil						
Our Reference:	UNITS	97800-92	97800-93	97800-94	97800-95	97800-96
Your Reference	----------	BH20	BH21	BH22	BH22	BH22
Depth	----------	0.4	0.3	0.1	0.3	0.5
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.2	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	0.25	0.22	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96	96	95	95	95

PAHs in Soil						
Our Reference:	UNITS	97800-97	97800-98	97800-99	97800-100	97800-101
Your Reference	----------	BH22	BH23	BH23	BH24-S	BH24-SA
Depth	----------	0.8	Surface	0.3	Surface	Surface
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	0.1	<0.1	2.1	0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.3	0.2	1.9	0.3
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	0.4	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	0.5	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.09	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	0.75	0.20	5.7	0.41
Surrogate p-Terphenyl-d14	%	95	93	96	99	101

PAHs in Soil						
Our Reference:	UNITS	97800-102	97800-103	97800-104	97800-105	97800-106
Your Reference	----------	BH24	BH24	BH24	BH24	BH25
Depth	----------	0.6	1.3	1.3	2	0.2
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	0.1	<0.1	0.1	0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	0.4	0.8	0.4	<0.1
Fluorene	mg/kg	<0.1	0.5	1.0	0.5	<0.1
Phenanthrene	mg/kg	0.2	0.4	0.9	0.4	0.3
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.3	0.6	0.3	<0.1
Pyrene	mg/kg	<0.1	0.7	1.2	0.6	0.1
Benzo(a)anthracene	mg/kg	<0.1	0.1	0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.05	0.07	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.34	2.6	5.0	2.3	0.47
Surrogate p-Terphenyl-d14	%	100	101	109	100	98

PAHs in Soil				
Our Reference:	UNITS	97800-107	97800-108	97800-109
Your Reference	----------	BH25	BH25	BH25
Depth	----------	0.6	1.4	2.7
Date Sampled		16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1
Pyrene	mg/kg	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.10	NIL (+)VE	0.22
Surrogate p-Terphenyl-d14	%	96	98	95

Organochlorine Pesticides in soil					
Our Reference:	UNITS	97800-48	97800-61	97800-63	97800-84
Your Reference	----------	Bund - 9	BH19	BH3-S	BH12
Depth	----------	3.5	0.1	Surface	0.6
Date Sampled		12/09/2013	16/09/2013	13/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	120	129	120

Organophosphorus Pesticides					
Our Reference:	UNITS	97800-48	97800-61	97800-63	97800-84
Your Reference	----------	Bund - 9	BH19	BH3-S	BH12
Depth	----------	3.5	0.1	Surface	0.6
Date Sampled		12/09/2013	16/09/2013	13/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	120	129	120

PCBs in Soil					
Our Reference:	UNITS	97800-48	97800-61	97800-63	97800-84
Your Reference	----------	Bund - 9	BH19	BH3-S	BH12
Depth	----------	3.5	0.1	Surface	0.6
Date Sampled		12/09/2013	16/09/2013	13/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	94	120	129	120

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-1	97800-2	97800-3	97800-4	97800-5
Your Reference	----------	TP1	TP1	TP1	TP2	TP2
Depth	----------	0.5	1.5	3.0	0.5	1.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	6	5	16	6	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	4	16	20	8	9
Copper	mg/kg	74	32	13	37	33
Lead	mg/kg	8	68	55	17	82
Mercury	mg/kg	0.1	0.1	<0.1	<0.1	0.4
Nickel	mg/kg	4	9	3	21	11
Zinc	mg/kg	19	100	32	79	90

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-6	97800-7	97800-8	97800-9	97800-10
Your Reference	----------	TP2	TP2	TP3	TP3	TP3
Depth	----------	3.0	4.0	0.5	1.5	3.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	13	7	6	6	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	19	11	16	11
Copper	mg/kg	11	30	43	43	30
Lead	mg/kg	28	75	120	25	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	12	18	34	17
Zinc	mg/kg	19	150	110	75	70

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-11	97800-12	97800-13	97800-14	97800-15
Your Reference	----------	TP4	TP4	TP4	TP5	TP5
Depth	----------	0.5	1.5	2.5	1.0	3.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	5	9	6	6	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	11	10	24	7
Copper	mg/kg	31	41	33	23	37
Lead	mg/kg	17	22	72	68	18
Mercury	mg/kg	<0.1	<0.1	0.1	0.1	<0.1
Nickel	mg/kg	18	23	16	12	14
Zinc	mg/kg	71	77	140	74	72

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-16	97800-17	97800-18	97800-19	97800-20
Your Reference	----------	TP6	TP6	TP7	TP7	TP8
Depth	----------	1.0	3.0	1.0	3.0	1.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	8	6	6	14	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	12	8	10	14
Copper	mg/kg	32	27	34	42	32
Lead	mg/kg	24	74	17	17	18
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	11	18	18	18
Zinc	mg/kg	62	98	76	66	73

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-21	97800-22	97800-23	97800-24	97800-25
Your Reference	----------	TP8	TP9	TP11	TP12	TP12
Depth	----------	1.5	1.0	1.0	2.0	3.0
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	10	10	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	17	10	11	12
Copper	mg/kg	44	20	42	21	37
Lead	mg/kg	17	14	17	14	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	19	16	17	10	21
Zinc	mg/kg	68	49	72	48	93

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-26	97800-27	97800-28	97800-29	97800-30
Your Reference	----------	TP13	TP13a	TP13	TP14	TP14
Depth	----------	1.5	1.5	3.0	0.3	0.8
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	7	6	13	5	<4
Cadmium	mg/kg	0.5	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	6	10	10	7
Copper	mg/kg	3	4	23	12	18
Lead	mg/kg	5	5	10	16	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	3	3	5	2
Zinc	mg/kg	6	7	16	19	10

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-31	97800-32	97800-33	97800-34	97800-35
Your Reference	----------	TP15	TP15	TP16	TP16	TP16
Depth	----------	0.5	1.0	0.5	1.5	3.0
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	11	9	11	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	18	23	8	11
Copper	mg/kg	20	18	21	35	37
Lead	mg/kg	26	21	22	15	22
Mercury	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	9	10	11	8	29
Zinc	mg/kg	41	43	34	42	100

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-36	97800-37	97800-38	97800-39	97800-40
Your Reference	----------	Bund - 1	Bund - 2	Bund - 2a	Bund - 3	Bund - 4
Depth	----------	-	-	-	-	-
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	5	6	5	<4	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	12	12	8	12
Copper	mg/kg	43	24	23	28	43
Lead	mg/kg	21	20	24	18	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	21	10	12	17	15
Zinc	mg/kg	71	37	46	56	100

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-41	97800-42	97800-43	97800-44	97800-45
Your Reference	----------	Bund - 5	Bund - 6	Bund - 7	Bund - 8	Bund - 8
Depth	----------	-	-	-	1.0	2.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	6	7	5	8	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	11	18	25	28
Copper	mg/kg	42	19	48	15	15
Lead	mg/kg	16	53	43	25	26
Mercury	mg/kg	<0.1	0.1	0.1	<0.1	0.1
Nickel	mg/kg	19	11	25	7	7
Zinc	mg/kg	50	66	78	17	20

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-46	97800-47	97800-48	97800-49	97800-50
Your Reference	----------	Bund - 9	Bund - 9	Bund - 9	BH14	BH14
Depth	----------	1.0	2.5	3.5	2.4	3.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	9	8	7	7	14
Cadmium	mg/kg	<0.4	<0.4	1.0	<0.4	<0.4
Chromium	mg/kg	27	27	15	20	17
Copper	mg/kg	13	15	45	29	24
Lead	mg/kg	25	26	130	19	10
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Nickel	mg/kg	7	8	9	18	6
Zinc	mg/kg	17	21	310	59	34

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-51	97800-52	97800-53	97800-54	97800-55
Your Reference	----------	BH15	BH15	BH15	BH15	BH15
Depth	----------	0.3	0.5	1.0	2.0	5.0
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	6	9	6	6	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	22	11	17	19
Copper	mg/kg	14	34	48	37	16
Lead	mg/kg	5	21	18	17	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	19	18	14	7
Zinc	mg/kg	16	65	67	58	23

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-56	97800-57	97800-58	97800-59	97800-60
Your Reference	----------	BH16	BH16	BH17	BH17	BH18
Depth	----------	0.3	1.0	0.2	0.5	0.3
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	5	5	<4	6	<4
Cadmium	mg/kg	<0.4	0.5	<0.4	<0.4	<0.4
Chromium	mg/kg	18	7	7	15	10
Copper	mg/kg	36	44	4	37	43
Lead	mg/kg	18	26	9	17	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	22	27	5	15	11
Zinc	mg/kg	54	53	18	61	55

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-61	97800-62	97800-63	97800-64	97800-66
Your Reference	----------	BH19	BH1	BH3-S	BH3	BH4
Depth	----------	0.1	0.5	Surface	0.5	0.3
Date Sampled		16/09/2013	12/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	9	<4	9	5	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	12	33	17	21
Copper	mg/kg	29	37	33	15	30
Lead	mg/kg	12	17	19	13	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	7	26	4	21
Zinc	mg/kg	160	38	130	19	62

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-67	97800-68	97800-69	97800-70	97800-71
Your Reference	----------	BH4	BH4	BH4	BH5-S	BH5
Depth	----------	1.4	2.2	4.5	Surface	1.2
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	8	11	17	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	37	18	23	170	250
Copper	mg/kg	26	23	16	27	40
Lead	mg/kg	16	14	27	9	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	31	8	9	130	180
Zinc	mg/kg	46	25	28	30	59

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-72	97800-73	97800-74	97800-75	97800-76
Your Reference	----------	BH5	BH6	BH6-1A	BH7-S	BH7
Depth	----------	2.2	1	1	Surface	0.5
Date Sampled		13/09/2013	12/09/2013	12/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	<4	<4	26	9	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	210	8	6	29	14
Copper	mg/kg	36	19	12	18	27
Lead	mg/kg	6	11	10	16	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	150	4	3	11	7
Zinc	mg/kg	47	16	11	30	43

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-77	97800-78	97800-79	97800-80	97800-81
Your Reference	----------	BH8	BH8	BH9	BH9	BH10
Depth	----------	0.3	0.6	0.3	1.2	0.8
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	<4	6	6	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	34	20	10	15	8
Copper	mg/kg	14	33	39	32	19
Lead	mg/kg	7	15	16	16	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	27	17	32	10	4
Zinc	mg/kg	28	49	65	42	20

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-82	97800-83	97800-84	97800-85	97800-86
Your Reference	----------	BH11	BH11	BH12	BH13	BH14
Depth	----------	1	1.8	0.6	0.3	0.3
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	<4	<4	<4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	25	13	32	99	21
Copper	mg/kg	25	25	42	28	22
Lead	mg/kg	15	16	16	29	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	21	7	28	65	20
Zinc	mg/kg	41	27	62	80	53

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-87	97800-88	97800-89	97800-90	97800-91
Your Reference	----------	BH14	BH14	S1	BH20-S	BH20
Depth	----------	0.8	1.7	Surface	Surface	0.4
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	9	6	8	13	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	16	17	12	9
Copper	mg/kg	29	30	44	63	43
Lead	mg/kg	20	21	16	25	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	22	24	24	17
Zinc	mg/kg	52	56	58	72	52

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-92	97800-93	97800-94	97800-95	97800-96
Your Reference	----------	BH20	BH21	BH22	BH22	BH22
Depth	----------	0.4	0.3	0.1	0.3	0.5
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	<4	<4	7	7	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	13	9	10	14
Copper	mg/kg	40	49	37	36	36
Lead	mg/kg	14	15	18	17	16
Mercury	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	14	20	16	15	16
Zinc	mg/kg	55	51	73	64	59

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-97	97800-98	97800-99	97800-100	97800-101
Your Reference	----------	BH22	BH23	BH23	BH24-S	BH24-SA
Depth	----------	0.8	Surface	0.3	Surface	Surface
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	<4	11	5	7	6
Cadmium	mg/kg	<0.4	0.6	<0.4	<0.4	<0.4
Chromium	mg/kg	6	24	22	20	17
Copper	mg/kg	34	49	22	22	20
Lead	mg/kg	6	16	12	15	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	24	21	18	15
Zinc	mg/kg	31	87	130	89	98

Acid Extractable metals in soil						
Our Reference:	UNITS	97800-102	97800-103	97800-104	97800-105	97800-106
Your Reference	----------	BH24	BH24	BH24	BH24	BH25
Depth	----------	0.6	1.3	1.3	2	0.2
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	<4	4	5	8	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	16	13	17	13
Copper	mg/kg	17	30	27	29	38
Lead	mg/kg	6	14	13	17	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	13	17	16	19	19
Zinc	mg/kg	70	73	77	110	73

Acid Extractable metals in soil				
Our Reference:	UNITS	97800-107	97800-108	97800-109
Your Reference	----------	BH25	BH25	BH25
Depth	----------	0.6	1.4	2.7
Date Sampled		16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil
Date digested	-	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	23/09/2013	23/09/2013	23/09/2013
Arsenic	mg/kg	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	19	12	11
Copper	mg/kg	35	18	19
Lead	mg/kg	17	11	11
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	23	7	10
Zinc	mg/kg	76	32	44

