PLANNING AND DEVELOPMENT COMMITTEE

AGENDA

2 MARCH 2021

Notice is hereby given, in accordance with the provisions of the Local Government Act 1993 that a **PLANNING AND DEVELOPMENT COMMITTEE MEETING of ORANGE CITY COUNCIL** will be held in the **COUNCIL CHAMBER, CIVIC CENTRE, BYNG STREET, ORANGE WITH AN OPTION OF ONLINE CONFERENCING PLATFORM ZOOM DUE TO COVID-19 REQUIREMENTS on Tuesday, 2 March 2021.**

David Waddell

CHIEF EXECUTIVE OFFICER

For apologies please contact Administration on 6393 8218.

AGENDA

1 INTRODUCTION

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

The provisions of Chapter 14 of the Local Government Act, 1993 (the Act) regulate the way in which Councillors and designated staff of Council conduct themselves to ensure that there is no conflict between their private interests and their public role.

The Act prescribes that where a member of Council (or a Committee of Council) has a direct or indirect financial (pecuniary) interest in a matter to be considered at a meeting of the Council (or Committee), that interest must be disclosed as soon as practicable after the start of the meeting and the reasons given for declaring such interest.

As members are aware, the provisions of the Local Government Act restrict any member who has declared a pecuniary interest in any matter from participating in the discussion or voting on that matter, and requires that member to vacate the Chamber.

Council's Code of Conduct provides that if members have a non-pecuniary conflict of interest, the nature of the conflict must be disclosed. The Code of Conduct also provides for a number of ways in which a member may manage non pecuniary conflicts of interest.

RECOMMENDATION

It is recommended that Committee Members now disclose any conflicts of interest in matters under consideration by the Planning and Development Committee at this meeting.

2 GENERAL REPORTS

2.1 ITEMS APPROVED UNDER THE DELEGATED AUTHORITY OF COUNCIL

RECORD NUMBER: 2021/65
AUTHOR: Paul Johnston, Manager Development Assessments

EXECUTIVE SUMMARY

Following is a list of more significant development applications approved by the Chief Executive Officer under the delegated authority of Council. Not included in this list are residential scale development applications that have also been determined by staff under the delegated authority of Council (see last paragraph of this report for those figures).

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "7.1 Preserve - Engage with the community to develop plans for growth and development that value the local environment".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council resolves to acknowledge the information provided in the report by the Manager Development Assessments on Items Approved Under the Delegated Authority of Council.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

Reference:	DA 259/2019(2)	Determination Date	18 January 2021
PR Number	PR18317		
Applicant/s:	Adam Grant Constructions Pty Ltd		
Owner/s:	Mr MC and Mrs LE Hansen		
Location:	Lot 3 DP 1036031 – 448 Escort Way, Orange		
Proposal:	Modification of development consent -subdivision (37 lot residential and one drainage reserve). The modified development will alter the approved subdivision as follows: • Deletion of Road 2. • Lots 4 and 6 would be created as battleaxe allotments and increased in land size. • The land size and configuration of Lots 3 and 7 will also be altered slightly as a result of the removal of Road 2. • The number of approved lots will be remain the same.		
Value:	$0		

Reference:	DA 224/2020(1)	Determination Date	4 February 2021
PR Number	PR25598		
Applicant/s:	Mr T and Mrs C Carroll		
Owner/s:	Mr TJ and Mrs CA Carroll		
Location:	Lots 200 and 201 DP 1172126 – 55 and 57 Dalton Street, Orange		
Proposal:	Centre-based child care facility (alterations and additions)		
Value:	$655,000		

Reference:	DA 320/2020(1)	Determination Date	15 January 2021
PR Number	PR16902		
Applicant/s:	Mr IL and Mrs DM Berryman		
Owner/s:	Mr IL and Mrs DM Berryman		
Location:	Lot 60 DP 875321 - 13-15 Peisley Street, Orange		
Proposal:	Subdivision (two lot industrial)		
Value:	$0		

Reference:	DA 324/2020(1)	Determination Date	18 January 2021
PR Number	PR11579		
Applicant/s:	Helix Architects Pty Ltd		
Owner/s:	Australian Postal Corporation		
Location:	Lot 11 Sec 40 DP 758817 – 222-224 Summer Street, Orange Lot 22 Sec 40 DP758817 – Colvin Lane, Orange		
Proposal:	Business premises (alterations and additions, and upgrade works)		
Value:	$165,000		

Reference:	DA 419/2020(1)	Determination Date	20 January 2021
PR Number	PR28592		
Applicant/s:	Contemporary Homes Pty Ltd		
Owner/s:	Divlist Pty Limited and Mikell Investments Pty Limited		
Location:	Lots 135 and 136 DP 1260733 – 128 and 130 Shiralee Road, Orange		
Proposal:	Exhibition village (change of use of two dwellings to exhibition homes) and business identification signage		
Value:	$15,000		

Reference:	DA 431/2020(1)	Determination Date	18 January 2021
PR Number	PR17472		
Applicant/s:	Autobarn Orange		
Owner/s:	Sentinel Orange Homemaker Pty Ltd		
Location:	Lots 1 and 5 DP 270204 – 1-11/5295 Mitchell Highway, Orange		
Proposal:	Business identification signage (illuminated)		
Value:	$21,598		

Reference:	DA 443/2020(1)	Determination Date	21 January 2021
PR Number	PR8654		
Applicant/s:	Cavalier Homes Central West NSW		
Owner/s:	Ms N White		
Location:	Lot 15 DP 240969 - 8 Morobe Place, Orange		
Proposal:	Secondary dwelling		
Value:	$168,000		

Reference:	DA 451/2020(1)	Determination Date	22 January 2021
PR Number	PR17330		
Applicant/s:	Mr MP O'Neill and Ms JL Graham		
Owner/s:	Mr MP O'Neill and Ms JL Graham		
Location:	Lot 524 DP 1006591 - 4 Geebung Place, Clifton Grove		
Proposal:	Bed and breakfast (change of use)		
Value:	$0		

Reference:	DA 478/2020(1)	Determination Date	3 February 2021
PR Number	PR10172		
Applicant/s:	Ms DL Haase		
Owner/s:	Ms DL Haase		
Location:	Lot D DP 150792 - 39 Prince Street, Orange		
Proposal:	Alterations and additions to existing dwelling (studio)		
Value:	$50,000		

Reference:	DA 484/2020(1)	Determination Date	3 February 2021
PR Number	PR19020		
Applicant/s:	Mr J Layton		
Owner/s:	Elwin Drive Properties Pty Ltd		
Location:	Lot 50 DP1063083 - 14 Elwin Drive, Orange		
Proposal:	Mixed use development (warehouse and distribution centre, kiosk and neighbourhood shop)		
Value:	$300,000		

TOTAL NET* VALUE OF DEVELOPMENTS APPROVED BY THE CEO UNDER DELEGATED AUTHORITY IN THIS PERIOD:	**$1,374,598**

** **Net** value relates to the value of modifications. If modifications are the same value as the original DA, then nil is added. If there is a plus/minus difference, this difference is added or taken out.*

Additionally, since the January 2021 meeting report periods (21 January to 18 February 2021), another 36 development applications were determined under delegated authority by other Council staff with a combined value of $4,295,301.

2.2 PLANNING PROPOSAL TO AMEND ORANGE LOCAL ENVIRONMENTAL PLAN 2011 - PARK AND RIFLE RANGE ROADS, SHIRALEE

RECORD NUMBER: 2021/293
AUTHOR: Alison Phillips, Town Planner (Strategic)

EXECUTIVE SUMMARY

Council has received a planning proposal **(Attachment 1)** that seeks to rezone and amend the minimum lot size and land use zone for the following:

- Site A - Part Lot 11 DP 750401, known as Park Road to reduce the minimum lot size from 3,800m^2 to 3,000m^2
- Site B - Part Lot 11 DP 750401, known as Park Road to reduce the minimum lot size from 9,000m^2 to 1,000m^2 and rezone the site from R2 Low Density Residential to R1 General Residential
- Site C - Part Lot 88 DP750401, known as 55 Riffle Range Road to reduce the minimum lot size from 2,000m^2 to 700m^2 and rezone the site from R2 Low Density Residential to R1 General Residential

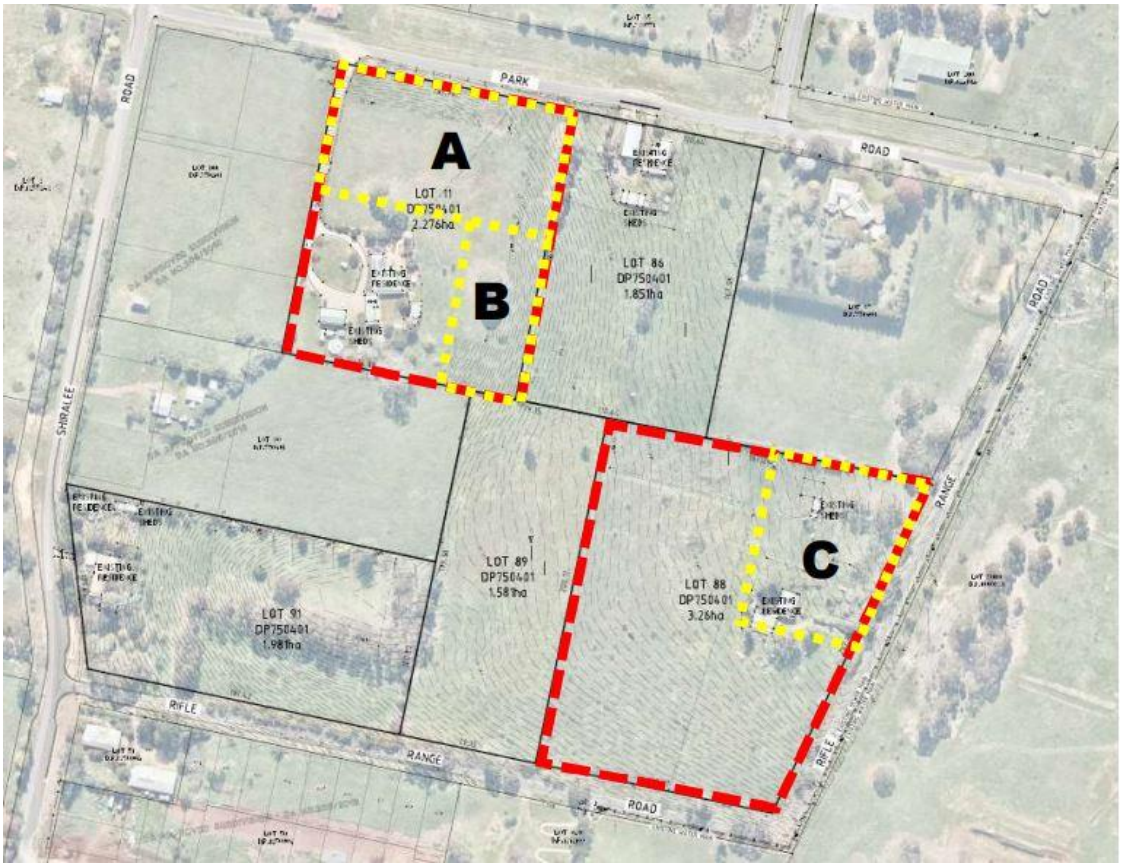

Figure 1: Subject Site

The applicant is Landorange Partnership care of IPlan Projects.

The Shiralee Urban Release Area was rezoned through Amendment 4 of the Orange Local Environmental Plan 2011. The subdivision pattern for the Shiralee has been guided by the Shiralee Development Control Plan 2015 and masterplan **(Attachment 2)**. The area has been subject to some departures from the original masterplan intent including further subdivision of land located in Site A and Site C (see figure 1) that were originally intended as large lots.

The proposed change in zone from R2 Low Density Residential to R1 General Residential is consistent with the surrounding zoning and is aligned with the proposal to change the minimum lot size.

These matters are outlined in the attached draft Planning Proposal which will form the basis for the amendment and public exhibition process. Formal LEP maps, where relevant, will be prepared prior to public exhibition.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "7.1 Preserve - Engage with the community to develop plans for growth and development that value the local environment".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council resolves to:

1 Support the Planning Proposal to amend the Orange Local Environmental Plan 2011 in relation to Park and Rifle Range Road, Shiralee (Lot 11 DP 750401 and Lot 88 DP750401) as follows:

- **That the area known as Site C be rezoned from R2 Low Density Residential to R1 General Residential**
- **That the area known as Site A (Part Lot 11 DP 750401) reduce the minimum lot size from 3,800m^2 to 3,000m^2**
- **That the area known as Site C (Part Lot 88 DP750401) reduce the minimum lot size from 2,000m^2 to 700m^2**
- **That the area known as Site B (Part Lot 11 DP 750401) reduce the minimum lot size from 9,000m^2 to 2,000m^2 consistent with the large lot typology in the Shiralee Development Control Plan 2015.**

2 Direct staff to send the Planning Proposal to the NSW Department of Planning and Environment to seek a Gateway Determination in accordance with Section 3.34 of the *Environmental Planning and Assessment Act 1979*.

3 Note that significant interest from landholders is being expressed in reducing the MLS in the area bounded by Shiralee Road, Park Road and Rifle Range Road.

4 Direct staff to undertake further strategic planning of Shiralee to ensure a consistent approach for any reduction in minimum lot size.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

SITE DESCRIPTION AND CONTEXT

Shiralee is an urban release area to the south of the Orange CBD. The existing main access to the area is via Shiralee Road, Woodward Street and Cecil Road. The proposed Southern Feeder Road runs along the northern edge of the urban release area connecting to Dairy Creek Road and the Mitchell Highway. Some development has occurred within the urban release area to the south west and south east.

The subject land is 5.36ha fronting Rifle Range Road and Park Road at Shiralee. To the north of the site is Park Road, west of the site is Shiralee Road and to the north Riffle Range Road surrounded by land for future residential development. Directly to the east is Riffle Range Road and rural land (RU1 Primary Production) that provides a rural backdrop to the urban release area. The site slopes from the south-west falling to the north east.

STRATEGIC PLANNING CONTEXT

Central West and Orana Regional Plan

The Central West and Orana Regional Plan will guide the NSW Government's land use planning priorities and decisions over the next 20 years. The Plan provides a framework to guide detailed land use planning, development proposals and infrastructure funding decisions. The Plan identifies Orange as a Regional City. Orange is centrally located at the junction of nationally significant roads and rail, and with close proximity to Sydney, Newcastle and Canberra.

Orange provides a range of health, mining, educational, public administration facilities alongside horticulture and viticulture operations. Orange also has regional airport facilities that caters to locals and visitors within the Central West. Orange has a significant agricultural focus and supports a major tourism sector.

Direction 22: Manage growth and change in regional cities and strategic local centres.

Regional Cities are to provide a majority of housing over the next 20 years ensuring this is supported by sufficient infrastructure. The Planning Proposal intends to increase density within the Shiralee urban release area providing additional housing. The area has been subject to strategic service planning and there is an identified need for increase yield in the area to ensure servicing viable.

***Direction 25: Increase housing diversity and choice*.**

Orange City Council is developing the Orange Local Strategy which identifies the need for a range of housing typologies and the decline in housing affordability needing to be addressed. The planning proposal identifies a range of lot sizes that increase housing diversity and choice.

***Direction 29: Deliver healthy built environments and better urban design*.**

Good urban design can contribute to cultural, economic, and physical wellbeing creating safe, healthy and socially inclusive places that meets the needs of the community. Urban design guidelines are typically considered in metropolitan contexts however regional urban design guidelines are important when considering development in urban release areas. Design excellence should be strived for in higher density areas such as Regional Cities. The planning outcomes for Shiralee are guided by the Shiralee Development Control Plan 2015 and the masterplan which include design guidelines to ensure the urban release area is designed to a minimum standard.

Local Strategic Planning Statement

The Local Strategic Planning Statement (LSPS) identifies planning priorities and subsequent actions for the next 20 years. The LSPS identifies a vision for the Orange LGA and outlines how growth and change will be managed through future planning.

***Planning Priority 2 – Support the delivery of new homes in residential release areas, including North Orange and Shiralee, and increase the range of housing options in existing urban areas*.**

The LSPS identifies a balanced need for infill development and new release areas that are capable of being serviced with infrastructure. This is required to maintain the supply of land in ensuring a balanced housing market. The planning proposal supports additional housing within the urban release area to the South of the Orange CBD.

Planning Priority 4 – Provide diverse housing choices and opportunities to meet changing demographics and population needs, with housing growth in the right locations.

The Shiralee masterplan provides for a range of lot sizes, increasing options for lifestyle blocks through to compact lots that meets the demands of the changing demographics of Orange. The planning proposal aims to expand upon these typologies and introduce in between lot sizes to achieve diversity in lots available.

Planning Priority 5 – Ensure that building design and construction is of a high quality, and maintains resident amenity.

Design quality and construction will be assessed at the Development Assessment stage. The proposed subdivision plan attached to the planning proposal follows similar lot pattern and is consistent with what is proposed for the adjoining lots which will ensure consistency in character and streetscape.

Planning Priority 18 - Advocate for development to be supported by infrastructure.

The planning proposal is within an approved urban release area that has been subject to detailed investigation and infrastructure planning. Council staff have projected shortfall in lot yield across Shiralee, which will impact which impacts on the servicing viability of the urban release area. The changes to minimum lot size proposed will contribute to achieving the lot yield identified in the masterplan and support the delivery of infrastructure to the area.

Shiralee Development Control Plan 2015 and Masterplan

The Shiralee DCP 2015, *1.8 Exceptional Circumstances* states that development should be generally in accordance with the Masterplan and DCP, however Council may consider some variation in lots sizes and types on larger lots. However, this ability is limited by the minimum lot size mapping of the LEP, such that creation of lots substantially below the minimum size can require the concurrence of the Department of Planning. Any variation of the DCP or masterplan must be assessed on if the proposal meets or exceeds the principles and aims. The subject sites within the Shiralee DCP and Masterplan are identified to be retained as existing. *2.0 Desired Future Character* of the DCP identifies some compact lots within site C as it is located closer to views and access to bushland and to the North of the block site A and B have been identified primarily as larger lots that contribute to the arrival experience and unique character of the area.

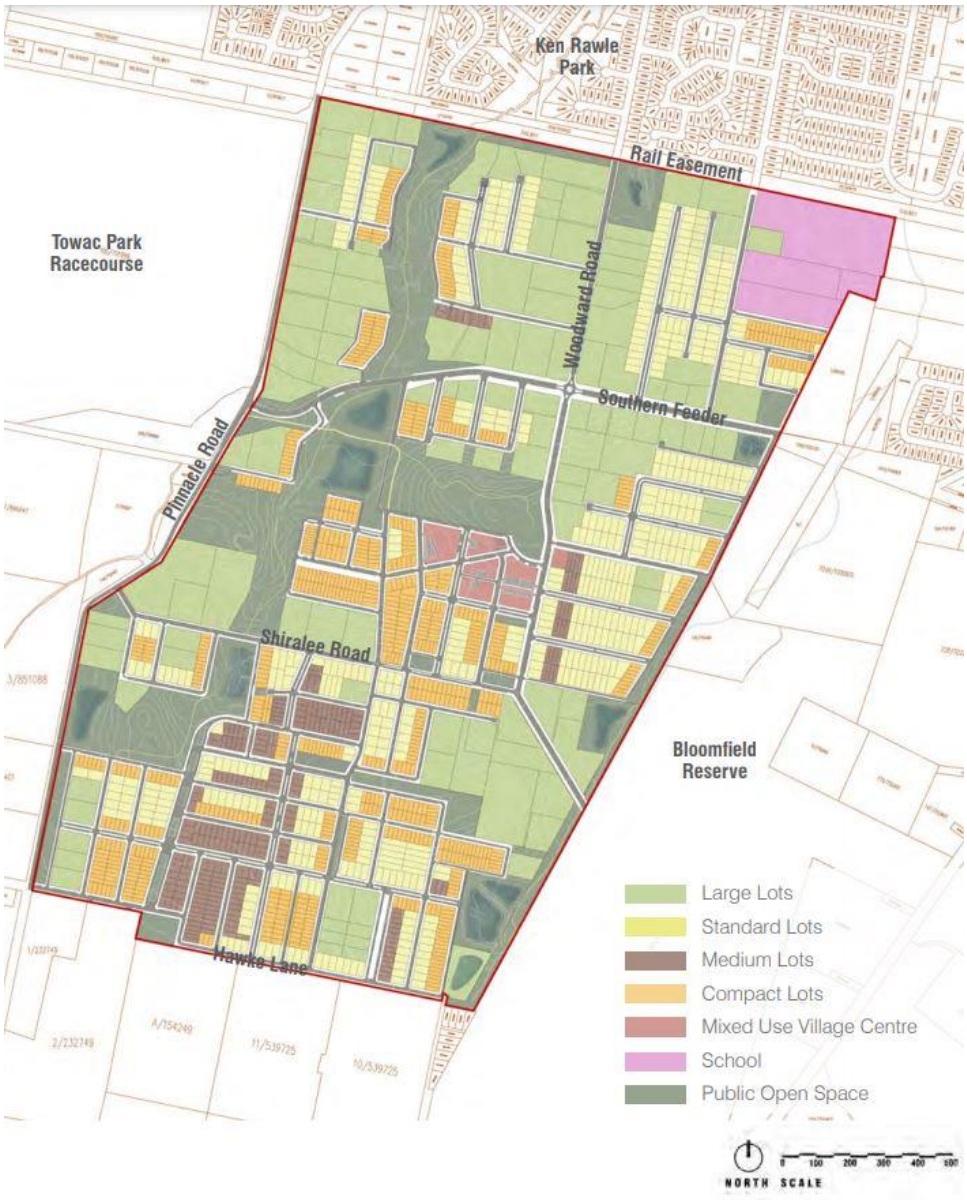

Figure 2: Shiralee Structure Plan and Housing Densities (p. 11)

Table 1. Minimum Lot Size Consistency with DCP

LOT DESCRIPTION - SHIRALEE DCP 2015	MINIMUM LOT SIZE (MLS) – ORANGE LEP 2011	MINIMUM LOT SIZE (MLS) – SHIRALEE DCP 2015	MINIMUM LOT SIZE (MLS) – PROPOSED	MINIMUM BOUNDARY LENGTH OR STREET FRONTAGE
SITE A				
Visually exposed and/or sloping lots. These lots retain the existing landscape character and provide a rural-residential lifestyle alternative to typical urban housing lots.	3,800m^2	3,000m²	3,000m² - Large lots as defined in the DCP are lots 1,750m² and bigger in area, are incorporated into the Masterplan for reasons outlined further below	65m Street Frontage (40m Street Frontage where located on Southern Feeder Road)
Comments				
The reduction of MLS from the current LEP controls of 3,800m^2 to the proposed 3000m^2 is consistent with the intent of the Shiralee DCP 2015.				
SITE B				
Visually Exposed and Constrained Lots. These lots retain the existing green slopes and landscape character south of the Southern Feeder Road and respond to flooding constraints adjacent to Blackmans Swamp Creek.	9,000m²	9,000m²	1000m^2 - considered oversized lots as defined in the DCP. ***Any subdivision which creates more than 3 lots must not have any oversized lots. Oversized lots are lots that do not fit within the designated categories***	70m Boundary Length

Comments				
The reduction in MLS from the current LEP controls of 9,000m² to the proposed 1000m^2 is inconsistent with the intent of the Shiralee DCP 2015 and are classified as oversized lots. Larger lot typologies (Council staff have identified a minimum 2,000m^2) given the environmental constraints are better suited to site B as opposed to the proposed 1,000m^2. This will enable one lot to be created in site B. This recognises the limited relationship that area B has with the established house to the west due to the slope of the land, while also reducing disturbance of the land form by limiting the number of lots and dwellings.				
SITE C				
Adjacent to integrated lifestyle lots. These lots provide a rural-residential lifestyle option for the Shiralee community.	2,000m²	2,000m²	700m^2 - Standard Lots, defined as lots between 700m² and 850m² in area, are incorporated into the Masterplan to meet traditional demand within Orange for generous size residential lots with space for a family dwelling, double garage and front and rear gardens.	30m Street Frontage
Comments				
The subject site is identified as integrated lifestyle lots within the Shiralee DCP 2015. The reduction in lot size on this site to provide a transition to standard lots would be consistent with the proposed urban fabric, whilst also aligning with the principles of high density zones having views and access to urban space.				

STATUTORY CONTROLS

Objectives of the Zone(s)

The Planning Proposal seeks to amend the land zoning from R2 Low Density Residential to R1 General Residential.

R2 Low Density Residential -Objectives of zone

- ***To provide for the housing needs of the community within a low density residential environment.***
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To ensure development is ordered in such a way as to maximise public transport patronage and encourage walking and cycling in close proximity to settlement.*
- *To ensure that development along the Southern Link Road has an alternative access.*

General Residential - Objectives of zone

- *To provide for the housing needs of the community.*
- ***To provide for a variety of housing types and densities.***
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To ensure development is ordered in such a way as to maximise public transport patronage and encourage walking and cycling in close proximity to settlement.*
- *To ensure that development along the Southern Link Road has an alternative access.*

In the context of the Shiralee Urban Release Area the General Residential Zone has been adopted across sites nominated as standard, medium and compact lots as identified in the Shiralee DCP 2015. To maintain consistency with the densities proposed, it would be recommended that the zone be amended for the subject sites as sought under the planning proposal, as the objectives of the current zoning R2 Low Density Residential do not reflect the intended outcomes of the planning proposal in reducing the minimum lot size and increase density across the subject sites. Table 2 and table 3 identifies in bold the differing uses permitted and prohibited within the existing and proposed zones.

Table 2. Permitted with Consent

R1 General Residential	R2 Low Density Residential
Attached dwellings; Boarding houses; Building identification signs; Business identification signs; **Camping grounds; Caravan parks**; Centre-based child care facilities; Community facilities; Dwelling houses; Electricity generating works; Environmental facilities; Exhibition homes; **Exhibition villages;** Group homes; Home businesses; Home industries; Hostels; Information and education facilities; Kiosks; **Multi dwelling housing;** Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); **Residential accommodation; Residential flat buildings;** Respite day care centres; Roads; Semi-detached dwellings; **Seniors housing; Shop top housing;** Tank-based aquaculture**; Tourist and visitor accommodation;** Veterinary hospitals; Water supply systems	**Bed and breakfast accommodation;** Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; **Dual occupancies;** Dwelling houses; Electricity generating works; Environmental facilities; Exhibition homes; Group homes; **Health consulting rooms;** Home businesses; Home industries; Hostels; Information and education facilities; Kiosks; Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Respite day care centres; Roads; Semi-detached dwellings; **Serviced apartments;** Tank-based aquaculture; Veterinary hospitals; Water supply systems

Table 3. Prohibited

R1 General Residential	R2 Low Density Residential
Farm stay accommodation; Rural workers' dwellings; Any other development not specified in item 2 or 3	Any development not specified in item 2 or 3

Minimum Lot Size (MLS)

The MLS proposed are on the majority inconsistent with the Shiralee DCP 2015. However, the lots proposed are a practical continuation of the existing urban grain. Reducing the MLS will provide additional opportunities to increase lot yield within the Shiralee Urban Release Area without having a detrimental impact on proposed open space or the intended character of the suburb. Inconsistencies in lot sizes and rationale are further explained in Table 1 of this report.

TRANSPORT AND TRAFFIC

Southern Feeder Road

Council's Technical Services team has not raised any concerns regarding the reduction in minimum lot size and the Southern Feeder Road given the proposal aims to limit driveways to two (2) over the proposed lots fronting Park Road (future Southern Feeder Road).

Local Traffic

Councils Technical Services team noted that whilst Council allowed for the approval for the 8mwide section of road reserve to serve as a temporary road until the next stage is built, that there is no on street parking or property access allowed. This additional maintains that minimum lot size in site B to be set at a level that would not require lots to directly front the temporary road.

Any proposed lots created to the west of this 8m section of road would need to be upgraded to a 19m wide road reserve. If this were to occur Council could consider a reduced minimum lot size.

Public Transport

The subject sites can be serviced by existing bus routes located along Shiralee Road and the masterplan identifies a future bus route located along Park Road (future Southern Feeder Road).

Cyclist and Pedestrian Movement

The subject sites are located in close proximity to identified on-road cycle way and cycle routes connecting to the Orange CBD.

ENVIRONMENTAL CONSIDERATIONS

General

The site is not considered to be at risk of bushfires, landslip or erosion. However, part of the subject site has been identified with a steep slope, with 10% - 20% slopes identified on part of site A and B. Generally residential development is not considered on slopes beyond 15% due to the difficulty of building on steep grades. Council staff have considered the proposed lot sizes for site B and recommend a minimum lot size of 2,000m^2. This acknowledges that Area B does not relate well to the existing dwelling, while also avoiding the need for the temporary road to be widened as a single lot in Area B could be accessed from the main roads in the overall subdivision.

Biodiversity

The subject sites are not located within areas containing biodiversity sensitivity within the Orange LEP 2011. The Shiralee DCP also does not identify any of this sites as having high/medium biodiversity sensitivity or intact communities. There are trees located to the eastern extent of site C. Any future development will need to address the existing trees at the DA stage.

Groundwater

The subject sites are identified as having 'Groundwater Vulnerability' in the LEP. Given the Urban Release Area has been subject to detailed investigation and some development has occurred, this is likely to be able to be managed through good design. Any future DAs for the subject sites will be assessed against *clause 7.6 Groundwater vulnerability* of the LEP.

Land or Site Contamination

The subject sites have a land use history of orchards and agricultural grazing with rural residential dwellings. General refuse was identified across the sites and soils samples did not detect elevated levels of analysed heavy metals or persistent pesticides across the site. Zinc levels in one sample did exceed the ecological investigation levels for residential land use however evidence of impact was not observed on the site and is not expected to impact on plant growth.

The Preliminary Contamination Assessment recommended that the site is suitable for residential development subject to the removal of refuse and asbestos infrastructure which would be further conditioned through the DA process.

Flooding

Council conducted the *Blackmans Swamp Creek and Ploughmans Creek Flood Study* in 2019 to inform its planning and land management obligations. The study introduced and mapped overland flow flooding, in addition to riverine flooding, to the areas mapped for flood planning controls.

The subject sites are not considered to be at risk of flooding.

Figure 3: Flood Map

URBAN DESIGN CONSIDERATIONS

Density

The increase in lots and overall density is consistent with the urban grain of adjoining blocks as proposed in the masterplan. The increase in density will have minimal to no impact on community facilities and open space given the identified shortfall in yield.

Open Space

Indicative calculations have identified that there is adequate supply of open space in the Shiralee Urban Release Area. The Planning Proposal will have no to minimal impact regarding the supply of open space with approximately 12.6ha of open space per 1000 people available.

Site Design and Built Form

Indicative urban design layouts were not provided to indicate site design and built form envelopes as part of the planning proposal. In response to site constraints built form envelopes were not provided for sloping sites indicating that the land can be suitably developed.

SOCIAL AND CULTURAL CONSIDERATIONS

Heritage

The site is located in proximity to Heritage Item I286, a Dwelling (former), packing shed. The dwelling/shed sits on the highest point of the site and significance arises from the vernacular structure and scale of the building. It is unlikely that the Planning Proposal will impact of the heritage, however any proposed development will be assessed through a DA to ensure the development does not impact on the setting and views enjoyed from the heritage item.

Social Infrastructure

The increase in lots is likely to have minimal to no impact on social infrastructure that is planned for the Shiralee Urban Release Area.

INFRASTRUCTURE CONSIDERATIONS

Council's engineering section have raised no objection to the planning proposal.

CONSISTENCY WITH STATE PLANS AND POLICIES

Section 9.1 Ministerial Directions

The planning proposal has been assessed against the following applicable Section 9.1 Ministerial Directions.

2.1 Environment Protection Zones

This direction applies when a planning proposal is being prepared.

The intent is to protect and conserve environmentally sensitive areas.

When this direction applies a planning proposal must:

- must include provisions that facilitate the protection and conservation of environmentally sensitive areas.
- must not reduce the environmental protection standards that apply to the land (including by modifying development standards that apply to the land). This requirement does not apply to a change to a development standard for minimum lot size for a dwelling in accordance with clause (5) of Direction 1.5 "Rural Lands".

However, a planning proposal may be inconsistent with the direction when justified by a relevant strategy, study, Regional or Sub-regional plan, or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal subject land is identified as 'Groundwater Vulnerability' in the LEP. The extent of the changes are not considered to have impact above what is currently proposed for the subject site. Therefore the extent of this proposal to amend the zoning from R2 General Residential to R2 Low Density Residential and to reduce the MLS for a further 10 lots is considered to be of minor consequence.

2.3 Heritage Conservation

This direction applies when a planning proposal is being prepared.

The intent is to conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance.

When this direction applies a planning proposal must include provisions that facilitate the conservation of:

- items, places, buildings, works, relics, moveable objects or precincts of environmental heritage significance to an area, in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item, area, object or place, identified in a study of the environmental heritage of the area,
- Aboriginal objects or Aboriginal places that are protected under the National Parks and Wildlife Act 1974, and
- Aboriginal areas, Aboriginal objects, Aboriginal places or landscapes identified by an Aboriginal heritage survey prepared by or on behalf of an Aboriginal Land Council, Aboriginal body or public authority and provided to the relevant planning authority, which identifies the area, object, place or landscape as being of heritage significance to Aboriginal culture and people.

However, a planning proposal may be inconsistent with the direction when the planning authority can satisfy that the environmental or indigenous heritage the environmental or indigenous heritage significance of the item, area, object or place is conserved by existing or draft environmental planning instruments, legislation, or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal is considered to be consistent with this direction. The heritage items I286 - Dwelling (former), packing shed and I285 – Dwelling are currently listed in the Orange LEP 2011 and therefore conserved under this planning instrument.

2.6 Remediation of Contaminated Land

This direction applies to land that is within an investigation area within the meaning of the *Contaminated Land Management Act 1997*, identified as land in the contaminated land planning guidelines is being, or is known to have been, carried out, or is proposed to carry out development for residential, educational, recreational, childcare purposes or for the purposes of hospital land.

The intent of this direction is to reduce the risk of harm to human health and the environment by ensuring that contamination and remediation are considered.

When this direction applies a planning proposal:

- must not include in a particular zone (within the meaning of the local environmental plan) any land specified if the inclusion of the land in that zone would permit a change of use of the land, unless:
    - the planning proposal authority has considered whether the land is contaminated, and
    - if the land is contaminated, the planning proposal authority is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes for which land in the zone concerned is permitted to be used, and
    - if the land requires remediation to be made suitable for any purpose for which land in that zone is permitted to be used, the planning proposal authority is satisfied that the land will be so remediated before the land is used for that purpose.
- may need to include certain provisions in the local environmental plan.

Comment: The planning proposal is considered consistent with this direction. The Preliminary Contamination Assessment recommended that the site is suitable for residential development subject to the removal of refuse and asbestos infrastructure which would be further conditioned through the DA process.

3.1 Residential Zones

This direction applies when a planning proposal will affect land within an existing or proposed residential zone.

The intent is to encourage a variety of and choice of housing types to provide for existing and future housing needs, to make efficient use of existing infrastructure and services and to minimise the impact of residential development on environmental and resource lands.

When the direction applies a planning proposal must:

- include provisions that will:
  - broaden the choice of building types and locations available in the housing market, and
  - make more efficient use of existing infrastructure and services, and
  - reduce the consumption of land for housing and associated urban development on the urban fringe, and
  - be of good design.
- In relation to the land to which this direction applies:
  - contain a requirement that residential development is not permitted until land is adequately serviced (or arrangements satisfactory to the council, or other appropriate authority, have been made to service it), and
  - not contain provisions which will reduce the permissible residential density of land.

However, a planning proposal may be inconsistent with the direction when justified by a relevant strategy, study, Regional or Sub-regional plan, or if the inconsistency is demonstrated to be of minor significance.

Comment: The Planning Proposal aims to change zone from R2 General Residential to R2 Low Density Residential and to reduce the MLS for a further 10 lots is considered to be broaden housing choice and making more efficient use of infrastructure and services within Shiralee Urban Release Area. The reduction in minimum lot size for additional dwellings ensures that encroachment on the urban fringe is minimised.

3.2 Caravan Parks and Manufactured Home Estates

This direction applies when a planning proposal is being prepared.

The intent of this direction is to provide a variety of housing types, to provide opportunities for caravan parks and manufactured home estates.

When the direction applies a planning proposal must:

- identify suitable zones, location sand provisions for caravan parks in a planning proposal
- identifying suitable zones, locations and provisions for manufactured home estates (MHEs) in a planning proposal

However, a planning proposal may be inconsistent with the direction when justified by a relevant strategy, study, Regional or Sub-regional plan, or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal has not identified opportunities for caravan parks or manufacture home estates. It is worth noting that R1 General Residential includes caravan parks as permitted with consent and moveable dwellings are prohibited. Any development proposed will be subject to DA assessment.

3.4 Integrating Land Use and Transport

This direction applies when preparing a planning proposal that will create, alter or remove a zone or a provision relating to urban land, including land zoned for residential, business, industrial, village or tourist purposes.

The intent of this direction is to that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives:

- improving access to housing, jobs and services by walking, cycling and public transport, and
- increasing the choice of available transport and reducing dependence on cars, and
- reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and
- supporting the efficient and viable operation of public transport services, and
- providing for the efficient movement of freight.

However, a planning proposal may be inconsistent with the direction when justified by a relevant strategy, study, Regional or Sub-regional plan, or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal is considered consistent with this direction.

3.6 Shooting Ranges

This direction applies when preparing a planning proposal that will affect, create, alter or remove a zone or a provision relating to land adjacent to and/ or adjoining an existing shooting range.

The intent of this direction is to maintain appropriate levels of public safety and amenity, reduce land use conflict and identify issues that must be addressed when considering rezoning land adjacent to an existing shooting range.

However, a planning proposal may be inconsistent with the direction when justified by a relevant strategy, study, Regional or Sub-regional plan, or if the inconsistency is demonstrated to be of minor significance.

Comment: The Riffle Range exclusion zone is south of the subject site and therefore will be unlikely to have any impact on the site. The Sporting Shooters Association of Australia (SSAA) Riffle Range is adjacent to the site where planning proposal is intending to alter the land use zone and minimum lot size. The land both to the north and south are zoned for compact residential housing consistent with the minimum lots size being sought under the planning proposal. Given the site has been subject to detailed investigation through the masterplan process and planning proposal (Amendment 4), it is not envisaged that the proposal would impact on the levels of public safety given the current buffer of the road and vegetation present.

5.1 Implementation of Regional Plans

This direction applies when preparing a planning proposal to which a Regional Plan applies to the subject land.

The intent of this direction is to give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans.

However, a planning proposal may be inconsistent with the direction if the planning proposal is achieves the overall intent of the Regional plan and does not undermine the vision, land use strategy, goals, directions or actions, or if the inconsistency is demonstrated to be of minor significance.

Comment: The planning proposal is considered consistent with the direction. Further commentary on this matter can be found in the Strategic Planning Context of this document.

State Environmental Planning Policy (SEPP)

The planning proposal has been assessed against the following applicable SEPPs.

SEPP (Infrastructure) 2007

The SEPP requires consultation with a public authority when development is to be carried out that may have an impact of local road systems. Council's Technical Services Division have reviewed the planning proposal and raised no objections.

SEPP No 55 – Remediation of Land

The SEPP requires that the consent authority considered whether land is contaminated and that if so, the land is or will be remediated for the purpose of the development. The Preliminary Contamination Report has identified the land as suitable for residential development subject to remediation. Development proposed on the land through any future DA will be considered against this SEPP.

ANTICIPATED PROJECT TIMELINE

Gateway Process

Should Council resolve to proceed, the planning proposal and associated documents will be supplied to the Department of Planning, Industry and Environment for evaluation under the Gateway process. This typically takes 4–8 weeks, but can vary considerably in both direction. Once issued the Gateway Determination will outline the remainder of the process. This typically includes:

- Whether the Minister will delegate the power to make the plan to Council or withhold such delegation (typically in cases where the Council has a direct interest in the site or matter concerned).
- Any additional information or changes to the planning proposal required before consultation and exhibition can proceed.
- A list of government departments and agencies that are to be consulted.
- The public consultation and exhibition periods (typically 28 days).

- Whether a public hearing is required (typically only applies to reclassification of Council owned or controlled land under the Local Government Act 1993).
- Formal drafting of the amendment through Parliamentary Counsel.
- Finalisation of the amendment by publishing the change on the legislation website.

Agency Consultation

Given the site location and nature of the planning proposal, it is not anticipated that state agency consultation is required.

Community Consultation

Typically a 28 day public exhibition period is required. All materials will be made available on Council's website and at the Civic centre for inspection during the required period.

Post Exhibition Evaluation

Once the exhibition period has concluded, all submissions received (from both the community and agencies) will be collated and reviewed. Issues identified in the submissions are then evaluated for significance, and where appropriate the proponent will be invited to respond, which may include relevant changes.

Report and Finalisation

Once all submissions have been reviewed, a further report to Council will be prepared to outline the response of agencies and the community, as well as any suggested adjustments. Council retains the option to reject a planning proposal at any time up to and including the final report. However, if endorsed the matter is then finalised, either by the CEO under delegation from Council or by the Department of Planning, Industry and Environment in cases where the Gateway Determination withheld delegations from Council.

ATTACHMENTS

1 Planning Proposal - Park and Rifle Range Roads, Shiralee, D20/77930⇩
2 Attachment 1: Preliminary Contamination Report, D21/9428⇩
3 Attachment 2: Proposed Subdivision Layout, D21/1793⇩

PROPOSED 'CLEARVIEW ESTATE'

Lots 11 & 88 DP750401

Park & Rifle Range Roads

SHIRALEE, SOUTH ORANGE NSW

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PLANNING PROPOSAL

Minimum Lot Size(s) & Land Use Zone(s) for Residential Subdivision

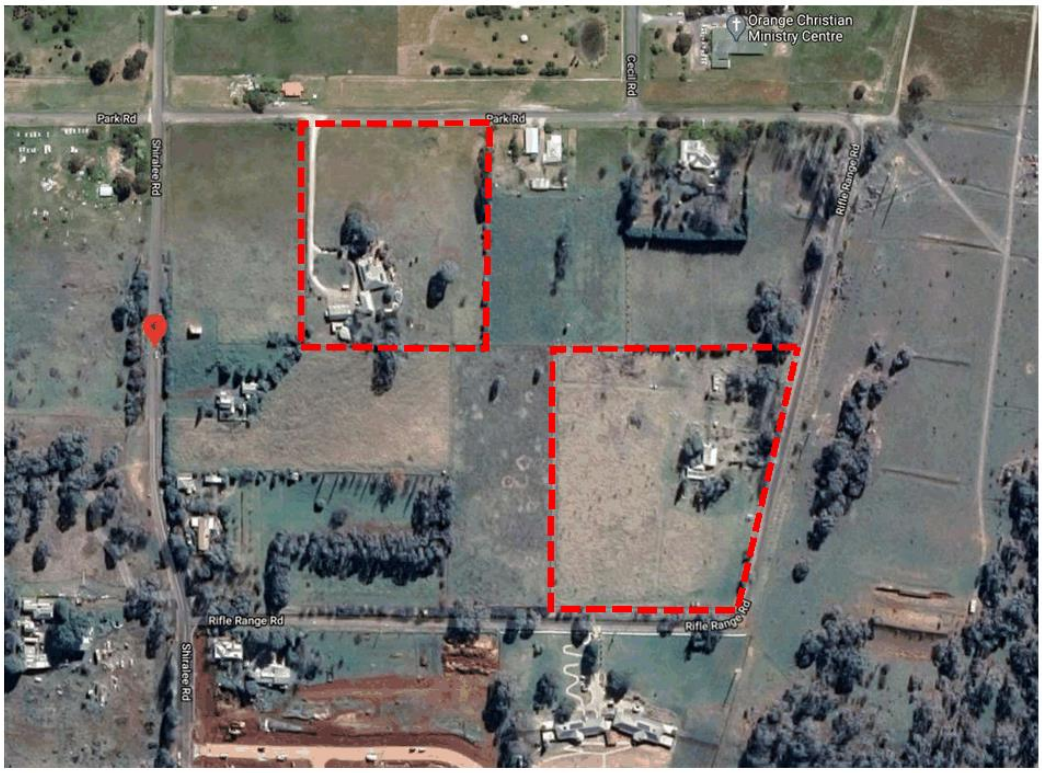

Figure 1: Aerial photo showing existing Lots affected by the Proposal (Source: Google Maps 2020).

Applicant: Landorange Partnership
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Lodged with: Orange City Council

17 December 2020
Version D: For Lodgement

iPLAN PROJECTS
Planning & Development Solutions

Document Control

Date / Version	Document	Provided To
7 December 2020 – Version A	Draft for Internal Review ONLY	David Fenton – Landorange Partnership
9 December 2020 – Version B	Draft Final	David Fenton – Landorange Partnership
11 December 2020 – Version C	DRAFT FINAL	David Fenton – Landorange Partnership
17 December 2020 – Version D	FINAL for Lodgement	David Fenton – Landorange Partnership

Table of Contents

Figures

1 EXECUTIVE SUMMARY

1.1 Summary of Planning Proposal

The following table summarises the key aspects of this Planning Proposal:

Planning Proposal/ Site Description	This Planning Proposal seeks to amend *Orange Local Environmental Plan 2011* (OLEP2011) in three (3) locations on two (2) existing lots of land along Park Rd and Rifle Range Road, SHIRALEE (South Orange) as follows (referencing proposed future lots in DA384/2020 – see below): a) **Site (A)**: Part Lot 11 DP750401 (41 Park Rd) – Proposed lots 302-304 fronting Park Rd – reduce the Minimum Lot Size (MLS) from 3,800m^2 to 3,000m^2; b) **Site (B)**: Part Lot 11 DP750401 (41 Park Rd) – Part proposed lot 301 fronting proposed Montrose St: i) reduce the MLS from 9,000m^2 to 1,000m^2 (remainder stays in existing MLS 9,000m^2); ii) possibly change the Land Use Zone from Zone R2 Low Density Residential to Zone R1 General Residential for consistency with the surrounding zoning/lot sizes. c) **Site (C)**: Part Lot 88 DP750401 (55 Rifle Range Rd) – Proposed lots 113-115 fronting Rifle Range Rd (East): i) reduce the MLS from 2,000m^2 to 700m^2 for the entire 2,000m^2 area; and ii) possibly change the Land Use Zone from Zone R2 Low Density Residential to Zone R1 General Residential for consistency with the surrounding zoning/lot sizes. As each Proposal relates to part of each lot (that references a future lot layout) we have provided mapping in ***Part 4: Mapping*** below.
Applicant	Landorange Partnership – Mr David Fenton
Owner	Two (2) land owners – see Owners' Consent
Relevant Development Applications	Development Application DA384/2020 was lodged by the Application in early October and covers the Site in this Planning Proposal as well as adjacent sites as part of an 85-lot subdivision. This DA is expected to be approved by Council in December 2020. The 'Proposed Lots' referred to in this Planning Proposal are the relevant proposed lots in DA384/2020 but existing lots are also referenced.

