



Duranta AD Plant

Plant Expansion – Secondary Containment Assessment

Duranta Teesside Ltd

Forty Foot Road, Middlesbrough TS2 1HG

Prepared by:

SLR Consulting Limited

The Tun, 4 Jackson's Entry, Edinburgh, EH8 8PJ

SLR Project No.: 405.065940.00001

6 February 2026

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
0	15 January 2026	MG	MG	MG
01	6 February 2026	MG	MG	MG
	Click to enter a date.			
	Click to enter a date.			
	Click to enter a date.			

Basis of Report

This document has been prepared by SLR Consulting Limited (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Duranta Teesside Ltd (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.



Table of Contents

Basis of Report	i
1.0 Introduction	1
2.0 Ciria 736 Guidance	2
2.1 Ciria 736 Containment Class	2
3.0 Secondary Containment Capacity Assessment.....	3
3.1 Existing System.....	3
3.2 Proposed Expansion	3
3.3 Secondary Containment Capacity	4
4.0 Closure.....	5

Tables in Text

Table 1: Tank Capacities	4
--------------------------------	---

Figures in Text

Figure 1: Aerial View of the Site	1
Figure 2 Proposed Additional Tank	4



1.0 Introduction

SLR Consulting Ltd (SLR) have been engaged by Duranta Teesside Ltd (Duranta) to review the capacity of the secondary containment system at their anaerobic digestion (AD) site at Forty Foot Road, Middlesbrough. The assessment reviews the suitability of the existing system taking into account the proposed expansion plans which include the construction of an additional digester tank.

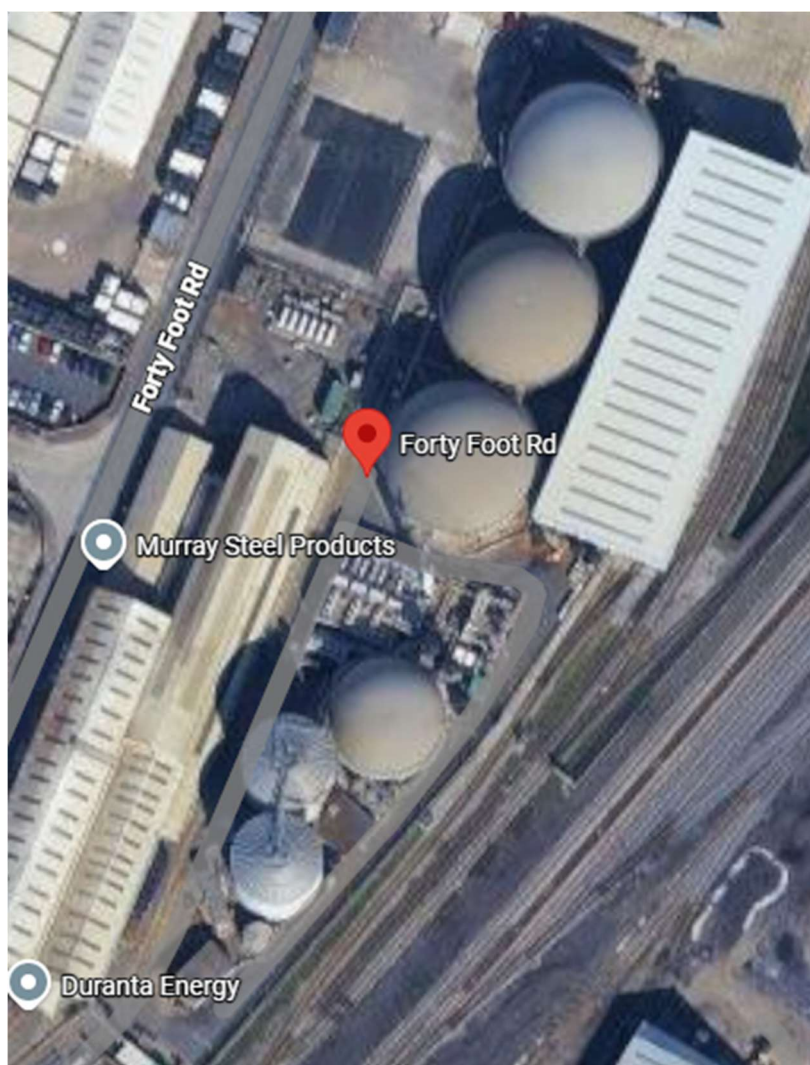
The plant was first commissioned in 2015 and produced electricity using Combined Heat and Power (CHP) engines. It has been subsequently expanded to include a biomethane upgrading system, which is owned and operated by Air Liquide.

