senversa

Water Management Plan

reDirect Resource Recovery Facility – 24 Davis Road, Wetherill Park NSW

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Document Information

Water Management Plan,
reDirect Resource Recovery Facility – 24 Davis Road, Wetherill Park NSW

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.

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List of Acronyms

Acronym	Definition
ANZG	Australian and New Zealand Governments
AS	Australian Standard
ASS	Acid sulphate soil
AST	Aboveground storage tank
BOD	Biological Oxygen Demand
BoM	Bureau of Meteorology
BTEX	Benzene, toluene, ethylbenzene, xylenes
CEnvP (SC)	Certified Environmental Practitioner (Site Contamination)
COA	Conditions of Approval
COD	Chemical Oxygen Demand
DEC	Department of Environment and Conservation
DCP	Development Control Plan
DGV	Default Guideline Values
DO	Dissolved oxygen
DP	Deposited Plan
EC	Electrical conductivity
EIS	Environmental Impact Statement
ENM	Excavated Natural Material
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
FCC	Fairfield City Council
FGO	Food and garden organics
FLD	Food and liquid de-packaging
GDE	Groundwater dependent ecosystems
HIL	Health-based investigation level

Acronym	Definition
HSL	Health screening level
kL	Kilolitre
kL/day	Kilolitre per day
km	Kilometre
km^2	Kilometres squared
L	Litre
LEP	Local Environment Plan
LGA	Local government area
LNAPL	Light non-aqueous phase liquid
LOR	Limit of reporting
m	Metre
m^2	Square metres
mm	millimetres
m AHD	Metres Australian Height Datum
m bgl	Metres below ground level
m btoc	Metres below top of casing
MGA	Map Grid Australia
mg/L	Milligrams per litre
mL	millilitres
mV	MilliVolt
MW	Monitoring well
NAPL	Non aqueous phase liquids
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NHMRC	National Health and Medical Research Council
NSW	New South Wales

Acronym	Definition
NUDLC	National Uniform Drillers Licensing Committee
NZS	New Zealand Standard
OCP	Organochlorine Pesticides
OEMP	Operational Environmental Management Plan
OPP	Organophosphate Pesticides
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated Biphenyl
PCR	Primary Contact Recreation
POEO Act	Protection of the Environment Operations Act 1997
ppm	Parts per million
QA	Quality assurance
QC	Quality control
SEE	Statement of Environmental Effects
SSD	State Significant Development

Acronym	Definition
TDS	Total dissolved solids
TKN	Total kjeldahl nitrogen
TN	Total Nitrogen
TOC	Total organic carbon
tpa	Tonne per annum
TP	Total phosphorus
TPH	Total petroleum hydrocarbons
TSS	Total suspended solids
TWA	Trade Waste Agreement
UST	Underground storage tank
VENM	Virgin Excavated Natural Material
WHO	World Health Organisation
WMAA	Waste Management Association of Australia
WMP	Water Management Plan

1.0 Introduction and Objectives

1.1 General

Senversa Pty Ltd (Senversa) was engaged by Space Urban Pty Ltd (SU), on behalf of reDirect Recycling Pty Ltd (reDirect), to prepare a Water Management Plan (WMP) for the operation of Stage 1 of the reDirect Resource Recovery Facility located at 24 Davis Road, Wetherill Park, New South Wales (NSW) (the site).

The WMP is required as a sub-plan within the operational environmental management plan (OEMP), prepared by SU, for the operation of the facility under Stage 1 of the State Significant Development 7401 (SSD-7401).

The site location and layout is provided on **Figure 1**.

1.2 Document Context and Purpose

Bettergrow Pty Ltd (Bettergrow) is redeveloping the site into a resource recovery and recycling facility. The objective of the site operator, reDirect, is to recycle waste streams that have historically gone to landfill and to increase the amount of household waste that is recycled.

Approval for SSD-7401 permitted redevelopment of the site. Key works approved following the initial application and modifications submitted to the Department of Planning, Industry and Environment (DPIE) (and preceding NSW government planning agencies) for the site are listed in **Table 1.1**.

Table 1.1 SSD Application and Modifications for the Site

SSD Application / Modification	Key Works
SSD-7401	Permitted the following facilities at the site: • Construction and operation of a resource recovery facility to process up to 160,000 tonnes per annum (tpa) of waste, comprising: • Hydro-excavation, drill muds and fluids. • Food and garden organics. • Packaged and bulk food and liquids. • Operation of a landscaping material supplies facility for the storage and sale of up to 40,000 tpa of landscaping supplies.
SSD-7401-MOD-1	Allowed for: • An increase of processing capacity to 350,000 tpa. • Introduction of additional waste streams, including construction and demolition wastes. • Demolition of existing site structures and construction of a partially enclosed shed to house the bulk landscape material storage bays and the drill muds processing facility. • Increased operational hours.
SSD-7401-MOD-2	Permitted an alteration to the stormwater management system proposed in SSD-7401-MOD-1 to comprise an inground pit, sand filter and precast stormwater treatment device.

SSD Application / Modification	Key Works
SSD-7401-MOD-3	Approved: • Amendment to the number of previously approved weighbridges (to one centrally located weighbridge). • Re-configuration of onsite parking. • Relocation and clarification of the proposed stormwater treatment device (humeceptor as SPEL Ecoceptor 6000 series) • Relocation of the 5 kilolitre (kL) rainwater tank to inside the drill mud processing shed.

Additional details on the project approvals and modifications are provided in **Section 1.1.1** and **Section 1.1.2** of the OEMP. The OEMP covers facility operations being conducted under Stage 1 of SSD-7401, which includes the drill mud processing facility area only. Stage 2 will include operation of the bulk landscape area and organics processing areas.

For the purpose of this WMP and the overarching OEMP, only Stage 1 operations are considered. Revision/addendum to both documents will be required prior to Stage 2 operation proceeding.

1.3 WMP Scope and Objectives

The objective of this WMP is to document management controls, procedures and surface water and groundwater monitoring plans in relation to the Stage 1 operations of the site in line with the requirements outlined in the conditions of approval (COA) C7 and B49 provided in the SSD-7401 Development Consent.

1.4 Performance Objectives

The WMP must be prepared prior to commencement of site operations. In addition to meeting the COA, site operations are also regulated under the *Protection of the Environment Operations Act 1997* (POEO Act) by Environmental Protection Licence (EPL) number 21092 (10 January 2019). The EPL regulates three scheduled activities including resource recovery of general waste, waste processing (non-thermal treatment) and waste storage of other types of waste.

The conditions of the relevant SSD approval and EPL, as well as requirements of Fairfield City Council (FCC) guidelines, along with where they are addressed in this WMP, are provided in **Table 1.2** below.

Table 1.2 Approval and Licence Conditions and FCC Policy Requirements

Approval / Licence	Conditions	Section Addressed in WMP
SSD-7401 Development Consent	• Condition B49 states that: • "Prior to the commencement of operation, the Applicant must prepare a WMP to the satisfaction of the Secretary. The WMP must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C7. The WMP must: (a) be prepared by a suitably qualified and experienced person(s);	• Document Information
	(b) detail water use, disposal and management on-site	• Section 2.4.4

Approval / Licence	Conditions	Section Addressed in WMP
	(c) detail the water licence requirements for the development i.e. trade waste	• Section 2.4.4 • Trade waste agreement (TWA) not yet established with Sydney Water.
	(d) detail how leachate, stormwater and wastewater would be managed, including how any changes approved by modification applications have been addressed	• Section 4.2
	(e) detail any trigger levels to ensure overflow of wastewater and leachate at the site does not occur	• Section 4.2.2
	(f) contain a Surface Water Management Plan, including; • a program to monitor: • surface water flows and quality; • surface water storage and use; and • sediment and erosion controls; • surface water impact assessment criteria, including trigger levels for investigating and potential adverse surface water impacts; and • a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria.	• Section 4.0
	(g) contain a Groundwater Management Plan, including: • baseline data on groundwater levels and quality; • a program to monitor groundwater levels and quality; • groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts; and • a protocol for the investigation and mitigation of identified exceedances of the groundwater impact assessment criteria.”	• Section 5.0
EPL 21092 (10 January 2019)	• Condition L1 addresses pollution of waters, this ensures that except where outlined in other conditions of the licence, the licensee must comply with section 120 of the POEO Act.	• Section 4.3.5 and Section 5.4
	• Condition L2 states that no waste is permitted to be accepted at the premises until stages of scheduled development work are completed to enable scheduled activities to be carried out at the premises and the EPL is varied.	• Section 3.7
	• Condition M1.2 explains monitoring record keeping requirements where monitoring data must be retained in a legible form for at least 4 years after the event takes place.	• Section 3.3. • While the EPL requires some control and monitoring of noise and odour at the premises, it does not stipulate any environmental monitoring requirements for surface water, groundwater, incoming wastes, final products, or waste by-products such as leachate.
	• Condition M1.3 outlines the sample information records required to be retained.	• Section 3.3.

