Prepared by SUEZ Recycling & Recovery Australia

Lucas Heights Resource Recovery Park

Soils and Water Management Plan and Monitoring Program

October 2021

Version 3

1 Quality Information

Document Revision Register

Rev	Revision Details	Prepared by	Reviewed by	Authorised by	Date
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2 Definitions/Abbreviations

ARRT	Advanced Resource Recovery Technology
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
DECC	Department of Environmental and Climate Change (Now EPA)
GO	Garden Organics
LHRRP	Lucas Heights Resource Recovery Park
PCYC	Police Citizens Youth Club.
POEO	Protection of the Environment Operation Act
SSC	Sutherland Shire Council
SWMP	Soil and Water Management Plan

3 Executive Summary

3.1 Overview

This soil and water management plan (SWMP) describes the way in which surface water is managed at the Lucas Heights Resource Recovery Park (LHRRP). The aim of the document is to establish a system of surface water drainage, collection, treatment, and disposal at the Lucas Heights Resource Recovery Park.

3.2 Surface Water Management Goals

Operational activities on the site have the potential to exacerbate erosion processes and sediment generation. The surface water management system provides mechanisms for controlling these processes and minimising the potential for contamination of waterways within the site and beyond its boundaries. It also enables water to be collected on site for uses such as temporary irrigation and dust control. Except as expressly specified in the Environment Protection Licence (EPL), LHRRP will comply with Section 120 of the Protection of the Environmental Operations (PoEO) Act 1997, prohibiting the pollution of waters at the site.

The environmental goals for surface water management on site are (as based on the NSW EPA (1996) Environmental Guidelines: Solid Waste Landfills: Section 2.1):

- Prevention of surface water contamination by leachate
- Prevention of surface water contamination by site runoff
- Prevention of water from entering an active landfill cell
- Prevention of soil erosion
- Prevention of flooding of the landfill
- Minimising sediment generation and transport off the site
- Storage of sufficient water to meet operational requirements on the site

Site Description

4.1 Surface Water Features

Most of the LHRRP site lies within the Mill Creek catchment. Mill Creek originates from the LHRRP and flows north along the western boundary towards Georges River. The gradients of the LHRRP are typical of a dissected plateau, with the slopes becoming steeper close to Mill Creek. Mill Creek itself has a slope of 2% as it travels through the site. Baseflow for the perennial rivers and streams are generally sourced from seeps and springs derived from groundwater.

There are a number of surface water management features currently in place at the site. Surface water diversion drainage is constructed around the rim of each active waste disposal cell to control surface water runoff flowing into or from the cells. The drainage typically comprises open channel drains on the outer edge of earthen bunds. Surface water is collected in drains, swales and ponds and diverted to sediment dams. The dams are designed to allow for settlement of suspended solids before discharging offsite following large rainfall events when stormwater has reached capacity.

Most of the LHRRP (the landfilled portion) lies within the catchment area of Mill Creek, with the exception of the area bounded by New Illawarra Road and Little Forest Road in the south-east and the administration facilities, which drains to Barden's Creek. As this area is not impacted by this proposal, impacts to Barden's Creek are not assessed in this report. Mill Creek originates from within the site and flows in a northerly direction through approximately the centre of the site, covering most of the length of the site. Towards the origin of the creek, the channel is not always clearly visible. Apart from small overflows, flooding is not expected to occur over the site because the gradients of the site allow good drainage.

The main sediment and water reuse basin dam located at the north-west corner operates as a sediment retention basin and water reuse basin.

4.2 Regional Water Uses

A licence search was undertaken as part of the Lucas Heights Resource Recover Park Project Environmental Impact Statement (GHD 2015) using the NSW Office of Water NSW Water Register. All lots adjacent to the site and adjacent to downstream waterways were input into the register search tool to identify licenced surface water users that could potentially be impacted by activities at the site. This search continued downstream to the confluence with the Georges River, at which point the contribution of flows from the site are not a significant proportion of the overall catchment area.

