Surface Water Management Plan

ReDirect Recycling Pty Ltd
Resource Recovery and Recycling Facility

25 Dunheved Circuit, St Marys NSW

Date: 5/10/2022
Prepared by: Senversa Pty Ltd
Version: Rev 1

Document Information

Surface Water Management Plan,
Resource Recovery and Recycling Facility, St Marys

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Revision	Date	Prepared By	Author	Reviewed	Approved	Detail	Comment
0	17/08/2022	Senversa	HY / MC	EW (CEnvP SC)	AS	Draft	
1	05/10/2022	Senversa	HY / MC	EW (CEnvP SC)	AS	Final	
2	24/01/2025	Redirect Recycling	-	JS	JS	Final	Review triggered by Oct 2024 IEA – no changes

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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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Tables in Text

List of Acronyms

Acronym	Definition
ANZG	Australia and New Zealand Guidelines
AS	Australian Standard
CBD	Central Business District
COA	Conditions of Approval
DP	Deposited Plan
DPIE	Department of Planning, Infrastructure and Environment
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
GPT	Gross Pollutant Trap
ISEPP	State Environment Planning Policy (Infrastructure)
LGA	Local Government Authority
LOSP	Light Organic Solvent Preservative
MDF	Medium Density Fibreboard
NATA	National Association of Testing Authority
NCW	Non-Complying Waste
NHMRC	National Health and Medical Research Council
NSW	New South Wales
NZS	New Zealand Standard
OEMP	Operational Environmental Management Plan
OSD	On-site Stormwater Detention
PCR	Primary Contact Recreation
PLEP	Penrith Local Environment Plan
POEO Act	Protection of the Environment Operations Act 1997
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
SEPP	State Environment Planning Policy
SREP	Sydney Regional Environment Plan
SSD	State Significant Development
SWMP	Surface Water Management Plan
TPA	Tonnes per annum
TSS	Total Suspended Solids

1 Introduction

1.1 Project Background

This Surface Water Management Plan (SWMP) has been prepared by Senversa Pty Ltd (Senversa), on behalf of reDirect Recycling Pty Ltd (reDirect Recycling), for the operation of the Resource Recovery and Recycling Facility (the Facility) located at 25 Dunheved Circuit, St Marys, New South Wales (NSW) (the site).

Consent for State Significant Development 10474 (SSD–10474), which allows for the operation of the Facility to process up to 150,000 tonnes per year of waste, was granted by the NSW Department of Planning, Industry and Environment (DPIE) on 30 September 2021, subject to Consolidated Conditions of Approval (CoA). Conditions B17 and B18 of SSD-10474 require reDirect Recycling to develop and implement a SWMP that forms part of an overarching Operational Environmental Management Plan (OEMP).

1.2 Project Objectives

The objective of this SWMP is to document surface water management and monitoring procedures in line with the requirements of Conditions B17 and C1 of SSD-10474, as listed in **Table 1** below. **Table 1** also provides the section of this SWMP in which each condition is addressed.

Table 1 Conditions relevant to this SWMP under the SSD-10474

CONDITION NUMBER	CONDITION NUMBER	CONDITION / COMMITMENT	SECTION(S) IN SWMP
B17		Prior to the commencement of operation of the development, the Applicant must prepare a Surface Water Management Plan (SWMP) to the satisfaction of the Planning Secretary. The SWMP must be prepared by a suitably qualified and experienced person(s), form part of the OEMP required by Condition C22, and must include:	Revision Table
	(a)	A program to monitor surface water flows, quality, storage and use;	4 and 7
	(b)	A maintenance schedule for all stormwater devices and treatment measures;	4
	(c)	Detail the management of wastewater streams on the site, including leachate;	2.4.3
	(d)	Surface water impact assessment criteria, including trigger levels for investigating potential adverse surface water impacts; and	5
	(e)	A protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria.	4, 5 and 7
B18		The applicant must:	-
	(a)	not commence operation until the Surface Water Management Plan required by condition B17 is approve by the Planning Secretary; and	Noted for operation
	(b)	implement the most recent version of the Surface Water Management Plan approved by the Planning Secretary for the duration of the development.”	Noted for operation

CONDITION NUMBER	CONDITION NUMBER	CONDITION / COMMITMENT	SECTION(S) IN SWMP
C1		Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	3
	(a)	Details of:	
	(a)(i)	The relevant statutory requirements (including any relevant approvals, licence or lease conditions);	3
	(a)(ii)	Any relevant limits or performance measures and criteria; and	5
	(a)(iii)	The specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	5
	(b)	A description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	5
	(c)	A program to monitor and report on the:	
	(c)(i)	Impacts and environmental performance of the development; and	5
	(c)(ii)	Effectiveness of the management measures set out pursuant to paragraph (c) above;	5
	(d)	A contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	4 and 7
	(e)	A program to investigate and implement ways to improve the environmental performance of the development over time;	6
	(f)	A protocol for managing and reporting any:	
	(f)(i)	Incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	7.1
	(f)(i)	Complaint;	7.1
	(f)(i)	Failure to comply with statutory requirements; and	7.2
	(g)	A protocol for periodic review of the plan.	6

The Planning Secretary's Environmental Assessment Requirements with respect to stormwater management at the site were addressed within the Eclipse (2021) *Stormwater Management Plan Report* (Appendix K) of the Environmental Impact Statement (EIS) for the Facility.