The site has a total CHP capacity of 5.1 MWe and a target production of 46 GWh (c. p to 600 Nm³/h) of biomethane (via Air Liquide's plant).

The plant has a permit which allows the processing of 157 ktpa of feedstock, which is a range of food wastes as well as a small amount of solid energy crops.

Figure 1 below presents an aerial view of the existing site.

Figure 1: Aerial View of the Site



2.0 Ciria 736 Guidance

The Construction Industry Research and Information Association (CIRIA) produce a number of guidance documents for use within the construction industry. CIRIA 736 relates to containment systems for the prevention of pollution which provides guidance on measures site operators can take to minimise the risk of pollution from leaking or burning substances stored on sites.

CIRIA 736 has been designed to help operators of industrial facilities identify and manage risks associated with storing substances that may be flammable or harmful to the environment. It proposes a risk-based approach to managing the storage of substances. Water contaminated with run off from composting activities has been identified as environmentally harmful, and as such actions must be taken to minimise the risk of pollution.

2.1 Ciria 736 Containment Class

Chapter 2 of CIRIA 736 outlines the procedure for undertaking a risk assessment for a site and determining a sites Class and the type of containment required. There are 3 levels of Class defined in CIRIA 736 and are described as follows:

- Class 1 – Low overall site risk, requiring a base level of integrity;
- Class 2 – Moderate overall site risk, requiring an intermediate degree of integrity; and
- Class 3 – High overall site risk containment, requiring the highest degree of integrity.

Due to the nature of materials stored in the tanks, primary containment, secondary containment, pathways, and receptors at the site we would not anticipate that a CIRIA 736 risk assessment would identify the site to be any higher risk than Class 2, which is typical for anaerobic digestion plants.



3.0 Secondary Containment Capacity Assessment

3.1 Existing System

It is acknowledged that the site does not have a traditional secondary containment system utilising a bund but instead utilises a network of drainage infrastructure and an above ground tank to provide a secondary containment capacity of 9,130m³, which has previously been agreed with the Environment Agency in 2014.

As set out in the SLR letter to the Environment Agency dated 11th September 2014, the Operating Philosophy of the containment solution for the site is based on the following key elements:

