Copart UK Limited

Water Framework Directive Assessment

Land East of Copart, Sandycroft

Richard Mc McCulloch, Claire McCormack

Client:	**Copart UK Limited**
Address:	**Prince William Avenue** **Sandycroft** **Deeside** **CH5 2QZ**
Project reference:	**P000016952**
Date of issue:	**16/04/2025**

_____

Project Director:	**Richard Wells**
Project Manager:	**Claire McCormack**
Other:	**Richard McCulloch**

_____

APEM Ltd
Riverview
A17 Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN

Tel: 0161 442 8938
Fax: 0161 432 6083

Registered in England No. 02530851

Report should be cited as:

"APEM (2025). Land East of Copart Sandycroft. APEM Report P00016952. Copart UK Ltd, 16/04/2025, v2.0 Final, 21 pp."

Revision and Amendment Register

Version Number	Date	Section(s)	Page(s)	Summary of Changes	Approved by
1.0	07/04/2025	All	All	Draft issue to client	HW
2.0	16/04/25	All	All	Final issue to client	HW

Contents

List of Figures

List of Tables

1. Introduction

1.1 Background

Shear Design Ltd. have been appointed to submit a FRAP and marine licence application to support the installation of a 300mmø surface water pipe beneath an existing flood defence embankment as well as the construction of a new headwall on the River Dee/Queensferry. The works are part of a proposed expansion of an existing site used for car auctioning, with the Project Site (hereafter referred to as the Site) lying to the northeast of Sandycroft centre within the administrative boundary of Flintshire County Council. The Site is located at approximately SJ 34445 67279.

Natural Resources Wales (NRW) have confirmed the requirement for a Flood Risk Activity Permit (FRAP) and Marine Licence to be submitted, and due to the works being located within a WFD waterbody (Dee (N. Wales)), a WFD assessment is required to assess any potential impacts the works may have on WFD status.

1.2 Legislative Context

The EU Water Framework Directive (Directive 2000/60/EC) establishes a framework for the protection of inland surface waters, transitional waters, coastal waters, and groundwater. It aims to prevent and reduce pollution, promote sustainable water use, protect and improve the aquatic environment and mitigate the effects of floods and droughts. The overall objective is to achieve Good Environmental Status (GES) for all waters.

The WFD is fully transposed into UK law via several mechanisms, principally:

- The Water Environment (WFD) (England and Wales) Regulations, (2003, 2015 & 2017); and
- The Environmental Permitting (England and Wales) (Amendment) Regulations, 2010 onwards.

The WFD thus remains in place post Brexit.

The overall objective of the WFD is to achieve good status (GS) in all inland, transitional, coastal and ground waters by 2015 (now working towards revised objectives for 2021 and beyond), unless alternative objectives are set and there are appropriate reasons for time limited derogation.

'River Basin Management Plans' (RBMPs) are developed at the River Basin District (RBD) scale and environmental objectives are set. RBMPs are produced every six years, in accordance with the river basin management planning cycle. Summary documents for the second cycle of plans were published by NRW in in 2021 (https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/river-basin-

management-plans-published/?lang=en), whilst the latest interim waterbody classification was published in 2021 via Water Watch Wales (NRW, 2022).

The UK classifies the current condition as 'Status or Potential' of surface and groundwater bodies and sets a series of objectives for maintaining or improving conditions so that water bodies maintain or reach 'Good Status or Potential' during the next river basin management planning cycle. NRW is the competent authority for implementing the WFD in Wales. As part of its role, NRW must consider whether proposals for new schemes/developments have the potential to:

- Cause a deterioration of a waterbody from its current status or potential; and/ or
- Prevent future attainment of good status or potential where not already achieved.

As a result, new developments that have the potential to impact on current or predicted WFD status are required to assess their compliance against the WFD objectives of the potentially affected waterbodies.

1.3 Report structure

This WFD compliance assessment report is laid out as follows:

- Section 1.4 of this report provides a high-level overview of the Project;
- Section 2 provides a summary of the WFD screening process;
- Section 3 provides information on WFD assessment methodology and the current WFD status of water bodies that have the potential to be impacted by the Project
- Section 4 presents the WFD compliance assessment discussions (supported by tables in the Appendices); and
- Section 5 sets out the assessment conclusions.

1.4 Project overview

The proposed works involve the expansion of the existing Copart UK Ltd Chester site, which is located adjacent to the River Dee. The existing car recycling facility is on the edge of the industrial estate, with fields beyond, into which the expansion is proposed. The works will involve site clearance to remove the hedgerow in the centre of the Site and stoning of the arable fields to join up with the existing hardstanding area within the Copart site. Thereafter, the Site would be operational as a car recycling facility, extending the current industrial activities into a larger area.

The proposed works will involve;

- The reduction of topsoil with some areas proposed to be removed and others to be retained across the Site;
- The creation of a gravel surface which will be at a similar datum level of the existing Site;
- Construction of new outfall headwall;
- Installation of the security perimeter fencing; and
- Installation of security cameras and lighting columns.

