

Proposed Storage Facility

Technology & Logistics Centre

Drainage Impact Report
Rev A

Rolls Royce Motors Ltd

22 July 2021

Quality information

Prepared by	Checked by	Verified by	Approved by
Kinga Wec Associate Director	Mike Wells Technical Director	Anne Farmer Associate Director	Dominic Howgego Regional Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
A	26-Jul-21	Additional Details	MW	Mike Wells	Technical Director

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

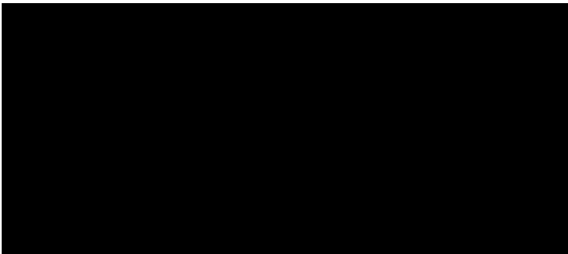
Rolls Royce Motors Ltd

Prepared by:

Mike Wells BSc CEng MICE
Technical Director Civil Engineering
Buildings & Places



AECOM Limited
The Colmore Building
Colmore Circus Queensway
Birmingham B4 6AT
United Kingdom



© 2021 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1. Introduction..... 5

2. Background..... 5

3. Discussion 5

Drainage areas..... 7

Drainage strategy proposed..... 7

Water quality..... 7

4. Conclusions 7

Appendix A 9

Drainage Plan 9

1. Introduction

- 1.1 Rolls Royce Motors instructed AECOM UK to provide a drainage impact report in support of the application to erect a shelter structure within the truck manoeuvring area adjacent to their logistics facility at Oldlands in Bognor Regis.
- 1.2 This report comments on the impact that the proposed temporary structure will have on the operation and maintenance of the existing surface water drainage system for the facility and on the associated flood risks.

2. Background

- 2.1 The existing facility was constructed in two phases with two planning consents. Phase 1 was consented in 2014 and comprised the two main buildings. The surface water drainage for Phase 1 was attenuated in an open pond that lies to the east of the facility.
- 2.2 Phase 2 was consented in 2016 and extended the building to the east by a number of bays together with a related extension to the concrete slab. A crated attenuation tank was constructed beneath the concrete slab to provide the additional attenuation volume required by the greater area now draining to the surface water outfall.
- 2.3 The proposal to erect a storage facility on the extended hardstanding area means that some of the surface water drainage infrastructure will be enclosed by this structure. This report discusses the impact of this on the operation and maintenance to the surface water drainage system.
- 2.4 Separately, Planning Permission was granted for two additional temporary external structures in 2019 (BE/91/18/PL & BE/137/18/PL), however neither structures were constructed.

3. Discussion

3.1 Physical Impact

- 3.1.1 The storage facility is a clad portal frame structure that is clad at the gable ends and open on the sides. The braced bays are provided at each end of the structure. The facility is located as shown on the proposed Drainage Plan on Drawing 21058-BGL-XX-XX-DR-S-00100-P1 in Appendix A. It straddles the existing filter drain that collects the surface water from the service yard.
- 3.1.2 Foundation pads are provided, which are 2.8m x 2.8m with a founding depth of 1.25m below the existing surface or approximately 1.11m AOD.
- 3.1.3 A Powertech Aqua Conder CNS80s fuel and oil separator is located beneath the north western corner of the location of the proposed storage facility. The drainage strategy for the new facility includes for relocating this to the north west in order to take it out of the influence zone of the foundations.
- 3.1.4 There is an attenuation tank adjacent to the west of the proposed storage facility. This is a crated tank by Hewitech, comprising their Variobox Traffic product which has a vertical compressive strength of 400kN/m² and a lateral compressive strength of 100kN/m².

- 3.1.5 The invert of these units is recorded at a level of -0.483m AOD according to the As-Built survey and is located 3.0m away from the face of the proposed storage facility and 1.9m from the nearest edge of the foundation pads.
- 3.1.6 The foundation level is at 1.11m AOD (see 3.1.2 above) so that the invert of the attenuation tank is 1.593m, or approximately 1.6m, below the foundation level and at a distance of 1.9m. The attenuation tank is therefore fully outside the 45degrees load influence line from the underside of the foundation pads and will not take any additional loading as a result of the proposed facility. Refer to Figure 1 below.