1.2 Supporting Information

The Planning Proposal is supported by the following reports:

Field	Report / Plans	Reference	Name
Contamination	Preliminary Contamination Assessment	17 Sept 2020	Envirowest Consulting

Whilst this is not a Development Application, the Planning Proposal is supported by the following INDICATIVE ***Subdivision Concept*** (Heath Consulting) to show how a potential lot layout would utilise the proposed changes:

Reference	Name
20021-PP-PROP(A)	DA384/2020 Subdivision Layout (Black) & Proposed Amended Lots (Pink) (with aerial)
20021-PP-PROP-A(A)	DA384/2020 Subdivision Layout (Black) & Proposed Amended Lots (Pink)
20021-PP-LS(A)	Lot Size – Shiralee DCP Master Plan Layout
20021-PP-LZ(A)	Land Zoning – Shiralee DCP Master Plan Layout
20021-PP-PROP-LS(A)	Lot Size – Proposed (DA384/2020) Subdivision Layout in relation to DCP Masterplan
20021-PP-PROP-LZ(A)	Land Zone - Proposed (DA384/2020) Subdivision Layout in relation to DCP Masterplan

1.3 Process Overview

The Planning Proposal has been prepared in accordance with *Divisions 3.4 – Environmental Planning Instruments (LEPs)* of the *Environmental Planning and Assessment Act 1979* ('EP&A Act') and the NSW Government Guideline (Dec 2018) *'A guide to preparing planning proposals'*. Section 1.3 of the Guideline states that a Planning Proposal should provide enough information to determine whether there is merit in the proposed amendment proceeding to the next stage of the plan making process. It should contain enough information to identify relevant environmental, social, economic and other site-specific considerations. However, it is not a development application, nor does it consider specific detailed matters that should form part of a development application.

A gateway determination under the EP&A Act is requested from the NSW Department of Planning, Industry & Environment ('DPIE') to allow this planning proposal to be placed on public exhibition. The regional office of DPIE has delegations to make Gateway Determinations unless the proposal is not supported or is contentious because it is not consistent with strategic planning for the area (in which case the Executive may consider the application). Planning Circular PS 18-013 (14 December 2018) updates delegation of plan making decisions under the EP&A Act (and replaces PS16-005 & PS12-006).

Section 3.34(2)(g) of the Act provides that if the planning proposal authority is a council, the Gateway Determination may authorise the council to make the proposed instrument and set out any conditions the council is required to comply with before the instrument is made and, as a result, the council becomes the local plan-making authority. The Applicant requests, on behalf of Council, that this matter is delegated to Council to become the plan making authority.

The Gateway Determination may provide details of further studies/consultation required by Council to enable the public exhibition and finalisation of the LEP amendments but we believe that the attached studies should be sufficient to support this Planning Proposal.

Please see **Part 6: Project Timeline** of this Report for an indicative timetable of steps to achieve the outcomes in this Proposal.

2 PLANNING PROPOSAL – JUSTIFICATION OVERVIEW

Therefore, the key justifications for the amendment are as follows for Sites A to C as shown on the attached map:

2.1 Relevant Site Map(s)

The following Figures shows the relationship of the three (3) Sites in relation to the parts of the two (2) affected lots and the indicative *Subdivision Concept* & DA384/2020 (Please see **Part 4: Mapping** for additional mapping):

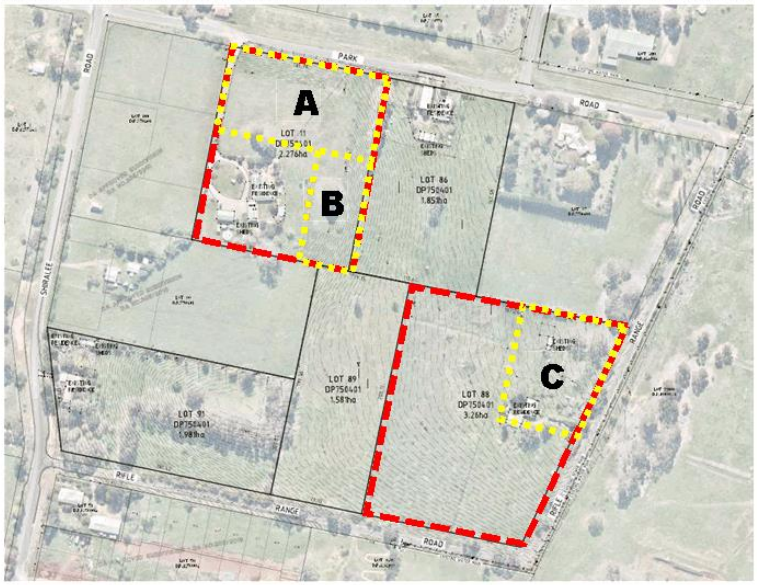


Figure 2: Map showing indicative location of the three (3) Sites (yellow) relative to the two (2) affect lots (red).

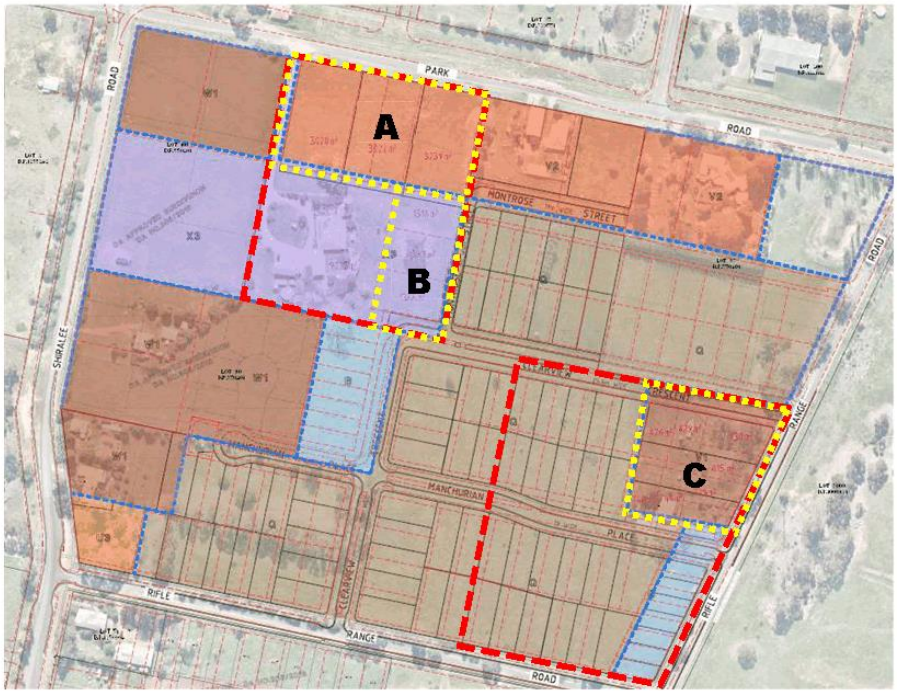


Figure 3: OLEP2011 Lot Size Map overlaid with indicative Subdivision Plan showing Site areas.

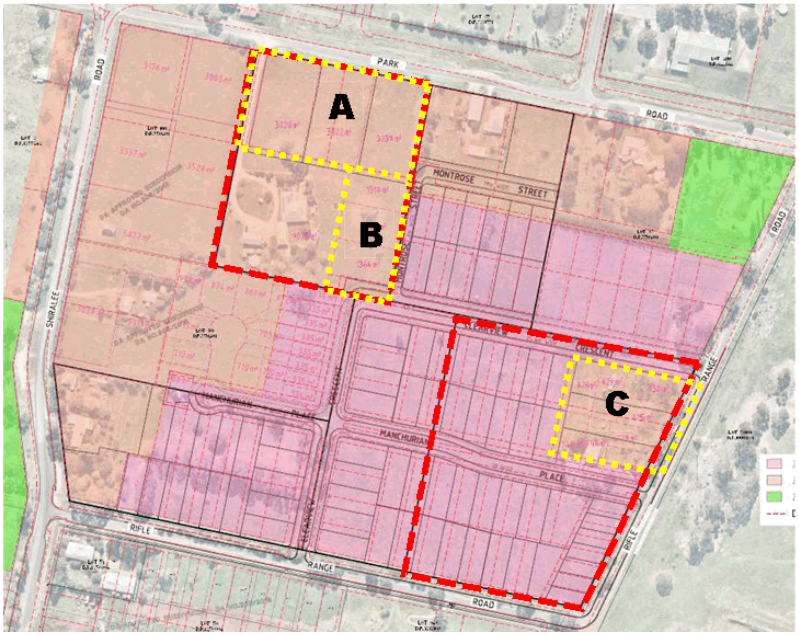


Figure 4: OLEP2011 Land Zoning Map overlaid with indicative Subdivision Plan showing Site areas.

2.2 SITE A

REDUCE MINIMUM LOT SIZE (MLS) FROM 3,800M^2 TO 3,000M^2

Site A covers the northern part of existing Lot 11 DP750401 fronting Park Rd/Southern Feeder Rd. Under DA384/2020 this consists of Proposed Lots 302-304 plus the access handle for Proposed Lot 301.

a) **Lot Yield**: In DA384/2020 there was a *Clause 4.6 Variation Request* for proposed Lots 302-304 (3 lots) fronting Park Rd to reduce the Minimum Lot Size (MLS) for subdivision from 3,800m^2 to ~3,300m^2 in that DA (a 13.2% variation). This Planning Proposal seeks to retain those three (3) lots but they will be reduced to ~3,000m^2 (a 21% variation) so there is no increase in lot yield on this part of the Site compared to DA384/2020.

b) **Variation Transparency**: The proposed lot width is similar to DA384/2020 but the lot depth of the three (3) proposed lots in Site A decreases slightly to better align with the Lot Size Map and provide a buffer to the existing dwelling. This extent of variation may be beyond the scope of a standard Clause 4.6 Request and is resolved by seeking amendment to OLEP2011 through this Planning Proposal. However, in effect this aspect of the Planning Proposal produces a similar outcome (same lot yield) to that proposed in DA384/2020.

c) **Transition in Lot Size**: On the Lot Size Map, land west of Site A (corner Park Rd & Shiralee Rd) has an MLS of 3,000m^2 (see DA approval No.305/2016) and land east of Site A (along Park Rd) has an MLS of 2,400m^2. Therefore, an MLS of 3,000m^2 for Site A is an appropriate transition in lot sizes (and likely street character) along Park Road.

d) **DCP Consistency**: In DCP *Figure 12 Large Lot Classification Diagram* it would appear that the Site A lots were originally intended to have an MLS of 3,000m^2 so it is unclear why this was increased to 3,800m^2 in OLEP2011.

e) **Response to Slope**: Shiralee Masterplan appears to have responded to steeper sloping land by increasing lot size. However, the slope of Site A is only around 5-7% and is not a significant constraint to slightly smaller lots. By retaining proposed lot widths in excess of ~40m it allows new dwellings on those lots to align along the contours in an east-west direction and reduce the amount of cut/fill required whilst maintaining good passive solar orientation.

f) **Heritage**: In addition, the additional density sits at lower contours and does not form part of the sight-lines to the heritage building on top of the hill so there is no additional heritage or scenic impact.

g) **Access to SFR**: In the DCP, Site A in 41 Park Rd would be subdivided into two (2) lots fronting Park Rd with at least one (1) lot requiring direct access to Park Rd. In the amended subdivision plan, Site A would be subdivided into three (3) lots with up to two (2) lots requiring direct access to Park Rd. The access to these two (2) lots can be a shared driveway to reduce impacts of new driveways on the proposed Southern Feeder Road (SFR). The 3rd lot can be accessed from Montrose St (so no new access to SFR required).

h) **Tree Protection**: The adjusted fence line seeks to protect a number of large established eucalypts that form part of the garden of existing Lot 11 and will either remain in the large garden of proposed Lot 301 or be close to the

boundary where there is a lower chance of conflict with any future dwelling. The reduced lot size will not, therefore, impact on tree preservation but can improve the outcomes.

Therefore, in summary the proposed change to the Lot Size for Site A is justified because:

a) It produces the same lot yield in this location as DA384/2020 and only one (1) more lot than shown in the DCP;
b) It is consistent with the lot size in DCP *Figure 12 Large Lot Classification Diagram*;
c) The Planning Proposal is a transparent way to have a ~21% variation and resolves an inconsistency between DA384/2020 and the Lot Size maps;
d) It creates an improved consistency in lot sizes along Park Rd;
e) The slope of Site A is managed with wider lots (>40m) that allow passive solar oriented dwellings to minimise earthworks;
f) Only one (1) additional lot (compared to the DCP layout) will require access from Park Rd and this can share an access so there is no increase in new driveways to the Southern Feeder Road (SFR). One (1) of the three (3) proposed lots will be accessed from Montrose St;
g) The reduced lot size enables a boundary relocation that will enhance preservation of some of the larger established eucalypts on Lot 11.

2.3 SITE B

REDUCE MINIMUM LOT SIZE (MLS) FROM 9,000M^2 TO 1,000M^2 / POSSIBLE CHANGE TO ZONE R1 GENERAL RES.

Site B covers the eastern part of existing Lot 11 DP750401. Under DA384/2020 this land will front Montrose St.

a) **Lot Yield**: The variation for Site B would increase the yield for this part of 41 Park Rd from one (1) to four (4) lots – an increase of three (3) lots only.
b) **Improved Connectivity (Road Realignment)**: In the Shiralee Masterplan, Montrose St is a cul-de-sac with access from Rifle Range Road (East) down to the eastern edge of 41 Park Rd (Lot 11) that was intended to open up development along its frontage. In DA384/2020 the Applicant proposed a new alignment for Montrose Street connecting to Clearview Crescent because the adjacent land is yet to develop (so access to Rifle Range Rd is not possible). Once the adjacent land develops this creates a through-road that is an improved urban outcome over a cul-de-sac as it has increased connectivity and would avoid the need for larger vehicles (e.g., waste trucks) to have to turn around in the cul-de-sac.
c) **Access/Road Frontage**: The realignment of Montrose St occurs along the eastern boundary of 41 Park Rd and this improved connectivity opens up access for new lots along that frontage that would have previously not have had this possibility. Therefore, the new road realignment (and its additional cost) creates an opportunity to more effectively use the Site with each lot having a street frontage and no additional battle-axe lots created.
d) **Maintain Existing Dwelling Curtilage**: In DA384/2020 the existing dwelling on Lot 11 (Proposed Lot 301) was retained on a lot of ~1.25ha. This land has a Minimum Lot Size (MLS) for subdivision of 9,000m^2 in OLEP2011. It is proposed to reduce this lot to 9,000m^2 whilst maintaining the existing garden & curtilage around the existing dwelling and continue to provide access to both Park Rd (existing driveway) and Montrose St in accordance with the Shiralee Masterplan. Therefore, there are no major changes to the amenity of this existing dwelling.
e) **Transition in Lot Size**: This would leave >3,000m^2 of land along the Montrose St frontage (at a lower contour than the existing dwelling) that could be developed into up to three (3) lots each of minimum 1,000m^2. Each of these three (3) lots would be ~27-28m wide and ~36m deep resulting in lots >1,000m^2. These are larger than the 700m^2 lots to the east but provide a transition up to the larger 3,000m^2 lots along Park Rd (see Site A above).
f) **Response to Slope**: When preparing the Shiralee DCP there may have been an intent to have a larger lot size on steeper sloping land. Whilst the slope of Site B is 10-15% (~13% average), the Proposal still allows for three (3) lots with a lot width of ~28m. This is sufficient to enable dwellings to be sited along the north-south contours to minimise cut/fill. It is important to note an area of Lot 90 DP750401 has an MLS of 200m^2 to the south of Site B with significant slope of ~9.5%. In comparison a slope of 13% for 1,000m^2 lots is suitable. Therefore, consistent with the Shiralee Masterplan, slope is not a major constraint to reduced lot size in Site B.
g) **Heritage/Scenic/Tree Protection**: The three (3) new lots are located at a lower contour than the heritage item and will not impact any significant views to the heritage item at the top of the hill. One (1) existing significant tree has a greater potential to be protected close to the boundary of the proposed lots.

Therefore, in summary the proposed change to the Lot Size for Site B is justified because:

a) It produces only three (3) more lots than shown in the DCP and is an efficient use of the Site;
b) The realignment of Montrose St to connect to Clearview Crescent is an improved urban outcome and would enable the three (3) new lots to have a direct road frontage without any battle-axe access handle(s);

c) The proposed lot size of the existing dwelling at 41 Park Rd remains at 9,000m^2 (existing MLS) and provides sufficient setbacks to maintain the privacy and garden curtilage of this dwelling with new lots at lower contours;

d) The proposed lot size of 1,000m^2 provides a transition between the 700m^2 lots to the east, the 3,000m^2 lots to the north, and the 9,000m^2 lot to the west;

e) The slope of Site A is managed with reasonably wide lots that allow future dwellings to minimise earthworks and is consistent with smaller Minimum Lot Size (MLS) areas in the Shiralee Masterplan in the same area. Any future dwelling on the lower contour is less likely to impact heritage/scenic views at the top of the hill.

2.4 SITE C

REDUCE MINIMUM LOT SIZE (MLS) FROM 2,000M^2 TO 700M^2 / CHANGE TO ZONE R1 GENERAL RESIDENTIAL.

Site C covers the north-eastern part of existing Lot 88 DP750401. Under DA384/2020 this covers Proposed Lots 113-115.

a) **Lot Yield**: In the Shiralee DCP, the area of Site C (part of Lot 88) has a Minimum Lot Size (MLS) of 2,000m^2 and is likely to produce up to three (3) lots (as per DA384/2020) or two (2) lots shown in the Shiralee Masterplan. However, in this Proposal the reduction to 700m^2 lot size may increase this to up to eight (8) lots – an increase of up to 5-6 lots that is an efficient use of this land.

b) **Original Lot Size Intent**: As two buildings are visible on the aerial and two lots proposed in the DCP, it can only be assumed that the intent of the lot size was to create a reasonable curtilage around each 'building' for existing owners/residents. However, one of these buildings is a shed and the other is a dwelling of limited value that is proposed for demolition under DA384/2020. Therefore, neither are buildings that warrant such a large lot size.

c) **Inconsistent Lot Size Pattern**: Site C is surrounded by an MLS of 700m^2 to the north, west and south-west and an MLS of 200m^2 to the south. However, the surrounding lands have, if anything, more constraints than Site C. Site C sits on some of the flattest land of the block with limited vegetation. Therefore, if the existing dwelling is removed it suggests that Site C should have a similar lot size to the surrounds.

d) **Density Facing Parkland**: The land to the south fronting Rifle Range Rd has an MLS of 200m^2. This is likely to have been because it is located on relatively unconstrained land AND it has the additional amenity of facing the proposed Bloomfield Reserve parkland on the opposite side of Rifle Range Road. Site C has this same amenity, suggesting that the lot size should be reduced to maximise dwellings with excellent recreation access and outlook.

e) **Widened Road Frontage**: Council has also recently requested that Rifle Range Road (east) adjacent to the parkland needs to be redesigned and made wider compared to the layout provided in the Shiralee Masterplan & DCP. The Applicant is willing to contribute to this widening but suggests with a wider road it will also have additional capacity for additional lots to front and access that road with no additional impact. The additional yield will also offset the additional cost of that road contribution.

Therefore, in summary the proposed change to the Lot Size for Site C is justified because:

a) It produces only 5-6 more lots than shown in the DCP and is an efficient use of the Site;

b) The two (2) existing buildings on Lot 88 are a dwelling and a shed (to be demolished under DA384/2020) and they do not warrant the retention of larger lot sizes;

c) There are no major environmental site constraints to smaller lot sizes on Site C;

d) The existing Minimum Lot Size (MLS) and zoning is inconsistent with the planning controls on surrounding land;

e) The land has excellent amenity with outlook over the Bloomfield Reserve parkland (like the 200m^2 lot size area immediately to the south);

f) A smaller lot size and increased yield is supported by Council's intent to widen Rifle Range Road along the parkland frontage.

2.5 Overall Lot Yield

This Proposal and the three (3) sites for lot size reductions will increase the total yield by around ten (10) lots compared to the original Shiralee Masterplan/DCP and eight (8) lots compared to DA384/2020 (that only sought a Clause 4.6 Variation Request for Site A). This is not a major increase in lot yield compared to what was intended for the area.

In addition, it is clear that the staging of construction of Shiralee has not progressed quite like it was intended. Many larger holdings are not developing in the intended timeframes and this is resulting in the need for roads and infrastructure to extend further than originally intended earlier in the urban release project and with less lots contributing to the cost of the new infrastructure and open space to be provided by Council.

Therefore, where an Applicant demonstrates that a Site is capable of supporting additional yield with minimal impact, we suggest the provision of a limited number of additional lots will add to contributions to fund this infrastructure to enable the Shiralee Masterplan to meet its intended public benefit outcomes.

3 EXISTING SITE ANALYSIS & KEY CONTROLS

3.1 Site Location

The Subject Site(s) are located in the new urban release area known as 'Shiralee' to the south of Orange and south of the Broken Hill Railway Line. The Sites are located ~2.7km south of Summer Street (Orange CBD – black square in Figure below) via Cecil & Hill Streets.

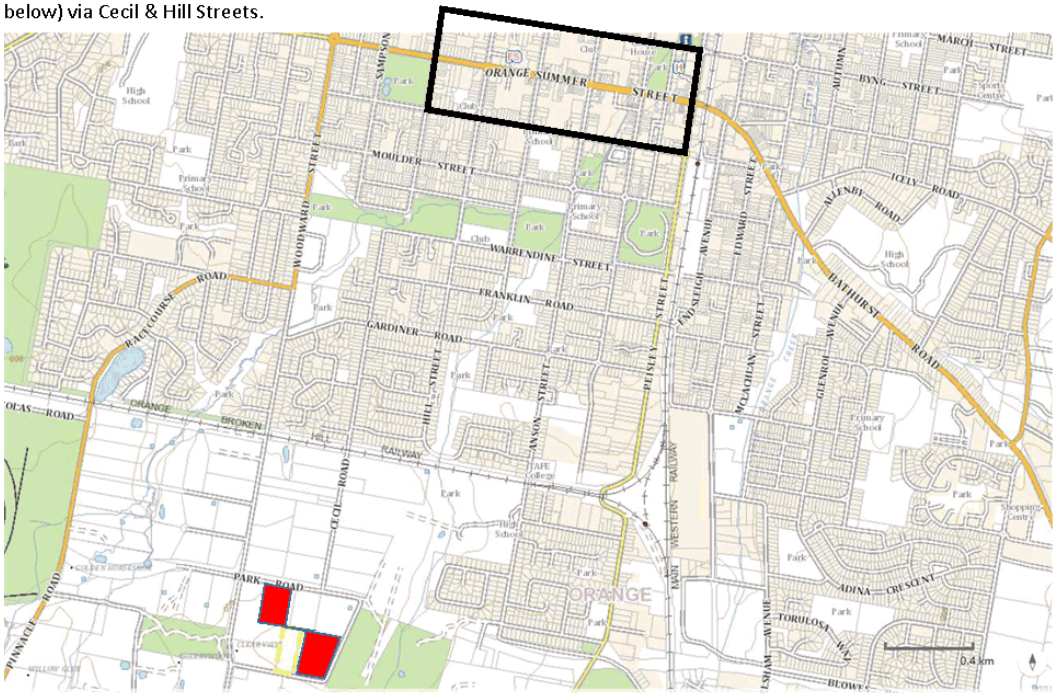


Figure 5: Location of Site(s) in relation to Orange CBD (NSW Planning Portal).

The existing main access roads to/from Orange CBD are Shiralee Road/Woodward St & Cecil Road. The new Southern Link (Feeder) Road (Park Road) runs along the northern edge of the land & will connect east via Dairy Creek Road to the Mitchell Highway. Rifle Range Road forms the southern & eastern boundaries of the existing block.

3.2 Site Description

There are two (2) affected lots that make up the three (3) Sites in this Application with two (2) land owners as set out in the Table below:

Site(s)	Title	Address ORANGE	Area	Owner	Existing Dwelling
A & B	Lot 11 DP750401	'Hillside' 41 Park Road	2.276ha	Dwyer	Yes (to be retained)
C	Lot 88 DP750401	55 Rifle Range Road	3.260ha	Estate of Sharkey	Yes (to be demolished or removed)
		Total Area	~5.536ha		1 dwelling retained/ 1 dwelling removed

3.3 Shiralee Context

The suburb of Shiralee is a new urban release area/suburb to the South of Orange. It has been rezoned for the purpose of urban & residential development based on the Master Plan in the Shiralee Development Control Plan (DCP). It is being progressively redeveloped & serviced.

The first major 'pockets' of development are located south of Shiralee Road along Sweetheart Drive & east of Shiralee Road along Balmoral Drive. The Subject Sites in this Proposal would form a natural extension of existing subdivision/ development along Park & Rifle Range Roads.

There has been development approval for 168 Shiralee Rd (DA305/2016) in March 2019 immediately adjacent / north-west of the Site for seventeen (17) lots around the heritage listed item. Stage Two (2) of this is deferred.

The area is changing from a semi-rural lifestyle allotment area to an urban residential area with its own local centre & proximity to the new development around the Orange Base Hospital. As such, impacts from urban development are likely to be minimal as urban subdivision down to smaller lots sizes is consistent with the desired future character.

Land to the east of Rifle Range Road is Crown Land that has been used as a Rifle Range but this use will end with the extension of the Southern Link Road to Park Road and the creation of a large public open space (Bloomfield Reserve). We believe the Rifle Range will shortly cease operation and the Site is not shown as affected in the DCP anyway.

3.4 Topography

The Sites fall roughly from the west/south-west (Shiralee Road) towards the east/north-east (Rifle Range Road). Heights around the Site are as follows:

a) The highest point is in on the knoll (Lot 11) at around RL910-915.

b) The lowest point is in the east on Rifle Range Rd (Lot 88) at around RL886.

Therefore, the site has a fall of ~24m over approximately 300m (8%) from the knoll or 500m (~4.8%) for the southern part of the Site. Lot size has been adjusted to account for the fall and the land is suitable for urban residential development with no major chances of land slip or significant erosion (see Justification above).

3.5 Watercourses & Drainage

There are no watercourses on the Site according to the topographic map (NSW Government SIX Maps). Rifle Range Creek is the closest ~200m to the east of the Site and the Site drains to this creek across Rifle Range Road. Blackman's Swamp Creek is >550m to the west of the Site. Rifle Range Creek eventually drains into Blackman's Swamp Creek near Moulder Park. Therefore, other than stormwater drainage, the Site is significantly buffered from and unlikely to affect any of the surrounding watercourses.

3.6 Site Photos

Figure 6: Site photos (18/09/2020).

View from south-eastern corner of Site from Rifle Range Road looking north-west across Site.

Existing houses (left) No.55/Lot 88; (right) heritage listed adjacent property

3.7 Site History & Contamination

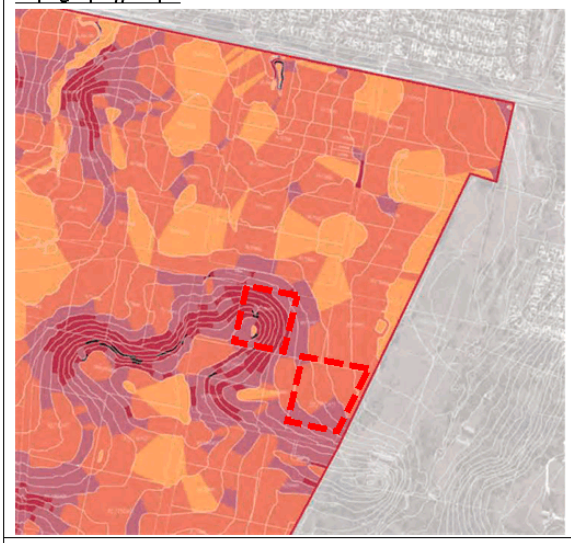
Please see the Envirowest Consulting (Sept 2020) *Preliminary Contamination Investigation* for details. This found that there is no evidence of mines, sheep dips or contaminating industrial activities on the Site. Only low levels of pesticides & hydrocarbons are present that are below the residential & ecological thresholds, likely associated with extensive agriculture on the Site. See the review of *State Environmental Planning Policies* below.

3.8 Site Analysis Overview

The Shiralee Development Control Plan (DCP) provided a detailed Site Analysis for the entire urban release area to support the Masterplan & indicative subdivision layout so a detailed site analysis is not required. Excerpts from some of the key diagrams are set out below with a short analysis of the relevance to the Sites.

Figure 7: Site Analysis Diagrams (Shiralee DCP Appendix D).

Topography/Slope

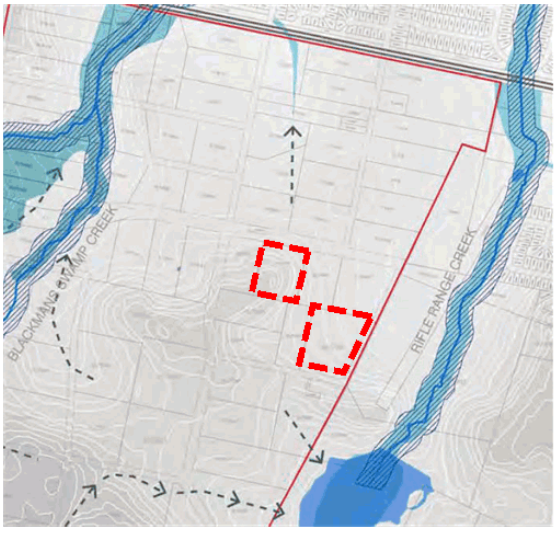


There is an exposed ridge & steeper lands to the western & north-western side of the Site. Slopes range from 1:20 (5%) to less than 1:5 (20%).

Larger lots are proposed to respond to steeper slope where required. Site C has limited slope constraint (less than 1:20 (5%)) and can support higher residential densities.

The land naturally drains to the north-east towards Rifle Range Creek.

Watercourses & Riparian Corridors



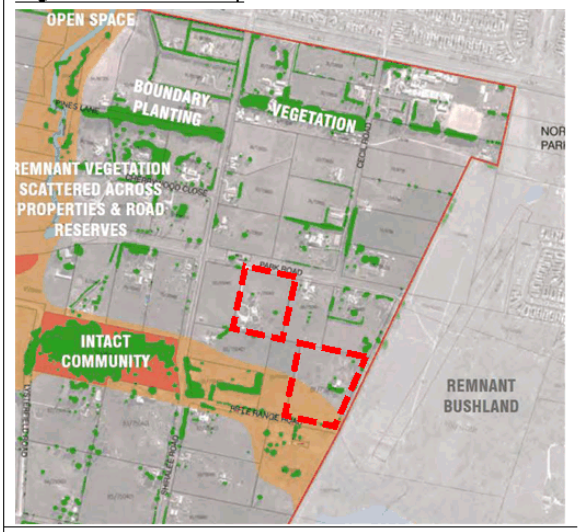
There are no mapped watercourses on the Sites or immediately adjacent.

Rifle Range Creek is the closest ~200m to the east of the Sites and the Sites drain to this creek across Rifle Range Road.

Blackmans's Swamp Creek >550m to the west of the Sites.

There is a suitable buffer between the Sites and Rifle Range Creek to avoid the need for Controlled Activity Approvals and minimise impacts on the creek from sedimentation or erosion.

Vegetation & Biodiversity

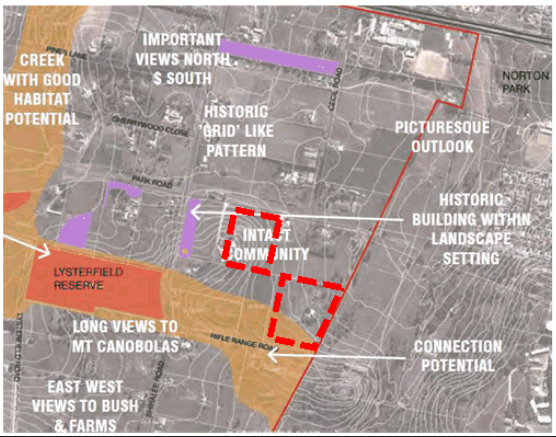


There is very limited significant vegetation on the Sites with only small pockets or stands of native vegetation. Many of the trees on the Site are non-native or have been replanted by owners so have limited ecological significance.

A medium biodiversity sensitivity belt is located through the southern portion of Site C though the other map below shows this as 'Connection Potential' suggesting this has less to do with existing vegetation and is more about connecting the 'Intact (Vegetation) Community' on land to the west to the 'Remnant Bushland' along Rifle Range Rd (see further discussion later in this report). There is a heritage item located on Lot 100 DP750401 to the north-west of the Sites and one to the south of Rifle Range Rd.

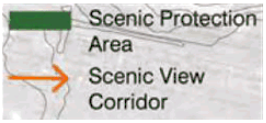
These items are unlikely to be affected by the proposed subdivision & development of the Subject Sites, particularly where larger lots are retained along Shiralee Road to the north and north-west of the heritage item and the increased density is on lower contours that do not block key sight-lines to the item(s).

Biodiversity & Landscape Value



Scenic Protection

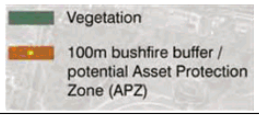
The north-western section of Sites A & B is marked as a 'Scenic Protection Area' with a Scenic View Corridor along Shiralee Rd towards the south, possibly associated with the heritage item on Lot 100 DP750401 noted above. This would not be significantly impacted if larger lots are retained along Shiralee Road and we suggest smaller lots can occur on the lower contours along Park Rd and proposed Montrose Street.



Bushfire

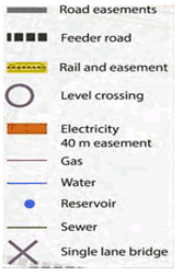
The Sites are not significantly bushfire prone, though a 100m 'potential' Asset Protection Zone (APZ) from vegetation in the Rifle Range may extend slightly over the south-eastern corner of Lot 88 but this does not include Site C.

It is important to note that the Planning Portal & RFS website do NOT show the Site as having any bushfire risk or buffer to bushfire prone land so the DCP doesn't trigger the requirement for a bushfire assessment at this time. Rifle Range Road would provide a suitable APZ to the proposed parkland.

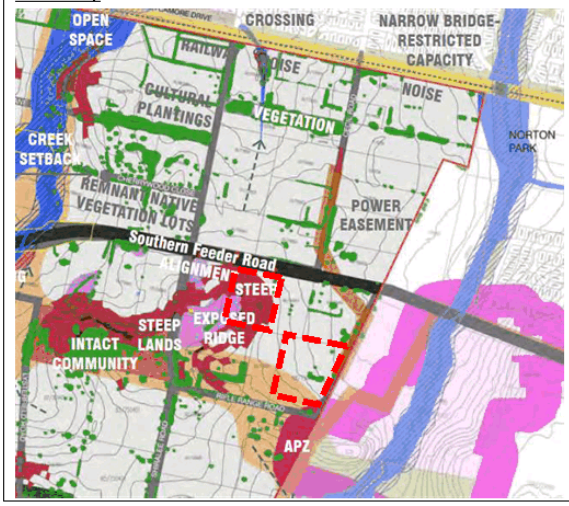


Connections/Barriers

The Sites are located with access to Orange CBD from Shiralee Road & Cecil Road (with crossings over the Broken Hill Railway Line). In the future the Southern Link/Feeder Road (Park Rd) will form the northern boundary of the Sites & connect to Forest Reefs Road & the Mitchell Highway. Electricity easements run adjacent to the Sites in the parkland but do not affect the Sites. development.



Summary



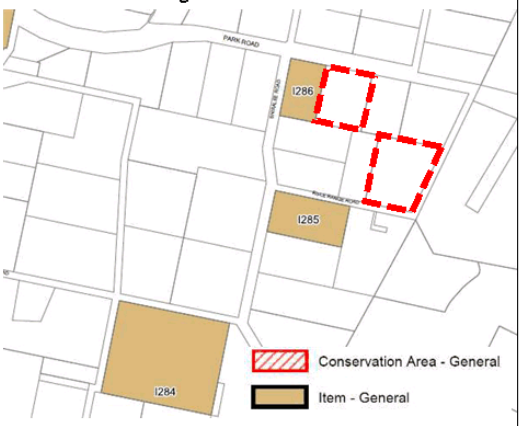
The diagram opposite shows a summary of the above Site Analysis Diagrams that have been addressed above.

3.9 Key Existing Controls

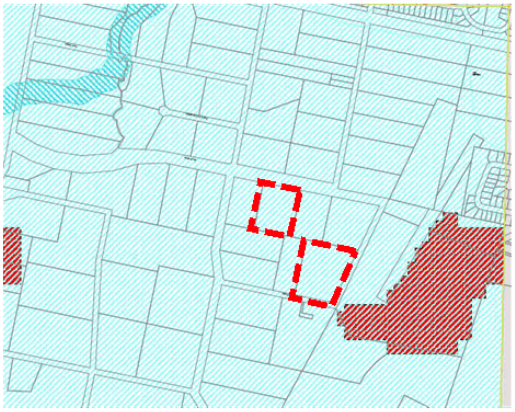
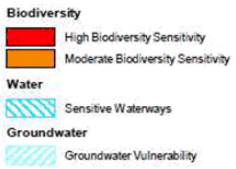
3.9.1 OLEP2011

The following are the relevant controls in *Orange Local Environmental Plan 2011* (OLEP2011). The Lot Size Map (& possibly the Land Zoning Map for Sites B & C) are proposed for amendment by this Planning Proposal but it is important to understand any other implications:

Control	Comment
Clause 2.6 – Subdivision - Land may be subdivided, but only with development consent (unless it is exempt or complying development – neither of which apply to this application).	This is a Planning Proposal. It is supported by an indicative Subdivision Plan but this would form part of a future development application.
Part 2 – Permitted or Prohibited Development Clause 2.1 – Land Use Zones See **Part 4: Mapping** of this Report for details. **Zone R2 Low Density Residential – Objectives** • To provide for the housing needs of the community within a low density residential environment. • To enable other land uses that provide facilities or services to meet the day to day needs of residents. • To ensure development is ordered in such a way as to maximise public transport patronage and encourage walking and cycling in close proximity to settlement. • To ensure that development along the Southern Link Road has an alternative access. **Zone R1 General Residential – Objectives** • To provide for the housing needs of the community. • To provide for a variety of housing types and densities. • To enable other land uses that provide facilities or services to meet the day to day needs of residents. • To ensure development is ordered in such a way as to maximise public transport patronage and encourage walking and cycling in close proximity to settlement. • To ensure that development along the Southern Link Road has an alternative access.	**Possibly to be Modified.** The Sites are all within Zone R2 Low Density Residential. However, it is important to note that the land surrounding Site C and to the east of Site B is in Zone R1 General Residential. If the lot size is changed for Sites B & C, then Council may consider changing these Sites to Zone R1 General Residential for increased consistency between land use zones and lot size prevalent in the rest of Shiralee. Whilst the approval for any dwellings will form part of a future application, both Zone R1 & R2 permit **dwelling houses** with consent. It is not the intent of any change of zoning to consider other land uses, though it would not preclude an application for those other permissible uses. The proposal is consistent with the Zone R1 & R2 objectives. It proposes residential subdivision with a range of lot sizes (consistent with the Minimum Lot Size & DCP) that is likely to result in a range of dwelling types (discussed above), patterns, and densities to meet the changing housing needs of Orange, largely in a low-density residential environment. Whilst the proposal may increase one (1) lot with access to the Southern Link (Feeder) Road this has already been requested as part of DA384/2020 and would have minimal impact with a shared driveway.
Clause 4.1 – Minimum Subdivision Lot Size See **Part 4: Mapping** of this Report for details. **Clause 4.1 - Lot Size Objectives** (relevant to urban areas) (a) To ensure that new subdivisions reflect existing lot sizes and patterns in the surrounding locality. (b) To ensure that lot sizes have a practical and efficient layout to meet intended use. (e) To provide for a range of lot sizes reflecting the ability of services available to the area. (f) To encourage subdivision designs that promote a high level of pedestrian and cyclist connectivity and accommodate public transport vehicles.	**To be Modified.** The Sites are predominantly in the following existing Minimum Lot Size (MLS) areas which are proposed to be changed as shown: • Site A - (W3) 3,800m^2 change to (W1) 3,000m^2; • Site B - (X3) 9,000m^2 change to (U1) 1,000m^2; • Site C - (V1) 2,000m^2 change to (Q) 700m^2. These changes are consistent with the adjacent lot sizes and/or create a suitable transition in lot sizes for consistency in street character that is responsive to site constraints. Smaller lots sizes are often proposed on adjacent land with similar constraints and/or opportunities so it makes sense to test this in this Proposal. The proposal meets the lot size objectives as follows: • The proposal is mostly consistent with the Shiralee DCP Masterplan lot sizes that seek to respond to the environmental constraints of the Site, protect

Control	Comment
	existing large lot dwelling amenity, & provide buffers to sensitive uses. • There is a diversity of lot sizes across the Site that will promote housing diversity & potentially affordability. This will avoid monotonous dwelling types, allow increased densities on less constrained areas, and ensure adequate servicing of the land. • The proposed layout is set out in the ***Subdivision Concept***. It shows that the majority of lots are rectangular in shape with good road frontages that promote efficient layouts and lot sizes. • There is good connectivity to public spaces & proposed community facilities in Shiralee as well as back to Orange CBD.
Clause 4.1B - Minimum Lot Sizes for Dual Occupancy, Multi-Dwelling Housing & Residential Flat Buildings Dual occupancy in Zone R1 requires an MLS of 800m^2 and in Zone R2 requires 1,200m^2 (MLS on Lot Size Map).	**Unchanged.** This Proposal does not suggest future dwelling types but these are likely to be single detached dwelling houses. The reduction in lot sizes is unlikely to facilitate dual occupancies in undesirable locations.
Clause 4.3 - Height of Buildings The height of a building on any land is not to exceed the maximum height shown for the land on the Height of Buildings Map.	**Unchanged.** There is no Height of Building (HOB) applicable to the Sites on Map 008B so there are no height restrictions. Regardless, it is expected that buildings are unlikely to be more than one to two-storeys in this area.
Clause 4.4 - Floor Space Ratio The maximum floor space ratio for a building on any land is not to exceed the floor space ratio shown for the land on the Floor Space Ratio Map.	**Unchanged.** There is no Floor Space Ratio (FSR) applicable to the Sites on Map 008B.
Clause 4.6 - Exceptions to Development Standards	**Unchanged.** This Proposal would avoid the need for significant Clause 4.6 Variation Requests that would exceed 10%.
Clause 5.1 – Relevant Acquisition Authority	**Unchanged.** There is no mapped land acquisition proposed across the Sites.
Clause 5.10 – Heritage Conservation  ***Figure 8: Heritage Map Excerpt HER_008B (OLEP2011).*** As shown on the Figure above, the Subject Site is not listed as a heritage item or in a heritage conservation area in OLEP2011. It is noted that there are listed heritage items on land adjacent to the Site including:	**Aboriginal Heritage**: There is no obvious evidence of Aboriginal archaeology on the site. The Sites are not located on a major watercourse or near a major hill where gathering places & artefacts are commonly found. The Sites have been cleared of most significant vegetation and modified heavily by agriculture and cultivation & dwellings. We suggest the likelihood of finding relics or items is low. The best way to protect any items is to condition a stop work order if any are found during construction and require the necessary National Parks & Wildlife Act permits. **Non-Indigenous Heritage**: Item No.286 sits on a land with an approved subdivision (DA305/2016) suggesting that its curtilage has already been determined to be immediately around the shed/dwelling. Proposed Lot 301 adjacent is ~9,000m^2 to minimise impact. Proposed Lots 302-304 are ~3,000m^2 but are set further down the contours. **Complies.** Item No.285 is on the southern side of Rifle Range Road and sits on land with an approved subdivision (DA206/2018) suggesting that its curtilage has already been determined to be immediately around

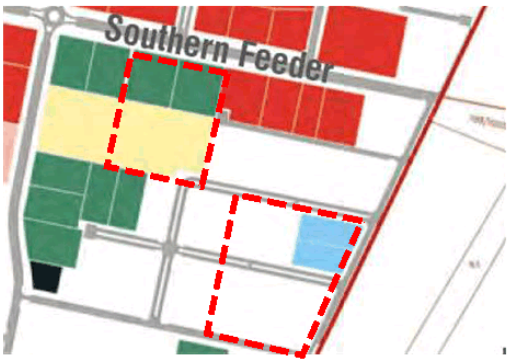
Control	Comment
• Item No.286 – Dwelling (former), packing shed – 168 Shiralee Rd (Lot 90 DP750401) (Local); • Item No.285 – Dwelling – 148 Shiralee Rd/corner Rifle Range Rd (Lot 92 DP750401) (Local). Other heritage listed items (I284 – Colveath homestead; I63 – Towac Racecourse) are more distant and less likely to be affected.	the dwelling. Other lots have been approved adjacent on its lot of a similar size as those proposed on the Subject Sites. For these reasons, we suggest the impact on those heritage items is low, they will be located on suitably sized lots. We suggest a Heritage Impact Statement is not required.
Part 6 - Urban Release Areas (URA)	**Unchanged.** The Urban Release Area overlay does not apply to the Site as it has been rezoned for urban residential uses.
7.1 Earthworks Before granting development consent for earthworks, the consent authority must consider — (a) the likely disruption of, or any detrimental effect on, existing drainage patterns and soil stability in the locality of the development, (b) the effect of the development on the likely future use or redevelopment of the land, (c) the quality of the fill or the soil to be excavated, or both, (d) the effect of the development on the existing and likely amenity of adjoining properties, (e) the source of any fill material and the destination of any excavated material, (f) the likelihood of disturbing relics, (g) the proximity to and potential for adverse impacts on any waterway, drinking water catchment or environmentally sensitive area, (h) any measures proposed to minimise or mitigate the impacts referred to in paragraph (g).	**Capable of Complying. See DA384/2020 for details.** The proposed lot sizes seek to respond to the slope of each Site and each proposed lot can support suitable dwellings whilst minimising cut/fill. This will be addressed in more detail in any future DA.
7.2 Flood Planning Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development— (a) is compatible with the flood hazard of the land, and (b) is not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and (c) incorporates appropriate measures to manage risk to life from flood, and (d) is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and (e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding	 ***Figure 9: Excerpt from Draft DCP Section 4A Flood Affected Land – Figure 6.20 Sheet 6.*** **Capable of Complying. See DA384/2020 for details.** As shown in the Draft DCP Figure 6.20 Sheet 6 that supports Amendment No.24 to OLEP2011, the Sites are not affected by any mapped Flood Planning Area or land subject to Overland Flow deeper than 100mm. Therefore, we suggest a Flood Study is not required and the land is capable of subdivision for urban residential purposes to smaller lot sizes.