2 Site Description

2.1 Project Description

reDirect Recycling has received approval from DPIE to increase the throughput/volume of the existing Facility at the site.

The site previously had approval for the sorting and processing of 18,000 tonnes of waste per annum under Environment Protection Licence (EPL) 21487 (DA01/1034 Penrith Council). The site has since been given Development Consent to expand its operations and increase this throughput to 150,000 tonnes per annum (TPA), consisting of:

- 110,000 TPA of wood and timber waste.
- 30,000 TPA of plasterboard.
- 10,000 TPA of metal waste (as a result of processing the timber materials).

No alterations to the site or buildings will be undertaken, though additional processing plant and equipment will be added within the buildings. The site was purpose built for resource recovery. An easement for access and services to cover the existing on-site stormwater detention (OSD) tanks on the adjoining lots will be provided, and to cover any vehicles using the adjoining driveway at 21 Dunheved Circuit - both sites are in the same ownership.

Processing of timber/wood and plasterboard waste will occur in the existing building by way of compaction and shredding/grinding. The majority of the processed wood waste will be transferred to the Borg Manufacturing site in Oberon NSW, to be used in the manufacture of particle board and medium density fibreboard (MDF) products, or to be used as a non-standard fuel in heat plant. The typical types of wood waste include clean pallets, particle board & MDF, light organic solvent preservative (LOSP) & T2 pine and laminated MDF with coatings, along with other urban and raw wood materials deemed suitable. These waste materials will come from a number of sources including Borg Panels customers, framing and truss builders, freight companies, waste facilities and other timber companies.

Plasterboard will be minimised and ground in a turbo separator, with paper removed during the separation process. The gypsum generated by processing will be used for agricultural soil conditioning or re-used in plasterboard production.

Waste metals, including those recovered during the timber processing will be manually sorted and separated, and then taken off-site to other waste facilities to be processed or disposed of.

2.2 Site Location

Table 2 below provides a summary of the site details.

Table 2 Site Identification

ITEM	RELEVANT SITE INFORMATION
Site Address	25 Dunheved Circuit, St Marys NSW.
Title and Lot/Plan Identifiers	Lot 143 in Deposited Plan (DP) 1013185.
Site Area	0.61 hectares (ha) (approx.)
Current Site Owner	reDirect Recycling
Site Operator	reDirect Recycling
Local Government Area	City of Penrith
Current Land Use Zoning	IN1 General Industrial
Surrounding Land Use	The site is located within an established industrial precinct that covers an area of approximately 1,000 ha and comprises a mix of general, light and storage-based industries. The industrial precinct also has several existing waste management and resource recovery facilities and other activities licensed under the NSW *Protection of the Environment Operations Act 1997* (PORO Act).

ITEM	RELEVANT SITE INFORMATION
Nearest Sensitive Receptors	The closest residential uses are located approximately 1.3 km to the east and west of the site. These uses are physically separated by a large, vegetated area surrounding Ropes Creek to the east of the site and a golf course bordering South Wianamatta Creek to the west of the site.
Facility Description	Refer to Figure in **Attachment 1**. The land is predominantly flat, with no vegetation on the site, all areas of the site are concrete hardstand. The lot contains: • An industrial warehouse with a total roof area of 3,500 m^2. Constructed of concrete tilt-up panels and metal cladding with a ridge height of 11.9 m; • A separate site office and amenities building (admin building) with a total roof area of 180 m^2 and a height of 4.6 m; • Two inground 20 m weighbridges; • External areas sealed with concrete hardstand including 10 car parking spaces (total pavement area is 2,410 m^2); and • Water tanks and sprinkler pump room.

2.3 Site Processes

2.3.1 Current Site Operations

The waste materials enter the site in bulk trucks and skip and hook bins, materials delivered are handled within the building. All incoming material is subject to a visual inspection process and any non-complying waste (NCW) is reloaded into the delivery truck or separated into a separate area to be removed to landfill.

