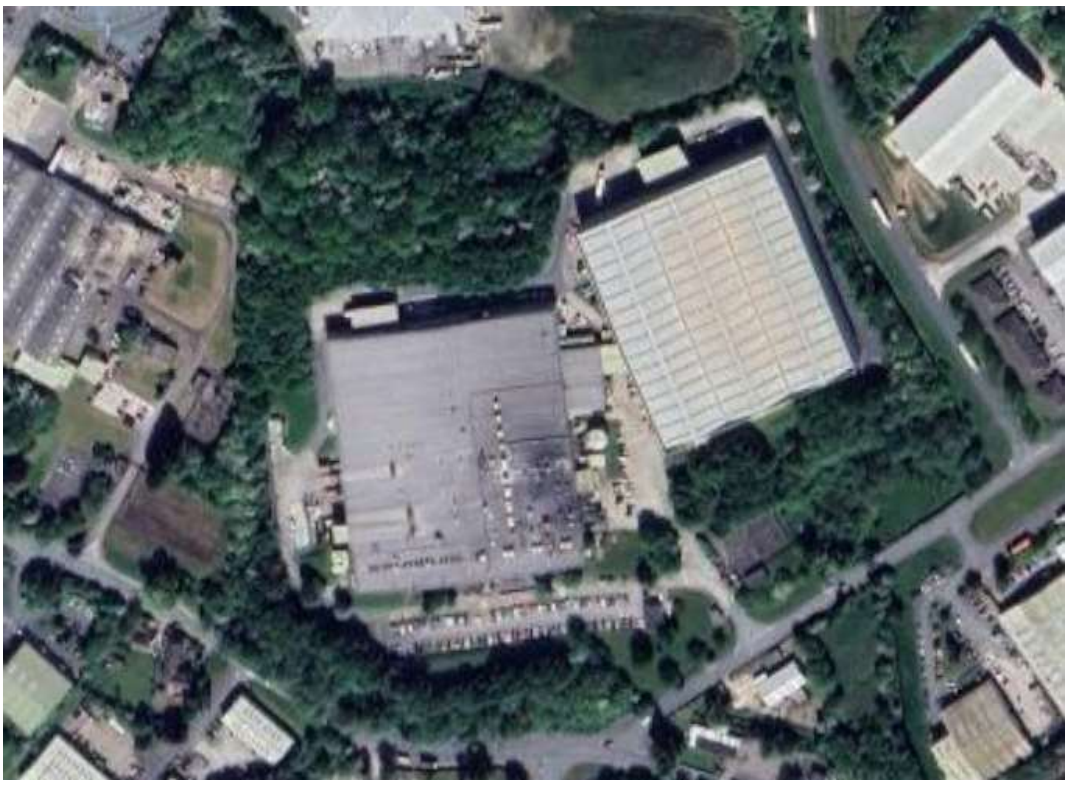
Ardagh Wrexham Line 5

Flood Consequences Assessment



Prepared for Ardagh Metal Packaging
Bridge Road, Wrexham Industrial Estate, Wrexham, LL13 9PS

Flood Consequences Assessment Job Number: 25043 Date of First Issue: 10/06/2026

Control Sheet

Please ensure when referencing this document that you are using the most recent issue in accordance with the table below and ensure previous issues of this document are destroyed or marked as superseded.

Document Issue Register

Author		Checked		Approved By
Emily Lloyd		AJC		Andy Clarke
Issue	Date	Description of Amendment	By	Checked
0	10/06/26	issued for submission pack.	TACP Architects	AJC
1				
2				
3				

Contents

1. Executive Summary

2. Introduction

3. Site Description

4. Development Description

5. Policy and Guidance Context

6. Baseline Flood Risk Review

7. Sources of Flooding

8. Existing Drainage and Water Management

9. Summary of Flood Risks and Mitigation

10. Drainage Strategy

11. Flood Consequence Assessment

12. Impact on Flood Risk Elsewhere

13. Flood Mitigation and Design Principles

14. Climate Change

15. Residual Risk and Emergency Planning

16. Conclusions

17. Document Control and Sign-off

18. Appendices

1. Executive Summary

This Flood Consequences Assessment (FCA) has been prepared in support of the proposed expansion of production operations at Ardagh Metal Packaging, Bridge Road, Wrexham Industrial Estate. The FCA addresses flood risk, drainage strategy and design mitigation in accordance with Technical Advice Note 15 (TAN15) and Natural Resources Wales guidance.

The proposed drainage strategy is based on a whole-site approach. Attenuation is to be designed to take the entire site storm drainage network, rather than only new roof areas, and a new wastewater treatment plant is to be provided to take all foul and process drainage flows across the site. Subject to detailed civil engineering design, hydraulic confirmation and final drainage calculations, the development can be made safe for its lifetime and can be delivered without increasing flood risk elsewhere.

2. Introduction

This report has been prepared to support a planning application for Ardagh Metal Packaging, Wrexham. The purpose of the FCA is to assess the consequences of flooding to and from the proposed development, identify the principal sources of flood risk, and set out the drainage and mitigation measures required to support determination of the planning application.

3. Site Description

The application site is an existing industrial manufacturing facility located at Bridge Road, Wrexham Industrial Estate. The site includes the main production building, warehouse building, service yards, access roads, parking areas and associated infrastructure. The wider project information indicates that the site is constrained by existing woodland belts, utilities, drainage infrastructure and internal circulation needs, all of which inform the flood and drainage response.