Control	Comment
7.3 Stormwater Management Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development— (a) is designed to maximise the use of water permeable surfaces on the land having regard to the soil characteristics affecting on-site infiltration of water, and (b) includes, where practical, on-site stormwater retention for use as an alternative supply to mains water, groundwater or river water, and (c) avoids any significant impacts of stormwater runoff on adjoining downstream properties, native bushland and receiving waters, or if that impact cannot be reasonably avoided, minimises and mitigates the impact.	**Capable of Complying. See DA384/2020 for details.** A future Subdivision Application will address this but it is expected that each lot can address the stormwater requirements as the road (& largely lot) pattern is consistent with the DCP masterplan. The DCP masterplan shows potential for a detention basin on land outside but immediately adjacent to the north-east of the Site. As on-site detention is not appropriate, contributions can be made towards retarding basins and associated drainage under the Contribution Plan that applies to the land. The Stormwater Layout will require some inter-allotment drainage but this is logical. The proposed subdivision is in the vicinity of Rifle Range Creek but is positioned away from the waterway and Rifle Range Rd.
7.4 Terrestrial Biodiversity This clause applies to land identified as "High Biodiversity Sensitivity" or "Moderate Biodiversity Sensitivity" on the Terrestrial Biodiversity Map.	**Not Applicable.** There is no mapped biodiversity sensitivity on the Sites on the Terrestrial Biodiversity Map Sheet CL2_008B (see below). The nearest is in the Rifle Range/future parkland (outside the Site) that would be unaffected by the proposed development. Please see the DCP response below for further details.
7.5 Riparian Land & Watercourses This clause applies to land identified as 'sensitive waterways' (or within 40m of the top of bank) on the Watercourse Map.	**Not Applicable.** There are no mapped sensitive waterways on the Sites on the Watercourse Map Sheet CL2_008B (see below). The nearest is Blackmans Swamp Creek >500m to the west of the Site and the Site drains to the east. Rifle Range Creek is not mapped as a sensitive waterway.
7.6 Groundwater Vulnerability  This clause applies to land identified as "Groundwater Vulnerability" on the Groundwater Vulnerability Map. Before determining an application, the consent authority must consider: (a) whether or not the development (including any on-site storage or disposal of solid or liquid waste and chemicals) is likely to cause any groundwater contamination or have any adverse effect on groundwater dependent ecosystems, and (b) the cumulative impact (including the impact on nearby groundwater extraction for potable water	 ***Figure 10: Biodiversity, Watercourse & Groundwater Vulnerability Map Excerpt CL2_008B (OLEP2011).*** **Capable of Complying. See DA384/2020 for details.** The Sites are entirely within a Groundwater Vulnerability area. This vulnerability relates to the groundwater system under much of the urban area of Orange. Standard urban residential development practices are not expected to have any substantial impacts on this system for the following reasons: a) **Hazardous Uses**: There are no hazardous chemical storage or activities likely to discharge toxic/noxious substances in an urban residential subdivision that pose a risk to surface or groundwater systems. b) **Groundwater consumption**: All lots will be connected to mains water supply so there will be no additional private reliance on groundwater systems or groundwater depletion expected. c) **Sewerage contamination**: All future dwellings will be connected to reticulated sewerage systems so there is a low probability of contamination of

Control	Comment
supply or stock water supply) of the development and any other existing development on groundwater.	groundwater from the increased residential density (on-site effluent management is not required). d) **Earthworks**: There is no need for substantial excavation to achieve dwelling sites.
7.7 Drinking Water Catchments This clause applies to land identified as "Drinking water" on the Drinking Water Catchment Map.	**Not Applicable**. The Sites are not located in an identified water catchment for the City of Orange so the drinking water catchment controls do not apply.
7.8 Salinity Before determining a development application for development on land that is subject to salinity, the consent authority must consider the following: (a) whether or not the development is likely to have any adverse impact on salinity processes on the land, (b) whether or not salinity is likely to have an impact on the development, (c) appropriate measures to avoid or reduce any adverse effects that may result from the impacts referred to in paragraphs (a) and (b).	**Not Applicable/No Impact**. There are no known salinity issues on the Sites or surrounding lands. There are no watercourses through the Sites that are likely to exacerbate salinity. We suggest the subdivision & ancillary development is unlikely to adversely impact on salinity processes and/or salinity is unlikely to impact on the development. Appropriate stormwater management will reduce any adverse effects.
7.9 Airspace Operations The objectives of this clause are as follows— (a) to provide for the effective and ongoing operation of the Orange Airport by ensuring that such operation is not compromised by proposed development that penetrates the Limitation or Operations Surface for that airport, (b) to protect the community from undue risk from that operation.	**Not Applicable/No Impact**. The Obstacle Limitation Surface (OLS) map for Orange Airport does not extend to or affect the Sites as the Site is ~8km from the airport.
7.10 Development in Areas Subject to Aircraft Noise This clause applies to development that— (a) is on land that— (i) is near an airport, and (ii) is in an ANEF contour of 20 or greater, and (b) the consent authority considers is likely to be adversely affected by aircraft noise.	**Not Applicable/No Impact**. The Noise Forecast (ANEF) mapping does not impact on the Sites.
7.11 Essential Services *Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the proposed development are available or that adequate arrangements have been made to make them available when required: (a) the supply of water, (b) the supply of electricity, (c) the disposal and management of sewage, (d) storm water drainage or on-site conservation, (e) suitable road access.*	**Capable of Complying. See DA384/2020 for details.** The Sites are intended for urban residential use. It will be provided with reticulated water, sewer, electricity, telecommunications & gas as required by the relevant utility authorities with stormwater to Council's requirements.

3.9.2 Shiralee DCP

The following are some key relevant controls in *Shiralee Development Control Plan (DCP)* relating to lot size.

Control	Comment
1.8 Exceptional Circumstances Development is to be generally in accordance with the Masterplan design and intent per the DCP. In exceptional circumstances Council may consider some variation in lot sizes and types to what is shown the Masterplan and DCP), particularly on larger development sites, such as sites where a number of existing properties are amalgamated.	The DCP acknowledges that Council may consider some variation in lot sizes to what is shown in the Masterplan. This is a larger development site of which the Sites proposed for lot size variation are only a limited amount of that larger site. The justification is set out in this Planning Proposal.
2.1 (Relevant) Shiralee Character The Shiralee Master Plan: • *Has a distinct, separate identity to Orange whilst maintaining the best themes of Orange* • *Is anchored by a hill-top mixed use village* • ***Provides housing choice that promotes a diverse community*** • *Provides community infrastructure to create a viable community* • ***Responds to existing site conditions, including natural features and man-made elements including the street grid*** • *Retains and enhance the unique character of the place* • *Conserves and protect historic items and their settings* • *Encourages active street frontages to the public domain* • ***Conserves, maintains and enhances existing views and vistas to buildings and places of historic and aesthetic significance.***	The Proposed reduction in lot size is only for three (3) smaller Sites within the larger context of Shiralee, and is not expected to have a significant impact on the desired future character of the area or the dominant lot size pattern. It will continue to maintain a mix of lot sizes that respond to existing site conditions (as set out in this report), maintain sight-lines to the heritage & landscape items, protect the landscape character of key gateway streets, as well as promote housing choice with smaller lots where appropriate. Smaller lots in the three (3) Sites will have direct access to streets for safe access and more casual surveillance and 'active frontages'.
2.2 (Relevant) Design Principles: Shiralee will be developed in accordance with the following Design Principles which underpin the Master Plan: • *Create a sense of arrival into a distinct and identifiable community* • ***Protect steep, visually exposed & constrained lands*** • ***Conserve remnant vegetation*** • *Utilise existing road reserves* • ***Provide housing choice and a diversity of lot sizes as shown on the Master Plan*** • ***Locate housing density where amenity is highest*** • *Development must achieve and satisfy the outcomes expressed in the character statement and supporting principles* • ***Ensure that buildings respond to and reveal the topography by stepping with the slope.***	The Proposed reduction in lot size will continue to maintain a diversity of lot sizes with larger lots along the SFR/Park Rd to maintain the landscape character of this key gateway and diversity of lot sizes (with minor variation from the masterplan – see below). It will also respond to the slope around the ridge along Shiralee Rd and into Lot 11 and the lots have sufficient width to enable building to respond to the topography and step up the slope. Smaller lot size (particularly for Site C) is located where constraints are least and amenity is the highest facing Bloomfield Reserve.
2.5 Lot Typologies ***Figure 11: Excerpt Shiralee DCP Figure.12 Large Lot Classification Diagram.***  See legend below.	• Site A (*3,000m² – Visually exposed and/or sloping lots*). Therefore, the Proposal is consistent with the Large Lot Classification but is inconsistent with the 3,800m² MLS in OLEP2011. Proposed lots will have minimum 40m frontage to Park Rd/SFR. • Site B (*9,000m² – Visually Exposed and Constrained Lots*) are appropriate for the land at the top of the hill in Lot 11 to retain the existing green slopes and landscape character south of the SFR around the heritage item (there are no flooding constraints) but smaller lots on the lower contours are less likely to impact this. • Site C (*2,000m² – Integrated lifestyle lots*) are intended to provide a rural-residential lifestyle option but it doesn't say they are constrained from smaller lot sizes. 30m frontage reduced.

<table>
<tr><th>Control</th><th>Comment</th></tr>
<tr><td colspan="2">Large Lot Classification Table
<table>
<tr><th>Colour</th><th>Lot Description</th><th>Minimum Lot Size</th><th>Minimum Boundary Length or Street Frontage</th></tr>
<tr><td></td><td>Integrated lifestyle lots. . These lots provide a rural-residential lifestyle option for the Shiralee community.</td><td>2,000m²</td><td>30m Street Frontage</td></tr>
<tr><td></td><td>Visually exposed and/or sloping lots. These lots retain the existing landscape character and provide a rural-residential lifestyle alternative to typical urban housing lots.</td><td>3,000m²</td><td>65m Street Frontage (40m Street Frontage where located on Southern Feeder Road)</td></tr>
<tr><td></td><td>South Western Lifestyle Lots. These lots retain the existing landscape character adjacent to Pinnacle Road and provide a rural-residential lifestyle alternative.</td><td>3,800m²</td><td>45m Street Frontage</td></tr>
<tr><td></td><td>Visually Exposed and Constrained Lots. These lots retain the existing green slopes and landscape character south of the Southern Feeder Road and respond to flooding constraints adjacent to Blackmans Swamp Creek.</td><td>9,000m²</td><td>70m Boundary Length</td></tr>
</table></td></tr>
<tr><td>3.4 Staging
The Rifle Range exclusion zone, as shown in Figure 15. Land within the Rifle Range exclusion zone, may not be subdivided or otherwise developed until the rifle range has been decommissioned.</td><td>The Subject Site(s) are not identified on Figure.15 of the DCP so they are not affected by the Rifle Range exclusion zones.</td></tr>
</table>

4 PLANNING PROPOSAL

The guidelines require the Planning Proposal to address six (6) parts, including:

- Part 1 - A statement of the objectives or intended outcomes of the proposed LEP;
- Part 2 - An explanation of the provisions that are to be included in the proposed LEP;
- Part 3 - The justification for those objectives, outcomes and provisions and the process for their implementation;
- Part 4 – Maps, where relevant, to identify the intent of the planning proposal and the area to which it applies;
- Part 5 - Details of the community consultation that is to be undertaken on the planning proposal. Part 5 would be confirmed following a gateway determination by the Department of Planning; and,
- Part 6 – Project Timeline to detail the anticipated timeline for the plan making process.

4.1 Part 1: Objectives or Intended Outcomes

Part 1 of the planning proposal should be a short, concise statement setting out the objectives or intended outcomes of the planning proposal. It is a statement of what is planned to be achieved, not how it is to be achieved. It should be written in such a way that it can be easily understood by the general community.

The objective(s) of this Proposal are:

a) To modify the Minimum Lot Size (MLS) to allow subdivision of the three (3) Sites (part of two (2) existing lots) to facilitate smaller residential lots on less constrained land compatible with the site characteristics;

b) To ensure the residential zoning matches the zoning of similar Lot Size area adjacent so there is less chance of inconsistencies across zones.

4.2 Part 2: Explanation of Provisions

Part 2 of the planning proposal provides a more detailed statement of how the objectives or intended outcomes are to be achieved by means of amending an existing local environmental plan.

The objective or intended outcome is to be achieved by amending the relevant **Lot Size Map(s)** applicable to the Site in *Orange Local Environmental Plan 2011* ('OLEP2011') – particularly map LSZ_008D - so it has a Minimum Lot Size (MLS) for Subdivision for each Site as follows:

- **Site A** - (W3) 3,800m^2 change to (W1) 3,000m^2;
- **Site B** - (X3) 9,000m^2 change to (U1) 1,000m^2;
- **Site C** - (V1) 2,000m^2 change to (Q) 700m^2.

In addition, Council may determine that the **Land Zoning Map(s)** applicable to the Site – particularly LZN_008D is amended so that Site C (and possibly Site B) is changed from the existing Zone R2 Low Density Residential to proposed Zone R1 General Residential for improved consistency in land zoning compared to adjacent land of a similar lot size.

See ***Part 4: Mapping*** of this Proposal for maps of the affected area(s) as well as *Section 2.1.1 – Relevant Site Map(s)*.

4.3 Part 3: Justification of Proposed LEP Amendments

Part 3 of the planning proposal provides a justification that sets out the case for the making of the proposed LEP. The overarching principles that guide the preparation of planning proposals are:

- The level of justification should be proportionate to the impact the planning proposal will have;
- It is not necessary to address the question if it is not considered relevant to the planning proposal (as long as a reason is provided why it is not relevant);
- The level of justification should be sufficient to allow a Gateway determination to be made with the confidence that the instrument can be finalised within the time-frame proposed.

As a minimum a planning proposal must identify any environmental, social and economic impacts associated with the proposal. Generally, detailed technical studies are not required prior to the Gateway determination. It must also demonstrate how the proposed amendment will give effect to the local strategic planning statement of the area.

In accordance with DPIE Guideline, the questions to consider when demonstrating the justification are:

- Section A: Need for the planning proposal
- Section B: Relationship to strategic planning framework
- Section C: Environmental, social and economic impact
- Section D: State and Commonwealth interests.

4.3.1 Section A – Need for the Planning Proposal

1. Is the planning proposal a result of an endorsed local strategic planning statement, strategic study or report?

No. The Proposal is a variation to the Shiralee Masterplan/DCP which is the primary document underpinning the Lot Size(s) in OLEP2011. However, based on recent development applications/approvals and discussions with Council, it would appear Council is willing to consider reductions in lot size to facilitate some increases in yield (and resulting contributions) to support the proposed infrastructure for Shiralee that may not eventuate if a significant area of the land remains under-developed.

2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The Planning Proposal (and the associated amendment to the Lot Size Map(s) under Clause 4.1) is the best way to permit a site-specific reduction in Minimum Lot Size (MLS) that ranges from:

- **Site A** - (3,800m^2 to 3,000m^2=800m^2 difference) 21% variation;
- **Site B** - (9,000m^2 to 1,000m^2=8,000m^2 difference) 89% variation;
- **Site C** - (2,000m^2 to 700m^2=1,300m^2 difference) 65% variation.

Clause 4.6 of OLEP2011 is not generally suitable to permit this extent of variation.

Lot Size Map amendments allow for a site-specific approach to lot size for subdivision rather than applying a blanket-control for a specific zone or land use. This ensures a more targeted approach to amendments with clearer outcomes and assessment of impacts. Lot size amendments cannot be achieved by any changes to the schedules (additional permitted uses).

The proposed Land Zoning changes are not mandatory as there is no specific need to change the permissible land uses in the three (3) Sites as detached dwelling houses are mostly expected. However, the change would:

a) Create greater consistency between lot size and land zoning shown across Shiralee;

b) Ensure consistency in dwelling type/ land use permissibility on similarly constrained land;

c) Maximise the potential of less constrained land (particularly Site C).

The proposed amendment is not of a scale to be considered 'State or Regionally Significant' such that amendments to a State Environmental Planning Policy ('SEPP') would be appropriate to sit above and amend OLEP2011.

Therefore, the most appropriate 'tool' or methodology is to amend the Lot Size Map(s) applicable to the Proposal area (and possibly the Land Zoning Maps) in OLEP2011 and there is a 'site-specific' outcome that does not affect other sites and creates a transparent connection between the land use controls and the intended development outcomes.

4.3.2 Section B – Relationship to Strategic Planning Framework

3. Will the planning proposal give effect to the objectives and actions of the applicable regional, or district plan or strategy (including any exhibited draft plans or strategies)?

Regional plans have been prepared for all parts of NSW including the *Central West and Orana Regional Plan 2036* (July 2017 – *CWORP*) noting there is no District Plan in the Central West & Orana Region. The CWORP includes directions, planning priorities and specific actions for a range of different matters relevant to Orange LGA, as follows:

DIRECTION	Actions	RESPONSE
Goal 1: The most diverse regional economy in NSW		
Direction 12: Plan for greater land use compatibility.	12.3 Create local strategies to limit urban & rural housing development in agricultural & extractive resource areas, industrial areas, & transport corridors. 12.4 Amend planning controls to deliver greater certainty of land use.	Shiralee is a new urban release area. The Subject Site(s) will not have any land use conflicts with agriculture, industry or extractive resource areas. Transport corridors like the Southern Feeder Road are protected with larger lot sizes and limited driveway entrances (see justification for one (1) additional access/driveway).

DIRECTION	Actions	RESPONSE
Goal 2: A stronger, healthier environment and diverse heritage		
Direction 13: Protect & manage env. assets Direction 14: Manage & conserve water resources for the env. Direction 15: Increase resilience to natural hazards & climate change Direction 16: Respect & protect Aboriginal heritage assets Direction 17: Conserve & adaptively re-use heritage assets	13.1 Protect high environmental value assets through local environmental plans. 14.2 Locate, design, construct & manage new developments to minimise impacts on water catchments, including downstream areas & groundwater resources. 15.1 Locate developments, including new urban release areas, away from areas of known high biodiversity value; areas with high risk of bushfire or flooding; contaminated land; & designated waterways. 17.2 Prepare, review & update heritage studies in consultation with the wider community to recognise & conserve heritage assets & items, & include appropriate local planning controls.	The existing block between Shiralee Rd, Park Rd & Rifle Range Road has limited environmental constraints other than slope & some limited vegetation. There are no areas of high biodiversity value, bushfire risk, flood potential or contamination that would preclude a reduction in lot sizes for the three (3) sites. The heritage item on the adjacent Site has its primary view lines protected with increased density is proposed on lower contours that would not affect those sight-lines & similar lot sizes are approved around that item.
Goal 4: Dynamic, vibrant and healthy communities.		
Direction 22: Manage growth and change in regional cities and strategic local centres.	22.1 Coordinate infrastructure delivery across residential and industrial land in regional cities and strategic centres.	A key issue for Shiralee is the provision of sufficient contributions to pay for timely community infrastructure to make this a sustainable settlement. This may require some additional yield on suitable sites to offset under-developed larger holdings closer to Orange. Shiralee has good proximity to Orange CBD, the hospital precinct & Cadia for access to services & jobs. The reduction in lot size for three (3) Sites will maintain housing choice & may promote more affordable housing on smaller lots.
Direction 25: Increase housing diversity & choice.	25.2 Increase housing choice in regional cities & strategic centres at locations near or accessible to services & jobs. 25.3 Align infrastructure planning with new land release areas to provide adequate & timely infrastructure. 25.4 Locate higher density development close to town centres to capitalise on existing infrastructure & increase housing choice.	
Direction 29: Deliver healthy built environments & better urban design.	29.2 Enhance the quality of neighbourhoods by integrating recreational walking & cycling networks. 29.3 Reflect local built form, heritage & character in new housing developments. 29.4 Incorporate water sensitive urban design in new developments.	The Shiralee masterplan and its associated connections, character & water sensitive urban design requirements are unaffected by the reduction in lot sizes on three (3) Sites. This will be addressed in more detail in a future development application (DA).
Local Government Narratives - Orange		
Support the delivery of new homes in residential release areas, including North Orange and Shiralee, and increase the range of housing options in existing urban areas.		This Proposal will support the delivery of additional new homes in the Shiralee area and the infrastructure needed to support this new release area.

4. Will the planning proposal give effect to a council's endorsed local strategic planning statement or another endorsed local strategy or strategic plan?

Local Strategic Planning Statement (LSPS)

Council have prepared a Local Strategic Planning Statement 2020 (updated July 2020) to guide future land use decisions in the area. The LSPS does not specifically refer to the Subject Site OR suggest the outcomes in this Planning Proposal but this Proposal is consistent with the key relevant Priority Areas identified in that Statement, as follows:

Priority Areas

- **Priority 1** – Capitalise on Orange's character, lifestyle & heritage to enhance tourism & attract new residents.
- **Priority 2** – Support the delivery of new homes in residential release areas, including North Orange & Shiralee, & increase the range of housing option in existing urban areas.
- **Priority 3** – Provide a range of facilities & services to meet community needs, & foster a culturally rich, creative & socially connected Orange community.
- **Priority 4** – Provide diverse housing choices & opportunities to meet changing demographics & population needs, with housing growth in the right locations.
- **Priority 6** – Provide recreational opportunities to meet the needs of residents or, & visitors to, Orange.
- **Priority 9** – Enhance local & neighbourhood centres as great connected places, whilst maintaining the regional town atmosphere.
- **Priority 10** – Improve access to, from & within Orange, & encourage active transport.
- **Priority 12** – Protect & conserve the natural, built & Aboriginal cultural heritage of Orange.
- **Priority 13** – Protect, conserve & enhance Orange's urban tree canopy, landform, waterways & bushland.
- **Priority 14** – Protect, conserve & enhance the natural, visual, environmental & heritage qualities of Orange's scenic areas, & significant views to & from Mount Canobolas.
- **Priority 18** – Advocate for development to be supported by infrastructure.

As stated above, the proposed reduction in lot size for three (3) Sites will enhance additional housing provision in Shiralee whilst responding to the existing site characteristics/constraints, protecting the character of the area & maintaining the transport & connectivity of the Site to/from/within Orange. Without sufficient contributions from housing, Council is less able to provide the range of facilities & services, recreational opportunities, local/ neighbourhood centres, & infrastructure necessary to achieve the goals for Shiralee and future residents.

There is very limited additional environmental impact from the Proposal compared to what is currently sought under DA384/2020 and the DCP masterplan. Reductions in lot sizes are not generally in areas with sensitive waterways, significant vegetation, biodiversity or increased scenic/heritage impact. The key constraint is topography/slope.

Instead, the Proposal recognises that lot sizes based on existing dwellings may not have allowed for the full potential of these sites. The increased yield (& associated contributions) will go towards the required infrastructure for Shiralee.

Orange, Blayney & Cabonne Regional Economic Development Strategy 2018-2022 (REDS)

The REDS does not specifically refer to the Subject Site OR suggest the outcomes in this Planning Proposal but this Proposal is not inconsistent with the key relevant Priority Areas identified in that strategy.

Relevant Land Use Strategies

Council is currently preparing an updated Local Housing Strategy but only the Local Profile has been exhibited in 2020. Until this is adopted the relevant strategy is the *Orange Sustainable Settlement Strategy* (Update 2020). This is significantly out-of-date and does not provide detailed recommendations for Shiralee that have not been accommodated within the Shiralee Masterplan/DCP. The Site sits in Growth Area LU-12 along the proposed Southern Feeder Road. The Proposal is consistent with this Strategy.

Shiralee Masterplan/DCP

This is the primary document governing the development of the Shiralee area and it informed the planning controls in OLEP2011. This is addressed in more detail in *Section 3.9.2 – Key Controls (Shiralee DCP)* above.

5. *Is the planning proposal consistent with applicable State Environmental Planning Policies?*

The Proposal is consistent with the relevant State Environmental Planning Policies (SEPPs) as shown in the table below.

SEPP (Infrastructure) 2007 This SEPP is concerned with appropriate opportunities for infrastructure development throughout the State and protecting that infrastructure from incompatible development. For this application, relevant infrastructure includes the adjacent Southern Feeder Road (SFR); and key utilities. The Proposal will have minimal impact on the Southern Feeder Road as it only increases the number of lots with direct frontage/access by one (1) lot and this has already been sought under DA384/2020. These lots are still 3,000m^2 so they have potential for large setbacks to minimise noise/vibration impacts under Clause 101 – Development with frontage to a classified road/Clause 102 – Impact of road noise or vibration on non-road development. Under Clause 104 – Traffic generating development & Schedule 3 of the SEPP will be addressed as part of any future development application.
SEPP (Mining, Petroleum Production and Extractive Industries) 2007 The Site is in an urban area and unlikely to affect extractive industries. According to the Common Ground website there are no known mineral or extractive resources or exploration licences in or near the Subject Site that would be affected by the proposal.
SEPP No 55 – Remediation of Land SEPP55 seeks to promote remediation of contaminated land and reduce the risk of harm to human health – to be considered when rezoning land or consenting to development on land. In particular, Clause 7 states than a planning authority must not consent to any development on land unless it has considered whether the land is contaminated and, if so, it has been suitably remediated or will be suitable for the proposed use. *Section 3.7 Site History & Contamination* and the attached *Preliminary Contamination Assessment* (Envirowest) included detailed soil sampling across the Site in accordance with the guidelines and it determined that the Site is suitable for residential use (subject to clearing of rubbish/refuse/ asbestos buildings – this can be appropriately conditioned).
SEPP (Vegetation in Non-Rural Areas) 2017 This SEPP seeks to protect the biodiversity values of trees and other vegetation in non-rural areas and preserve the amenity of those areas. It replaces the previous controls relating to vegetation protection in the LEP and includes additional biodiversity reforms. It applies to a number of relevant zones on the Site including Zones R1/R2. Clearing of vegetation requires a permit or approval by Council and forms part of this DA. The Site is not identified on the Biodiversity Values Map or Native Vegetation Map produced by the NSW Government. The Minimum Lot Size of most of the lots is less than 1ha so the threshold for clearing is 0.25ha or more. Trees on the subject sites are already subject to a clearing request under DA384/2020. There are limited native trees on Sites A & B & most are expected to be retained. On Site C, a significant amount of those trees are non-native species that are not protected under the SEPP/legislation. It is not likely that the threshold will be exceeded to require a Biodiversity Development Assessment Report (BDAR) for the future subdivision. This is an urban zoned site that is based on a preferred subdivision pattern adopted by Council with which this application is consistent. Vegetation is not a major constraint to the Proposal. **SEPP (Building Sustainability Index: BASIX) 2004** This is a Planning Proposal only so any future dwellings will form part of later application(s), at which time a BASIX is likely to be required. Indicative lots are oriented in accordance with the Masterplan to maximise passive solar design & minimise energy consumption.
SEPP No 21—Caravan Parks & SEPP No 36—Manufactured Home Estates The aim of these policies is to encourage and facilitate development of caravan parks (and thereby also permit manufactured home estates) in certain zones/areas. Whilst changing the Land Zoning Maps to include Sites C (& possibly Site B) in Zone R1 General Residential may permit caravan parks/MHEs, it is not the current intent of the Applicant (as evidenced by the ***Subdivision Concept***) to seek approval for these or affect their general permissibility.
SEPP (Affordable Rental Housing) 2009 & SEPP (Housing for Seniors or People with a Disability) 2004 The aim of these two policies is to encourage and facilitate development of affordable rental housing and housing for seniors or people with a disability. It is not the current intent of the Applicant to rely on these SEPPs for approval but this does not preclude future applications under these SEPPs for these development types.

6. Is the planning proposal consistent with applicable Ministerial Directions (s.9.1 directions)?

In response to all of the relevant S.9.1 Directions – this Proposal seeks a site-specific amendment to the Minimum Lot Size (MLS) for the Site that is consistent with the Ministerial Directions (latest September 2020) as follows:

Section 9.1 Directions		Applicable to Planning Proposal	Date
1. Employment and Resources			
1.1	Business and Industrial Zones	No.	01/05/17
1.2	Rural Zones	No.	14/04/16
1.3	Mining, Petroleum Production and Extractive Industries	Yes but no impact or restriction on mining. See *Question 5* SEPP review above.	01/07/09
1.4	Oyster Aquaculture	No.	01/07/09
1.5	Rural Lands	No.	28/02/19
2. Environment and Heritage			
2.1	Environment Protection Zones	Yes. There are no environmentally sensitive areas on the Site except for groundwater and the protections are not weakened by this Proposal for reduced lot size if connected to reticulated water/sewer.	14/04/16
2.2	Coastal Management	No.	03/04/18
2.3	Heritage Conservation	Yes. See *Section 3.9 – Key Existing Controls (OLEP2011).* No significant impact on nearby heritage items.	01/07/09
2.4	Recreation Vehicle Areas	No.	14/04/16
2.5	E2 / E3 Zones & Environmental Overlays Far North Coast	No.	02/03/16
2.6	Remediation of Contaminated Land	Yes. Please see submitted Contamination Assessment & response to *SEPP 55 (Remediation of Land)* above suggesting the land is suitable for the proposed future use.	17/04/20
3. Housing, Infrastructure and Urban Development			
3.1	Residential Zones	Yes. The increased lot yield will increase the variety and choice of housing types and make efficient use of existing infrastructure and reduce the consumption of land for housing. It is consistent because it does NOT reduce the permissible residential density of the land.	14/04/16
3.2	Caravan Parks and Manufactured Home Estates	Yes. As stated above re SEPPs, there is a potential increase in permissibility for these uses but they are unlikely in this location.	14/04/16
3.3	Home Occupations	No change.	01/07/09
3.4	Integrating Land Use and Transport	Yes. The proposal is consistent with increasing residential densities on existing urban residential land with excellent access to transport connections.	14/04/16
3.5	Development Near Licensed Aerodromes	No.	01/07/09
3.6	Shooting Ranges	Yes. Whilst the land is adjacent to the existing Rifle Range, the land is not identified in the DCP *Figure.16 Exclusion Zone for Rifle Range* so we suggest it is unlikely to be significantly affected and/or the Rifle Range is due for closure in the short term (5 years).	16/02/11
3.7	Reduction in non-hosted short term rental accommodation period	No. Byron Shire Council only.	15/02/19
4. Hazard & Risk			
4.1	Acid Sulfate Soils	No. Land not mapped as acid sulfate prone land.	01/07/09
4.2	Mine Subsidence and Unstable Soil	No. Land not within a mine subsidence district or unstable land.	14/04/16

4.3	Flood Prone Land	Yes. The land is NOT mapped as flood prone land. This is addressed in more detail in *Section 3.9 – Key Existing Controls (OLEP2011).*	01/07/09
4.4	Planning for Bushfire Protection	No. Land not mapped as bushfire prone land on Planning Portal/RFS website.	19/02/20
5. Regional Planning			
5.10	Implementation of Regional Plans	Yes. The *Central West & Orana Regional Plan* is addressed in more detail in *Question 3* of this section above. The Proposal is consistent with the Regional Plan.	14/04/16
5.11	Development of Aboriginal Land Council Land	No. Applies to Central Coast only.	06/02/19
6. Local Plan Making			
6.1	Approval & Referral Requirements	No change in referrals proposed.	01/07/09
6.2	Reserving Land for Public Purposes	No land reserved for public purpose affected.	01/07/09
6.3	Site Specific Provisions	No restrictive site-specific planning controls proposed. Reduced MLS reduces the restrictions for the site.	01/07/09
7. Metropolitan Planning – NOT APPLICABLE (Sydney only)9			

4.3.3 Section C – Environmental, Social and Economic Impact

7. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The Subject Site(s) are part of a new residential release area where biodiversity & threatened species are likely to have been considered in the rezoning of this land. The affected lots are currently used for large-lot residential 'lifestyle' lots with extensive gardens & managed areas around each existing dwelling with limited native ecological connectivity.

The lots are well separated/buffered from nearby watercourses. The lots are largely cleared of significant trees and there is no mapped sensitive biodiversity. The only environmentally sensitive area mapping is for groundwater. The Rifle Range on the east side of Rifle Range Rd will be a future parkland and may have some sensitivity but it is buffered by the existing/proposed road.

Therefore, there is a low probability of any threatened species, populations or ecological communities on or near the Site being impacted by the slight increase in density in an existing urban release area.

8. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

There are unlikely to be any significant environmental effects from the reduction of lot size (and likely resulting provision of some smaller-residential lots) on the Site within an existing residential area.

Whilst it will support one (1) additional lot fronting the Southern Feeder Road (SFR) in Site A, this has already been requested under DA384/2020 and with a shared driveway is unlikely to have any significant impact on that road's operation/ safety.

The additional density on Rifle Range Road (Site C) aligns with Council's request to widen this road beyond what is shown in the DCP. DA384/2020 has proposed a new extension to Montrose Street to support the additional density in Site B. There may be slight traffic increases but the Site is well connected to major link roads to minimise impacts.

9. Has the planning proposal adequately addressed any social and economic effects?

Whilst some of the lot sizes will be reduced there is still a diversity of lot sizes to promote a range of housing options in the area and protect existing (to be retained) dwellings and their amenity. The social & economic benefit of making housing lots available is important to Orange whilst supplies are low and there is limited suitable land to develop. Shiralee is a new release area so whilst it will have significant change, this has been supported consistent with the Masterplan & growth strategy for the area. Existing dwellings (to be retained) will have buffers for privacy/amenity. Most social & economic impacts have been addressed as part of the release of this new urban area.

4.3.4 Section D – State and Commonwealth Interests

10. Is there adequate public infrastructure for the planning proposal?

Yes. The Site has access to all required utilities in adjacent streets. One of the reasons for the Planning Proposal is to respond to the need for some increased residential yield on suitable sites to offset the lack of development on some larger holdings. This will produce greater contributions to pay for the necessary infrastructure to create the Shiralee village, recreation areas, and extension of utility and road services. Therefore, there is a public benefit in allowing additional yield where it is shown each Site can support it and it has minimal impact.

11. What are the views of state and commonwealth public authorities consulted in accordance with the gateway determination?

There are unlikely to be any significant state or commonwealth issues with an existing urban release area that is already partly developed. The Gateway Determination can set out any further agencies that require consultation (see also Consultation opportunities in **Part 5: Community Consultation** below).

4.4 Part 4: Mapping

Maps of the three (3) Sites for amended are set out as follows. See Section 2 for additional supporting mapping. Standard instrument mapping can be prepared once the Planning Proposal receives a positive Gateway Determination.

- **Site A** – Lot Size (W3) 3,800m^2 change to (W1) 3,000m^2 for all of Area W3/part X3 fronting Park Rd as mapped (no Land Zoning change);
- **Site B** – Lot Size part (X3) 9,000m^2 change to (U1) 1,000m^2 / Land Zoning change optional as mapped;
- **Site C** – Lot Size (V1) 2,000m^2 change to (Q) 700m^2 for all of Area V1 / Land Zoning change all of Zone R2 as mapped.

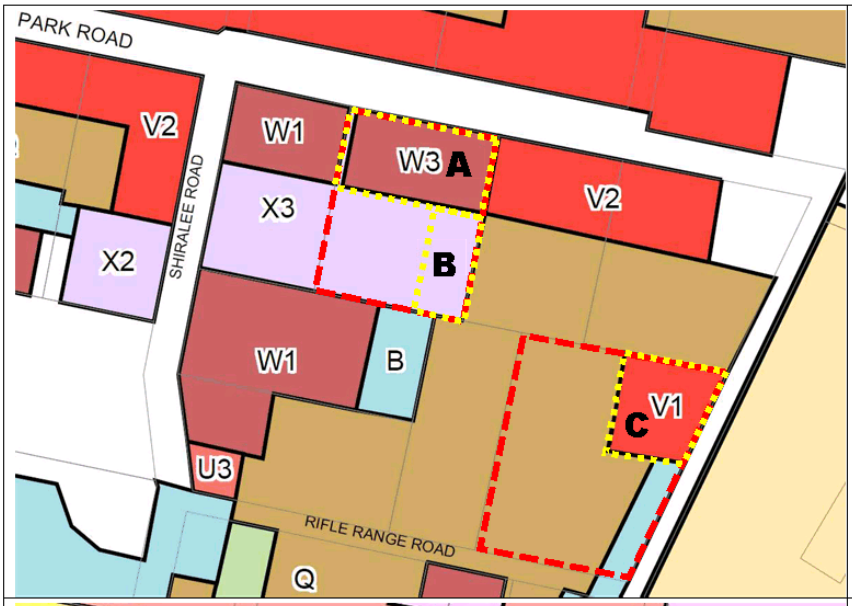


Figure 12: Indicative Amendment Area – Overlay Lot Size Map 008B (OLEP2011).

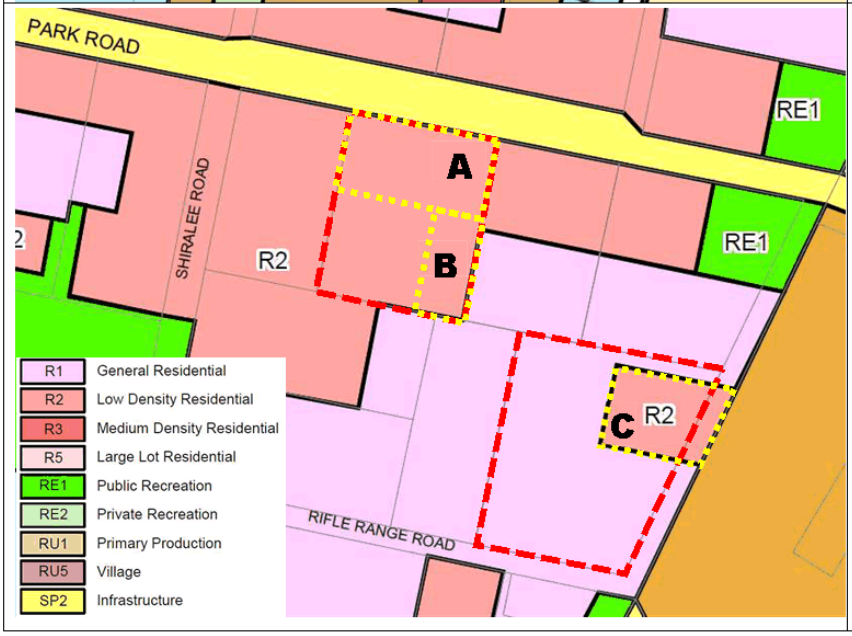


Figure 13: Indicative Amendment Area – Overlay Land Zoning Map (OLEP2011).

Site A can remain in Zone R2 Low Density Residential (no change).

Sites B & C (or just Site C) could be moved to Zone R1 General Residential (though it is not mandatory in terms of desired future land use).

4.5 Part 5: Community Consultation

The planning proposal community consultation is to be undertaken in accordance with the requirements set out in '*A guide to preparing planning proposals*' (2016) and any requirements set out in the Gateway Determination.

The land sits in the new release areas of Shiralee. The three (3) Sites are part of a larger group of Sites that are currently proposed for redevelopment under DA384/2020 so these owners will be aware of the increased residential densities proposed. There are limited neighbours to the north and west of the land that would be affected.

Therefore, we suggest that Community Consultation can be set at the minimum requirements.

The planning proposal would be notified for a period of 28 days. The notification period is expected to be outside the Christmas / New Year period (see timeline below). The notification would be placed on Council's website and advertised in the Central Western Daily newspaper and possibly also on Council's website and/or social media.

The notification would provide:

- A description of the objectives or intended outcomes of the planning proposal;
- The land affected by the planning proposal;
- Advise when and where the planning proposal can be inspected;
- Give the name and address of the Council for the receipt of submissions; and
- Indicate the last date for public submissions.

During the exhibition period, the following material will be made available for inspection at Council's offices in Orange:

- The planning proposal, in the form approved for community consultation by the NSW Government;
- The gateway determination.

Additional consultation is also expected with key government agencies and stakeholders during the public exhibition period – possibly through a letter or notification.

4.6 Part 6: Project Timeline

The following provides an anticipated / estimated project timeline for completion (subject to Gateway / Council requirements and extent of submissions/amendments). It demonstrates that from the date of the Gateway Determination it is expected the amendments can be made / commence in less than 12 months:

Table 1 - Project Timeline Task	Anticipated timeframe
Planning Proposal to Council for approval to send to DPIE	February 2021
Forward Proposal to DPIE	March 2021
Commencement date (Gateway determination)	April 2021
Timeframe for the completion of required technical information	(none expected)
Government agency consultation (pre- and post-exhibition as required by Gateway determination)	May -June 2021
Commencement and completion for public exhibition period	Commence: May 2021 Completed: June 2021
Dates for public hearing (if required)	July 2021 (if required)
Consideration of submissions	July 2021
Consideration of a proposal post exhibition	July 2021 (if required)
Date of submission to the Department to finalise LEP	August or September 2021
Anticipated date RPA will make the plan (if delegated)	October or November 2021
Anticipated date RPA will forward to the Department for notification	November 2021
Potential for amendments to commence	Early 2022 (i.e., within 12 months of Gateway Determination)

Preliminary contamination investigation

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

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Document control					
Client	LandOrange Partnership 1 Borrodell Drive Orange NSW 2800				
Rev	**Report number**	**Date**	**Prepared by**	**Checked by**	**Revision details/status**
0	R12137c	17 September 2020	Ashleigh Adams BSc Environmental scientist	Leah Desbroough BNatRes (Hons) Senior environmental scientist	

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Summary report

Introduction

A residential subdivision is proposed for Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW. The site has a land-use history of orchards, agricultural grazing and residential. An investigation of the site is required to determine the soil contamination status and suitability for residential land-use.

Objectives of investigation

The objective of the investigation was to determine suitability of the site for the proposed land-use.

Scope

The scope was to identify past potentially contaminating activities, identify potential types of contamination, discuss the site condition, provide a preliminary assessment of site contamination and assess the need for further investigation to determine suitability for residential land use. The scope of works included site inspection, soil sampling and analysis of the soil samples for contaminants of concern.

Summary

An inspection of the site was made on 30 July, 4 and 18 August 2020. The site is located on the southern fringes of Orange NSW and has an area of approximately 11ha.

The site has a land-use history of orchards and agricultural grazing with rural-residential dwellings. Review of historical aerials indicate several structures across the site which are no longer present.

There is no evidence of mines, sheep dips or contaminating industrial activities on the site from the review of site history or site walkover. Potential pesticide mixing areas included water tanks and potential shed storage areas.

An aboveground storage tank (AST) was identified at Lot 86. Minor hydrocarbon staining was identified below the AST. Oil drums were located adjacent the AST. Livestock yards were additionally located at Lot 86 west of the AST. Sheds constructed with asbestos containing materials were located at Lot 91. General refuse was identified across the lots including bricks, iron sheeting and concrete. The refuse is an amenity hazard.

Soil samples were collected across the general site areas on a systematic grid pattern of approximately 20m. Composite samples were analysed for heavy metals. Discrete samples were analysed for OCP and selected samples for lead and arsenic.

Soil samples were collected in areas identified as potential hot-spot areas identified from historical review and site inspections. The potential hotspot samples were analysed for heavy metals, TRH, BTEXN, PAH, OCP and OPP.

Three composite samples collected from the general site area were analysed for chromium (VI) to allow characterisation of total chromium identified in samples collected from the site. Chromium (VI) was not detected in the samples and it is assumed that total chromium in all samples comprised chromium (III).

The final soil sampling program did not detect elevated levels of the analysed metals or persistent pesticides across the general site.

Low levels of pesticides and hydrocarbons were detected in potential hotspot areas below the adopted residential human health and ecological thresholds. Levels of zinc exceeded the ecological investigation levels for residential land-use in one sample (H3). No bare areas or evidence of impact from zinc was observed during the site inspection or from review of aerial photographs. The levels of zinc are not expected to impact on plant growth on-site. The levels of all other substances evaluated were below the adopted thresholds for residential land-use.

Recommendations

The site is suitable for proposed residential land-use following removal of refuse identified across the site. Asbestos infrastructure should be removed in accordance with *How to Safely Remove Asbestos* (SafeWork NSW 2019) recommendations. An unexpected finds protocol should be adopted and implemented on the site (Appendix 5).

Contents

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1. Introduction

A residential subdivision is proposed for Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW. The site has a land-use history of orchards and agricultural grazing. An investigation of the site is required to determine the soil contamination status and suitability for residential land-use.

2. Objectives

The objective of the investigation was to determine suitability of the site for the proposed land-use.

3. Scope of work

Envirowest Consulting Pty Ltd was commissioned by LandOrange Partnership Pty Ltd to undertake a preliminary contamination assessment, in accordance with the contaminated land management planning guidelines, from the *Contaminated Land Management Act 1997* and the *State Environmental Policy No. 55 (SEPP 55)*, of Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW. The objective was to identify past potentially contaminating activities, identify potential contamination types, discuss the site condition, provide a preliminary assessment of site contamination and assess the need for further investigation. The scope of works included site inspection, soil sampling and analysis of the soil samples for contaminants of concern.

4. Site identification

Address	Park Road, Rifle Range Road and Shiralee Road Orange NSW
Deposited plans	Lots 11, 86, 88, 89 and 91 DP750401
Latitude and longitude	-33.3° 149.1°
Geographic coordinates	55H E694106m N6312916m
Client	LandOrange Partnership Pty Ltd
Owner	Multiple owners
Current occupier	Home owners / vacant
Area	Approximately 11 hectares
Local government area	Orange City Council
Current zoning	R1 – General residential (Orange LEP 2012) R2 – Low density residential (Orange LEP 2012)
Trigger for investigation	Change in land-use
Locality map	Figure 1

5. Site history

5.1 Land-use

The site is located in a developing residential area on the southern fringes of Orange. The site was being used as rural-residential properties with grazing paddocks and associated dwellings and sheds at the time of inspection.

5.2 Summary of council records

The site is mapped in a moderately high groundwater vulnerability area (Orange LEP 2012).

5.3 EPA contaminated sites list

The investigation area is not listed on the NSW EPA register of contaminated sites or sites notified to the EPA (NSW EPA accessed 4 September 2020).

5.4 Sources of information

Site inspection 30 July and 4 and 18 August 2020 by Envirowest Consulting Pty Ltd
NSW EPA records of public notices under the CLM Act 1997
Soil and geological maps
Aerial photographs
Orange LEP 2012

5.5 Aerial photographs

Year	Comment
1954	Orchards are visible across Lots 86, 88 and 89. Remnant bushland trees are evident on Lot 11 and 91. Orchards are present north, south and west of the investigation area. Land to the east of the site appears to be used as a rifle range.
1972	Dwellings appear associated with Lots 86, 88 and 91. Orchard trees remain across Lots 86, 88, 89 and in the east of Lot 11 with trees removed from Lot 88. Lots 11 and 91 appear to be used for agricultural grazing. Orchard trees remain to the north, south and west of the investigation area.
1984	Additional structures are evident across the properties. The structures are expected to be small sheds associated with the agricultural land-use. A dam is evident in the northern section of Lot 11. No obvious changes are evident in land surrounding the site.
1993	Orchard trees appear to have been removed from all Lots. A windbreak tree line is visible on Lot 91 in the central area. Orchard trees have been removed from adjacent lands surrounding the investigation area. Surrounding land-use appears to predominately used for rural-residential with associated grazing.
2003	No change
2020	No change on the site. Residential development has occurred south of the site.

5.6 Chronological list of site uses

A review of historical aerial photographs showed orcharding and agricultural grazing across the site from 1954 to 1993. From 1993 to present the investigation area has been used for rural residential land-use including agricultural grazing with associated dwellings and sheds.