Approval / Licence	Conditions	Section Addressed in WMP
	• Condition M2 outlines the requirements for the recording of pollution complaints.	• Section 3.6
	• Condition R2 outlines the requirements for notifying the NSW Environment Protection Authority (EPA) of potential incidents of environmental harm.	• Section 3.6
FCC (2017) *Stormwater Management Policy*	• Chapter 4 On Site Detention Systems: On site detention is not required within the Wetherill Park Industrial Area, which incorporates the site.	Section 5.3.5 of the FCC (2013) *Development Control Plan* (DCP) states that onsite detention of stormwater is required in an industrial setting to mitigate flow into the existing stormwater system. However, this is not required at the site in accordance with the FCC (2017).
	• Chapter 5 Water Conservation: Ensure that 80% of the roof area of the development is to drain to tanks that have a capacity of 3,000 litres (L) per 100 square metres (m^2) of roof area of the development. The tanks are to be connected to all non-potable uses including flushing toilets, irrigation, wash down and laundry.	Section 2.4.2
	• Chapter 6 Water Quality Improvements: The following stormwater pollutant reduction targets must be met by developments within the Wetherill Park Industrial Area: • Gross Pollutants: 90% • Total Suspended Solids (TSS): 80% • Total Phosphorus (TP): 55% • Total Nitrogen (TN): 40%	Section **Error! Reference source not found.**

1.5 WMP Structure

The WMP comprises the following key components:

(a) Background site information (**Section 2.0**)

(b) General environmental management (**Section 3.0**)

(c) Surface Water Management Plan (**Section 4.0**)

(d) Groundwater Management Plan (**Section 5.0**)

1.6 Relevant Legislation, Policy and Guidelines

Relevant legislation, subordinate regulation and guidelines considered applicable to the WMP at the site include, but are not necessarily limited to, the following:

- *Protection of the Environment Operations Act 1997* (POEO Act) and subordinate regulations:
  - Protection of the Environment Operations (General) Regulation 2009.
  - Protection of the Environment Operations (Waste) Regulation 2014.
- *Environmental Planning and Assessment Act 1979* (principally, development consent conditions).
- *Contaminated Land Management Act 1997.*
- *National Environmental Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council 1999 (as amended May 2013) (NEPC, 2013).
- Occupational health and safety regulations applicable to NSW workplaces.

1.7 Management Structure

The WMP has been prepared with reference to the following SSD documents:

- SSD-7401-COA.
- SSD-7401-MOD-1 Instrument of Modification.
- SSD-7401 Environmental Impact Statement (EIS), including appendices and the EIS Statement of Commitments.
- SSD-7401-MOD-1 Statement of Environmental Effects (SEE), including appendices.
- SSD-7401-MOD-2.
- SSD-7401-MOD-3.

This WMP documents environmental management controls, procedures and monitoring in relation to any wastewater, surface water and groundwater generated or received at the site. The WMP is intended to be implemented in parallel with other plans that document environmental management of other aspects of site activities, including:

- OEMP.
- Waste Management Plan.
- Trade Waste Agreement (TWA).
- Operational Traffic Management Plan.
- Pollution Incident Response Management Plan.

1.8 WMP Exclusions

Any future stages have not yet been considered in this WMP and the WMP should be updated accordingly when these stages are to be commenced.

2.0 Overview of Site

2.1 Site Identification

Table 2.1 below provides relevant site information.

Table 2.1 Site Identification

Item	Relevant Site Information
Site Address	24 Davis Road, Wetherill Park, NSW 2164
Title and Lot/Plan Identifiers	Lot 18 on Deposited Plan (DP) 249417
Site Area	Approximately 20,292 m^2
Current Site Owner	Davis Road Property Development Pty Ltd
Development Applicant	Bettergrow
Site Operator	reDirect
Local Government Area	Fairfield City Council
Current Land Use Zoning	General Industrial (IN1)

2.2 Site Development History

According to Douglas Partners (DP, 2015) *Review of Contamination Reports* and DP (2016) *Report on Groundwater Assessment*, the site was vacant and potentially used for rural purposes including grazing until approximately 1966. The site was possibly used for industrial purposes until 1978, when it was subsequently developed as an asphalt batching plant, which was operational until 2004. Since 2004, the site has been vacant/unused, although soil remediation was undertaken as part of site demolition works in 2012. Following completion of soil remediation, the environmental consultant (URS) considered that the environmental conditions at the site were suitable for commercial/industrial use.

At the time of commencing construction of the resource recovery facility, the site consisted of the following structures and infrastructure:

- A workshop, laboratory, storerooms, staff amenities building, and electrical substation located towards the eastern boundary of the site.
- An office building adjacent to the southern boundary.
- Concrete raw material bays on the middle and on the eastern boundaries of the site.
- In-ground recycled water tanks in the south of site.
- A remnant shelter on the higher level on the eastern boundary of the site.
- Retaining walls between higher, mid and lower levels of the site.
- An oil separator pit on the middle level on the eastern boundary of the site.

- The existing stormwater management system.

The site was majority sealed with asphalt or concrete hardstand except for gravels in the upper and lower levels where remediation works have historically occurred.

2.3 Received Waste Types

The approved waste streams to be received at the site, as part of Stage 1 and Stage 2, are the following:

- 100,000 tpa of drilling mud and/or muddy water from hydro-excavation, drilling and pot holing operations.
- 70,000 tpa of food and garden organics (FGO).
- 30,000 tpa of packaged and bulk food solid and liquid waste.
- 150,000 tpa of general solid waste, including:
- Excavated natural material (ENM).
- Virgin excavated natural material (VENM).
- Soils.
- Gravels
- Aggregates.
- Sawdust.
- Spent filter sand media.
- Street sweepings.
- Stormwater waste.
- Clean timber.
- Asphalt waste.
- Cured concrete.
- Rail ballast.
- Construction and demolition waste.

2.4 Site Operations

2.4.1 Site Processes

The site is split into three main levels, the upper level, mid-level and lower level. At this point in time, the upper level is reserved for future uses that will include the FGO processing facility and the food and liquid depackaging (FLD) facility.

The mid and lower levels of the facility are constructed for the bulk landscape supplies (in the future) and drill mud processing facility. The key waste processing will occur within a semi-enclosed shed.

Hydro-excavation and drill muds are produced from general borehole drilling, directional drilling, geotechnical investigations and exploratory drilling. The muds produced as a by-product are predominantly made up of a mixture of soil, rock, water and drilling fluids.

Both wet and dry waste streams can be processed through the system, which will remove and segregate oversized waste, residual waste, organics and metals. Remaining gravels will be scrubbed, washed, and separated based on particle size. The wash liquid will be processed further to remove any remaining fine materials and sediments and then it will be re-used on site for various functions.

Details of the treatment process are provided by RPS (RPS, 2020) *Statement of Environmental Effects*. A summary of the drill muds process is provided in **Table 2.2** below.

Table 2.2: Treatment Process Summary

Step	Description
1	Loads are inspected to ensure waste is suitable for processing.
2	Waste enters one of four hydro-tips where it is dewatered and graded. • Large solids (i.e. rock, concrete etc) are sent to a scalping screen for further separation. • Smaller solids, including aggregates and sand, are sent to the trommel for scrubbing and removal of potential contaminants. • Liquids and sub 5 millimetre (mm) materials are pumped to a dual stage washing and recycling system where they are dewatered. Coarse sediments and grit are removed at this stage. • All remaining liquids and fine materials that are not captured are pumped to a buffer tank.
3	The liquids in the buffer tank are treated with a polymer, coagulants, then processed through a clarifier and a centrifuge. Clean water is then pumped to a storage tank (process water storage tank) for reuse within the system. Excess is discharged to sewer under a TWA with Sydney Water.
4	Finished products from the system include aggregates of varying sizes, dewatered fine cakes, residual waste, organic material, ferrous metals and wastewater.

A process flow diagram is provided in **Appendix A**.

2.4.2 Water Inputs

For the purposes of this WMP, water inputs include drill mud process water, stormwater and toilet water. Standard potable water consumption (including drinking water and showers) is not considered relevant to this document due to the small volumes and routine use.

Water balance modelling has been completed and reported in Eclipse (2021) *Stormwater Management Plan* and Northrop (2015) *Surface Water Assessment*. Relevant Stage 1 water use data, presented below, is taken from the modelling presented in these reports.

Water processes and associated inputs considered relevant to the WMP include the following:

Rainfall Inputs

Rainfall data was collected from the Prospect Reservoir weather station (no. 67019). Dry, median and wet years from the Prospect Reservoir are provided in the surface water assessment by Northrop (2015) and are listed as:

- 10th Percentile (dry year): 572 mm.
- 50th Percentile (median year): 862 mm.
- 90th Percentile (wet year): 1,178 mm.

A portion of the drill mud processing shed roof rainfall runoff is to be collected in a 5 kL tank, which has been sized to meet the site's reuse demand for non-potable water; the remainder of roof water collected, as well as surface water runoff from the hardstand and roof areas not connected to the rainwater tank, will be directed into the stormwater system for processing prior to release to council stormwater system. Rainwater re-use is anticipated to be used for internal non-potable uses, most notably flushing of toilets.

Potable Water Inputs

The site is connected to a 200 mm diameter Sydney Water potable water main. Northrop (2015) assumed that when the rainwater tank falls below 10% capacity, then it will be topped up with potable water until it reaches 40% capacity. Potable water will also be utilised for mixing of polymers within the drill mud processing facility - Northrop (2015) specified that the average daily usage of potable water for polymer mixing will be 12 kL/day.

Drill Mud Processing Facility Inputs

Water also enters the system via the drill muds that are imported to site for processing. In surface water modelling, Northrop (2015) assumed that incoming drill muds will contain 60% water.

2.4.3 Storage

Proposed water storage for the site is summarised in **Table** 2.3.