Moisture						
Our Reference:	UNITS	97800-1	97800-2	97800-3	97800-4	97800-5
Your Reference	----------	TP1	TP1	TP1	TP2	TP2
Depth	----------	0.5	1.5	3.0	0.5	1.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	6.8	21	23	12	13

Moisture						
Our Reference:	UNITS	97800-6	97800-7	97800-8	97800-9	97800-10
Your Reference	----------	TP2	TP2	TP3	TP3	TP3
Depth	----------	3.0	4.0	0.5	1.5	3.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	18	16	9.3	14	17

Moisture						
Our Reference:	UNITS	97800-11	97800-12	97800-13	97800-14	97800-15
Your Reference	----------	TP4	TP4	TP4	TP5	TP5
Depth	----------	0.5	1.5	2.5	1.0	3.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	8.6	12	17	21	17

Moisture						
Our Reference:	UNITS	97800-16	97800-17	97800-18	97800-19	97800-20
Your Reference	----------	TP6	TP6	TP7	TP7	TP8
Depth	----------	1.0	3.0	1.0	3.0	1.0
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	19	12	9.8	8.9	14

Moisture						
Our Reference:	UNITS	97800-21	97800-22	97800-23	97800-24	97800-25
Your Reference	----------	TP8	TP9	TP11	TP12	TP12
Depth	----------	1.5	1.0	1.0	2.0	3.0
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	12	10	6.7	12	11

Moisture						
Our Reference:	UNITS	97800-26	97800-27	97800-28	97800-29	97800-30
Your Reference	----------	TP13	TP13a	TP13	TP14	TP14
Depth	----------	1.5	1.5	3.0	0.3	0.8
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	4.5	4.1	13	9.4	14

Moisture						
Our Reference:	UNITS	97800-31	97800-32	97800-33	97800-34	97800-35
Your Reference	----------	TP15	TP15	TP16	TP16	TP16
Depth	----------	0.5	1.0	0.5	1.5	3.0
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	15	16	13	12	8.9

Moisture						
Our Reference:	UNITS	97800-36	97800-37	97800-38	97800-39	97800-40
Your Reference	----------	Bund - 1	Bund - 2	Bund - 2a	Bund - 3	Bund - 4
Depth	----------	-	-	-	-	-
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	9.9	12	12	8.0	15

Moisture						
Our Reference:	UNITS	97800-41	97800-42	97800-43	97800-44	97800-45
Your Reference	----------	Bund - 5	Bund - 6	Bund - 7	Bund - 8	Bund - 8
Depth	----------	-	-	-	1.0	2.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	12/09/2013	12/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	13	7.9	8.9	17	20

Moisture						
Our Reference:	UNITS	97800-46	97800-47	97800-48	97800-49	97800-50
Your Reference	----------	Bund - 9	Bund - 9	Bund - 9	BH14	BH14
Depth	----------	1.0	2.5	3.5	2.4	3.5
Date Sampled		12/09/2013	12/09/2013	12/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	15	20	13	22	19

Moisture						
Our Reference:	UNITS	97800-51	97800-52	97800-53	97800-54	97800-55
Your Reference	----------	BH15	BH15	BH15	BH15	BH15
Depth	----------	0.3	0.5	1.0	2.0	5.0
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	7.0	12	15	17	19

Moisture						
Our Reference:	UNITS	97800-56	97800-57	97800-58	97800-59	97800-60
Your Reference	----------	BH16	BH16	BH17	BH17	BH18
Depth	----------	0.3	1.0	0.2	0.5	0.3
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	7.6	12	9.6	17	10

Moisture						
Our Reference:	UNITS	97800-61	97800-62	97800-63	97800-64	97800-66
Your Reference	----------	BH19	BH1	BH3-S	BH3	BH4
Depth	----------	0.1	0.5	Surface	0.5	0.3
Date Sampled		16/09/2013	12/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	5.5	13	11	15	9.5

Moisture						
Our Reference:	UNITS	97800-67	97800-68	97800-69	97800-70	97800-71
Your Reference	----------	BH4	BH4	BH4	BH5-S	BH5
Depth	----------	1.4	2.2	4.5	Surface	1.2
Date Sampled		13/09/2013	13/09/2013	13/09/2013	13/09/2013	13/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	18	21	14	28	15

Moisture						
Our Reference:	UNITS	97800-72	97800-73	97800-74	97800-75	97800-76
Your Reference	----------	BH5	BH6	BH6-1A	BH7-S	BH7
Depth	----------	2.2	1	1	Surface	0.5
Date Sampled		13/09/2013	12/09/2013	12/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	12	19	15	11	16

Moisture						
Our Reference:	UNITS	97800-77	97800-78	97800-79	97800-80	97800-81
Your Reference	----------	BH8	BH8	BH9	BH9	BH10
Depth	----------	0.3	0.6	0.3	1.2	0.8
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	14	18	16	20	19

Moisture						
Our Reference:	UNITS	97800-82	97800-83	97800-84	97800-85	97800-86
Your Reference	----------	BH11	BH11	BH12	BH13	BH14
Depth	----------	1	1.8	0.6	0.3	0.3
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	14	16	11	6.8	6.8

Moisture						
Our Reference:	UNITS	97800-87	97800-88	97800-89	97800-90	97800-91
Your Reference	----------	BH14	BH14	S1	BH20-S	BH20
Depth	----------	0.8	1.7	Surface	Surface	0.4
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	20	21	5.5	6.9	12

Moisture						
Our Reference:	UNITS	97800-92	97800-93	97800-94	97800-95	97800-96
Your Reference	----------	BH20	BH21	BH22	BH22	BH22
Depth	----------	0.4	0.3	0.1	0.3	0.5
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	12	8.5	20	16	15

Moisture						
Our Reference:	UNITS	97800-97	97800-98	97800-99	97800-100	97800-101
Your Reference	----------	BH22	BH23	BH23	BH24-S	BH24-SA
Depth	----------	0.8	Surface	0.3	Surface	Surface
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	12	6.3	8.1	10	9.5

Moisture						
Our Reference:	UNITS	97800-102	97800-103	97800-104	97800-105	97800-106
Your Reference	----------	BH24	BH24	BH24	BH24	BH25
Depth	----------	0.6	1.3	1.3	2	0.2
Date Sampled		16/09/2013	16/09/2013	16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013	24/09/2013	24/09/2013
Moisture	%	7.3	15	15	16	15

Moisture				
Our Reference:	UNITS	97800-107	97800-108	97800-109
Your Reference	----------	BH25	BH25	BH25
Depth	----------	0.6	1.4	2.7
Date Sampled		16/09/2013	16/09/2013	16/09/2013
Type of sample		Soil	Soil	Soil
Date prepared	-	23/09/2013	23/09/2013	23/09/2013
Date analysed	-	24/09/2013	24/09/2013	24/09/2013
Moisture	%	13	19	22