5.7 Buildings and infrastructure

Historical imagery indicates dwellings were constructed on each property under investigation prior to 1972. Additional sheds associated with the rural land-use were constructed across the properties between 1984 and 2020 (Appendix 1). Rural fencing is present across the investigation area.

Lot	Building	Location	Use	Existing
11	Shed	South west	Storage of equipment and machinery	Yes
11	Dwelling	South west	-	Yes
86	Water tank on gantry	South	Possible mixing area	Yes
86	AST	North	Refueling machinery on-site	Yes
86	Garage	North	Parking vehicles	Yes
86	Unknown structure	South west	Unknown	No
86	Dwelling	North	-	Yes
88	Shed	North	Bore shed	Yes
88	Shed	North	Stables	Yes
88	Water tank on gantry	North	Possible mixing area	Yes
88	Garage	Central	Parking vehicles	Yes
88	Dwelling	Central	-	Yes
91	Blue stone cottage	North west	Unknown	Yes
91	Shed (asbestos)	East bluestone cottage	Unknown	Yes
91	Shed (asbestos internal walls)	North western boundary	Weed shed	Yes
91	Shed	Northern boundary	Stables	Yes
91	Shed	Central area	Bore shed	Yes
91	Unknown structure	Eastern boundary	Unknown	No
91	Dwelling	West	-	Yes

5.8 Spills, losses or discharges

No records for spills or losses on the site were available. No records for discharges to land, water or air were available.

5.9 Relevant complaint history

Nil

5.10 Previous investigations

No previous investigations are known to have been undertaken on the site.

5.11 Historical neighbouring land-use

North – Orchards and agricultural grazing
South – Orchards
East – Rural with agricultural grazing
West – Rural with agricultural grazing

Historical and present neighbouring land-uses are not expected to impact the site.

5.12 Contaminant sources

Potential exists for contaminating activities to have been undertaken on site which may impact on the suitability for the proposed land-use. The historic orcharding and grazing land-uses may have resulted in application of pesticides and contaminating activities. Fuels and oils may have been stored and used on site

associated with machinery and vehicles. Some buildings on the site may be constructed of asbestos containing materials.

5.13 Contaminants of concern

Based on historical activities and site inspection, potential contaminants across the general site area have been identified as;

- Heavy metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury)
- Organochlorine pesticides (OCP)

Potential contaminants in potential hot-spot locations have been identified as;

- Total recoverable hydrocarbons (TRH)
- Benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN)
- Polycyclic aromatic hydrocarbons (PAH)
- Organochlorine pesticides (OCP) and organophosphate pesticides (OPP)
- Asbestos

5.14 Integrity assessment

The site history was obtained from a site inspection and history review. The information is consistent with the current site condition and to the best of the assessor's knowledge is accurate.

6. Site condition and surrounding environment

6.1 Site inspection

The site was inspected by Envirowest Consulting Pty Ltd on 30 July, 4 and 18 August 2020.

6.2 Land-use

The site is four rural-residential lots with a historical land-use of orchards and grazing. A dwelling and rural sheds are associated with three properties (Section 5.7) one lot is used for agricultural grazing with no infrastructure identified.

6.3 Current neighbouring land-use

North – Large lot residential with associated agricultural grazing
South – Residential development under construction
East – Rifle range
West – Large lot residential

6.4 Surface cover and vegetation

Surface cover was dominated by pasture grasses and broadleaved weeds including Paterson's curse, black thistle and other broadleaved weeds. Ornamental species were located around the dwellings at each property. The site was predominately covered by vegetation.

6.5 Evidence of visible contamination

Minor hydrocarbon staining was identified associated with an above ground storage tank located at Lot 86 in the northern section. No other signs of staining was observed during the site inspection. Bare areas were observed across the investigation area expected to be associated with grazing stock. No signs of settlement or subsidence was identified on the site.

6.6 Topography

The site is predominantly located on a mid-slope. Aspect is north east with slopes gently inclined between 0-5%. Elevation ranges between 888 and 913 metres above sea level. The lowest elevation occurs on the north eastern boundary.

6.7 Soils and geology

The site is located within the Spring Hill Soil Landscape (Murphy *et al.* 1998).

Soil in the Spring Hill landscape consists of krasnozems which occur on the upper to midslopes. Yellow podzolic soil occur on the lower slopes with yellow solodic soils in drainage lines.

Lithology of the site is tertiary volcanics from Mount Canobolas comprising basalt flows which are separated by layers of volcanic ash. Parent material is *in situ* and colluvium materials derived from tertiary volcanics.

No erosion was identified on the site.

6.8 Water

6.8.1 Surface water

Surface water flows are expected to generally flow east. An unnamed drainage line is located approximately 250m east of the site. The drainage line drains into Blackmans Swamp Creek which is located approximately 2.5km north east of the site.

6.8.2 Groundwater

One groundwater bore is known to be located on Lot 88 (GW056710), one bore located on Lot 91 (GW023611), two bores located on Lot 86 (GW057887 and GW016866) and one bore located on Lot 11 (GW800489). Twenty additional registered water abstraction bores were identified within a 500m radius of the site on the NSW Government WaterNSW website (2020). Water-bearing zones (WBZ's) were from 2.4m and standing water levels (SWL's) from 0.9m. The bores are licensed for stock, domestic and irrigation purposes.

No.	Date drilled	Location	SWL (m)	WBZ (m)	Use	Status
GW023611	1/4/1966	Lot 91	21.3	29.9	Domestic, stock, irrigation	Current
GW800489	6/12/1993	Lot 11	9.1	47.2	Stock, domestic	-
GW016866	1/1/1958	Lot 86	15.2	19.8	Domestic, stock	Current
GW057887	1/5/1982	Lot 86	13.7	22.8	Domestic, stock, irrigation	Current
GW056710	1/9/1982	Lot 88	11.9	15.8	Stock, domestic	Current
GW057609	1/12/1982	75m S	27.4	60.0	Stock, domestic	Current
GW029715	1/4/1968	30m S	16.8	22.9	Domestic, stock, irrigation	Current
GW020724	1/10/1963	15m N	9.1	9.1	Domestic	Current
GW029714	1/6/1967	15m S	-	-	Domestic, stock, irrigation	Current
GW047974	1/10/1980	240 SW	3.0	43.9	Irrigation	-
GW020771	1/8/1963	190m S	0.9	2.4	Domestic, irrigation	Current
GW053327	1/6/1981	200m S	15.0	18.4	Irrigation	-
GW047031	1/12/1977	330m SW	-	12.0	Irrigation	-
GW042692	-	330m SW	-	-	Irrigation	-
GW053009	1/10/1980	300m W	15.0	20.0	Irrigation	-
GW053225	1/10/1980	340m W	13.5	20.3	Domestic	-
GW060114	1/7/1985	420m SW	30.5	57.9	Irrigation	Current
GW047697	1/10/1980	300m S	12.6	20.0	Irrigation	-
GW805256	2/1/2014	240m NW	21.0	36.0	Stock, domestic	-
GW801913	7/1/2003	100m N	38.0	40.0	Test bore	-
GW059051	1/6/1981	450m W	9.0	22.0	Irrigation	-
GW025934	1/1/1966	180m N	14.6	13.7	General use	-
GW801363	23/8/2001	120m E	9.0	36.0	Domestic	-
GW026827	1/3/1966	230m N	7.6	32.9	Domestic, stock, irrigation	Current
GW801130	-	430m N	4.0	26.5	Stock, domestic	-

6.9 Evidence of possible naturally occurring contaminants

No natural sources of PAH were identified.

The site is not mapped as an acid sulphate soil risk (NSW SEED Portal accessed 4 September 2020).

The site is not mapped as a geological unit with asbestos potential (NSW SEED Portal accessed 4 September 2020).

Saline soils have not been identified to occur in the Orange locality.

6.10 Environmentally sensitive features or habitats

No environmentally sensitive features or habitats were identified on the site. An unnamed drainage line is located approximately 250m east of the site which drains into Blackmans Swamp Creek approximately 2km north east of the site.

7. Conceptual site model

7.1 Contaminant sources

Potential exists for contaminating activities to have been undertaken on site which may impact on the suitability for the proposed land-use. The historic orcharding and grazing land-uses may have resulted in application of pesticides and contaminating activities. Fuels and oils may have been used and stored on site associated with machinery and vehicles. Some buildings on the site may be constructed of asbestos containing materials.

7.2 Contaminants of concern

Based on historical activities and site inspection, potential contaminants across the general site area have been identified as;

- Heavy metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury)
- Organochlorine pesticides (OCP)

Potential contaminants in potential hot-spot locations have been identified as;

- Total recoverable hydrocarbons (TRH)
- Benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN)
- Polycyclic aromatic hydrocarbons (PAH)
- Organochlorine pesticides (OCP) and organophosphate pesticides (OPP)
- Asbestos

7.3 Potential receptors

The proposed land-use of the site is residential. The site has historically been used for orchards and agricultural grazing.

Human receptors include:

- Residents
- Visitors
- Construction workers
- Intrusive maintenance workers

Ecological receptors include

- Flora and fauna on the site and adjacent to the site
- Aquatic flora and fauna receptors off-site

7.4 Exposure pathways

Pathways for exposure to contaminants are:

- Dermal contact following soil disturbance
- Ingestion and inhalation after soil disturbance
- Surface water and sediment runoff into waterways
- Leaching of contaminants into the groundwater
- Direct contact of flora and fauna with the soil

7.5 Source receptor linkages

Potential source pathway receptor linkages are identified to enable evaluation of any adverse impact on human health or ecology.

The proposed land-use of the site is a residential subdivision and human receptors to the investigation area are likely. Proposed users of the site may have a risk of exposure if contaminants are present and the soil is disturbed. Construction workers, visitors, residents and intrusive maintenance workers to the site may potentially be receptors to soil contaminants through direct contact to soil which includes ingestion and dermal contact.

Inhalation may occur as a result of vaporisation, soil disturbance and dust production. Major soil disturbance before and after the development of the site is considered unlikely. Soil disturbance during construction and development of the site is expected to be accompanied by erosion control measures which will reduce the incidence of dust production.

Vegetation on the site may be potential receptors to soil contamination through direct uptake of contaminants.

The source receptor linkage to aquatic organisms and ecosystems is considered incomplete as the site is well vegetated and movement of sediments from the site is unlikely. During construction work it is expected that erosion control measures will be implemented and movement of sediment off site will be unlikely. Following development of the site it is expected that vegetation will be re-established or hard surfaces constructed which will control sediment movement from the site. The nearest waterways to the site are an unnamed drainage line is located approximately 250m east of the site which drains into Blackmans Swamp Creek approximately 2km north east of the site. It is not expected that contaminants from the site will be transported to aquatic receptors.

Groundwater is not identified as a potential receptor to contamination. Contaminants are expected to originate from the soil surface and groundwater levels in the immediate locality are at depths of greater than 9.4 below the soil surface. One bore located approximately 190m south of the site contained a standing water level of 0.9m below the surface. Potential contaminants on-site are not expected to have an exposure pathway for this distance.

Source/contaminants	Transport	Potential exposure pathways	Receptors
■Use of pesticides (heavy metals and OCP) ■Use of fuels (hydrocarbons)	□Wind ■Sedimentation □Groundwater	■Direct contact (ingestion and absorption) (human and environment) □Inhalation ■Runoff ■Leaching	■Construction workers ■Residential ■Visitors ■Intrusive maintenance workers ■Vegetation □Aquatic

■Potential, □unknown/unlikely

8. Data quality objectives (DQO)

8.1 State the problem

The site is a proposed residential subdivision. Land-use will change from rural-residential to residential. The site has historically been used for orchards and agricultural grazing land-uses which may have resulted in application of pesticides and contaminating activities. The site requires investigation to ensure suitability for the proposed land-use.

8.2 Identify the decision

The land-use proposed is residential and the levels of contaminants should be less than the thresholds listed in Section 11. The decision problem is, do the levels of potential contaminants exceed the assessment criteria listed in Section 11.

8.3 Identify the inputs decision

Investigations of the site is required to identify any potential contaminants from historical land-use.

8.4 Define the boundaries of the study

The investigation area is Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW.

8.5 Develop a decision rule

The initial guidelines for soil were the health and ecological investigation levels for residential land-use (NEPC 1999).

If soil contamination was identified then the contaminant source and extent of contamination was determined.

8.6 Specify acceptable limits on the decision errors.

The 95% upper confidence limit of average levels of samples collected is less than the threshold levels and the results are less than 250% of relevant thresholds.

8.7 Optimize the design for obtaining data

Soil samples were collected from across the site on an approximate 20m grid pattern and combined to form composite samples for analysis of heavy metals.

Discrete soil samples were collected from site and analysed for organochlorine pesticides (OCP).

Additional discrete samples were collected in potential hot spot areas identified from historical review and site inspections. Discrete samples from potential hotspot areas were analysed for heavy metals, hydrocarbons, polycyclic aromatic hydrocarbons, OCP and organophosphate pesticides (OPP).

9. Sampling analysis plan and sampling methodology

9.1 Sampling strategy

9.1.1 Sampling design

A stratified sampling pattern was adopted to assess the probable location of contamination. Sampling was undertaken across each lot on a systematic grid pattern. Uniform management practices are expected to have occurred across each lot.

Discrete soil samples were collected on a judgmental sampling pattern at potential hotspot locations identified during site inspections and from historical review.

9.1.2 Sampling locations

Discrete soil samples were collected on an approximate 20m grid pattern. Four discrete samples were combined to form a composite soil sample. A total of 208 discrete soil samples were collected and combined to form 52 composite samples for analysis.

A total of 32 discrete samples were collected from potential hot-spot areas identified across the site (Table 2).

The sampling locations are described in Figures 3 to 11.

9.1.3 Sampling density

The sampling density can detect a potential hot spot across the site with a radius of 12m at a 95% level of confidence.

The sampling frequency is within the minimum recommended by EPA (1995).

9.1.4 Sampling depth

Any heavy metals or persistent pesticides present are generally immobile and expected to be contained in the 0-100mm soil layer which was the target sampling depth as minimal soil disturbance has occurred. The source of hydrocarbons is from the surface and expected to be present in the 0-100mm soil layer.

9.2 Analytes

Composite soil samples collected from the site were evaluated for arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury. Discrete samples were analysed for lead, arsenic, chromium (VI) and OCP. Heavy metals and OCP were identified as the contaminants of concern possibly present as a result of previous activities.

Potential hot-spot samples were analysed for heavy metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP) and organophosphate pesticides (OPP).

9.3 Sampling methods

Soil samples were taken using a stainless-steel soil push corer and a hand shovel. Soil was taken at each individual sampling location below the vegetated and detrital layer.

The soil was transferred to a clean plastic bag, mixed and transferred to a solvent rinsed glass jar with a Teflon lid. Combining 4 discrete samples made a composite sample for chemical analysis. Discrete soil samples were transferred directly to a solvent rinsed glass jar with a Teflon lid.

Tools were decontaminated between sampling locations to prevent cross contamination by: brushing to remove caked or encrusted material, rinsing with clean tap water and allowing to air dry or using a clean towel.

Table 2. Schedule of samples and analyses

Sample ID	Sample location	Discrete sample ID	Analysis undertaken
SR10C	Lot 91	100, 101, 102, 103	Arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), nickel (Ni), zinc (Zn), mercury (Hg)
SR11C	Lot 91	110, 111, 112, 113	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR12C	Lot 91	120, 121, 122, 123	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR13C	Lot 91	130, 131, 132, 133	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR14C	Lot 91	140, 141, 142, 143	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR15C	Lot 91	150, 151, 152, 153	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR16C	Lot 91	160, 161, 162, 163	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR17C	Lot 91	170, 171, 172, 173	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR18C	Lot 89	180, 181, 182, 183	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR19C	Lot 89	190, 191, 192, 193	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR20C	Lot 89	200, 201, 202, 203	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR21C	Lot 89	210, 211, 212, 213	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR22C	Lot 89	220, 221, 222, 223	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR23C	Lot 89	230, 231, 232, 233	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR24C	Lot 89	240, 241, 242, 243	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR25C	Lot 11	250, 251, 252, 253	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR26C	Lot 11	260, 261, 262, 263	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR27C	Lot 11	270, 271, 272, 273	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR28C	Lot 11	280, 281, 282, 283	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR29C	Lot 11	290, 291, 292, 293	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR30C	Lot 11	300, 301, 302, 303	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR31C	Lot 11	310, 311, 312, 313	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR32C	Lot 11	320, 321, 322, 323	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR33C	Lot 11	330, 331, 332, 333	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR34C	Lot 86	340, 341, 342, 343	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR35C	Lot 86	350, 351, 352, 353	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR36C	Lot 86	360, 361, 362, 363	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR37C	Lot 86	370, 371, 372, 373	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR38C	Lot 86	380, 381, 382, 383	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR39C	Lot 86	390, 391, 392, 393	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR40C	Lot 86	400, 401, 402, 403	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR41C	Lot 86	410, 411, 412, 413	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR42C	Lot 88	420, 421, 423, 424	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR43C	Lot 88	430, 431, 432, 433	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR44C	Lot 88	440, 441, 442, 443	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR45C	Lot 88	450, 451, 452, 453	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR46C	Lot 88	460, 461, 462, 463	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR47C	Lot 88	470, 471, 472, 473	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR48C	Lot 88	480, 481, 482, 483	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR49C	Lot 88	490, 491, 492, 493	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR50C	Lot 88	500, 501, 502, 503	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR51C	Lot 88	510, 511, 512, 513	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR52C	Lot 88	520, 521, 522, 523	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR53C	Lot 88	530, 531, 532, 533	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
SR100D	Lot 91	100	Organochlorine pesticides (OCP)
SR110D	Lot 91	110	OCP
SR120D	Lot 91	120	OCP
SR130D	Lot 91	130	OCP
SR140D	Lot 91	140	OCP
SR150D	Lot 91	150	OCP
SR160D	Lot 91	160	OCP
SR170D	Lot 91	170	OCP
SR180D	Lot 89	180	OCP
SR190D	Lot 89	190	OCP

Table 2 cont. Schedule of samples and analyses

Sample ID	Sample location	Discrete sample ID	Analysis undertaken
SR200D	Lot 89	200	OCP
SR210D	Lot 89	210	OCP
SR220D	Lot 89	220	OCP
SR230D	Lot 89	230	OCP
SR240D	Lot 89	240	OCP
SR250D	Lot 11	250	OCP
SR260D	Lot 11	260	OCP
SR270D	Lot 11	270	OCP
SR280D	Lot 11	280	OCP
SR290D	Lot 11	290	OCP
SR300D	Lot 11	300	OCP
SR310D	Lot 11	310	OCP
SR320D	Lot 11	320	OCP
SR330D	Lot 11	330	OCP
SR340D	Lot 86	340	OCP
SR350D	Lot 86	350	OCP
SR360D	Lot 86	360	OCP
SR370D	Lot 86	370	OCP
SR380D	Lot 86	380	OCP
SR390D	Lot 86	390	OCP
SR400D	Lot 86	400	OCP
SR410D	Lot 86	410	OCP
SR420D	Lot 88	420	OCP, Pb
SR421D	Lot 88	421	Pb
SR422D	Lot 88	422	Pb
SR423D	Lot 88	423	Pb
SR430D	Lot 88	430	OCP, Pb
SR431D	Lot 88	431	Pb
SR432D	Lot 88	432	Pb
SR433D	Lot 88	433	Pb
SR440D	Lot 88	440	OCP
SR450D	Lot 88	450	OCP, As, Pb
SR451D	Lot 88	451	As, Pb
SR452D	Lot 88	452	As, Pb
SR453D	Lot 88	453	As, Pb
SR460D	Lot 88	460	OCP
SR470D	Lot 88	470	OCP
SR480D	Lot 88	480	OCP
SR490D	Lot 88	490	OCP
SR500D	Lot 88	500	OCP
SR510D	Lot 88	510	OCP, Pb
SR511D	Lot 88	511	Pb
SR512D	Lot 88	512	Pb
SR513D	Lot 88	513	Pb
SR520D	Lot 88	520	OCP
SR530D	Lot 88	530	OCP, Pb
SR531D	Lot 88	531	Pb
SR532D	Lot 88	532	Pb
SR533D	Lot 88	533	Pb
H1	East bluestone cottage (Lot 91)	H1	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), OCP, organochlorine pesticides (OPP)
H2	South weed shed (Lot 91)	H2	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H3	North bluestone cottage (Lot 91)	H3	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP

Table 2 cont. Schedule of samples and analyses

Sample ID	Sample location	Discrete sample ID	Analysis undertaken
H4	North shed 2 (Lot 91)	H4	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H5	East shed 3 (Lot 91)	H5	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H6	South east shed 4 (Lot 91)	H6	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H7	Downslope bore (Lot 91)	H7	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H8	Adjacent tree (Lot 91)	H8	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H9	Adjacent shed (Lot 11)	H9	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H10	Refuse stockpile (Lot 11)	H10	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H11	Dam sediment (Lot 11)	H11	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H12	Water tank and cart (Lot 86)	H12	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H13	Water tank and cart (Lot 86)	H13	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H14	Livestock yards (Lot 86)	H14	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H15	Below AST (Lot 86)	H15	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H16	Adjacent oil tank (Lot 86)	H16	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H17	Adjacent oil drums (Lot 86)	H17	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H18	North side garage (Lot 86)	H18	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H19	West side garage (Lot 86)	H19	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H20	South dwelling (Lot 86)	H20	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H21	East dwelling (Lot 86)	H21	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H22	Former structure (Lot 86)	H22	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H23	East of garage (Lot 88)	H23	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H24	South of garage (Lot 88)	H24	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H25	East of house (Lot 88)	H25	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H26	West of house (Lot 88)	H26	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H27	Adjacent iron sheeting	H27	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H28	East of stable (Lot 88)	H28	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H29	West of stable and adjacent water tank (Lot 88)	H29	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H30	West of bore shed (Lot 88)	H30	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H31	Soil stockpile (Lot 88)	H31	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP
H32	Soil stockpile (Lot 88)	H32	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, PAH, OCP, OPP

10. Quality assurance and quality control

10.1 Sampling design

The sampling program is intended to provide data as to the presence and levels of contaminants.

A stratified sampling pattern was adopted to assess the probable location of contamination. Discrete soil samples were collected across the site on a systematic grid pattern of 20 metres. This sampling density will enable the detection of an area with an elevated concentration on a radius of 12 metres across the site with a 95% confidence level. The number of sampling locations is within the recommended density in the EPA sampling guidelines.

Additional discrete samples were collected in areas identified as potential hot-spot locations. The sampling density of hotspot areas is considered sufficient for characterisation.

10.2 Field

The collection of samples was undertaken in accordance with accepted standard protocols (NEPC 1999). Composite sampling was initially undertaken to reduce the cost of chemical analysis. Combining equal amounts from four discrete samples created the composite samples. A composite sample represents the average concentration of the sub-sample. The rules for composite sampling were observed (EPA 1995). All composite samples were analysed for arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury.

Selected discrete soil samples collected from the site were analysed for OCP, lead, arsenic and chromium (VI).
Discrete samples collected from potential hot-spot areas were analysed for heavy metals, TRH, BTEXN, OCP, OPP and PAH

Sampling equipment was decontaminated between each sampling event. The appropriate storage conditions and duration were observed between sampling and analysis. A chain of custody form accompanied the samples to the laboratory (Appendix 4).

A single sampler was used to collect the samples using standard methods. Soil collected was a fresh sample from a hand shovel. After collection the samples were immediately placed in new glass sampling jars and placed in a cooler.

Eight duplicate samples were collected which is within recommended EPA guidelines. No field blank, rinsate, trip blank or matrix spikes were submitted for analysis. Some samples from all batches did not contain contaminants which confirm the absence of cross contamination during transport and storage.

A field sampling log is presented in Appendix 3.

10.3 Laboratory

Chemical analysis was conducted by SGS Laboratories, Alexandria, which is NATA accredited for the tests undertaken. The laboratories have quality assurance and quality control programs in place, which include internal replication and analysis of spike samples and recoveries.

Method blanks, matrix duplicates and laboratory control samples were within acceptance criteria. The quality assurance and quality control report is presented together with the laboratory report as Appendix 4.

10.4 Data evaluation

The laboratory quality control report indicates the data variability is within acceptable industry limits. The data is considered representative and usable for the purposes of the investigation. Data quality indicators are presented in Appendix 2.

11. Assessment criteria

The proposed land-use is a residential subdivision. The laboratory results were assessed against the proposed land-use of residential with access to soil (*HIL A*). The health-based investigation levels of contaminants in the soil for residential, for the substances for which criteria are available, are listed in Table 3, as recommended in the NEPM (1999).

The NEPM (1999) also provides health screening levels (HSL) for hydrocarbons in soil. The HSLs have been developed to be protective of human health for soil types, depths below surface and apply to exposure to hydrocarbons through the predominant vapour exposure pathway. The appropriate HSLs for the site is listed in Table 5. TRH>16 have physical properties which make the TRH fractions non-volatiles and therefore these TRH fractions are not applicable for vapour intrusion.

Ecological investigation levels (EIL) have been developed for the protection of terrestrial ecosystems for selected metals and organic substances in the soil in the guideline (NEPC 1999). Ecological screening levels (ESL) assess the risk to terrestrial ecosystems from petroleum hydrocarbons in the soil. The EILs and ESLs consider the properties of the soil and contaminants and the capacity of the local ecosystem to accommodate increases in contaminant levels.

ESLs are dependent on land-use, soil types and are applicable to contaminants up to 2m below the surface. The appropriate ESLs for the site is residential and fine soil as listed in Table 5.

EILs vary with land-use and apply to contaminants up to 2m depth below the surface. The EILs for residential land-use are listed in Table 5.

Management limits have been developed to assess petroleum hydrocarbons following evaluation of human health and ecological risks (NEPC 1999). Management limits are applicable as screening levels after consideration of relevant ESLs and HSLs. The appropriate management limit for the site is listed in Table 5.

Typical CEC value for the site is >10-15cmol(+)/kg and pH values of between 5 and 5.5 (eSPADE 2019). The proposed land-use is residential (urban residential areas and open space). The contaminants have been identified in the soil for at least two years and are considered aged.

Ambient background concentrations of metals have been determined based on results obtained from investigations within the locality.

The investigation threshold was adjusted to enable the detection of an individual location being diluted in the composting process (EPA 1995). For composite sampling, the analyte result was divided against the number of discrete samples making up the composite. This is based on a worst-case scenario in which one sample has a high concentration whilst other discrete samples have zero concentration. This is a conservative approach.

Chromium is analysed as total chromium which is the sum of chromium (III) and chromium (VI). Chromium (VI) is a potential contaminant from industrial processes including ferrochrome production, electroplating, pigment production and tanning (WHO 1998). Chromium (VI) is reduced to chromium (III) when it comes into contact with organic matter in biota, soil and water. Chromium in the environment is present in the trivalent state (WHO 1998).

Table 3. Soil assessment criteria metals and OCPs, residential land-use (mg/kg)

Analyte	HIL A		EIL	
	Discrete	Composite	Discrete	Composite
Arsenic	100	25	100	25
Cadmium	20	5	-	-
Chromium (VI)	100	25	-	-
Chromium (III)	-	-	574	143.5
Copper	6,000	1,500	255	63.8
Lead	300	75	1,100	275
Nickel	400	100	275	68.5
Zinc	7,400	1,850	728	182
Mercury	40	10	-	-
OCP - DD's	240	-	180	-
OPP - Atrazine	320	-	-	-
OPP - Chlorpyrifos	160	-	-	-
PAH (Total)	300	-	-	-
PAH (Carcinogenic)	3	-	-	-

HIL- human investigation level, EIL- ecological investigation level.

Table 4. EIL Calculation sheet, residential/public open space land-use

Analyte	Rationale	ACL (mg/kg)	ABC (mg/kg)	EIL (mg/kg)
Arsenic	Aged	100	-	100
Chromium (III)	Clay content 20% aged	510	64	574
Copper	CEC 19cmol/kg, pH 6.5, organic carbon 1.8%	220	35	255
Lead	Generic	1,100	-	1,100
Nickel	CEC 19cmol/kg	260	15	275
Zinc	CEC 19cmol/kg, pH 6.5	670	58	728
DDT	Aged	180	-	180

ACL – added contaminant limit, ABC – ambient background concentration, EIL – Ecological investigation limit (ACL+ABC)

Table 5. Soil assessment criteria hydrocarbons, residential land-use

Analyte	EIL	HSL clay soil 0 to <1m	ESL fine soil	Management limits for TRH in soil
F1 - TRH (C6-C10)	-	50	180	800
F2 - TRH (>C10-C16)	-	280	120	1,000
F3 - TRH (>C16-C34)	-	NA	1,300	3,500
F4 - TRH (>C34-C40)	-	NA	5,600	10,000
Benzene	-	0.7	65	-
Toluene	-	480	105	-
Ethylbenzene	-	NL	125	-
Xylenes	-	110	45	-
Naphthalene	170	5	-	-

EIL – ecological investigation limit, ESL – ecological screening limit, HSL – health screening limit

12. Results and discussion

12.1 General site areas

Surface cover was dominated by pasture grasses and broadleaved weeds including Paterson's curse, black thistle and other broadleaved weeds. Ornamental species were located around the dwellings at each property. The site was predominately covered by vegetation.

A review of historical imagery indicated that the predominant historical land-use at the site involved orchards, agricultural grazing and associated dwellings. Potential pesticide mixing areas included water tanks and shed storage areas.

There is no evidence of mines, sheep dips or contaminating industrial activities on the site from the review of site history or site walkover. Vegetation cover on-site was generally 100%.

12.2 Lot 11

Lot 11 appears to previously have formed part of a larger property with Lot 86. A dam is evident in aerial photos in the northern section of Lot 11 (sample H11). Lot 11 is currently being used for large lot residential with associated shed used for storage of equipment and machinery (sample H9). A stockpile of rubble including bricks and concrete was identified east of the dwelling (sample H10).

12.3 Lot 86

Livestock yards (sample H14) were identified to the west of the large shed and dwelling located at Lot 86 at the time of inspection. An aboveground storage tank (sample H15), oil tank and oil drums (samples H16 and H17) were located between the large shed and livestock yards. A garage (samples H18 and H19) was located in the northern section of the side south of the dwelling (samples H20 and H21). A shed assumed to be used for storage of equipment and machinery was located west of the dwelling (not accessed).

A water tank on a gantry and old cart was identified in the southern section of the site (sample H12 and H13).

Bare vegetation was identified within the area of a possible former structure identified in the 1984 aerial photograph (sample H22). The purpose or function of the structure is unknown.

12.3 Lot 88

A rural-residential dwelling (samples H25 and H26) and adjacent garage (sample H23) is located in the eastern section of Lot 88. A bore shed was identified on the northern boundary of the lot (sample H30). A stockpile of iron sheeting is located in the northern central section of the site (sample H27). Stables and a water tank were located north of the dwelling (samples H28 and H29). A bore shed was located on the

northern boundary of the site (sample H30). General refuse including timber, metal and farming equipment was identified south of the dwelling (sample H24).

Soil from an unknown source was located south of the garage (samples H31 and H32).

12.4 Lot 89

Lot 89 was previously used for orchards. The lot is currently used for grazing of stock with no structures currently located on the site. No former structures were identified on the site from aerial photographs.

12.5 Lot 91

A bluestone cottage is located in the north eastern section of Lot 91. A small shed was identified adjacent the bluestone cottage (H1 and H3). Asbestos cement corrugated sheeting was visually identified on the walls and roof. Three sheds are located along the northern boundary of the site (samples H2, H4, H5) and are used as a weed shed and stables. The western most shed on the northern boundary contained an asbestos cement corrugated roof. A bore shed was located in the central section of the site (sample H6 and H7). A bare area of soil was identified adjacent a tree downslope of the bore shed (H8) the bare area is expected to be associated with grazing of stock and shading.

A possible former structure was identified in the western section of Lot 91 of the 1984 aerial photograph. It is unknown what the structure was used for.

12.6 Soil analytical results

12.6.1 General site area

Levels of chromium (total) exceeded the adopted health investigation levels for chromium (VI) in 43 samples (samples SR1C – SR36C, SR38C, SR39C, SR41, SR47C – SR49C and SR53C). Three samples were analysed for chromium (VI) to allow characterisation of total chromium identified in samples collected from the site. Chromium (VI) was not detected in the samples (Table 6) and it is assumed that total chromium in all samples comprised chromium (III) (Table 6).

Composite samples SR42C, SR43C, SR45C, SR51C and SR53C exceeded the adopted health investigation levels for lead. Composite sample SR45C additionally exceeded the adopted health and ecologically thresholds for arsenic. Subsequent analysis of soil samples collected from the discrete sampling locations returned levels of arsenic and lead below the adopted thresholds (Table 7).

The levels of contaminants of concern analysed in the soil samples (Tables 6, 7, 8) across the general site area were below the adopted residential land-use thresholds (NEPC 1999).

12.6.2 Potential hotspot areas

Levels of organochlorine pesticides (DD's) and heavy metals were detected at levels less than the adopted residential threshold for human health. Low levels of hydrocarbons were detected in sample H15 below the AST on Lot 86.

Levels of zinc in sample H3 slightly exceeded the adopted ecological screening levels for residential land-use. No bare areas or evidence of impact from zinc was observed during the site inspection or from review of aerial photographs. The levels of zinc are not expected to impact on plant growth on-site.

The levels of all other contaminants of concern analysed in the soil samples (Tables 9 and 10) collected from potential hotspot areas were below the adopted residential land-use thresholds (NEPC 1999).

Table 6. Analytical results and threshold concentrations – Heavy metals (mg/kg)

Sample ID	Sample type	Arsenic	Cadmium	Chromium (III)^	Chromium (VI)	Copper	Lead	Nickel	Zinc	Mercury
SR10C	Composite	5	0.7	53	-	30	36	15	140	0.06
SR11C	Composite	3	ND	51	-	37	14	11	53	ND
SR12C	Composite	3	ND	36	-	19	16	12	31	ND
SR13C	Composite	6	ND	45	-	19	15	12	36	0.05
SR14C	Composite	3	ND	39	-	25	13	11	43	ND
SR15C	Composite	3	ND	34	-	23	11	11	27	ND
SR16C	Composite	4	ND	49	-	21	14	14	29	ND
SR17C	Composite	2	ND	51	-	22	10	11	27	ND
SR19C	Composite	5	ND	41	-	43	18	11	47	0.14
SR20C	Composite	3	ND	33	-	44	15	10	37	0.30
SR21C	Composite	5	ND	43	-	42	16	12	43	0.17
SR22C	Composite	6	ND	43	-	41	16	11	38	0.17
SR23C	Composite	4	ND	48	-	45	18	12	47	0.21
SR24C	Composite	2	ND	32	-	33	10	6.3	32	0.16
SR25C	Composite	3	ND	77	-	21	12	15	53	ND
SR26C	Composite	3	ND	84	-	17	21	14	140	ND
SR27C	Composite	2	ND	68	-	26	9	11	29	ND
SR28C	Composite	2	ND	85	-	21	14	17	48	ND
SR29C	Composite	2	ND	89	ND	24	10	15	34	ND
SR30C	Composite	1	ND	75	-	28	9	12	26	ND
SR31C	Composite	3	ND	110	ND	19	10	17	38	ND
SR32C	Composite	3	ND	96	-	29	12	18	66	ND
SR33C	Composite	2	ND	120	ND	17	9	17	35	ND
SR34C	Composite	3	ND	36	-	44	16	8.3	49	ND
SR35C	Composite	7	ND	29	-	24	17	7.4	31	0.05
SR36C	Composite	3	ND	58	-	56	10	11	28	ND
SR37C	Composite	4	ND	20	-	28	16	5.6	25	ND
SR38C	Composite	4	ND	35	-	41	16	8.2	46	ND
SR39C	Composite	3	ND	41	-	39	17	8.5	41	ND
SR40C	Composite	4	ND	19	-	25	18	5.2	56	ND
SR41C	Composite	3	ND	29	-	33	17	7.6	69	ND
SR42C*	Composite	20	0.3	14	-	45	**92**	5.6	81	0.24
SR43C*	Composite	16	ND	15	-	56	**84**	4.8	49	0.28
SR44C	Composite	5	ND	23	-	23	22	7.9	48	0.20
SR45C*	Composite	**29**	0.4	14	-	52	**120**	4.8	24	0.58
SR46C	Composite	18	ND	20	-	37	75	6.6	56	0.15
SR47C	Composite	6	ND	30	-	35	23	9.4	88	0.12
SR48C	Composite	4	ND	35	-	27	17	9.7	71	0.06
SR49C	Composite	11	ND	35	-	41	42	8.5	31	0.20
SR50C	Composite	2	ND	18	-	23	16	7.6	28	0.10
SR51C*	Composite	10	ND	21	-	43	**92**	5.0	100	0.31
SR52C	Composite	5	ND	14	-	22	30	4.7	100	0.19
SR53C*	Composite	5	ND	49	-	35	**240**	37	160	0.05
Health Investigation Levels – Residential land-use threshold (NEPC 1999)										
Discrete		*100*	*20*	*-*	*100*	*6,000*	*300*	*400*	*7,400*	*40*
Composite		*25*	*5*	*-*	*25*	*1,500*	*75*	*100*	*1,850*	*10*
Ecological Investigation Levels – Urban residential and public open space land-use threshold (NEPC 1999)										
Discrete		*100*	*-*	*574*	*-*	*255*	*1,100*	*275*	*728*	*-*
Composite		*25*	*-*	*143.5*	*-*	*63.8*	*276.25*	*68.5*	*182*	*-*

ND = not detected at the detection limit, *See Table 6 for analysis of discrete samples, ^ - Chromium analysed as chromium (total) was assumed to be chromium (III) due to characterisation of representative samples and agricultural site, bold exceeds HIL, italics exceeds EIL

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Table 7. Analytical results and threshold concentrations of discrete samples where composite samples exceeded the adopted thresholds– lead and arsenic (mg/kg)

Sample ID	Sample type	Arsenic	Lead
SR420D	Discrete	-	92
SR421D	Discrete	-	140
SR422D	Discrete	-	210
SR423D	Discrete	-	36
SR430D	Discrete	-	87
SR431D	Discrete	-	57
SR432D	Discrete	-	82
SR433D	Discrete	-	94
SR450D	Discrete	8	39
SR451D	Discrete	17	63
SR452D	Discrete	38	140
SR453D	Discrete	16	67
SR510D	Discrete	-	56
SR511D	Discrete	-	120
SR512D	Discrete	-	140
SR513D	Discrete	-	150
SR530D	Discrete	-	18
SR531D	Discrete	-	37
SR532D	Discrete	-	61
SR533D	Discrete	-	140
Health Investigation Levels – Residential land-use threshold (NEPC 1999)			
		100	*300*
Ecological Investigation Levels – Urban residential and public open space land-use threshold (NEPC 1999)			
		100	*1,105*

ND = not detected at the detection limit

Table 8. Analytical results and threshold concentrations – OCP's (mg/kg)

Sample ID	OCP (total)	DD's
SR100D	ND	ND
SR110D	ND	ND
SR120D	ND	ND
SR130D	ND	ND
SR140D	ND	ND
SR150D	ND	ND
SR160D	ND	ND
SR170D	ND	ND
SR180D	ND	ND
SR190D	ND	0.3
SR200D	1	1.4
SR210D	2	2.0
SR220D	2	1.7
SR230D	2	2.3
SR240D	2	2.4
SR250D	ND	ND
SR260D	ND	ND
SR270D	ND	ND
SR280D	ND	ND
SR290D	ND	ND
SR300D	ND	ND
SR310D	ND	ND
SR320D	1	1.3
SR330D	ND	ND
SR340D	ND	0.2
SR350D	ND	0.2
SR360D	ND	0.2
SR370D	ND	0.2
SR380D	ND	0.3
SR390D	ND	0.2
SR400D	ND	0.2
SR410D	ND	ND
SR420D	2	1.6
SR421D	ND	ND
SR422D	ND	ND
SR423D	ND	ND
SR430D	ND	ND
SR432D	ND	ND
SR433D	ND	ND
SR440D	ND	0.6
SR450D	ND	0.3
SR460D	1	1.4
SR470D	ND	0.2
SR480D	ND	ND
SR490D	ND	0.1
SR500D	ND	0.9
SR510D	ND	0.4
SR520D	ND	ND
SR530D	ND	ND
Health Investigation Levels – Residential land-use threshold (NEPC 1999)	-	*240*
Ecological Investigation Levels – Urban residential and public open space land-use threshold	-	*180*

Table 9. Analytical results and threshold concentrations of hot-spot samples – Heavy metals (mg/kg)

Sample ID	Sample Location	Arsenic	Cadmium	Chromium (total)	Copper	Lead	Nickel	Zinc	Mercury	OCP (total)	OCP (DD's)	OPP
H1	West of bluestone cottage (Lot 91)	6	0.5	62	76	190	15	690	0.28	1	0.8	ND
H2	South of weed shed (Lot 91)	5	0.6	80	130	73	20	670	0.18	1	0.9	ND
H3	North bluestone cottage (Lot 91)	5	1.8	62	150	160	17	*1,100*	0.09	ND	0.1	ND
H4	North of shed 2 (Lot 91)	2	ND	57	32	34	11	170	ND	ND	ND	ND
H5	East shed 3 (Lot 91)	2	ND	47	24	16	11	250	ND	ND	0.1	ND
H6	South east shed 4 (Lot 91)	3	ND	15	80	16	7.2	200	ND	ND	ND	ND
H7	Downslope bore (Lot 91)	3	ND	29	25	14	9.3	100	ND	ND	ND	ND
H8	Adjacent tree (Lot 91)	3	ND	34	19	28	10	200	ND	ND	ND	ND
H9	Adjacent shed (Lot 11)	1	ND	65	17	8	15	61	ND	ND	ND	ND
H10	Refuse stockpile (Lot 11)	2	ND	89	18	10	17	39	ND	ND	ND	ND
H11	Dam sediment (Lot 11)	1	ND	46	16	8	11	39	ND	ND	ND	ND
H12	Water tank and cart (Lot 86)	3	ND	30	60	32	7.7	160	0.42	17	17	ND
H13	Water tank and cart (Lot 86)	3	ND	32	23	21	7.4	34	ND	ND	0.2	ND
H14	Livestock yards (Lot 86)	3	ND	40	51	31	10	85	0.06	ND	0.6	ND
H15	Below AST (Lot 86)	5	0.9	47	44	100	13	380	ND	ND	ND	ND
H16	Adjacent oil tank (Lot 86)	3	ND	42	25	40	8.3	180	ND	1	1.1	ND
H17	Adjacent oil drums (Lot 86)	5	1.1	43	35	52	14	170	0.09	ND	ND	ND
H18	North side garage (Lot 86)	1	ND	19	14	7	5.5	43	ND	ND	ND	ND
H19	West side garage (Lot 86)	2	ND	37	14	10	8.7	41	ND	ND	ND	ND
H20	South dwelling (Lot 86)	3	ND	31	32	57	9.2	170	0.09	0	0.3	ND
H21	East dwelling (Lot 86)	2	ND	23	32	24	6.5	140	0.06	ND	ND	ND
H22	Former structure (Lot 86)	3	ND	51	52	9	12	32	ND	ND	0.2	ND
H23	East of garage (Lot 88)	15	ND	13	64	120	4.8	67	0.57	2	1.9	ND
H24	South of garage (Lot 88)	32	0.4	13	81	140	4.8	52	1.8	4	4.0	ND
H25	East of house (Lot 88)	12	0.3	13	37	160	6.0	180	0.32	ND	ND	ND
H26	West of house (Lot 88)	8	ND	16	36	110	8.3	150	0.15	2	2.0	ND
H27	Adjacent iron sheeting	83	0.9	18	68	210	3.8	29	0.29	2	1.6	ND
H28	East of stable (Lot 88)	2	ND	20	13	14	4.7	58	0.06	ND	0.4	ND
H29	West of stable and adjacent water tank (Lot 88)	5	ND	21	26	25	3.9	26	0.41	ND	ND	ND
H30	West of bore shed (Lot 88)	3	ND	18	11	14	4.8	14	0.12	ND	ND	ND
H31	Soil stockpile (Lot 88)	2	ND	6.5	4.6	5	18	18	ND	ND	0.3	ND
H32	Soil stockpile (Lot 88)	4	ND	18	16	25	27	27	0.19	ND	ND	ND
Health Investigation Levels – Residential land-use threshold (NEPC 1999)												
		100	*20*	-	*6,000*	*300*	*400*	*7,400*	*40*	-	*240*	*320**
Ecological Investigation Levels – Urban residential and public open space land-use threshold (NEPC 1999)												
		100	-	574	*255*	*1,105*	*275*	*728*	-	-	-	-

ND - not detected at the detection limit, * - Atrazine

Table 10. Analytical results and threshold concentrations of hot-spot samples – Hydrocarbons (mg/kg)

Sample ID	Location (Figure 2)	TRH (C6-C10)	TRH (C10-C16)	TRH (C16-C34)	TRH (C34-C40)	Benzene	Toluene	Ethyl-benzene	Xylenes	Naphthalene	PAH (Total)	PAH (carcinogenic)
H1	West of bluestone cottage (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H2	South of weed shed (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H3	North bluestone cottage (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H4	North shed 2 (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H5	East shed 3 (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H6	South east shed 4 (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H7	Downslope bore (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H8	Adjacent tree (Lot 91)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H9	Adjacent shed (Lot 11)	ND	ND	140	ND	ND	ND	ND	ND	ND	ND	ND
H10	Refuse stockpile (Lot 11)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H11	Dam sediment (Lot 11)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H12	Water tank and cart (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H13	Water tank and cart (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H14	Livestock yards (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H15	Below AST (Lot 86)	ND	ND	120	ND	ND	ND	ND	ND	ND	ND	ND
H16	Adjacent oil tank (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H17	Adjacent oil drums (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H18	North side garage (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H19	West side garage (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H20	South dwelling (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H21	East dwelling (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H22	Former structure (Lot 86)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H23	East of garage (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	0.3
H24	South of garage (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	0.5
H25	East of house (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H26	West of house (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H27	Adjacent iron sheeting	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.2	0.5
H28	East of stable (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H29	West of stable and adjacent water tank (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	ND
H30	West of bore shed (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H31	Soil stockpile (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H32	Soil stockpile (Lot 88)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HSL – residential 0m to <1m		*50*	*280*	*NA*	*NA*	*0.7*	*480*	*NL*	*110*	*5*	-	-
HIL - residential		-	-	-	-	-	-	-	-	-	*300*	*3*
EIL – residential		-	-	-	-	-	-	-	-	*170*	-	-
ESL – residential / fine soil		*180*	*120*	*1,300*	*5,600*	*65*	*105*	*125*	*45*	-	-	-
Management limits for TRH residential		*800*	*1,000*	*3,500*	*10,000*	-	-	-	-	-	-	-

ND – not detected, NA – Not applicable, HIL – Health screening levels, EIL – ecological investigation levels, ESL – Ecological screening levels

13. Site characterisation

13.1 Environmental contamination

Zinc was identified in one sample (sample H3) at levels exceeding the ecological investigation levels. General refuse was identified across the site.