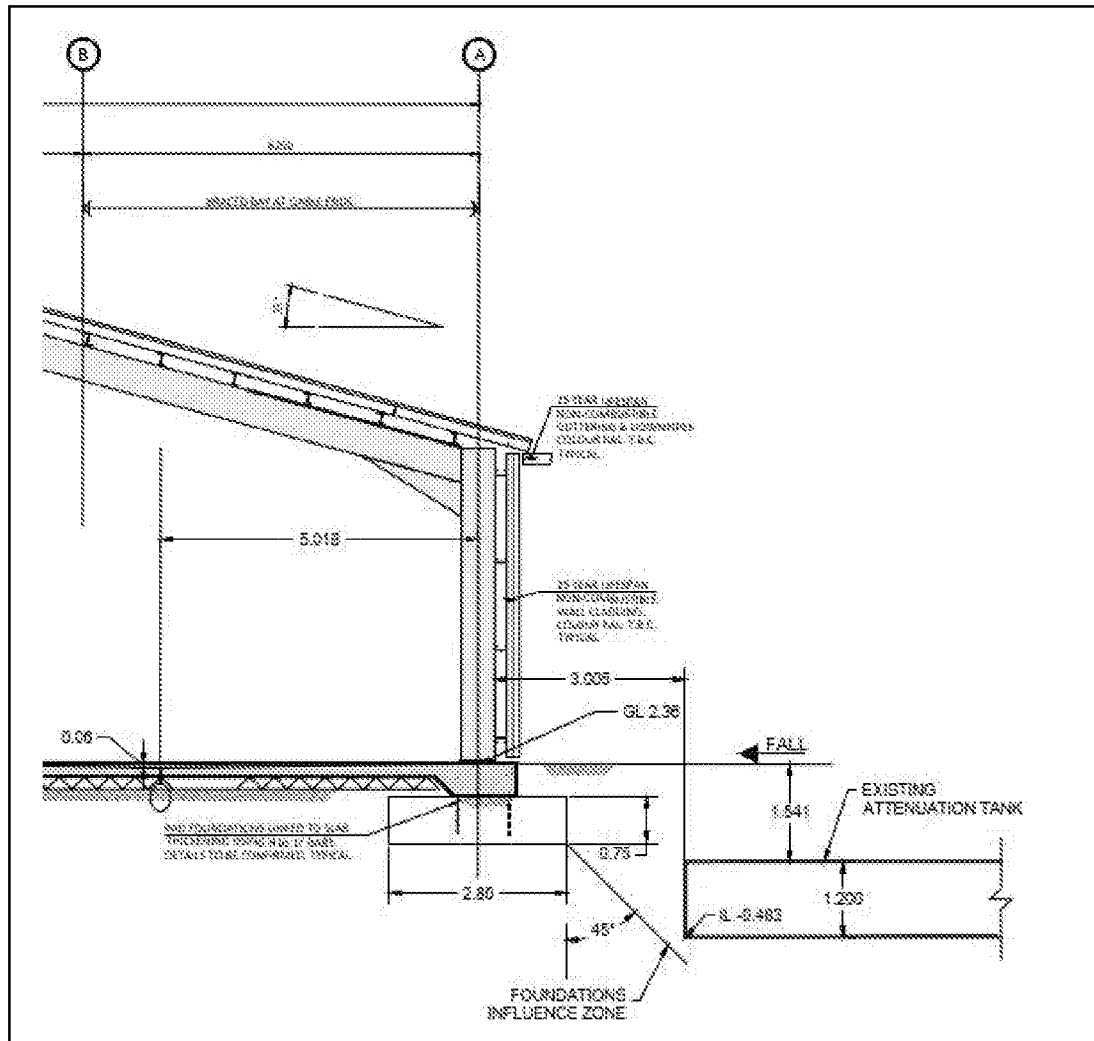


Figure 1 Sketch showing Foundation proximity to the Attenuation Tank

- 3.1.7 Two other drainage assets will be impacted by the storage facility. Currently the service yard drains to a central filter drain that collects to the fuel and oil separator described in 3.3 above. The long sides of the facility are open and there is no requirement for the floor area within the storage facility to be dry and, as a result, it is proposed to retain the existing levels within the area covered by the roof of the structure, and replace the affected length of the existing filter drain with a new drainage channel (Qmax or similar). The proposed drainage channel is then to connect via a new manhole and an oil separator into the existing crated attenuation tank.