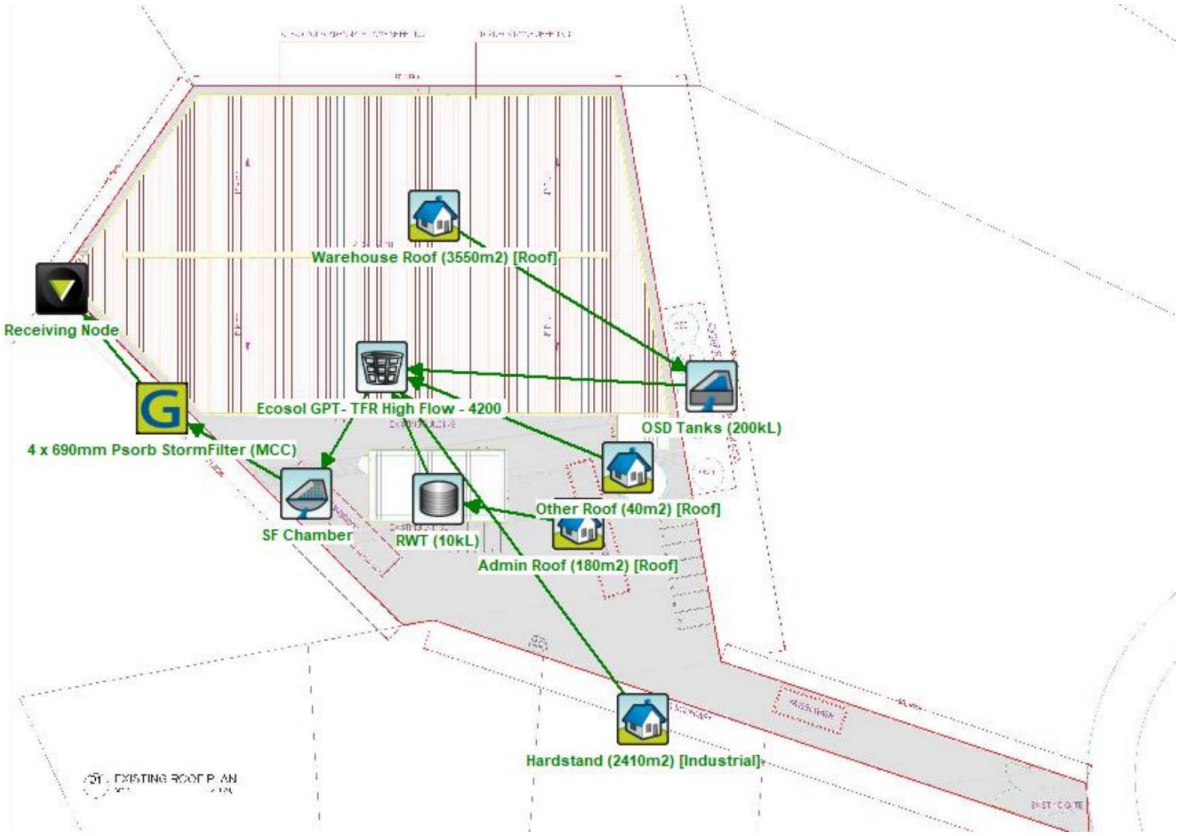
Pre-sorting of materials occurs after loads have undergone a visual inspection as they arrive to site. This is to ensure that only those materials which reDirect Recycling intend on recovering are delivered to site. Approved loads are then permitted to enter the materials handling building for unloading.

This screening process involves the use of plant and equipment (excavator, front end loader, fraction screen) within the operational area of the building to sort tipped material. The material that can be recovered is stockpiled in bays for transport to appropriately licenced facilities for resource recovery. Material that cannot be recovered is stored in designated bays for transport to landfill for lawful disposal.

2.3.2 Surface Water Processes

A stormwater drainage plan has been developed for the Facility by Eclipse Consulting Engineers. **Exhibit 1** shows the overall stormwater drainage plan.

Exhibit 1 Approved Stormwater System Upgrade



All waste processing is conducted inside the warehouse building. Therefore, rainwater will not come into contact with stored materials or dust generated by processing. The main source of stormwater contamination will be oil/fuel drops on the vehicle paths on the paved areas and dust carried from the warehouse on the tyres of vehicles. The NSW Environment Protection Authority (EPA) provided the following input on the Secretary's Environmental Assessment Requirements with respect to stormwater management:

"The EPA would expect that the building(s) be constructed to exclude all stormwater and that internal surfaces be graded inwards to contain any contaminated water (being any water that has come into contact with waste). The EPA notes that even where all waste storage and processing is conducted within an enclosed building, waste may be tracked on to external surfaces leading to the generation of contaminated water. Any external areas where waste vehicles travel or wait for loading / unloading must drain to a stormwater quality treatment device sufficient to remove any contaminants, both solid and dissolved, prior to discharge offsite."

Best practice waste management facilities contain a wheel wash to reduce risk of contaminants being tracked out on to public roads. An above ground portable wheel wash will be in installed in front of the outbound weigh bridge, with trucks to use it on leaving the building. The model of wheel wash incorporates physical removal of solids from wash water via a screen between the main frame and water tank (with resultant sludge in the bottom of the main frame to be removed from site via a vacuum truck by a waste contractor) and recycling of water.

Table 3 provides a summary of surface water sources, pathways and receptors for the Facility.

Table 3 Surface Water Sources, Pathways and Receptors

Site Feature	Water Source	Pathway	Receptor
Warehouse Roof (3,550 m^2)	Rain runoff	Runoff from the warehouse roof is diverted to the above-ground OSD tanks. Discharge from the OSD flows through a gross pollutant trap (Ecosol GPT) then 4 Ocean Protect StormFilter cartridges before entering the stormwater system.	Stormwater
Other Roof (40 m^2)	Rain runoff	Runoff from the roof is directed to the Ecosol GPT then 4 Ocean Protect StormFilter cartridges before entering the stormwater system.	Stormwater
Admin Roof (180 m^2)	Rain runoff	Runoff from the admin roof is collected in a 10 kL rainwater tank and is used in the site toilets.	Sewage
Hardstand (2,410 m^2)	Rain runoff	Runoff from the hardstand is directed to the Ecosol GPT then 4 Ocean Protect StormFilter cartridges before entering the stormwater system.	Stormwater
Wheel wash	Rain runoff	A wheel wash will be installed in the outbound lane of the driveway. Heavy vehicles will be required to drive through the wheel wash prior to exiting the site.	Sludge – removed by contractor Water – recycled

2.3.3 Wastewater and Leachate

No wet waste directly producing wastewater will be processed at the site. Some industrial processes on the site will produce dirty water. Excess water from dust suppression will remain inside the confines of the building and runoff is directed to internal pits connected to the sewer system. Grading of the internal surface (warehouse is self-bunded) and bunding adjacent to doors ensures no wastewater enters the stormwater system.