13.2 Chemical degradation production

Heavy metals do not degrade. General refuse does not degrade

13.3 Exposed population

No bare areas or evidence of impact from zinc was observed during the site inspection or from review of aerial photographs. The levels of zinc are not expected to impact on plant growth on-site.

The general refuse identified across the site is an amenity hazard for the proposed residential land-use.

14. Conclusions and recommendations

14.1 Summary

An inspection of the site was made on 30 July, 4 and 18 August 2020. The site is located on the southern fringes of Orange NSW and has an area of approximately 11ha.

The site has a land-use history of orchards and agricultural grazing with rural-residential dwellings. Review of historical aerials indicate several structures across the site which are no longer present.

There is no evidence of mines, sheep dips or contaminating industrial activities on the site from the review of site history or site walkover. Potential pesticide mixing areas included water tanks and potential shed storage areas.

An aboveground storage tank (AST) was identified at Lot 86. Minor hydrocarbon staining was identified below the AST. Oil drums were located adjacent the AST. Livestock yards were additionally located at Lot 86 west of the AST. Sheds constructed with asbestos containing materials were located at Lot 91. General refuse was identified across the lots including bricks, iron sheeting and concrete. The refuse is an amenity hazard.

Soil samples were collected across the general site areas on a systematic grid pattern of approximately 20m. Composite samples were analysed for heavy metals. Discrete samples were analysed for OCP and selected samples for lead and arsenic.

Soil samples were collected in areas identified as potential hot-spot areas identified from historical review and site inspections. The potential hotspot samples were analysed for heavy metals, TRH, BTEXN, PAH, OCP and OPP.

Three composite samples collected from the general site area were analysed for chromium (VI) to allow characterisation of total chromium identified in samples collected from the site. Chromium (VI) was not detected in the samples and it is assumed that total chromium in all samples comprised chromium (III).

The final soil sampling program did not detect elevated levels of the analysed metals or persistent pesticides across the general site.

Low levels of pesticides and hydrocarbons were detected in potential hotspot areas below the adopted residential human health and ecological thresholds. Levels of zinc exceeded the ecological investigation levels for residential land-use in one sample (H3). No bare areas or evidence of impact from zinc was observed during the site inspection or from review of aerial photographs. The levels of zinc are not expected

to impact on plant growth on-site. The levels of all other substances evaluated were below the adopted thresholds for residential land-use.

14.2 Assumptions in reaching the conclusions

It is assumed the sampling sites are representative of the site. An accurate history has been obtained and typical past farming practices were adopted.

14.3 Extent of uncertainties

The analytical data relate only to the locations sampled. Soil conditions can vary both laterally and vertically and it cannot be excluded that unidentified contaminants may be present. The sampling density was designed to detect a 'hot spot' in the proposed residential lots within a radius of approximately 12 metres and with a 95% level of confidence. The investigation did not comprise an asbestos audit of the buildings.

14.4 Suitability for proposed use of the site

The site is suitable for residential activities following removal of refuse located across properties.

14.5 Limitations and constraints on the use of the site

No constraints are recommended.

14.6 Recommendation for further work

The site is suitable for proposed residential land-use following removal of refuse identified across the site. Asbestos infrastructure should be removed in accordance with *How to Safely Remove Asbestos* (SafeWork NSW 2019) recommendations. An unexpected finds protocol should be adopted and implemented on the site (Appendix 5).

15. Report limitations and intellectual property

This report has been prepared for the use of the client to achieve the objectives given the clients requirements. The level of confidence of the conclusion reached is governed by the scope of the investigation and the availability and quality of existing data. Where limitations or uncertainties are known, they are identified in the report. No liability can be accepted for failure to identify conditions or issues which arise in the future and which could not reasonably have been predicted using the scope of the investigation and the information obtained.

The investigation identifies the actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing is interpreted by geologists, engineers or scientists who then render an opinion about overall subsurface conditions, the nature and extent of the contamination, its likely impact on the proposed development and appropriate remediation measures. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock or time. The actual interface between materials may be far more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions. It is thus important to understand the limitations of the investigation and recognise that we are not responsible for these limitations.

16. References

Environment Protection Authority (1995) *Contaminated sites: Sampling Design Guidelines* (NSW Environment Protection Authority, Chatswood)

Environment Protection Authority (2020) *Consultants reporting on contaminated land* (NSW Environment Protection Authority, Chatswood)

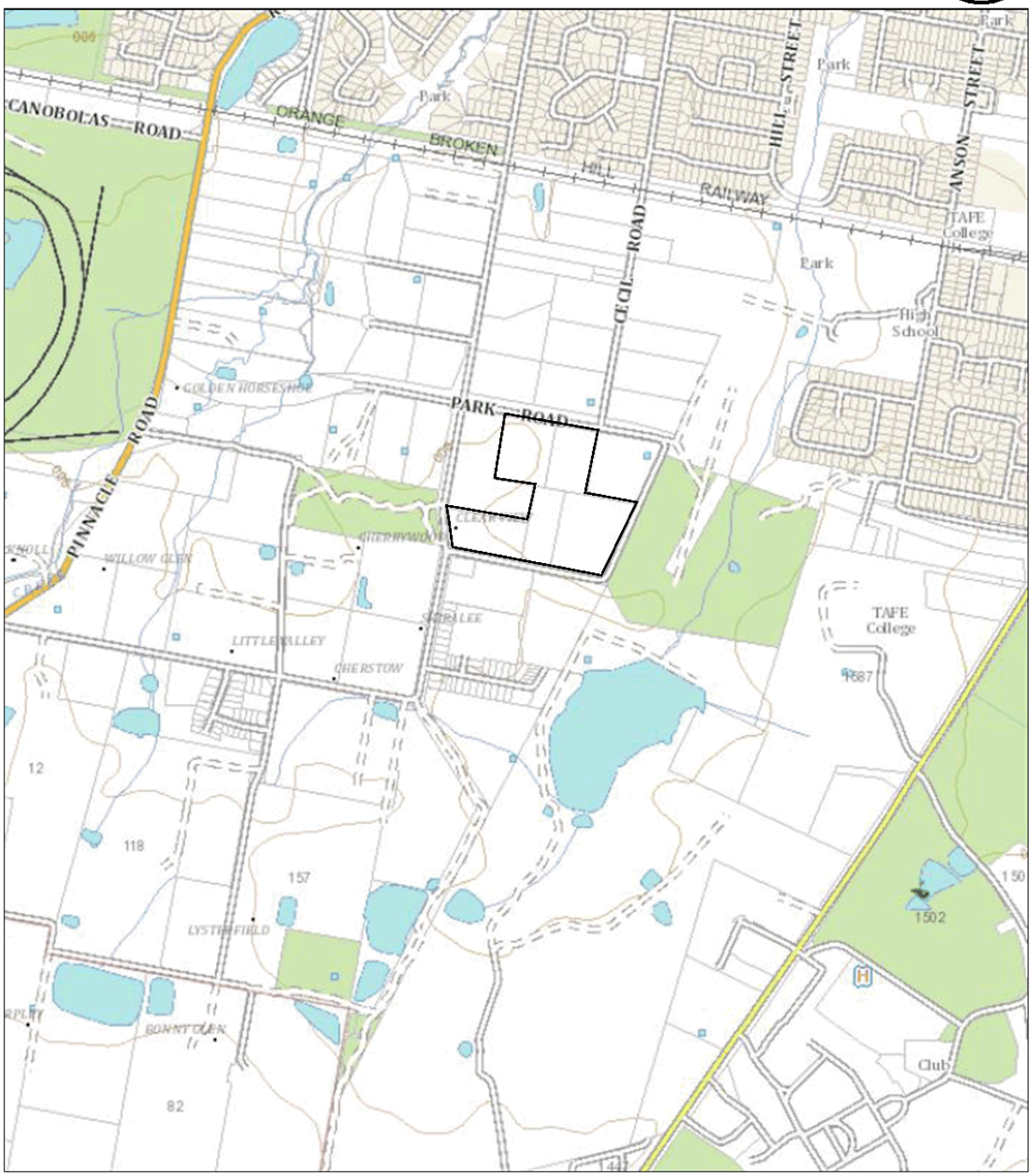
Environment.nsw.gov.au, 'eSPADE | NSW Environment & Heritage' Version 2. N.p., 2019. Web. 9 September 2020.

Environment Protection Authority (1995) *Contaminated sites: Sampling Design Guidelines* (NSW Environment Protection Authority, Chatswood)

NEPC (1999 revised 2013) *National Environment Protection (Assessment of Site Contamination) Measure 1999* (National Environment Protection Council Service Corporation, Adelaide)

SafeWork NSW (2019) *How to Safely Remove Asbestos Code of Practice*

Figures



Legend

Investigation area

Figure 1. Locality map

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

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Job: R12137c	Drawn by: AA	Date: 9/9/2020

Figure 2. Aerial photograph (2020)		
Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW		
	Envirowest Consulting Pty Ltd	
Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,300

0 13 26 52m

Figure 3. Lot 11 grid sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,000

0 10 20 40m

Figure 4. Lot 86 grid sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,400

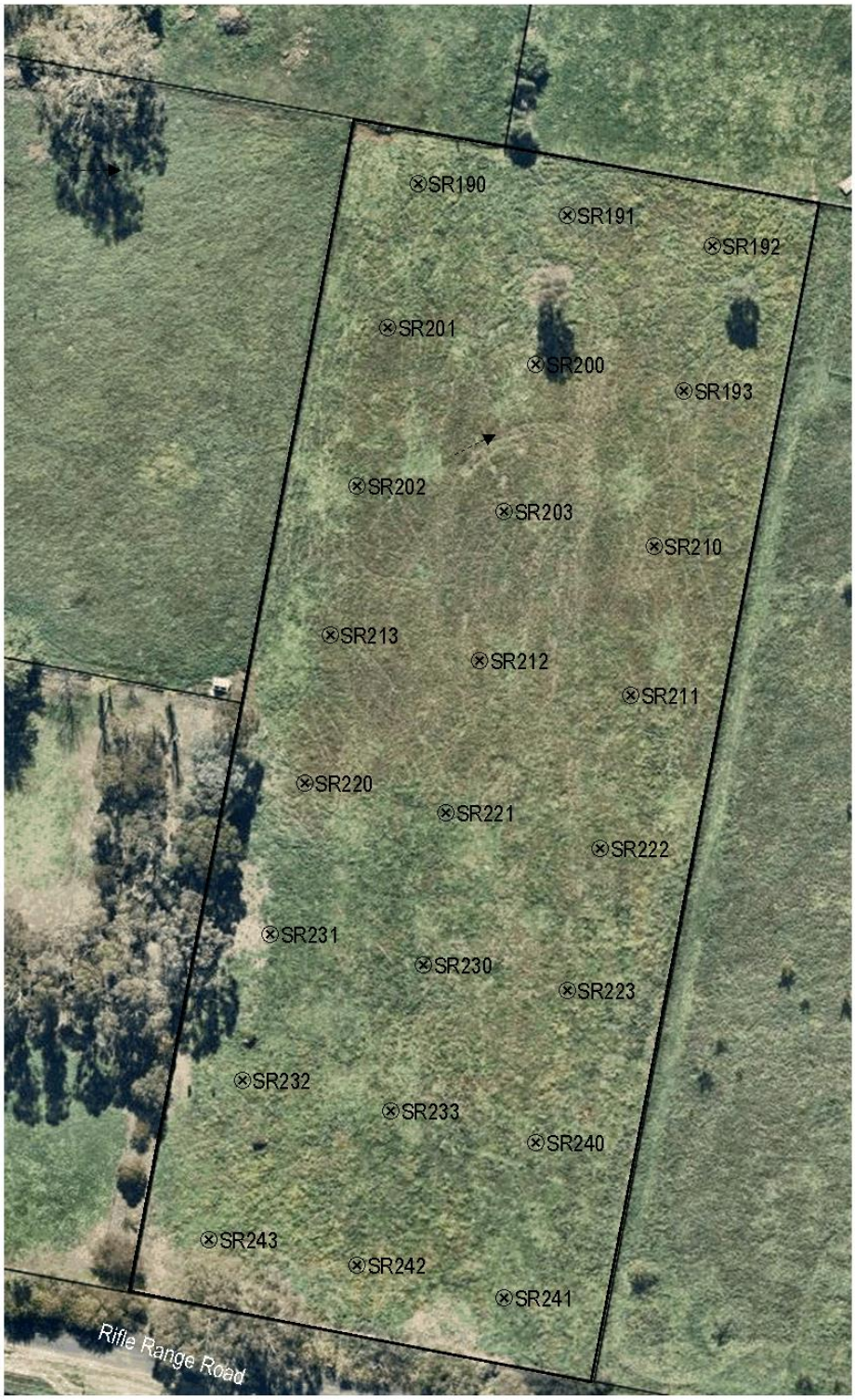
0 14 28 56m

Figure 5. Lot 88 grid sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020



Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,000

0 10 20 40m

Figure 6. Lot 89 grid sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,200

0 12 24 48m

Figure 7. Lot 91 grid sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,300

0 13 26 52m

Figure 8. Lot 11 hotspot sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,000

0 10 20 40m

Figure 9. Lot 86 hotspot sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,400

0 14 28 56m

Figure 10. Lot 88 hotspot sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Legend

Lot boundary

Approximate sampling locations

Slope

Approximate Scale 1: 1,200

0 12 24 48m

Figure 11. Lot 91 hotspot sampling locations

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

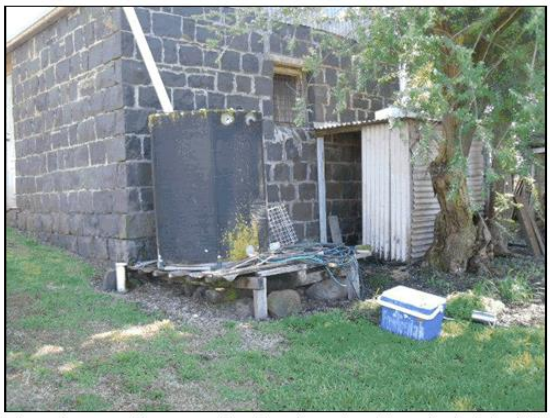
Envirowest Consulting Pty Ltd

Job: R12137c	Drawn by: AA	Date: 9/9/2020

Figure 12. Photographs of the site

Looking east across Lot 91

Looking east over Lot 88



Bluestone cottage and asbestos shed located at Lot 91

Water tank located at Lot 86

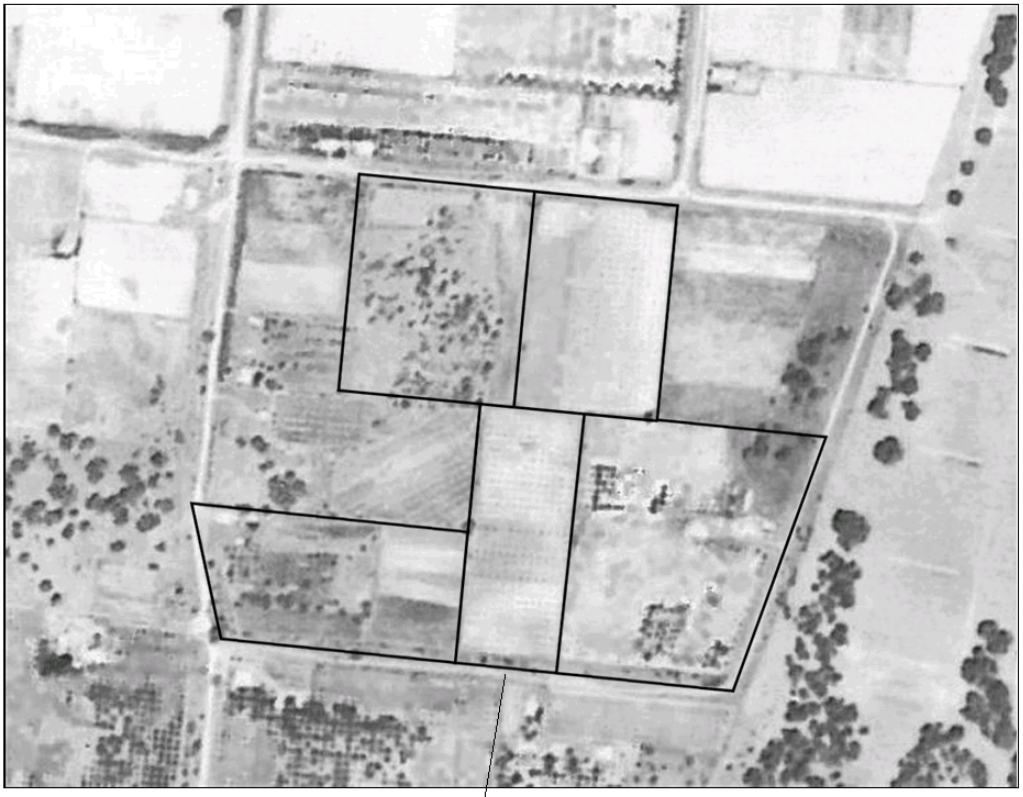
AST located at Lot 86

General refuse located at Lot 88

Stables and water tank located at Lot 88

Stockpile of material located at Lot 88

Appendices



Appendix 1.1 1954 Aerial photograph		
Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW		
	Envirowest Consulting Pty Ltd	
Job: R12137c	Drawn by: AA	Date: 10/9/2020

Appendix 1.2 1972 Aerial photograph		
Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW		
	Envirowest Consulting Pty Ltd	
Job: R12137c	Drawn by: AA	Date: 10/9/2020

Approximate site boundary

Appendix 1.3 1984 Aerial photograph		
Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW		
	Envirowest Consulting Pty Ltd	
Job: R12137c	Drawn by: AA	Date: 10/9/2020

Appendix 1.4 1993 Aerial photograph		
Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW		
	Envirowest Consulting Pty Ltd	
Job: R12137c	Drawn by: AA	Date: 10/9/2020

Approximate site boundary

Appendix 1.5 2003 Aerial photograph		
Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW		
	Envirowest Consulting Pty Ltd	
Job: R12137c	Drawn by: AA	Date: 10/9/2020

Appendix 2. Sample analysis, quality assurance and quality control (QAQC) report

1. Data quality indicators (DQI) requirements

1.1 Completeness

A measure of the amount of usable data for a data collection activity. Greater than 95% of the data must be reliable based on the quality objectives. Where greater than two quality objectives have less reliability than the acceptance criterion the data may be considered with uncertainty.

1.1.1 Field

Consideration	Requirement
Locations and depths to be sampled	Described in the sampling plan. The acceptance criterion is 95% data retrieved compared with proposed. Acceptance criterion is 100% in crucial areas.
SOP appropriate and compiled	Described in the sampling plan.
Experienced sampler	Sampler or supervisor
Documentation correct	Sampling log and chain of custody completed

1.1.2 Laboratory

Consideration	Requirement
Samples analysed	Number according to sampling and quality plan
Analytes	Number according to sampling and quality plan
Methods	EPA or other recognised methods with suitable PQL
Sample documentation	Complete including chain of custody and sample description
Sample holding times	Metals 6 months, OCP 14 days

1.2 Comparability

The confidence that data may be considered to be equivalent for each sampling and analytical event. The data must show little or no inconsistencies with results and field observations.

1.2.1 Field

Consideration	Requirement
SOP	Same sampling procedures to be used
Experienced sampler	Sampler or supervisor
Climatic conditions	Described as may influence results
Samples collected	Sample medium, size, preparation, storage, transport

1.2.2 Laboratory

Consideration	Requirement
Analytical methods	Same methods, approved methods
PQL	Same
Same laboratory	Justify if different
Same units	Justify if different

1.3 Representativeness

The confidence (expressed qualitatively) that data are representative of each media present on the site.

1.3.1 Field

Consideration	Requirement
Appropriate media sampled	Sampled according to sampling and quality plan or in accordance with the EPA (1995) sampling guidelines.
All media identified	Sampling media identified in the sampling and quality plan. Where surface water bodies on the site sampled.

1.3.2 Laboratory

Consideration	Requirement
Samples analysed	Blanks

1.4 Precision

A quantitative measure of the variability (or reproduced of the data). Is measured by standard deviation or relative percent difference (RPD). An RPD analysis is calculated and compared to the practical quantitation limit (PQL) or absolute difference AD.

- Levels greater than 10 times the PQL the RPD is 50%
- Levels between 5 and 10 times the PQL the RPD is 75%
- Levels between 2 and 5 times the PQL the RPD is 100%
- Levels less than 2 times the PQL, the AD is less than 2.5 times the PQL

Data not conforming to the acceptance criterion will be examined for determination of suitability for the purpose of site characterisation.

1.4.1 Field

Consideration	Requirement
Field duplicates	Frequency of 5%, results to be within RPD or discussion required indicate the appropriateness of SOP

1.4.2 Laboratory

Consideration	Requirement
Laboratory and inter lab duplicates	Frequency of 5%, results to be within RPD or discussion required. Inter laboratory duplicates will be one sample per batch.
Field duplicates	Frequency of 5%, results to be within RPD or discussion required
Laboratory prepared volatile trip spikes	One per sampling batch, results to be within RPD or discussion required

1.5 Accuracy

A quantitative measure of the closeness of the reported data to the true value.

1.5.1 Field

Consideration	Requirement
SOP	Complied
Inter laboratory duplicates	Frequency of 5% Analysis criterion 60%RPD for levels greater than 10 times the PQL 85%RPD for levels between 5 to 10 times the PQL 100%RPD at levels between 2 to 5 times the PQL Absolute difference, 3.5 times the PQL where levels are, 2 times PQL

1.5.2 Laboratory

Recovery data (surrogates, laboratory control samples and matrix spikes) data subject to the following control limits:

- 60-140% acceptable data
- 20-60% discussion required, may be considered acceptable
- 10-20% data should considered as estimates
- 10% data should be rejected

Consideration	Requirement
Field blanks	Frequency of 5% <5 times the PQL, PQL may be adjusted
Rinsate blanks	Frequency of 5% <5 times the PQL, PQL may be adjusted
Method blanks	Frequency of 5% <5 times the PQL, PQL may be adjusted
Matrix spikes	Frequency of 5% results to be within +/-40%or discussion required
Matrix duplicates	Sample injected with a known concentration of contaminants with tested. Frequency of 5% results to be within +/-40%or discussion required
Surrogate spikes	QC monitoring spikes to be added to samples at the extraction process in the laboratory where applicable. Surrogates are closely related to the organic target analyte and not normally found in the natural environment. Frequency of 5% results to be within +/-40%or discussion required
Laboratory control samples	Externally prepared reference material containing representative analytes under investigation. These will be undertaken at one per batch. It is to be within +/-40% or discussion required
Laboratory prepared spikes	Frequency of 5% results to be within +/-40%or discussion required

2. Laboratory analysis summary

Two analysis batches were undertaken over the preliminary investigation program. Samples were collected on 30 July and 4 and 8 August 2020. A total of 141 samples were submitted for analytical testing. The samples were collected in the field by an environmental scientist from Envirowest Consulting Pty Ltd, placed into laboratory prepared receptacles as recommended in NEPM (1999). The samples preservation and storage was undertaken using standard industry practices (NEPC 1999). A chain of custody form accompanied transport of the samples to the laboratory.

The samples were analysed at the laboratories of SGS, Alexandria, NSW which is National Association of Testing Authorities (NATA) accredited for the tests undertaken. The analyses undertaken, number of samples tested and methods are presented in the following tables:

Laboratory analysis schedule

Sample id.	Number of samples	Duplicate	Analyses	Date collected	Substrate	Laboratory report
SR10C, SR11C, SR12C, SR13C, SR14C, SR15C, SR16C, SR17C, SR19C, SR20C, SR21C, SR22C, SR23C, SR24C, SR25C, SR26C, SR27C, SR28C, SR29C, SR30C, SR31C, SR32C, SR33C, SR34C, SR35C, SR36C, SR37C, SR38C, SR39C, SR40C, SR41C, SR42C, SR43C, SR44C, SR45C, SR46C, SR47C, SR48C, SR49C, SR50C, SR51C, SR52C, SR53C	52	3	As, Cd, Cr (total), Cu, Pb, Ni, Zn, Hg	30/7/2020 4/8/2020	Soil	SE209680
SR100D, SR110D, SR120D, SR130D, SR140D, SR150D, SR160D, SR190D, SR200D, SR210D, SR220D, SR230D, SR240D, SR250D, SR260D, SR270D, SR280D, SR290D, SR300D, SR310D, SR320D, SR330D, SR340D, SR350D, SR360D, SR370D, SR380D, SR390D, SR400D, SR410D, SR420D, SR430D, SR440D, SR450D, SR460D, SR470D, SR480D, SR490D, SR500D, SR510D, SR520D, SR530D	52	3	OCP	30/7/2020 4/8/2020	Soil	SE209680

Sample id.	Number of samples	Duplicate	Analyses	Date collected	Substrate	Laboratory report
SR29C, SR31C, SR33C	3	0	Cr (VI)	30/7/2020	Soil	SE209680A
H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13, H14, H15, H16, H17, H18, H19, H20, H21, H22, H23, H24, H25, H26, H27, H28, H29, H30, H31, H32	32	2	As, Cd, Cr (total), Cu, Pb, Ni, Zn, Hg, OCP, OPP, PAH, TRH, BTEXN	30/7/2020 4/8/2020	Soil	SE209680
SR420D, SR421D, SR422D, SR423D, SR430D, SR431D, SR432D, SR433D, SR450D, SR451D, SR452D, SR453D, SR510D, SR511D, SR512D, SR513D, SR530D, SR531D, SR532D, SR533D	20	0	Pb	18/8/2020	Soil	SE210200
SR450D, SR451D, SR452D, SR453D	4	0	As	18/8/2020	Soil	SE210200

Analytical methods

Analyte	Extraction	Laboratory methods
Metals	USEPA 200.2 Mod	APHA USEPA SW846-6010
Chromium (III)	-	APHA 3500 CR-A&B & 3120 and USEPA SW846-3060A
Chromium (VI)	USEPA SW846-3060A	USEPA SW846-3060A
Mercury	USEPA 200.2 Mod	APHA 3112
TPH(C6-C9)	USPEA SW846-5030A	USPEA SW 846-8260B
TPH(C10-C36), PAH	Tumbler extraction of solids	USEPA SW 846-8270B
PCB	Tumbler extraction of solids	USEPA SW 846-8270B
OC Pesticides	Tumbler extraction of solids	USEPA SW 846-8270B
BTEX	Tumbler extraction of solids	USEPA SW 846-8260B

3. Field quality assurance and quality control

Eight intra laboratory duplicate samples were collected for the investigation. The frequency was 6% and 17% which is greater than the recommended frequency. Table A1 outlines the samples collected and differences in replicate analyses. Relative differences were deemed to pass if they were within the acceptance limits of +/- 40% for replicate analyses or less than 5 times the detection limit.

Field duplicate frequency

Sample id.	Number of samples	Duplicate	Frequency (%)	Date collected	Substrate	Laboratory report
SR10C, SR11C, SR12C, SR13C, SR14C, SR15C, SR16C, SR17C, SR19C, SR20C, SR21C, SR22C, SR23C, SR24C, SR25C, SR26C, SR27C, SR28C, SR29C, SR30C, SR31C, SR32C, SR33C, SR34C, SR35C, SR36C, SR37C, SR38C, SR39C, SR40C, SR41C, SR42C, SR43C, SR44C, SR45C, SR46C, SR47C, SR48C, SR49C, SR50C, SR51C, SR52C, SR53C	52	3	17	30/7/2020 4/8/2020	Soil	SE209680

Sample id.	Number of samples	Duplicate	Frequency (%)	Date collected	Substrate	Laboratory report
SR100D, SR110D, SR120D, SR130D, SR140D, SR150D, SR160D, SR190D, SR200D, SR210D, SR220D, SR230D, SR240D, SR250D, SR260D, SR270D, SR280D, SR290D, SR300D, SR310D, SR320D, SR330D, SR340D, SR350D, SR360D, SR370D, SR380D, SR390D, SR400D, SR410D, SR420D, SR430D, SR440D, SR450D, SR460D, SR470D, SR480D, SR490D, SR500D, SR510D, SR520D, SR530D	52	3	17	30/7/2020 4/8/2020	Soil	SE209680
H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13, H14, H15, H16, H17, H18, H19, H20, H21, H22, H23, H24, H25, H26, H27, H28, H29, H30, H31, H32	32	2	6	30/7/2020 4/8/2020	Soil	SE209680
SR420D, SR421D, SR422D, SR423D, SR430D, SR431D, SR432D, SR433D, SR450D, SR451D, SR452D, SR453D, SR510D, SR511D, SR512D, SR513D, SR530D, SR531D, SR532D, SR533D	20	0	0	18/8/2020	Soil	SE210200
SR29C, SR31C, SR33C	3	0	0	4/8/2020	Soil	SE209680A

Table A1. Relative differences for intra laboratory duplicates

	SRE, SR20C		SRF, SR27C		SRH, SR38C		HDA, H1		HDB, H24	
	Relative difference (%)	Pass/Fail	Relative difference (%)	Pass/Fail	Relative difference (%)	Pass/Fail	Relative difference (%)	Pass/Fail	Relative difference (%)	Pass/Fail
Arsenic	0	Pass	0	Pass	29	Pass	15	Pass	6	Pass
Cadmium	NA	Pass	NA	-	NA	-	0	Pass	0	Pass
Chromium	40	Pass	22	Pass	64	Fail*	0.2	Pass	27	Pass
Copper	15	Pass	11	Pass	40	Pass	9	Pass	5	Pass
Lead	7	Pass	20	Pass	0	Pass	23	Pass	0	Pass
Nickel	0	Pass	31	Pass	31	Pass	6	Pass	8	Pass
Zinc	8	Pass	22	Pass	55	Fail*	3	Pass	16	Pass
Mercury	NA	-	NA	-	NA	-	NA	-	NA	-
PAH	-	-	-	-	-	-	NA	-	21	Pass
TRH	-	-	-	-	-	-	NA	-	NA	-
BTEXN	-	-	-	-	-	-	NA	-	NA	-

NA – relative difference unable to be calculated as results are less than laboratory detection limit, *Exceedances expected due to non-homogenised sample. Not expected to impact conclusions of preliminary investigation

Table A1 cont. Relative differences for intra laboratory duplicates

	SRG, SR170D		SRI, SR470D		SRJ, SR530D	
	Relative difference (%)	Pass/Fail	Relative difference (%)	Pass/Fail	Relative difference (%)	Pass/Fail
OCP	NA	-	NA	-	NA	-

No trip blanks or spikes were submitted for analysis. This is not considered to create significant uncertainty in the analysis results because of the following rationale:

- The fieldwork was completed within a short time period and consistent methods were used for soil sampling.
- Soil samples were placed in insulated cooled containers after sampling to ensure preservation during transport and storage.
- The samples were placed in single use jars using clean sampling tools and disposable gloves from material not in contact with other samples. This reduces the likelihood of cross contamination.
- Samples in the analysis batch contain analytes below the level of detection. It is considered unlikely that contamination has occurred as a result of transport and handling.

4. Laboratory quality assurance and quality control

Sample holding times are recommended in NEPM (1999). The time between collection and extraction for all samples was less than the criteria listed below:

Analyte	Maximum holding time
Metals, cyanide	6 months
OCP, TRH, BTEXN, PAH	14 days

The laboratory interpretative reports are presented with individual laboratory report. Assessment is made of holding time, frequency of control samples and quality control samples. No significant outliers exist for the sampling batches. The laboratory report also contains a detailed description of preparation methods and analytical methods.

The results, quality report, interpretative report and chain of custody are presented in the attached appendices. The quality report contains the laboratory duplicates, spikes, laboratory control samples, blanks and where appropriate matrix spike recovery (surrogate).

5. Data quality indicators (DQI) analysis

5.1 Completeness

A measure of the amount of usable data for a data collection activity (total to be greater than 95%).

The data set was found to be complete based on the scope of work. No critical areas of contamination were omitted from the data set.

5.1.1 Field

Consideration	Accepted	Comment
Locations to be sampled	Yes	In accordance with sampling methodology, described in the report. Sampling locations described in figures.
Depth to be sampled	Yes	In accordance with sampling methodology
SOP appropriate and compiled	Yes	In accordance with sampling methodology Sampled with a stainless-steel push corer and hand spade into lab prepared containers, decontamination between samples, latex gloves worn by sampler
Experienced sampler	Yes	Same soil sampler, environmental scientist
Documentation correct	Yes	Sampling log completed Chain of custody completed

5.1.2 Laboratory

Consideration	Accepted	Comment
Samples analysed	Yes	All critical samples analysed in accordance with chain of custody and analysis plan
Analytes	Yes	All analytes in accordance with chain of custody and analysis plan
Methods	Yes	Analysed in NATA accredited laboratory with recognised methods and suitable PQL
Sample documentation	Yes	Completed including chain of custody and sample results and quality results report for each batch
Sample holding times	Yes	Metals less than 6 months. OCP, PAH, BTEXN, TRH 14 days.

5.2 Comparability

The confidence that data may be considered to be equivalent for each sampling and analytical event.

The data sets were found to be acceptable.

5.2.1 Field

Consideration	Accepted	Comment
SOP	Yes	Same sampling procedures used and sampled on one date
Experienced sampler	Yes	Experienced scientist
Climatic conditions	Yes	Described in field sampling log
Samples collected	Yes	Suitable size, storage and transport

5.2.2 Laboratory

Consideration	Accepted	Comment
Analytical methods	Yes	Same methods all samples, in accordance with NEPC (1999) or USEPA
PQL	Yes	Suitable for analytes
Same laboratory	Yes	SGS is NATA accredited for the tests undertaken
Same units	Yes	-

5.3 Representativeness

The confidence (expressed qualitatively) that data are representative of each media present on the site.

The data sets were found to be acceptable.

5.3.1 Field

Consideration	Accepted	Comment
Appropriate media sampled	Yes	Sampled according to sampling and quality plan
All media identified	Yes	Soil Sampling media identified in the sampling and quality plan

5.3.2 Laboratory

Consideration	Accepted	Comment
Samples analysed	Yes	Undertaken in NATA accredited laboratory. No blanks analysed. Samples in the analysis batch contain analytes below the level of detection. It is considered unlikely that contamination has occurred as a result of transport and handling.

5.4 Precision

A quantitative measure of the variability (or reproduced of the data).

The data sets were found to be acceptable.

5.4.1 Field

Consideration	Accepted	Comment
SOP	Yes	Complied
Field duplicates	Yes	Collected

5.4.2 Laboratory

Consideration	Accepted	Comment
Laboratory and inter lab duplicates	Yes	Frequency of 5% results to be within +/-40% or discussion required.
Field duplicates	Yes	Frequency of 5% results to be within +/-40% or discussion required.
Laboratory prepared volatile trip spikes	NA	Not collected due to the preliminary nature of the investigation

5.5 Accuracy

A quantitative measure of the closeness of the reported data to the true value.

The data sets were found to be acceptable.

5.5.1 Field

Consideration	Accepted	Comment
SOP	Yes	Complied
Field blanks	NA	Frequency of 5% <5 times the PQL, PQL may be adjusted
Rinsate blanks	NA	Frequency of 5% <5 times the PQL, PQL may be adjusted

5.5.2 Laboratory

Consideration	Accepted	Comment
Method blanks	Yes	Frequency of 5% <5 times the PQL, PQL may be adjusted
Matrix spikes	Yes	Frequency of 5% results to be within +/-40% or discussion required.
Matrix duplicates	Yes	Frequency of 5% results to be within +/-40% or discussion required.
Surrogate spikes	Yes	Frequency of 5% results to be within +/-40% or discussion required
Laboratory control samples	Yes	Frequency of 5% results to be within +/-40% or discussion required
Laboratory prepared spikes	Yes	Frequency of 5% results to be within +/-40% or discussion required

No trip blanks, field spikes or sample rinsates were submitted for analysis. This is not considered to create significant uncertainty in the analysis results because of the following rationale:

- The fieldwork methods used for soil sampling were consistent throughout the project with all in situ samples collected from material which had not been subject to exposure.
- The fieldwork was completed within a short time period and consistent methods were used for soil sampling.
- Soil samples were placed in insulated cooled containers as quickly as possible, with the containers filled to minimize headspace. The sample containers were sealed immediately after the sample was collected and chilled in an esky containing ice.
- The samples were stored in a refrigerator and transported with ice bricks to ensure preservation during transport and storage.
- The samples were placed in single use jars using clean sampling tools and disposable gloves from material not in contact with other samples. This reduces the likelihood of cross contamination.

- Samples in the analysis batches contained analytes below the level of detection. It is considered unlikely that contamination has occurred as a result of transport and handling.

6. Conclusion

All media appropriate to the objectives of this investigation have been adequately analysed and no area of significant uncertainty exist. It is concluded the data is usable for the purposes of the investigation.

Appendix 3. Field sampling log

Sampling log

Client	LandOrange Partnership Pty Ltd
Contact	-
Job number	12137
Location	Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW
Date	30/7/2020
Investigator	Greg Madafiglio and Maisie Dickie
Weather conditions	Fine

Sample ID	Matrix	Date	Analysis required	Observations/comments
SR10C	Soil	30/7/2020	Arsenic (As), cadmium (Ca), chromium (Cr), copper (Cu), lead (Pb), nickel (Ni), zinc (Zn), Mercury (Hg)	Composite 100,101, 102, 103
SR11C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 110, 111, 112, 113
SR12C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 120, 121, 122, 123
SR13C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 130, 131, 132, 133
SR14C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 140, 141, 142, 143
SR15C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 150, 151, 152, 153
SR16C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 160, 161, 162, 163
SR17C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 170, 171, 172, 173
SR19C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 180, 181, 182, 183
SR20C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 190, 191, 192, 193
SR21C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 200, 201, 211, 212
SR22C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 210, 211, 212, 213
SR23C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 220, 221, 222, 223
SR24C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 230, 231, 232, 233
SR25C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 240, 241, 242, 243
SR26C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 250, 251, 252, 253
SR27C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 260, 261, 262, 263
SR28C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 270, 271, 272, 273
SR29C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, Cr (VI)	Composite 290, 291, 292, 293
SR30C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 300, 301, 302, 303
SR31C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, Cr (VI)	Composite 310, 311, 312, 313
SR32C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 320, 321, 322, 323
SR33C	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, Cr (VI)	Composite 330, 331, 332, 333
SR100D	Soil	30/7/2020	Organochlorine pesticide (OCP)	
SR110D	Soil	30/7/2020	OCP	
SR120D	Soil	30/7/2020	OCP	
SR130D	Soil	30/7/2020	OCP	
SR140D	Soil	30/7/2020	OCP	
SR150D	Soil	30/7/2020	OCP	
SR160D	Soil	30/7/2020	OCP	
SR170D	Soil	30/7/2020	OCP	
SR180D	Soil	30/7/2020	OCP	
SR190D	Soil	30/7/2020	OCP	
SR200D	Soil	30/7/2020	OCP	
SR210D	Soil	30/7/2020	OCP	
SR220D	Soil	30/7/2020	OCP	
SR230D	Soil	30/7/2020	OCP	
SR240D	Soil	30/7/2020	OCP	

SR250D	Soil	30/7/2020	OCP	
SR260D	Soil	30/7/2020	OCP	
SR270D	Soil	30/7/2020	OCP	
SR280D	Soil	30/7/2020	OCP	
SR290D	Soil	30/7/2020	OCP	
SR300D	Soil	30/7/2020	OCP	
SR310D	Soil	30/7/2020	OCP	
SR320D	Soil	30/7/2020	OCP	
SR330D	Soil	30/7/2020	OCP	
H1	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), OCP, organophosphate pesticides (OPP)	
H2	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H3	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H4	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H5	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H6	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H7	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H8	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H9	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H10	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H11	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
SRE	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Duplicate of SR20C
SRF	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Duplicate of SR27C
SRG	Soil	30/7/2020	OCP	Duplicate of SR170D
HDA	Soil	30/7/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	Duplicate of H1

Sampling log

Client	LandOrange Partnership Pty Ltd
Contact	-
Job number	12137
Location	Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW
Date	4/8/2020
Investigator	Andrew Ruming and Maisie Dickie
Weather conditions	Fine and cold

Sample ID	Matrix	Date	Analysis required	Observations/comments
SR34C	Soil	4/8/2020	Arsenic (As), cadmium (Ca), chromium (Cr), copper (Cu), lead (Pb), nickel (Ni), zinc (Zn), Mercury (Hg)	Composite 100,101, 102, 103
SR35C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 110, 111, 112, 113
SR36C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 120, 121, 122, 123
SR37C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 130, 131, 132, 133
SR38C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 140, 141, 142, 143
SR39C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 150, 151, 152, 153
SR40C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 160, 161, 162, 163
SR41C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 170, 171, 172, 173
SR42C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 180, 181, 182, 183
SR43C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 190, 191, 192, 193
SR44C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 200, 201, 211, 212
SR45C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 210, 211, 212, 213
SR46C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 220, 221, 222, 223
SR47C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 230, 231, 232, 233
SR48C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 240, 241, 242, 243
SR49C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 250, 251, 252, 253
SR50C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 260, 261, 262, 263
SR51C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 270, 271, 272, 273
SR52C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 290, 291, 292, 293
SR53C	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Composite 300, 301, 302, 303
SR340D	Soil	4/8/2020	Organochlorine pesticide (OCP)	
SR350D	Soil	4/8/2020	OCP	
SR360D	Soil	4/8/2020	OCP	
SR370D	Soil	4/8/2020	OCP	
SR380D	Soil	4/8/2020	OCP	
SR390D	Soil	4/8/2020	OCP	
SR400D	Soil	4/8/2020	OCP	
SR410D	Soil	4/8/2020	OCP	
SR420D	Soil	4/8/2020	OCP	
SR430D	Soil	4/8/2020	OCP	
SR440D	Soil	4/8/2020	OCP	
SR450D	Soil	4/8/2020	OCP	
SR460D	Soil	4/8/2020	OCP	
SR470D	Soil	4/8/2020	OCP	
SR480D	Soil	4/8/2020	OCP	
SR490D	Soil	4/8/2020	OCP	
SR500D	Soil	4/8/2020	OCP	
SR510D	Soil	4/8/2020	OCP	
SR520D	Soil	4/8/2020	OCP	
SR530D	Soil	4/8/2020	OCP	

H12	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH), OCP, organophosphate pesticides (OPP)	
H13	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H14	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H15	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H16	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H17	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H18	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H19	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H20	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H21	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H22	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H23	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H24	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H25	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H26	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H27	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H28	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H29	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H30	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H31	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
H32	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	
SRH	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg	Duplicate of SR38C
SRI	Soil	4/8/2020	OCP	Duplicate of SR470D
SRJ	Soil	4/8/2020	OCP	Duplicate of SR530D
HDB	Soil	4/8/2020	As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, TRH, BTEXN, OCP, OPP, PAH	Duplicate of H24

Sampling log

Client	LandOrange Partnership Pty Ltd
Contact	-
Job number	12137-1
Location	Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW
Date	18/8/2020
Investigator	Maisie Dickie
Weather conditions	Fine

Sample ID	Matrix	Date	Analysis required	Observations/comments
SR420D	Soil	18/8/2020	Lead (Pb)	
SR421D	Soil	18/8/2020	Pb	
SR422D	Soil	18/8/2020	Pb	
SR423D	Soil	18/8/2020	Pb	
SR433D	Soil	18/8/2020	Pb	
SR430D	Soil	18/8/2020	Pb	
SR431D	Soil	18/8/2020	Pb	
SR432D	Soil	18/8/2020	Pb	
SR433D	Soil	18/8/2020	Pb	
SR450D	Soil	18/8/2020	Arsenic (As), Pb	
SR451D	Soil	18/8/2020	As, Pb	
SR452D	Soil	18/8/2020	As, Pb	
SR453D	Soil	18/8/2020	Pb	
SR510D	Soil	18/8/2020	Pb	
SR511D	Soil	18/8/2020	Pb	
SR512D	Soil	18/8/2020	Pb	
SR513D	Soil	18/8/2020	Pb	
SR530D	Soil	18/8/2020	Pb	
SR531D	Soil	18/8/2020	Pb	
SR532D	Soil	18/8/2020	Pb	
SR533D	Soil	18/8/2020	Pb	

Appendix 4. Soil analysis results – SGS report numbers SE209680, SE210200 and SE209680A and chain of custody forms

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Leah Desborough
Client	ENVIROWEST CONSULTING PTY LIMITED
Address	PO BOX 8158 ORANGE NSW 2800
Telephone	61 2 63614954
Facsimile	(Not specified)
Email	leah@envirowest.net.au
Project	**12137**
Order Number	**12137**
Samples	126

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209680 R0**
Date Received	6/8/2020
Date Reported	13/8/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

[redacted]

Bennet LO
Senior Organic Chemist/Metals Chemist

[redacted]

Dong LIANG
Metals/Inorganics Team Leader

[redacted]

Kamrul AHSAN
Senior Chemist

[redacted]

Ly Kim HA
Organic Section Head

SGS

ANALYTICAL RESULTS

SE209680 R0

VOC's in Soil [AN433] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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ANALYTICAL RESULTS

SE209680 R0

VOC's in Soil [AN433] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

SGS

ANALYTICAL RESULTS

SE209680 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

SGS

ANALYTICAL RESULTS SE209680 R0

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

SGS

ANALYTICAL RESULTS

SE209680 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**81**	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	**87**	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	**140**	<90
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	**170**	<110
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	**110**
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	**120**
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	**110**
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

SGS

ANALYTICAL RESULTS

SE209680 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	**75**	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

SGS

ANALYTICAL RESULTS SE209680 R0

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**50**
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH > C10-C16	mg/kg	25	<25	<25	<25	<25
TRH > C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH > C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH > C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH > C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

SGS

ANALYTICAL RESULTS

SE209680 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1	<0.1
Pyrene	mg/kg	0.1	<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	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Pyrene	mg/kg	0.1	<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	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

SGS

ANALYTICAL RESULTS SE209680 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<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	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<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	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

SGS

ANALYTICAL RESULTS SE209680 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.3**	**0.5**	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	**0.3**	**0.5**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.3**	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.3**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.3**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.2**	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.3**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	**0.2**	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**0.1**	**0.2**	<0.1
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**	**0.4**	<0.2
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.4**	**0.5**	<0.3
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**	**0.5**	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.9**	**3.1**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.9**	**3.1**	<0.8

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.5**	<0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.5**	<0.1	**0.2**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.3**	<0.1	**0.1**	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.4**	<0.1	**0.1**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.4**	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<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	<0.1
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.5**	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.6**	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.5**	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	**3.2**	<0.8	**0.8**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**3.2**	<0.8	**0.8**	<0.8

SGS

ANALYTICAL RESULTS SE209680 R0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120
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	<0.1	<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	**0.4**
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.4**
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&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.3**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ<LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ<LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ<LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	**0.4**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	**2.5**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	**2.5**