The only licensed surface water user identified was the Lucas Heights 1 Golf Course. However, it is understood that this water use is related to dams installed on the east of the golf course site. The dams are not located downstream of the proposal.

5 Water Management

5.1 Management Principals

The surface water management system is based on the following principles:

- Handle and treat all water that has been in contact with waste or contaminated by leachate as leachate (as based on the NSW EPA (2016) Environmental Guidelines: Solid Waste Landfills: Surface Water Controls).
- Minimise the area of soil disturbance and the length of time that the soil is left in a disturbed (uncovered) state.
- Progressively revegetate completed reprofiling areas.
- Where sediment is generated, capturing the majority of sediments as close as possible to the point of generation through sediment traps.
- De-silt storm water basins as required.
- Carry out drainage and sediment control designs in accordance with the Blue Book (Landcom 2004) and Blue Book Volume 2b (DECC 2008). Clean water run-on is diverted away from “disturbed areas” and sediment laden water is collected for appropriate management and treatment for rainfall events up to the 20-year Average Recurrence Interval (ARI) event.
- Discharge of disturbed area drainage lines into a sediment basin(s) designed in accordance with Blue Book (Landcom 2004) and Blue Book Volume 2b (DECC 2008).
- Maintain erosion and sediment control measures until the site is stabilised.
- Use the poorest quality of water acceptable for each particular task to reduce the volume of contaminated water required to be treated and discharged.

5.2 Management Strategy

There are a number of surface water features currently in place at the site.

One of the primary objectives for water management is to ensure that controlled discharges from the site are in accordance with the regulatory requirements. The strategy employed at the LHRRP to deliver this objective comprises the following:

- Stormwater drains are constructed to divert run-off before any clearing and/or excavation.

- Stormwater diversion drains are constructed around the perimeter of each section of the landfill.
- Bunds are constructed to keep stormwater run-off from working areas, and to ensure that any contaminated surface run-off is contained within the working area.
- The refuelling area is bunded, and collection area for paints and household chemicals is roofed and bunded.
- Sedimentation dams are operated with an available volume maintained for capture of sediment laden water. This can then be treated through site recirculation or through the stormwater treatment plant. This treatment plant operates by dosing water with flocculant, then allowing suspended sediment in the water to settle out, testing the TSS content of the treated water and discharging if TSS concentrations are less than 50 mg/L. The plant can manage up to 2.5 ML/day
- Sediment traps are put in place to capture the majority of coarse sediment and minimise the rate at which the sediment dam accumulates sediment.
- There is maximum use of collected water on site for dust suppression, irrigation, composting, maintenance of haul roads etc.
- Water collected in excavation areas that has not come into contact with waste is pumped to sedimentation dams during or soon after rain events, for settlement of solids. Water that has come into contact with waste (not including cover materials) is deemed contaminated and will be pumped to the leachate collection system and treated as leachate.
- Each successive waste lift is covered with compacted earth (or other appropriate cover materials), trimmed and graded to encourage the shedding of rainwater.
- Contouring of completed areas has been undertaken to assist water shedding.
- All drainage channels and sediment traps are maintained in areas of fill.
- Scour protection, lining or vegetating of drains and waterways has been undertaken where high flow velocities are expected.
- Bunds are constructed around the existing GO facility, and the runoff from the garden organics processing are diverted into the GO leachate dam located on the eastern side of the LHRRP

5.3 Prevention, Mitigation and Rectification

The primary objective for water management is to ensure that controlled discharges from the site are in accordance with discharge license limits, or other appropriate guidelines. The strategy to deliver this objective comprises the following:

5.3.1 Preventative measures

- Drainage and sediment control for the stormwater basins are designed in accordance with the Blue Book (Landcom 2004).
- Sedimentation basins are designed to retain the 90th percentile 2-day rain event.
- Construct stormwater drains to divert run-off before any clearing and/or excavation.
- Construct stormwater diversion drains around the perimeter of each section of the landfill and

reprofiling stages.