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97800-5	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-			23/09/2013	97800-5	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	97800-5	<25 || <25	LCS-6	92%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	97800-5	<25 || <25	LCS-6	92%
Benzene	mg/kg	0.2	Org-016	<0.2	97800-5	<0.2 || <0.2	LCS-6	70%
Toluene	mg/kg	0.5	Org-016	<0.5	97800-5	<0.5 || <0.5	LCS-6	92%
Ethylbenzene	mg/kg	1	Org-016	<1	97800-5	<1 || <1	LCS-6	99%
m+p-xylene	mg/kg	2	Org-016	<2	97800-5	<2 || <2	LCS-6	100%
o-Xylene	mg/kg	1	Org-016	<1	97800-5	<1 || <1	LCS-6	100%
naphthalene	mg/kg	1	Org-014	<1	97800-5	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	87	97800-5	78 || 77 || RPD: 1	LCS-6	80%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97800-5	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-			24/09/2013	97800-5	24/09/2013 || 24/09/2013	LCS-6	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	97800-5	<50 || <50	LCS-6	109%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	97800-5	<100 || <100	LCS-6	113%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	97800-5	<100 || <100	LCS-6	122%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	97800-5	<50 || <50	LCS-6	109%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	97800-5	<100 || <100	LCS-6	113%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	97800-5	<100 || <100	LCS-6	122%
Surrogate o-Terphenyl	%		Org-003	85	97800-5	89 || 91 || RPD: 2	LCS-6	93%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97800-5	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-			24/09/2013	97800-5	24/09/2013 || 24/09/2013	LCS-6	24/09/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	<0.1 || <0.1	LCS-6	110%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	<0.1 || <0.1	LCS-6	109%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.5 || 0.2 || RPD: 86	LCS-6	98%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.8 || 0.4 || RPD: 67	LCS-6	95%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.7 || 0.4 || RPD: 55	LCS-6	120%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.3 || 0.2 || RPD: 40	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.3 || 0.2 || RPD: 40	LCS-6	94%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	97800-5	0.7 || 0.5 || RPD: 33	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	97800-5	0.44 || 0.28 || RPD: 44	LCS-6	96%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.3 || 0.2 || RPD: 40	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	97800-5	0.3 || 0.2 || RPD: 40	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	99	97800-5	103 || 105 || RPD: 2	LCS-6	94%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97800-61	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-			24/09/2013	97800-61	24/09/2013 || 24/09/2013	LCS-6	24/09/2013
HCB	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	113%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	108%
Heptachlor	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	110%
delta-BHC	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	113%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	111%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	107%
Dieldrin	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	111%
Endrin	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	84%
pp-DDD	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	117%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	LCS-6	103%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	96	97800-61	120 || 114 || RPD: 5	LCS-6	95%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97800-61	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-			24/09/2013	97800-61	24/09/2013 || 24/09/2013	LCS-6	24/09/2013
Diazinon	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	LCS-6	94%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	LCS-6	137%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	97800-61	<0.1 || <0.1	LCS-6	112%
Surrogate TCMX	%		Org-008	96	97800-61	120 || 114 || RPD: 5	LCS-6	91%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/09/2013	97800-61	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-			24/09/2013	97800-61	24/09/2013 || 24/09/2013	LCS-6	24/09/2013
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	LCS-6	122%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	97800-61	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	96	97800-61	120 || 114 || RPD: 5	LCS-6	125%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			23/09/2013	97800-5	23/09/2013 || 23/09/2013	LCS-1	23/09/2013
Date analysed	-			23/09/2013	97800-5	23/09/2013 || 23/09/2013	LCS-1	23/09/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	97800-5	6 || 7 || RPD: 15	LCS-1	99%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	97800-5	<0.4 || <0.4	LCS-1	99%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	97800-5	9 || 12 || RPD: 29	LCS-1	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	97800-5	33 || 27 || RPD: 20	LCS-1	103%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	97800-5	82 || 72 || RPD: 13	LCS-1	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	97800-5	0.4 || 0.3 || RPD: 29	LCS-1	98%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	97800-5	11 || 9 || RPD: 20	LCS-1	103%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	97800-5	90 || 77 || RPD: 16	LCS-1	101%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-49	23/09/2013 || 23/09/2013	LCS-7	23/09/2013
Date analysed	-	97800-49	23/09/2013 || 23/09/2013	LCS-7	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	97800-49	<25 || <25	LCS-7	101%
TRHC$_6$ - C$_{10}$	mg/kg	97800-49	<25 || <25	LCS-7	101%
Benzene	mg/kg	97800-49	<0.2 || <0.2	LCS-7	79%
Toluene	mg/kg	97800-49	<0.5 || <0.5	LCS-7	99%
Ethylbenzene	mg/kg	97800-49	<1 || <1	LCS-7	105%
m+p-xylene	mg/kg	97800-49	<2 || <2	LCS-7	110%
o-Xylene	mg/kg	97800-49	<1 || <1	LCS-7	111%
naphthalene	mg/kg	97800-49	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97800-49	77 || 85 || RPD: 10	LCS-7	99%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-49	23/09/2013 || 23/09/2013	LCS-7	23/09/2013
Date analysed	-	97800-49	24/09/2013 || 24/09/2013	LCS-7	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97800-49	<50 || <50	LCS-7	109%
TRHC$_{15}$ - C$_{28}$	mg/kg	97800-49	<100 || <100	LCS-7	114%
TRHC$_{29}$ - C$_{36}$	mg/kg	97800-49	<100 || <100	LCS-7	112%
TRH>C$_{10}$-C$_{16}$	mg/kg	97800-49	<50 || <50	LCS-7	109%
TRH>C$_{16}$-C$_{34}$	mg/kg	97800-49	<100 || <100	LCS-7	114%
TRH>C$_{34}$-C$_{40}$	mg/kg	97800-49	<100 || <100	LCS-7	112%
Surrogate o-Terphenyl	%	97800-49	92 || 90 || RPD: 2	LCS-7	95%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-19	23/09/2013 || 23/09/2013	LCS-7	23/09/2013
Date analysed	-	97800-19	24/09/2013 || 24/09/2013	LCS-7	24/09/2013
Naphthalene	mg/kg	97800-19	<0.1 || <0.1	LCS-7	115%
Acenaphthylene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-19	<0.1 || <0.1	LCS-7	113%
Phenanthrene	mg/kg	97800-19	0.1 || 0.2 || RPD: 67	LCS-7	102%
Anthracene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-19	<0.1 || <0.1	LCS-7	98%
Pyrene	mg/kg	97800-19	<0.1 || <0.1	LCS-7	125%
Benzo(a)anthracene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-19	<0.1 || <0.1	LCS-7	98%
Benzo(b+k)fluoranthene	mg/kg	97800-19	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-19	<0.05 || <0.05	LCS-7	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-19	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-19	103 || 103 || RPD: 0	LCS-7	96%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-63	23/09/2013
Date analysed	-	[NT]	[NT]	97800-63	24/09/2013
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	97800-63	103%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	97800-63	101%
Heptachlor	mg/kg	[NT]	[NT]	97800-63	102%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	97800-63	104%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	97800-63	104%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	97800-63	103%
Dieldrin	mg/kg	[NT]	[NT]	97800-63	107%
Endrin	mg/kg	[NT]	[NT]	97800-63	76%
pp-DDD	mg/kg	[NT]	[NT]	97800-63	92%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	97800-63	110%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	97800-63	101%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-63	23/09/2013
Date analysed	-	[NT]	[NT]	97800-63	24/09/2013
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	97800-63	87%
Fenitrothion	mg/kg	[NT]	[NT]	97800-63	129%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	97800-63	119%
Surrogate TCMX	%	[NT]	[NT]	97800-63	110%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-63	23/09/2013
Date analysed	-	[NT]	[NT]	97800-63	24/09/2013
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	97800-63	122%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	97800-63	123%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-19	23/09/2013 || 23/09/2013	LCS-2	23/09/2013
Date analysed	-	97800-19	23/09/2013 || 23/09/2013	LCS-2	23/09/2013
Arsenic	mg/kg	97800-19	14 || 6 || RPD: 80	LCS-2	95%
Cadmium	mg/kg	97800-19	<0.4 || <0.4	LCS-2	96%
Chromium	mg/kg	97800-19	10 || 10 || RPD: 0	LCS-2	100%
Copper	mg/kg	97800-19	42 || 42 || RPD: 0	LCS-2	101%
Lead	mg/kg	97800-19	17 || 20 || RPD: 16	LCS-2	98%
Mercury	mg/kg	97800-19	<0.1 || <0.1	LCS-2	94%
Nickel	mg/kg	97800-19	18 || 19 || RPD: 5	LCS-2	101%
Zinc	mg/kg	97800-19	66 || 70 || RPD: 6	LCS-2	99%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-61	23/09/2013 || 23/09/2013	LCS-8	23/09/2013
Date analysed	-	97800-61	23/09/2013 || 23/09/2013	LCS-8	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	97800-61	<25 || <25	LCS-8	94%
TRHC$_6$ - C$_{10}$	mg/kg	97800-61	<25 || <25	LCS-8	94%
Benzene	mg/kg	97800-61	<0.2 || <0.2	LCS-8	72%
Toluene	mg/kg	97800-61	<0.5 || <0.5	LCS-8	94%
Ethylbenzene	mg/kg	97800-61	<1 || <1	LCS-8	100%
m+p-xylene	mg/kg	97800-61	<2 || <2	LCS-8	102%
o-Xylene	mg/kg	97800-61	<1 || <1	LCS-8	102%
naphthalene	mg/kg	97800-61	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97800-61	78 || 78 || RPD: 0	LCS-8	82%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-61	23/09/2013 || 23/09/2013	LCS-8	23/09/2013
Date analysed	-	97800-61	24/09/2013 || 24/09/2013	LCS-8	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97800-61	<50 || <50	LCS-8	109%
TRHC$_{15}$ - C$_{28}$	mg/kg	97800-61	190 || 190 || RPD: 0	LCS-8	112%
TRHC$_{29}$ - C$_{36}$	mg/kg	97800-61	170 || 170 || RPD: 0	LCS-8	117%
TRH>C$_{10}$-C$_{16}$	mg/kg	97800-61	<50 || <50	LCS-8	109%
TRH>C$_{16}$-C$_{34}$	mg/kg	97800-61	310 || 310 || RPD: 0	LCS-8	112%
TRH>C$_{34}$-C$_{40}$	mg/kg	97800-61	<100 || <100	LCS-8	117%
Surrogate o-Terphenyl	%	97800-61	114 || 117 || RPD: 3	LCS-8	93%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-22	23/09/2013 || 23/09/2013	LCS-8	23/09/2013
Date analysed	-	97800-22	24/09/2013 || 24/09/2013	LCS-8	24/09/2013
Naphthalene	mg/kg	97800-22	<0.1 || <0.1	LCS-8	114%
Acenaphthylene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-22	<0.1 || <0.1	LCS-8	113%
Phenanthrene	mg/kg	97800-22	<0.1 || <0.1	LCS-8	102%
Anthracene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-22	<0.1 || <0.1	LCS-8	99%
Pyrene	mg/kg	97800-22	<0.1 || <0.1	LCS-8	126%
Benzo(a)anthracene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-22	<0.1 || <0.1	LCS-8	98%
Benzo(b+k)fluoranthene	mg/kg	97800-22	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-22	<0.05 || <0.05	LCS-8	103%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(g,h,i)perylene	mg/kg	97800-22	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-22	103 || 99 || RPD: 4	LCS-8	96%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-22	23/09/2013 || 23/09/2013	LCS-3	23/09/2013
Date analysed	-	97800-22	23/09/2013 || 23/09/2013	LCS-3	23/09/2013
Arsenic	mg/kg	97800-22	10 || 12 || RPD: 18	LCS-3	100%
Cadmium	mg/kg	97800-22	<0.4 || <0.4	LCS-3	100%
Chromium	mg/kg	97800-22	17 || 21 || RPD: 21	LCS-3	104%
Copper	mg/kg	97800-22	20 || 30 || RPD: 40	LCS-3	105%
Lead	mg/kg	97800-22	14 || 15 || RPD: 7	LCS-3	101%
Mercury	mg/kg	97800-22	<0.1 || <0.1	LCS-3	92%
Nickel	mg/kg	97800-22	16 || 21 || RPD: 27	LCS-3	104%
Zinc	mg/kg	97800-22	49 || 71 || RPD: 37	LCS-3	102%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-78	23/09/2013 || 23/09/2013	97800-12	23/09/2013
Date analysed	-	97800-78	23/09/2013 || 23/09/2013	97800-12	24/09/2013
$TRHC_6$ - C_9	mg/kg	97800-78	<25 || <25	97800-12	81%
$TRHC_6$ - C_{10}	mg/kg	97800-78	<25 || <25	97800-12	81%
Benzene	mg/kg	97800-78	<0.2 || <0.2	97800-12	64%
Toluene	mg/kg	97800-78	<0.5 || <0.5	97800-12	80%
Ethylbenzene	mg/kg	97800-78	<1 || <1	97800-12	87%
m+p-xylene	mg/kg	97800-78	<2 || <2	97800-12	87%
o-Xylene	mg/kg	97800-78	<1 || <1	97800-12	88%
naphthalene	mg/kg	97800-78	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97800-78	96 || 91 || RPD: 5	97800-12	71%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-78	23/09/2013 || 23/09/2013	97800-12	23/09/2013
Date analysed	-	97800-78	24/09/2013 || 24/09/2013	97800-12	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	97800-78	<50 || <50	97800-12	116%
TRHC$_{15}$ - C$_{28}$	mg/kg	97800-78	<100 || <100	97800-12	122%
TRHC$_{29}$ - C$_{36}$	mg/kg	97800-78	<100 || <100	97800-12	115%
TRH>C$_{10}$-C$_{16}$	mg/kg	97800-78	<50 || <50	97800-12	116%
TRH>C$_{16}$-C$_{34}$	mg/kg	97800-78	<100 || <100	97800-12	122%
TRH>C$_{34}$-C$_{40}$	mg/kg	97800-78	<100 || <100	97800-12	115%
Surrogate o-Terphenyl	%	97800-78	84 || 83 || RPD: 1	97800-12	117%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-32	23/09/2013 || 23/09/2013	LCS-9	23/09/2013
Date analysed	-	97800-32	24/09/2013 || 24/09/2013	LCS-9	24/09/2013
Naphthalene	mg/kg	97800-32	<0.1 || <0.1	LCS-9	120%
Acenaphthylene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-32	<0.1 || <0.1	LCS-9	120%
Phenanthrene	mg/kg	97800-32	<0.1 || <0.1	LCS-9	108%
Anthracene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-32	<0.1 || <0.1	LCS-9	103%
Pyrene	mg/kg	97800-32	<0.1 || <0.1	LCS-9	130%
Benzo(a)anthracene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-32	<0.1 || <0.1	LCS-9	92%
Benzo(b+k)fluoranthene	mg/kg	97800-32	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-32	<0.05 || <0.05	LCS-9	87%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-32	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-32	100 || 99 || RPD: 1	LCS-9	90%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-32	23/09/2013 || 23/09/2013	LCS-4	23/09/2013
Date analysed	-	97800-32	23/09/2013 || 23/09/2013	LCS-4	23/09/2013
Arsenic	mg/kg	97800-32	9 || 9 || RPD: 0	LCS-4	96%
Cadmium	mg/kg	97800-32	<0.4 || <0.4	LCS-4	96%
Chromium	mg/kg	97800-32	18 || 19 || RPD: 5	LCS-4	101%
Copper	mg/kg	97800-32	18 || 19 || RPD: 5	LCS-4	102%
Lead	mg/kg	97800-32	21 || 23 || RPD: 9	LCS-4	97%
Mercury	mg/kg	97800-32	<0.1 || <0.1	LCS-4	91%
Nickel	mg/kg	97800-32	10 || 10 || RPD: 0	LCS-4	101%
Zinc	mg/kg	97800-32	43 || 42 || RPD: 2	LCS-4	99%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-100	23/09/2013 || 23/09/2013	97800-63	23/09/2013
Date analysed	-	97800-100	23/09/2013 || 23/09/2013	97800-63	24/09/2013