Table 2.3 **Proposed Water Storage On-Site.**

Water Systems	Water Storage
1 – Proposed Office Building	
2 – Existing Amenities Building	• No water storage, all water to go directly to stormwater via surface water treatment system.
3 – Existing Site Office Building	
4 – Drill Mud Processing Facility	• Process water storage tank • Treated water storage tanks (2 x 35 kL) • Rainwater tank (1 x 5 kL)
5 – Stormwater System	• Sand filter detention pit and SPEL Ecoceptor pollutant trap (prior to discharge)

2.4.4 Water Losses and Usage

The anticipated water usages and losses provided by Eclipse (2021) are summarised in Error! Reference source not found. below:

Table 2.4 Site Water Uses and Outputs

Water Systems	Water Usage and Losses
1 – Proposed Office Building	
2 – Existing Amenities Building	• Toilets x 4 (0.4 kL/day total) utilising rainwater. • Rainwater from the existing office will be captured by the stormwater system.
3 – Existing Site Office Building	

Water Systems	Water Usage and Losses

4 – Drill Mud Processing Facility	• Overflows from the rainwater tank will be diverted to the stormwater system.
	• All treated water is to be discharged to sewer under a TWA. Where the water quality is in exceedance of the TWA (refer to discussion below on testing and holding facilities), it will be transported offsite via truck to a licenced liquid waste facility.
	• Residual water within the outgoing solid products is assumed to be:
	  • Grit, sand and organics will have an approximate moisture content of 10%.
	  • Mud will have an approximate moisture content of 30%.

5 – Stormwater System	• The stormwater treatment system comprises sand filter detention pit and a precast concrete stormwater treatment device (an Ecoceptor). Details of the stormwater system are provided in **Table** 2.5.

Wastewater Discharge

The drill mud processing facility is designed to optimise water recovery from the drill muds and significantly reduce the water content in the outgoing recycled products. There is, however, an expectation that wastewater will need to be discharged to sewer under a TWA. The sewer connection will be a 225 mm diameter gravity main located on the northern side of Davis Road which will connect to the 300 mm diameter trunk sewer main.

All extracted wastewater from the drill mud processing facility will be piped to three tanks for re-use and eventual discharge to sewer subject to conditions presented in a Sydney Water TWA. Tanks will be bunded in accordance with the *Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin* (EPA,1997). At the time of writing this WMP, a TWA is still in negotiation with Sydney Water.

Prior to release, the wastewater will undergo treatment through flocculation and centrifuge to remove suspended solids and the mud fractions, and, therefore, removing contaminants potentially bound in the soils.

The site operator will be required to negotiate a TWA with Sydney Water to determine the acceptance standards and ensure compliance. Wastewater will be sampled and analysed prior to a metered release to ensure compliance with the TWA.

Northrop (2015) estimated that water extracted from the drill mud processing plant coupled with rainfall collected within the bunded area and potable water inputs for the polymer mixing will result, on average, with 103.4 kL/day requiring release to sewer under the TWA. This rate is assuming 164 tonnes of drill muds and fluids are received daily at the site.

If the water in the clean water storage tanks (see **Appendix A**) meets the TWA conditions, then it will be discharged to sewer. If the water is not suitable for discharge, the water will be trucked from site to an appropriately licensed waste facility.

Testing and Holding

Process waters and subsequently wastewaters will be held in a process water tank and two clean water storage tanks following treatment in the centrifuge (refer to **Appendix A**). Waters held in these tanks will be reused in the drill muds processing until there is an oversupply in water. At this point waters will be tested and when capacity is at 80%.

2.4.5 Site Structures

A summary of all major site infrastructure to be construction for Stage 1 of operations is provided in **Table** 2.5. The site plan provided in **Appendix B** displays the locations of these structures.

Table 2.5 **Site Structures and Infrastructure**

Structure	Description
Office and Amenities (lower level)	An office, meeting room and bathroom amenities are located in the main administration building at the entrance to the site (east of the main driveway).
Access (lower level)	All vehicles enter via a combined ingress/egress access driveway, providing a 12.5 metre (m) width at the western property boundary and facilitating connectivity between the off-street parking and internal heavy vehicle circulation areas. An additional ingress/egress driveway, with a width of 5.5 m has also been installed adjacent to the eastern property boundary. This will be restricted to use by staff accessing the offices and will remain clear for emergency use.
Weighbridge (lower level)	One weighbridge will initially be installed along the western access road. In the long-term, additional weighbridges may be constructed as site capacity increases.
Car parking (lower level)	Paved parking spaces, installed in accordance with relevant Australian Standards, will be provided.
Processing plant and equipment (lower/mid-levels)	A partially enclosed shed is to be constructed over the drill mud processing plant and equipment, including the truck unloading area. The total area of the shed is to be 7,970 m^2. The drill mud processing plant and equipment will consist of 4 x hydro-tips and 1 x tip-pit. Bulk landscape material storage bays inside the shed.
Rainwater harvesting system (lower/mid-levels)	The roof of the semi-enclosed process shed is to be outfitted with downpipes to direct roof water runoff into above-ground rainwater harvesting tanks for reuse on site. As per SSD-7401-MOD-3, the rainwater tank will be located inside the drill mud facility shed in close proximity to the control room on the middle level of site.
Stormwater system (lower/mid-levels)	The stormwater system is comprised of four stages: • Rainwater tank: 5 kL rainwater tank • Gravity driven stormwater pipe network • Sand filter detention pit: The sand filter provides media-based filtration. The media within the detention pit consists of highly permeable sand which effectively removes suspended solids and nutrients. The basin has been designed to allow for 600 mm of extended detention, at which point water will overflow an internal weir and will be directed to the outlet sump. Design specifications are provided in the stormwater management plan (Eclipse, 2021). • SPEL Ecoceptor 6000 Series: SPEL Ecoceptor is a vertically configured pollutant trap, sediment and light non-aqueous phase liquid (LNAPL) separator suitable for low-risk applications. The Ecoceptor separates sediment, silt, total suspended solids, oil and grease, litter and hydrocarbon spills. The Ecoceptor will be installed as an underground fibreglass tank that can store up to 11,500 L of pollutants. Details are provided in SSD-7401-MOD-3.

2.5 Environmental Setting

The site's natural setting has been summarised by Senversa, based on review of existing reports, below:

2.5.1 Climate

Rainfall at this site has been recorded by a nearby Bureau of Meteorology (BoM) station (No. 067019) located at Prospect Reservoir since 1887. The mean annual rainfall recorded for the area is 876.8 mm.

2.5.2 Topography

The ground elevation of the site ranges from 36 to 48 metres Australian Height Datum (m AHD), with an overall downhill slope towards Davis Road in the south (lower level). The highest point is located at the northern extent of the site (URS, 2013) (upper level).

2.5.3 Geology and Soils

According to the Groundwater Assessment Report (DP, 2016) the site and surrounding area is generally underlain by Bringelly Shale of the Wianamatta Group. The Bringelly Shale is made up of Middle Triassic shale, carbonaceous claystones, laminate, fine to medium grained lithic sandstone.

The Wianamatta group typically consists of three formations: Bringelly Shale (top), Minchinbury Sandstone (middle) and Ashfield Shale (bottom). The group typically exists with a maximum thickness of 300 m. The Wianamatta formation is underlain by the Mittagong Formation and Hawkesbury Sandstone.

Soils underlying the site are predominantly composed of the Blacktown soil landscape which is made up of shallow to moderately deep hard setting, mottled textured clay soils. However, the site is highly disturbed and has predominantly been cut from the shale slope with some areas utilising fill for the levelling of site.

The DP (2015) *Review of Contamination Reports* summarised the findings of multiple URS assessments and concluded that site lithology comprises:

- Sand and gravel fill with various compositions of clay sand to a maximum depth of 2.4 metres below ground level (m bgl).
- Natural brown to white clay or clayey sands to depths ranging between 0.5 m and 3.0 m bgl.
- Shale and siltstone from approximately 3.0 m bgl.

Acid sulfate soils have not been identified at the site and according to FCC Local Environment Plan (LEP) is a low risk.

2.5.4 Hydrology

Regional

The site and its surrounds are located within the Georges River catchment which covers an area of approximately 960 kilometres squared (km^2) and discharges into Botany Bay.

Site Drainage

A small portion of the site's stormwater likely infiltrates to the subsurface in pervious areas (garden beds, Cumberland Plain woodland areas of site (near Davis Road) and unsealed gravel access road running up the eastern boundary), with the remaining portion subject to runoff (noting that evapotranspiration and minor seepage through cracks will also occur).

Surface water runoff at the site following completion of the development will likely occurs as:

- Flow from a portion of the shed roof is to be directed into a 5 kL rain harvesting tank when capacity is available and into the site's stormwater system when the capacity of the rain harvesting tank is reached.
- Flow from hardstand areas and areas of the roof not connected to the rainwater harvesting tank will be conveyed via a gravity driven pipe network towards the south of the site. Stormwater will then be then discharged into a sand filter bed (formed from the structure of a weighbridge pit used on the site by the previous occupants) before being discharged to a SPEL Ecoceptor 6000 series stormwater quality improvement device, then discharged offsite.
- Runoff for a small portion of the site near the southern boundary could potentially run directly offsite into Davis Road stormwater drains.

Stormwater discharges from site near the south-eastern corner, then proceeds east where it discharges into a concrete channel flowing towards the north-east adjacent to the Wetherill Park industrial estate. This concrete channel is the primary stormwater collector for the entire estate. The channel discharges into Prospect Creek near Widemere Road 1 km east of the site.

