FCA and Surface Water Drainage Strategy - Addendum

To:	Chris Emery	**From:**	Martin Baines
Company:	Kronospan Ltd	**SLR Consulting Limited**	
cc:	Emily Owen, SLR	**Date:**	19 July 2023
		Project No.	410.V05415.00009

RE: Kronospan Lorry Park and Access Road
Revised Design and Stakeholder Response to Flood Consequence Assessment

Introduction

Kronospan are proposing to develop a new access road, lorry park, weighbridge, wood storage area and substation on land to the north of their existing operations at Holyhead Road, Chirk, LL14 5NT. As part of the initial consultation process, agreement has been reached with stakeholders with regard to a reduction in scale of the proposed lorry parking area.

Documentation was prepared and submitted based on the original plans (with the larger lorry park area) and detailed comments were received from stakeholders on this documentation.

SLR Consulting (SLR) prepared a Flood Consequence Assessment (FCA) for the development proposals and a surface water drainage strategy to manage runoff from the development areas.

This technical note reviews the submitted FCA report against the revised development plans and includes a revised surface water drainage strategy plan.

Flood Consequence Assessment

The Flood Consequence Assessment was prepared by SLR and issued in December 2022 (reference 416.05415.00009). The assessment found that the majority of the proposed development is not within an area at risk for flooding.

Floodplain Compensation

The very eastern edge of the earth embankment for the lorry park platform and the wetland area is indicated to encroach within the fluvial floodplain extents for the Afon Bradley watercourse. These encroachments are reported in the FCA to be minimal and any variation to flood extent would be an increase to the applicant's own development land on the western side of the river, away from the development.

Comment has been received from Natural Resources Wales (NRW) which raises concern over the proximity of Afon Bradley Farm to the proposed development and the potential for a loss of floodplain storage to affect flood risk at this location. NRW have requested that *"The loss of flood storage will need to be quantified and any potential impacts on flood flow routes resulting from the development should be assessed. Any loss of flood storage resulting from the development should be compensated for, calculated on level for level basis for various return periods and this may require detailed modelling depending on the quantification of losses."*

SLR will undertake the required calculations in order to determine the loss of floodplain storage and will include plans to show where this floodplain loss will be returned to the floodplain on the west of the river, on a level for level basis.

Surface Water Drainage Strategy

The surface water drainage strategy has been designed to manage runoff from a 1% annual exceedance probability (AEP) event and includes an allowance for climate change on peak rainfall intensity to cover the proposed life of the development.

A revision to the surface water drainage strategy has been prepared to reflect the reduction in area for the lorry park. It should be noted that there has been no reduction in the proposed attenuation within the surface water drainage strategy and as such the design is considered conservative with regard to the control of runoff volumes. A copy of the revised surface water drainage strategy plan is included at Appendix A.

Potential Culvert Blockage

The proposed drainage strategy includes two on-line wetland areas which are downstream of the lorry park, substation, storage areas and access road. The southern wetland area discharges via a piped discharge which passes under the access track to Afon Bradley Farm, into the northern wetland area.

NRW have raised concerns over the potential for blockage of this piped drainage connection between the two wetland areas and the potential for this to affect downgradient areas such as Afon Bradley Farm. The revised drainage design includes a designated high level overflow point from the southern wetland area along the western embankment, adjacent to the Afon Bradley. This overflow will ensure any blockage of flows at the culvert to the northern wetland would route into the river. This routing mimics existing local hydrology and will not increase flood risk off site, including at the Afon Bradley Farm.

Water Quality and potential Impact on Downstream Receptors

Concern was raised by NRW over the potential for water quality impact on environmentally sensitive areas downstream of the site. These comments were received in response to an earlier iteration of the drainage design. Further detail has since been added to the surface water drainage strategy including details of oil interceptors, penstock controls and inclusion of the roundwood storage area within the overall drainage strategy. These details will address the points raised with regard to pollution prevention.

The surface water drainage strategy will be subject to a separate SuDS Approval Body (SAB) application with Wrexham Council. This process will ensure the relevant criteria are met for the proposed drainage strategy with regard to control of runoff volumes and water quality.