4. Development Description

The proposed development comprises expansion of production operations through the addition of a fifth production line and associated site-wide works. These works include building extensions, ancillary plant, modified service yards, parking changes, an attenuation system and a new wastewater treatment plant. The design intent is that attenuation will serve the whole site storm drainage network and the new treatment plant will serve all foul and process wastewater flows.

5. Policy and Guidance Context

The assessment has regard to Planning Policy Wales, Future Wales and Technical Advice Note 15 (TAN15): Development, flooding and coastal erosion. The FCA is prepared in the context of Natural Resources Wales guidance on Flood Consequences Assessments, climate change allowances and the need to demonstrate that development is safe for its lifetime and will not increase flood risk elsewhere.

6. Baseline Flood Risk Review

Previous site appraisal and project information indicate that part of the proposed development area lies within Natural Resources Wales Flood Zones 2 and/or 3 for certain flood sources. This establishes the requirement for a Flood Consequences Assessment and means that the final planning submission must include relevant flood evidence, level design and drainage mitigation. The FCA therefore adopts a precautionary, policy-led approach focused on managing both direct flood consequence and indirect drainage effects.

7. Sources of Flooding

Potential sources of flooding relevant to the site include fluvial flooding, surface water runoff, drainage exceedance and, where relevant, groundwater or artificial sources. The increase in non-permeable surface area associated with the proposals is a key consideration, together with the need to maintain safe development, protect critical operational infrastructure and avoid transferring flood risk elsewhere.

8. Existing Drainage and Water Management

Historic drainage information for the site identifies existing surface and foul drainage routes, together with an interceptor serving parts of the service yard. The project information indicates that significant modifications to existing drainage routes are likely to be required as part of the development. Current wastewater treatment arrangements are proportionate to existing operations but upgrades will be required to accommodate the proposed increase in production output and associated staffing.

9. Summary of Flood Risks and Mitigation

The key flood-related issues for the site are: (i) development within an existing flood risk context; (ii) increased storm runoff due to additional impermeable area; (iii) increased foul and wastewater loading; and (iv) the need to protect operational plant and infrastructure. The principal mitigation response is a whole-site drainage strategy, strategic attenuation to accommodate the full site storm network, and a dedicated wastewater treatment plant for all foul and process flows. Additional mitigation includes level setting, exceedance routing, controlled discharge and climate change allowances.

10. Drainage Strategy

The drainage strategy has been developed on a site-wide basis. Attenuation is to be designed so that it takes the whole site storm drainage, including both retained and new impermeable areas. This represents a strategic betterment approach and is intended to improve overall drainage performance across the site, rather than simply mitigating isolated new roof areas. The preferred approach is to provide attenuation in a location capable of linking into the wider drainage network and accommodating the required storage volume following detailed civil engineering design.

In parallel, a new wastewater treatment plant is to be provided to take all foul drainage and process wastewater flows. This treatment-based approach is intended to address the increase in foul water and process discharges associated with operational growth, while also assisting with planning constraints linked to wastewater and water quality issues. Full details of the drainage and treatment systems are to be developed by the appointed civil engineer and coordinated with final site levels, discharge points and maintenance requirements.

11. Flood Consequence Assessment

The consequences of flood risk to the development relate principally to site operation, building thresholds, external circulation, drainage performance and the protection of process plant and associated utilities. The FCA therefore requires integration with detailed design, finished floor levels, drainage calculations and final hydraulic confirmation. The strategy set out in this report is designed to ensure that flood consequences are managed and that the site remains operationally resilient.

12. Impact on Flood Risk Elsewhere

A core purpose of the FCA is to demonstrate that the development will not increase flood risk elsewhere. The whole-site attenuation strategy is intended to manage storm runoff across the full site network, with controlled discharge at an agreed rate. By managing retained and proposed impermeable areas as one integrated drainage system and by providing dedicated foul/wastewater treatment, the design intent is to prevent increased runoff, drainage surcharge or off-site flood transfer. Final confirmation will depend on detailed calculations and civil engineering design.

13. Flood Mitigation and Design Principles

Key mitigation and design principles are as follows: new floors and vulnerable infrastructure should be set at appropriate levels above flood risk where required; exceedance flows should be routed safely away from buildings and critical plant; the surface water system should be designed around whole-site attenuation and controlled discharge; and all foul and process flows should route through the proposed wastewater treatment plant. These measures are to be supported by final level design, maintenance arrangements and climate resilience allowances.

14. Climate Change

The final FCA and drainage design should allow for relevant climate change impacts, including rainfall intensity and flood scenario allowances over the lifetime of the development. The whole-site strategy is intended to support resilience under future conditions by providing a coordinated drainage response rather than isolated local mitigation.

15. Residual Risk and Emergency Planning

Residual risk is associated with extreme events beyond design assumptions, system exceedance, operational vulnerability and maintenance failure. These risks are to be managed through detailed engineering design, maintenance planning, plant protection, and safe circulation routing. If required by the final engineering assessment, emergency planning and access/egress considerations should also be documented in the planning pack.

16. Conclusions

This FCA covers the subject matter necessary for flood risk and drainage assessment. The proposed development strategy is based on attenuation designed to take the whole site storm drainage and a new wastewater treatment plant designed to take all foul and process drainage. Subject to detailed calculations, survey confirmation and final civil design, the development can be made safe for its lifetime and can be delivered without increasing flood risk elsewhere.