- Construct bunds to keep stormwater run-off from working areas, and to ensure that any contaminated surface run-off is contained within the working area.
- Bund the refuelling areas, roof and bund collection area for paints and household chemicals.

5.3.2 Mitigation Measures

- Diversion of clean upstream runoff around the site to avoid mixing with runoff from disturbed areas
- Appropriate management of vehicle movements to minimise generation and transport of sediment
- Appropriate management of material stockpiles including locating them as far from drainage lines as possible
- Employ general flood management practices on site including keeping drainage lines free of waste and debris and monitoring drainage lines during periods of heavy rainfall
- Separate runoff from disturbed areas will be from undisturbed areas where possible
- Design and operate sediment basins and sediment traps to promote sedimentation
- Maintenance of drains to prevent weed build up
- Continue to undertake surface water monitoring as prescribed in EPL 5065
- Further investigation of the habitat condition and macroinvertebrate populations to confirm the preliminary findings stated in the Lucas Heights Resource Recovery Park Project EIS (GHD, 2015). This work be undertaken every three years commencing soon after reprofiling works commencing in January 2018.
- Maximise use of collected water on site for dust suppression, irrigation, composting, maintenance of haul roads etc.
- Pump water collected in excavation areas that have not come into contact with waste to sedimentation basins during rain events, for settlement of solids. Consider water that has come into contact with waste as leachate and pump to leachate collection system.
- Cover each successive lift with compacted earth trimmed and graded to encourage the shedding of rainwater.
- Contour completed areas to assist water shedding.
- Activate the Stormwater Treatment Plant prior to discharge from main sediment & water reuse basin (sediment dam 5), except as expressed in the EPL.
- Maintain all drainage channels and sediment traps in areas of fill.
- Provide scour protection, lining or vegetating of drainage channels and waterways when flow velocities exceed 0.5 m/s.
- Regularly dig out and de-silted stormwater basins.
- Regularly inspect stormwater drains and basins.
- Keep stormwater drainage channels free of litter.
- Maintain the maximum dry weather 10ML capacity at the Sed Dam 5.

5.3.3 Rectification measures

- Check and dewater excavation area whenever ponding is detected.
- Ensure drainage bunds have been installed and realigned.
- Maintain vegetation in drains to ensure adequate flow.
- Remove any built-up litter from surface water drains.

5.3.4 Reprofiling strategies

The Lucas Heights Resource Recovery Park Project EIS (GHD, 2015) undertook an assessment on the soils and surface water associated with the reprofiling works, GO facility and the ARRT facility. It was concluded that:

- With the implementation of the mitigation measures proposed in the EIS, it is not expected that the proposal would result in an unacceptable impact in terms of sediment discharge to downstream waterways
- It is not expected that the activities associated with the proposal would result in a major increase in potable water demand
- Stormwater discharged from the site is not expected to have any unacceptable impacts on flooding conditions downstream.
- Re-profiling and re-capping of areas would reduce the potential risk of leachate entering the surface water system.
- Therefore, the proposed works are not expected to result in any unacceptable impacts relating to surface waters.

5.4 Activities / Frequency

The onsite sediment and water management infrastructure consists of erosion control measures, stormwater collection and transport, sedimentation basins, truck and wheel wash facilities and a treatment plant.

The main activities and frequencies for surface water management are:

- Check for water ponding in completed areas - after rain
- Install surface water measuring device(s) – as required
- Report on surface water monitoring – within one month of sampling
- Operate and maintain the stormwater treatment plant – as required
- De-Silt sediment ponds – as required

5.5 Performance Indicators / Targets

Surface water released from sedimentation dam 5 during wet weather overflow events or diverted through the stormwater treatment plant are monitored as required under the EPL to ensure water discharged offsite meets the following license limits:

- Have a pH value between 5.5 and 8.5
- Contain more than 6 milligrams per litre (mg/L) of dissolved oxygen

- Have a conductivity less than 1,500 micro-Siemens per centimetre (μS/cm)
- Contain less than 2.5 mg/L of total ammonia (NH3 -N) (both NH3(aq) and NH4+)
- Contain less than 50 mg/L Total Suspended Solids (TSS) (except during wet weather overflow events)

5.6 Reporting and Review

Daily operational checklists are completed on site by the site supervisor and weekly checklists are completed by the site manager. The Environmental Advisor is responsible for completion of the Environment weekly checklist. The checklists are reviewed by the site manager for the LHRRP. Maintaining environmentally electronic checklists is the responsibility of the Environmental Advisor.