$TRHC_6$ - C_9	mg/kg	97800-100	<25 || <25	97800-63	86%
$TRHC_6$ - C_{10}	mg/kg	97800-100	<25 || <25	97800-63	86%
Benzene	mg/kg	97800-100	<0.2 || <0.2	97800-63	67%
Toluene	mg/kg	97800-100	<0.5 || <0.5	97800-63	85%
Ethylbenzene	mg/kg	97800-100	<1 || <1	97800-63	91%
m+p-xylene	mg/kg	97800-100	<2 || <2	97800-63	93%
o-Xylene	mg/kg	97800-100	<1 || <1	97800-63	92%
naphthalene	mg/kg	97800-100	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	97800-100	103 || 101 || RPD: 2	97800-63	76%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-100	23/09/2013 || 23/09/2013	97800-63	23/09/2013
Date analysed	-	97800-100	24/09/2013 || 24/09/2013	97800-63	24/09/2013
$TRHC_{10}$ - C_{14}	mg/kg	97800-100	70 || 70 || RPD: 0	97800-63	106%
$TRHC_{15}$ - C_{28}	mg/kg	97800-100	570 || 610 || RPD: 7	97800-63	113%
$TRHC_{29}$ - C_{36}	mg/kg	97800-100	<100 || <100	97800-63	122%
$TRH>C_{10}$-C_{16}	mg/kg	97800-100	170 || 170 || RPD: 0	97800-63	106%
$TRH>C_{16}$-C_{34}	mg/kg	97800-100	520 || 570 || RPD: 9	97800-63	113%
$TRH>C_{34}$-C_{40}	mg/kg	97800-100	<100 || <100	97800-63	122%
Surrogate o-Terphenyl	%	97800-100	# || #	97800-63	94%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-43	23/09/2013 || 23/09/2013	LCS-10	23/09/2013
Date analysed	-	97800-43	24/09/2013 || 24/09/2013	LCS-10	24/09/2013
Naphthalene	mg/kg	97800-43	<0.1 || <0.1	LCS-10	120%
Acenaphthylene	mg/kg	97800-43	0.1 || 0.2 || RPD: 67	[NR]	[NR]
Acenaphthene	mg/kg	97800-43	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-43	<0.1 || <0.1	LCS-10	119%
Phenanthrene	mg/kg	97800-43	0.5 || 1.3 || RPD: 89	LCS-10	107%
Anthracene	mg/kg	97800-43	0.1 || 0.4 || RPD: 120	[NR]	[NR]
Fluoranthene	mg/kg	97800-43	1.0 || 3.4 || RPD: 109	LCS-10	103%
Pyrene	mg/kg	97800-43	1.0 || 3.2 || RPD: 105	LCS-10	130%
Benzo(a)anthracene	mg/kg	97800-43	0.5 || 1.7 || RPD: 109	[NR]	[NR]
Chrysene	mg/kg	97800-43	0.5 || 1.5 || RPD: 100	LCS-10	92%
Benzo(b+k)fluoranthene	mg/kg	97800-43	1.0 || 2.8 || RPD: 95	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-43	0.68 || 1.9 || RPD: 95	LCS-10	89%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-43	0.4 || 1.0 || RPD: 86	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-43	<0.1 || 0.2	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-43	0.4 || 1.0 || RPD: 86	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-43	98 || 101 || RPD: 3	LCS-10	91%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-43	23/09/2013 || 23/09/2013	LCS-5	23/09/2013
Date analysed	-	97800-43	23/09/2013 || 23/09/2013	LCS-5	23/09/2013
Arsenic	mg/kg	97800-43	5 || 5 || RPD: 0	LCS-5	98%
Cadmium	mg/kg	97800-43	<0.4 || <0.4	LCS-5	98%
Chromium	mg/kg	97800-43	18 || 19 || RPD: 5	LCS-5	102%
Copper	mg/kg	97800-43	48 || 47 || RPD: 2	LCS-5	103%
Lead	mg/kg	97800-43	43 || 36 || RPD: 18	LCS-5	99%
Mercury	mg/kg	97800-43	0.1 || 0.1 || RPD: 0	LCS-5	93%
Nickel	mg/kg	97800-43	25 || 31 || RPD: 21	LCS-5	102%
Zinc	mg/kg	97800-43	78 || 77 || RPD: 1	LCS-5	100%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-101	23/09/2013
Date analysed	-	[NT]	[NT]	97800-101	24/09/2013
TRHC$_6$ - C$_9$	mg/kg	[NT]	[NT]	97800-101	93%
TRHC$_6$ - C$_{10}$	mg/kg	[NT]	[NT]	97800-101	93%
Benzene	mg/kg	[NT]	[NT]	97800-101	73%
Toluene	mg/kg	[NT]	[NT]	97800-101	92%
Ethylbenzene	mg/kg	[NT]	[NT]	97800-101	96%
m+p-xylene	mg/kg	[NT]	[NT]	97800-101	101%
o-Xylene	mg/kg	[NT]	[NT]	97800-101	101%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	97800-101	99%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-79	23/09/2013
Date analysed	-	[NT]	[NT]	97800-79	24/09/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	[NT]	[NT]	97800-79	140%
TRHC$_{15}$ - C$_{28}$	mg/kg	[NT]	[NT]	97800-79	125%
TRHC$_{29}$ - C$_{36}$	mg/kg	[NT]	[NT]	97800-79	130%
TRH>C$_{10}$-C$_{16}$	mg/kg	[NT]	[NT]	97800-79	140%
TRH>C$_{16}$-C$_{34}$	mg/kg	[NT]	[NT]	97800-79	125%
TRH>C$_{34}$-C$_{40}$	mg/kg	[NT]	[NT]	97800-79	130%
Surrogate o-Terphenyl	%	[NT]	[NT]	97800-79	99%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-49	23/09/2013 || 23/09/2013	LCS-11	23/09/2013
Date analysed	-	97800-49	24/09/2013 || 24/09/2013	LCS-11	24/09/2013
Naphthalene	mg/kg	97800-49	<0.1 || <0.1	LCS-11	118%
Acenaphthylene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-49	<0.1 || <0.1	LCS-11	118%
Phenanthrene	mg/kg	97800-49	<0.1 || <0.1	LCS-11	107%
Anthracene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-49	<0.1 || <0.1	LCS-11	103%
Pyrene	mg/kg	97800-49	<0.1 || <0.1	LCS-11	130%
Benzo(a)anthracene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-49	<0.1 || <0.1	LCS-11	91%
Benzo(b+k)fluoranthene	mg/kg	97800-49	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-49	<0.05 || <0.05	LCS-11	92%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(g,h,i)perylene	mg/kg	97800-49	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-49	91 || 91 || RPD: 0	LCS-11	92%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-49	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Date analysed	-	97800-49	23/09/2013 || 23/09/2013	LCS-6	23/09/2013
Arsenic	mg/kg	97800-49	7 || 8 || RPD: 13	LCS-6	97%
Cadmium	mg/kg	97800-49	<0.4 || <0.4	LCS-6	96%
Chromium	mg/kg	97800-49	20 || 19 || RPD: 5	LCS-6	101%
Copper	mg/kg	97800-49	29 || 26 || RPD: 11	LCS-6	102%
Lead	mg/kg	97800-49	19 || 19 || RPD: 0	LCS-6	98%
Mercury	mg/kg	97800-49	<0.1 || <0.1	LCS-6	100%
Nickel	mg/kg	97800-49	18 || 18 || RPD: 0	LCS-6	101%
Zinc	mg/kg	97800-49	59 || 51 || RPD: 15	LCS-6	99%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-101	23/09/2013
Date analysed	-	[NT]	[NT]	97800-101	24/09/2013
TRH C_{10} - C_{14}	mg/kg	[NT]	[NT]	97800-101	137%
TRH C_{15} - C_{28}	mg/kg	[NT]	[NT]	97800-101	131%
TRH C_{29} - C_{36}	mg/kg	[NT]	[NT]	97800-101	120%
TRH >C_{10}-C_{16}	mg/kg	[NT]	[NT]	97800-101	137%
TRH >C_{16}-C_{34}	mg/kg	[NT]	[NT]	97800-101	131%
TRH >C_{34}-C_{40}	mg/kg	[NT]	[NT]	97800-101	120%
Surrogate o-Terphenyl	%	[NT]	[NT]	97800-101	117%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-61	23/09/2013 || 23/09/2013	97800-12	23/09/2013
Date analysed	-	97800-61	24/09/2013 || 24/09/2013	97800-12	24/09/2013
Naphthalene	mg/kg	97800-61	<0.1 || <0.1	97800-12	116%
Acenaphthylene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-61	<0.1 || <0.1	97800-12	116%
Phenanthrene	mg/kg	97800-61	0.1 || 0.1 || RPD: 0	97800-12	105%
Anthracene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-61	<0.1 || <0.1	97800-12	101%
Pyrene	mg/kg	97800-61	<0.1 || <0.1	97800-12	128%
Benzo(a)anthracene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-61	<0.1 || <0.1	97800-12	100%
Benzo(b+k)fluoranthene	mg/kg	97800-61	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-61	<0.05 || <0.05	97800-12	105%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-61	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-61	91 || 93 || RPD: 2	97800-12	97%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-61	23/09/2013 || 23/09/2013	LCS-7	23/09/2013
Date analysed	-	97800-61	23/09/2013 || 23/09/2013	LCS-7	23/09/2013
Arsenic	mg/kg	97800-61	9 || 11 || RPD: 20	LCS-7	101%
Cadmium	mg/kg	97800-61	<0.4 || <0.4	LCS-7	99%
Chromium	mg/kg	97800-61	13 || 13 || RPD: 0	LCS-7	106%
Copper	mg/kg	97800-61	29 || 33 || RPD: 13	LCS-7	107%
Lead	mg/kg	97800-61	12 || 14 || RPD: 15	LCS-7	101%
Mercury	mg/kg	97800-61	<0.1 || <0.1	LCS-7	91%
Nickel	mg/kg	97800-61	12 || 13 || RPD: 8	LCS-7	104%
Zinc	mg/kg	97800-61	160 || 190 || RPD: 17	LCS-7	102%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-71	23/09/2013 || 23/09/2013	97800-23	23/09/2013
Date analysed	-	97800-71	24/09/2013 || 24/09/2013	97800-23	24/09/2013
Naphthalene	mg/kg	97800-71	<0.1 || <0.1	97800-23	120%
Acenaphthylene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-71	<0.1 || <0.1	97800-23	119%
Phenanthrene	mg/kg	97800-71	<0.1 || <0.1	97800-23	110%
Anthracene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-71	<0.1 || <0.1	97800-23	104%
Pyrene	mg/kg	97800-71	<0.1 || <0.1	97800-23	131%
Benzo(a)anthracene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-71	<0.1 || <0.1	97800-23	104%
Benzo(b+k)fluoranthene	mg/kg	97800-71	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-71	<0.05 || <0.05	97800-23	106%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-71	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-71	94 || 93 || RPD: 1	97800-23	101%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-71	23/09/2013 || 23/09/2013	97800-12	23/09/2013
Date analysed	-	97800-71	23/09/2013 || 23/09/2013	97800-12	23/09/2013
Arsenic	mg/kg	97800-71	<4 || <4	97800-12	92%
Cadmium	mg/kg	97800-71	<0.4 || <0.4	97800-12	87%
Chromium	mg/kg	97800-71	250 || 240 || RPD: 4	97800-12	92%
Copper	mg/kg	97800-71	40 || 39 || RPD: 3	97800-12	93%
Lead	mg/kg	97800-71	6 || 6 || RPD: 0	97800-12	84%
Mercury	mg/kg	97800-71	<0.1 || <0.1	97800-12	99%
Nickel	mg/kg	97800-71	180 || 170 || RPD: 6	97800-12	81%
Zinc	mg/kg	97800-71	59 || 57 || RPD: 3	97800-12	100%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-78	23/09/2013 || 23/09/2013	97800-44	23/09/2013
Date analysed	-	97800-78	24/09/2013 || 24/09/2013	97800-44	24/09/2013
Naphthalene	mg/kg	97800-78	<0.1 || <0.1	97800-44	114%
Acenaphthylene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-78	<0.1 || <0.1	97800-44	123%
Phenanthrene	mg/kg	97800-78	<0.1 || <0.1	97800-44	108%
Anthracene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-78	<0.1 || <0.1	97800-44	106%
Pyrene	mg/kg	97800-78	<0.1 || <0.1	97800-44	135%
Benzo(a)anthracene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-78	<0.1 || <0.1	97800-44	106%
Benzo(b+k)fluoranthene	mg/kg	97800-78	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-78	<0.05 || <0.05	97800-44	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-78	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-78	91 || 91 || RPD: 0	97800-44	103%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-78	23/09/2013 || 23/09/2013	97800-23	23/09/2013
Date analysed	-	97800-78	23/09/2013 || 23/09/2013	97800-23	23/09/2013
Arsenic	mg/kg	97800-78	6 || 5 || RPD: 18	97800-23	95%
Cadmium	mg/kg	97800-78	<0.4 || <0.4	97800-23	96%
Chromium	mg/kg	97800-78	20 || 14 || RPD: 35	97800-23	100%
Copper	mg/kg	97800-78	33 || 30 || RPD: 10	97800-23	101%
Lead	mg/kg	97800-78	15 || 16 || RPD: 6	97800-23	98%
Mercury	mg/kg	97800-78	<0.1 || <0.1	97800-23	94%
Nickel	mg/kg	97800-78	17 || 14 || RPD: 19	97800-23	101%
Zinc	mg/kg	97800-78	49 || 47 || RPD: 4	97800-23	99%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-92	23/09/2013 || 23/09/2013	97800-63	23/09/2013
Date analysed	-	97800-92	24/09/2013 || 24/09/2013	97800-63	24/09/2013
Naphthalene	mg/kg	97800-92	<0.1 || <0.1	97800-63	114%
Acenaphthylene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	97800-92	<0.1 || <0.1	97800-63	114%
Phenanthrene	mg/kg	97800-92	<0.1 || <0.1	97800-63	104%
Anthracene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-92	<0.1 || <0.1	97800-63	98%
Pyrene	mg/kg	97800-92	<0.1 || <0.1	97800-63	123%
Benzo(a)anthracene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	97800-92	<0.1 || <0.1	97800-63	88%
Benzo(b+k)fluoranthene	mg/kg	97800-92	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-92	<0.05 || <0.05	97800-63	88%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-92	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-92	96 || 93 || RPD: 3	97800-63	87%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-92	23/09/2013 || 23/09/2013	97800-44	23/09/2013
Date analysed	-	97800-92	23/09/2013 || 23/09/2013	97800-44	23/09/2013
Arsenic	mg/kg	97800-92	<4 || <4	97800-44	87%
Cadmium	mg/kg	97800-92	<0.4 || <0.4	97800-44	86%
Chromium	mg/kg	97800-92	8 || 8 || RPD: 0	97800-44	91%
Copper	mg/kg	97800-92	40 || 41 || RPD: 2	97800-44	106%
Lead	mg/kg	97800-92	14 || 16 || RPD: 13	97800-44	89%
Mercury	mg/kg	97800-92	<0.1 || <0.1	97800-44	96%
Nickel	mg/kg	97800-92	14 || 16 || RPD: 13	97800-44	91%
Zinc	mg/kg	97800-92	55 || 54 || RPD: 2	97800-44	94%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	97800-100	23/09/2013 || 23/09/2013	97800-79	23/09/2013
Date analysed	-	97800-100	24/09/2013 || 24/09/2013	97800-79	24/09/2013
Naphthalene	mg/kg	97800-100	2.1 || 2.5 || RPD: 17	97800-79	113%
Acenaphthylene	mg/kg	97800-100	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Acenaphthene	mg/kg	97800-100	0.3 || 0.3 || RPD: 0	[NR]	[NR]
Fluorene	mg/kg	97800-100	<0.1 || <0.1	97800-79	123%
Phenanthrene	mg/kg	97800-100	1.9 || 2.0 || RPD: 5	97800-79	111%
Anthracene	mg/kg	97800-100	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	97800-100	0.4 || 0.3 || RPD: 29	97800-79	103%
Pyrene	mg/kg	97800-100	0.5 || 0.4 || RPD: 22	97800-79	128%
Benzo(a)anthracene	mg/kg	97800-100	0.2 || 0.1 || RPD: 67	[NR]	[NR]
Chrysene	mg/kg	97800-100	0.2 || 0.1 || RPD: 67	97800-79	96%
Benzo(b+k)fluoranthene	mg/kg	97800-100	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	97800-100	0.09 || 0.06 || RPD: 40	97800-79	82%
Indeno(1,2,3-c,d)pyrene	mg/kg	97800-100	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	97800-100	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	97800-100	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	97800-100	99 || 101 || RPD: 2	97800-79	91%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	97800-100	23/09/2013 || 23/09/2013	97800-63	23/09/2013
Date analysed	-	97800-100	23/09/2013 || 23/09/2013	97800-63	23/09/2013
Arsenic	mg/kg	97800-100	7 || 9 || RPD: 25	97800-63	94%
Cadmium	mg/kg	97800-100	<0.4 || <0.4	97800-63	84%
Chromium	mg/kg	97800-100	20 || 24 || RPD: 18	97800-63	86%
Copper	mg/kg	97800-100	22 || 29 || RPD: 27	97800-63	112%
Lead	mg/kg	97800-100	15 || 16 || RPD: 6	97800-63	92%
Mercury	mg/kg	97800-100	<0.1 || <0.1	97800-63	99%
Nickel	mg/kg	97800-100	18 || 21 || RPD: 15	97800-63	79%
Zinc	mg/kg	97800-100	89 || 100 || RPD: 12	97800-63	104%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	97800-101	23/09/2013
Date analysed	-	[NT]	[NT]	97800-101	24/09/2013
Naphthalene	mg/kg	[NT]	[NT]	97800-101	121%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	97800-101	120%
Phenanthrene	mg/kg	[NT]	[NT]	97800-101	112%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	97800-101	105%
Pyrene	mg/kg	[NT]	[NT]	97800-101	133%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	97800-101	91%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	97800-101	91%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	97800-101	95%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	97800-79	23/09/2013
Date analysed	-	[NT]	[NT]	97800-79	23/09/2013
Arsenic	mg/kg	[NT]	[NT]	97800-79	96%
Cadmium	mg/kg	[NT]	[NT]	97800-79	93%
Chromium	mg/kg	[NT]	[NT]	97800-79	100%
Copper	mg/kg	[NT]	[NT]	97800-79	125%
Lead	mg/kg	[NT]	[NT]	97800-79	94%
Mercury	mg/kg	[NT]	[NT]	97800-79	98%
Nickel	mg/kg	[NT]	[NT]	97800-79	96%
Zinc	mg/kg	[NT]	[NT]	97800-79	110%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	97800-101	23/09/2013
Date analysed	-	[NT]	[NT]	97800-101	23/09/2013
Arsenic	mg/kg	[NT]	[NT]	97800-101	107%
Cadmium	mg/kg	[NT]	[NT]	97800-101	95%
Chromium	mg/kg	[NT]	[NT]	97800-101	112%
Copper	mg/kg	[NT]	[NT]	97800-101	121%
Lead	mg/kg	[NT]	[NT]	97800-101	97%
Mercury	mg/kg	[NT]	[NT]	97800-101	94%
Nickel	mg/kg	[NT]	[NT]	97800-101	103%
Zinc	mg/kg	[NT]	[NT]	97800-101	112%