2.4 Key Contact Details

Table 4 lists the key contacts for the Facility.

Table 4 Facility Contact Details

LOCATION / PERSONNEL	CONTACT DETAILS
St Marys Resource Recovery and Recycling Facility	1300 001 306
Customer Inquiries	Wella Way Head Office 1300 001 306
Emergency Spills Response	To be arranged
Complaints and Feedbacks	Wella Way Head Office 1300 001 306

Table 5 lists the contact details for the regulatory authorities that have an interest in the operations of the Facility.

Table 5 Regulatory Authority Contact List

REGULATORY AUTHORITY	CONTACT DETAILS
Department of Planning, Industry and Environment (DPIE) **Head Office - Parramatta**	Ph: 1300 420 596 (Planning) Ph: (02) 9338 6600 (Industry) Ph: 1300 361 967 (Environment, Energy and Science) info@planning.nsw.gov.au
Environment Protection Authority (EPA) **Environment Line**	131 555 or 02 9995 5555 info@epa.nsw.gov.au
Penrith City Council	(02) 4732 7777 council@penrith.city.nsw.gov.au
SafeWork NSW **Incident notification**	13 10 50
Fire and Rescue NSW	Ropes Crossing Fire Station (permanently staffed): 02 9628 0661 St Marys Fire Station (permanently staffed): 02 9493 1077
NSW Police and / or NSW Ambulance Service	000

2.5 Roles and Responsibilities

Key personnel responsibilities for ensuring the SWMP is implemented, and performance objectives are met are outlined in Table 6**.**

Table 6 Responsibilities of Key Personnel

ROLE	RESPONSIBILITY
reDirect Recycling Pty Ltd	Ensure that the requirements of the SWMP are fully implemented and effective. Ensure that any contractors or employees undertaking activities under the SMWP are provided with a copy of this SWMP and comply with its requirements. Ensure SWMP remains relevant and up to date. Undertake site inspections and complete reporting. Notify each relevant authority of any pollution incident that causes or threatens material harm to the environment (in accordance with the *Protection of the Environment Operations Act 1997* [POEO Act]). Record and report any incidents and complaints.
All personnel including contractors	Comply with the requirements of this SWMP. Undertake any relevant training required. Report any observed environmental incidents including spills or discharges.
Environmental Consultant (where required)	Carry out surface water sampling.
Suitably qualified / experienced person	Prepare SWMP and review / update SWMP as required. Undertake monitoring and inspections.
DPIE	Review and approve the SWMP.

3 Legislative and Statutory Framework

3.1 Legislation

Legislation relevant to surface water management includes:

- *Environmental Planning and Assessment Act 1979 (EP&A Act);*
- *Protection of the Environment Operations Act 1997 (POEO Act);*
- *Protection of the Environment Operations (General) Regulation 2009;*
- *Protection of the Environment Operations (Waste) Regulation 2014;*
- *Contaminated Land Management Act 1997;*
- *Biosecurity Act 2015; and*
- *Water Management Act 2000*
- *Environmentally Hazardous Chemicals Act 1985.*

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in the OEMP.

3.2 Guidelines and Standards

The main guidelines, specifications and policy documents relevant to this SWMP include:

- *Stormwater Drainage Guidelines for Building Developments (Penrith City Council, 2016).*
- *National Environment Protection (Assessment of Site Contamination) Measure 1999 (National Environmen Protection Council, April 2013).*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021.*
- *State Environmental Planning Policy (Resilience and Hazards) 2021.*
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021.*
- *Penrith Local Environmental Plan 2010 (PLEP 2010).*
- *Water Sensitive Urban Design Policy and Technical Guideline* (Penrith City Council, 2015).

4 Mitigation and Monitoring

Mitigation and monitoring measures stated in **Table 7** below will be applied for the duration of operation for the Facility. As discussed in the previous section, the main source of stormwater contamination will be oil/fuel drops on the vehicle paths on the paved areas and dust carried from the warehouse on the tyres of vehicles.

Table 7 Surface water / Stormwater related management and mitigation measures to be applied to the Facility

CONTROL	RESPONSIBILITY	TIMING / FREQUENCY
Any activity with the potential to generate leachate will be suitably bunded, with leachate captured and disposed of at a suitably licenced facility. No leachate is to enter the stormwater system.	Site Management	On-going
Stormwater systems will be inspected and maintained as outlined under Section 4.1.	Operations Management / Maintenance Contractor	Quarterly
Ongoing surface water sampling will be undertaken as outlined under Section 4.2.	Environmental Management	On-going
Stormwater runoff from the admin building roof top will be captured and diverted to 1 x 10 kL rainwater tank for re-use on site.	Site Management	On-going
Stormwater runoff from the hardstand areas (including parking areas), warehouse roof top and other roof top will flow into four (4) 50 kL hydraulicly linked OSD tanks via the Ecosol GPT prior to discharge off-site.	Operations Management	On-going
All processing of waste materials is taking place inside of the warehouse preventing surface waters from coming into contact with recovered wood, plaster or metal.	Site Management	On-going
No products will be stored in areas where rainwater can come into contact and generate leachate.	Site Management	On-going
Stockpiles will be stored inside the main warehouse to prevent exposure to meteorological conditions and potential generation of leachate.	Site Management	On-going
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.	Site Management	On-going
All trafficable areas will be sealed to minimise erosion and tracking of dirt off-site.	Site Management	Prior to commencement
Clean stormwater drains and pits periodically.	Site Management	On-going
Suitable sediment and erosion controls will be implemented during excavation works via temporary sediment fencing or similar.	Site Management	During any works that include ground disturbance capable of causing erosion.
Minimise tracking of dust and debris from the warehouse via use of wheel wash for trucks prior to leaving site.	Site Management	On-going