Additional reporting and review functions include:

- Monthly review of monitoring results with the contractor
- Reporting to the appropriate regulatory authority (SSC or the NSW EPA), the NSW EPA, Safe Work Authority, the Ministry of Health Public Health Unit, the local authority (if not the appropriate regulatory authority) and Fire and Rescue NSW immediately of incidents related to pollution incidents where material harm to the environment is caused or threatened. Material harm includes actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial or that results in actual or potential loss or property damage of an amount over $10,000. (This is an amendment in Section 148 of the POEO Act took place on 6 Feb 2012)
- Annual Reporting to the NSW EPA as part of licence requirements

The NSW EPA (or authorised officers of Department) will have full access to the works either during or after construction, to allow inspection and testing of the works and its fittings. Any work or alterations that are deemed necessary by NSW EPA arising from the visit for the protection or proper maintenance of the works, or the control of the water extracted, and for the protection of the quality and the prevention from pollution or contamination of sub-surface water will be carried out.

6 Stormwater Drainage and Erosion Control

6.1 Overview

The greatest potential for soil erosion occurs while the ground surface is in a disturbed condition – commencing when the site is cleared, continuing through the cell preparation and landfilling process, and concluding when the site is rehabilitated. Once a stage of the site is rehabilitated the runoff water generated by that part of the site should be relatively clean.

This soil and water management plan uses the strategy of keeping “clean” water and “dirty” water separate through the use of:

The “clean” water drains collect stormwater from rehabilitated areas of the site, and any clean run-on stormwater flowing onto the site from upstream. These drains divert “clean” water around the sedimentation ponds and into Mill Creek at the northwest corner of the landfill site. The drains prevent “clean” water from coming into contact with disturbed parts of the site, and also prevent “clean” water from mixing with “dirty” runoff water from disturbed areas of the landfill.

The “dirty” water drains collect stormwater from disturbed areas of the site. The “dirty” water drains discharge surface water into two sediment dams that are sized appropriately to allow for settlement to

remove coarse sediment from the water.

As each section of the landfill is rehabilitated, the “dirty” water drain for that section will be rehabilitated, and the surface water from the rehabilitated area will be directed into the “clean” water drain.

The use of this parallel drainage system to prevent mixing of “clean” and “dirty” water reduces the volume of water that the sediment dams are required to cater for and minimises the required size of these dams.

All disturbed and unvegetated areas would have high level of erosion and sediment controls applied to capture and treat any suspended solids in the run-off water. The staging of the reprofiling work has been designed to generally minimise the disturbed areas (by capping and revegetating areas) prior to commencing work in areas that are currently capped and revegetated.

The effectiveness of the current erosion and sediment control practices at the site should be monitored by analysing the total suspended solids concentrations recorded in Mill Creek downstream of the site.

6.2 Collection of Disturbed Area Runoff and Diversion of Clean Runoff

For effective erosion and sediment control it is necessary to divert upstream clean water around disturbed areas and also to collect sediment laden water from disturbed areas. This would be achieved through constructing open channels and utilising existing clean water channels such as Mill Creek.

Runoff water from the site is intercepted and collected by graded banks and drains that have been constructed at strategically spaced intervals across the batter slopes. These banks / drains direct surface water at a non-erosive velocity into the major drainage lines of the “clean” and “dirty” water drainage systems.