Report Comments:

PAH's in soil:The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

Total Recoverable Hydrocarbons in soil (NEPM):# Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Stephen Challinor
Client	David Lane Associates - Hunter
Address	42B Church St NSW 2320
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Facsimile	02 9476 1557
Email	dla.hunter@bigpond.com
Project	**DLH1121 - Horsley Park**
Order Number	(Not specified)
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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SGS Reference	**SE121040 R0**
Report Number	0000066624
Date Reported	02 Oct 2013
Date Received	25 Sep 2013

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Parameter	Units	LOR	Sample Number: SE121040.001 Sample Matrix: Soil Sample Date: 20 Sep 2013 Sample Name: Bund-21b	SE121040.002 Soil 20 Sep 2013 Bund-13b	SE121040.003 Soil 20 Sep 2013 SP1-5b	SE121040.004 Soil 20 Sep 2013 Bund-10b
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.4	0.1	0.1
Anthracene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	0.8	<0.1	0.1
Pyrene	mg/kg	0.1	<0.1	0.7	<0.1	0.2
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.3	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	0.3	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.4	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.3	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
Total PAH	mg/kg	0.8	<0.8	3.8	<0.8	<0.8
Carcinogenic PAHs (as BaP TEQ)*	TEQ	0.2	<0.2	0.4	<0.2	<0.2
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	90	92	96	96
2-fluorobiphenyl (Surrogate)	%	-	98	100	100	102
d14-p-terphenyl (Surrogate)	%	-	116	126	126	122
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320						
Arsenic, As	mg/kg	3	5	7	16	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.3
Chromium, Cr	mg/kg	0.3	12	17	9.8	28
Copper, Cu	mg/kg	0.5	23	21	41	33
Lead, Pb	mg/kg	1	14	62	18	110
Nickel, Ni	mg/kg	0.5	9.9	9.2	19	20
Zinc, Zn	mg/kg	0.5	44	83	73	160

Parameter	Units	LOR	Sample Number: SE121040.001 Sample Matrix: Soil Sample Date: 20 Sep 2013 Sample Name: Bund-21b	SE121040.002 Soil 20 Sep 2013 Bund-13b	SE121040.003 Soil 20 Sep 2013 SP1-5b	SE121040.004 Soil 20 Sep 2013 Bund-10b
Mercury in Soil Method: AN312						
Mercury	mg/kg	0.01	0.02	0.07	0.03	0.15
Moisture Content Method: AN002						
% Moisture	%	0.5	10	11	4.9	12

Parameter	Units	LOR	Sample Number: SE121040.005 Sample Matrix: Soil Sample Date: 20 Sep 2013 Sample Name: Bund-14b	SE121040.006 Soil 20 Sep 2013 Bund-11b	SE121040.007 Soil 20 Sep 2013 S2b
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420					
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	0.2	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	0.2	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.3	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.1	0.1	<0.1
Pyrene	mg/kg	0.1	0.2	0.1	0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total PAH	mg/kg	0.8	<0.8	0.9	<0.8
Carcinogenic PAHs (as BaP TEQ)*	TEQ	0.2	<0.2	<0.2	<0.2
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	92	94	92
2-fluorobiphenyl (Surrogate)	%	-	96	96	98
d14-p-terphenyl (Surrogate)	%	-	118	126	124
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320					
Arsenic, As	mg/kg	3	6	6	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	14	8.3	11
Copper, Cu	mg/kg	0.5	21	37	22
Lead, Pb	mg/kg	1	140	31	36
Nickel, Ni	mg/kg	0.5	11	16	12
Zinc, Zn	mg/kg	0.5	52	160	100

Parameter	Units	LOR	Sample Number: SE121040.005 Sample Matrix: Soil Sample Date: 20 Sep 2013 Sample Name: Bund-14b	SE121040.006 Soil 20 Sep 2013 Bund-11b	SE121040.007 Soil 20 Sep 2013 S2b
Mercury in Soil Method: AN312					
Mercury	mg/kg	0.01	**0.03**	**0.04**	**0.04**
Moisture Content Method: AN002					
% Moisture	%	0.5	**6.6**	**10**	**10**

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB045591	mg/kg	0.01	<0.01	45%	109%	96%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB045511	mg/kg	0.1	<0.1	0%	101%	102%
2-methylnaphthalene	LB045511	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB045511	mg/kg	0.1	<0.1	0%	NA	NA
Acenaphthylene	LB045511	mg/kg	0.1	<0.1	0%	108%	111%
Acenaphthene	LB045511	mg/kg	0.1	<0.1	0%	101%	95%
Fluorene	LB045511	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB045511	mg/kg	0.1	<0.1	118%	118%	104%
Anthracene	LB045511	mg/kg	0.1	<0.1	97%	98%	91%
Fluoranthene	LB045511	mg/kg	0.1	<0.1	116%	79%	81%
Pyrene	LB045511	mg/kg	0.1	<0.1	88%	101%	89%
Benzo(a)anthracene	LB045511	mg/kg	0.1	<0.1	126%	NA	NA
Chrysene	LB045511	mg/kg	0.1	<0.1	135%	NA	NA
Benzo(b&j)fluoranthene	LB045511	mg/kg	0.1	<0.1	138%	NA	NA
Benzo(k)fluoranthene	LB045511	mg/kg	0.1	<0.1	71%	NA	NA
Benzo(a)pyrene	LB045511	mg/kg	0.1	<0.1	120%	103%	111%
Indeno(1,2,3-cd)pyrene	LB045511	mg/kg	0.1	<0.1	52%	NA	NA
Dibenzo(a&h)anthracene	LB045511	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB045511	mg/kg	0.1	<0.1	46%	NA	NA
Total PAH	LB045511	mg/kg	0.8	<0.8	129%	NA	NA
Carcinogenic PAHs (as BaP TEQ)*	LB045511	TEQ	0.2	<0.2	95%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB045511	%	-	108%	13%	98%	100%
2-fluorobiphenyl (Surrogate)	LB045511	%	-	110%	16%	96%	102%
d14-p-terphenyl (Surrogate)	LB045511	%	-	112%	3%	108%	116%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arsenic, As	LB045589	mg/kg	3	<3	18%	95%
Cadmium, Cd	LB045589	mg/kg	0.3	<0.3	0%	97%
Chromium, Cr	LB045589	mg/kg	0.3	<0.3	13%	97%
Copper, Cu	LB045589	mg/kg	0.5	<0.5	13%	98%
Lead, Pb	LB045589	mg/kg	1	<1	8%	98%
Nickel, Ni	LB045589	mg/kg	0.5	<0.5	0%	97%
Zinc, Zn	LB045589	mg/kg	0.5	<0.5	2%	98%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analsysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
^	Performed by outside laboratory.	NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS		LABORATORY DETAILS	
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Facsimile	02 9476 1557	Facsimile	+61 2 8594 0499
Email	dla.hunter@bigpond.com	Email	au.environmental.sydney@sgs.com
Project	**DLH1121 - Horsley Park**	SGS Reference	**SE120899 R0**
Order Number	(Not specified)	Report Number	0000066145
Samples	3	Date Reported	26 Sep 2013
		Date Received	19 Sep 2013

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Parameter	Units	LOR	Sample Number SE120899.001 Sample Matrix Soil Sample Date 12 Sep 2013 Sample Name 1	SE120899.002 Soil 12 Sep 2013 2	SE120899.003 Soil 12 Sep 2013 3
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420					
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total PAH	mg/kg	0.8	<0.8	<0.8	<0.8
Carcinogenic PAHs (as BaP TEQ)*	TEQ	0.2	<0.2	<0.2	<0.2
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	114	110	108
2-fluorobiphenyl (Surrogate)	%	-	110	104	110
d14-p-terphenyl (Surrogate)	%	-	110	110	120
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320					
Arsenic, As	mg/kg	3	72	5	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	5.5	2.5	13
Copper, Cu	mg/kg	0.5	10	1.0	20
Lead, Pb	mg/kg	1	9	3	28
Nickel, Ni	mg/kg	0.5	3.5	1.4	15
Zinc, Zn	mg/kg	0.5	13	2.3	56
Mercury in Soil Method: AN312					
Mercury	mg/kg	0.01	0.07	<0.01	0.03
Moisture Content Method: AN002					
% Moisture	%	0.5	18	4.8	12

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB045340	mg/kg	0.01	<0.01	0 - 11%	107%	103%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Naphthalene	LB045285	mg/kg	0.1	<0.1	0%	102%
2-methylnaphthalene	LB045285	mg/kg	0.1	<0.1	0%	NA
1-methylnaphthalene	LB045285	mg/kg	0.1	<0.1	0%	NA
Acenaphthylene	LB045285	mg/kg	0.1	<0.1	0%	101%
Acenaphthene	LB045285	mg/kg	0.1	<0.1	0%	101%
Fluorene	LB045285	mg/kg	0.1	<0.1	0%	NA
Phenanthrene	LB045285	mg/kg	0.1	<0.1	0%	102%
Anthracene	LB045285	mg/kg	0.1	<0.1	0%	101%
Fluoranthene	LB045285	mg/kg	0.1	<0.1	0%	109%
Pyrene	LB045285	mg/kg	0.1	<0.1	0%	105%
Benzo(a)anthracene	LB045285	mg/kg	0.1	<0.1	0%	NA
Chrysene	LB045285	mg/kg	0.1	<0.1	0%	NA
Benzo(b&j)fluoranthene	LB045285	mg/kg	0.1	<0.1	0%	NA
Benzo(k)fluoranthene	LB045285	mg/kg	0.1	<0.1	0%	NA
Benzo(a)pyrene	LB045285	mg/kg	0.1	<0.1	0%	101%
Indeno(1,2,3-cd)pyrene	LB045285	mg/kg	0.1	<0.1	0%	NA
Dibenzo(a&h)anthracene	LB045285	mg/kg	0.1	<0.1	0%	NA
Benzo(ghi)perylene	LB045285	mg/kg	0.1	<0.1	0%	NA
Total PAH	LB045285	mg/kg	0.8	<0.8	0%	NA
Carcinogenic PAHs (as BaP TEQ)*	LB045285	TEQ	0.2	<0.2	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB045285	%	-	118%	4%	106%
2-fluorobiphenyl (Surrogate)	LB045285	%	-	108%	4%	110%
d14-p-terphenyl (Surrogate)	LB045285	%	-	112%	4%	120%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB045336	mg/kg	3	<3	4 - 9%	98%	
Cadmium, Cd	LB045336	mg/kg	0.3	<0.3	0%	97%	
Chromium, Cr	LB045336	mg/kg	0.3	<0.3	2%	99%	
Copper, Cu	LB045336	mg/kg	0.5	<0.5	4 - 14%	96%	
Lead, Pb	LB045336	mg/kg	1	<1	3 - 14%	98%	86%
Nickel, Ni	LB045336	mg/kg	0.5	<0.5	7 - 9%	100%	
Zinc, Zn	LB045336	mg/kg	0.5	<0.5	0 - 6%	97%	

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analsysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
^	Performed by outside laboratory.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

Appendix B

Site Environmental and Remediation Works Management Plan

DLA environmental
ABN 80 601 661 634

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Maitland
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Maitland NSW 2320
PO Box 137
Branxton NSW 2335
Phone: 4933 0001
Email: hunter@dlaenvironmental.com.au

1st December 2014

Browns Consulting
C/- CSR Limited
Level 2, 2 Burbank Place
Norwest Business Park
Baulkham Hills NSW 2153

Re: Site Environmental Management Plan (SEMP) – 327-335 Burley Road Horsley Park, NSW 2174.