17. Document Control and Sign-off

This sheet records the issue status, revision history and sign-off approvals for the Flood Consequences Assessment.

Project Title	Flood Consequences Assessment – Ardagh Wrexham Line 5
Client	Ardagh Metal Packaging
Document Reference	25043
Revision	0
Issue Status	Final for submission

Revision History

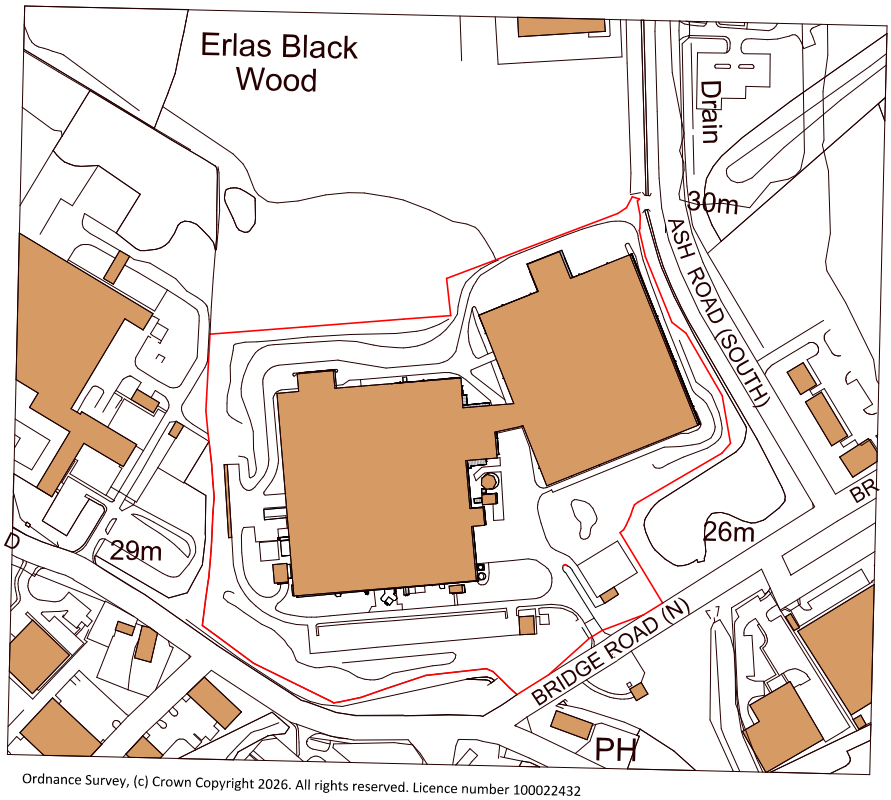
Revision	Date	Prepared By	Checked By	Approved By	Description
0	10 June 2026	Emily Lloyd	AJC	Andy Clarke	Final issue

Signatures

Prepared By	Checked By	Approved By
Name: Emily Lloyd	Name:	Name: Andy Clarke
Signature: [redacted]		
Date: 10 June 2026	Date: 10 June 2026	Date: 10 June 2026

18. Appendices

Appendix A – Site Location Plan



Ordnance Survey, (c) Crown Copyright 2026. All rights reserved. Licence number 100022432

North

0m 25m 50m 75m 100m 125m

VISUAL SCALE 1:1250

General Notes

1. Contractor to verify all dimensions and check level datums on site
2. All of the designs are the sole property of TACP Architects Ltd and may not be used without their written agreement
3. All prints, specifications and their copyright are the property of TACP Architects Ltd
~~4. Do not scale off drawing.~~
5. All dimensions shall be checked on site before commencement of shop drawings, manufacture and all discrepancies must be reported to TACP Architects Ltd

Revisions

Rev	Date	Description	By	Check
P01	01/06/26	batch updated to client comments & Proposed Site plan to Planners Comments	EL	AJC

Client: Ardagh Meyal Packaging

Project Title: Ardagh Wrexham Line 5

Sheet Name: Location Plan

Classification: Status:

Scale	Date	Drawn By	Checked By	Office
1 : 1250@A1	29/04/26	EL	AC	Wrexham

Job Number	Project+Originator+Zone+Level+Type+Role+Number	Revision
25043	AWF-TACP-WHES- DR-A-7000	P01