2.5.5 Hydrogeology

Occurrence and Flow

Groundwater is present in the shale bedrock and has historically been observed at between 0.15 to 3.07 metres below top of casing (m btoc) (URS, 2013 as summarised in DP, 2016).

Aquifer properties have not been assessed at the site. However, based on the presence of shale and clay in the shallow stratigraphy, literature suggesting low hydraulic conductivity and low well yield (DP, 2016), water observations during drilling of historical groundwater monitoring wells indicating that the substrate appeared to be predominantly dry during drilling (DP, 2016) and groundwater sampling sheets indicating that the wells were bailed dry during development (DP, 2016), the aquifer is likely to be of relatively low permeability, with most flow inferred to occur within fractures and bedding planes of underlying shale bedrock. Further to this, Bringelly Shale is considered an aquitard which would suggest that groundwater on site is relatively immobile.

Quality

Shallow groundwater quality measurements have been collected for the site and indicated:

- Dissolved oxygen (DO) varied from 0.4 parts per million (ppm) to 7.37 ppm which indicates poor to well oxygenated water.
- Redox potential measurements ranged from 172 millivolts (mV) to 2.37 mV indicating moderately oxidising conditions.
- Electrical conductivity (EC) ranged from 700 to 21,344 milligrams per litre (mg/L) total dissolved solids (TDS) indicating fresh to brackish/saline waters.

Section 8.2 of the groundwater assessment (DP 2016) indicated that the development poses a low risk of significantly impacting groundwater quality.

Further description of the groundwater quality at the site, including the nature of chemicals of concern, is presented in the groundwater monitoring plan (**Section 5.3**).

Groundwater Dependent Ecosystems and Beneficial Use

The groundwater dependent ecosystems Atlas indicates:

- There are no aquatic or subterranean groundwater dependent ecosystems (GDE) within 1 km of the site.
- There are potential terrestrial GDE present approximately 300 m north of the site boundary – in particular, moderate potential GDE (Cumberland Shale Plains Woodland) and high potential GDE (Cumberland River Flat Forest - River-Flat Eucalypt Forest on Coastal Floodplains). These potential GDE generally coincide with Prospect Creek and its associated drainage lines and tributaries.

These GDE are located upgradient of the site and site activities are not anticipated to impact on the GDE.

A search by Senversa of groundwater monitoring wells registered with the Water NSW on 13 January 2022 indicated that 17 groundwater bores were located within 500 m of the site.

Regionally, Bringelly Shale is unsuitable for beneficial groundwater uses due to high salinity and poor recharge. Senversa has noted that groundwater abstraction is not planned for the site, does not typically occur in the area and no known groundwater extraction bores are near the site.

2.6 Surrounding Land Use and Receptors

The site is situated within the Wetherill Park Industrial Estate which is zoned for general industrial land uses. Therefore, the site is predominantly surrounded by commercial and industrial businesses and no residential receptors were identified.

The surrounding commercial and industrial businesses and land uses include the following:

- North: Immediately north of the site is a Sydney Water supply pipe and easement, beyond this is bushland, Prospect Creek and beyond that Prospect Reservoir.
- South: Industrial/commercial businesses including a resource recovery facility operated by SUEZ Pty Ltd to the south-west and a recycling facility operated by Cleanaway Pty Ltd to the south-east.
- East: Industrial/commercial businesses including a petroleum product and fuel production facility operated by Valvoline Pty Ltd.
- West: Industrial/commercial businesses including metal recycling facility operated by One Steel Limited. Furthest west at 22 Davis Road is a manufacturing facility for surfactants, phosphates and chemicals.

Based on this, a summary of the possible receptors of potentially impacted water derived from the site includes the following:

- Off-site recreational users of Prospect Creek – Although the site is down gradient of Prospect Creek, the stormwater channel running through Wetherill Park Industrial Estate drains into Prospect Creek. The risk of site activities impacting Prospect Creek does however remain low.
- On-site workers have the potential to come into direct contact with stormwater or groundwater – however, site workers are subject to occupational health and safety controls and procedures to manage these and are not considered receptors for the purposes of this WMP.

3.0 Environmental Management

3.1 Roles and Responsibilities

All staff and contactors have an obligation to ensure the appropriate implementation of the WMP. Roles and responsibilities should be reviewed and refined if required and appropriately qualified staff should undertake any work or inspections associated with this WMP. **Table 3.1** below outlines the primary roles and responsibilities on the site.

Table 3.1 Roles and Responsibilities

Entity / Role	Responsibility
Project Manager	• Ensure that all works carried out on site comply with relevant regulatory and project requirements. • Ensure that the requirements of the OEMP and WMP are fully implemented and effective.
Operations Manager	• Ensure that any contractors or employees undertaking activities under the WMP are provided with a copy of this WMP and comply with its requirements. • Notify each relevant authority of any pollution incident that causes or threatens material harm to the environment (in accordance with POEO Act). • Record and report any incidents and complaints.
Environmental Manager	• Assist in ensuring the implementation of the WMP and ensure it remains relevant and up to date. • Comply with the requirements of WMP. • Maintain site records related to the implementation of the WMP. • Undertake site inspections, and complete reporting
All project personnel including contractors	• Comply with the requirements of this WMP. • Undertake any relevant environmental training required. • Reporting any observed environmental incidents including spills or discharges.
Environmental Consultant (where required)	• Carry out groundwater sampling as outlined in Section 5.3.
Suitably qualified/ experienced person	• Prepare WMP and review/update WMP, inclusive of the surface water management plan and groundwater management plan, as required. • Undertake monitoring and inspections specified within the WMP.

3.2 Training

reDirect shall ensure that any personnel engaged in the implementation of nominated tasks for which reDirect is responsible within the WMP have been provided with adequate training and are capable of performing the work to an adequate standard.

3.3 Reporting, Review and Auditing

Reporting and notifications shall be in accordance with the OEMP.

As described in section 7.9 of the OEMP, review and auditing of the OEMP, WMP and works conducted under the WMP shall be undertaken by Independent Environmental Auditors within one year of the commencement of operations and at least every three years thereafter or upon significant change to process or waste management practices.

Although not specifically stated for stormwater or groundwater, the EPL states that monitoring data, including the below details, must be retained in a legible form for at least four years after the event takes place. This requirement will also be adopted for stormwater and groundwater data:

- The date(s) on which the sample was taken.
- The time(s) at which the sample was taken.
- The point at which the sample was taken.
- The name of the person who collected the sample.

3.4 Performance Indicators

The Facility Operations Manager / Environmental Representative will undertake quarterly audits of the Facility, assessing compliance against:

- WMP Objectives (refer **Section 1.3**) and Targets (refer **Section** Error! Reference source not found.).
- Pollution incidents and status of incident closure (refer to **Section 3.5**).
- Progress implementing the WMP.
- Status of corrective actions closure (refer to Section 6.2.5 of the OEMP).

3.5 Emergency Contacts and Response

Pollution Incidents shall be managed in accordance with:

- reDirect Recycling (2021). *Pollution Incident Response Management Plan, reDirect Recycling, 24 Davis Road, Wetherill Park NSW*. 13 November 2021.

3.6 Community Complaints, Non-compliances and Exceedances.

Community complaints, non-compliances and exceedances will be handled in line with the processes outlined in Section 8.3 of the OEMP.

Non-compliances and exceedances will be reported in line with the EPL and any exceedances will be included in the annual return and annual environmental management review.

3.7 Review and Revision of the WMP

This WMP is a working document, it is expected that it will require review, revision and/or amendment to accommodate any relevant development consent, EPL or legislation changes and to continually improve the effectiveness of the current and future WMPs.

reDirect as the owner of this document is responsible for the review and revision of this WMP document. The review and any updates of this WMP should be conducted by a suitably qualified and experienced person, and tracked via a version control record (e.g. in the Document Control Table on page ii).

The review process may consider:

- Changes to the approved COA.
- Changes to EPL control and monitoring requirements.
- Changes in legislation or regulatory requirements.
- Inputs or responses from regulatory agencies.
- Monitoring outcomes.
- Incident investigations and non-conformances.
- Audit and inspection findings.
- Changes in organisational structure and/or responsibilities.
- Changes in voluntary obligations and compliance obligations.

4.0 Surface Water Management Plan

4.1 Surface Water Description

For the purposes of this WMP, surface water is considered any surface water other than process water, leachate or wastewater, which will be managed in accordance with **Section 4.2.3,** being defined as:

- Process water is water used in the processing of drill muds.
- Leachate is water generated typically through the action of rain coming into contact with soil stockpiles. Leachate is not anticipated to be generated onsite during Stage 1 of operations due to bulk storage bays being underneath the main processing shed.
- Wastewater is water generated through the processing of drill muds that require disposal or have no further use on site.

Surface water is, thus, principally stormwater runoff from building roofs and areas outside waste processing or handling areas.

4.1.1 Surface Water System

The key features of surface water (and process and wastewater) management at the site are described in **Section 2.4**. A description of regional hydrology and site surface runoff drainage was described in **Section 2.5.4**. A description of receiving water bodies and sensitive receptors was provided in **Section 2.6**.

Indicative site surface water runoff flow directions and catchments are presented in **Appendix D** - these have been adapted from the stormwater management plan (Eclipse, 2021) and based on observations during a site visit.