CONTROL	RESPONSIBILITY	TIMING / FREQUENCY
Cleaning of tracked materials in the car park area, driveway and on Dunheved Circuit using street sweeper (or similar) on a regular basis and prior to rainfall events if practicable.	Site Management	On-going
Maintenance of site vehicles and / or machinery will occur offsite where possible.	Site Management	On-going
If undertaken onsite, the maintenance of site vehicles and / or machinery will be undertaken upon a sealed surface with appropriate controls (e.g. bunding, weather cover) in place.	Site Management	On-going
All plant onsite will be fitted with spill kits, with additional spill kits to be maintained onsite within the facility and site office.	Operations Management	On-going
Wastewater from the facility will not enter the stormwater management system.	Operations Management	On-going
Spill kits will be utilised at all process areas.	Operations Management	On-going
Staff will be appropriately trained on spill containment and management.	Operations Management	On-going
All spills will be cleaned up as soon as possible, to be managed as per the Facility Pollution Incident Response Management Plan.	Site Management	On-going
Site structures to be regularly checked for erosion and scouring.	Operations Management / Maintenance Contractor	Monthly or after rain event
Inflow areas and pit grates will be inspected and maintained to be clear of litter and debris.	Operations Management / Maintenance Contractor	Monthly or after rain event
The sediment chamber of the GPT will be regularly checked and cleaned and any damaged covers replaced.	Operations Management / Maintenance Contractor	Monthly or after rain event
The site stormwater management system has been designed such that it can be isolated from the street stormwater system in the event of a fire to control the release of contaminated fire water.	Operations Management / Maintenance Contractor	Monthly or after rain event
Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	Operations Management / Maintenance Contractor	Monthly or after rain event
All contractors and staff will receive an onsite environmental induction at the commencement of their employment at the development.	Operations Management	On-going
Inspect and remove any build-up of sediment, debris, litter, and vegetation within drainage system and structures.	Operations Management / Maintenance Contractor	Monthly or after rain event
Remove grate and inspect internal walls and base, repair where required. Remove any collected sediment, debris, litter, and vegetation. (e.g. Vacuum truck). Inspect and ensure grate is clear of sediment, debris, litter, and vegetation. Ensure flush placement of grate on refitment.	Operations Management / Maintenance Contractor	Quarterly/ after major storm
Inspect all drainage structures as per Section 4.1 noting any dilapidation, carry out required repairs.	Operations Management / Maintenance Contractor	Bi-annually
Maintenance of stormwater structures (refer to Table 8) will refer to manufacturer's operation and maintenance manual.	Operations Management / Maintenance Contractor	As per manufacturer's manual

4.1 Stormwater Systems and Surface Water Monitoring

Stormwater systems and surface water monitoring will be undertaken quarterly as outlined in **Table 8**.

Table 8 Stormwater systems and surface water monitoring requirements

ITEM TO BE MONITORED	MONITORING TASK	PURPOSE OF MONITORING	MAINTENANCE ACTION
GENERAL			
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-up of sediments in GPT can reduce the effectiveness of the devices over time.	Once sediment source has been identified and stabilised, remove accumulated sediment by flushing the system and/or emptying the GPT.
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.	Fill in any holes with appropriate filter media. Provide energy dissipation if required.
Litter (Anthropogenic)	Check for litter in and around treatment 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
Litter (Organic)	Check for organic litter, including leaves and sticks.	Organic litter can provide an additional source of nutrients to the filtration systems. Accumulated organic matter can also create offensive odours and can reduce percolation of water into 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 are in good/safe condition.	If pits become blocked it is likely to greatly reduce the amount of stormwater entering the system.	Remove debris and repair any structural damage as required.
	Check for dislodged or damaged pit covers and ensure safety and general structural integrity.	Pit covers could also be a safety hazard if not fitted correctly.	

ITEM TO BE MONITORED	MONITORING TASK	PURPOSE OF MONITORING	MAINTENANCE ACTION
DEVICES			
Ecosol GPT 4200	Ensure the settlement collection chamber is not full.	If the litter collection chamber becomes full then the device will be unable to collect gross pollutants from stormwater.	Organise a vacuum truck to clean the unit.
	Check for dislodged or damaged covers and ensure general structural integrity of the device.	Dislodged or damaged pit covers present a safety hazard.	Contact the manufacturer or contractor to repair any structural damage.
	Maintenance is generally to be in accordance with the manufacturer's instructions and procedures.		
Rainwater Tanks	Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly.	If any of the fixtures are not operating correctly, it is likely that sediment and debris will accumulate in the tank and reduce water quality.	Remove any litter, settlement, or debris from the devices.
	Regularly check the structural integrity of the tanks.	If the tank is not structurally sound, it is likely to fail.	Repair or replace any damaged components.
	Check for any accumulated litter, sediment, or debris on or within the tanks.	Accumulated materials within the tanks will reduce water storage capacity and may reduce water quality.	If any accumulation is found within the tank, then drain and flush the tank with potable water.
Wheel Wash	Check daily for wheel washer damage (main frame, water protector and side pipeline). Check weekly for any spray nozzle clogging (lower and side nozzles). Check daily the status of wash water storage (for contamination and makeup water availability). Check daily the sludge storage status (for sludge overflow and wash water leaks). Inspect daily the surface of the wheel wash for debris.	Failure of the wheel wash to perform as designed may result in heavy vehicles tracking mud onto public roads and local overflows of low quality water and accumulated sediments.	Contact maintenance contractor if structural integrity of the wheel wash has been compromised. Remove debris from nozzle inlets. Disassemble the side nozzles and remove dirt inside. Replenish wash water, clean the pump screen inlet and disassemble the solenoid valve and remove dirt from inside. Remove sludge from main frame as required by vacuum truck. Remove deposited debris from the wheel wash surface.
	Maintenance is generally to be in accordance with the manufacturer's instructions and procedures.		