According to Table 6.1 of Blue Book Volume 2b (DECC 2008), drainage channels must be able to convey the critical 20-year Average Recurrence Interval (ARI) rainfall event flow rate. Preliminary sizing guidelines runoff. These sizing guidelines were then applied to the proposed drainage channels for each were provided for the drainage channels for all stages such that they would operate in accordance with Blue Book Volume 2b (DECC 2008) in terms of conveyance of clean and sediment laden stage and preliminary channel sizes presented along with the proposed staging plans.

Specific assessments of channel capacities were undertaken for existing surface water channel such as Mill Creek and the eastern drainage channel. Sizing was developed to estimate the peak 20-year ARI event peak flow rate for a range of potential catchment areas and then using a Manning’s Calculation to estimate the required channel size for each catchment area. Key parameters for this assessment are listed in **Error! Reference source not found.**

Table 1 Channel sizing parameters

Parameter	Value	Notes
Channel Manning’s n	0.025	Compacted earth
Channel bed slope	1 %	Likely minimum slope
Channel side slope	1V:4H	
Maximum flow	Varies	Based on results of Manning’s calculation for each catchment

depth	(Max 1m)	area
Channel base width	Varies	Based on results of Manning's calculation for each catchment area

The major drainage lines include:

- Channels lined with fabriform revetment mattress or high-density polyethylene (HDPE) sheeting
- Grass lined waterways
- Channels excavated into the in-situ stable sandstone rock formation

These stable drainage lines help to minimise the erosion caused by concentrated flows of surface water.

Erosion and sediment control from non-concentrated flows of surface water are provided by the use of control measures such as the progressive revegetation of disturbed areas and the use of sediment fences at the base of slopes, around stockpile areas and at the perimeter of the area of disturbance.

Other features of the surface water management system include sediment dams, sediment traps and a stormwater treatment plant (Section 4.2) to assist in the management of sediment-contaminated water.

7 Site Layout and Operations

7.1 Surface Water Management Works

SUEZ takes a proactive approach to managing surface water quality at the LHRRP. Since SUEZ acquired the site, a number of surface water management works have been completed or have been included as part of routine maintenance works, including:

- Upgrade of main sediment basin – in order to provide more capacity to deal with large storm events, the main sediment basin was upgraded and enlarged in 2013. As part of the upgrade, the dam was also de-silted
- Establish grassed areas – grass was established on previously exposed areas to improve stormwater runoff quality.
- Western perimeter haul road – silt mesh fencing and siltation traps were installed along the western perimeter haul road to reduce sediments entering the main sedimentation basin. Geotextiles, hay bales and a rock lined drain were also installed to manage flow rates during high rainfall events. (Figure 1)

Figure 1 Lined drain along western perimeter haul road with siltation traps

In addition to these additional stormwater management works, SUEZ also has planned further management works including:

- Improved coagulant for the sedimentation basins – In order to increase the effectiveness of the sedimentation process, a new coagulant has been trialled and the coagulant product used in sedimentation basins would be revised.

- Installation of silt fences – silt fences are progressively installed around active cells, stockpile areas and the western haul road to improve quality and reduce sediment loading of the main sedimentation basin.

7.2 Water Storages

7.2.1 Main Sediment Basins

Main Sediment and Water Reuse Basin (Sed Dam5) **capacity 32 ML**

This is the main water storage basin on site and collects Dirty Stormwater from the majority of the site.

It is able to be pumped to the Stormwater Treatment Plant then to Mill Creek, it can overflow to Mill Creek under licence, or be pumped to the PCYC Dam for use as dust suppression.

PCYC Basin (PCYC Dam) **capacity 2.8 ML**

This is located to the north of the truck wash bay on the eastern side of the site and drains water from the northern end of the site. Water here is predominantly used as dust control.

Western Sediment and Water reuse basin (Sed Dam 1) **capacity 4 ML**

This drains water from the southwestern PCYC Basin. This water can be left to overflow into Mill creek or, in dry times directed to Sed Dam 5 for use on site.

These dams play an important role in removing sediment from the stormwater. In particular, the main sediment basin controls the water discharge from the site.