Surface water discharges from operational areas of the site and areas with potential to discharge off-site are summarised in the following table. Surface water may also discharge from other areas of the site, but these areas are away from operational areas and are not considered further in this WMP.

Table 4.1 Surface Water Sources and Management

Site Feature	Purpose	Runoff Water Sources	Management
Entrance Driveway	Site access	The driveway receives runoff from paved areas near the weighbridge and entrance areas.	Management under this surface water management plan – though this is considered a low risk of impact.
Drill Mud Processing Shed	Rainwater re-use	A portion of roof water runoff from the drill mud processing shed is to be directed by downpipes to an above-ground rainwater harvesting tank which has been sized to meet the facility's reuse demand for non-potable water of 5 kL. The harvested volume from the shed roof is to be internally reused through the amenities connections with tank overflows being diverted directly to the stormwater system. The remainder of the roof water collected is to be directed to the stormwater system.	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly. Regularly check the structural integrity of the tanks. Check for any accumulated litter, sediment, or debris on or within the tanks.

Site Feature	Purpose	Runoff Water Sources	Management
Stormwater System	Collection, treatment and transportation of stormwater from the site.	Runoff from majority of sealed surfaces on the site, all roof areas not connected to the rainwater tank system and rainwater tank overflow will be diverted into the stormwater system.	Management under the stormwater management plan (Eclipse 2021) and this WMP. Remove deposited sediment and debris from the sand filter bed/detention pit and Ecoceptor inlet/outlet areas. Regularly check the structural integrity of hydraulic structures.

4.2 Surface Water Management Controls

The goal of surface water management controls is to mitigate the risk to the receiving environment from site activities – this includes protection of receiving surface water environments and groundwater.

The principal controls include:

- Maximise segregation of 'clean' surface water from process or wastewater.
- Mitigate off-site migration of sediments and suspended solids in stormwater runoff.
- Manage and monitor discharges from the site.
- Appropriate storage of materials and liquids.

Surface water controls proposed to minimise any mixing of surface waters with wastewaters, soils or drill muds include:

- Stormwater runoff from some roof tops will be captured and diverted to a 5 kL rainwater tank for re-use on site.
- All drill mud processing is taking place inside of the shed preventing surface waters from coming into contact with muds.
- Stormwater runoff from the hardstand areas, rooftops and parking areas will flow into stormwater drains, through the sand filter bed and into an Ecoceptor prior to being discharged.
- No waste soils or products will be stored in areas where rainwater can come into contact and generate leachate.

Infrastructure used to capture roof runoff does not always capture all the runoff during wet periods. In the event of rainwater tank overflow, water will be conveyed into the stormwater system, through the sand filter bed and into the approved Ecoceptor system prior to being discharged into the existing Council stormwater system along Davis Road.

Similarly, runoff from the eastern road, the western and southwestern hardstand areas will be conveyed through the stormwater system and into the sand filter bed and then through the Ecoceptor.

4.2.1 Stormwater Management Changes in Modification Applications

Condition B49(d) of SSD-7401-MOD-3 requires the WMP to "*detail how leachate, stormwater and wastewater would be managed, including how any changes approved by modification applications have been addressed*". This WMP (Rev1) has been prepared with consideration of the changes to surface water management included in modification applications to date and is current for SSD-7401-MOD-3. As such, no revision of this WMP (Rev1) is required for compliance with SSD-7401-MOD-3, while previous designs under SSD-7401, SSD-7401-MOD-1 and SSD-7401-MOD-2 had been superseded at the time of WMP preparation. Approval of future modification applications may require this WMP to be updated depending on the nature of the modification (see Section 4.55 of the NSW *Environmental Planning and Assessment Act 1979*). Any

updates of this WMP will be tracked via the version control recorded in the Document Control Table on page ii.

The following subsections of this WMP (Rev1) address Condition B49(d) with regards to surface water management for the facility design approved under SSD-7401-MOD-3.

SSD-7401-MOD-1 required an update of surface water management to account for the construction of the enclosed roof space and manage the increase in processing quantities for the facility. This included the installation of two rainwater tanks to capture water reuse and recycling, with the stormwater network to be conveyed southwest towards a 30 kL sediment basin for settling, with overflow conveyed to a 50 m^2 bioretention basin for onsite treatment. Discharge from the bioretention basin, gravel areas and rainwater tank overflow was then directed to a proprietary humeceptor system for hydrodynamic and gravitational separation to remove TSS and entrained hydrocarbons. Treated water would then be discharged into the Fairfield City Council stormwater system along Davis Rd.

SSD-7401-MOD-2 related to the replacement of the approved 30 kL sediment basin and associated bioretention basin. SSD-7401-MOD-2 included the provision of an inground sand filter (still current in SSD-7401-MOD-3) to provide primary surface water treatment in lieu of the detention and bioretention basins.

The sand filter provides media-based filtration unit. The media consists of highly permeable sand which effectively removes suspended solids and nutrients. The basin has been designed to allow for 600 mm of extended detention, at which point overflows are directed to the outlet sump. Overflows were then to be directed to a humeceptor system for final treatment prior to release into Fairfield City Council stormwater system along Davis Rd, the same as SSD-7401-MOD-1 (albeit small changes in underground pipe alignment were proposed).

SSD-7401-MOD-3 included two changes to the SSD-7401-MOD-2 surface water treatment design, including:

1. Relocation of proposed humeceptor water treatment device to the north-western corner of the central portion of Cumberland Plain Woodland onsite.
2. Relocation of the 5 kL rainwater tank to inside the drill muds processing shed next to the control room. Rainwater from the existing office will now be captured via the Facility stormwater network.

The final water treatment device, labelled as a humeceptor in previous applications, was clarified to be a SPEL Ecoceptor 6000 series in SSD-7401-MOD-3. The SPEL Ecoceptor 6000 series measures 2720 mm diameter and 3300 mm depth and therefore was consistent with previous applications, with a storage capacity of up to 11,500 L of pollutants. All modifications regarding onsite water storage were sized to meet the Facility's reuse demand for non-potable water under the relevant Stormwater Assessment. Remaining surface water run-off from the drill muds roof space is conveyed into the stormwater network, which remained the same as SSD-7401-MOD-2 excepting the modifications described above and an updated alignment of underground pipelines to suit the new stormwater treatment layout.

4.2.2 Potential Impact from Leachate and Wastewater

At the time of writing this WMP, Senversa has been advised that all waste soil and product stockpiles will be stored inside the main shed. If any waste product is intended to be stored in an area where rainwater can infiltrate the stockpiles and generate leachate in the future, then a leachate management plan should be added to this WMP.

Process waters will be collected from the centrifuge as shown in **Appendix A** and directed to a process water storage tank and subsequently two clean water storage tanks, all of which are located within the shed. From here, the process waters will continue to be re-used in the process until there is an excess in the system at which point the process water will be released to sewer under the TWA or trucked off site if it does not meet TWA requirements.

4.2.3 Surface Water Storage, Use and Discharge Management

Surface water from the site will be managed as follows:

- Runoff is directed to the sand filter. The sand filter allows for an extended detention before overtopping an internal weir which then directs the water to an outlet sump. Refer to the Stormwater Management Plan (Eclipse, 2021) for design specifications.
- The outlet sump then runs via gravity driven pipes to a SPEL Ecoceptor 6000 series treatment device, which has been designed and sized to meet the requirements of the site. The Ecoceptor device which is a precast concrete device that uses gravitational and hydrodynamic separation to remove hydrocarbons and fine suspended solids (<10 microns).
- From the Ecoceptor, stormwater is discharged directly to the council stormwater system. The stormwater system is passive; therefore, no active discharge management will be required.

Stormwater will only be stored on site within the sand filter bed, which has been designed to allow for 600 mm of extended detention, at which point overflows are directed to the outlet sump and the Ecoceptor. The only other surface water to be retained on site will be the rainwater harvested from the drill mud processing shed roof, which will be stored in a 5 kL rainwater tank.

4.2.4 Sediment and Erosion Control

Sediment and erosion controls will be implemented to mitigate migration of sediments and fines into drains and minimise potential impact on the surrounding off-site environment. General controls include those in Landcom (2004) *Managing Urban Stormwater: Soils and construction* - Volume 1, 4th edition.

Specific controls include:

- All trafficable areas will be sealed to minimise erosion and tracking of dirt off-site.
- Minimise dust and materials within the car park area, driveway, ramp and on Davis Road and minimising tracking from the loader via mechanical cleaning of truck wheels and tailgates prior to leaving site and use of street sweeper on a regular basis.
- Clean stormwater drains and pits in the carpark area periodically (e.g. annually or as required).
- Implementing sediment and erosion controls during construction or excavation works via temporary sediment fencing.
- Sediment trap constructed in the south-eastern and south-western corners of site during construction phase only.

4.2.5 Material Storage and Handling

The goal for material storage and handling is to minimise the potential for spilling, leaking, entrainment of products to un-bunded areas and runoff into the stormwater system. This is principally achieved by location of the main waste processing area inside the drill mud processing shed. The remaining areas of concern include receiving bays, ramps and floors of the processing areas. Dispatch of products must occur in bunded areas under cover.