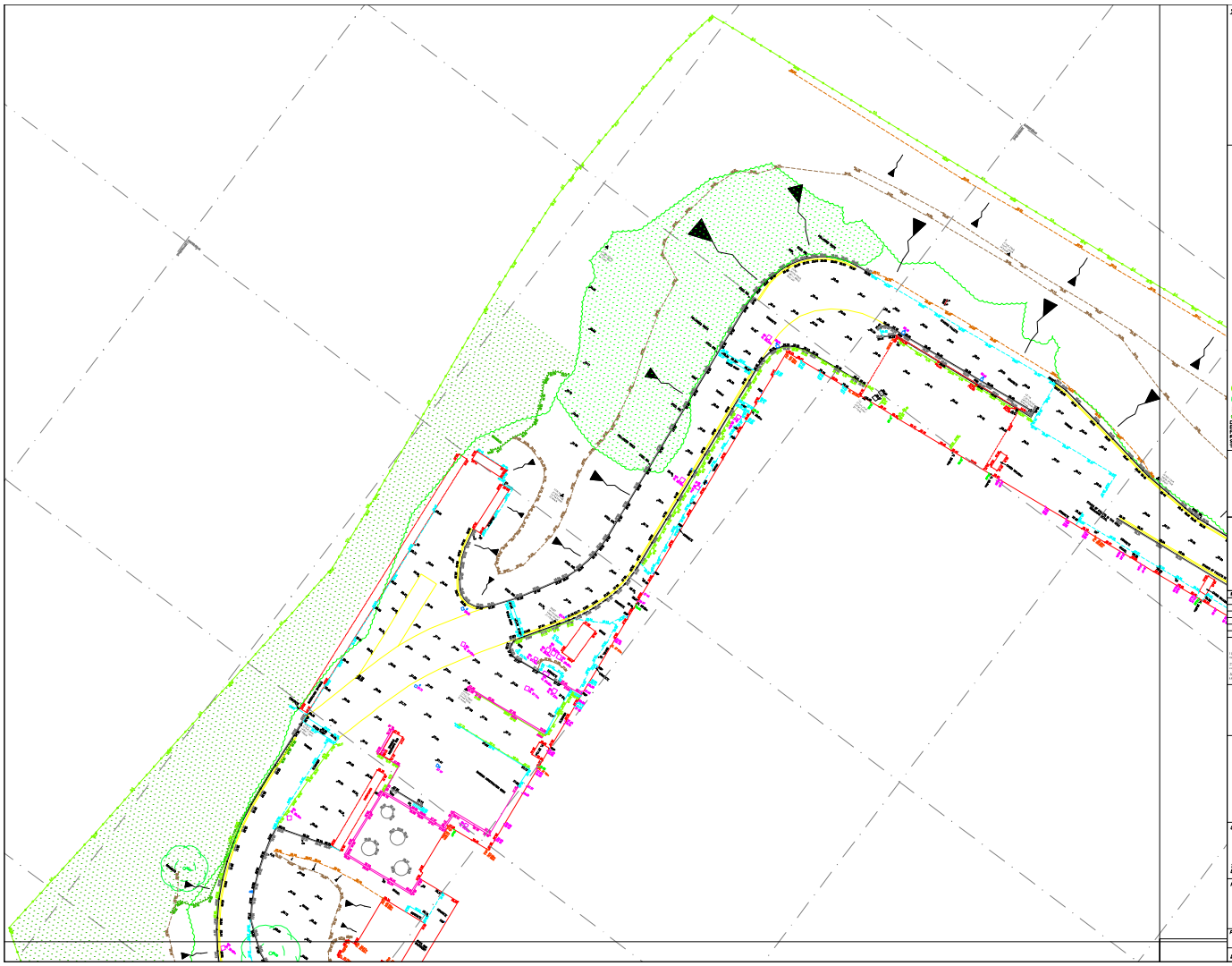
TACP Architects Ltd

Pembroke House
Ellice Way, Wrexham Technology Park,
Wrexham, LL13 7YT
01978 291161

admin@tacparchitects.co.uk
www.tacparchitects.co.uk

TACPArchitects

Appendix C – Topographical Survey



Site Grid North

Symbols/Abbreviations (Where Applicable):

- AV: AIR VALVE
- BCN: BEACON
- BH: BOREHOLE
- BM: BENCHMARK
- C/O: BOLLARD
- CAP: CAP TOP
- CBR: CABLE RISER
- CS: CABLE STAY
- CI/CH: CI.C.TV INSPECTION CHAMBER
- CB/TBX: COMMUNICATIONS CABLE BOX, ETC.
- CCTV: C.C.T.V. CAMERA
- C.P.IT: CATCH PIT
- ED: ELECTRICITY COVER
- EP: ELECTRICITY POLE
- FH: FIRE HYDRANT
- FP: FLAG POLE
- G: GULLY
- GV: GULLY (ROUND)
- GV: GAS VALVE
- IC: INSPECTION COVER (SQUARE)
- IC: INSPECTION COVER (ROUND)
- LC: LAMP COLUMN
- KO: KERB OUTLET
- LB: LETTER BOX
- LC: LIGHTING COLUMN
- MH: MANHOLE
- LAMP POST/BUS STOP
- MH: MANHOLE (SQUARE)
- MH: MANHOLE (ROUND)
- M: MONITOR
- MP: MOP
- RE: RODDING EYE
- RS: ROAD SIGN
- SP: SIGN POST
- SN: STREET NAME PLATE
- ST: STOP TAP
- SV: SCOP VALVE
- TB: TELEPHONE CALL BOX
- TP: TELEPHONE
- TP: TELEGRAPH POLE
- TP/EP: TELEGRAPH POLE/ELECTRIC POLE
- T/IC: TELECOM E INSPECTION COVER
- WM: WATER METER
- WV: WATER VALVE
- GATE
- DEFINED POINT
- CONTROL POINT
- TREE (CONIFEROUS)
- TREE (DECIDUOUS)
- FOLIAGE
- HEDGE

DPC 99.99m DAMP PROOF COURSE LEVEL
EL 99.99m EAVES LEVEL
FL 99.99m FLOOR LEVEL
RL 99.99m RIDGE LEVEL
SL 99.99m SOFFIT LEVEL
TL 99.99m THRESHOLD LEVEL