4.2 Surface Water Sampling

Surface water sampling will be undertaken at the StormFilter chamber outlet bi-annually (following a rainfall event) for two years then annually (subject to review of results).

4.2.1 Sampling Methodology

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

- NSW EPA (2022) *Approved Methods for Sampling and Analysis of Water Pollutants in NSW*. Jan 2022. NSW EPA.
- 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 samples will be analysed for Total Suspended Solids (TSS), Total Phosphorus and Total Nitrogen. Analyses shall be conducted by a National Association of Testing Authorities (NATA) accredited laboratory.

Sampling is to be undertaken bi-annually (following a rain event) for two years, and then annually (subject to review of results). In compliance with condition E2.2 (h) of the EPL, sampling should also be conducted at the request of the EPA following observation of damage or overflow of the system as a result of adverse weather events, or where it is reasonable to suspect that a pollution incident has occurred, is occurring or is likely to occur.

4.2.2 Assessment Criteria

Refer to **Table 9** Trigger action responses to be applied to the Facility **i**n **Section 5.0** below.

4.3 Personnel Health and Safety

Whist performing any maintenance, precautions should be taken to minimize or prevent contact with sediment and other captured pollutants by maintenance personnel. The following personal protective equipment (PPE) is required:

- Puncture resistant gloves.
- Steel capped safety boots.
- Long sleeve clothing, overalls or similar skin protection.
- Eye protection.
- High visibility clothing or vest.

5 Trigger Levels and Action Responses

If there are visual indications of contamination (e.g. a visible sheen on the stormwater, high turbidity or a hydrocarbon odour), then the stormwater system should be inspected and maintenance activities undertaken to maximise the performance of the treatment train.

Trigger actions based on the above maintenance schedule are included in **Table 9** below.

Table 9 Trigger action responses to be applied to the Facility

TRIGGER	MONITORING TASK	MONITORING PURPOSE	ACTIONS
Environmental Incident	Environmental incident in driveway 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, high turbidity, gross waste).	Check whether additional environmental controls or monitoring are required. Assess notification requirements (e.g. to Penrith City Council, EPA).	Implement additional environmental controls (e.g. spill clean-up, erosion controls) Review and conduct sampling of stormwater discharge, as required.
OSD tank blockage or overflow	Check no leakage or overflow from OSD tank collection or gutters.	Check whether additional environmental controls or monitoring are required.	Perform maintenance on gutters or pipes as required.
StormFilter Cartridge Media is exhausted.	Monitor accumulation of sediment and debris from the filter train.	Failure of filter may result in local overflows and/or sediment build or deposit downstream.	Replace media cartridge.
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 predicted residual pollutant loads as modelled by Eclipse (2021). In the absence of any EPL or Penrith City Council 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-10474 are performing as designed	Review the above triggers and actions.

6 Reporting and Review

6.1 Compliance Reporting

Compliance reporting will occur as required by Condition C11 and C12 of SSD-10474:

"C11. Within six months after the first year of commencement of operation of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also:

(a) identify any trends in the monitoring data over the life of the development;

(b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

(c) describe what measures will be implemented over the next year to improve the environmental performance of the development.

C12. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done."

Ongoing reporting will be utilised to inform Facility compliance, to be summarised under the relevant Annual Environmental Management Report for each year. Monitoring and reporting in-line with the SSD-10474 Development consent conditions are to be undertaken as outlined under Section 7 of the OEMP.

6.2 Review

This SWMP will be reviewed and updated accordingly when required. It is noted that updated plans will require approval from the Planning Secretary prior to use. Section 11 of the OEMP lists the triggers for updating the SWMP.

7 Incidents / Emergency Management

7.1 Incident Management

The management of environmental incidents, including potential pollution incidents, will be undertaken as outlined under Section 6.2 of the OEMP.

Incident reporting will occur as outlined under Section 6.2.2 of the OEMP. In accordance with Condition C7 of SSD-10474:

“The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.”

7.2 Non-Compliance

Non-compliance notification will occur as outlined under Section 8.2 of the OEMP. In accordance with Condition C8, C9 and C10 of SSD-10474:

“C8. The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

C9. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

C10. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.”

8 Principles and Limitations of Report

The principles (summarised below in **Table 10**) are intended to be referred to in resolving any ambiguity or exercising such discretion.

Table 10 Principles and limitations of report

AREA	PRINCIPLE AND LIMITATION
Limitations of Information	This SWMP has been prepared by Senversa for the use of 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 and Recycling Facility prepared by companies including but not limited to Eclipse Environmental and reDirect 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.

