

BLUE SKY RESOURCE RECOVERY LTD.

LISBANE LANDFILL RESTORATION

CQA PLAN

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1 Introduction

1.1 General

Taggarts were appointed by Blue Sky Resource Recovery Ltd. to prepare a Construction Quality Assurance (CQA) Plan for the proposed restoration at Lisbane Landfill Site. This plan has been prepared in accordance with NIEA requirements and relevant guidance documents.

1.2 Location

Lisbane Landfill Site is located on Aughlish Road, approximately 2.3km southeast of Tandragee. The Irish Grid Reference for the site is J 04803 44531. The site previously accepted a variety of primarily non-hazardous wastes since 1997. The site was constructed as a containment landfill with a groundwater management system and a composite lining system. The immediate surrounding area is primarily agricultural, open farmland with scattered farm buildings and dwellings.

1.3 Project Description

The works will comprise the placement of a 1m compacted clay layer and 300mm topsoil layer, which will be seeded with a grass/wildflower mix. This will be placed on top of the inert infill layer. The works will help to create a natural habitat and enhance the visual impact and biodiversity of the site.

Further details of the works and approximate location can be seen on Drawing 15047-201R.

2 Definitions

For clarification, the following definitions are given:

Construction Quality Assurance (CQA) - A planned and systematic pattern of all means and actions designed to provide confidence that items or services meet contractual and regulatory requirements. Construction Quality Assurance refers to means and actions employed to assure conformity of the lining system, i.e. its preparation, production and installation, to this CQA Plan, the Contract Drawings and Specifications. CQA is provided by a party independent from production and installation.

Construction Quality Control (CQC) – Actions that provide a means of measure and regulation to characteristics of an item or service to contractual requirements. CQC refers to those actions taken by Manufacturers, Installers, Contractors, or the employer to ensure materials and workmanship meet the requirements of the plans and specifications.

Contractor - means the person or persons, firm, company or other body to whom the Contract has been awarded by the employer, and includes the Contractor's personal representatives or other parties, e.g. Sub-contractors, Manufacturer. The Contractor will undertake the execution of the works under the terms of the Contract.

3 Proposed Works

The works will involve the installation of a 1m compacted clay layer and 300mm topsoil layer, which will then be sown with a grass/wildflower mix.

3.1 Compacted Clay Layer

The clay material will be transported from on-site stockpiles and laid across the existing surface using excavators and dumpers to ensure the correct depth of material across the site. It will be screened to ensure all stones or similar objects greater than 350mm are removed.

The material will be compacted to ensure a permeability of no greater than 1×10^{-7} m/s.

3.1.1 Field Trial

A field trial of the material shall be conducted to evaluate the following aspects:

- Material handling and placement requirements;
- Compaction equipment and procedures;
- Number of passes of equipment necessary to achieve the specified relative compaction; and
- Field testing procedures for compaction.

The installation and testing of the trial pad shall be witnessed by the CQA Supervisor on site. Sufficient information shall be obtained to demonstrate consistency across the site.

No placement or compaction of the material shall take place during inclement weather, no frozen material shall be used. The Contractor shall provide adequate and acceptable measures for protecting the material at all stages of the work from all sources of potential contamination until completion of the contract.

3.1.2 In-Situ Testing

Testing of the compacted material shall be carried out in accordance with the table below.

Table 3.1 In-Situ Testing

Parameter	Test Method	Frequency
Density in-situ	In-situ Nuclear Density Gauge	1 / 2,500m ³
Moisture Content in-situ	In-situ Nuclear Density Gauge	1 / 2,500m ³
Density	Core Cutter Method- BS1377: Part 9: Method 2.4	1 / 5,000m ³
Moisture Content	Core Cutter Method-	1 / 5,000m ³

Parameter	Test Method	Frequency
	BS1377: Part 2: Method 3.2	
Particle Size Distribution	Sieve Analysis- BS 1377: Part 2: Method 9	1 / 5,000m ³
Depth	Depth gauges or similar	1 / 2,500m ²
Permeability	Soak away test (see below)	1 / 5,000m ³

Permeability testing of the material shall be carried as outlined below:

1. Scrape a smooth flat surface 50mm below the surface layer to be tested;
2. Cut a hole in the compacted material;
3. Fill the area to a depth of 50mm with water, record the time and seal the area to minimise evaporation;
4. After 24 hours remove the cover and measure the depth of any remaining water. The level shall be recorded along with the observations of ground conditions.

If there is no water remaining the material is too permeable. Observations and results of all in-situ permeability testing shall be included within the CQA Report.

A full walkover will be undertaken upon completion to inspect the works. The Contractor shall install depth gauges at various points across the works area to confirm the depth of materials.

3.2 Topsoil and Seeding

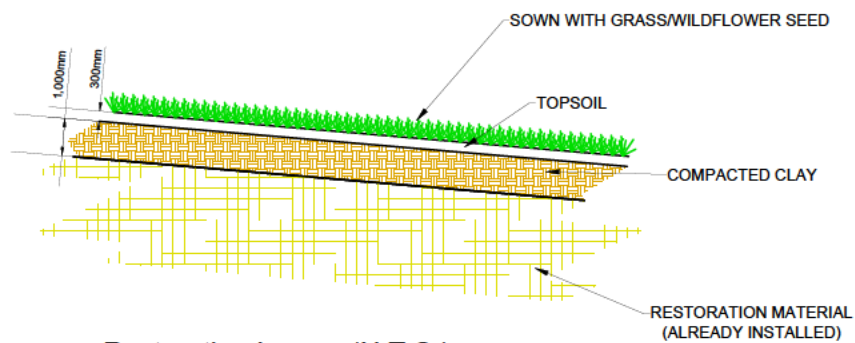
Following placement of the clay layer and topsoil the area will be sown with a grass/wildflower seed mix as per Clause 3005 of the Specification for Highway Works.

4 CQA Validation Report

A CQA Validation Report shall be submitted upon completion of the works. It will provide the following information:

- Results from any field testing;
- Final as-built plans and surveys including engineering details of the work;
- Records of any problems or non-compliance and the solution applied;
- A selection of photographs showing progress, compliance, noncompliance and any remedial actions; and
- Validation that all aspects of works have been completed in accordance with this CQA Plan unless otherwise agreed in advance with NIEA.

Appendix A **Drawings**



Restoration Layers (N.T.S.)

- Restoration Area
- Approx. Restoration Area

REV	DATE	DESCRIPTION	DRN	CKD
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REPORT

Taggarts

CLIENT BLUE SKY RESOURCE RECOVERY LTD.

CONTRACT LISBANE LANDFILL

DRAWING RESTORATION DETAILS

SCALE	1:1,000 @A3	DATE	18.01.24
DRAWN		CHECKED	
DRG No.	15047-201R	REVISION	

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