2. WFD Water body Screening

Review of NRWs' Water Watch Wales website identified two WFD surface water bodies and one groundwater body in proximity to the Site i.e. within a ~2km buffer set around the Site, as shown in Table 1 and Figure 1.

Table 1 WFD Water bodies surrounding the Project Site

Water body type	Water body Name and ID	Location	Included in subsequent assessment	Justification
Surface water bodies				
Transitional (heavily modified)	Dee (N. Wales) (GB531106708200)	Directly intersects the Site	Yes	This is the only surface water body that intersects the Site and covers the stretch of the Dee directly affected by the project.
River (heavily modified)	Sandycroft Drain (GB111067052160)	Located approximately 650 m to the southwest.	No	Scoped out due to no hydrological connectivity to the Site.
Groundwater bodies				
Groundwater Body	Dee Carboniferous Coal Measures (GB41102G204800)	Underlies the entire Site	No	The Scheme is limited to surface elements with no groundwater interaction. Assumed no connectivity with the underlying groundwater body.

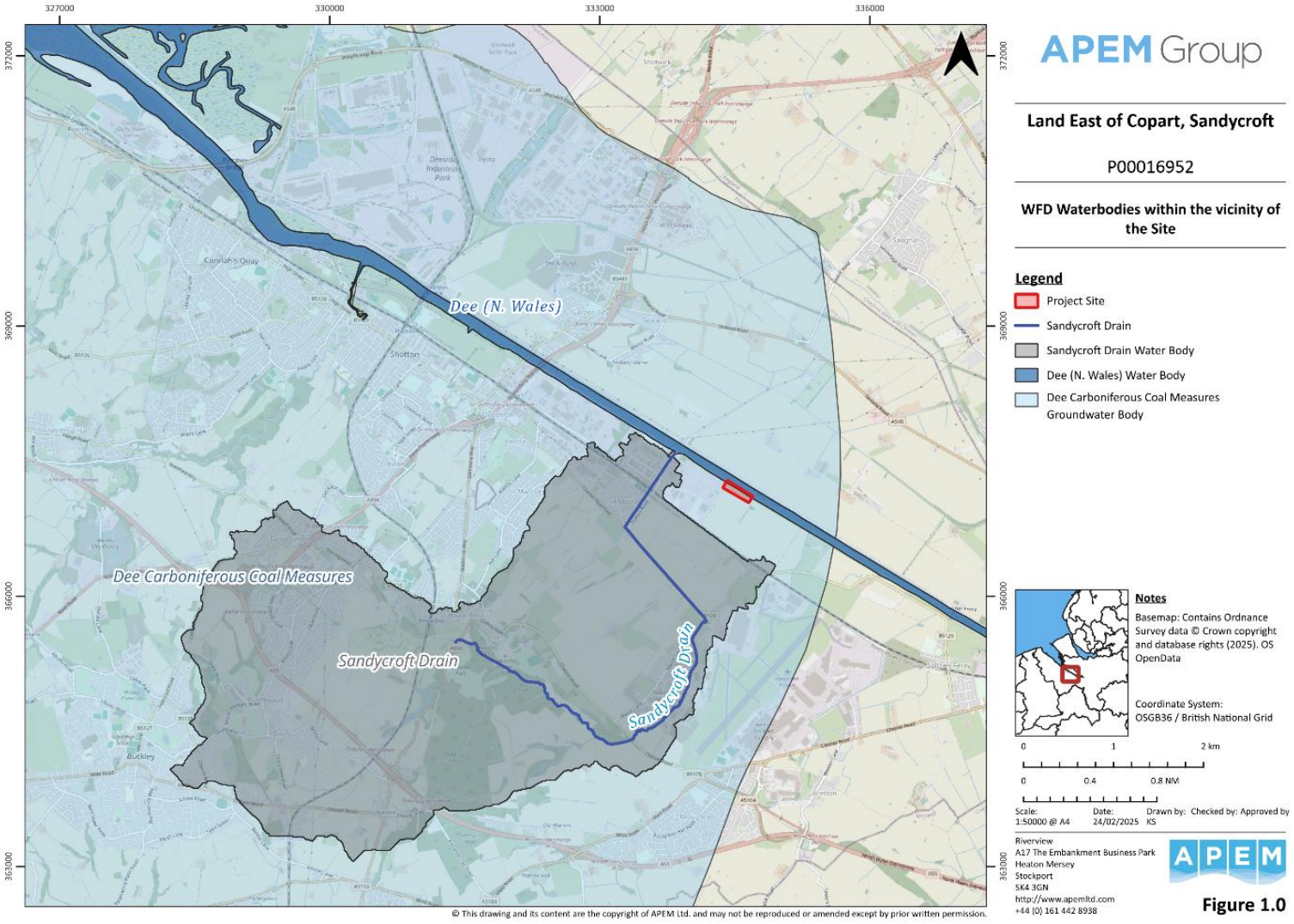

Figure 1 WFD water bodies within the vicinity of the Site

3. WFD assessment methodology

3.1 Introduction

Proposed developments and schemes that have the potential to affect a WFD water body should undertake a WFD assessment to demonstrate that proposals will not result in a deterioration in status (or potential) or prevent the water body from meeting Good status (or potential) in the future (2027). Specifically, NRW (as the statutory regulator) must consider whether proposals for new developments and schemes have the potential to:

- Cause a deterioration of a water body from its current status or potential (see Section 3.3 No Deterioration Assessment); and/ or
- Prevent future attainment of Good status, or potential where not already achieved (Section 3.4 Future Status Objectives).