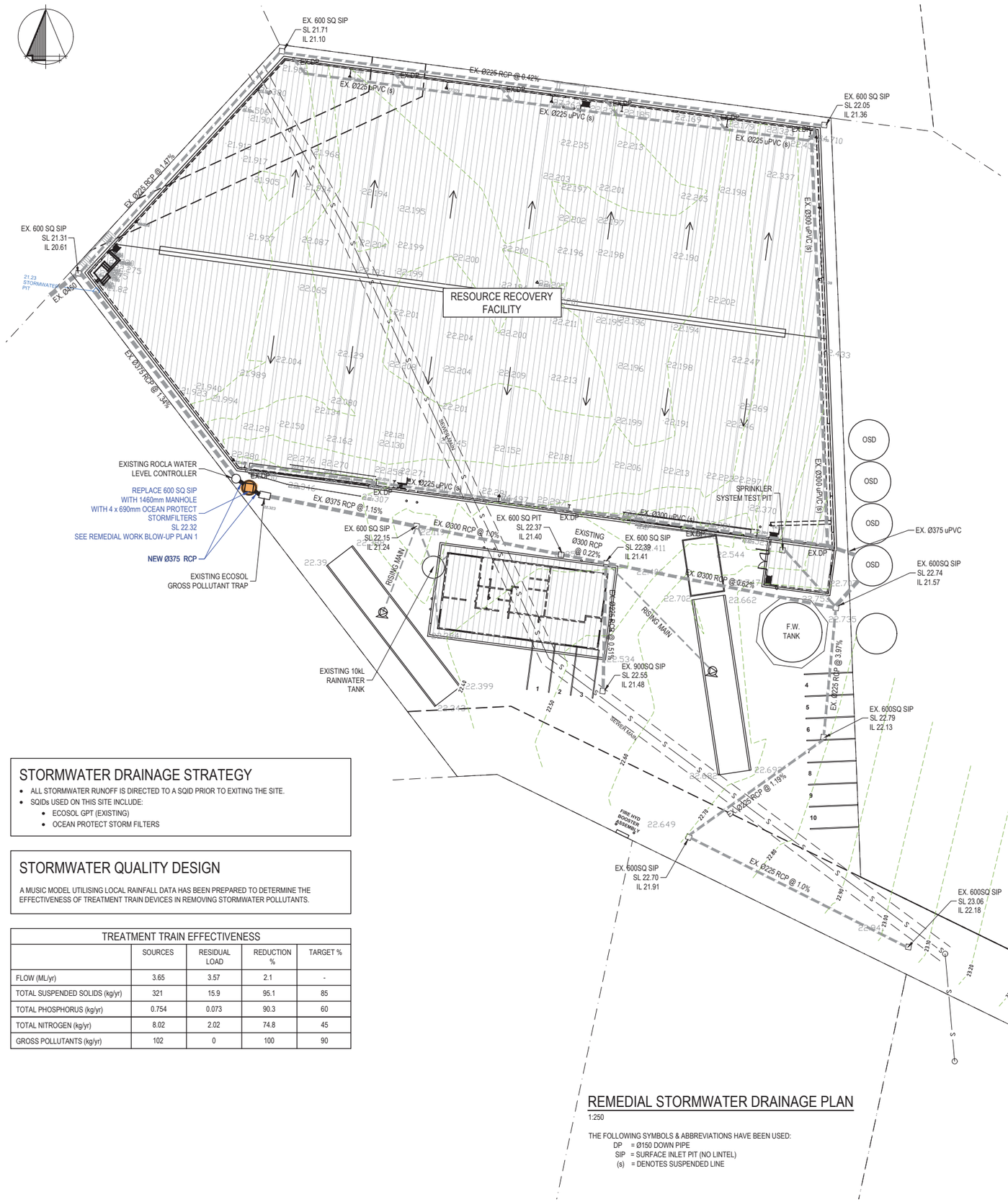
9 References

Eclipse Consulting Engineers (23/02/2021). *Stormwater Management Plan Report, Recycling Facility, 25 Dunheved Cct, St Marys NSW 2760* (prepared for reDirect Recycling Pty Ltd).

reDirect Recycling (21/04/2022). *Operational Environmental Management Plan, reDirect Recycling Pty Ltd Resource Recovery and Recycling Facility. 25 Dunheved Circuit, St Marys NSW*. DRAFT.

reDirect Recycling (25/02/2021). *Environmental Impact Assessment, Proposed Increased Throughput at Existing Resource Recovery Facility- Wood/Plasterboard Recycling. 25 Dunheved Circuit, St Marys, SSD 10474.* (referred to as an Environmental Impact Statement (EIS)).