SGS

ANALYTICAL RESULTS

SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.5**	**0.6**	**0.1**	<0.1	**0.1**
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	**0.3**	**0.3**	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	**7.5**	**0.2**	**0.5**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	**0.8**	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	**0.9**	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	**7.8**	<0.1	**0.1**	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	**17**	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	**0.3**
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	**0.8**	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	**1**	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	**0.2**	**1.6**	**3.0**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	**0.3**	**0.9**	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	**2**	**4**	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.6**	**1.6**	<0.1	**0.4**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	**1.4**	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	**2**	**2**	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	SR100D SOIL - 30/7/2020 SE209680.076	SR110D SOIL - 30/7/2020 SE209680.077	SR120D SOIL - 30/7/2020 SE209680.078
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR130D SOIL - 30/7/2020 SE209680.079	SR140D SOIL - 30/7/2020 SE209680.080	SR150D SOIL - 30/7/2020 SE209680.081	SR160D SOIL - 30/7/2020 SE209680.082	SR170D SOIL - 30/7/2020 SE209680.083
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR190D SOIL - 30/7/2020 SE209680.084	SR200D SOIL - 30/7/2020 SE209680.085	SR210D SOIL - 30/7/2020 SE209680.086	SR220D SOIL - 30/7/2020 SE209680.087	SR230D SOIL - 30/7/2020 SE209680.088
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.3**	**1.3**	**1.8**	**1.5**	**2.1**
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	**0.1**	**0.2**	**0.2**	**0.2**
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	**1**	**2**	**2**	**2**

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR240D SOIL - 30/7/2020 SE209680.089	SR250D SOIL - 30/7/2020 SE209680.090	SR260D SOIL - 30/7/2020 SE209680.091	SR270D SOIL - 30/7/2020 SE209680.092	SR280D SOIL - 30/7/2020 SE209680.093
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**2.3**	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	**2**	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR290D SOIL - 30/7/2020 SE209680.094	SR300D SOIL - 30/7/2020 SE209680.095	SR310D SOIL - 30/7/2020 SE209680.096	SR320D SOIL - 30/7/2020 SE209680.097	SR330D SOIL - 30/7/2020 SE209680.098
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	**1.3**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	**1**	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR340D SOIL - 4/8/2020 SE209680.099	SR350D SOIL - 4/8/2020 SE209680.100	SR360D SOIL - 4/8/2020 SE209680.101	SR370D SOIL - 4/8/2020 SE209680.102	SR380D SOIL - 4/8/2020 SE209680.103
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR390D SOIL - 4/8/2020 SE209680.104	SR400D SOIL - 4/8/2020 SE209680.105	SR410D SOIL - 4/8/2020 SE209680.106	SR420D SOIL - 4/8/2020 SE209680.107	SR430D SOIL - 4/8/2020 SE209680.108
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.2**	**0.2**	<0.1	**1.8**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	**2**	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR440D SOIL - 4/8/2020 SE209680.109	SR450D SOIL - 4/8/2020 SE209680.110	SR460D SOIL - 4/8/2020 SE209680.111	SR470D SOIL - 4/8/2020 SE209680.112	SR480D SOIL - 4/8/2020 SE209680.113
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.6**	**0.3**	**1.2**	**0.2**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	**1**	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR490D SOIL - 4/8/2020 SE209680.114	SR500D SOIL - 4/8/2020 SE209680.115	SR510D SOIL - 4/8/2020 SE209680.116	SR520D SOIL - 4/8/2020 SE209680.117	SR530D SOIL - 4/8/2020 SE209680.118
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	**0.1**	<0.1	**0.9**	**0.4**	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

SGS

ANALYTICAL RESULTS SE209680 R0

OC Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120	SRG SOIL - 30/7/2020 SE209680.123	SRI SOIL - 4/8/2020 SE209680.125	SRJ SOIL - 4/8/2020 SE209680.126
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	-	-	<0.1	**0.2**	<0.1
Dieldrin	mg/kg	0.2	-	-	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	-	-	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	-	-	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	-	-	<1	<1	<1

SGS

ANALYTICAL RESULTS

SE209680 R0

OP Pesticides in Soil [AN420] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

SGS

ANALYTICAL RESULTS

SE209680 R0

OP Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

SGS

ANALYTICAL RESULTS SE209680 R0

OP Pesticides in Soil [AN420] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

SGS

ANALYTICAL RESULTS

SE209680 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
Arsenic, As	mg/kg	1	6	5	5	2	2
Cadmium, Cd	mg/kg	0.3	0.5	0.6	1.8	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	82	80	82	57	47
Copper, Cu	mg/kg	0.5	78	130	150	32	24
Lead, Pb	mg/kg	1	190	73	160	34	18
Nickel, Ni	mg/kg	0.5	15	20	17	11	11
Zinc, Zn	mg/kg	2	680	870	1100	170	250

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
Arsenic, As	mg/kg	1	3	3	3	1	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	15	29	34	65	89
Copper, Cu	mg/kg	0.5	80	25	19	17	18
Lead, Pb	mg/kg	1	16	14	28	8	10
Nickel, Ni	mg/kg	0.5	7.2	9.3	10	15	17
Zinc, Zn	mg/kg	2	200	100	200	61	39

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
Arsenic, As	mg/kg	1	1	3	3	3	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	0.9
Chromium, Cr	mg/kg	0.5	46	30	32	40	47
Copper, Cu	mg/kg	0.5	16	60	23	51	44
Lead, Pb	mg/kg	1	8	32	21	31	100
Nickel, Ni	mg/kg	0.5	11	7.7	7.4	10	13
Zinc, Zn	mg/kg	2	39	160	34	85	380

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
Arsenic, As	mg/kg	1	3	5	1	2	3
Cadmium, Cd	mg/kg	0.3	<0.3	1.1	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	42	43	19	37	31
Copper, Cu	mg/kg	0.5	25	35	14	14	32
Lead, Pb	mg/kg	1	40	52	7	10	57
Nickel, Ni	mg/kg	0.5	8.3	14	5.5	8.7	9.2
Zinc, Zn	mg/kg	2	180	170	43	41	170

SGS

ANALYTICAL RESULTS

SE209680 R0

Total Recoverable Elements In Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/8/2020

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
Arsenic, As	mg/kg	1	2	3	15	32	12
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.4	0.3
Chromium, Cr	mg/kg	0.5	23	51	13	13	13
Copper, Cu	mg/kg	0.5	32	52	84	81	37
Lead, Pb	mg/kg	1	24	9	120	140	160
Nickel, Ni	mg/kg	0.5	6.5	12	4.8	4.8	6.0
Zinc, Zn	mg/kg	2	140	32	87	52	180

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
Arsenic, As	mg/kg	1	8	83	2	5	3
Cadmium, Cd	mg/kg	0.3	<0.3	0.9	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	16	18	20	21	18
Copper, Cu	mg/kg	0.5	36	68	13	26	11
Lead, Pb	mg/kg	1	110	210	14	25	14
Nickel, Ni	mg/kg	0.5	8.3	3.8	4.7	3.9	4.8
Zinc, Zn	mg/kg	2	150	29	58	26	14

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	SR10C SOIL - 30/7/2020 SE209680.033	SR11C SOIL - 30/7/2020 SE209680.034	SR12C SOIL - 30/7/2020 SE209680.035
Arsenic, As	mg/kg	1	2	4	5	3	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.7	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	6.5	18	53	51	36
Copper, Cu	mg/kg	0.5	4.6	16	30	37	19
Lead, Pb	mg/kg	1	5	25	36	14	16
Nickel, Ni	mg/kg	0.5	4.8	4.6	15	11	12
Zinc, Zn	mg/kg	2	18	27	140	53	31

PARAMETER	UOM	LOR	SR13C SOIL - 30/7/2020 SE209680.036	SR14C SOIL - 30/7/2020 SE209680.037	SR15C SOIL - 30/7/2020 SE209680.038	SR16C SOIL - 30/7/2020 SE209680.039	SR17C SOIL - 30/7/2020 SE209680.040
Arsenic, As	mg/kg	1	6	3	3	4	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	45	39	34	49	51
Copper, Cu	mg/kg	0.5	19	25	23	21	22
Lead, Pb	mg/kg	1	15	13	11	14	10
Nickel, Ni	mg/kg	0.5	12	11	11	14	11
Zinc, Zn	mg/kg	2	36	43	27	29	27

SGS

ANALYTICAL RESULTS

SE209680 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/8/2020

PARAMETER	UOM	LOR	SR19C SOIL - 30/7/2020 SE209680.041	SR20C SOIL - 30/7/2020 SE209680.042	SR21C SOIL - 30/7/2020 SE209680.043	SR22C SOIL - 30/7/2020 SE209680.044	SR23C SOIL - 30/7/2020 SE209680.045
Arsenic, As	mg/kg	1	5	3	5	6	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	41	33	43	43	48
Copper, Cu	mg/kg	0.5	43	44	42	41	45
Lead, Pb	mg/kg	1	18	15	18	16	18
Nickel, Ni	mg/kg	0.5	11	10	12	11	12
Zinc, Zn	mg/kg	2	47	37	43	38	47

PARAMETER	UOM	LOR	SR24C SOIL - 30/7/2020 SE209680.046	SR25C SOIL - 30/7/2020 SE209680.047	SR26C SOIL - 30/7/2020 SE209680.048	SR27C SOIL - 30/7/2020 SE209680.049	SR28C SOIL - 30/7/2020 SE209680.050
Arsenic, As	mg/kg	1	2	3	3	2	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	32	77	84	68	85
Copper, Cu	mg/kg	0.5	33	21	17	26	21
Lead, Pb	mg/kg	1	10	12	21	9	14
Nickel, Ni	mg/kg	0.5	6.3	15	14	11	17
Zinc, Zn	mg/kg	2	32	53	140	29	48

PARAMETER	UOM	LOR	SR29C SOIL - 30/7/2020 SE209680.051	SR30C SOIL - 30/7/2020 SE209680.052	SR31C SOIL - 30/7/2020 SE209680.053	SR32C SOIL - 30/7/2020 SE209680.054	SR33C SOIL - 30/7/2020 SE209680.055
Arsenic, As	mg/kg	1	2	1	3	3	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	89	75	110	96	120
Copper, Cu	mg/kg	0.5	24	28	19	29	17
Lead, Pb	mg/kg	1	10	9	10	12	9
Nickel, Ni	mg/kg	0.5	15	12	17	18	17
Zinc, Zn	mg/kg	2	34	26	38	66	35

PARAMETER	UOM	LOR	SR34C SOIL - 4/8/2020 SE209680.056	SR35C SOIL - 4/8/2020 SE209680.057	SR36C SOIL - 4/8/2020 SE209680.058	SR37C SOIL - 4/8/2020 SE209680.059	SR38C SOIL - 4/8/2020 SE209680.060
Arsenic, As	mg/kg	1	3	7	3	4	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	36	29	58	20	35
Copper, Cu	mg/kg	0.5	44	24	58	28	41
Lead, Pb	mg/kg	1	18	17	10	16	18
Nickel, Ni	mg/kg	0.5	8.3	7.4	11	5.6	8.2
Zinc, Zn	mg/kg	2	49	31	28	25	48

SGS

ANALYTICAL RESULTS

SE209680 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/8/2020

PARAMETER	UOM	LOR	SR39C SOIL - 4/8/2020 SE209680.061	SR40C SOIL - 4/8/2020 SE209680.062	SR41C SOIL - 4/8/2020 SE209680.063	SR42C SOIL - 4/8/2020 SE209680.064	SR43C SOIL - 4/8/2020 SE209680.065
Arsenic, As	mg/kg	1	3	4	3	20	16
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.3	<0.3
Chromium, Cr	mg/kg	0.5	41	19	29	14	15
Copper, Cu	mg/kg	0.5	39	25	33	45	58
Lead, Pb	mg/kg	1	17	18	17	92	84
Nickel, Ni	mg/kg	0.5	8.5	5.2	7.6	5.6	4.8
Zinc, Zn	mg/kg	2	41	56	89	81	49

PARAMETER	UOM	LOR	SR44C SOIL - 4/8/2020 SE209680.066	SR45C SOIL - 4/8/2020 SE209680.067	SR46C SOIL - 4/8/2020 SE209680.068	SR47C SOIL - 4/8/2020 SE209680.069	SR48C SOIL - 4/8/2020 SE209680.070
Arsenic, As	mg/kg	1	5	29	18	6	4
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	23	14	20	30	35
Copper, Cu	mg/kg	0.5	23	52	37	35	27
Lead, Pb	mg/kg	1	22	120	75	23	17
Nickel, Ni	mg/kg	0.5	7.9	4.8	6.6	9.4	9.7
Zinc, Zn	mg/kg	2	48	24	58	88	71

PARAMETER	UOM	LOR	SR49C SOIL - 4/8/2020 SE209680.071	SR50C SOIL - 4/8/2020 SE209680.072	SR51C SOIL - 4/8/2020 SE209680.073	SR52C SOIL - 4/8/2020 SE209680.074	SR53C SOIL - 4/8/2020 SE209680.075
Arsenic, As	mg/kg	1	11	2	10	5	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	35	18	21	14	49
Copper, Cu	mg/kg	0.5	41	23	43	22	35
Lead, Pb	mg/kg	1	42	16	92	30	240
Nickel, Ni	mg/kg	0.5	8.5	7.6	5.0	4.7	37
Zinc, Zn	mg/kg	2	31	28	100	100	160

PARAMETER	UOM	LOR	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120	SRE SOIL - 30/7/2020 SE209680.121	SRF SOIL - 30/7/2020 SE209680.122	SRH SOIL - 4/8/2020 SE209680.124
Arsenic, As	mg/kg	1	7	34	3	2	3
Cadmium, Cd	mg/kg	0.3	0.5	0.4	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	83	17	27	85	18
Copper, Cu	mg/kg	0.5	83	77	37	29	27
Lead, Pb	mg/kg	1	240	140	14	11	18
Nickel, Ni	mg/kg	0.5	18	5.2	9.6	15	6.0
Zinc, Zn	mg/kg	2	710	61	34	36	28

SGS

ANALYTICAL RESULTS

SE209680 R0

Mercury in Soil [AN312] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
Mercury	mg/kg	0.05	**0.26**	**0.18**	**0.09**	<0.05	<0.05

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
Mercury	mg/kg	0.05	<0.05	**0.42**	<0.05	**0.06**	<0.05

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
Mercury	mg/kg	0.05	<0.05	**0.09**	<0.05	<0.05	**0.09**

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
Mercury	mg/kg	0.05	**0.06**	<0.05	**0.67**	**1.8**	**0.32**

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
Mercury	mg/kg	0.05	**0.15**	**0.29**	**0.06**	**0.41**	**0.12**

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	SR10C SOIL - 30/7/2020 SE209680.033	SR11C SOIL - 30/7/2020 SE209680.034	SR12C SOIL - 30/7/2020 SE209680.035
Mercury	mg/kg	0.05	<0.05	**0.19**	**0.06**	<0.05	<0.05

SGS

ANALYTICAL RESULTS

SE209680 R0

Mercury in Soil [AN312] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR13C SOIL - 30/7/2020 SE209680.036	SR14C SOIL - 30/7/2020 SE209680.037	SR15C SOIL - 30/7/2020 SE209680.038	SR16C SOIL - 30/7/2020 SE209680.039	SR17C SOIL - 30/7/2020 SE209680.040
Mercury	mg/kg	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	SR19C SOIL - 30/7/2020 SE209680.041	SR20C SOIL - 30/7/2020 SE209680.042	SR21C SOIL - 30/7/2020 SE209680.043	SR22C SOIL - 30/7/2020 SE209680.044	SR23C SOIL - 30/7/2020 SE209680.045
Mercury	mg/kg	0.05	**0.14**	**0.30**	**0.17**	**0.17**	**0.21**

PARAMETER	UOM	LOR	SR24C SOIL - 30/7/2020 SE209680.046	SR25C SOIL - 30/7/2020 SE209680.047	SR26C SOIL - 30/7/2020 SE209680.048	SR27C SOIL - 30/7/2020 SE209680.049	SR28C SOIL - 30/7/2020 SE209680.050
Mercury	mg/kg	0.05	**0.16**	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	SR29C SOIL - 30/7/2020 SE209680.051	SR30C SOIL - 30/7/2020 SE209680.052	SR31C SOIL - 30/7/2020 SE209680.053	SR32C SOIL - 30/7/2020 SE209680.054	SR33C SOIL - 30/7/2020 SE209680.055
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	SR34C SOIL - 4/8/2020 SE209680.056	SR35C SOIL - 4/8/2020 SE209680.057	SR36C SOIL - 4/8/2020 SE209680.058	SR37C SOIL - 4/8/2020 SE209680.059	SR38C SOIL - 4/8/2020 SE209680.060
Mercury	mg/kg	0.05	<0.05	**0.05**	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	SR39C SOIL - 4/8/2020 SE209680.061	SR40C SOIL - 4/8/2020 SE209680.062	SR41C SOIL - 4/8/2020 SE209680.063	SR42C SOIL - 4/8/2020 SE209680.064	SR43C SOIL - 4/8/2020 SE209680.065
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	**0.24**	**0.28**

PARAMETER	UOM	LOR	SR44C SOIL - 4/8/2020 SE209680.066	SR45C SOIL - 4/8/2020 SE209680.067	SR46C SOIL - 4/8/2020 SE209680.068	SR47C SOIL - 4/8/2020 SE209680.069	SR48C SOIL - 4/8/2020 SE209680.070
Mercury	mg/kg	0.05	**0.20**	**0.56**	**0.15**	**0.12**	**0.06**

SGS

ANALYTICAL RESULTS

SE209680 R0

Mercury in Soil [AN312] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR49C SOIL - 4/8/2020 SE209680.071	SR50C SOIL - 4/8/2020 SE209680.072	SR51C SOIL - 4/8/2020 SE209680.073	SR52C SOIL - 4/8/2020 SE209680.074	SR53C SOIL - 4/8/2020 SE209680.075
Mercury	mg/kg	0.05	**0.20**	**0.10**	**0.31**	**0.19**	**0.05**

PARAMETER	UOM	LOR	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120	SRE SOIL - 30/7/2020 SE209680.121	SRF SOIL - 30/7/2020 SE209680.122	SRH SOIL - 4/8/2020 SE209680.124
Mercury	mg/kg	0.05	**0.24**	**1.6**	**0.31**	<0.05	<0.05

SGS

ANALYTICAL RESULTS

SE209680 R0

Moisture Content [AN002] Tested: 7/8/2020

PARAMETER	UOM	LOR	H1 SOIL - 30/7/2020 SE209680.001	H2 SOIL - 30/7/2020 SE209680.002	H3 SOIL - 30/7/2020 SE209680.003	H4 SOIL - 30/7/2020 SE209680.004	H5 SOIL - 30/7/2020 SE209680.005
% Moisture	%w/w	1	34.0	34.0	27.7	22.5	19.1

PARAMETER	UOM	LOR	H6 SOIL - 30/7/2020 SE209680.006	H7 SOIL - 30/7/2020 SE209680.007	H8 SOIL - 30/7/2020 SE209680.008	H9 SOIL - 30/7/2020 SE209680.009	H10 SOIL - 30/7/2020 SE209680.010
% Moisture	%w/w	1	14.6	28.3	21.6	20.6	20.5

PARAMETER	UOM	LOR	H11 SOIL - 30/7/2020 SE209680.011	H12 SOIL - 4/8/2020 SE209680.012	H13 SOIL - 4/8/2020 SE209680.013	H14 SOIL - 4/8/2020 SE209680.014	H15 SOIL - 4/8/2020 SE209680.015
% Moisture	%w/w	1	43.7	25.2	16.5	21.3	21.8

PARAMETER	UOM	LOR	H16 SOIL - 4/8/2020 SE209680.016	H17 SOIL - 4/8/2020 SE209680.017	H18 SOIL - 4/8/2020 SE209680.018	H19 SOIL - 4/8/2020 SE209680.019	H20 SOIL - 4/8/2020 SE209680.020
% Moisture	%w/w	1	18.8	21.5	12.7	19.6	20.5

PARAMETER	UOM	LOR	H21 SOIL - 4/8/2020 SE209680.021	H22 SOIL - 4/8/2020 SE209680.022	H23 SOIL - 4/8/2020 SE209680.023	H24 SOIL - 4/8/2020 SE209680.024	H25 SOIL - 4/8/2020 SE209680.025
% Moisture	%w/w	1	20.1	21.0	12.3	16.8	33.6

PARAMETER	UOM	LOR	H26 SOIL - 4/8/2020 SE209680.026	H27 SOIL - 4/8/2020 SE209680.027	H28 SOIL - 4/8/2020 SE209680.028	H29 SOIL - 4/8/2020 SE209680.029	H30 SOIL - 4/8/2020 SE209680.030
% Moisture	%w/w	1	24.2	19.5	19.7	18.7	19.7

PARAMETER	UOM	LOR	H31 SOIL - 4/8/2020 SE209680.031	H32 SOIL - 4/8/2020 SE209680.032	SR10C SOIL - 30/7/2020 SE209680.033	SR11C SOIL - 30/7/2020 SE209680.034	SR12C SOIL - 30/7/2020 SE209680.035
% Moisture	%w/w	1	7.7	8.9	27.0	29.2	22.6

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ANALYTICAL RESULTS

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Moisture Content [AN002] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR13C SOIL - 30/7/2020 SE209680.036	SR14C SOIL - 30/7/2020 SE209680.037	SR15C SOIL - 30/7/2020 SE209680.038	SR16C SOIL - 30/7/2020 SE209680.039	SR17C SOIL - 30/7/2020 SE209680.040
% Moisture	%w/w	1	24.9	23.3	26.3	31.6	20.0

PARAMETER	UOM	LOR	SR19C SOIL - 30/7/2020 SE209680.041	SR20C SOIL - 30/7/2020 SE209680.042	SR21C SOIL - 30/7/2020 SE209680.043	SR22C SOIL - 30/7/2020 SE209680.044	SR23C SOIL - 30/7/2020 SE209680.045
% Moisture	%w/w	1	30.5	24.0	24.8	23.1	21.9

PARAMETER	UOM	LOR	SR24C SOIL - 30/7/2020 SE209680.046	SR25C SOIL - 30/7/2020 SE209680.047	SR26C SOIL - 30/7/2020 SE209680.048	SR27C SOIL - 30/7/2020 SE209680.049	SR28C SOIL - 30/7/2020 SE209680.050
% Moisture	%w/w	1	23.4	32.3	26.5	26.4	26.1

PARAMETER	UOM	LOR	SR29C SOIL - 30/7/2020 SE209680.051	SR30C SOIL - 30/7/2020 SE209680.052	SR31C SOIL - 30/7/2020 SE209680.053	SR32C SOIL - 30/7/2020 SE209680.054	SR33C SOIL - 30/7/2020 SE209680.055
% Moisture	%w/w	1	26.9	22.8	25.9	26.1	21.1

PARAMETER	UOM	LOR	SR34C SOIL - 4/8/2020 SE209680.056	SR35C SOIL - 4/8/2020 SE209680.057	SR36C SOIL - 4/8/2020 SE209680.058	SR37C SOIL - 4/8/2020 SE209680.059	SR38C SOIL - 4/8/2020 SE209680.060
% Moisture	%w/w	1	24.3	22.6	20.2	23.1	21.8

PARAMETER	UOM	LOR	SR39C SOIL - 4/8/2020 SE209680.061	SR40C SOIL - 4/8/2020 SE209680.062	SR41C SOIL - 4/8/2020 SE209680.063	SR42C SOIL - 4/8/2020 SE209680.064	SR43C SOIL - 4/8/2020 SE209680.065
% Moisture	%w/w	1	21.8	21.5	20.9	21.5	21.9

PARAMETER	UOM	LOR	SR44C SOIL - 4/8/2020 SE209680.066	SR45C SOIL - 4/8/2020 SE209680.067	SR46C SOIL - 4/8/2020 SE209680.068	SR47C SOIL - 4/8/2020 SE209680.069	SR48C SOIL - 4/8/2020 SE209680.070
% Moisture	%w/w	1	22.4	23.1	21.4	24.5	26.6

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ANALYTICAL RESULTS

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Moisture Content [AN002] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR49C SOIL - 4/8/2020 SE209680.071	SR50C SOIL - 4/8/2020 SE209680.072	SR51C SOIL - 4/8/2020 SE209680.073	SR52C SOIL - 4/8/2020 SE209680.074	SR53C SOIL - 4/8/2020 SE209680.075
% Moisture	%w/w	1	21.7	23.7	30.1	31.6	31.7

PARAMETER	UOM	LOR	SR100D SOIL - 30/7/2020 SE209680.076	SR110D SOIL - 30/7/2020 SE209680.077	SR120D SOIL - 30/7/2020 SE209680.078	SR130D SOIL - 30/7/2020 SE209680.079	SR140D SOIL - 30/7/2020 SE209680.080
% Moisture	%w/w	1	33.5	26.5	22.6	28.0	22.7

PARAMETER	UOM	LOR	SR150D SOIL - 30/7/2020 SE209680.081	SR160D SOIL - 30/7/2020 SE209680.082	SR170D SOIL - 30/7/2020 SE209680.083	SR190D SOIL - 30/7/2020 SE209680.084	SR200D SOIL - 30/7/2020 SE209680.085
% Moisture	%w/w	1	20.8	29.7	25.9	18.7	21.2

PARAMETER	UOM	LOR	SR210D SOIL - 30/7/2020 SE209680.086	SR220D SOIL - 30/7/2020 SE209680.087	SR230D SOIL - 30/7/2020 SE209680.088	SR240D SOIL - 30/7/2020 SE209680.089	SR250D SOIL - 30/7/2020 SE209680.090
% Moisture	%w/w	1	22.4	21.8	20.5	22.2	23.4

PARAMETER	UOM	LOR	SR260D SOIL - 30/7/2020 SE209680.091	SR270D SOIL - 30/7/2020 SE209680.092	SR280D SOIL - 30/7/2020 SE209680.093	SR290D SOIL - 30/7/2020 SE209680.094	SR300D SOIL - 30/7/2020 SE209680.095
% Moisture	%w/w	1	24.1	24.6	26.7	18.1	23.1

PARAMETER	UOM	LOR	SR310D SOIL - 30/7/2020 SE209680.096	SR320D SOIL - 30/7/2020 SE209680.097	SR330D SOIL - 30/7/2020 SE209680.098	SR340D SOIL - 4/8/2020 SE209680.099	SR350D SOIL - 4/8/2020 SE209680.100
% Moisture	%w/w	1	23.8	23.0	24.8	31.4	19.2

PARAMETER	UOM	LOR	SR360D SOIL - 4/8/2020 SE209680.101	SR370D SOIL - 4/8/2020 SE209680.102	SR380D SOIL - 4/8/2020 SE209680.103	SR390D SOIL - 4/8/2020 SE209680.104	SR400D SOIL - 4/8/2020 SE209680.105
% Moisture	%w/w	1	18.7	22.5	19.4	19.8	20.9

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ANALYTICAL RESULTS SE209680 R0

Moisture Content [AN002] Tested: 7/8/2020 (continued)

PARAMETER	UOM	LOR	SR410D SOIL - 4/8/2020 SE209680.106	SR420D SOIL - 4/8/2020 SE209680.107	SR430D SOIL - 4/8/2020 SE209680.108	SR440D SOIL - 4/8/2020 SE209680.109	SR450D SOIL - 4/8/2020 SE209680.110
% Moisture	%w/w	1	41.3	28.0	20.6	24.3	29.5

PARAMETER	UOM	LOR	SR460D SOIL - 4/8/2020 SE209680.111	SR470D SOIL - 4/8/2020 SE209680.112	SR480D SOIL - 4/8/2020 SE209680.113	SR490D SOIL - 4/8/2020 SE209680.114	SR500D SOIL - 4/8/2020 SE209680.115
% Moisture	%w/w	1	24.4	21.0	28.4	20.7	18.9

PARAMETER	UOM	LOR	SR510D SOIL - 4/8/2020 SE209680.116	SR520D SOIL - 4/8/2020 SE209680.117	SR530D SOIL - 4/8/2020 SE209680.118	HDA SOIL - 30/7/2020 SE209680.119	HDB SOIL - 4/8/2020 SE209680.120
% Moisture	%w/w	1	24.5	25.4	27.0	35.8	17.4

PARAMETER	UOM	LOR	SRE SOIL - 30/7/2020 SE209680.121	SRF SOIL - 30/7/2020 SE209680.122	SRG SOIL - 30/7/2020 SE209680.123	SRH SOIL - 4/8/2020 SE209680.124	SRI SOIL - 4/8/2020 SE209680.125
% Moisture	%w/w	1	23.7	26.5	27.6	21.7	20.0

PARAMETER	UOM	LOR	SRJ SOIL - 4/8/2020 SE209680.126
% Moisture	%w/w	1	28.9

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METHOD SUMMARY

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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/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.
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 analysis by ASS or ICP as per USEPA Method 200.8.
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
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
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	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

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FOOTNOTES

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FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE209680 R0

CLIENT DETAILS

Contact	Leah Desborough
Client	ENVIROWEST CONSULTING PTY LIMITED
Address	PO BOX 8158 ORANGE NSW 2800
Telephone	61 2 63614954
Facsimile	(Not specified)
Email	leah@envirowest.net.au
Project	**12137**
Order Number	**12137**
Samples	126

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209680 R0**
Date Received	06 Aug 2020
Date Reported	13 Aug 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Analysis Date	Moisture Content	43 items
Surrogate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	3 items
Duplicate	OC Pesticides in Soil	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	4 items
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	126 Soil
Date documentation received	6/8/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

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SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury In Soil **Method: ME-(AU)-[ENV]AN312**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H2	SE209680.002	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H3	SE209680.003	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H4	SE209680.004	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H5	SE209680.005	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H6	SE209680.006	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H7	SE209680.007	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H8	SE209680.008	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H9	SE209680.009	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H10	SE209680.010	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H11	SE209680.011	LB206270	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	12 Aug 2020
H12	SE209680.012	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H13	SE209680.013	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H14	SE209680.014	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H15	SE209680.015	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H16	SE209680.016	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H17	SE209680.017	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H18	SE209680.018	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H19	SE209680.019	LB206270	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	12 Aug 2020
H20	SE209680.020	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H21	SE209680.021	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H22	SE209680.022	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H23	SE209680.023	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H24	SE209680.024	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H25	SE209680.025	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H26	SE209680.026	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H27	SE209680.027	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H28	SE209680.028	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H29	SE209680.029	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H30	SE209680.030	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H31	SE209680.031	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
H32	SE209680.032	LB206271	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR10C	SE209680.033	LB206271	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR11C	SE209680.034	LB206271	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR12C	SE209680.035	LB206271	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR13C	SE209680.036	LB206271	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR14C	SE209680.037	LB206271	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR15C	SE209680.038	LB206271	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR16C	SE209680.039	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR17C	SE209680.040	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR19C	SE209680.041	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR20C	SE209680.042	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR21C	SE209680.043	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR22C	SE209680.044	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR23C	SE209680.045	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR24C	SE209680.046	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR25C	SE209680.047	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR26C	SE209680.048	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR27C	SE209680.049	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR28C	SE209680.050	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR29C	SE209680.051	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR30C	SE209680.052	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR31C	SE209680.053	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR32C	SE209680.054	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR33C	SE209680.055	LB206272	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
SR34C	SE209680.056	LB206272	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR35C	SE209680.057	LB206272	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR36C	SE209680.058	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR37C	SE209680.059	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR38C	SE209680.060	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil (continued) **Method: ME-(AU)-[ENV]AN312**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR39C	SE209680.061	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR40C	SE209680.062	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR41C	SE209680.063	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR42C	SE209680.064	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR43C	SE209680.065	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR44C	SE209680.066	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR45C	SE209680.067	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR46C	SE209680.068	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR47C	SE209680.069	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR48C	SE209680.070	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR49C	SE209680.071	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR50C	SE209680.072	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR51C	SE209680.073	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR52C	SE209680.074	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
SR53C	SE209680.075	LB206273	04 Aug 2020	06 Aug 2020	01 Sep 2020	07 Aug 2020	01 Sep 2020	13 Aug 2020
HDA	SE209680.119	LB206273	30 Jul 2020	06 Aug 2020	27 Aug 2020	07 Aug 2020	27 Aug 2020	13 Aug 2020
HDB	SE209680.120	LB206402	04 Aug 2020	06 Aug 2020	01 Sep 2020	10 Aug 2020	01 Sep 2020	12 Aug 2020
SRE	SE209680.121	LB206402	30 Jul 2020	06 Aug 2020	27 Aug 2020	10 Aug 2020	27 Aug 2020	12 Aug 2020
SRF	SE209680.122	LB206402	30 Jul 2020	06 Aug 2020	27 Aug 2020	10 Aug 2020	27 Aug 2020	12 Aug 2020
SRH	SE209680.124	LB206402	04 Aug 2020	06 Aug 2020	01 Sep 2020	10 Aug 2020	01 Sep 2020	12 Aug 2020

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H2	SE209680.002	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H3	SE209680.003	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H4	SE209680.004	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H5	SE209680.005	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H6	SE209680.006	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H7	SE209680.007	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H8	SE209680.008	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H9	SE209680.009	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H10	SE209680.010	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H11	SE209680.011	LB206246	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H12	SE209680.012	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H13	SE209680.013	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H14	SE209680.014	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H15	SE209680.015	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H16	SE209680.016	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H17	SE209680.017	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H18	SE209680.018	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H19	SE209680.019	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H20	SE209680.020	LB206246	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	11 Aug 2020
H21	SE209680.021	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H22	SE209680.022	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H23	SE209680.023	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H24	SE209680.024	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H25	SE209680.025	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H26	SE209680.026	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H27	SE209680.027	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H28	SE209680.028	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H29	SE209680.029	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H30	SE209680.030	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H31	SE209680.031	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
H32	SE209680.032	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR10C	SE209680.033	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR11C	SE209680.034	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR12C	SE209680.035	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR13C	SE209680.036	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR14C	SE209680.037	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued) **Method: ME-(AU)-[ENV]AN002**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR15C	SE209680.038	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR16C	SE209680.039	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR17C	SE209680.040	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR19C	SE209680.041	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR20C	SE209680.042	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR21C	SE209680.043	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR22C	SE209680.044	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR23C	SE209680.045	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR24C	SE209680.046	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR25C	SE209680.047	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR26C	SE209680.048	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR27C	SE209680.049	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR28C	SE209680.050	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR29C	SE209680.051	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR30C	SE209680.052	LB206258	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR31C	SE209680.053	LB206259	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR32C	SE209680.054	LB206259	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR33C	SE209680.055	LB206259	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR34C	SE209680.056	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR35C	SE209680.057	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR36C	SE209680.058	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR37C	SE209680.059	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR38C	SE209680.060	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR39C	SE209680.061	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR40C	SE209680.062	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR41C	SE209680.063	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR42C	SE209680.064	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR43C	SE209680.065	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR44C	SE209680.066	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR45C	SE209680.067	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR46C	SE209680.068	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR47C	SE209680.069	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR48C	SE209680.070	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR49C	SE209680.071	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR50C	SE209680.072	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR51C	SE209680.073	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR52C	SE209680.074	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR53C	SE209680.075	LB206259	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	13 Aug 2020†
SR100D	SE209680.076	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR110D	SE209680.077	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR120D	SE209680.078	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR130D	SE209680.079	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR140D	SE209680.080	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR150D	SE209680.081	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR160D	SE209680.082	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR170D	SE209680.083	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR190D	SE209680.084	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR200D	SE209680.085	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR210D	SE209680.086	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR220D	SE209680.087	LB206249	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR230D	SE209680.088	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR240D	SE209680.089	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR250D	SE209680.090	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR260D	SE209680.091	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR270D	SE209680.092	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR280D	SE209680.093	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR290D	SE209680.094	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR300D	SE209680.095	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR310D	SE209680.096	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR320D	SE209680.097	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued) **Method: ME-(AU)-[ENV]AN002**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR330D	SE209680.098	LB206250	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR340D	SE209680.099	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR350D	SE209680.100	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR360D	SE209680.101	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR370D	SE209680.102	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR380D	SE209680.103	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR390D	SE209680.104	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR400D	SE209680.105	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR410D	SE209680.106	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR420D	SE209680.107	LB206250	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR430D	SE209680.108	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR440D	SE209680.109	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR450D	SE209680.110	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR460D	SE209680.111	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR470D	SE209680.112	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR480D	SE209680.113	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR490D	SE209680.114	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR500D	SE209680.115	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR510D	SE209680.116	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR520D	SE209680.117	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SR530D	SE209680.118	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
HDA	SE209680.119	LB206247	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
HDB	SE209680.120	LB206247	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SRE	SE209680.121	LB206251	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SRF	SE209680.122	LB206251	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SRG	SE209680.123	LB206251	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SRH	SE209680.124	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SRI	SE209680.125	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020
SRJ	SE209680.126	LB206251	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	12 Aug 2020	12 Aug 2020

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H2	SE209680.002	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H3	SE209680.003	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H4	SE209680.004	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H5	SE209680.005	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H6	SE209680.006	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H7	SE209680.007	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H8	SE209680.008	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H9	SE209680.009	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H10	SE209680.010	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H11	SE209680.011	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H12	SE209680.012	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H13	SE209680.013	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H14	SE209680.014	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H15	SE209680.015	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H16	SE209680.016	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H17	SE209680.017	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H18	SE209680.018	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H19	SE209680.019	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H20	SE209680.020	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H21	SE209680.021	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H22	SE209680.022	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H23	SE209680.023	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H24	SE209680.024	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H25	SE209680.025	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H26	SE209680.026	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H27	SE209680.027	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H28	SE209680.028	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H29	SE209680.029	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H30	SE209680.030	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H31	SE209680.031	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H32	SE209680.032	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR100D	SE209680.076	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR110D	SE209680.077	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR120D	SE209680.078	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR130D	SE209680.079	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR140D	SE209680.080	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR150D	SE209680.081	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR160D	SE209680.082	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR170D	SE209680.083	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR190D	SE209680.084	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR200D	SE209680.085	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR210D	SE209680.086	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR220D	SE209680.087	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR230D	SE209680.088	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR240D	SE209680.089	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR250D	SE209680.090	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR260D	SE209680.091	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR270D	SE209680.092	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR280D	SE209680.093	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR290D	SE209680.094	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR300D	SE209680.095	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR310D	SE209680.096	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR320D	SE209680.097	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR330D	SE209680.098	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR340D	SE209680.099	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR350D	SE209680.100	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR360D	SE209680.101	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR370D	SE209680.102	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR380D	SE209680.103	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR390D	SE209680.104	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR400D	SE209680.105	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR410D	SE209680.106	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR420D	SE209680.107	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR430D	SE209680.108	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR440D	SE209680.109	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR450D	SE209680.110	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR460D	SE209680.111	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR470D	SE209680.112	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR480D	SE209680.113	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR490D	SE209680.114	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR500D	SE209680.115	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR510D	SE209680.116	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR520D	SE209680.117	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR530D	SE209680.118	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
HDA	SE209680.119	LB206234	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
HDB	SE209680.120	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRG	SE209680.123	LB206243	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRI	SE209680.125	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRJ	SE209680.126	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

OP Pesticides in Soil **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H2	SE209680.002	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H3	SE209680.003	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H4	SE209680.004	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H5	SE209680.005	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H6	SE209680.006	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H7	SE209680.007	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H8	SE209680.008	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H9	SE209680.009	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H10	SE209680.010	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H11	SE209680.011	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H12	SE209680.012	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H13	SE209680.013	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H14	SE209680.014	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H15	SE209680.015	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H16	SE209680.016	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H17	SE209680.017	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H18	SE209680.018	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H19	SE209680.019	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H20	SE209680.020	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H21	SE209680.021	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H22	SE209680.022	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H23	SE209680.023	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H24	SE209680.024	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H25	SE209680.025	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H26	SE209680.026	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H27	SE209680.027	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H28	SE209680.028	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H29	SE209680.029	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H30	SE209680.030	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H31	SE209680.031	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H32	SE209680.032	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR430D	SE209680.108	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR440D	SE209680.109	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR450D	SE209680.110	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR460D	SE209680.111	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR470D	SE209680.112	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR480D	SE209680.113	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR490D	SE209680.114	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR500D	SE209680.115	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR510D	SE209680.116	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR520D	SE209680.117	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR530D	SE209680.118	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
HDA	SE209680.119	LB206234	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
HDB	SE209680.120	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRG	SE209680.123	LB206243	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRI	SE209680.125	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRJ	SE209680.126	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H2	SE209680.002	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H3	SE209680.003	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H4	SE209680.004	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H5	SE209680.005	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H6	SE209680.006	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H7	SE209680.007	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H8	SE209680.008	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H9	SE209680.009	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H10	SE209680.010	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H11	SE209680.011	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H12	SE209680.012	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H13	SE209680.013	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H14	SE209680.014	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H15	SE209680.015	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H16	SE209680.016	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H17	SE209680.017	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H18	SE209680.018	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H19	SE209680.019	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H20	SE209680.020	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H21	SE209680.021	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H22	SE209680.022	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H23	SE209680.023	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H24	SE209680.024	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H25	SE209680.025	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H26	SE209680.026	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H27	SE209680.027	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H28	SE209680.028	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H29	SE209680.029	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H30	SE209680.030	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H31	SE209680.031	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
H32	SE209680.032	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR100D	SE209680.076	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR110D	SE209680.077	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR120D	SE209680.078	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR130D	SE209680.079	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR140D	SE209680.080	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR150D	SE209680.081	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR160D	SE209680.082	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR170D	SE209680.083	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR190D	SE209680.084	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR200D	SE209680.085	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR210D	SE209680.086	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR220D	SE209680.087	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR230D	SE209680.088	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR240D	SE209680.089	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR250D	SE209680.090	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR260D	SE209680.091	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR270D	SE209680.092	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR280D	SE209680.093	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR290D	SE209680.094	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR300D	SE209680.095	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR310D	SE209680.096	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR320D	SE209680.097	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR330D	SE209680.098	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR340D	SE209680.099	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR350D	SE209680.100	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR360D	SE209680.101	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR370D	SE209680.102	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR380D	SE209680.103	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR390D	SE209680.104	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR400D	SE209680.105	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR410D	SE209680.106	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR420D	SE209680.107	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR430D	SE209680.108	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR440D	SE209680.109	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR450D	SE209680.110	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR460D	SE209680.111	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR470D	SE209680.112	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR480D	SE209680.113	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR490D	SE209680.114	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR500D	SE209680.115	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR510D	SE209680.116	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SR520D	SE209680.117	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR530D	SE209680.118	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
HDA	SE209680.119	LB206234	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
HDB	SE209680.120	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRG	SE209680.123	LB206243	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRI	SE209680.125	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020
SRJ	SE209680.126	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	13 Aug 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H2	SE209680.002	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H3	SE209680.003	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H4	SE209680.004	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H5	SE209680.005	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H6	SE209680.006	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H7	SE209680.007	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H8	SE209680.008	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H9	SE209680.009	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H10	SE209680.010	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H11	SE209680.011	LB206262	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
H12	SE209680.012	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H13	SE209680.013	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H14	SE209680.014	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H15	SE209680.015	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H16	SE209680.016	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H17	SE209680.017	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H18	SE209680.018	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H19	SE209680.019	LB206262	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H20	SE209680.020	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H21	SE209680.021	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H22	SE209680.022	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H23	SE209680.023	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H24	SE209680.024	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H25	SE209680.025	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H26	SE209680.026	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H27	SE209680.027	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H28	SE209680.028	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H29	SE209680.029	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H30	SE209680.030	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H31	SE209680.031	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
H32	SE209680.032	LB206263	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	12 Aug 2020
SR10C	SE209680.033	LB206263	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR11C	SE209680.034	LB206263	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR12C	SE209680.035	LB206263	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR13C	SE209680.036	LB206263	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR14C	SE209680.037	LB206263	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR15C	SE209680.038	LB206263	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR16C	SE209680.039	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR17C	SE209680.040	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR19C	SE209680.041	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR20C	SE209680.042	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR21C	SE209680.043	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR22C	SE209680.044	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR23C	SE209680.045	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR24C	SE209680.046	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR25C	SE209680.047	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR26C	SE209680.048	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR27C	SE209680.049	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR28C	SE209680.050	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR29C	SE209680.051	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued) **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR30C	SE209680.052	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR31C	SE209680.053	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR32C	SE209680.054	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR33C	SE209680.055	LB206264	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	13 Aug 2020
SR34C	SE209680.056	LB206264	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR35C	SE209680.057	LB206264	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR36C	SE209680.058	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR37C	SE209680.059	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR38C	SE209680.060	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR39C	SE209680.061	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR40C	SE209680.062	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR41C	SE209680.063	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR42C	SE209680.064	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR43C	SE209680.065	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR44C	SE209680.066	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR45C	SE209680.067	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR46C	SE209680.068	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR47C	SE209680.069	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR48C	SE209680.070	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR49C	SE209680.071	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR50C	SE209680.072	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR51C	SE209680.073	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR52C	SE209680.074	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
SR53C	SE209680.075	LB206265	04 Aug 2020	06 Aug 2020	31 Jan 2021	07 Aug 2020	31 Jan 2021	13 Aug 2020
HDA	SE209680.119	LB206265	30 Jul 2020	06 Aug 2020	26 Jan 2021	07 Aug 2020	26 Jan 2021	12 Aug 2020
HDB	SE209680.120	LB206392	04 Aug 2020	06 Aug 2020	31 Jan 2021	10 Aug 2020	31 Jan 2021	12 Aug 2020
SRE	SE209680.121	LB206392	30 Jul 2020	06 Aug 2020	26 Jan 2021	10 Aug 2020	26 Jan 2021	12 Aug 2020
SRF	SE209680.122	LB206392	30 Jul 2020	06 Aug 2020	26 Jan 2021	10 Aug 2020	26 Jan 2021	12 Aug 2020
SRH	SE209680.124	LB206392	04 Aug 2020	06 Aug 2020	31 Jan 2021	10 Aug 2020	31 Jan 2021	12 Aug 2020

TRH (Total Recoverable Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN403**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H2	SE209680.002	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H3	SE209680.003	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H4	SE209680.004	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H5	SE209680.005	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H6	SE209680.006	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H7	SE209680.007	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H8	SE209680.008	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H9	SE209680.009	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H10	SE209680.010	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H11	SE209680.011	LB206233	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H12	SE209680.012	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H13	SE209680.013	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H14	SE209680.014	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H15	SE209680.015	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H16	SE209680.016	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H17	SE209680.017	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H18	SE209680.018	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H19	SE209680.019	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H20	SE209680.020	LB206233	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H21	SE209680.021	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H22	SE209680.022	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H23	SE209680.023	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H24	SE209680.024	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H25	SE209680.025	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H26	SE209680.026	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H27	SE209680.027	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H28	SE209680.028	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN403**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H29	SE209680.029	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H30	SE209680.030	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H31	SE209680.031	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H32	SE209680.032	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR100D	SE209680.076	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR110D	SE209680.077	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR120D	SE209680.078	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR130D	SE209680.079	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR140D	SE209680.080	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR150D	SE209680.081	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR160D	SE209680.082	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR170D	SE209680.083	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR190D	SE209680.084	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR200D	SE209680.085	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR210D	SE209680.086	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR220D	SE209680.087	LB206239	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR230D	SE209680.088	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR240D	SE209680.089	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR250D	SE209680.090	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR260D	SE209680.091	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR270D	SE209680.092	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR280D	SE209680.093	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR290D	SE209680.094	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR300D	SE209680.095	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR310D	SE209680.096	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR320D	SE209680.097	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR330D	SE209680.098	LB206241	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR340D	SE209680.099	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR350D	SE209680.100	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR360D	SE209680.101	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR370D	SE209680.102	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR380D	SE209680.103	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR390D	SE209680.104	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR400D	SE209680.105	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR410D	SE209680.106	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR420D	SE209680.107	LB206241	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR430D	SE209680.108	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR440D	SE209680.109	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR450D	SE209680.110	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR460D	SE209680.111	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR470D	SE209680.112	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR480D	SE209680.113	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR490D	SE209680.114	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR500D	SE209680.115	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR510D	SE209680.116	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR520D	SE209680.117	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SR530D	SE209680.118	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
HDA	SE209680.119	LB206234	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
HDB	SE209680.120	LB206234	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SRG	SE209680.123	LB206243	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SRI	SE209680.125	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
SRJ	SE209680.126	LB206243	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020