FENCE DESCRIPTIONS:

- B/W: BARBED WIRE FENCE
- C/B: CLOSE BOARDED FENCE
- C/L: CHAIN LINK FENCE
- C/M: CONCRETE METAL FENCE
- C/P: CONCRETE PANEL FENCE
- I/R: IRON RAILING FENCE
- P/R: POST AND RAIL FENCE
- P/W: POST AND WIRE FENCE
- S/W: POST AND SAWN FENCE
- S/M: STEEL PALISADE FENCE
- T/PAL: SAFETY BARRIER
- T/PAL: TIMBER PALISADE FENCE

SITE LAYOUT:

Revision Information

Rev	Date	Description
A	27/04/2026	Building elevation heights added

INFORMATION

NOTES

PM SURVEYS UK

PM Surveys UK Ltd
Unit 3, Queensferry Industrial Estate
Pentre
Flintshire, CH5 2DJ
Tel: 01244 852477
Email: info@pmsurveys.co.uk

Client Info

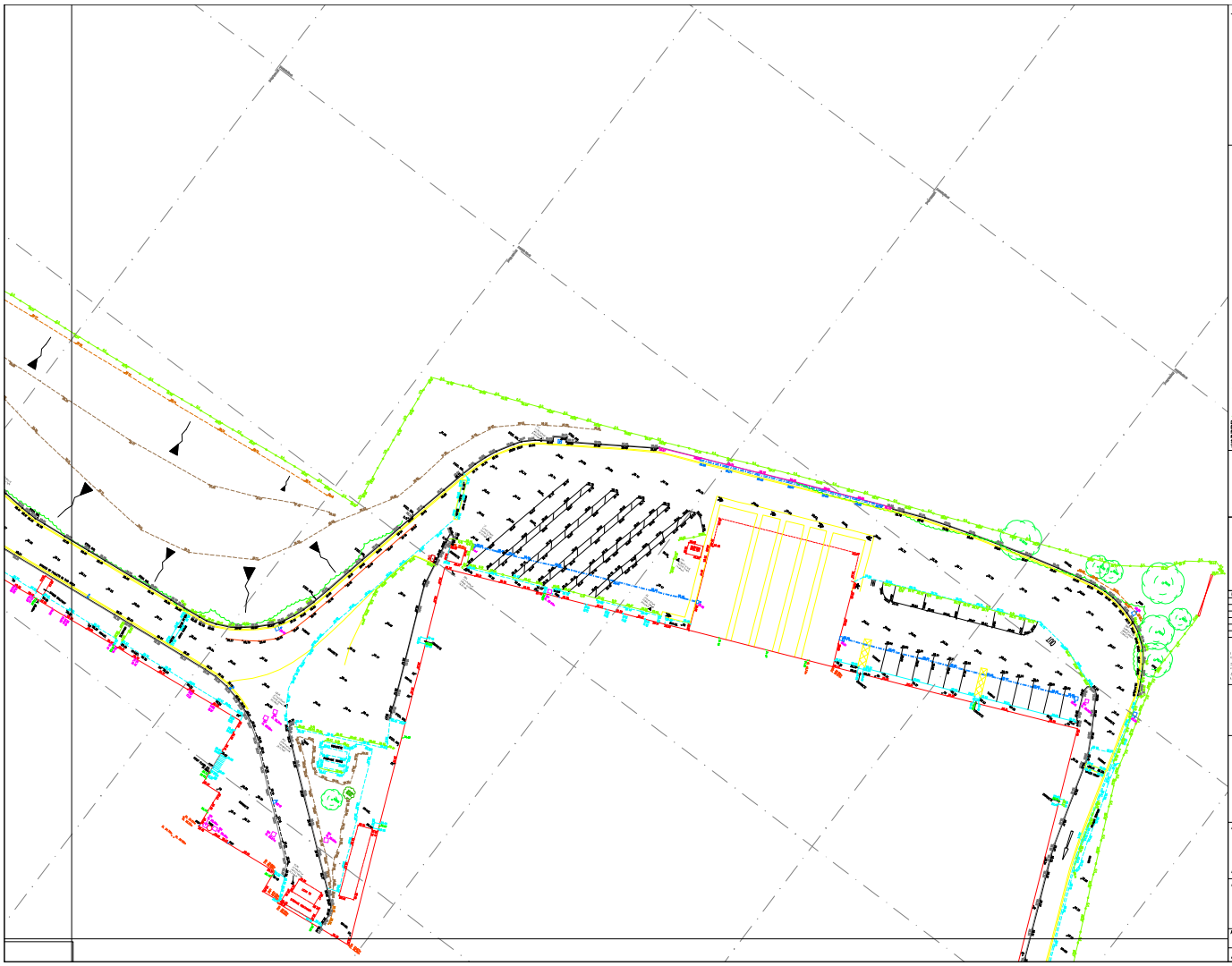
TACP Architects
Pembroke House
8 Bro Wen
Wrexham Technology Park

Tel:
Email: andy.collins@tacparchitects.co.uk

Project

Ardagh Metal Packaging
Topographical Survey

Project No		Surveyed By:	PD/JI
PMS25075-2	Sheet: A0	Drawn By:	MT
	Scale: 1:200	Approved By:	PM
Dwg PMS25075-2-T-01	Issued	17/04/26	