Attachment 1: Process Flow Diagram



REMEDIAL STORMWATER DRAINAGE PLAN

1:250

THE FOLLOWING SYMBOLS & ABBREVIATIONS HAVE BEEN USED:
DP = Ø150 DOWN PIPE
SIP = SURFACE INLET PIT (NO LINTEL)
(s) = DENOTES SUSPENDED LINE

REMEDIAL WORK BLOW-UP PLAN 1

1:20

STORMWATER DRAINAGE STRATEGY

- ALL STORMWATER RUNOFF IS DIRECTED TO A SQID PRIOR TO EXITING THE SITE.
- SQIDs USED ON THIS SITE INCLUDE:
  - ECOSOL GPT (EXISTING)
  - OCEAN PROTECT STORM FILTERS

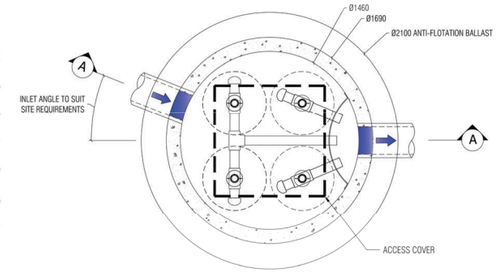
STORMWATER QUALITY DESIGN

A MUSIC MODEL UTILISING LOCAL RAINFALL DATA HAS BEEN PREPARED TO DETERMINE THE EFFECTIVENESS OF TREATMENT TRAIN DEVICES IN REMOVING STORMWATER POLLUTANTS.

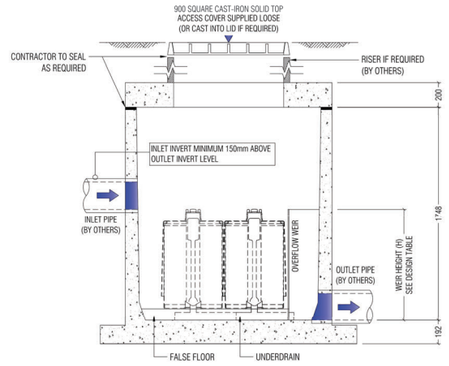
TREATMENT TRAIN EFFECTIVENESS

	SOURCES	RESIDUAL LOAD	REDUCTION %	TARGET %
FLOW (ML/yr)	3.65	3.57	2.1	-
TOTAL SUSPENDED SOLIDS (kg/yr)	321	15.9	95.1	85
TOTAL PHOSPHORUS (kg/yr)	0.754	0.073	90.3	60
TOTAL NITROGEN (kg/yr)	8.02	2.02	74.8	45
GROSS POLLUTANTS (kg/yr)	102	0	100	90

NOT FOR CONSTRUCTION



PLAN



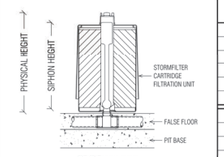
SECTION A-A

LAST MODIFIED: 09-11-18

STORMFILTER DESIGN TABLE

- STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
- THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.

CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
TYPICAL WEIR HEIGHT (H) (mm)	920	690	540
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39



STORMFILTER CARTRIDGE DETAIL

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	[ ]
NUMBER OF CARTRIDGES REQ'D	4
SIPHON HEIGHT (310 / 460 / 690)	[ ]
MEDIA TYPE (ZPG / PSORB)	[ ]
WATER QUALITY FLOW RATE (L/S)	[ ]
HYDRAULIC CAPACITY (L/S)	90

PIPE DATA:	I.L.	MATERIAL	DIAMETER
INLET PIPE #1	[ ]	[ ]	[ ]
INLET PIPE #2	[ ]	[ ]	[ ]
INLET PIPE #3	[ ]	[ ]	[ ]
OUTLET PIPE	[ ]	[ ]	[ ]

PRECAST MANHOLE WEIGHT	4100kg
PRECAST LID WEIGHT	1100kg

GENERAL NOTES

1. PRECAST STRUCTURE SUPPLIED WITH CORE HOLES TO SUIT OUTER DIAMETER OF NOMINATED PIPE SIZE / MATERIAL.
2. PRECAST STRUCTURE SHALL MEET W80 WHEEL LOAD RATING ASSUMING A MAXIMUM EARTH COVER OF 2.0m AND A GROUND WATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. CERTIFYING ENGINEER TO CONFIRM ACTUAL GROUNDWATER ELEVATION. PRECAST STRUCTURE SHALL BE IN ACCORDANCE WITH AS3600.
3. IF THE PEAK FLOW RATE, AS DETERMINED BY THE SITE CERTIFYING ENGINEER, EXCEEDS THE PEAK HYDRAULIC CAPACITY OF THE SYSTEM, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.
4. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
5. SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
6. DRAWING NOT TO SCALE.

INSTALLATION NOTES

1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY CERTIFYING ENGINEER.
2. CONTRACTOR TO PROVIDE ALL EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING DETAIL PROVIDED SEPARATELY).
3. CONTRACTOR TO APPLY SEALANT TO ALL JOINTS AND TO PROVIDE, INSTALL AND GROUT INLET AND OUTLET PIPES.

OCEAN PROTECT
PHONE: 1300 354 722 www.oceanprotect.com.au

OCEAN PROTECT
4 CARTRIDGE STORMFILTER SYSTEM
DN1460 MANHOLE
SPECIFICATION DRAWING

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

REVISION	DATE	AMENDMENT DESCRIPTION
A	23.02.21	ISSUED FOR APPROVAL

ECLIPSE | CONSULTING ENGINEERS
ECLIPSE Consulting Engineers Pty Ltd
304/12 Century Circuit
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info@eclipseconsulting.com.au
www.eclipseconsulting.com.au

RESOURCE RECOVERY FACILITY
25 Dunheved Circuit, St. Marys
For BORG Construction

REMEDIAL STORMWATER DRAINAGE PLAN

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	FEB 2021	10113
CHECKED	APPROVED	SCALE	DRG No.
		1:250	C04 - A