DLA Environmental Services (DLA) was commissioned by Browns Consulting c/- CSR Limited to prepare a Remediation Action Plan (RAP) for the property identified as Lot 1 in DP 106143 at 327-335 Burley Road Horsley Park, NSW 2174 (the Site).

As part of the remediation programme, DLA was requested to prepare a Site Environmental Management Plan (SEMP) as stipulated in the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (OEH, 2011). The components of the SEMP have been included below:

1.0 SITE ENVIRONMENTAL MANAGEMENT PLAN

1.1 Introduction

A major component of the remedial works shall involve the installation and maintenance of a Site Environmental Management Plan (SEMP). The SEMP will provide details of the environmental protection and pollution control measures to be implemented during the operational phase of the remedial works.

The pollution control measures have the objective of removing/minimising any adverse impact on the surrounding environment. Details of the pollution control measures to be implemented are documented in the SEMP for the remediation works which is prepared (and approved) prior to commencement of remedial works.

In order to prepare the Environmental Management Plan for the remedial works, a review will be undertaken to identify possible impacts on the surrounding environment. For each potential impact identified the range of pollution control measure(s) available for mitigating the impact was reviewed and the most practicable, efficient and cost effective were identified for implementation.

It was envisaged that there would be a series of control measures that would be common to the various elements of the remedial works. In addition, there are supplementary control measures that would be specific to particular elements of the remedial works.

In the following sections, outlines have been presented of the various pollution control measures that would be implemented during most elements of the remedial works. These form the basis of the SEMP that should be read in conjunction with the RAP.

It is appropriate for the Contractor to develop EMP control measures for their component of the works based on the broad guidelines of the RAP.

1.2 Erosion Sedimentation Control Plan

Erosion and run-off control measures will be implemented during all elements of remedial works undertaken. Typically, these measures will be designed to prevent the transport of pollutants (including sediments) out of the remediation area via stormwater/surface run-off.

Generally, no surface run-off and/or water from excavations/pits and trenches within the remediation area will be permitted to discharge, without regulatory authority approval, to the surrounding environment. Run-off control measures will be developed giving consideration to the site conditions in each remediation area, and are likely to include (but not necessarily be limited to) the following:

- Diversion drains, berms, sumps and pumping systems to prevent runoff entering or leaving excavation areas. All water in contact with works will be diverted through the treatment system;
- Truck cleaning areas for use in washing down all vehicles potentially coming into contact with contaminated soil leaving a remediation area; and,
- Use of silt fencing, hay bales and/or oil absorbing booms, as required.

1.3 Noise Control Plan

The impact of noise associated with the Site remediation works is acknowledged as a potentially important environmental effect. It will be necessary to minimise noise in accordance with OEH Standards. The methods used to control noise will be dependent upon the equipment being used for particular remedial activities however, it would be expected that the methods would include those commonly used during normal construction and demolition works.

Noise control measures will be developed giving consideration to the Site conditions in each remediation area, and are likely to include (but not necessarily be limited to) the following:

- Site work will be restricted to the hours specified below;
- The use of construction vehicles on-site will be kept to a minimum;
- All equipment in operation in open areas on-site shall comply with the requirements of AS2436-1981 *Guide to Noise Control on Construction, Maintenance and Demolition Sites*; and,
- Noise monitoring may be conducted during the site remediation program.

1.4 Dust Control Plan

During the course of remediation works dust control measures shall be undertaken to ensure that dust generated from the site is controlled within acceptable levels. These control measures will be developed giving consideration to the site conditions in each remediation area, and are likely to include (but not necessarily be limited) to the following:

- All vehicles leaving the site will be cleaned on site to remove any potentially contaminated dust;
- Access to water sprays shall be available to water down the excavation/loading if dust generation becomes significant;
- Plastic sheeting shall be available to cover excavation faces and stockpiles; and,
- An ambient air-monitoring program shall monitor dust levels at the site boundary, as necessary.

1.5 Odour Control Plan

During the course of remediation works odour control measures shall be undertaken to ensure that possible odours generated on-site are controlled to within acceptable levels. These control measures will be developed giving consideration to the site conditions in each remediation area, and are likely to include (but not necessarily be limited) to the following:

- The prevailing weather conditions shall be considered in the manner in which work is undertaken;
- Plastic sheeting (such as VLDPE or PVC) will be made available at all times on-site to allow for any excavated or disturbed contaminated soils to be covered, if necessary to reduce odour;
- Odour masking agents (such as Biosolve) will be available for use on-site to suppress any nuisance odours not controlled by the above actions, so that ambient air quality at the site boundary is not adversely impacted.
- Application of Biosolve at a rate of 1 part to 5 parts water will be by way of hand held pressure applicator.

2.0 HEALTH AND SAFETY

2.1 Workplace Health and Safety

A Workplace Health and Safety (WHS) plan is an essential part of all remediation projects, to ensure the health and safety of all personnel working on or visiting the site. All remediation work would be undertaken in accordance with the provisions set out by the *Work Health and Safety Act* (2011) and associated *Work Health and Safety Regulation* (2011), and any other regulations or directions set out by regulatory authorities.

Typically the WHS plan would consider a broad range of issues including (but not limited to) the following:

- Characterisation of potential hazards including hazardous materials and site activities (e.g. excavation);
- Air and dust monitoring required within and at the boundary of the remediation area;
- Personnel and equipment movements to and from the remediation area;
- Training, instruction, and induction of site workers/visitors;
- Clear outline of responsibilities for health and safety; and,
- Emergency response plan for injuries or chemical exposure.
- Prior to commencing any remediation works, a specific WHS Plan would be prepared by the Remediation Contractor covering the following aspects:
- Identification of the remediation area and exclusion zones;
- Induction of personnel;
- Hazard identification/locations;
- Identification of contaminants of concern and their physical and toxicological properties;
- Description of exposure pathways and personal protection requirements;
- Location of all underground/aboveground services;
- Details of specific work practice procedures to be followed within the designated contaminated areas;
- Monitoring protocols to identify a potentially hazardous practice;
- Emergency information; and,
- Incident reporting.

Workplace Health and Safety Planning involves the development and implementation of systems and procedures into a Health and Safety Plan included in a site Work Method statement. The objectives of these documents are to ensure the health and safety of those undertaking specific tasks on site and the wider community if necessary.

A Health and Safety Plan should be developed for any site work and would typically include the following:

- A clear health and safety policy;
- Requirements for worker health assessments and inductions;
- Identified health and safety training requirements;
- Requirements for occupational health protection and monitoring;
- Site/location specific emergency plan;
- Site/location specific emergency contact details;
- Permit to work/clearance procedures, and
- Task specific safe work method statements.

2.2 Personal Hygiene and Decontamination

Appropriate hygiene and decontamination assists with minimising worker exposure and the transportation of potentially contaminated materials from the site to more sensitive home environments.

The following activities are prohibited while working in the hazardous materials area:

- eating;
- drinking;
- chewing gum, and;
- smoking.

Practices that involve contact between the hands and the mouth increase the risk of chemical ingestion. Hands should be thoroughly washed with soap and water after completing work activities and before meal breaks.

Personal decontamination is required to minimise workers' exposure to, and indirect transportation of potential chemicals of concern.

Decontamination involves physically removing material from personnel and equipment. Protective equipment, tools and other equipment are decontaminated by cleaning with detergent water using a soft-bristle brush followed by rinsing with a sufficient quantity of water.
Decontamination should be conducted before meal breaks, and at the end of a day's work.

2.3 Community Health and Safety

The health and safety of the surrounding community is very important for any remediation works. While it is possible to control the activities of personnel within the remediation area (e.g. ensuring appropriate WHS procedures and equipment are utilised) it is not normally possible to control the activities of the surrounding community. Therefore, to protect the community health and safety it is necessary to control the remedial works so that no fugitive emissions occur during the remedial works that could have an adverse impact on the surrounding community.

These controls are documented in the Environment Management Plan for the remedial works, although monitoring requirements to confirm the effectiveness of the measures may also be documented in the WHS Plan. The methodology that would normally be used to develop the control measures is described below.

Firstly, the portions of the community that may be impacted by any fugitive emissions will be identified. Secondly an assessment of the hazard posed by the contaminants and the proposed remedial methodology/technology would be undertaken. This assessment would define the hazard posed by the particular contaminants present in the remediation area using risk assessment techniques (i.e. identifying the hazard or contaminants and the exposure pathway that the potentially at risk community could be exposed to the hazard).

Once these have been identified, a review will be undertaken of control measures available to remove or minimise the risk posed to the surrounding community during the remedial works. Typically the control measures would comprise removal/minimisation of the exposure pathway to the community. As indicated above it may be necessary to undertake monitoring to confirm the effectiveness of the control measures, and if the monitoring indicates a possibility for exposure then contingency measures may need to be implemented. By way of example control mechanisms could include (but not necessarily limited to) the following:

- Site security measures to prevent access to the contaminated material by the public;
- Dust suppression measures to minimise inhalation and ingestion exposure; and,
- Not undertaking certain work if winds are unfavourable etc.

2.4 Traffic Control Plan

Movement of excavation equipment, trucks and other vehicles involved in the remediation works, to and from the site will be strictly controlled and restricted to a minimum and only take place during approved working hours. All potentially contaminated vehicles leaving the site will be decontaminated

in an appropriate truck wash-down area. All vehicles will be visually free of soil before permission to leave a remediation area is granted.

2.5 Hours of Operation

Working hours for any on-site remedial works would be set in consultation with the Council, but it is envisaged the likely hours would be as follows:

- Mondays to Fridays 7:00 am to 5:00 pm
- Saturdays 7:00 am to 3:00 pm
- Sundays and Public Holidays No Work Permitted

2.6 Emergency and Out of Hours Contact Numbers

DLA Environmental	**94761765**
David Lane	**0410494810**
NSW OEH	**99955000**
WorkCover NSW	**43215000**
DNR	**92286111**

3.0 REMEDIATION WORKS MANAGEMENT

3.1 Regulatory Approvals/Licences

Prior to the commencement of remedial work, all relevant regulatory approvals will need to be obtained. Such approvals/licenses will include (but may not be limited) to the following:

- Appropriate approvals for disposal of wastes to landfill e.g. contaminated soils, concrete demolition waste etc in accordance with the POEO Act 1997,
- Regulatory Authority consent for Category 1 or 2 remedial activities, in accordance clause 16 (3) of State Environmental Planning Policy SEPP – No 55 – *Remediation of Land*.

3.2 Environmental Protection and Pollution Control

3.2.1 General

When the remedial works are being planned an assessment of potential mechanism for fugitive emissions from the remediation area will be completed. Contingency plans shall then be developed to deal with any identified emissions. The contingency plans will detail the response procedures to be implemented immediately after detection of a fugitive emission to the surrounding environment. The contingency plan will include details of the potential emissions identified and the appropriate response measures. The following outlines some examples of unexpected situations that may arise and may require response measures:

- Dust, noise, odour levels measured at site boundary may exceed acceptable levels; or,
- Surface water run-off may leave the site;

Typically, in cases where fugitive emissions are identified, the Project Manager/Superintendent will stop work and appropriate situation specific responses will be taken. By way of example these could include: reducing dust by further water spraying, reducing machinery on-site to minimise noise, intercepting run-off with diversion drains and a pumping system, backfilling an excavation to remove an unpleasant odour etc.

3.2.2 Buffer Zone

Wherever possible, a buffer zone will be established around remedial works. The effect of this buffer zone will to minimise the potential for impacts on the surrounding open space and residential areas as well as the community as a whole. The location and layout of the buffer zone will be determined by consideration of (but not necessarily limited to) the following:

- Hazards associated with, and exposure pathways to the main contaminants in the remediation area;
- Surrounding land uses;
- Prevailing weather conditions; and,
- Existing physical barriers (e.g. fences, buildings etc).

Access to the area within the buffer zone would be restricted to persons directly involved in the remedial works. If it is not possible to establish an adequate buffer zone in some areas where remedial works are to be undertaken, consideration will be given to other means of ensuring that there are no adverse impacts on the surrounding land users. This could include, for example minimising or restricting the extent of any excavations or other activities that would effectively limit exposure to contamination.

3.3 Community Relations Plan

3.3.1 Communications Plan

Meetings with stakeholders have kept information on the Project flowing to involved groups. It is envisaged that the remediation program will be developed in consultation with the stakeholders prior to implementation.