Site Grid North

Symbols/Abbreviations (Where Applicable):

- AV: AIR VALVE
- BCN: BEACON
- BH: BOREHOLE
- BM: BENCHMARK
- BOL/FD: BOLLARD
- CAP: CAP
- CAR: CABLE STAY
- CH: CHAMBER
- CATV: C.A.T.V. INSPECTION CHAMBER
- CB/TC: CONTROL BOX, CABLE BOX, ETC.
- CCTV: C.C.T.V. CHAMBER
- CP/T: CATCH PIT
- ED: ELECTRICITY COVER
- EP: ELECTRICITY POLE
- FB: FLOWER BED
- FH: FIRE HYDRANT
- FP: FLAG POLE
- G: GULLY
- GY: GULLY (ROUND)
- GV: GAS VALVE
- IC: INSPECTION COVER (SQUARE)
- IC: INSPECTION COVER (ROUND)
- LC: LAMP COLUMN
- MH: MANHOLE (SQUARE)
- MH: MANHOLE (ROUND)
- MON: MONITOR
- NP: NOTICE
- RE: RODDING EYE
- RS: ROAD SIGN
- SP: SIGN POST
- TP: TEST PEG/NAME PLATE
- ST: STOP TAP
- SV: STOP VALVE
- TCB: TELEPHONE CALL BOX
- TP: TELEPHONE
- TP: TELEGRAPH POLE
- TP/EP: TELEGRAPH POLE/ELECTRIC POLE
- TC: TELECOM R INSPECTION COVER
- TR: TRIAL PIT
- WM: WATER METER
- GATE
- DEFINED POINT
- CONTROL POINT
- TREE (CONIFEROUS)
- TREE (DECIDUOUS)
- FOLIAGE
- HEDGE

DPC 99.99m DAMP PROOF COURSE LEVEL
EL 99.99m EAVES LEVEL
FL 99.99m FLOOR LEVEL
RL 99.99m RIDGE LEVEL
S 99.99m SOFFIT LEVEL
T 99.99m THRESHOLD LEVEL

FENCE DESCRIPTIONS:

- B/W: BARBED WIRE FENCE
- C/B: CLOSE BOARDED FENCE
- C/L: CHAIN LINK FENCE
- C/P: CONCRETE PANEL FENCE
- C/P/L/P: CONCRETE POST & RAIL FENCE
- I/R: IRON RAILING FENCE
- P/R: POST AND RAIL FENCE
- P/W: POST AND WIRE FENCE
- S/B: STEEL BOARDED FENCE
- S/PAL: STEEL PALISADE FENCE
- S/BA: SAFETY BARRIER
- T/PAL: TIMBER PALISADE FENCE

SITE LAYOUT:

Revision Information

Rev	Date	Description
A	27/04/2026	Building elevation heights added

INFORMATION

1) Ordnance Survey, as at date of survey and as shown thereon. Further transformation to OSGM15.

2) All levels are related to Ordnance Datum Newlyn and are taken at the top of kerb unless noted otherwise.

3) Copyright of this drawing remains the property of PM Surveys UK Ltd. Do not scale from this drawing, to the extent of any discrepancy, other plans or PM Surveys UK Ltd.

NOTES

PM SURVEYS UK

PM Surveys UK Ltd
Unit 3, Queensferry Industrial Estate
Pentre
Flintshire, CH5 2DJ
Tel: 01244 852477
Email: info@pmsurveys.co.uk