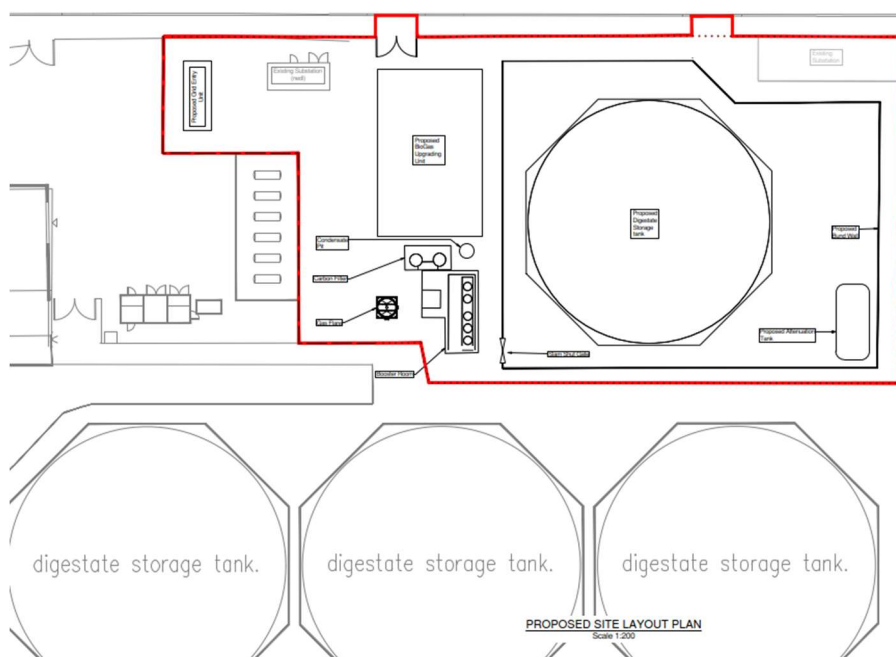
- A. gravity drainage of all runoff (including any loss of containment) via surface flow and/or existing site drainage into underground pump chamber located in lowest point of the site;
- B. retention of all runoff and spillage onsite by automated pumping from pump chamber to above ground storage tank, capacity 8,500m³; NOTE: all runoff and spillage will be automatically pumped to the above ground tank for buffer storage and quality monitoring prior to controlled discharge, i.e. no runoff is pumped directly back into the site drainage from the pump chamber;
- C. additional spill containment capacity provided onsite through combination of topography / kerbing (500m³), existing underground sumps (i.e. manhole, leachate pit and weighbridge sump – combined capacity 30m³) and new pump chamber (100m³) - providing a total site containment capacity of at least 9,130m³.
- D. fully automated pump chamber designed to divert both low and high flow events to the containment tank and to detect and warn the site operators of spillage of inventory;
- E. large containment tank also acts as buffer storage to ensure quality monitoring of contents, retention of spills and controlled discharge by site operator of clean surface water back into site drainage system for discharge offsite; NOTE: daily discharge of contents under routine conditions to maintain full tank retention capacity.

3.2 Proposed Expansion

The site proposes to expand by adding an additional digester tank 28m in diameter, 11m in height with a working capacity of 7,200m³. The tank will be surrounded with a bund to capture any seepages, spills and minor leaks, see Figure 2 below.



Figure 2 Proposed Additional Tank



3.3 Secondary Containment Capacity

Ciria C736 states that for a containment system containing two or more tanks, the required capacity must be the greater of:

- 110 % of the volume of the largest tank within the bund, or
- 25 % of the combined volume of all tanks in that bund (unless tanks are hydraulically linked and treated as one).

To establish which criteria should be met the volume of the tanks on site are presented in Table 1 below.

Table 1: Tank Capacities

Tank	Capacity (m ³)
Fermenter 1 (BE1)	5,950m ³
Fermenter 2 (BE2)	5,950m ³
Fermenter 3 (BE5)	8,587m ³
Post Fermenter (BE3)	4,950m ³
Final Storage Tank 2 (BE6)	8,587m ³
Proposed Tank	7,200m ³

With regards to the required capacity the largest tank has a capacity of 8,587m³ therefore 110% of this tank is 9,445m³. Using the 25% of combined volume method the required capacity would be 10,306m³.

Therefore, as 25% of the combined capacity is the greater amount the site should aim to provide a spill attenuation for this scenario.



Currently the site has a storage capacity of $9,130\text{m}^3$ and would need to gain a further $1,176\text{m}^3$ of storage capacity to meet the required $10,306\text{m}^3$. This can be achieved by the addition of bunding around the proposed tank. The proposed bund area is circa $1,600\text{m}^2$ minus the new tank (660m^2) and attenuation tank (35m^2) giving a net area of 905m^2 . Therefore, the proposed bund around the new tank needs to be a minimum of 1.30m in height. Whilst the additional bund will provide limited additional capacity for the existing tanks it should be noted that the spill containment storage capacity exceeds 110% of any single tank and it is very unlikely that there would be simultaneous catastrophic failure of 2 or more tanks.

4.0 Closure

As presented above it is possible to incorporate a new tank and bund within at the Forty Foot Road AD plant and integrate it into the existing secondary containment system and maintain a suitable attenuation capacity. Whilst the additional bund will provide limited additional capacity for the existing tanks it should be noted that the spill containment storage capacity exceeds 110% of any single tank and it is very unlikely that there would be simultaneous catastrophic failure of 2 or more tanks.





Making Sustainability Happen