It is likely that the plan would intend to:

- Provide the stakeholders with information about the remedial works project;
- Enable the stakeholders to raise questions/concerns and other suggestions regarding the remedial works project; and,
- Co-ordinate matters of concern in relation to the remedial works project with Council and Regulatory Authorities with a stake in the project.

3.3.2 Complaint Response Measures

A complaint response system has been developed for dealing with any complaints received.

The system includes:

- Identification of the individuals (e.g. Project Manager etc) with overall responsibility of ensuring all complaints are dealt with in an appropriate manner;
- A clearly documented procedure for receiving, logging and passing on details of any complaints to the appropriate personnel. Refer to Environmental Management Plan;

- Clearly defined roles for personnel working on the project in relation to complaint reporting and response;
- A complaint register, which will record details of complaints, the party making the complaint, the parties, notified of the complaint, and actions arising from the complaint;
- Mechanisms for advising Council and Regulatory Authorities of complaints in their jurisdiction;
- Mechanisms for disseminating information (as appropriate) to the local community and/or committee regarding complaints and the response to the complaints; and,
- Procedure for following up on the satisfactory resolution of any complaints.

3.3.3 Staged Progress Reporting

It is envisaged that staged progress reporting will be undertaken throughout the remedial works program. It is likely that these will comprise preparation and submission of regular status reports to the appropriate interested parties. The status reports would be expected to include a summary of:

- Results of any monitoring work undertaken during the reporting period;
- Details of the work undertaken during the reporting period;
- Details of any environmental incidents during the reporting period and the actions arising from these incidents;
- Details of any unexpected situations encountered in undertaking the remedial work during the reporting period and the response to these situations;
- Details of any variations required to the RAP for which approval has been sought; and,
- Updates on project schedule.

Additionally, the occurrence of any event which causes or is likely to cause substantial pollution of the environment or represents a human health risk would be notified to the appropriate Regulatory Authority(s) as soon as practicable after it becomes known to the Project Manager, Remediation Contractor or Council. Should such an event occur a written report shall be supplied to the appropriate Regulatory Authority(s) within 21 days of the event. Such a report would include full details of the incident, including time and duration of the event, the type and volume of any pollutants discharged, any remedial activities undertaken and any measures taken to prevent or mitigate against a recurrence of such an event.

Upon completion of the site remediation works a Validation Report shall be prepared and issued. The report will be prepared in accordance with the NSW EPA's *Guideline for Consultants Reporting on Contaminated Sites (1997*) and the NEPM 2013.

Appendix C
Unexpected Finds Protocol

APPENDIX C

Unexpected Findings Protocol for 327-335 Burley Road, Horsley Park.

DLA Environmental was engaged by CSR Australia to provide an Unexpected Findings Protocol for the Remediation Action Plan associated with works at the property known as the 327-335 Burley Road, Horsley Park NSW (Site).

This Unexpected Findings Protocol (UFP) has been developed as part of the construction planning for implementation during site activities primarily associated with excavation and civil activities at the Site. It has been prepared to ensure appropriate management of soil, fill and/or groundwater which may contain undefined contamination levels or foreign materials should they be encountered during Site works.

Areas of environmental concern have been identified and management practices have been implemented to manage any environmental risk associated with these areas. It is thought prudent to implement an Unexpected Findings Protocol to cover all possible potential contamination scenarios that may be encountered during works on-site.

Potential contamination on the Site which may exist outside the confines of the past environmental investigations will be managed through the following UFP.

UNEXPECTED FINDINGS PROTOCOL

1.0 Introduction

Due to the history of the Site, both past and present, there is potential for materials to be uncovered that have not been observed in previous investigations. These materials may require additional assessment or management. It is imperative that the potential for such material to impact site workers and the remainder of the site is minimised during further remedial and construction works.

Potential contamination may include:

- fill material from unknown sources;
- fill material contaminated with PAH's, hydrocarbons or heavy metals and other unknown sources of contamination
- Polycyclic Aromatic Hydrocarbons; (PAH's); and
- Asbestos Containing Materials (ACM) from building/demolition waste.

2.0 Typical features of "Unexpected Findings"

Any material that is uncovered during the earthworks deemed to be foreign, be that UST related, imported fill material or building waste, should be scrutinised further to determine if total Petroleum hydrocarbons, asbestos containing materials or other contaminants are present.

The main features to look for are:

- material containing anthropogenic artefacts such as rubble, plastics, metal etc;
- asbestos or suspected asbestos containing material;
- material with fibres visible;
- material with an obvious unnatural odour i.e. fuel, solvent, burnt odour
- material that is noticeably stained in colour;

- archaeological artefacts; and
- any material that has evidently been dumped on site.

3.0 Implementation of the UFP

Prior to the commencement of any Excavation or Construction works onsite an Occupational Health and Safety induction should be attended by all site staff, the aim and importance of the UFP and how it is to be implemented should be discussed at this time. Responsibility for its implementation will be assigned to the Principal Contractor.

Monitoring of environmental issues will be undertaken on a daily basis. If an unexpected finding is revealed during Site works, the following protocol is to be followed.

Unexpected findings protocol:

1. Cease disturbance of the affected portion of the site and evacuate the immediate area;
2. Contact the Principal Contractor and the Contractors Environmental Representative (CER).
3. Principal Contractor and CER to conduct an assessment of the location and extent of the unexpected finding.
4. High risk areas should be isolated and secured against unintended access.
5. Temporary encapsulation (sealing) of the high risk area to ensure no airborne spread of contamination occurs may be appropriate. This may involve clean soil, plastic sheeting.
6. Dust should be prevented by wetting the soil and drainage controls should be arranged where there is a potential for runoff to occur (runoff should be minimised).
7. Warning signs should be placed in the vicinity.
8. If the Principal Contractor and CER considers that the material warrants further investigation, the area is to be barricaded to provide an exclusion zone.

9. If necessary, environmental controls should be established to minimise the potential for migration of contaminants from the impacted area.

10. Principal Contractor to complete UFP form (Attachment I) and issue to all relevant stakeholders.

11. Further visual assessment and sample collection and analysis undertaken by a qualified environmental consultant. If necessary, samples will be sent to a NATA registered laboratory.

12. Evaluation of analytical data with respect to specific health investigation levels to be undertaken. Contaminated soil incident report amended with final classification of soils, including whether the soils are suitable for the proposed land use, need to be remediated or disposed of offsite to a suitably licensed facility. If soils are suitable to remain on site and/or the area is found to be clean then a work instruction will be provided by the CER to this effect, a waste classification letter must be provided prior to any offsite disposal.

13. If the material is subsequently found to contain asbestos, or other hazardous materials an appropriately licensed contractor will be employed to remove it. TPH impacted material can be stockpiled on site for treatment or removed following waste classification.

14. Affected areas reopened for earthworks, following clearance of site (based on laboratory results).

Notes:

1. Any suspected asbestos containing or TPH impacted material should be left in place and not disturbed. The CER will organise appropriate environmental professionals for further investigation purposes.

2. It is essential that material of differing compositions not be mixed.

3. All sampling for validation, waste classification or characterisation purposes will be carried out in accordance with the following documents:

   - NSW EPA (1995) Contaminated Sites: Sampling Design Guidelines;
   - NSW EPA (1994) Contaminated Sites: Guidelines for Assessing Service Station Sites;
   - DECC NSW (2009) Waste Classification Guidelines Part 1: Classifying Waste

4. Any unexpected findings encountered should be listed on a UFP register, which should include the action taken and the status of the unexpected find. A suitable register is included in Attachment 2.

5. Once an unexpected find has been identified and a UFP form filled in the Principal Contractor and CER should liaise with the client as to the appropriate means of managing the situation. This should include discussions around the handling, treatment and disposal of material, OH&S considerations and how the affected area will be validated and reopened for works.

6. Prior to closing out an unexpected find it will be important to ensure the appropriate documentation is obtained such as; photographs, the UFP form, waste classification letter(s) and a validation report or letter.

7. A UFP form should be completed on each day of the remedial works as part of the daily site records. This will ensure that the process is being undertaken even if no unexpected findings are encountered. The form should include the name, company and the position of the person undertaking the field observations.

ATTACHMENT 1 UNEXPECTED FINDINGS FORM

DLA environmental

Unexpected Findings Protocol Form

Date: _____

(To be completed by the Site Controller/Environmental Representative)

Site: 327-335 Burley Road, Horsley Park NSW

Personnel **Onsite:**

_____

Daily Summary:

1. Suspect material encountered during daily activities: Yes ☐ No ☐
(if yes compete 2 - 8).

2. CER contacted: Yes ☐ No ☐

3. UFP reference number (label occurrences sequentially 1, 2, 3, etc).

Description of material encountered:

4. Asbestos or suspected asbestos containing material present: Yes ☐ No ☐

5. **If No to 4** is there an obvious odour present (Note: **Do Not** inhale soil): Yes ☐ No ☐

6. Visible staining: Yes ☐ No ☐

7. Brief written description of material:

8. Material isolated: Yes ☐ No ☐

9. Location of contaminated material (include field sketch/map on back of this page if required):

10. Photographs taken: Yes ☐ No ☐

Name _____ **Signature:** _____

ATTACHMENT 2 UNEXPECTED FINDINGS REGISTER

TABLE 1 UNEXPECTED FINDINGS REGISTER – 327-335 Burley Road, Horsley Park NSW

UFP No	Date found	Suspect Material	Description	Recorded on UFP form (Y/N)	Action taken	Status

8.11 Community Consultation Plan

URBIS

COMMUNITY CONSULTATION PLAN

ESR Horsley Logistics Park

Prepared for
ESR AUSTRALIA
28 April 2021

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Associate Director	Stephanie Potter
Senior Consultant	Alisha Filmer
Project Code	P0033382
Report Number	Final

Urbis acknowledges the important contribution that Aboriginal and Torres Strait Islander people make in creating a strong and vibrant Australian society.

We acknowledge, in each of our offices, the Traditional Owners on whose land we stand.

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CONTENTS

TABLES

1. INTRODUCTION

This Community Consultation Plan (the plan) has been prepared in line with the requirements of Development Consent Condition B56 and B57 for ESR Horsley Logistics Park (SSD 10436). This Strategy has been prepared by Urbis Pty Ltd, a consultant engaged by ESR Developments (Australia) Pty Ltd (ESR).

This Plan will be implemented and maintained throughout the development by ESR. This plan covers a period no later than two weeks before the commencement of site preparation works and for the life of the development.

1.1. CROSS-REFERENCE OF CONSENT REQUIREMENTS

Table 1 identifies the reference/s within this Strategy as they relate to the requirements under Development Consent Condition B56 and B57 – Community Consultation Plan.

Table 1 Consent requirements

Consent condition Reference	Consent condition	Report reference
B56	The Applicant must consult with the community regularly throughout the development, including consultation with the nearby sensitive receivers identified on Figure 7, relevant regulatory authorities and other interested stakeholders.	Sections 3 and 5
B57	The Applicant must prepare a Community Consultation Plan for the development, to the satisfaction of the Planning Secretary. The Plan must:	This document
a)	be approved by the Planning Secretary prior to the commencement of site preparation works;	Noted
b)	be implemented for the life of the development, or as otherwise agreed by the Planning Secretary;	Noted
c)	assign a central contact person to keep the nearby sensitive receivers regularly informed throughout the development;	Section 5.2
d)	detail the mechanisms for regularly consulting with the local community throughout the development, such as holding regular meetings to inform the community of the progress of the development and report on environmental monitoring results;	Section 5
e)	detail a procedure for consulting with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities or manage traffic disruptions;	Section 5.3
f)	include contact details for key community groups, relevant regulatory authorities, Registered Aboriginal Parties and other interested stakeholders; and	Section 4
g)	include a complaints procedure for recording, responding to and managing complaints, including:	Section 5.4

Consent condition Reference	Consent condition	Report reference
	email, toll-free telephone number and postal address for receiving complaints; advertising the contact details for complaints prior to and during operation, via the local newspaper and through on-site signage; a complaints register to record the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint; and procedures to resolve any disputes that may arise during the course of the development.	
B58	The Applicant must: not commence construction until the Community Consultation Plan is approved by the Planning Secretary; and implement the approved Community Consultation Plan for the duration of the development.	Noted

2. PROJECT OVERVIEW

ESR Horsley Logistics Park (the project) involves the construction, fit-out and operation of eight warehouse and distribution tenancies in four buildings with a total gross floor area (GFA) of 112,819m2 including offices, loading docks, hardstand areas, truck and car parking areas, landscaping, associated infrastructure and signage.

2.1. THE SITE

The site is located at 6 Johnston Crescent, Horsley Park (Figure 1, site shown in red). It is 35 kilometres (km) west of the Sydney CBD and 18 km west of the Parramatta CBD. The site is located within the Fairfield City Council (Council) Local Government Area (LGA) and situated within the Western Sydney Employment Area.