Appendix A: Surface Water Drainage Strategy Plan

NOTES

1. This drawing to be used for Planning Approval only and not for construction. Full detailed design, coordinated with the project Engineer will be required for construction stage information.
2. Do not scale this drawing.
3. Road Levels are indicative and based upon information supplied to SLR by the Client, levels to be detailed by Others
4. Road Construction Details to be prepared by Others as part of the detailed design.
5. White lining, Lamp posts & Bollards are shown indicatively. Design and details are by Others.
6. The Contractor is to remain responsible for the temporary works and ensuring stability is maintained throughout the works.
7. NOTE that the drainage will require deep excavations and that this will need to be fully assessed by the Contractor with appropriate method statements prepared.
8. All drainage to be kitemark certified and installed in accordance with the latest edition of 'Sewers for Adoption' and 'Design and Construction Guidance (DCG)'.

LEGEND

- TYPICAL SITE ROADS
  Impermeable dense bitumen macadam construction by Others.
  (1.00 run-off coeff)
- LORRY PARKING AREA
  Permeable bitumen macadam construction by Others.
  (1.00 run-off coeff)
- TYPICAL FOOTPATHS
  Impermeable dense bitumen macadam construction by Others.
  (1.00 run-off coeff)
- SUBSTATION SURFACING
  Semi-permeable construction by Others.
  (0.25 run-off coeff)
- STORAGE AREA SURFACING
  Impermeable construction by Others.
  (1.00 run-off coeff)
- STANDARD CAR PARK
  Permeable construction by Others.
  (1.00 run-off coeff)
- WETLAND AREA
  planting / landscaping by Others.
  (1.00 run-off coeff)
- Indicates proposed falls to new surfacing.
- Indicates proposed Surface Water drainage.
- Indicates land drainage with 'carrier' pipes.
- Indicates StormBlock attenuation tank.
- Indicates gully location.
- SW 01 — Indicates Stormwater manhole.
- X.XXX — Simulated flooding during a 1:100 year storm with 40% allowance for climate change (m³).
- Overland exceedance route.

Need to alter proposed ground levels to provide cover to SPEL Puraceptor. (Min ground level = 85.000)

Need to confirm levels in ditch / stream. (Outlet IL=82.930m AOD assumed)

Complex Flow Control

Provide overflow spillway at 84.000m AOD

Wetland Attenuation Area
Permanent water level = 83.400m AOD
Top of bank = 84.000m AOD
Plan Area (0m deep) = 516.8m²
Plan Area (0.6m Deep) = 835.4m²

Banking to be extended to provide cover to the pipe

Complex Flow Control

Wetland Attenuation Area
Permanent water level = 88.400m AOD
Top of bank = 89.000m AOD
Plan Area (0m deep) = 2,633.6m²
Plan Area (0.6m Deep) = 3,060.9m²

Provide overflow spillway at 89.000m AOD

SPEL Puraceptor ref. P700/1C/ESR

StormBlock Attenuation Tank
Base level = 90.020m AOD
Top of tank = 91.700m AOD
Plan Area = 1569.9m²
Depth = 1.680m (2.5 blocks deep)
Porosity = 95%

Porous Pavement, depth of attenuation storage = 600mm.

Roundwood Storage 3865m³

Roundwood Storage 2765m³

Wetland Area 1.

Wetland Area 2

Afon Bradley

Shropshire Union Canal (Llangollen Branch)

WHITEHURST ROUNDABOUT

A 5

B 5070

Parkgate Cottage

Lodge Farm Cottage

Shelter

Afon Bradley Farm

Marina

Towing Path

Council Depot

Kilns (disused)

Level Crossing

Sewage treatment plant

Lagoon

Lagoon

Mast

Gas Governor

Hyfryd

Kronoplus

Logyard

East Warehouse

Upper Wharf

Briar Bank

CHARLES STREET

WERN

OFFA

CROGEN

Play Area

Sinks

Issues

MP 193.75

MP 193.5

94.5m

99.3m

102.0m

0 10 20 30 40m 60 80 100
Metres
1:1250

Revision	By	Chk'd By	Date	Comments
P1	DH	IR	JUN 23	Site layout updated. Drainage amended to suit.
P0	IR	SDE	JAN 23	Initial issue

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Project
CHIRK FLOOD RISK AND DRAINAGE ASSESSMENT

Drawing Title
SURFACE WATER DRAINAGE STRATEGY PLAN

Scale
1:1250 @ A1

Date
JANUARY 2023

Drawing Number
410.005415.00009/DR01

Revision
P1

PRELIMINARY