Controls for material storage and handling include:

- Storage of any bulk materials under cover within a bunded area to the extent practicable.
- Minimise tracking of soils from the receiving areas and processing sheds via mechanical cleaning of wheels and tailgates of trucks prior to leaving site.
- Cleaning of tracked materials in the car park area, ramp, driveway and on Davis Road using street sweeper on a regular basis and prior to rainfall events if practicable.
- Cleaning out of sediment build up in the stormwater drains, Ecoceptor and sand filter bed periodically (e.g. annually or as required).
- Minimise delivery and unloading of bulk materials in the receiving bays during windy / rainfall events.

- Undertake vehicle maintenance on a sealed surface and within a bunded area with appropriate controls in place or offsite at a vehicle maintenance yard.
- Placement of spill kits throughout the facility.

4.2.6 Dust and Odour Control

Dust and odour controls shall be implemented in accordance with the *Air Quality and Odour Management Plan* (Advanced Environmental Dynamics, 2021). This document is provided in the OEMP.

The majority of the material being recycled is wet drill muds, therefore, minimal dust will be generated during tipping activities.

4.3 Surface Water Monitoring and Inspections

4.3.1 Monitoring Objectives

The objectives of surface water monitoring are to:

- Ensure surface water/stormwater controls are adequately maintained and performing to meet the performance targets set out in the SSD COA and FCC (2017) Stormwater Management Policy.
- Assess surface water/stormwater quality with respect to Condition L1.1 of EPL 21092.

4.3.2 Monitoring Network

Due to minimal surface water being detained on site, monitoring locations consist of the following:

- General site areas outside of covered and controlled processing areas (e.g. driveway, car park area, ramp).
- Sand filter bed inflow sampling point (to assess quality of surface water across the site prior to treatment) – SW1.
- Ecoceptor outflow sampling point (to assess quality of surface water across the site following treatment and prior to discharge from site) – SW2.

Figure 2 indicates the locations of each surface water sampling point.

4.3.3 Monitoring Requirements

The monitoring program shall broadly comprise regular site inspections and checks of stormwater control systems, and periodic sampling of stormwater quality. Additional monitoring is triggered by changes in site activities, environmental incidents or unexpected finds. A surface water monitoring program is outlined in **Table** 4**.2Table** 4**.2** below, with triggers and actions presented in **Section 4.3.5**.

During development of the monitoring program, water monitoring provisions in NSW DEC (2004) *Environmental Guidelines for Composting and Related Organics Processing Facilities*, were considered. However, this guidance is not relevant to Stage 1 and therefore not all provisions have been included. Per **Section 3.7**, the suitability of this WMP should be reviewed, with the WMP updated if necessary, prior to Stage 2 operations commencing.

Table 4.2 Surface Water Monitoring Programs

Event Type	Frequency	Monitoring Aspect	Locations	Inspection Sample Analytical Schedule	Reporting Schedule
Ongoing inspections	Weekly	Observation	General site areas outside of covered and controlled processing areas (e.g. driveway, car park area, ramp).	No gross pollutants observed or waste materials stored or accumulated at ground surface or in surface runoff.	Annual factual report (refer to **Section 4.3.6)**
	Quarterly (following a rainfall event)		All surface water sampling points and subsurface drain pits	Refer **Table 4-3** below. Stormwater control devices maintained and operating as designed and in this WMP. No significant sediment accumulated in drains/pits.	
Ongoing sampling	Six-monthly (following a rainfall event) for two years, then annual (subject to review of results)	Level and quality	All surface water monitoring points	First two years: pH, TDS, TSS, total nitrogen (TN), total phosphorus (TP), dissolved metals, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH) and phenol. Ongoing: pH, TSS, TP and TN, or subject to results of above sampling. Record level in sand filter and Ecoceptor as appropriate.	Annual factual report (refer to **Section 4.3.6)**
Triggered (e.g. environmental incident or unexpected find)*****	Event based	Observation, quality	Inspection and sampling of downstream areas as required by event	As required – default is pH, TSS, TN, TP, dissolved metals, TPH	Annual factual report (refer to **Section 4.3.6)**

* The required inspection, sampling and analytical schedule should be assessed by a suitable qualified and experienced person at the time of the trigger response.

¯Dissolved metals: Arsenic, cadmium, chromium, copper, nickel, lead, zinc, mercury

4.3.4 Sampling Methodology

Sampling shall be undertaken by a suitably qualified and experienced person consistent with guidance in:

- DEC (2004). *Approved Methods for Sampling and Analysis of Water Pollutants in NSW*. March 2004. NSW Department of Environment and Conservation.
- Australian Standard/New Zealand Standard (AS/NZS) 5667.1:1998, *Water Quality – Sampling* series.
- NEPC (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999* (amended 2013), Schedule B (2) *Guideline on Site Characterisation*.

Records of sampling time/date, sampler, and observations (colour, odour, sheen, turbidity) shall be recorded.

Appropriate data quality assurance (QA) and quality control (QC) procedures consistent with the above guidance shall be implemented and assessed as part of the program.

All analyses shall be conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

4.3.5 Trigger Levels and Action Responses

If any of the stormwater pollutant reduction targets in **Table 1.2** are not met, or there are visual indications of contamination (e.g. a visible sheen on the stormwater or hydrocarbon odour), then the stormwater system should be inspected and maintenance activities undertaken to maximise the performance of the treatment train.

Monitoring and maintenance actions identified by Eclipse (2021), and supplementary tasks, are listed in **Table** 4**.3**.

Table 4**.3 Triggers and Action Responses**

Item being monitored	Monitoring Task	Purpose of Monitoring	Maintenance Action
General			
Environmental Incident or Unexpected Find	Environmental incident in driveway, ramp or car park etc. Visual indications of gross contamination at ground surface, drain or stormwater control device (e.g. a visible sheen, hydrocarbon odour or staining, gross waste).	Check whether additional environmental controls or monitoring are required. Assess notification requirements (e.g. to FCC, EPA).	Implement additional environmental controls (e.g. spill clean-up, erosion controls) Review and conduct additional sampling of stormwater discharge, as required.
Sediment Build Up	Check for excessive build-up of sediment in stormwater system including pits and pipes. If sediment build-up is noted, identify source.	If sediment accumulates in stormwater pits and pipes, capacity reduction can occur. Excessive build-ups of sediments in Ecoceptor can reduce the effectiveness of the devices over time. Erosion and sedimentation of stored waste material may contribute to increased transport of pollutants.	Once sediment source has been identified, remove accumulated sediment by flushing the system and/or emptying the Ecoceptor.
Erosion or Scour	Check for erosion and scour around the structures. If scour is noted check for source of scour.	Erosion impairs filtration systems by preventing uniform distribution of flow through the system or cause damage.	Fill in holes with filter media. Provide energy dissipation to prevent further scour in the future.
Litter (anthropogenic)	Check for litter in and around process areas and structures	Litter can potentially block inlet and outlet structures resulting in flooding, as well as detract from the system's visual amenity.	Address source of litter with appropriate action. Remove litter.

Item being monitored	Monitoring Task	Purpose of Monitoring	Maintenance Action
Litter (organic)	Check for organic litter including leaves and sticks.	Organic litter can increase nutrients to the filtration systems. Accumulated organic matter can also create offensive odours and can reduce percolation of water in the filter media.	Identify and address sources of organic litter with appropriate action. Remove litter.
Inlet and Outlet Pits	Ensure inflow areas and grates over pits are clear of litter and in good condition. Check for dislodged or damaged pit covers and ensure safety and general structural integrity.	If pits become blocked it will significantly reduce the amount of stormwater entering the system. Pit covers could also be a safety hazard if not fitted correctly.	Remove debris, repair damage.
Devices			
Ecoceptor	Ensure the settlement collection chamber is not full. Check for dislodged or damaged covers and ensure general structural integrity of device. Maintenance is generally to be in accordance with the manufacturer's instructions and procedures.	If litter collection chamber is full then the device will be unable to collect gross pollutants from stormwater. Dislodged or damaged pit covers present a safety hazard.	Organise a vacuum truck to clean the device. Contact the manufacturer or contractor to repair any structural damage.
Rainwater Tank	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly. Regularly check the structural integrity of the tank. Check for any accumulated litter, sediment, or debris on or within the tanks.	If any fixtures are not operating correctly, it is likely that sediment and debris will accumulate in the tank and reduce water quality. If the tank is not sound, it is likely to fail.	Remove any litter, settlement or debris from the devices. Repair or replace any damaged components. If any accumulation is found within the tank, then drain and flush the tank with potable water.
Sand filter	Monitor ponding and its duration compared to design infiltration period. Remove deposited sediment and debris from the sand level and inlet/outlet areas. Regularly check the structural integrity of hydraulic structures.	Failure of the sand filter to perform as designed may result in local overflows and/or sediment and nutrient deposit downstream.	Inspect sand level for erosion and scour. Replace sand and inspect drainage as appropriate.

Item being monitored	Monitoring Task	Purpose of Monitoring	Maintenance Action
Stormwater Quality			
Exceedance of water quality objectives	Condition L1 of the EPL states that the licensee must comply with section 120 of the POEO Act, which prohibits the pollution of waters. Stormwater quality should also meet FCC stormwater quality, discharge requirements or approval conditions. In the absence of any EPL or FCC criteria, site-specific risk-based screening criteria should be adopted from NSW EPA made or approved guidance appropriate for the commercial/industrial land use and heavily disturbed receiving environment. These include: ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* for heavily disturbed environments; and, primary contact recreation (PCR) guidelines adopted from National Health and Medical Research Council (NHMRC) (2011), *Australian Drinking Water Guidelines* and NHMRC (2008) *Guidelines for Managing Risks in Recreational Water*.	Verify soil and erosion, and stormwater, management controls in SSD-7401 are performing as designed.	Review the above triggers and actions.