Client Info

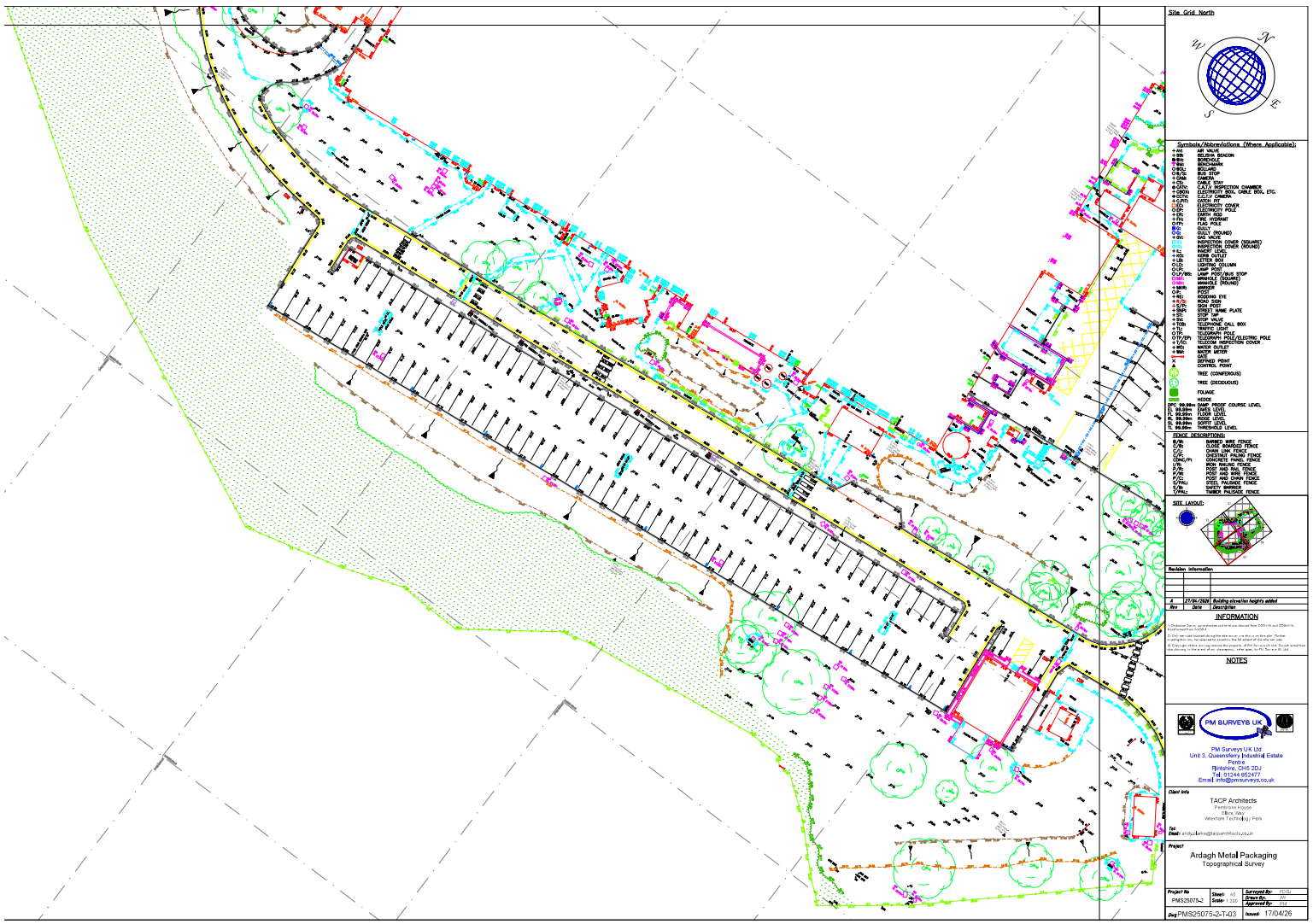
TACP Architects
Pembroke House
8 Bank Way
Wrexham Technology Park

Tel:
Email: andy.lloyd@tacparchitects.co.uk

Project

Ardagh Metal Packaging
Topographical Survey

Project No		Surveyed By:	PD/JJ
PMS25075-2	Sheet: A0	Drawn By:	MF
	Scale: 1:200	Approved By:	PM
Dwg: PMS25075-2-T-02	Issued:	17/04/26	



Site Grid North

Symbols/Abbreviations (Where Applicable):

AV: AIR VALVE
BCN: BOREHOLE BEACON
BH: BOREHOLE
BM: BENCHMARK
BOL: BOLLARD
CP: CAR PARK STOP
CH: CHAMBER
CW: CABLE TV/TV
CATV: C.A.T.V. INSPECTION CHAMBER
CB: CONTROL BOX, UTILITY, CABLE BOX, ETC.
CP: ELECTRIC CAR BOX
CPIT: CATCH PIT
EB: ELECTRICITY COVER
EP: ELECTRICITY POLE
FB: FLOWER BED
FH: FIRE HYDRANT
FP: FLAG POLE
GU: GULLY
GC: GULLY (ROUND)
GV: GAS VALVE
IC: INSPECTION COVER (SQUARE)
IC: INSPECTION COVER (ROUND)
KERB: KERB
KO: KERB OUTLET
LB: LETTER BOX
LC: LIGHTING COLUMN
LP: LAMP POST
LP/BS: LAMP POST/BUS STOP
MH: MANHOLE (SQUARE)
MH: MANHOLE (ROUND)
MON: MONITOR
P: POST
RE: REDDING EYE
RB: ROAD SIGN
SP: SIGN POST
SP: SIGN POST/NAME PLATE
ST: STOP TAP
SV: STOP VALVE
TB: TELEPHONE CALL BOX
TP: TELEPHONE POLE
TP: TELEGRAPH POLE
TP/EP: TELEGRAPH POLE/ELECTRIC POLE
T/IC: TELECOM INSPECTION COVER
TL: TRAFFIC LIGHT
WM: WATER METER
DATE
DEFINED POINT
CONTROL POINT
TREE (CONIFEROUS)
TREE (DECIDUOUS)
FOLIAGE
HEDGE
DPC 99.99m: DAMP PROOF COURSE LEVEL
EL 99.99m: EAVES LEVEL
FL 99.99m: FLOOR LEVEL
RL 99.99m: RIDGE LEVEL
SL 99.99m: SOFFIT LEVEL
TL 99.99m: THRESHOLD LEVEL

FENCE DESCRIPTIONS:

BW: BARBED WIRE FENCE
CF/W: CLOSE BOARDED FENCE
C/L: CHAIN LINK FENCE
CF/P: CONCRETE PALING FENCE
CF/P/Pr: CONCRETE PALING FENCE
I/R: IRON RAILING FENCE
P/R: POST AND RAIL FENCE
P/W: POST AND WIRE FENCE
S/W: STEEL WELDMESH FENCE
S/P/Mil: STEEL PALISADE FENCE
S/B: SAFETY BARRIER
T/P/Mil: TIMBER PALISADE FENCE

SITE LAYOUT:

Revision Information

Rev	Date	Description
A	27/04/2026	Building elevation heights added

INFORMATION

1) Reference Survey: control stations as set out and surveyed from OS1916 and OS8410, transformed from to OSGB 4.