VOC's in Soil **Method: ME-(AU)-[ENV]AN433**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H2	SE209680.002	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H3	SE209680.003	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H4	SE209680.004	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H5	SE209680.005	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020

SGS

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H6	SE209680.006	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H7	SE209680.007	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H8	SE209680.008	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H9	SE209680.009	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H10	SE209680.010	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H11	SE209680.011	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H12	SE209680.012	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H13	SE209680.013	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H14	SE209680.014	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H15	SE209680.015	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H16	SE209680.016	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H17	SE209680.017	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H18	SE209680.018	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H19	SE209680.019	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H20	SE209680.020	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H21	SE209680.021	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H22	SE209680.022	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H23	SE209680.023	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H24	SE209680.024	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H25	SE209680.025	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H26	SE209680.026	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H27	SE209680.027	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H28	SE209680.028	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H29	SE209680.029	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H30	SE209680.030	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H31	SE209680.031	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H32	SE209680.032	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
HDA	SE209680.119	LB206231	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
HDB	SE209680.120	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020

Volatile Petroleum Hydrocarbons in Soil **Method: ME-(AU)-[ENV]AN433**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1	SE209680.001	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H2	SE209680.002	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H3	SE209680.003	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H4	SE209680.004	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H5	SE209680.005	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H6	SE209680.006	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H7	SE209680.007	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H8	SE209680.008	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H9	SE209680.009	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H10	SE209680.010	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H11	SE209680.011	LB206230	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H12	SE209680.012	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H13	SE209680.013	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H14	SE209680.014	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H15	SE209680.015	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H16	SE209680.016	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H17	SE209680.017	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H18	SE209680.018	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H19	SE209680.019	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H20	SE209680.020	LB206230	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	11 Aug 2020
H21	SE209680.021	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H22	SE209680.022	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H23	SE209680.023	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H24	SE209680.024	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H25	SE209680.025	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H26	SE209680.026	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H27	SE209680.027	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H28	SE209680.028	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020

HOLDING TIME SUMMARY

SE209680 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Volatile Petroleum Hydrocarbons in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H29	SE209680.029	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H30	SE209680.030	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H31	SE209680.031	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
H32	SE209680.032	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
HDA	SE209680.119	LB206231	30 Jul 2020	06 Aug 2020	13 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020
HDB	SE209680.120	LB206231	04 Aug 2020	06 Aug 2020	18 Aug 2020	07 Aug 2020	16 Sep 2020	12 Aug 2020

SGS

SURROGATES

SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	H1	SE209680.001	%	60 - 130%	107
	H2	SE209680.002	%	60 - 130%	104
	H3	SE209680.003	%	60 - 130%	108
	H4	SE209680.004	%	60 - 130%	98
	H5	SE209680.005	%	60 - 130%	103
	H6	SE209680.006	%	60 - 130%	91
	H7	SE209680.007	%	60 - 130%	107
	H8	SE209680.008	%	60 - 130%	99
	H9	SE209680.009	%	60 - 130%	101
	H10	SE209680.010	%	60 - 130%	110
	H11	SE209680.011	%	60 - 130%	105
	H12	SE209680.012	%	60 - 130%	102
	H13	SE209680.013	%	60 - 130%	99
	H14	SE209680.014	%	60 - 130%	94
	H15	SE209680.015	%	60 - 130%	99
	H16	SE209680.016	%	60 - 130%	100
	H17	SE209680.017	%	60 - 130%	97
	H18	SE209680.018	%	60 - 130%	89
	H19	SE209680.019	%	60 - 130%	99
	H20	SE209680.020	%	60 - 130%	98
	H21	SE209680.021	%	60 - 130%	106
	H22	SE209680.022	%	60 - 130%	109
	H23	SE209680.023	%	60 - 130%	104
	H24	SE209680.024	%	60 - 130%	105
	H25	SE209680.025	%	60 - 130%	114
	H26	SE209680.026	%	60 - 130%	108
	H27	SE209680.027	%	60 - 130%	105
	H28	SE209680.028	%	60 - 130%	108
	H29	SE209680.029	%	60 - 130%	107
	H30	SE209680.030	%	60 - 130%	107
	H31	SE209680.031	%	60 - 130%	102
	H32	SE209680.032	%	60 - 130%	106
	SR100D	SE209680.076	%	60 - 130%	109
	SR110D	SE209680.077	%	60 - 130%	111
	SR120D	SE209680.078	%	60 - 130%	111
	SR130D	SE209680.079	%	60 - 130%	106
	SR140D	SE209680.080	%	60 - 130%	109
	SR150D	SE209680.081	%	60 - 130%	106
	SR160D	SE209680.082	%	60 - 130%	113
	SR170D	SE209680.083	%	60 - 130%	109
	SR190D	SE209680.084	%	60 - 130%	109
	SR200D	SE209680.085	%	60 - 130%	106
	SR210D	SE209680.086	%	60 - 130%	106
	SR220D	SE209680.087	%	60 - 130%	107
	SR230D	SE209680.088	%	60 - 130%	105
	SR240D	SE209680.089	%	60 - 130%	100
	SR250D	SE209680.090	%	60 - 130%	107
	SR260D	SE209680.091	%	60 - 130%	101
	SR270D	SE209680.092	%	60 - 130%	103
	SR280D	SE209680.093	%	60 - 130%	107
	SR290D	SE209680.094	%	60 - 130%	105
	SR300D	SE209680.095	%	60 - 130%	103
	SR310D	SE209680.096	%	60 - 130%	105
	SR320D	SE209680.097	%	60 - 130%	101
	SR330D	SE209680.098	%	60 - 130%	104
	SR340D	SE209680.099	%	60 - 130%	109
	SR350D	SE209680.100	%	60 - 130%	98
	SR360D	SE209680.101	%	60 - 130%	103
	SR370D	SE209680.102	%	60 - 130%	104
	SR380D	SE209680.103	%	60 - 130%	107
	SR390D	SE209680.104	%	60 - 130%	103

SURROGATES SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SR400D	SE209680.105	%	60 - 130%	108
	SR410D	SE209680.106	%	60 - 130%	111
	SR420D	SE209680.107	%	60 - 130%	107
	SR430D	SE209680.108	%	60 - 130%	109
	SR440D	SE209680.109	%	60 - 130%	107
	SR450D	SE209680.110	%	60 - 130%	100
	SR460D	SE209680.111	%	60 - 130%	104
	SR470D	SE209680.112	%	60 - 130%	103
	SR480D	SE209680.113	%	60 - 130%	101
	SR490D	SE209680.114	%	60 - 130%	107
	SR500D	SE209680.115	%	60 - 130%	103
	SR510D	SE209680.116	%	60 - 130%	108
	SR520D	SE209680.117	%	60 - 130%	106
	SR530D	SE209680.118	%	60 - 130%	106
	SRG	SE209680.123	%	60 - 130%	104
	SRI	SE209680.125	%	60 - 130%	107
	SRJ	SE209680.126	%	60 - 130%	108

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	H1	SE209680.001	%	60 - 130%	76
	H2	SE209680.002	%	60 - 130%	77
	H3	SE209680.003	%	60 - 130%	79
	H4	SE209680.004	%	60 - 130%	74
	H5	SE209680.005	%	60 - 130%	81
	H6	SE209680.006	%	60 - 130%	79
	H7	SE209680.007	%	60 - 130%	82
	H8	SE209680.008	%	60 - 130%	87
	H9	SE209680.009	%	60 - 130%	83
	H10	SE209680.010	%	60 - 130%	74
	H11	SE209680.011	%	60 - 130%	79
	H12	SE209680.012	%	60 - 130%	78
	H13	SE209680.013	%	60 - 130%	77
	H14	SE209680.014	%	60 - 130%	80
	H15	SE209680.015	%	60 - 130%	80
	H16	SE209680.016	%	60 - 130%	76
	H17	SE209680.017	%	60 - 130%	78
	H18	SE209680.018	%	60 - 130%	81
	H19	SE209680.019	%	60 - 130%	80
	H20	SE209680.020	%	60 - 130%	80
	H21	SE209680.021	%	60 - 130%	81
	H22	SE209680.022	%	60 - 130%	81
	H23	SE209680.023	%	60 - 130%	79
	H24	SE209680.024	%	60 - 130%	86
	H25	SE209680.025	%	60 - 130%	81
	H26	SE209680.026	%	60 - 130%	86
	H27	SE209680.027	%	60 - 130%	85
	H28	SE209680.028	%	60 - 130%	78
	H29	SE209680.029	%	60 - 130%	77
	H30	SE209680.030	%	60 - 130%	78
	H31	SE209680.031	%	60 - 130%	80
	H32	SE209680.032	%	60 - 130%	81
d14-p-terphenyl (Surrogate)	H1	SE209680.001	%	60 - 130%	76
	H2	SE209680.002	%	60 - 130%	81
	H3	SE209680.003	%	60 - 130%	82
	H4	SE209680.004	%	60 - 130%	77
	H5	SE209680.005	%	60 - 130%	76
	H6	SE209680.006	%	60 - 130%	77
	H7	SE209680.007	%	60 - 130%	82
	H8	SE209680.008	%	60 - 130%	83
	H9	SE209680.009	%	60 - 130%	80

SGS

SURROGATES

SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued) Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	H10	SE209680.010	%	60 - 130%	72
	H11	SE209680.011	%	60 - 130%	84
	H12	SE209680.012	%	60 - 130%	77
	H13	SE209680.013	%	60 - 130%	74
	H14	SE209680.014	%	60 - 130%	76
	H15	SE209680.015	%	60 - 130%	84
	H16	SE209680.016	%	60 - 130%	76
	H17	SE209680.017	%	60 - 130%	78
	H18	SE209680.018	%	60 - 130%	73
	H19	SE209680.019	%	60 - 130%	76
	H20	SE209680.020	%	60 - 130%	81
	H21	SE209680.021	%	60 - 130%	88
	H22	SE209680.022	%	60 - 130%	91
	H23	SE209680.023	%	60 - 130%	78
	H24	SE209680.024	%	60 - 130%	86
	H25	SE209680.025	%	60 - 130%	91
	H26	SE209680.026	%	60 - 130%	88
	H27	SE209680.027	%	60 - 130%	83
	H28	SE209680.028	%	60 - 130%	92
	H29	SE209680.029	%	60 - 130%	88
	H30	SE209680.030	%	60 - 130%	90
	H31	SE209680.031	%	60 - 130%	83
	H32	SE209680.032	%	60 - 130%	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	H1	SE209680.001	%	70 - 130%	76
	H2	SE209680.002	%	70 - 130%	77
	H3	SE209680.003	%	70 - 130%	79
	H4	SE209680.004	%	70 - 130%	74
	H5	SE209680.005	%	70 - 130%	81
	H6	SE209680.006	%	70 - 130%	79
	H7	SE209680.007	%	70 - 130%	82
	H8	SE209680.008	%	70 - 130%	87
	H9	SE209680.009	%	70 - 130%	83
	H10	SE209680.010	%	70 - 130%	74
	H11	SE209680.011	%	70 - 130%	79
	H12	SE209680.012	%	70 - 130%	78
	H13	SE209680.013	%	70 - 130%	77
	H14	SE209680.014	%	70 - 130%	80
	H15	SE209680.015	%	70 - 130%	80
	H16	SE209680.016	%	70 - 130%	76
	H17	SE209680.017	%	70 - 130%	78
	H18	SE209680.018	%	70 - 130%	81
	H19	SE209680.019	%	70 - 130%	80
	H20	SE209680.020	%	70 - 130%	80
	H21	SE209680.021	%	70 - 130%	81
	H22	SE209680.022	%	70 - 130%	81
	H23	SE209680.023	%	70 - 130%	79
	H24	SE209680.024	%	70 - 130%	86
	H25	SE209680.025	%	70 - 130%	81
	H26	SE209680.026	%	70 - 130%	86
	H27	SE209680.027	%	70 - 130%	85
	H28	SE209680.028	%	70 - 130%	78
	H29	SE209680.029	%	70 - 130%	77
	H30	SE209680.030	%	70 - 130%	78
	H31	SE209680.031	%	70 - 130%	80
	H32	SE209680.032	%	70 - 130%	81
	HDA	SE209680.119	%	70 - 130%	83
	HDB	SE209680.120	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	H1	SE209680.001	%	70 - 130%	76

SGS

SURROGATES

SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	H2	SE209680.002	%	70 - 130%	81
	H3	SE209680.003	%	70 - 130%	82
	H4	SE209680.004	%	70 - 130%	77
	H5	SE209680.005	%	70 - 130%	76
	H6	SE209680.006	%	70 - 130%	77
	H7	SE209680.007	%	70 - 130%	82
	H8	SE209680.008	%	70 - 130%	83
	H9	SE209680.009	%	70 - 130%	80
	H10	SE209680.010	%	70 - 130%	72
	H11	SE209680.011	%	70 - 130%	84
	H12	SE209680.012	%	70 - 130%	77
	H13	SE209680.013	%	70 - 130%	74
	H14	SE209680.014	%	70 - 130%	76
	H15	SE209680.015	%	70 - 130%	84
	H16	SE209680.016	%	70 - 130%	76
	H17	SE209680.017	%	70 - 130%	78
	H18	SE209680.018	%	70 - 130%	73
	H19	SE209680.019	%	70 - 130%	76
	H20	SE209680.020	%	70 - 130%	81
	H21	SE209680.021	%	70 - 130%	88
	H22	SE209680.022	%	70 - 130%	91
	H23	SE209680.023	%	70 - 130%	78
	H24	SE209680.024	%	70 - 130%	86
	H25	SE209680.025	%	70 - 130%	91
	H26	SE209680.026	%	70 - 130%	88
	H27	SE209680.027	%	70 - 130%	83
	H28	SE209680.028	%	70 - 130%	92
	H29	SE209680.029	%	70 - 130%	88
	H30	SE209680.030	%	70 - 130%	90
	H31	SE209680.031	%	70 - 130%	83
	H32	SE209680.032	%	70 - 130%	89
	HDA	SE209680.119	%	70 - 130%	86
	HDB	SE209680.120	%	70 - 130%	87
d5-nitrobenzene (Surrogate)	H1	SE209680.001	%	70 - 130%	71
	H2	SE209680.002	%	70 - 130%	74
	H3	SE209680.003	%	70 - 130%	76
	H4	SE209680.004	%	70 - 130%	68 ①
	H5	SE209680.005	%	70 - 130%	70
	H6	SE209680.006	%	70 - 130%	71
	H7	SE209680.007	%	70 - 130%	84
	H8	SE209680.008	%	70 - 130%	83
	H9	SE209680.009	%	70 - 130%	80
	H10	SE209680.010	%	70 - 130%	71
	H11	SE209680.011	%	70 - 130%	75
	H12	SE209680.012	%	70 - 130%	70 ①
	H13	SE209680.013	%	70 - 130%	70
	H14	SE209680.014	%	70 - 130%	69 ①
	H15	SE209680.015	%	70 - 130%	75
	H16	SE209680.016	%	70 - 130%	77
	H17	SE209680.017	%	70 - 130%	76
	H18	SE209680.018	%	70 - 130%	75
	H19	SE209680.019	%	70 - 130%	74
	H20	SE209680.020	%	70 - 130%	76
	H21	SE209680.021	%	70 - 130%	74
	H22	SE209680.022	%	70 - 130%	78
	H23	SE209680.023	%	70 - 130%	72
	H24	SE209680.024	%	70 - 130%	82
	H25	SE209680.025	%	70 - 130%	79
	H26	SE209680.026	%	70 - 130%	78
	H27	SE209680.027	%	70 - 130%	82
	H28	SE209680.028	%	70 - 130%	78

SGS

SURROGATES

SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	H29	SE209680.029	%	70 - 130%	78
	H30	SE209680.030	%	70 - 130%	76
	H31	SE209680.031	%	70 - 130%	74
	H32	SE209680.032	%	70 - 130%	74
	HDA	SE209680.119	%	70 - 130%	74
	HDB	SE209680.120	%	70 - 130%	76

VOC's in Soil **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H1	SE209680.001	%	60 - 130%	73
	H2	SE209680.002	%	60 - 130%	70
	H3	SE209680.003	%	60 - 130%	77
	H4	SE209680.004	%	60 - 130%	74
	H5	SE209680.005	%	60 - 130%	76
	H6	SE209680.006	%	60 - 130%	77
	H7	SE209680.007	%	60 - 130%	72
	H8	SE209680.008	%	60 - 130%	74
	H9	SE209680.009	%	60 - 130%	76
	H10	SE209680.010	%	60 - 130%	77
	H11	SE209680.011	%	60 - 130%	84
	H12	SE209680.012	%	60 - 130%	69
	H13	SE209680.013	%	60 - 130%	80
	H14	SE209680.014	%	60 - 130%	76
	H15	SE209680.015	%	60 - 130%	73
	H16	SE209680.016	%	60 - 130%	71
	H17	SE209680.017	%	60 - 130%	72
	H18	SE209680.018	%	60 - 130%	78
	H19	SE209680.019	%	60 - 130%	75
	H20	SE209680.020	%	60 - 130%	82
	H21	SE209680.021	%	60 - 130%	88
	H22	SE209680.022	%	60 - 130%	88
	H23	SE209680.023	%	60 - 130%	91
	H24	SE209680.024	%	60 - 130%	92
	H25	SE209680.025	%	60 - 130%	83
	H26	SE209680.026	%	60 - 130%	87
	H27	SE209680.027	%	60 - 130%	95
	H28	SE209680.028	%	60 - 130%	84
	H29	SE209680.029	%	60 - 130%	86
	H30	SE209680.030	%	60 - 130%	88
	H31	SE209680.031	%	60 - 130%	99
	H32	SE209680.032	%	60 - 130%	89
	HDA	SE209680.119	%	60 - 130%	85
	HDB	SE209680.120	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	H1	SE209680.001	%	60 - 130%	79
	H2	SE209680.002	%	60 - 130%	77
	H3	SE209680.003	%	60 - 130%	85
	H4	SE209680.004	%	60 - 130%	81
	H5	SE209680.005	%	60 - 130%	84
	H6	SE209680.006	%	60 - 130%	85
	H7	SE209680.007	%	60 - 130%	79
	H8	SE209680.008	%	60 - 130%	81
	H9	SE209680.009	%	60 - 130%	83
	H10	SE209680.010	%	60 - 130%	82
	H11	SE209680.011	%	60 - 130%	85
	H12	SE209680.012	%	60 - 130%	74
	H13	SE209680.013	%	60 - 130%	86
	H14	SE209680.014	%	60 - 130%	80
	H15	SE209680.015	%	60 - 130%	81
	H16	SE209680.016	%	60 - 130%	80
	H17	SE209680.017	%	60 - 130%	79
	H18	SE209680.018	%	60 - 130%	85

SGS

SURROGATES

SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	H19	SE209680.019	%	60 - 130%	82
	H20	SE209680.020	%	60 - 130%	90
	H21	SE209680.021	%	60 - 130%	101
	H22	SE209680.022	%	60 - 130%	79
	H23	SE209680.023	%	60 - 130%	82
	H24	SE209680.024	%	60 - 130%	86
	H25	SE209680.025	%	60 - 130%	78
	H26	SE209680.026	%	60 - 130%	84
	H27	SE209680.027	%	60 - 130%	91
	H28	SE209680.028	%	60 - 130%	76
	H29	SE209680.029	%	60 - 130%	78
	H30	SE209680.030	%	60 - 130%	85
	H31	SE209680.031	%	60 - 130%	89
	H32	SE209680.032	%	60 - 130%	86
	HDA	SE209680.119	%	60 - 130%	79
	HDB	SE209680.120	%	60 - 130%	76
d8-toluene (Surrogate)	H1	SE209680.001	%	60 - 130%	87
	H2	SE209680.002	%	60 - 130%	86
	H3	SE209680.003	%	60 - 130%	93
	H4	SE209680.004	%	60 - 130%	90
	H5	SE209680.005	%	60 - 130%	90
	H6	SE209680.006	%	60 - 130%	93
	H7	SE209680.007	%	60 - 130%	88
	H8	SE209680.008	%	60 - 130%	92
	H9	SE209680.009	%	60 - 130%	95
	H10	SE209680.010	%	60 - 130%	95
	H11	SE209680.011	%	60 - 130%	80
	H12	SE209680.012	%	60 - 130%	87
	H13	SE209680.013	%	60 - 130%	97
	H14	SE209680.014	%	60 - 130%	92
	H15	SE209680.015	%	60 - 130%	94
	H16	SE209680.016	%	60 - 130%	95
	H17	SE209680.017	%	60 - 130%	91
	H18	SE209680.018	%	60 - 130%	96
	H19	SE209680.019	%	60 - 130%	92
	H20	SE209680.020	%	60 - 130%	100
	H21	SE209680.021	%	60 - 130%	79
	H22	SE209680.022	%	60 - 130%	80
	H23	SE209680.023	%	60 - 130%	84
	H24	SE209680.024	%	60 - 130%	86
	H25	SE209680.025	%	60 - 130%	77
	H26	SE209680.026	%	60 - 130%	81
	H27	SE209680.027	%	60 - 130%	86
	H28	SE209680.028	%	60 - 130%	75
	H29	SE209680.029	%	60 - 130%	77
	H30	SE209680.030	%	60 - 130%	80
	H31	SE209680.031	%	60 - 130%	92
	H32	SE209680.032	%	60 - 130%	82
	HDA	SE209680.119	%	60 - 130%	76
	HDB	SE209680.120	%	60 - 130%	78

Volatile Petroleum Hydrocarbons in Soil **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H1	SE209680.001	%	60 - 130%	73
	H2	SE209680.002	%	60 - 130%	70
	H3	SE209680.003	%	60 - 130%	77
	H4	SE209680.004	%	60 - 130%	74
	H5	SE209680.005	%	60 - 130%	76
	H6	SE209680.006	%	60 - 130%	77
	H7	SE209680.007	%	60 - 130%	72
	H8	SE209680.008	%	60 - 130%	74

SURROGATES SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H9	SE209680.009	%	60 - 130%	76
	H10	SE209680.010	%	60 - 130%	77
	H11	SE209680.011	%	60 - 130%	84
	H12	SE209680.012	%	60 - 130%	69
	H13	SE209680.013	%	60 - 130%	80
	H14	SE209680.014	%	60 - 130%	76
	H15	SE209680.015	%	60 - 130%	73
	H16	SE209680.016	%	60 - 130%	71
	H17	SE209680.017	%	60 - 130%	72
	H18	SE209680.018	%	60 - 130%	78
	H19	SE209680.019	%	60 - 130%	75
	H20	SE209680.020	%	60 - 130%	82
	H21	SE209680.021	%	60 - 130%	88
	H22	SE209680.022	%	60 - 130%	88
	H23	SE209680.023	%	60 - 130%	91
	H24	SE209680.024	%	60 - 130%	92
	H25	SE209680.025	%	60 - 130%	83
	H26	SE209680.026	%	60 - 130%	87
	H27	SE209680.027	%	60 - 130%	95
	H28	SE209680.028	%	60 - 130%	84
	H29	SE209680.029	%	60 - 130%	86
	H30	SE209680.030	%	60 - 130%	88
	H31	SE209680.031	%	60 - 130%	99
	H32	SE209680.032	%	60 - 130%	89
	HDA	SE209680.119	%	60 - 130%	85
	HDB	SE209680.120	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	H1	SE209680.001	%	60 - 130%	79
	H2	SE209680.002	%	60 - 130%	77
	H3	SE209680.003	%	60 - 130%	85
	H4	SE209680.004	%	60 - 130%	81
	H5	SE209680.005	%	60 - 130%	84
	H6	SE209680.006	%	60 - 130%	85
	H7	SE209680.007	%	60 - 130%	79
	H8	SE209680.008	%	60 - 130%	81
	H9	SE209680.009	%	60 - 130%	83
	H10	SE209680.010	%	60 - 130%	82
	H11	SE209680.011	%	60 - 130%	85
	H12	SE209680.012	%	60 - 130%	74
	H13	SE209680.013	%	60 - 130%	86
	H14	SE209680.014	%	60 - 130%	80
	H15	SE209680.015	%	60 - 130%	81
	H16	SE209680.016	%	60 - 130%	80
	H17	SE209680.017	%	60 - 130%	79
	H18	SE209680.018	%	60 - 130%	85
	H19	SE209680.019	%	60 - 130%	82
	H20	SE209680.020	%	60 - 130%	90
	H21	SE209680.021	%	60 - 130%	101
	H22	SE209680.022	%	60 - 130%	79
	H23	SE209680.023	%	60 - 130%	82
	H24	SE209680.024	%	60 - 130%	86
	H25	SE209680.025	%	60 - 130%	78
	H26	SE209680.026	%	60 - 130%	84
	H27	SE209680.027	%	60 - 130%	91
	H28	SE209680.028	%	60 - 130%	76
	H29	SE209680.029	%	60 - 130%	78
	H30	SE209680.030	%	60 - 130%	85
	H31	SE209680.031	%	60 - 130%	89
	H32	SE209680.032	%	60 - 130%	86
	HDA	SE209680.119	%	60 - 130%	79
	HDB	SE209680.120	%	60 - 130%	76
d8-toluene (Surrogate)	H1	SE209680.001	%	60 - 130%	87

SGS

SURROGATES

SE209680 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	H2	SE209680.002	%	60 - 130%	86
	H3	SE209680.003	%	60 - 130%	93
	H4	SE209680.004	%	60 - 130%	90
	H5	SE209680.005	%	60 - 130%	90
	H6	SE209680.006	%	60 - 130%	93
	H7	SE209680.007	%	60 - 130%	88
	H8	SE209680.008	%	60 - 130%	92
	H9	SE209680.009	%	60 - 130%	95
	H10	SE209680.010	%	60 - 130%	95
	H11	SE209680.011	%	60 - 130%	80
	H12	SE209680.012	%	60 - 130%	87
	H13	SE209680.013	%	60 - 130%	97
	H14	SE209680.014	%	60 - 130%	92
	H15	SE209680.015	%	60 - 130%	94
	H16	SE209680.016	%	60 - 130%	95
	H17	SE209680.017	%	60 - 130%	91
	H18	SE209680.018	%	60 - 130%	96
	H19	SE209680.019	%	60 - 130%	92
	H20	SE209680.020	%	60 - 130%	100
	H21	SE209680.021	%	60 - 130%	79
	H22	SE209680.022	%	60 - 130%	80
	H23	SE209680.023	%	60 - 130%	84
	H24	SE209680.024	%	60 - 130%	86
	H25	SE209680.025	%	60 - 130%	77
	H26	SE209680.026	%	60 - 130%	81
	H27	SE209680.027	%	60 - 130%	86
	H28	SE209680.028	%	60 - 130%	75
	H29	SE209680.029	%	60 - 130%	77
	H30	SE209680.030	%	60 - 130%	80
	H31	SE209680.031	%	60 - 130%	92
	H32	SE209680.032	%	60 - 130%	82
	HDA	SE209680.119	%	60 - 130%	76
	HDB	SE209680.120	%	60 - 130%	78

SGS

METHOD BLANKS

SE209680 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil — Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB206270.001	Mercury	mg/kg	0.05	<0.05
LB206271.001	Mercury	mg/kg	0.05	<0.05
LB206272.001	Mercury	mg/kg	0.05	<0.05
LB206273.001	Mercury	mg/kg	0.05	<0.05
LB206402.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB206233.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	94
LB206234.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	98
LB206239.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1

SGS

METHOD BLANKS

SE209680 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result
LB206239.001		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	102
LB206241.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	99
LB206243.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1

SGS

METHOD BLANKS

SE209680 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB206243.001		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	102

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB206233.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	84
		d14-p-terphenyl (Surrogate)	%	-	83
LB206234.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	86
		d14-p-terphenyl (Surrogate)	%	-	86

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB206233.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	78
		2-fluorobiphenyl (Surrogate)	%	-	84
		d14-p-terphenyl (Surrogate)	%	-	83
LB206234.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1

SGS

METHOD BLANKS

SE209680 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB206234.001		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(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	82
		2-fluorobiphenyl (Surrogate)	%	-	86
		d14-p-terphenyl (Surrogate)	%	-	86

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB206262.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0
LB206263.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0
LB206264.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0
LB206265.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0
LB206392.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB206233.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

SGS

METHOD BLANKS

SE209680 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB206234.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB206230.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	92
		Bromofluorobenzene (Surrogate)	%	-	80
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB206231.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	85
		Bromofluorobenzene (Surrogate)	%	-	93
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB206230.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	90
LB206231.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	89

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil — Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206270.014	Mercury	mg/kg	0.05	<0.05	<0.05	199	0
SE209680.019	LB206270.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE209680.029	LB206271.014	Mercury	mg/kg	0.05	0.41	0.36	43	11
SE209680.038	LB206271.024	Mercury	mg/kg	0.05	<0.05	<0.05	179	0
SE209680.048	LB206272.014	Mercury	mg/kg	0.05	<0.05	<0.05	195	0
SE209680.057	LB206272.024	Mercury	mg/kg	0.05	0.05	<0.05	138	2
SE209680.067	LB206273.014	Mercury	mg/kg	0.05	0.56	0.55	39	2
SE209680.119	LB206273.024	Mercury	mg/kg	0.05	0.24	0.20	53	21
SE209745.020	LB206402.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE209762.004	LB206402.014	Mercury	mg/kg	0.05	0.011787906	0.0218189694	200	0

Moisture Content — Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209658.005	LB206259.031	% Moisture	%w/w	1	5.266170578	15.5764883195	48	6
SE209679.013	LB206249.011	% Moisture	%w/w	1	29.3	30.2	33	3
SE209680.010	LB206246.011	% Moisture	%w/w	1	20.5	20.4	35	1
SE209680.020	LB206246.022	% Moisture	%w/w	1	20.5	21.2	35	3
SE209680.030	LB206247.011	% Moisture	%w/w	1	19.7	19.0	35	3
SE209680.062	LB206259.011	% Moisture	%w/w	1	21.5	22.4	35	4
SE209680.081	LB206249.022	% Moisture	%w/w	1	20.8	19.8	35	5
SE209680.087	LB206249.029	% Moisture	%w/w	1	21.8	24.1	34	10
SE209680.120	LB206247.016	% Moisture	%w/w	1	17.4	18.6	36	7

OC Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.009	LB206233.028		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0.0010406594	200	0
			Beta BHC	mg/kg	0.1	<0.1	0.0027111897	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0.001084008	200	0
			Dieldrin	mg/kg	0.2	<0.2	0.0016537380	200	0
			Endrin	mg/kg	0.2	<0.2	0.0040306632	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0.0020376146	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0.0041813324	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0.0017742524	200	0
			Isodrin	mg/kg	0.1	<0.1	0.0007880188	200	0
			Mirex	mg/kg	0.1	<0.1	0.0005086219	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0.0163887905	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.106	30	35 Ⓖ
SE209680.014	LB206233.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0.0018967207	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0.0017795176	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.014	LB206233.029		o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0.0027375094	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0.001886939	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	0.5	0.478776929	51	4
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0.0046135974	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0.003400206	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0.081833547	152	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0.0033217802	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	0.1	0.097702398	111	39
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0.0032227891	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0.0038098586	200	0
			Isodrin	mg/kg	0.1	<0.1	0.0024341790	200	0
			Mirex	mg/kg	0.1	<0.1	0.0004832125	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0.4954244721	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.142500293	30	1
SE209680.030	LB206234.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	0
SE209680.032	LB206234.021		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.032	LB206234.021		Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.152	30	5
SE209680.077	LB206239.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.16	30	3
SE209680.087	LB206239.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	1.5	1.2	37	17

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.087	LB206239.027		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	0.2	0.1	89	31
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	2	1	94	19
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.17	30	5
SE209680.097	LB206241.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	1.3	1.1	38	12
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	1	1	113	12
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.16	30	1
SE209680.107	LB206241.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	1.6	1.9	36	15
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.107	LB206241.027		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	2	2	88	15
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	2
SE209680.117	LB206243.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	0.4	0.4	54	4
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	166	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	0
SE209680.126	LB206243.019		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	176	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.126	LB206243.019		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	0

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206233.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	10
SE209680.014	LB206233.031		Dichlorvos	mg/kg	0.5	<0.5	0.0113775666	200	0
			Dimethoate	mg/kg	0.5	<0.5	0.0021060896	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.0299192693	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0.0321049358	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.0021091707	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.0533257740	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.0181522848	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0.0009468592	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.3560156392	30	11
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.3737312751	30	1
SE209680.030	LB206234.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206233.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206233.014		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	6
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	10
SE209680.014	LB206233.031		Naphthalene	mg/kg	0.1	<0.1	0.0015430482	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.0006060397	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.0008062475	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.0039111871	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0.0008688383	200	0
			Fluorene	mg/kg	0.1	<0.1	0.0010274845	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.0213358152	200	0
			Anthracene	mg/kg	0.1	<0.1	0.0206029303	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.0286260416	200	0
			Pyrene	mg/kg	0.1	<0.1	0.0277982708	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.0113254449	200	0
			Chrysene	mg/kg	0.1	<0.1	0.0126344669	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.0210671666	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.0166809431	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.0190511316	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.0064314077	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.0091403680	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.3	0.3359330711	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.3560156392	30	11
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.3737312751	30	1
SE209680.030	LB206234.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	163	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	162	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	160	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	162	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0

SGS

DUPLICATES

SE209680 R0

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The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.030	LB206234.014		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206262.014	Arsenic, As	mg/kg	1	2	2	88	4
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	89	88	31	2
		Copper, Cu	mg/kg	0.5	18	17	33	4
		Nickel, Ni	mg/kg	0.5	17	16	33	2
		Lead, Pb	mg/kg	1	10	10	40	2
		Zinc, Zn	mg/kg	2	39	41	35	5
SE209680.019	LB206262.024	Arsenic, As	mg/kg	1	2	2	72	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	37	39	31	4
		Copper, Cu	mg/kg	0.5	14	14	34	2
		Nickel, Ni	mg/kg	0.5	8.7	8.5	36	2
		Lead, Pb	mg/kg	1	10	10	40	2
		Zinc, Zn	mg/kg	2	41	41	35	0
SE209680.029	LB206263.014	Arsenic, As	mg/kg	1	5	4	51	23
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	21	13	33	42 ②
		Copper, Cu	mg/kg	0.5	26	26	32	1
		Nickel, Ni	mg/kg	0.5	3.9	3.7	43	3
		Lead, Pb	mg/kg	1	25	24	34	3
		Zinc, Zn	mg/kg	2	26	26	38	1
SE209680.038	LB206263.024	Arsenic, As	mg/kg	1	3	3	67	2
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	34	34	31	3
		Copper, Cu	mg/kg	0.5	23	20	32	13
		Nickel, Ni	mg/kg	0.5	11	12	34	10
		Lead, Pb	mg/kg	1	11	13	38	9
		Zinc, Zn	mg/kg	2	27	26	37	2
SE209680.048	LB206264.014	Arsenic, As	mg/kg	1	3	2	72	12
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	84	66	31	24
		Copper, Cu	mg/kg	0.5	17	16	33	8
		Nickel, Ni	mg/kg	0.5	14	15	33	2
		Lead, Pb	mg/kg	1	21	17	36	17
		Zinc, Zn	mg/kg	2	140	120	32	21
SE209680.057	LB206264.024	Arsenic, As	mg/kg	1	7	4	48	41
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	29	34	32	16
		Copper, Cu	mg/kg	0.5	24	26	32	9
		Nickel, Ni	mg/kg	0.5	7.4	6.9	37	6
		Lead, Pb	mg/kg	1	17	16	36	7
		Zinc, Zn	mg/kg	2	31	32	36	2
SE209680.067	LB206265.014	Arsenic, As	mg/kg	1	29	32	33	9
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	109	5
		Chromium, Cr	mg/kg	0.5	14	17	33	21
		Copper, Cu	mg/kg	0.5	52	54	31	5
		Nickel, Ni	mg/kg	0.5	4.8	4.7	40	1
		Lead, Pb	mg/kg	1	120	120	31	2
		Zinc, Zn	mg/kg	2	24	24	38	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued) — Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.119	LB206265.024		Arsenic, As	mg/kg	1	7	9	43	20
			Cadmium, Cd	mg/kg	0.3	0.5	0.6	88	15
			Chromium, Cr	mg/kg	0.5	63	57	31	11
			Copper, Cu	mg/kg	0.5	83	66	31	22
			Nickel, Ni	mg/kg	0.5	16	15	33	8
			Lead, Pb	mg/kg	1	240	230	30	3
			Zinc, Zn	mg/kg	2	710	830	30	16
SE209745.020	LB206392.023		Arsenic, As	mg/kg	1	<1	<1	192	0
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	0.7	0.7	102	2
			Copper, Cu	mg/kg	0.5	1.1	1.1	75	2
			Nickel, Ni	mg/kg	0.5	<0.5	<0.5	153	0
			Lead, Pb	mg/kg	1	<1	<1	189	0
			Zinc, Zn	mg/kg	2	<2	<2	161	0
SE209762.003	LB206392.014		Arsenic, As	mg/kg	1	1.8519463087	2.1406666	80	14
			Cadmium, Cd	mg/kg	0.3	-0.0050524328	0.0044092	200	0
			Chromium, Cr	mg/kg	0.5	5.4327432885	5.89113212	39	8
			Copper, Cu	mg/kg	0.5	4.2720616610	6.94096264	39	48 ⓡ
			Nickel, Ni	mg/kg	0.5	2.5064660234	3.54896508	47	34
			Lead, Pb	mg/kg	1	7.9571224832	9.44979744	41	17
			Zinc, Zn	mg/kg	2	2.6113317953	19.8105356	42	44 ⓡ

TRH (Total Recoverable Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206233.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE209680.014	LB206233.029		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE209680.030	LB206234.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE209680.120	LB206234.019		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	50	45	125	11
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.120	LB206234.019	TRH F Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206230.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	7.7	50	6
			d8-toluene (Surrogate)	mg/kg	-	9.5	9.0	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.7	7.2	50	7
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE209680.020	LB206230.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	7.8	50	14
			d8-toluene (Surrogate)	mg/kg	-	10.0	8.9	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	7.2	50	13
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE209680.030	LB206231.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.0	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.0	8.1	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	9.1	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE209680.120	LB206231.019	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.6	8.4	50	10
			d8-toluene (Surrogate)	mg/kg	-	7.8	8.3	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.7	8.8	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.010	LB206230.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.2	7.7	30	6
			d8-toluene (Surrogate)	mg/kg	-	9.5	9.0	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.7	7.2	30	7
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE209680.020	LB206230.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0

SGS

DUPLICATES

SE209680 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680.020	LB206230.025	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	7.8	30	14
			d8-toluene (Surrogate)	mg/kg	-	10.0	8.9	30	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.2	7.2	30	13
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE209680.030	LB206231.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	8.0	30	6
			d8-toluene (Surrogate)	mg/kg	-	8.0	8.1	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	9.1	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE209680.120	LB206231.019		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.6	8.4	30	10
			d8-toluene (Surrogate)	mg/kg	-	7.8	8.3	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.7	8.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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LABORATORY CONTROL SAMPLES

SE209680 R0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury In Soil

Method: ME-(AU)-[ENV]AN312

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206270.002		Mercury	mg/kg	0.05	0.19	0.2	70 - 130	95
LB206271.002		Mercury	mg/kg	0.05	0.23	0.2	70 - 130	117
LB206272.002		Mercury	mg/kg	0.05	0.21	0.2	70 - 130	107
LB206273.002		Mercury	mg/kg	0.05	0.21	0.2	70 - 130	107
LB206402.002		Mercury	mg/kg	0.05	0.22	0.2	70 - 130	109

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206233.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	104
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	94
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	92
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	96
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	99
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	94
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	93
LB206234.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	93
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	90
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	85
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	93
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	91
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	73
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	101
LB206239.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	90
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	83
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	82
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	84
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	88
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	72
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	97
LB206241.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	77
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	84
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	83
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	86
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	85
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	73
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	101
LB206243.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	103
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	93
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	92
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	92
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	96
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	81
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	105

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206233.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	76
		Diazinon (Dimpylate)	mg/kg	0.5	1.6	2	60 - 140	82
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	80
		Ethion	mg/kg	0.2	1.3	2	60 - 140	64
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77
LB206234.002		Dichlorvos	mg/kg	0.5	1.3	2	60 - 140	65
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	87
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	83
		Ethion	mg/kg	0.2	1.5	2	60 - 140	73
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	73
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74

PAH (Polynuclear Aromatic Hydrocarbons) In Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR

SGS

LABORATORY CONTROL SAMPLES

SE209680 R0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206233.002		Naphthalene	mg/kg	0.1	5.0	4	60 - 140	125
		Acenaphthylene	mg/kg	0.1	5.1	4	60 - 140	127
		Acenaphthene	mg/kg	0.1	5.2	4	60 - 140	131
		Phenanthrene	mg/kg	0.1	5.3	4	60 - 140	132
		Anthracene	mg/kg	0.1	5.2	4	60 - 140	129
		Fluoranthene	mg/kg	0.1	5.2	4	60 - 140	129
		Pyrene	mg/kg	0.1	5.3	4	60 - 140	133
		Benzo(a)pyrene	mg/kg	0.1	5.0	4	60 - 140	125
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77
LB206234.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	103
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	92
		Anthracene	mg/kg	0.1	4.0	4	60 - 140	101
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	105
		Pyrene	mg/kg	0.1	4.3	4	60 - 140	107
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	96
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	73
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206262.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	101
	Cadmium, Cd	mg/kg	0.3	5.8	5.41	80 - 120	106
	Chromium, Cr	mg/kg	0.5	40	38.31	80 - 120	105
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	101
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	101
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	270	273	80 - 120	101
LB206263.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	102
	Cadmium, Cd	mg/kg	0.3	5.3	5.41	80 - 120	99
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	102
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	101
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	99
	Lead, Pb	mg/kg	1	92	89.9	80 - 120	102
	Zinc, Zn	mg/kg	2	260	273	80 - 120	94
LB206264.002	Arsenic, As	mg/kg	1	310	318.22	80 - 120	97
	Cadmium, Cd	mg/kg	0.3	5.0	5.41	80 - 120	93
	Chromium, Cr	mg/kg	0.5	37	38.31	80 - 120	96
	Copper, Cu	mg/kg	0.5	280	290	80 - 120	98
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	99
	Lead, Pb	mg/kg	1	91	89.9	80 - 120	101
	Zinc, Zn	mg/kg	2	260	273	80 - 120	92
LB206265.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	102
	Cadmium, Cd	mg/kg	0.3	5.3	5.41	80 - 120	99
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	102
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	101
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	100
	Lead, Pb	mg/kg	1	92	89.9	80 - 120	102
	Zinc, Zn	mg/kg	2	260	273	80 - 120	94
LB206392.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	5.6	5.41	80 - 120	104
	Chromium, Cr	mg/kg	0.5	42	38.31	80 - 120	108
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	102
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	101
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
	Zinc, Zn	mg/kg	2	260	273	80 - 120	96

SGS

LABORATORY CONTROL SAMPLES

SE209680 R0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206233.002		TRH C10-C14	mg/kg	20	34	40	60 - 140	85
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	80
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16	mg/kg	25	35	40	60 - 140	88
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	80
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90
LB206234.002		TRH C10-C14	mg/kg	20	36	40	60 - 140	90
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	78
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16	mg/kg	25	35	40	60 - 140	88
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	78
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206230.002	Monocyclic	Benzene	mg/kg	0.1	3.4	5	60 - 140	68
	Aromatic	Toluene	mg/kg	0.1	4.0	5	60 - 140	79
		Ethylbenzene	mg/kg	0.1	3.6	5	60 - 140	71
		m/p-xylene	mg/kg	0.2	7.2	10	60 - 140	72
		o-xylene	mg/kg	0.1	3.7	5	60 - 140	73
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.5	10	70 - 130	95
		d8-toluene (Surrogate)	mg/kg	-	10.1	10	70 - 130	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.7	10	70 - 130	87
LB206231.002	Monocyclic	Benzene	mg/kg	0.1	4.2	5	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	3.7	5	60 - 140	74
		Ethylbenzene	mg/kg	0.1	3.7	5	60 - 140	74
		m/p-xylene	mg/kg	0.2	7.4	10	60 - 140	74
		o-xylene	mg/kg	0.1	3.7	5	60 - 140	74
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.0	10	70 - 130	100
		d8-toluene (Surrogate)	mg/kg	-	9.6	10	70 - 130	96
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.9	10	70 - 130	99

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB206230.002		TRH C6-C10	mg/kg	25	84	92.5	60 - 140	91
		TRH C6-C9	mg/kg	20	72	80	60 - 140	89
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.5	10	70 - 130	95
		Bromofluorobenzene (Surrogate)	mg/kg	-	8.7	10	70 - 130	87
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	62	62.5	60 - 140	99
LB206231.002		TRH C6-C10	mg/kg	25	78	92.5	60 - 140	85
		TRH C6-C9	mg/kg	20	69	80	60 - 140	86
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.0	10	70 - 130	100
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	55	62.5	60 - 140	89

MATRIX SPIKES

SE209680 R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

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Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.020	LB206271.004	Mercury	mg/kg	0.05	0.27	0.09	0.2	93
SE209680.039	LB206272.004	Mercury	mg/kg	0.05	0.21	<0.05	0.2	88
SE209680.058	LB206273.004	Mercury	mg/kg	0.05	0.23	<0.05	0.2	102