4.3.6 Reporting

In general, consolidated reporting should combine results of surface water and groundwater monitoring. **Table 4.4** presents reporting requirements under the WMP.

Table 4.4 WMP Reporting Requirements

Report Type	Content
Quarterly Data Review	No report required, however, inspection and monitoring data should be consolidated and reviewed to assess: • Consistency with 'baseline' conditions and modelled conditions. • Whether any actions are triggered.
Annual Report	Interpretive annual reports shall document: • Details of monitoring scope and methods, including non-conformances with this program. • A plan showing monitoring locations. • Field and inspection records, calibration certificates and laboratory analytical certificates. • Tabulated sampling analytical results. • Review of exceedances of performance criteria against trigger and action levels or significant changes, including root cause and whether changes to the monitoring program are warranted. • Review of QA/QC. Reporting shall be conducted by a suitable qualified and experienced person. Periodic review of the trigger-response plan and monitoring program by a suitable qualified and experienced person.

5.0 Groundwater Management Plan

5.1 Groundwater Risks

Reported historical groundwater assessments completed by URS from 2008 to 2013 indicate that concentrations of TPH, PAH and phenols have been detected above laboratory limit of reporting (LOR) in the groundwater in limited locations. Additionally, elevated concentrations of metals were detected, which were attributed to the background composition of the local groundwater. A brief summary of historical results is provided in **Section 5.2**.

Despite the known history of contamination at the site, there is a low level of risk associated with these impacts due to the previously undertaken soil remediation, low vulnerability of the groundwater and the relative immobility of the groundwater. The nature of site activities such as processing drill muds and storing water on site suggests that there is potential, even if unlikely, for impact of the groundwater via the following mechanisms:

- Infiltration of wastewaters or process water from leaks or spills into soil and into the water table.
- Chemical spills or leaks caused by human error or inappropriate chemical storage practices.
- Migration of contamination from off-site sources of contamination such as neighbouring waste facility.
- Historic presence of underground storage tanks (USTs) and infrastructure associated with historic site uses, which have the potential to have formed unidentified plumes.

It is noted that impact, if any, to site groundwater does not represent an unacceptable risk, rather that there is a risk of groundwater travelling downgradient and discharging to Prospect Creek or to neighbouring sites.

5.2 Baseline Conditions

Historical groundwater gauging records, field-measured parameters and analytical data are provided in the groundwater assessment report completed by DP in 2016 (**Appendix C**).

The historic groundwater monitoring wells installed by URS were named MW01-MW13. A figure displaying the locations of the historic monitoring wells is provided in **Appendix C**. In summary:

- MW01 and MW02 were located adjacent to Davis Road and considered to be hydraulically downgradient of the site operations.
- MW03 was in the vicinity of the old weighbridge, which has now become the sand filter bed.
- MW04 and MW05 were located immediately downgradient of the historic bitumen tanks.
- MW06 and MW07 were located mid-site, where the current drill mud processing shed is located.
- MW08 was located immediately hydraulically down-gradient of the historic bitumen tanks.
- MW09 and MW10 were located immediately adjacent to an oil water interceptor pit and a former UST location.
- MW11 was located in the northern part of the site where drill muds are anticipated to be dumped into the facility hydro-tips.
- MW12 and MW13 were located at the northern extent of the site and can be considered background locations.

In section 8.1 of the groundwater assessment, DP (2016) concluded that:

"The proposed development is considered to have a negligible potential for significant interference with groundwater… and has a relatively low risk of discharging potential contaminants".

Further to this, a report by DP (2015) *Review of Contamination Reports Proposed Resource Recovery and Recycling Facility 24 Davis Road, Wetherill Park, NSW*, highlighted the following groundwater contamination comments:

Table 5.1 Historic Groundwater Assessments

Year	Findings	Reference
2006	Installation and sampling of 13 groundwater monitoring wells, no TPH was detected above the LOR. Elevated PAH was encountered in MW08. Elevated concentrations of metals including cadmium, chromium, lead, nickel, copper and zinc were encountered several wells across the site.	URS, Phase 2 Environmental Site Assessment, Emoleum Depot, 24 Davis Road, Wetherill Park, NSW, 2006 (URS, 2006).
2008	Sampling 13 existing monitoring wells, TPH C10-C36 was detected in three wells (MW02, MW07 and MW09) below the adopted guidelines. Metals and PAH concentrations were generally consistent with previous monitoring. PAH was detected below the investigation level at MW02. Metals concentrations were consistent with the 2006 investigation.	URS, Final Report, Annual Groundwater Monitoring Event October 2008, Former Emoleum Depot, 24 Davis Road, Wetherill Park NSW, 2010 (URS, 2010)
2010	Sampled 13 existing monitoring wells. No non-aqueous phase liquid (NAPL) was encountered. TPH C10-C36 was detected in two samples (MW03 and MW09). Phenanthrene was detected in MW02 and phenol was detected in MW08 however these analytes were below investigation levels. Metals concentrations were above investigation levels in several wells but attributed to background levels.	URS, Annual Groundwater Monitoring Event, Former Mobil Emoleum Depot (Site No. 6F01), 24 Davis Road, Wetherill Park NSW, 2012 (URS, 2012a)
2012	Sampled 13 existing groundwater wells, all samples were below the adopted guideline values.	URS, Post Phase 2 Environmental Site Assessment, Former Mobile Depot Wetherill Park (6F01), 24 Davis Road, Wetherill Park, 2012 (URS, 2012b)
2013	A report documenting the decommissioning of the 13 URS wells located on site.	URS, Letter Report – Groundwater Monitoring Well Decommissioning, Former Emoleum Depot, Wetherill Park (6F01), 2013 (URS, 2013a)

Given the long period since these previous investigations, a supplementary baseline groundwater assessment should be conducted to establish baseline conditions for a wider range of chemicals of potential concern prior to the development commencing operation. These new and historical data should be analysed to represent site 'baseline' groundwater conditions for the reported key indicator analytes. The intention is for this data to be used in statistical comparison to ongoing monitoring data to assess changes to groundwater conditions as part of the trigger-response plan (**Section 5.5**). Statistical comparison should consider:

- Guidance for assessing, and comparison to, background water quality in ANZG (2018). This approach may be applied to 'baseline' conditions.
- Mann Kendall (or equivalent) analysis of statistically significant trends.

5.3 Monitoring Program

5.3.1 Existing Monitoring Network

It is understood that all historic wells installed by URS have either been decommissioned or demolished prior to the redevelopment of site. A new monitoring network is to be established to include the installation of 6 shallow groundwater monitoring wells that intersect the water table located within the shale bedrock.

These new wells are to be installed as part of the site infrastructure upgrades.

Senversa has designed an indicative groundwater monitoring network that seeks to characterise groundwater both hydraulically up-gradient and down-gradient of the site. The location of the proposed groundwater monitoring wells is presented on **Figure 2**. The groundwater monitoring network comprises:

- One well (MW06) that captures the quality of background groundwater migrating onto the site from the north.
- Five wells (MW01, MW02, MW03, MW04, MW05) placed in targeted locations with the following rationale.
    - MW01 – Down gradient of the stormwater treatment sand filter box.
    - MW02 – Down gradient of the Ecoceptor.
    - MW03 – Western site boundary down gradient of neighbouring property.
    - MW04 – Down gradient of the drill mud processing facility on eastern boundary.
    - MW05 – Middle level of site in the vicinity of the historic aboveground storage tanks (ASTs).

The wells will target the shallow groundwater as this is most susceptible to impact.

The monitoring network is considered adequate for the purposes of this WMP and to form a baseline characterisation of the groundwater on site. At the commencement of Stage 2 operations, an additional monitoring well should be installed targeting the FLD facility.

Installation of new wells shall follow guidance in National Uniform Drillers Licensing Committee (NUDLC) (Third ed.), *Minimum Construction Requirements for Water Bores in Australia* under supervision of a suitably qualified and experience person.

If wells are damaged and require further monitoring, they should be repaired by a suitably qualified and experienced person.

The top of casing and surrounding ground level of all newly installed wells will be surveyed by a licensed surveyor to m AHD elevation and Map Grid Australia (MGA) coordinate system (GDA 94 datum).

5.3.2 Monitoring Requirements

A baseline monitoring event shall be conducted, with ongoing groundwater monitoring conducted on a periodic basis as stipulated in **Table 5.2**. Additional monitoring will likely be required - triggered as a response to changes in site activities such as the commencement of Stage 2 operations.

The monitoring locations, and sampling, analytical and reporting schedules are provided in the following table. These may be subject to change in accordance with the triggers and actions (**Section 5.5**Error! Reference source not found.).

Table 5.2 Groundwater Monitoring Frequency

Type	Frequency	Monitoring Aspect	Locations	Analytical Schedule	Reporting Schedule
Baseline	Sampling every 6 months for a two year period	Gauging, sampling and analysis	MW01, MW02, MW03, MW04, MW05, MW06	Field: pH, electrical conductivity (EC), dissolved oxygen (DO) and redox potential. Laboratory: Ammonia (as N), nitrate, TN, TP, dissolved metals, TPH, BTEX, PAH.	Interpretive baseline report
Periodic	Annual, then reviewed after three years	Gauging, sampling and analysis	MW01, MW02, MW03, MW04, MW05, MW06	Field: pH, EC, DO and redox potential. Laboratory: TRH, TN, TP and dissolved metals. Additional contaminants based on the findings of the baseline assessment.	Annual data report, then 3-year interpretative report
Event	Triggered	Sampling and analysis*	As required*	As required*	Reporting as above

* The required sampling and analytical schedule should be assessed by a suitable qualified and experienced person at the time of the trigger response.