Figure 1 Aerial photograph of the site

Source: Urbis

2.2. THE SURROUNDING COMMUNITY

The project is located within the former CSR quarry lands. It sits south of the Sydney Water Pipeline within the western extent of the Western Sydney Employment Area (WSEA). The project is currently undergoing earthworks to support future industrial development. The project is immediately bordered to the north by the remainder of the original CSR quarry site. The remainder of the CSR quarry has been excised from Horsley Logistics Park and subdivided into future Stage 3 as part of DA 893.1/2013. Beyond the immediate vicinity, the surrounding land uses include:

- **North:** The Oakdale Central Business Hub (SSD-6078)
- **East:** Land zoned RU4 – Primary Production which includes a number of rural residential lots
- **South:** Land zoned RU4 – Primary Production and a rural residential subdivision fronting Greenway Place
- **West:** The Horsley Park Warehousing Hub (MP10_0129 and MP10_0130)

3. PEOPLE TO BE CONSULTED DURING THE DEVELOPMENT

The sensitive receivers, relevant regulatory authorities and other interested stakeholders who will be informed and consulted are outlined in Table 2. The table also outlines communication mechanisms and potential stakeholder concerns. Section 5 describes the mechanisms in detail. This table will be reviewed and updated as needed by ESR.

Table 2 Stakeholders, activities, and concerns

People to be consulted (Stakeholders)	**Communication mechanisms (see Section 5)**	**Concerns**
Individual households and businesses within a 500m radius of the project including: - Greenway Place - Old Wallgrove Rd and - Burley Rd, Horsley Park - Jacfin Industrial Estate.	Enquires and feedback response Issues resolution and mediation of disputes Notifications Signage	Traffic management, truck noise and movements View impacts and privacy Vegetation and landscaping Noise management and minimisation Light spill Impacts of construction activities including noise, dust and vibrations 24-hour operation impacts
Sensitive receivers in three identified noise catchment areas (NCAs) outlined in Figure 2. - NCA01 – South - NCA02 – South - NCA03 – East.	Enquires and feedback response Issues resolution and mediation of disputes Sensitive receiver consultation	Traffic management Noise management and minimisation Lighting Impacts of construction activities including noise, dust and vibrations
Regulatory agencies and utilities: - Fairfield City Council - New South Wales Environment Protection Authority - Endeavour Energy - Transport for NSW - Sydney Water - New South Wales Rural Fire Service	Communication is covered by relevant approvals	Traffic management Visual impacts Construction activities Environmental impacts

People to be consulted (Stakeholders)	Communication mechanisms (see Section 5)	Concerns
- Fire and Rescue New South Wales		
Department of Planning, Industry and Environment	Communication is covered by relevant approvals.	Regulatory oversight of Development Consent for SSD-10436

Figure 2 Sensitive receivers

Source: Development Consent SSD-10436

4. STAKEHOLDER CONTACTS

Table 3 Stakeholder contacts

Stakeholder	Contact details
Department of Planning, Industry and Environment	Bruce Zhang Senior Environmental Assessment Officer T +612 9274 6137 E Bruce.Zhang@planning.nsw.gov.au
Department of Planning, Industry and Environment – Biodiversity and Conservation Division	Bronwyn Smith Senior Conservation Planning Officer T +612 9873 8604 E Bronwyn.smith@environment.nsw.gov.au
Penrith City Council	Robert Craig Acting Development Assessment Coordinator T +612 4732 7593 E Robert.Craig@penrith.city
Fairfield City Council	Kerren Ven Strategic Planner T +612 9725 0878
New South Wales Environment Protection Authority	Kyle Browne Operations Officer T +612 9995 6107 E kyle.browne@epa.nsw.gov.au.
Endeavour Energy	Cornelis Duba Development Application Specialist Network Environment & Assessment E property.development@endeavourenergy.com.au E Construction.Works@endeavourenergy.com.au
Heritage NSW	Senior Team Leader Aboriginal Cultural Heritage Regulation - South T +612 6229 7089 E jackie.taylor@environment.nsw.gov.au.
Transport for NSW	Robert Rutledge Principal Transport Planner Land Use Planning and Development E robert.rutledge@transport.nsw.gov.au.
Sydney Water	Growth Planning Team T 13 20 92 E urbangrowth@sydneywater.com.au

Stakeholder	Contact details
WaterNSW	Justine Clarke T +612 9865 2402 E justine.clarke@waternsw.com.au. E Environmental.Assessments@waternsw.com.au
New South Wales Rural Fire Service	Kalpana Varghese Team Leader, Development Assessment & Planning Planning and Environment Services T +612 8741 5555
Resident	30-32 Greenway Place, Horsley Park
Resident	38-40 Greenway Place, Horsley Park
Resident	33-35 Greenway Place, Horsley Park
Resident	41-43 Greenway Place, Horsley Park
Resident	44-46 Greenway Place, Horsley Park
Resident	47-48 Greenway Place, Horsley Park
Resident	49-53 Greenway Place, Horsley Park
Resident	54-56 Greenway Place, Horsley Park
Jacfin Pty Ltd	HWL Ebsworth Lawers on behalf of Jacfin Pty Ltd Paul Lalich T +612 9334 8830 E plalich@hwle.com.au
Registered Aboriginal Parties	There was no requirement for Aboriginal consultation in the project's SEARs and as such no RAPs were identified.

5. MECHANISMS AND PROCEDURES

5.1. CONSULTATION MECHANISMS

Information about the Project will be provided to residents in line with the requirements of Development Consent Condition B56 and B57 through the mechanisms outlined in Table 4 Consultation me

Table 4 Consultation mechanisms

Activity	Description	Stakeholder	Timing
Enquires and feedback response	The community will use a project contact point (See Section 5.2) to provide feedback or make enquiries and complaints. This contact point will also be the central contact person for nearby sensitive receivers. The process for responding is outlined in Sections 5.2, 5.3 and 5.4.	Individual households and businesses within a 500m radius of the project Sensitive receivers in Figure 2	Ongoing
Signage	Signage at the front of the site will include details for providing feedback or making enquires and complaints.	Individual households and businesses within a 500m radius of the project	Ongoing
Notifications	At the start of construction and at key development milestones, ESR will place an ad in the local newspaper and send a letter to neighbours outlining construction timeline, impacts and mitigations, and the project contact point	Individual households and businesses within a 500m radius of the project	No less than 14 days before start of construction
Sensitive receiver consultation procedure	For high noise generating works, vibration intensive activities or potential manage traffic disruptions sensitive receivers will be informed ahead of time. See Section 5.3 for more detail.	Sensitive receivers in Figure 2	No less than 7 days before works planned, or when reasonably practical
Community meetings	Depending on the level of stakeholder interest and feedback in the first three months of construction, ESR will consider the establishment of regular community meetings to inform the community of the progress of the development and report on environmental monitoring results.	Individual households and businesses within a 500m radius of the project	As required

5.2. ENQUIRIES AND FEEDBACK RESPONSE

As outlined in Table 4, a project contact point will be established and maintained for the project.

Table 5 Project contact point

Channel	Details
Point of contact	Grace Macdonald, Senior Planner
Mailing address	Level 29, 20 Bond Street Sydney, NSW 2000
Phone number	+612 9186 4759
Email	developmentAU@esr.com

All feedback and enquires will be answered in accordance with the timeframes below:

Table 6 Response times

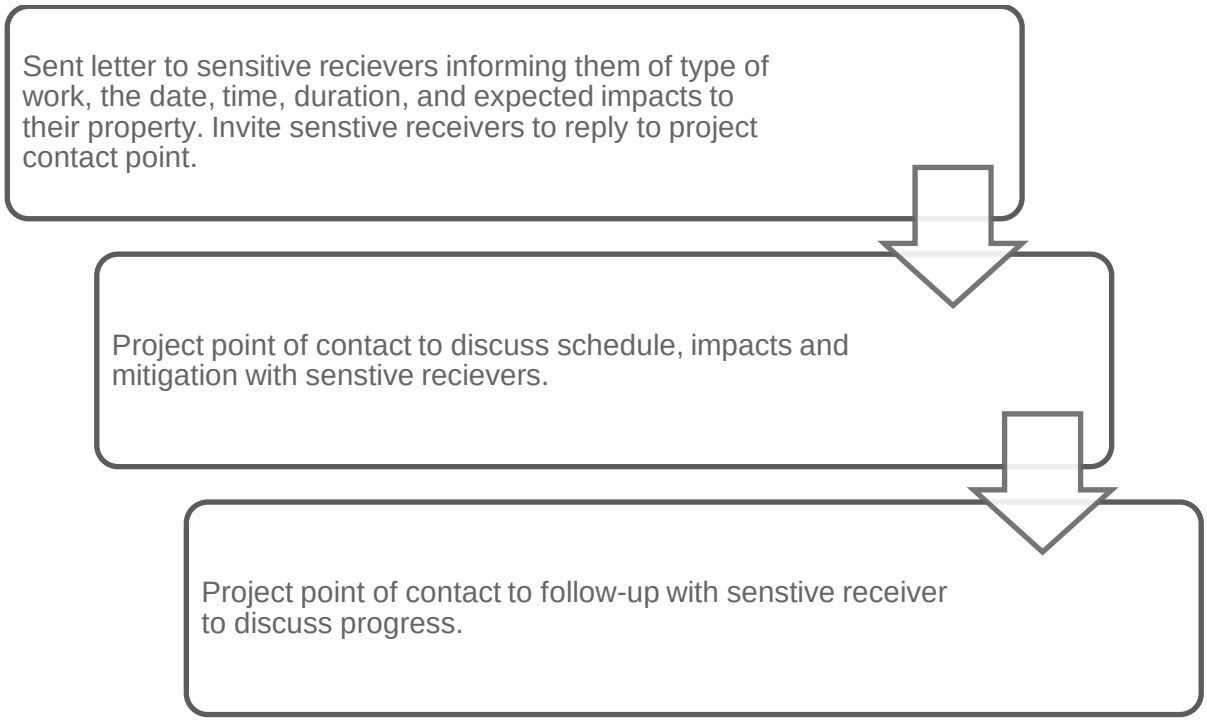
Channel	Response time
Email	Two business days
On-site inquiry or mail	Five business days
Phone	Thirty minutes (during business hours)

5.3. SENSITIVE RECEIVER CONSULTATION PROCEDURE

ESR will consult with nearby sensitive receivers to schedule high noise generating works, vibration intensive activities and management of any potential traffic disruptions. This includes ensuring the community is informed of disruptive works in advance. This mechanism is outlined in

Figure 3 Sensitive receivers consultation procedure.

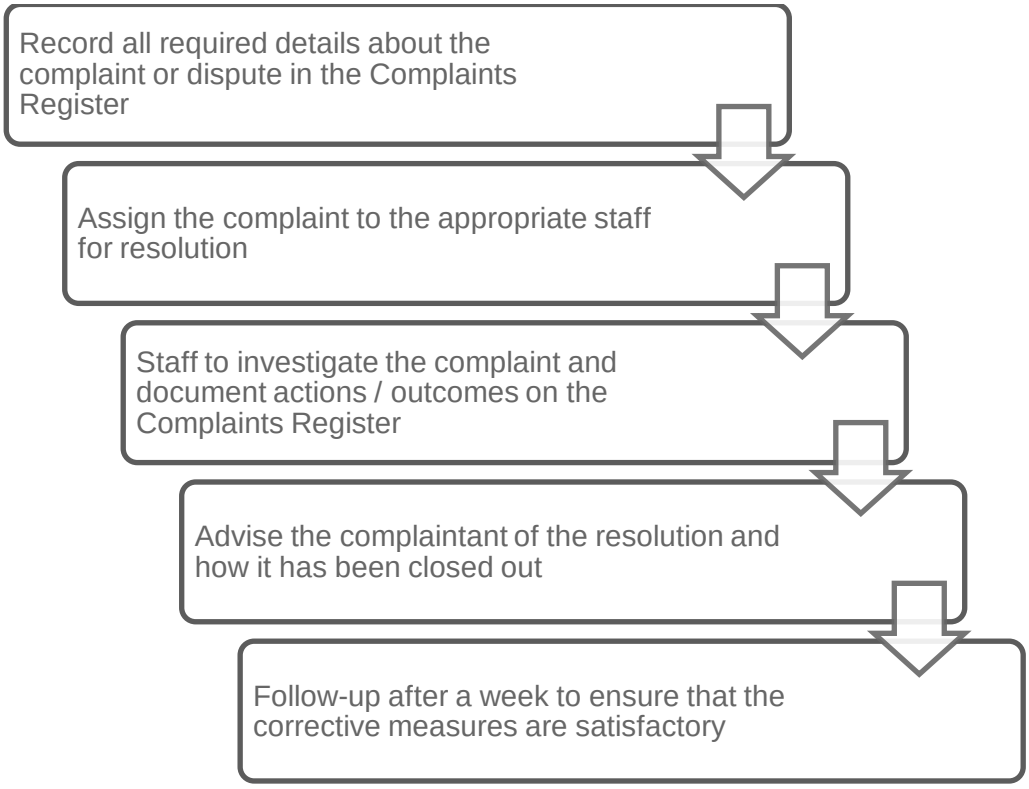
Figure 3 Sensitive receivers consultation procedure



5.4. COMPLAINTS AND DISPUTES RESOLUTION PROCEDURE

The mechanism in Figure 4 Complaints and disputes resolution procedure outlines the procedure for complaints and disputes raised through the project contact point. The required details to be recorded in the complaints register include the date, time and nature of the complaint, details of the complainant and any actions taken to address the complaint.

Figure 4 Complaints and disputes resolution procedure



DISCLAIMER

This report is dated 28 April 2021 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of ESR Australia **(Instructing Party)** for the purpose of Community Consultation Plan for Horsley Park Logistics Park **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

URBIS