Garden Organics Storage Dam collects water which drains from the garden organics area, it is held for use back in the organic area for dust suppression and to assist the composting process.

Refer Figure 2 for location of the storages.

7.3 Storm Water Treatment Plant

The LHRRP has a stormwater treatment plant designed and maintained by JPG Engineering which is used to remove suspended solids from stormwater held in the surface water dams when required. The stormwater treatment facility treats sediment impacted stormwater in the main sedimentation basin prior to any discharging to Mill Creek. It has a capacity of 2.5 ML/day. A sludge handling system is used to collect, contain and de-water the suspended solids and precipitates collected by the stormwater treatment system. The treated water is then discharged to Mill Creek (in accordance with the EPL conditions) or reused at the wheel wash or for dust suppression.

The unit uses coagulation and flocculation of the water to assist with and provide settling. Sediment removed from the water is disposed of in the landfill.

Refer to the Operation and Maintenance Manual for operational details.

Surface Water Storage Locations

Figure 2 Location of Surface Water Storages.

7.4 Water Balance

A water balance was prepared as part of the Lucas Heights Resource Recovery Park EIS (GHD, 2015) which was used to verify the erosion and sediment assessment. In particular, the frequency of overflows from the sediment basin was assessed.

It was considered that with the implementation of the strategies and measures contained in this document, unacceptable impact in terms of sediment discharge to downstream waterways would not be expected.

The Environmental Protection Licence for the Site (EPL 5065) includes licence conditions relating to discharge of total suspended solids (TSS). Generally, the requirement of the licence is that the discharged water from site should not have a concentration of TSS greater than 50 mg/L. However, it is also stated that for discharges from the sediment basin that a discharge of higher concentrations of TSS is not in breach of the licence if the following conditions are met:

1. The overflow is caused by a rainfall event; and
2. The licensee has taken all practical measures to avoid or minimise water pollution.
3. Sediment Dam 5 must be maintained at or below the base of the 10ML settling zone, except during wet weather.
4. During 2 day 90th percentile rainfall events of 34.8mm of more, the stormwater treatment plant must be engaged, as soon as the event is known, to treat sediment laden water. A 10ML capacity settling zone within Sediment Dam 5 must be re-established within 5 days of the rainfall event occurring.

One important aspect of the erosion and sediment control measures is that all sediment laden water would be treated in a settling dam before it is discharged from the site. In addition, a large component of the surface water from the disturbed areas would be further treated through the site stormwater treatment plant before it is discharged from the LHRRP, in accordance with the EPA's recommended criteria in Blue Book Volume 2b (DECC 2008).

7.5 Management of the Quality of Stored Surface Water

The operating procedure for the surface water dams on site involves the following steps:

- Monthly field monitoring against a range of quality parameters
- Laboratory testing if required
- Gravity fed discharge from Sediment Dam 1 to regain capacity for future rainfall events once water quality parameters have been achieved
- Gravity fed transfer from Sediment Dam 1 to Sediment Dam 5 to supplement dust suppression requirements or to allow treatment via the stormwater treatment plant
- Field and Laboratory monitoring of discharge from Sediment Dam 5 either via wet weather overflow or diversion through Stormwater Treatment Plant
- The bottom 5ML of Sed Dam 5 is known as the sediment Storage Zone (ref GHD Surface Water Assessment May 2015) which has been calculated to fill every 10 years, however with existing sediment traps located further upstream within the site, a large proportion of the mass of sediments is captured before entering the main basin. This significantly reduces the cleanout frequency and sediment storage zone volume required.

The dam is inspected each time the volume is low, and sediment removal is considered.