3.2 Hydrological Impact

Drainage areas

- 3.2.1 The current proposals do not increase the existing hardstanding areas, therefore, we anticipate no increase in the attenuation tank volumes requirements as part of the proposed works

Drainage strategy proposed

- 3.2.2 Refer to Drawing 21058-BGL-XX-XX-DR-S-00100-P1 in Appendix A for the proposed surface water drainage strategy.
- 3.2.3 Based on the proposed structure layout, it is proposed that the roof rainwater pipes connect to the attenuation tank as indicated.
- 3.2.4 The existing filter drain is to be replaced with a new drainage channel (Qmax or similar), over the affected length. It is then to connect into via a new chamber into the proposed Oil separator.

Water quality

- 3.2.5 As the surface water strategy for the site remains largely intact, and the existing treatment features are being retained (although relocated to suit new layout), we don't anticipate any adverse impact on the quality of the of the site run-off.

Flood Risk

- 3.2.6 The location of the proposed storage area, along with a significant proportion of the entire facility, is shown on the EA Flood Mapping as within Flood Zone 2. We would refer to the Flood Risk Assessment carried out by Hydrock Consultants (*Hydrock Consultants Ltd, June 2014. Land at Oldlands Farm, Bognor Regis, West Sussex: Flood Risk Assessment and Drainage Strategy. Ref R/14443/001*) in support of the original planning application reference BE/73/14/PL dated 24/08/2014, which details the design of a flood compensation scheme that was implemented as part of the original construction works. These works took the entire Rolls Royce Motors facility out of Flood Zone 2.
- 3.2.7 It is unfortunate that the EA Mapping still records the Flood Zones as they were prior to the works carried out in 2015. The situation remains as it was for Planning Application Ref BE/137/18/PL dated 21/12/2018 for a Temporary Logistics Building and the associated FRA in which Arun District Council accepted that the site technically lies outside Flood Zone 2 in that the annual risk of flooding is less than 0.1%.
- 3.2.8 Therefore, as a result of the works carried out at the time of the original development of this facility, there are no flood risk issues associated with this proposal.

4. Conclusions

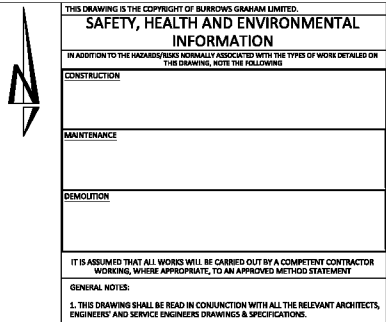
- 4.1 The erection of the proposed steel-framed storage structure as set out in this planning application and with the surface water drainage strategy indicated on Drawing 21058-BGL-XX-XX-DR-S-00100-P1 will not physically impact the existing drainage either structurally or in terms of maintenance access.
- 4.2 The surface water drainage review of the site highlighted no risks related to the potential flooding of the site, nor increased risks of potential contamination. The strategy demonstrates that it is feasible to drain the surface water run-off from the proposed structure without increasing the overall run-off from the site, and therefore no new/additional attenuation structures or further treatment features are required as part of this scheme.

- 4.3 Based on the information provided within this drainage strategy, the risk of flooding on and off site has not been increased.

Appendix A

Drainage Plan

21058-BGL-XX-XX-DR-S-00100-P1



P1	07/07/21	JT	Preliminary Issue.	MG
REV	DATE	BY	REVISION	CHK'D

CLIENT

Glencar
CONSTRUCTION

**Burrows
Graham**

PROJECT

Rolls Royce Bognor Regis - Proposed Yard Enclosure

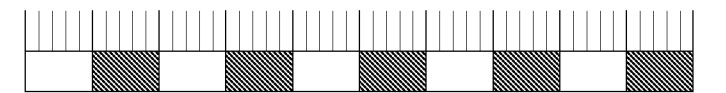
DRAWING TITLE
Drainage Plan

DRAWING STATUS	DRAWN BY
Preliminary	JT

SCALE @ A0 1:200 / 1:1000	DATE 07/07/21	CHECKED BY MG
------------------------------	------------------	------------------

DRAWING No	REV
31252 DCL VM VM DP 3 33133	B1

21058-BGL-XX-XX-DR-S-00100 P1



SCALE IN METRES

Site Plan
(Scale 1:1000)

[REDACTED]

[REDACTED]