˜ dissolved metals shall include (at a minimum) arsenic, copper, lead, nickel, zinc, iron, manganese; BTEX – benzene, toluene, ethylbenzene and xylenes.

5.3.3 Sampling and Analytical Methods

Sampling shall be undertaken by a suitably qualified and experienced person consistent with guidance in:

- DEC (2004). *Approved Methods for Sampling and Analysis of Water Pollutants in NSW*. March 2004.
- AS/NZS 5667.1:1998, *Water Quality – Sampling* series.
- NEPC (2013). *Schedule B (2) Guideline on Site Characterisation*.

Appropriate data QA/QC procedures consistent with the above guidance shall be implemented and assessed as part of the program.

All analyses shall be conducted by a NATA accredited laboratory.

5.4 Assessment Criteria

Condition L1 of the EPL states that the licensee must comply with section 120 of the POEO Act, which prohibits the pollution of waters. Assessment of groundwater quality will principally be via comparison against baseline and site background conditions. **Table 5.3** below summarises the groundwater quality criteria to be adopted to assess whether pollution of waters may have occurred.

Table 5.3 Groundwater Assessment Criteria

Receptor	Adopted Assessment Criteria
Change to baseline / background conditions	No statistically significant increasing trend or 20% increase over baseline / background concentrations or field parameters.
Human Health	Relevant criteria in NEPC (2013) for the commercial/industrial land use setting should be adopted as a screening levels. This includes: • Direct contact criteria have also been considered due to the relatively shallow depth to groundwater in some locations. The presence of concrete and asphalt hardstand however indicates that groundwater will be predominantly inaccessible to humans. Drinking water guidelines will not be considered, given the site geology, land use and provision of a reticulated drinking water supply. • Health Screening Level (HSL) for commercial/industrial land use (HSL-D) for vapour intrusion, sand aquifer, 2-<4 m based on the presence of fill and clay in the subsurface the most conservative soil type of sand has been selected. • No gross aesthetic impacts such as non-aqueous phase liquids.
Ecological	Groundwater may migrate and discharge into Prospect Creek, which is the nearest surface water body down gradient of the site, though the ultimate receiving environment is the George's River and Botany Bay (marine). Northrop Pty Ltd (2017) indicate the local receiving waterways are heavily disturbed. The relevant ecological guidelines for toxicants, are therefore, the fresh water default guidelines values for heavily disturbed environments from ANZG (2018). • ANZG (2018) notes that exceedance of a DGV does not necessarily imply that there is an inherent risk, rather that further assessment and monitoring may be required prior to implementing appropriate management actions. These values should be used as 'triggers' for further assessment. These may be applied for screening purposes for groundwater that has the potential to migrate from the site.

It is noted that these criteria for groundwater monitoring are for screening purposes to trigger further assessment (and are not appropriate to directly assess the level of risk to any identified receptors).

5.5 Triggers and Action Responses

Trigger levels and action responses to be applied to the groundwater monitoring program are presented in **Table 5.4** below.

Table 5.4 Groundwater Management Plan Trigger Level and Action Responses

Aspect	Trigger	Actions
Groundwater	Concentrations of key indicator analytes outlined in **section 4.3.3** exceed performance criteria and do not show a stable or decreasing trend.	Consider re-sampling or increased sampling frequency to confirm results. Assess possible sources of contamination – i.e. change in site operations, change in neighbouring site operations or chemical spills. Assess the significance of associated environmental risk – where a potentially unacceptable risk is identified, a suitably qualified and experienced professional should assess whether the monitoring program is adequate to assess potential contamination risks, and recommend program changes (if necessary) (e.g., additional sampling locations, more frequent monitoring or different contaminants of concern). Implement the amended monitoring program. Develop and implement management/remedial actions if necessary.

Aspect	Trigger	Actions
	Concentrations of key indicator analytes in **section 4.3.3** that are **less than** the performance criteria and show statistically significant stable or decreasing trend over a minimum of three events.	Assessment to determine the residual environmental risk and review the monitoring program by a suitable qualified and experienced professional. If monitoring results are consistently decreasing to levels below the performance guidelines outlined in **Section 5.4** and the residual environmental risk from ongoing primary sources is considered low by a suitably qualified and experienced professional, the groundwater monitoring program may end.
	Damaged or lost wells	Assess whether ongoing monitoring at the location is necessary. If required, repair or re-install the well.
Site Activities	Incident (e.g. spill or release of a material or liquid) that could result in impact to surface or groundwater.	Assess whether monitoring program is adequate to assess potential impact associated with the incident. This assessment should be undertaken by a suitable qualified and experienced professional and documented in a report with clear conclusions and recommendations for amendments (if necessary). Implement program changes – these may include increased monitoring frequency, inclusion of additional monitoring locations, installation and monitoring of additional wells, broader analytical suite to assess the chemicals of concern.
	Change in nature or management of imported materials that has the potential to result in a significantly increased risk of impact from leachate. Including commencement of Stage 2 operations.	

5.6 Reporting

Table 5.5 presents the minimum reporting requirements for groundwater monitoring reports.

Table 5.5 Groundwater Management Plan Reporting Requirements

Report Type	Content
Baseline Groundwater Assessment Report (following completion of sampling)	• Details of monitoring scope and methods, and any non-conformances with this WMP. • Digitisation and analysis of historic groundwater monitoring results. • A plan showing monitoring locations. • A plan showing groundwater elevations and inferred flow. • Field records, calibration certificates and laboratory analytical certificates. • Combined results for the first four monitoring events, including summary tables of gauging, field measurements and analytical data. • Comparison of analytical results against performance criteria and historic results. • Review of QA/QC. • Statistical analysis of historical data for key chemicals of concern, including the mean, minimum, maximum, 80th percentile of site background groundwater quality (MW06) and baseline groundwater quality (at newly installed wells) to allow future comparison to monitoring data. • Reporting shall be conducted in accordance with NSW EPA made or approved guidance.
Data Report (annual)	• Details of monitoring scope and methods, and any non-conformances with this WMP. • A plan showing monitoring locations. • Field records, calibration certificates and laboratory analytical certificates. • Tabulated results (gauging, field measurements and analytical data). • Comparison of analytical results against performance criteria and baseline.

Report Type	Content
Interpretive Report (every 3 years)	As per baseline report and: • Present details of any incidents, complaints, spillages or required corrective actions. • Trend analysis. • Assessment of exceedances of performance criteria against trigger and action levels, including assessment of source, nature and extent of impact. • Review trigger-response plan and monitoring program. • The interpretive report should encompass the previous three years of monitoring events and the baseline data to assess ongoing groundwater monitoring requirements.

6.0 Principles and Limitations of Report

The following principles (summarised in **Table 6.1** below) are intended to be referred to in resolving any ambiguity or exercising such discretion.

Table 6.1 Principles and Limitations of Report

Area	Principle and Limitation
Limitations of Information	This WMP has been prepared by Senversa for the use of Space Urban Pty Ltd and reDirect Recycling Pty Ltd. The sources of information used by Senversa are outlined in this Report. In preparing the Report, Senversa has relied upon information regarding the Resource Recovery Facility prepared by companies including but not limited to Douglas Partners, Eclipse Environmental, Northrop, URS, reDirect, RPS and Urban Pty Ltd and no independent verification of this information has been made beyond the agreed scope of works and we assume no liability for any inaccuracies in or omissions to that information. No indications were found during our development of the Report that information contained in this Report as provided to Senversa was intentionally false.
Level of Assessment	Senversa prepared this Report in a manner consistent with the level of care and skill ordinarily exercised by members of Senversa's profession practicing in the same locality under similar circumstances at the time the services were performed.
Nature of Advice	This Report should be read in full. No responsibility is accepted for use of any part of this Report in any other context or for any other purpose or by third parties. Senversa does not seek or purport to provide legal or business advice.

7.0 References

Advanced Environmental Dynamics (2021). *Wetherill Park Resource Recovery and Recycling Facility - Air Quality and Odour Management Plan,* November 2021.

Douglas Partners (2015). *Review of Contamination Reports – Proposed Resource Recovery and Recycling Centre – 24 Davis Road, Wetherill Park, NSW*, October 2015.

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Northrop Pty Ltd (2017). *Surface Water Assessment for 24 Davis Road, Wetherill Park, Proposed Resource Recovery and Recycling Centre,* February 2017.

reDirect Recycling (2021). *Pollution Incident Response Management Plan, reDirect Recycling, 24 Davis Road, Wetherill Park, NSW.* 13 November 2021.

RPS Group (2020). *Statement of Environmental Effects – Modification of the Bettergrow Resource Recovery and Recycling Facility – 24 Davis Road, Wetherill Park, NSW SSD7401*. September 2020.

Space Urban (2021). *Proposed modification to SSD-7401 – 24 Davis Road, Wetherill Park, NSW*. 25 August 2021.

Figures

Appendix A: Process Flow Diagram

Appendix B: Site Plan

Appendix C: Historic Groundwater Monitoring Information

Appendix D: Water Quality Design Summary

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