The water quality parameters that SUEZ aims to achieve prior to pumping stored water from the surface water dams are listed in below

Parameter	Target
Total Suspended Solids	< 50 mg/l *
Electrical Conductivity	< 1,500 micro-Siemens per centimetre
pH	Between 5.5 and 8.5
Dissolved Oxygen	> 6.0 mg/l
Total Phenolics	< 0.05 mg/l
Nitrogen (ammonia)	< 2.5 mg/l

* Exception during wet weather overflow events

8 Monitoring

8.1 Overview

Monitoring at the LHRRP incorporates surface water, leachate, landfill gas, groundwater, dust, noise and any other environmental performance indicator in accordance with the relevant EPL. The results of all monitoring carried out on the LHRRP site is recorded and retained as set out in the relevant EPL. This section must be read in conjunction with the site EPL. The following section describes monitoring activities relevant to surface water. Figure 8.1 shows the indicative location of the monitoring points.

8.2 Surface Water Monitoring

All surface water samples are analysed for the following the EPL Monition points have the below limits:

Analyte	Units	Limit
Electrical Conductivity (field)	uS/cm	1500
Dissolved Oxygen (field)	0.01 mg/L	>6
N-Ammonia	mg/L	2.5 mg/l
pH (field)	0.1 pH unit	5.5-8.5
Phenol	mg/L	0.32
Suspended Solids	1 mg/L	50

EPL Point 1 – MC1 is the overflow from Sediment Pond 5 and must be sampled on Special Frequency 1 i.e., if discharge occurs, the collection of samples within 24 hours of discharge.

EPL Point 20 Sediment Dam 5 DS002 Pumped discharge – being pumping directly from the dam to the Creek – this does not occur. EPL sampling requirements are Special Frequency 2 the collection of samples at a minimum of weekly intervals during discharge.

EPL Point 21 pumped discharge storm water treatment DS001 – water being pumped out of the Storm water Treatment Plant. Special Frequency 2, the collection of samples at a minimum of weekly intervals during discharge.

EPL 22 Overflow from Sediment Dam 5 OF001 Water overflowing from Sed Dam 5 during a rain event.

Special Frequency 1 i.e., if discharge occurs, the collection of samples within 24 hours of discharge.

EPL Point 23 – SD005 is the surface water from sedimentation Dam 5 and must be sampled Quarterly.

8.3 Additional Surface water monitoring is undertaken at the following locations

Additional Surface water monitoring may be undertaken at the following locations, with the data is used to assist in the decision making for water transfers.

Mill Creek 3 (MC3), situated immediately upstream of where the northerly extension of Little Forest Road crosses Mill Creek,

PCYC Basin (PCYC Dam)

Western Sediment and Water reuse basin (Sed Dam 1) or Duck Pond.

8.4 Licence Condition for Sediment Dam 5

Management of Surface Waters

O6.5 Surface waters must be diverted away from any area where waste is being or has been landfilled.

O6.6 SUEZ must install and maintain freeboard markers in Sediment Dam 5. Freeboard markers must: a. indicate the 10ML settling zone, b. indicate 2ML increments, c. be permanently installed, and d. be positioned in location/s that allow freeboard verification.

O6.7 Sediment Dam 5 must be maintained at or below the base of the 10ML settling zone, except as specified in Condition O6.8.

O6.8 During 2 day 90th percentile rainfall events of 34.8mm of more, the stormwater treatment plant must be engaged, as soon as the event is known, to treat sediment laden water. A 10ML capacity settling zone within Sediment Dam 5 must be re-established within 5 days of the rainfall event occurring.

The 10ML mark is shown below, in the event that there is more water it must be transferred or treated by the Stormwater Treatment Plant and discharged. Options are:

- Use for dust suppression
- Transfer to PCYC Dam
- Transfer to grass drain, this option is preferable if ammonia is present, the water will drain back to the Sed dam and the biological activity in the grass drain will lower the ammonia concentration.

If these options are not enough to lower the water level, the stormwater treatment plant should be used, and samples taken as above.

If there is excessive rain, and the 10 ML limit cannot be maintained, refer licence condition O6.8 above.

In the event that the dam overflows the high level alarm will be triggered and key staff notified to check the Treatment Plant operation and take samples.

Also Refer “Weekend Stormwater Management Plan for SUEZ Lucas Heights Landfill Facility SOP” for sampling Instructions.

