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TO Sam Mangione
Alkina Holdings Pty Ltd

CC

FROM Jaclyn Ennis-John; Liza Du Preez

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**WORKS APPROVAL APPLICATION – DESKTOP ASSESSMENT –
TOPSOIL HANDLING AND SEDIMENT MANAGEMENT**

1.0 INTRODUCTION

This technical memorandum presents a desktop summary of publicly available information for the Great Southern Landfill Site related to the stability assessment completed for the Allawuna Landfill. The Great Southern Landfill Site, outside York, Western Australia, was previously referred to as Allawuna Farm Landfill (AFL), and a Works Approval Application (WAA) was prepared by SUEZ and granted by the Department of Environment Regulation (DER) (now the Department of Water and Environmental Regulation, DWER) on 17 March 2016; it was subsequently withdrawn by SUEZ. The WAA by SUEZ is publicly available on the DWER website.

2.0 PUBLICALLY AVAILABLE INFORMATION

2.1 WAA data

The supporting works approval application provided the following documents for review:

- Allawuna Farm Landfill - Topsoil Handling and Sediment Management (Golder, 2015)

An assessment was undertaken based on the design information included in the stability assessment reports against the revised GSL design.

3.0 CONCLUSION

As the design of the facility is similar the method proposed for Topsoil Handling and Sedimentation Management is still valid and did not raise any issues of concern. The management measures proposed have been integrated into the Alkina Site Management Plan.

GOLDER ASSOCIATES PTY LTD



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Attachments: A – Topsoil Handling and Sediment Management
(Document Ref. 147645033-019-R-Rev0, dated March 2015)

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ATTACHMENT A

**Topsoil Handling and Sediment Management
(Document Ref. 147645033-019-R-Rev0, dated March 2015)**



March 2015

ALLAWUNA FARM LANDFILL

Topsoil Handling and Sedimentation Management

Submitted to:

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REPORT

Report Number. 147645033-019-R-Rev0

Distribution:

1 Electronic Copy – SITA Australia Pty Ltd
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1.0 TOPSOIL MANAGEMENT AND SEDIMENT CONTROL, CELL 1 & 2

1.1 Relevant guidelines

The management of topsoil during construction and the associated sediment control measures employed have been developed in accordance with the recommendations of the International Erosion Control Association (IECA, 2008)¹.

1.2 Topsoil management

The stripping of topsoil will occur progressively, staged in a manner that follows the construction of the cells. Topsoil will be stripped to a depth of 200 mm across the footprint of each cell, an area approximately 12.5 Ha. Topsoil will be stripped whilst in a moist condition to prevent clodding or hard-setting due to the potentially high silt/clay content. Therefore, no stripping should take place immediately following prolonged rainfall or irrigation.

Stockpiling will occur in a designated area north of the landform (refer to Golder Drawing 147645033 D202). Stockpiles will be limited to a height of 1.5 m with batter slopes of 1V:1H. Since topsoil material is deemed unsuitable as engineered fill, the stockpiles will remain in place until required for re-use in final capping or landscaping works. Topsoil will be stockpiled separately from any sub-soil materials (e.g. soil excavated from sub-soil drainage trenches) and clear signage erected.

The stockpile area will be contained by a low temporary bund constructed from suitable fill material. A sediment-fence will be installed around the inside perimeter of the bund and between stockpile types (topsoil upper 50 mm; topsoil lower 200 mm; sub-soil) to prevent migration of eroded soil particles outside of the stockpile area and cross-mingling of soil types.

1.3 Sediment control and management

1.3.1 During construction

The construction of each cell will require stripping of topsoil. Incident rainfall on the stripped area is likely to generate turbid runoff due to the absence of vegetation cover, and this runoff will require management throughout the construction works. To manage this, a temporary sediment fence may be installed around the southern and western perimeter of the cell in addition to the sediment management structure downstream of the primary drainage culvert, (as shown on Golder Drawing 147645033 D243) which will remain in place until the construction of the cell has been completed.

1.3.2 During operation

During operation sediment control features will be incorporated into the stormwater management system where capped areas and cleared or disturbed areas are likely to contribute to increased sediment loads to the downstream environment. Sediment management requirements, specifications and designs will be based on the approaches recommended by IECA (2008). For the control of sediment likely to discharge from the Allawuna Landfill site the overall erosion and sediment control strategy will comprise of the following:

- *Drainage control measures* aimed at preventing or reducing soil erosion caused by concentrated flows and to appropriately manage the movement and separation of 'clean' and 'impacted' water through the site.
- *Erosion control measures* aimed at preventing or reducing soil erosion caused by rain drop impact and sheet flow (i.e. the control of splash and sheet erosion).
- *Sediment control measures* aimed at trapping and retaining sediment either moving along the land surface (bed load) or contained within flowing water.

¹ IECA 2008, *Best Practice Erosion and Sediment Control*, International Erosion Control Association (Australasia.), Picton NSW.



The stormwater management strategy states that clean water is diverted around the site with a large proportion of diverted runoff discharging to the stormwater dam. Potentially impacted water will be managed, contained and monitored within the active landfill area, the adjacent retention pond and the sediment control structures, prior to controlled discharge to the downstream environment. Turbidity of the collected water could be enhanced prior to discharge (if required) by coagulating and flocculating agents.

Silt fences and temporary bunds could be constructed on the covered landfill side slopes to minimise scouring and generation of sediments.

Shallow, vegetated stormwater swales are recommended along all road alignments and would provide an effective approach for the reduction of sediment loads by conveying a sheet flow of shallow depth through vegetation.

Erosion control measures are provided in locations where significant flow velocities are expected, particularly in relation to the stormwater dam spillway. Energy dissipators, erosion protection mats and vegetation within the downstream channel are recommended to minimise the risk of erosion and scour impacts during significant runoff events.

1.3.3 Post-closure

For the minimisation of sedimentation post-closure, emphasis will be placed on re-vegetation of slopes and re-instatement of endemic soils to the surrounding area, as this will provide a more robust long-term mitigation measure than the continued reliance on control structures. A detailed closure plan, developed toward the end of the landfill life, will incorporate suitable erosion control strategies based on the future site conditions.



2.0 TOPSOIL MANAGEMENT AND SEDIMENT CONTROL, BORROW AREAS

2.1 Relevant guidelines

The management of topsoil during construction and the associated sediment control measures employed have been developed in accordance with the recommendations of the International Erosion Control Association (IECA, 2008)².

2.2 Future plans

Topsoil management and sediment control plans will be developed for each of the individual borrow areas prior to development of these areas. This will occur in association with cell development. The relevant topsoil and sediment control plans, in line with the relevant guidelines, will be submitted with the appropriate works approval application for future cell development.

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[https://aupws.golder.com/sites/147645033alluwunafarmpeerreview/correspondence out/147645033-019 topsoil management and sedimentation control/147645033-019-r-rev0.docx](https://aupws.golder.com/sites/147645033alluwunafarmpeerreview/correspondence%20out/147645033-019%20topsoil%20management%20and%20sedimentation%20control/147645033-019-r-rev0.docx)

² IECA 2008, *Best Practice Erosion and Sediment Control*, International Erosion Control Association (Australasia.), Picton NSW.

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