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209679.011	LB206239.029		Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	-	-
			Alpha BHC	mg/kg	0.1		<0.1	-	-
			Lindane	mg/kg	0.1		<0.1	-	-
			Heptachlor	mg/kg	0.1		<0.1	0.2	102
			Aldrin	mg/kg	0.1		<0.1	0.2	92
			Beta BHC	mg/kg	0.1		<0.1	-	-
			Delta BHC	mg/kg	0.1		<0.1	0.2	92
			Heptachlor epoxide	mg/kg	0.1		<0.1	-	-
			o,p'-DDE	mg/kg	0.1		<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2		<0.2	-	-
			Gamma Chlordane	mg/kg	0.1		<0.1	-	-
			Alpha Chlordane	mg/kg	0.1		<0.1	-	-
			trans-Nonachlor	mg/kg	0.1		<0.1	-	-
			p,p'-DDE	mg/kg	0.1		<0.1	-	-
			Dieldrin	mg/kg	0.2		<0.2	0.2	93
			Endrin	mg/kg	0.2		<0.2	0.2	97
			o,p'-DDD	mg/kg	0.1		<0.1	-	-
			o,p'-DDT	mg/kg	0.1		<0.1	-	-
			Beta Endosulfan	mg/kg	0.2		<0.2	-	-
			p,p'-DDD	mg/kg	0.1		<0.1	-	-
			p,p'-DDT	mg/kg	0.1		<0.1	0.2	82
			Endosulfan sulphate	mg/kg	0.1		<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1		<0.1	-	-
			Methoxychlor	mg/kg	0.1		<0.1	-	-
			Endrin Ketone	mg/kg	0.1		<0.1	-	-
			Isodrin	mg/kg	0.1		<0.1	-	-
			Mirex	mg/kg	0.1		<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1		<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-		0.16	-	103
SE209680.001	LB206233.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	118
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	105
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	106
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	0.3	0.5	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	107
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	110
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.4	0.3	0.2	85
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-

SGS

MATRIX SPIKES

SE209680 R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.001	LB206233.004		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	2	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	-	106
SE209680.022	LB206234.020		Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	-	-
			Alpha BHC	mg/kg	0.1		<0.1	-	-
			Lindane	mg/kg	0.1		<0.1	-	-
			Heptachlor	mg/kg	0.1		<0.1	0.2	103
			Aldrin	mg/kg	0.1		<0.1	0.2	101
			Beta BHC	mg/kg	0.1		<0.1	-	-
			Delta BHC	mg/kg	0.1		<0.1	0.2	95
			Heptachlor epoxide	mg/kg	0.1		<0.1	-	-
			o,p'-DDE	mg/kg	0.1		<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2		<0.2	-	-
			Gamma Chlordane	mg/kg	0.1		<0.1	-	-
			Alpha Chlordane	mg/kg	0.1		<0.1	-	-
			trans-Nonachlor	mg/kg	0.1		<0.1	-	-
			p,p'-DDE	mg/kg	0.1		0.2	-	-
			Dieldrin	mg/kg	0.2		<0.2	0.2	102
			Endrin	mg/kg	0.2		<0.2	0.2	102
			o,p'-DDD	mg/kg	0.1		<0.1	-	-
			o,p'-DDT	mg/kg	0.1		<0.1	-	-
			Beta Endosulfan	mg/kg	0.2		<0.2	-	-
			p,p'-DDD	mg/kg	0.1		<0.1	-	-
			p,p'-DDT	mg/kg	0.1		<0.1	0.2	87
			Endosulfan sulphate	mg/kg	0.1		<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1		<0.1	-	-
			Methoxychlor	mg/kg	0.1		<0.1	-	-
			Endrin Ketone	mg/kg	0.1		<0.1	-	-
			Isodrin	mg/kg	0.1		<0.1	-	-
			Mirex	mg/kg	0.1		<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1		<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-		0.16	-	103
SE209680.088	LB206241.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	91
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	98
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	100
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	2.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	100
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	101
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.4	0.2	0.2	106
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	2	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	-	109

SGS

MATRIX SPIKES

SE209680 R0

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OC Pesticides in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.108	LB206243.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	101
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	96
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	97
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	99
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	99
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	83
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	-	109

OP Pesticides in Soil **Method: ME-(AU)-[ENV]AN420**

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209680.002	LB206233.030		Dichlorvos	mg/kg	0.5	<0.5	2	83
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	86
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	90
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	81
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	80
SE209680.023	LB206234.020		Dichlorvos	mg/kg	0.5	<0.5	2	71
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	89
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	90
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	72
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	72

SGS

MATRIX SPIKES

SE209680 R0

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PAH (Polynuclear Aromatic Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209680.002	LB206233.030		Naphthalene	mg/kg	0.1	<0.1	4	127
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	130
			Acenaphthene	mg/kg	0.1	<0.1	4	136
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	0.1	4	134
			Anthracene	mg/kg	0.1	<0.1	4	137
			Fluoranthene	mg/kg	0.1	0.2	4	136
			Pyrene	mg/kg	0.1	0.2	4	136
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	127
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	74
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	80
SE209680.023	LB206234.020		Naphthalene	mg/kg	0.1	<0.1	4	96
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	99
			Acenaphthene	mg/kg	0.1	<0.1	4	96
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	90
			Anthracene	mg/kg	0.1	<0.1	4	95
			Fluoranthene	mg/kg	0.1	0.3	4	82
			Pyrene	mg/kg	0.1	0.3	4	93
			Benzo(a)anthracene	mg/kg	0.1	0.2	-	-
			Chrysene	mg/kg	0.1	0.2	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0.2	-	-
			Benzo(a)pyrene	mg/kg	0.1	0.2	4	98
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.4	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	-	-
			Total PAH (18)	mg/kg	0.8	1.9	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	76
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	72

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.001	LB206262.004	Arsenic, As	mg/kg	1	42	6	50	72
		Cadmium, Cd	mg/kg	0.3	36	0.5	50	72
		Chromium, Cr	mg/kg	0.5	84	62	50	44 ④
		Copper, Cu	mg/kg	0.5	90	76	50	27 ④
		Nickel, Ni	mg/kg	0.5	52	15	50	74
		Lead, Pb	mg/kg	1	170	190	50	-53 ④
		Zinc, Zn	mg/kg	2	440	690	50	-505 ④
SE209680.020	LB206263.004	Arsenic, As	mg/kg	1	43	3	50	79

SGS

MATRIX SPIKES

SE209680 R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.020	LB206263.004	Cadmium, Cd	mg/kg	0.3	39	<0.3	50	77
		Chromium, Cr	mg/kg	0.5	65	31	50	66 ④
		Copper, Cu	mg/kg	0.5	68	32	50	71
		Nickel, Ni	mg/kg	0.5	50	9.2	50	83
		Lead, Pb	mg/kg	1	74	57	50	34 ④
		Zinc, Zn	mg/kg	2	180	170	50	26 ⑧
SE209680.039	LB206264.004	Arsenic, As	mg/kg	1	42	4	50	75
		Cadmium, Cd	mg/kg	0.3	41	<0.3	50	82
		Chromium, Cr	mg/kg	0.5	87	49	50	76
		Copper, Cu	mg/kg	0.5	60	21	50	78
		Nickel, Ni	mg/kg	0.5	58	14	50	89
		Lead, Pb	mg/kg	1	53	14	50	78
		Zinc, Zn	mg/kg	2	66	29	50	73
SE209680.058	LB206265.004	Arsenic, As	mg/kg	1	42	3	50	79
		Cadmium, Cd	mg/kg	0.3	39	<0.3	50	77
		Chromium, Cr	mg/kg	0.5	89	58	50	62 ④
		Copper, Cu	mg/kg	0.5	90	56	50	68 ④
		Nickel, Ni	mg/kg	0.5	53	11	50	84
		Lead, Pb	mg/kg	1	51	10	50	81
		Zinc, Zn	mg/kg	2	65	28	50	72

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE209680.002	LB206233.028		TRH C10-C14	mg/kg	20	<20	40	103
			TRH C15-C28	mg/kg	45	<45	40	98
			TRH C29-C36	mg/kg	45	<45	40	128
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	98
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	118
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-
SE209680.023	LB206234.020		TRH C10-C14	mg/kg	20	<20	40	103
			TRH C15-C28	mg/kg	45	<45	40	105
			TRH C29-C36	mg/kg	45	<45	40	75
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	100
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.001	LB206230.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	4.5	<0.1	5	89
			Toluene	mg/kg	0.1	5.2	<0.1	5	103
			Ethylbenzene	mg/kg	0.1	4.8	<0.1	5	95
			m/p-xylene	mg/kg	0.2	9.6	<0.2	10	95
			o-xylene	mg/kg	0.1	4.9	<0.1	5	98
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.9	10	78
			d8-toluene (Surrogate)	mg/kg	-	8.7	8.7	10	87
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.3	7.3	10	73
		Totals	Total Xylenes	mg/kg	0.3	14	<0.3	-	-
			Total BTEX	mg/kg	0.6	29	<0.6	-	-
SE209680.021	LB206231.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	3.4	<0.1	5	68
			Toluene	mg/kg	0.1	3.1	<0.1	5	62
			Ethylbenzene	mg/kg	0.1	3.2	<0.1	5	64
			m/p-xylene	mg/kg	0.2	6.5	<0.2	10	65
			o-xylene	mg/kg	0.1	3.3	<0.1	5	66

SGS

MATRIX SPIKES

SE209680 R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.021	LB206231.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.7	10.1	10	87
			d8-toluene (Surrogate)	mg/kg	-	8.6	7.9	10	86
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.8	10	90
		Totals	Total Xylenes	mg/kg	0.3	9.8	<0.3	-	-
			Total BTEX	mg/kg	0.6	20	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE209680.001	LB206230.004		TRH C6-C10	mg/kg	25	78	<25	92.5	84
			TRH C6-C9	mg/kg	20	66	<20	80	83
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.9	10	78
			d8-toluene (Surrogate)	mg/kg	-	8.7	8.7	10	87
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.3	7.3	-	73
		VPH F	Benzene (F0)	mg/kg	0.1	4.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	49	<25	62.5	78
SE209680.021	LB206231.004		TRH C6-C10	mg/kg	25	62	<25	92.5	67
			TRH C6-C9	mg/kg	20	56	<20	80	69
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.7	10.1	10	87
			d8-toluene (Surrogate)	mg/kg	-	8.6	7.9	10	86
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	8.8	-	90
		VPH F	Benzene (F0)	mg/kg	0.1	3.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	43	<25	62.5	68

MATRIX SPIKE DUPLICATES

SE209680 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

FOOTNOTES

SE209680 R0

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

Chain of Custody Form – Ref 12137

Sheet 1 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**						
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**						
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**			
Facsimile:	(02) 6360 3960														
Email:	ashleigh@envirowest.net.au														
Contact Person:	Leah Desborough														
Invoice:	accounts@envirowest.net.au														
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS			
Quotation #:	Envir_70119_2019														
Courier/CN:	Toll														
	Sample ID	**Container***	**Sampling Date/Time**												
1	H1	A	30/7/2020		X		X	X	X	X					
2	H2	A	30/7/2020		X		X	X	X	X					
3	H3	A	30/7/2020		X		X	X	X	X					
4	H4	A	30/7/2020		X		X	X	X	X					
5	H5	A	30/7/2020		X		X	X	X	X					
6	H6	A	30/7/2020		X		X	X	X	X					
7	H7	A	30/7/2020		X		X	X	X	X					
8	H8	A	30/7/2020		X		X	X	X	X					
9	H9	A	30/7/2020		X		X	X	X	X					
10	H10	A	30/7/2020		X		X	X	X	X					
11	H11	A	30/7/2020		X		X	X	X	X					
12	H12	A	4/8/2020		X		X	X	X	X					
13	H13	A	4/8/2020		X		X	X	X	X					
14	H14	A	4/8/2020		X		X	X	X	X					
15	H15	A	4/8/2020		X		X	X	X	X					
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.						Sampler name: Andrew Ruming Date: 30/7/2020 and 4/8/2020 Time: 14:30										
Relinquished by: (print and signature) [redacted]			Date 05/08/2020		Time 16:00	Received by: Elsa Barrett (print and signature)			Date 5/08/20	Time 11am					

Please return completed form to Envirowest Consulting, *A = Solvent rinsed glass jar with Teflon lined lid and green label, B= Plastic with green label, C= Amber with green label, D= Vial with white label, E= Plastic with red label

SGS EHS Sydney COC
SE209680

Chain of Custody Form – Ref 12137

Sheet 2 of 9

	Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**				
	Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**				
	Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**	
	Facsimile:	(02) 6360 3960												
	Email:	ashleigh@envirowest.net.au												
	Contact Person:	Leah Desborough												
	Invoice:	accounts@envirowest.net.au												
	Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS	
	Quotation #:	Envir_70119_2019												
	Courier/CN:	Toll												
	Sample ID	**Container***	**Sampling Date/Time**											
16	H16	A	4/8/2020		X		X		X	X	X			
17	H17	A	4/8/2020		X		X		X	X	X			
18	H18	A	4/8/2020		X		X		X	X	X			
19	H19	A	4/8/2020		X		X		X	X	X			
20	H20	A	4/8/2020		X		X		X	X	X			
21	H21	A	4/8/2020		X		X		X	X	X			
22	H22	A	4/8/2020		X		X		X	X	X			
23	H23	A	4/8/2020		X		X		X	X	X			
24	H24	A	4/8/2020		X		X		X	X	X			
25	H25	A	4/8/2020		X		X		X	X	X			
26	H26	A	4/8/2020		X		X		X	X	X			
27	H27	A	4/8/2020		X		X		X	X	X			
28	H28	A	4/8/2020		X		X		X	X	X			
29	H29	A	4/8/2020		X		X		X	X	X			
30	H30	A	4/8/2020		X		X		X	X	X			

Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler name: Andrew Ruming
Date: 30/7/2020 and 4/8/2020 Time: 14:30

Relinquished by: [redacted] Date 05/08/2020 Time 16:00
(print and signature)

Received by: Elsa Barrett Date 5/8/20 Time 11 am
(print and signature)

Please return completed form to Envirowest Consulting, *A = Solvent rinsed glass jar with Teflon lined lid and green label, B= Plastic with green label, C= Amber with green label, D= Vial with white label, E= Plastic with red label

Chain of Custody Form – Ref 12137

Sheet 3 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**		
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS		
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
Sample ID	**Container***	**Sampling Date/Time**												
31 H31	A	4/8/2020		X		X		X	X	X				
32 H32	A	4/8/2020		X		X		X	X	X				
33 SR10C	A	30/7/2020		X		X		X				X		
34 SR11C	A	30/7/2020		X		X		X				X		
35 SR12C	A	30/7/2020		X		X		X				X		
36 SR13C	A	30/7/2020		X		X		X				X		
37 SR14C	A	30/7/2020		X		X		X				X		
38 SR15C	A	30/7/2020		X		X		X				X		
39 SR16C	A	30/7/2020		X		X		X				X		
40 SR17C	A	30/7/2020		X		X		X				X		
41 SR19C	A	30/7/2020		X		X		X				X		
42 SR20C	A	30/7/2020		X		X		X				X		

Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler name: Andrew Ruming
Date: 30/7/2020 and 4/8/2020 Time: 14:30

Relinquished by: Leah Desborough [redacted] Date 05/08/2020 Time 16:00
(print and signature)

Received by: Elsa u Barrett Date 5/8/20 Time 11 am
(print and signature)

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Chain of Custody Form – Ref 12137

Sheet 4 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**		
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS		
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
Sample ID	**Container***	**Sampling Date/Time**												
SR21C	A	30/7/2020		X		X		X				X		
SR22C	A	30/7/2020		X		X		X				X		
SR23C	A	30/7/2020		X		X		X				X		
SR24C	A	30/7/2020		X		X		X				X		
SR25C	A	30/7/2020		X		X		X				X		
SR26C	A	30/7/2020		X		X		X				X		
SR27C	A	30/7/2020		X		X		X				X		
SR28C	A	30/7/2020		X		X		X				X		
SR29C	A	30/7/2020		X		X		X				X		
SR30C	A	30/7/2020		X		X		X				X		
SR31C	A	30/7/2020		X		X		X				X		
SR32C	A	30/7/2020		X		X		X				X		
SR33C	A	30/7/2020		X		X		X				X		
SR34C	A	4/8/2020		X		X		X				X		
SR35C	A	4/8/2020		X		X		X				X		
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.						Sampler name: Andrew Ruming Date: 30/7/2020 and 4/8/2020 Time: 14:30									
Relinquished by: (print and signature)	Leah Desborough [redacted]	Date 05/08/2020 Time 16:00				Received by: Elsa Barrett (print and signature)		Date 6/8/20 Time 11am						

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Chain of Custody Form – Ref 12137

Sheet 5 of 9

Ref:	**12137**	
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800	
Telephone:	(02) 6361 4954	
Facsimile:	(02) 6360 3960	
Email:	ashleigh@envirowest.net.au	
Contact Person:	Leah Desborough	
Invoice:	accounts@envirowest.net.au	
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015	
Quotation #:	Envir_70119_2019	
Courier/CN:	Toll	

				Sample matrix			**Sample preservation**			**Analysis**				
										SGS Method Code				
										CL10	**SV3**	**OCP**	**CL2**	
	Sample ID	**Container***	**Sampling Date/Time**	Water	Soil	Paint	Cool	HNO3/HCl	Unpreserved	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS	
58	SR36C	A	4/8/2020		X		X		X				X	
59	SR37C	A	4/8/2020		X		X		X				X	
60	SR38C	A	4/8/2020		X		X		X				X	
61	SR39C	A	4/8/2020		X		X		X				X	
62	SR40C	A	4/8/2020		X		X		X				X	
63	SR41C	A	4/8/2020		X		X		X				X	
64	SR42C	A	4/8/2020		X		X		X				X	
65	SR43C	A	4/8/2020		X		X		X				X	
66	SR44C	A	4/8/2020		X		X		X				X	
67	SR45C	A	4/8/2020		X		X		X				X	
68	SR46C	A	4/8/2020		X		X		X				X	
69	SR47C	A	4/8/2020		X		X		X				X	
70	SR48C	A	4/8/2020		X		X		X				X	
71	SR49C	A	4/8/2020		X		X		X				X	
72	SR50C	A	4/8/2020		X		X		X				X	
73	SR51C	A	4/8/2020		X		X		X				X	

Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.	Sampler name: Andrew Ruming Date: 30/7/2020 and 4/8/2020 Time: 14:30
Relinquished by: (print and signature) Leah Desborough [redacted] Date 05/08/2020 Time 16:00	Received by: (print and signature) Elsa Barrett Date 6/8/20 Time [illegible]

Please return completed form to Envirowest Consulting, *A = Solvent rinsed glass jar with Teflon lined lid and green label, B= Plastic with green label, C= Amber with green label, D= Vial with white label, E= Plastic with red label

Chain of Custody Form – Ref 12137

Sheet 6 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**		
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS		
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
	Sample ID	**Container***	**Sampling Date/Time**											
74	SR52C	A	4/8/2020		X		X	X					X	
75	SR53C	A	4/8/2020		X		X	X					X	
76	SR100D	A	30/7/2020		X		X	X				X		
77	SR110D	A	30/7/2020		X		X	X				X		
78	SR120D	A	30/7/2020		X		X	X				X		
79	SR130D	A	30/7/2020		X		X	X				X		
80	SR140D	A	30/7/2020		X		X	X				X		
81	SR150D	A	30/7/2020		X		X	X				X		
82	SR160D	A	30/7/2020		X		X	X				X		
83	SR170D	A	30/7/2020		X		X	X				X		
84	SR190D	A	30/7/2020		X		X	X				X		
85	SR200D	A	30/7/2020		X		X	X				X		
86	SR210D	A	30/7/2020		X		X	X				X		
87	SR220D	A	30/7/2020		X		X	X				X		
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.						Sampler name: Andrew Ruming Date: 30/7/2020 and 4/8/2020 Time: 14:30									
Relinquished by: (print and signature)	Leah Desborough [redacted]		Date 05/08/2020		Time 16:00	Received by: (print and signature) Elsa Barrett			Date 5/08/20		Time 11am			

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Chain of Custody Form – Ref 12137

Sheet 7 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**						
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**						
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**			
Facsimile:	(02) 6360 3960														
Email:	ashleigh@envirowest.net.au														
Contact Person:	Leah Desborough														
Invoice:	accounts@envirowest.net.au														
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS			
Quotation #:	Envir_70119_2019														
Courier/CN:	Toll														
	Sample ID	**Container***	**Sampling Date/Time**												
88	SR230D	A	30/7/2020		X		X	X			X				
89	SR240D	A	30/7/2020		X		X	X			X				
90	SR250D	A	30/7/2020		X		X	X			X				
91	SR260D	A	30/7/2020		X		X	X			X				
92	SR270D	A	30/7/2020		X		X	X			X				
93	SR280D	A	30/7/2020		X		X	X			X				
94	SR290D	A	30/7/2020		X		X	X			X				
95	SR300D	A	30/7/2020		X		X	X			X				
96	SR310D	A	30/7/2020		X		X	X			X				
97	SR320D	A	30/7/2020		X		X	X			X				
98	SR330D	A	30/7/2020		X		X	X			X				
99	SR340D	A	4/8/2020		X		X	X			X				
100	SR350D	A	4/8/2020		X		X	X			X				
101	SR360D	A	4/8/2020		X		X	X			X				
102	SR370D	A	4/8/2020		X		X	X			X				
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.						Sampler name: Andrew Ruming Date: 30/7/2020 and 4/8/2020 Time: 14:30										
Relinquished by: (print and signature) Leah Desborough [redacted]			Date 05/08/2020		Time 16:00	Received by: (print and signature) Ebe Berrett			Date 6/8/20		Time 11am				

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Chain of Custody Form – Ref 12137

Sheet 8 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**		
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS		
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
	Sample ID	**Container***	**Sampling Date/Time**											
103	SR380D	A	4/8/2020		X		X		X			X		
104	SR390D	A	4/8/2020		X		X		X			X		
105	SR400D	A	4/8/2020		X		X		X			X		
106	SR410D	A	4/8/2020		X		X		X			X		
107	SR420D	A	4/8/2020		X		X		X			X		
108	SR430D	A	4/8/2020		X		X		X			X		
109	SR440D	A	4/8/2020		X		X		X			X		
X	~~SR300D~~	A	4/8/2020		X		X		X			X		
110	SR450D	A	4/8/2020		X		X		X			X		
111	SR460D	A	4/8/2020		X		X		X			X		
112	SR470D	A	4/8/2020		X		X		X			X		
113	SR480D	A	4/8/2020		X		X		X			X		
114	~~SR490D~~	A	~~4/8/2020~~		X		X		X			X		
115	SR500D	A	4/8/2020		X		X		X			X		
116	SR510D	A	4/8/2020		X		X		X			X		
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.						Sampler name: Andrew Ruming Date: 30/7/2020 and 4/8/2020 Time: 14:30								
Relinquished by: (print and signature)	Leah Desborough [redacted]		Date 05/08/2020		Time 16:00	Received by: (print and signature)	Elsa Barrett		Date 6/08/20		Time 11am			

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Chain of Custody Form – Ref 12137

Sheet 9 of 9

Ref:	**12137**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954								**CL10**	**SV3**	**OCP**	**CL2**		
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	HEAVY METALS, TRH,BTEXN,PAH	OCP/OPP		8 METALS		
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
	Sample ID	**Container***	**Sampling Date/Time**											
117	SR520D	A	4/8/2020		X		X				X			
118	SR530D	A	4/8/2020		X		X				X			
119	HDA	A	30/7/2020		X		X		X					
120	HDB	A	4/8/2020		X		X		X					
121	SRE	A	30/7/2020		X		X					X		
122	SRF	A	30/7/2020		X		X					X		
123	SRG	A	30/7/2020		X		X				X			
124	SRH	A	4/8/2020		X		X					X		
125	SRI	A	4/8/2020		X		X				X			
126	SRJ	A	4/8/2020		X		X				X			

Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler name: Andrew Ruming
Date: 30/7/2020 and 4/8/2020 Time: 14:30

Relinquished by: (print and signature) Leah Desborough [redacted] Date 05/08/2020 Time 16:00

Received by: (print and signature) Elsa Barritt Date 6/8/20 Time 11 am

Please return completed form to Envirowest Consulting, *A = Solvent rinsed glass jar with Teflon lined lid and green label, B= Plastic with green label, C= Amber with green label, D= Vial with white label, E= Plastic with red label

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Leah Desborough
Client	ENVIROWEST CONSULTING PTY LIMITED
Address	PO BOX 8158 ORANGE NSW 2800
Telephone	61 2 63614954
Facsimile	(Not specified)
Email	leah@envirowest.net.au
Project	**12137-1**
Order Number	**12137-1**
Samples	20

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE210200 R0**
Date Received	20/8/2020
Date Reported	27/8/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

[redacted]

Bennet LO

Senior Organic Chemist/Metals Chemist

SGS

ANALYTICAL RESULTS

SE210200 R0

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 20/8/2020

PARAMETER	UOM	LOR	SR420D SOIL - 18/8/20 12:00 SE210200.001	SR421D SOIL - 18/8/20 12:00 SE210200.002	SR422D SOIL - 18/8/20 12:00 SE210200.003	SR423D SOIL - 18/8/20 12:00 SE210200.004	SR430D SOIL - 18/8/20 12:00 SE210200.005
Lead, Pb	mg/kg	1	92	140	210	36	87
Arsenic, As	mg/kg	1	-	-	-	-	-

PARAMETER	UOM	LOR	SR431D SOIL - 18/8/20 12:00 SE210200.006	SR432D SOIL - 18/8/20 12:00 SE210200.007	SR433D SOIL - 18/8/20 12:00 SE210200.008	SR450D SOIL - 18/8/20 12:00 SE210200.009	SR451D SOIL - 18/8/20 12:00 SE210200.010
Lead, Pb	mg/kg	1	57	82	94	39	63
Arsenic, As	mg/kg	1	-	-	-	8	17

PARAMETER	UOM	LOR	SR452D SOIL - 18/8/20 12:00 SE210200.011	SR453D SOIL - 18/8/20 12:00 SE210200.012	SR510D SOIL - 18/8/20 12:00 SE210200.013	SR511D SOIL - 18/8/20 12:00 SE210200.014	SR512D SOIL - 18/8/20 12:00 SE210200.015
Lead, Pb	mg/kg	1	140	67	58	120	140
Arsenic, As	mg/kg	1	38	16	-	-	-

PARAMETER	UOM	LOR	SR513D SOIL - 18/8/20 12:00 SE210200.016	SR530D SOIL - 18/8/20 12:00 SE210200.017	SR531D SOIL - 18/8/20 12:00 SE210200.018	SR532D SOIL - 18/8/20 12:00 SE210200.019	SR533D SOIL - 18/8/20 12:00 SE210200.020
Lead, Pb	mg/kg	1	160	18	37	61	140
Arsenic, As	mg/kg	1	-	-	-	-	-

SGS

ANALYTICAL RESULTS

SE210200 R0

Moisture Content [AN002] Tested: 24/8/2020

PARAMETER	UOM	LOR	SR420D SOIL - 18/8/20 12:00 SE210200.001	SR421D SOIL - 18/8/20 12:00 SE210200.002	SR422D SOIL - 18/8/20 12:00 SE210200.003	SR423D SOIL - 18/8/20 12:00 SE210200.004	SR430D SOIL - 18/8/20 12:00 SE210200.005
% Moisture	%w/w	1	25.1	29.9	22.5	24.8	24.0

PARAMETER	UOM	LOR	SR431D SOIL - 18/8/20 12:00 SE210200.006	SR432D SOIL - 18/8/20 12:00 SE210200.007	SR433D SOIL - 18/8/20 12:00 SE210200.008	SR450D SOIL - 18/8/20 12:00 SE210200.009	SR451D SOIL - 18/8/20 12:00 SE210200.010
% Moisture	%w/w	1	24.7	23.1	25.8	27.2	25.5

PARAMETER	UOM	LOR	SR452D SOIL - 18/8/20 12:00 SE210200.011	SR453D SOIL - 18/8/20 12:00 SE210200.012	SR510D SOIL - 18/8/20 12:00 SE210200.013	SR511D SOIL - 18/8/20 12:00 SE210200.014	SR512D SOIL - 18/8/20 12:00 SE210200.015
% Moisture	%w/w	1	26.4	22.3	27.6	22.3	29.1

PARAMETER	UOM	LOR	SR513D SOIL - 18/8/20 12:00 SE210200.016	SR530D SOIL - 18/8/20 12:00 SE210200.017	SR531D SOIL - 18/8/20 12:00 SE210200.018	SR532D SOIL - 18/8/20 12:00 SE210200.019	SR533D SOIL - 18/8/20 12:00 SE210200.020
% Moisture	%w/w	1	37.7	22.2	32.1	28.2	32.4

SGS

METHOD SUMMARY

SE210200 R0

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/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.
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 analysis by ASS or ICP as per USEPA Method 200.8.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicative data, theoretical holding time exceeded and NATA accreditation does not cover the performance of this service.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

STATEMENT OF QA/QC PERFORMANCE

SE210200 R0

CLIENT DETAILS

Contact	Leah Desborough
Client	ENVIROWEST CONSULTING PTY LIMITED
Address	PO BOX 8158 ORANGE NSW 2800
Telephone	61 2 63614954
Facsimile	(Not specified)
Email	leah@envirowest.net.au
Project	**12137-1**
Order Number	**12137-1**
Samples	20

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE210200 R0**
Date Received	20 Aug 2020
Date Reported	27 Aug 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	20 Soil
Date documentation received	20/8/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	15.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

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Member of the SGS Group

SGS

HOLDING TIME SUMMARY

SE210200 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR420D	SE210200.001	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR421D	SE210200.002	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR422D	SE210200.003	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR423D	SE210200.004	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR430D	SE210200.005	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR431D	SE210200.006	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR432D	SE210200.007	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR433D	SE210200.008	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR450D	SE210200.009	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR451D	SE210200.010	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR452D	SE210200.011	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR453D	SE210200.012	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR510D	SE210200.013	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR511D	SE210200.014	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR512D	SE210200.015	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR513D	SE210200.016	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR530D	SE210200.017	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR531D	SE210200.018	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR532D	SE210200.019	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020
SR533D	SE210200.020	LB207363	18 Aug 2020	20 Aug 2020	01 Sep 2020	24 Aug 2020	29 Aug 2020	27 Aug 2020

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR420D	SE210200.001	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR421D	SE210200.002	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR422D	SE210200.003	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR423D	SE210200.004	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR430D	SE210200.005	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR431D	SE210200.006	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR432D	SE210200.007	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR433D	SE210200.008	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR450D	SE210200.009	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR451D	SE210200.010	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR452D	SE210200.011	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR453D	SE210200.012	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR510D	SE210200.013	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR511D	SE210200.014	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR512D	SE210200.015	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR513D	SE210200.016	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR530D	SE210200.017	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR531D	SE210200.018	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR532D	SE210200.019	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020
SR533D	SE210200.020	LB207174	18 Aug 2020	20 Aug 2020	14 Feb 2021	20 Aug 2020	14 Feb 2021	27 Aug 2020

SURROGATES

SE210200 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

SGS

METHOD BLANKS

SE210200 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Number	Parameter	Units	LOR	Result
LB207174.001	Arsenic, As	mg/kg	1	<1
	Lead, Pb	mg/kg	1	<1

DUPLICATES

SE210200 R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE210200.010	LB207353.011	% Moisture	%w/w	1	25.5	26.3	34	3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE210200.010	LB207174.014	Arsenic, As	mg/kg	1	17	18	36	4
		Lead, Pb	mg/kg	1	63	68	32	8

LABORATORY CONTROL SAMPLES

SE210200 R0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB207174.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	104
	Lead, Pb	mg/kg	1	91	89.9	80 - 120	101

MATRIX SPIKES

SE210200 R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES **Method: ME-(AU)-[ENV]AN040/AN320**

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE210200.001	LB207174.004	Lead, Pb	mg/kg	1	110	92	50	36 ⊕

MATRIX SPIKE DUPLICATES

SE210200 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

FOOTNOTES

SE210200 R0

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicative data, theoretical holding time exceeded and NATA accreditation does not cover the performance of this service.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

Chain of Custody Form – Ref 12137-1

Sheet 1 of 2

Ref:	**12137-1**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954													
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	LEAD	ARSENIC				
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
	Sample ID	**Container***	**Sampling Date/Time**											
1	SR420D	A	18/8/20		X		X	X	X					
2	SR421D	A	18/8/20		X		X	X	X					
3	SR422D	A	18/8/20		X		X	X	X					
4	SR423D	A	18/8/20		X		X	X	X					
5	SR430D	A	18/8/20		X		X	X	X					
6	SR431D	A	18/8/20		X		X	X	X					
7	SR432D	A	18/8/20		X		X	X	X					
8	SR433D	A	18/8/20		X		X	X	X					
9	SR450D	A	18/8/20		X		X	X	X	X				
10	SR451D	A	18/8/20		X		X	X	X	X				
11	SR452D	A	18/8/20		X		X	X	X	X				
12	SR453D	A	18/8/20		X		X	X	X	X				
13	SR510D	A	18/8/20		X		X	X	X					
14	SR511D	A	18/8/20		X		X	X	X					

SGS EHS Sydney COC
SE210200

Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.			Sampler name: Maisie Dickie Date: 18/8/2020	Time: 12:00
Relinquished by: (print and signature)	Maisie Dickie	Date 18/08/2020	Time 12:00	Received by: (print and signature) [redacted] Date 20/08/20 Time @ 10.45

Please return completed form to Envirowest Consulting. *A = Solvent rinsed glass jar with Teflon lined lid and green label, B= Plastic with green label, C= Amber with green label, D= Vial with white label, E= Plastic with red label

Chain of Custody Form – Ref 12137-1

Sheet 2 of 2

Ref:	**12137-1**		**Sample matrix**			**Sample preservation**			**Analysis**					
Investigator:	Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800								**SGS Method Code**					
Telephone:	(02) 6361 4954													
Facsimile:	(02) 6360 3960													
Email:	ashleigh@envirowest.net.au													
Contact Person:	Leah Desborough													
Invoice:	accounts@envirowest.net.au													
Laboratory:	SGS SYDNEY 16/33 Maddox Street ALEXANDRIA NSW 2015		Water	Soil	Paint	Cool	HNO3/HCl	Unpre-served	LEAD	ARSENIC				
Quotation #:	Envir_70119_2019													
Courier/CN:	Toll													
	Sample ID	**Container***	**Sampling Date/Time**											
15	SR512D	A	18/8/20		X		X		X	X				
16	SR513D	A	18/8/20		X		X		X	X				
17	SR530D	A	18/8/20		X		X		X	X				
18	SR531D	A	18/8/20		X		X		X	X				
19	SR532D	A	18/8/20		X		X		X	X				
20	SR533D	A	18/8/20		X		X		X	X				

Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler name: Maisie Dickie
Date: 18/8/20 Time: 12:00

Relinquished by: (print and signature) Maisie Dickie Date 18/08/2020 Time 12:00

Received by: (print and signature) [redacted] Date 20/08/20 Time @ 10.45

Please return completed form to Envirowest Consulting, *A = Solvent rinsed glass jar with Teflon lined lid and green label, B= Plastic with green label, C= Amber with green label, D= Vial with white label, E= Plastic with red label

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Leah Desborough
Client	ENVIROWEST CONSULTING PTY LIMITED
Address	PO BOX 8158 ORANGE NSW 2800
Telephone	61 2 63614954
Facsimile	(Not specified)
Email	leah@envirowest.net.au
Project	**12137 - Additional**
Order Number	**12137**
Samples	126

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209680A R0**
Date Received	9/9/2020
Date Reported	10/9/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

[redacted]

Dong LIANG
Metals/Inorganics Team Leader

SGS

ANALYTICAL RESULTS

SE209680A R0

Hexavalent Chromium in Soil UV/Vis [AN075/AN201] Tested: 10/9/2020

PARAMETER	UOM	LOR	SR29C SOIL - 30/7/2020 SE209680A.051	SR31C SOIL - 30/7/2020 SE209680A.053	SR33C SOIL - 30/7/2020 SE209680A.055
Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	<0.5	<0.5

SGS

METHOD SUMMARY

SE209680A R0

METHOD	METHODOLOGY SUMMARY
AN075	This method uses an alkaline digestion to solubilise both water-soluble and water-insoluble forms of hexavalent chromium in solids. The solution is then pH adjusted and the hexavalent chromium concentration in solution determined colourimetrically.
AN201	Cr6+ is determined colourimetrically by reaction with diphenylcarbazide in acid solution. A red-violet colour of unknown composition is produced.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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STATEMENT OF QA/QC PERFORMANCE

SE209680A R0

CLIENT DETAILS

Contact	Leah Desborough
Client	ENVIROWEST CONSULTING PTY LIMITED
Address	PO BOX 8158 ORANGE NSW 2800
Telephone	61 2 63614954
Facsimile	(Not specified)
Email	leah@envirowest.net.au
Project	**12137 - Additional**
Order Number	**12137**
Samples	126

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE209680A R0**
Date Received	09 Sep 2020
Date Reported	10 Sep 2020

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Hexavalent Chromium in Soil UV/Vis	3 items
Matrix Spike	Hexavalent Chromium in Soil UV/Vis	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	3 Soil
Date documentation received	9/9/2020@1:20pm	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

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Member of the SGS Group

HOLDING TIME SUMMARY

SE209680A R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Hexavalent Chromium in Soil UV/Vis **Method: ME-(AU)-[ENV]AN075/AN201**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SR29C	SE209680A.051	LB208809	30 Jul 2020	09 Sep 2020	27 Aug 2020	10 Sep 2020†	17 Sep 2020	10 Sep 2020
SR31C	SE209680A.053	LB208809	30 Jul 2020	09 Sep 2020	27 Aug 2020	10 Sep 2020†	17 Sep 2020	10 Sep 2020
SR33C	SE209680A.055	LB208809	30 Jul 2020	09 Sep 2020	27 Aug 2020	10 Sep 2020†	17 Sep 2020	10 Sep 2020

SURROGATES

SE209680A R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

SGS

METHOD BLANKS

SE209680A R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Sample Number	Parameter	Units	LOR

DUPLICATES

SE209680A R0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Hexavalent Chromium in Soil UV/Vis **Method: ME-(AU)-[ENV]AN075/AN201**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE209680A.055	LB208809.011	Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	0.0508	200	0

LABORATORY CONTROL SAMPLES

SE209680A R0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Hexavalent Chromium in Soil UV/Vis **Method: ME-(AU)-[ENV]AN075/AN201**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB208809.009	Hexavalent Chromium, Cr6+	mg/kg	0.5	NA	20	70 - 130	76

MATRIX SPIKES

SE209680A R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Hexavalent Chromium in Soil UV/Vis **Method: ME-(AU)-[ENV]AN075/AN201**

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE209680A.05	LB208809.010	Hexavalent Chromium, Cr6+	mg/kg	0.5	<0.5	20	-2 ⊕

MATRIX SPIKE DUPLICATES

SE209680A R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

SGS

FOOTNOTES

SE209680A R0

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

Appendix 5. Unexpected finds protocol

1. Introduction

Investigations have been undertaken including soil sampling and analysis to evaluate the contamination status of Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW.

A procedure is required describing the actions if potential contamination or hazards are encountered during excavation/construction activities.

2. Scope

Prepare a procedure to enable the identification and management of unexpected hazards identified during excavation works and/or construction activities.

3. Site identification

Lots 11, 86, 88, 89 and 91 DP750401 Park Road, Rifle Range Road and Shiralee Road, Orange NSW

4. Responsible person

The landowner is responsible for implementation of the unexpected finds protocol. The land owner will appoint an environmental scientist to induct and provide information on hazard identification and responses to earthwork supervisors and personnel which may uncover unexpected hazards.

5. Identification of unexpected hazards

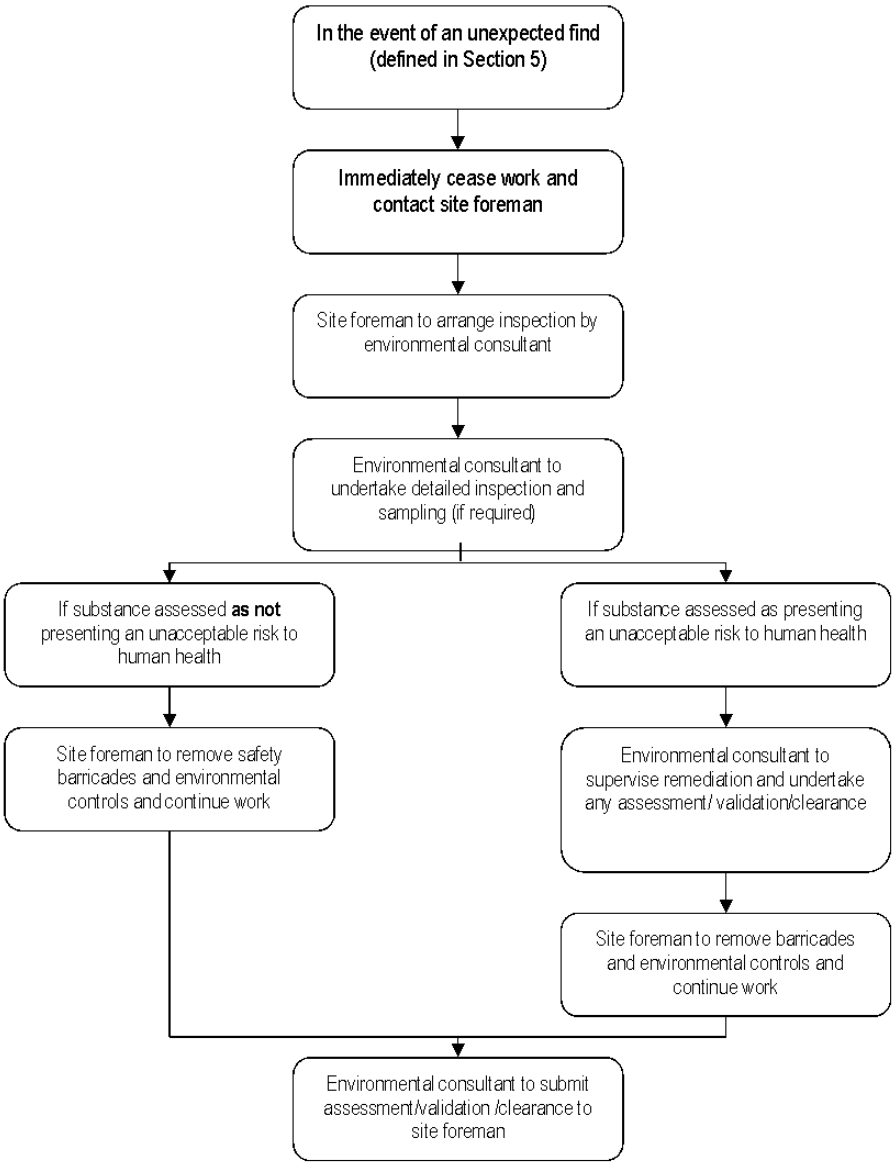
Potential hazards will be identified by appearance and odour and include:

- A filled pit or gully
- Demolition waste
- Discoloured soil
- Oil/diesel/tar
- Sheens on water
- An offensive odour
- Asbestos cement sheeting
- Ash or slag
- Underground storage tank

6. Training and induction

All excavation/construction personnel are to be inducted on the identification of potential hazards. The induction can be undertaken at the time of general site induction and toolbox meetings. The training will include display of the poster below to alert worker of potential hazards.

7. Procedure



8. Recommencement of works

The potential hazards will be assessed by the environmental scientist and a report prepared describing:

- Preliminary assessment of the contamination and need for cleanup
- Preparation of a remediation action plan
- All works to be undertaken in accordance with contaminated site regulations and guidelines
- Remediation works
- Validation of the remediation
- Works can commence on the potentially hazardous area after the environmental scientist has provided a clearance.

BE AWARE

UNEXPECTED HAZARDS MAY BE PRESENT


drums


asbestos


chemical bottles


blood stains


odour


ash / slag


demolition waste

if you <u>SEE</u> or <u>SMELL</u> anything unusual

<u>STOP WORK</u> & contact the Site Foreman

do not restart working before the area has been investigated and cleared by an Environmental Consultant

THIS PLAN IS FOR DEVELOPMENT APPLICATION PURPOSES ONLY.

DIMENSIONS AND AREAS ARE SUBJECT TO SURVEY.

SERVICES AND EASEMENTS OTHER THAN THOSE SHOWN MAY AFFECT THE LAND. THESE MUST BE OBTAINED FROM DETAILED SITE SURVEY AND SURVEY SEARCH.

20021-PP (9/12/20)

landorange

iPLAN PROJECTS
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Ph. 0410 519 469

10 0 10 20 30 40 50m
SCALE 1:1000 (A1)
1:2000 (A3)

PLANNING PROPOSAL
PROPOSED SUBDIVISION LAYOUT & PROPOSED AMENDED LOTS


N
ROAD
PARK
LOT 35 D.P.739551
LOT 200 D.P.1241114
EXISTING WATER MAIN
ROAD
LOT 2 D.P.1255242
LOT 100 D.P.750401
DA APPROVED SUBDIVISION DA NO.306/2018
302 3298 m² 3020 m²
303 3300 m² 3022 m²
304 3300 m² 3239 m²
EXISTING RESIDENCE
EXISTING SHEDS
239 2421 m²
MONTROSE 19m WIDE STREET
1318 m²
EXISTING RESIDENCE
301 1.25Ha
EXISTING SHEDS
9075 m²
1367 m²
1366 m²
MONTROSE 19m WIDE STREET
233 725 m²
234 700 m²
235 700 m²
236 700 m²
237 700 m²
238 700 m²
LOT 87 D.P.750401
ROAD
SHIRALEE
LOT 90 D.P.750401
DA APPROVED SUBDIVISION DA NO.306/2018
232 725 m²
105 700 m²
104 700 m²
103 700 m²
102 700 m²
101 700 m²
CLEARVIEW 25.6m WIDE CRESCENT
231 702 m²
230 702 m²
106 702 m²
107 705 m²
108 712 m²
109 720 m²
110 749 m²
111 752 m²
112 756 m²
826 m²
829 m²
113 2233 m²
930 m²
229 706 m²
228 704 m²
122 700 m²
121 700 m²
120 700 m²
119 715 m²
118 760 m²
117 763 m²
116 763 m²
114 2131 m²
815 m²
748 m²
748 m²
729 m²
115 2007 m²
747 m²
RANGE
LOT 7009 D.P.1000831
EXISTING RESIDENCE
EXISTING SHEDS
MANCHURIAN 19 WIDE PLACE
CRESCENT
223 1175 m²
224 905 m²
225 721 m²
226 731 m²
227 731 m²
211 714 m²
212 702 m²
213 702 m²
214 702 m²
215 714 m²
210 714 m²
209 702 m²
208 702 m²
207 702 m²
206 714 m²
MANCHURIAN 19 WIDE PLACE
123 816 m²
124 816 m²
125 806 m²
126 771 m²
127 754 m²
128 803 m²
129 803 m²
130 1186 m²
335 m² 131
335 m² 132
335 m² 133
335 m² 134
335 m² 135
335 m² 136
334 m² 137
222 1823 m²
221 720 m²
220 720 m²
219 720 m²
218 720 m²
217 720 m²
216 720 m²
CLEARVIEW 19m WIDE CRESCENT
205 816 m²
204 816 m²
203 807 m²
202 788 m²
201 770 m²
140 739 m²
139 803 m²
138 811 m²
RIFLE
RIFLE
LOT 51 D.P.1256004
RANGE
ROAD
LOT 50 D.P.1256004
DA APPROVED SUBDIVISION - DA NO.206/2018
LOT 940 D.P.1212160
EXISTING WATER MAIN
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10 0 10 20 30 40 50m
SCALE 1:1000 (A1)
1:2000 (A3)
PLANNING PROPOSAL
PROPOSED SUBDIVISION LAYOUT & PROPOSED AMENDED LOTS