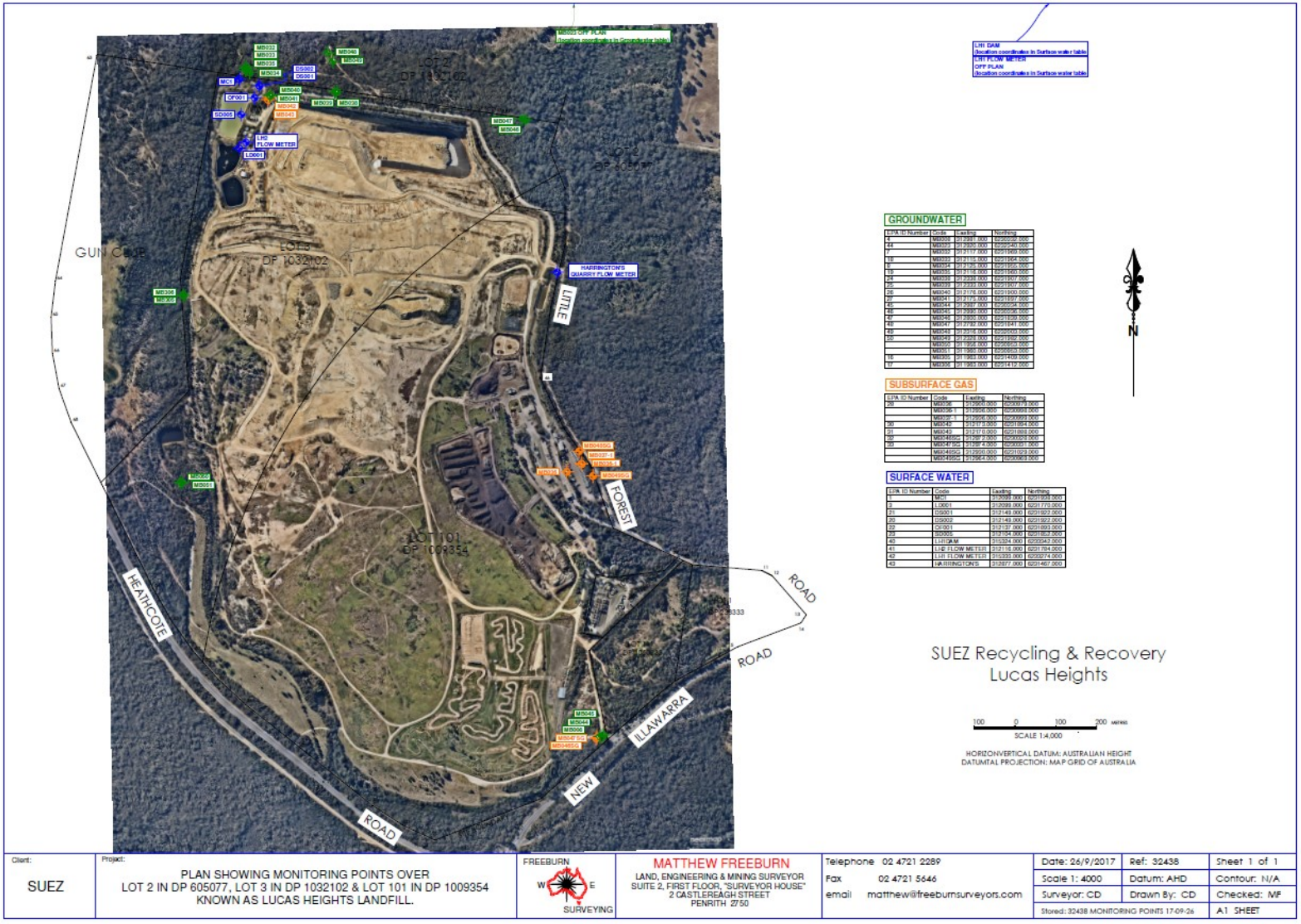

Figure 0.2 Indicative locations of monitoring points

9 References

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