2) Only services located during the site survey are shown on this plan. Further services may exist which are not shown on this plan. Prior to any excavation, the relevant authorities should be contacted to establish the exact location of their services.

3) Copyright of this drawing remains the property of PM Surveys UK Ltd. Do not scale from this drawing in the event of any discrepancy, refer query to PM Surveys UK Ltd.

NOTES

PM SURVEYS UK

PM Surveys UK Ltd
Unit 3, Queensferry Industrial Estate
Pentre
Flintshire, CH5 2DJ
Tel. 01244 852477
Email: info@pmsurveys.co.uk

Client Info

TACP Architects
Pembroke House
Office Way
Wrexham Technology Park

Tel:
Email: andy.lane@tacparchitects.co.uk

Project

Ardagh Metal Packaging
Topographical Survey

Project No	Sheet	Surveyed By
PMS25075-2	Scale 1:500	Drawn By
		Approved By
Dwg PMS25075-2-T-03		Issued 17/04/26

Appendix D – NRW Flood Map Extracts



Cyfoeth Naturiol Cymru
Natural Resources Wales

Flood Map for Planning - Basic
Ardagh 2

Legend

Rivers and Sea
- Flood Zone 3
- Flood Zone 2

Surface Water and Small Watercourses
- Flood Zone 3
- Flood Zone 2

TAN15 Defended Zones
- Rivers
- Sea
- Rivers and Sea

Scale at A3: 1:4,642

Date: 20/02/2026

0.2 0.1 0 0.2
km

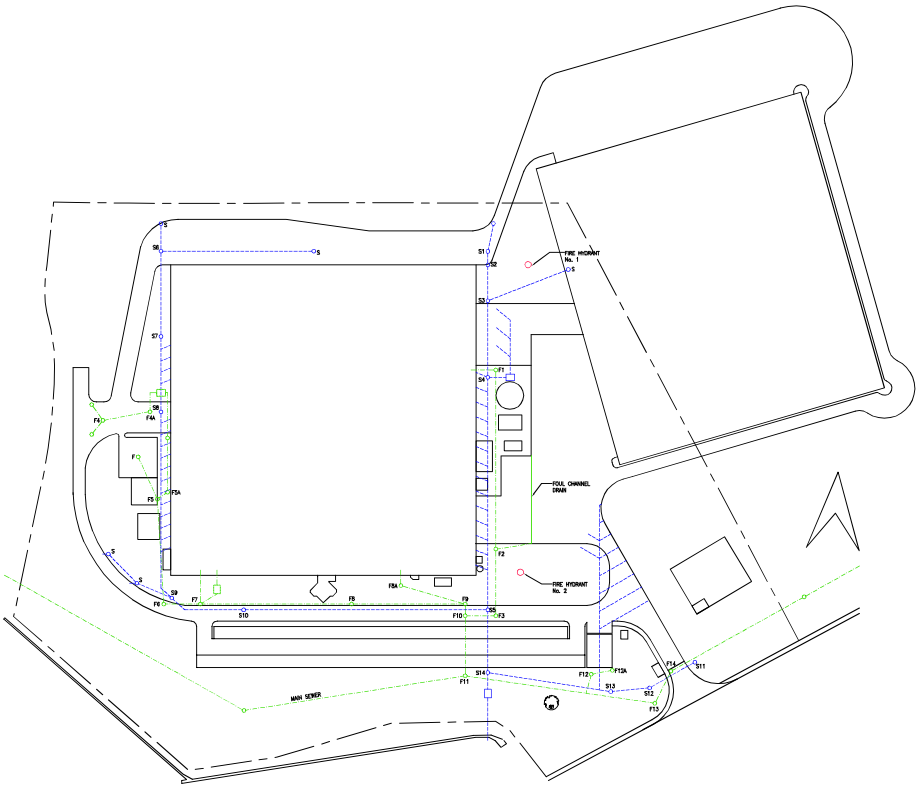
British National Grid

Disclaimer
https://naturalresources.wales/flooding/disclaimer-for-our-flood-and-coastal-erosion-risk-maps/?lang=en

© NRW/CNC. Some information derived from © UK Centre for Ecology & Hydrology © UKCEH, the Environment Agency © EA and Getmapping Plc and Bluesky International Limited, Defra, © Met Office and DARD Rivers Agency, © Cranfield University, © James Hutton Institute, © Ordnance Survey, © Land & Property Services. All rights reserved.

Appendix E – Utilities / Existing Drainage Records

DO NOT SCALE: Contractor to check all dimensions and report any omissions or errors



KEY:

SURFACE WATER

FOUL WATER

FIRE HYDRANT

CHANNEL DRAIN (FOUL)

Rev	Description	By	Chk	App	Date

Regatta House
Clippers Quay
Salford Quays
Manchester M50 3XP

Tel: 0161 872 9229
Fax: 0161 872 2189
e-mail:
manchester@wyg.com

White Young Green

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

BALL PACKAGING
WREXHAM

Drawing Title:

INDICATIVE SITE LAYOUT

Scale at A2	Drawn By	Date	Checked By	Date	Approved By	Date
1:1000	AC	June 2004				

Project No.	Zone	Type	Drawing No.	Revision
A014242	27 01	CS	008	P4

APPROVAL ☐ INFORMATION ☒ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐

© White Young Green Consulting Ltd.