3.2 Definition of surface water body status

Under the WFD, surface water body status is classified on the basis of Ecological and Chemical status or Potential. Ecological Status is assigned to surface water bodies that are natural and considered by Natural England not to have been significantly modified for anthropogenic purposes. Ecological Potential is assigned to artificial and man-made water bodies (such as canals), or natural water bodies that have undergone significant modification; these are termed Heavily Modified Water Bodies (HMWBs). The term 'Ecological Potential' is used as it may be impossible to achieve good ecological status because of modification for a specific use, such as navigation or flood protection. The Ecological Potential represents the degree to which the quality of the water body approaches the maximum it could achieve. The worst-case classification is assigned as the overall surface water body status, in a 'one-out all-out' system. This system is summarised below in Figure 2.

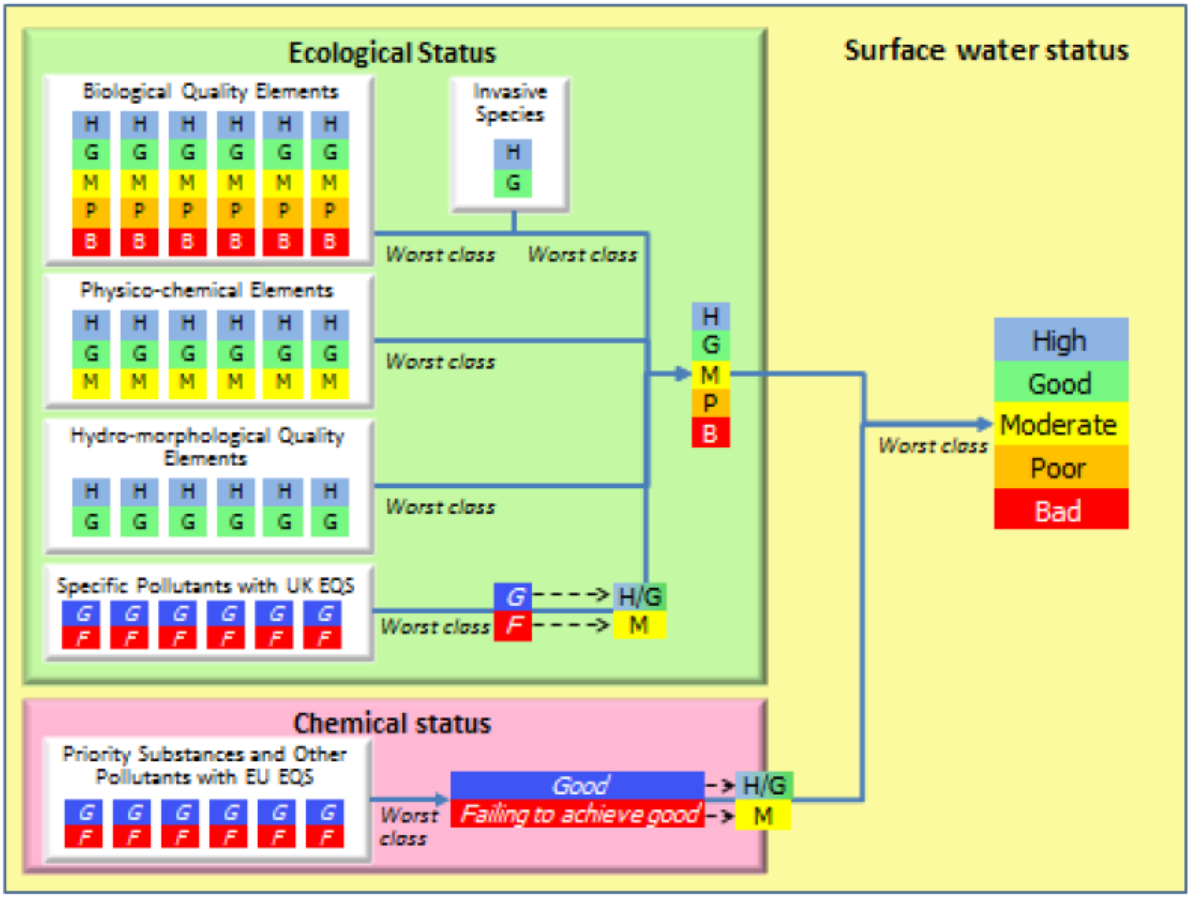

Figure 2 WFD classification elements – Bringing all of the strands of evidence together (Environment Agency, 2015)

3.2.1 Ecological status or potential

Ecological status or Potential is defined by the overall health or condition of the water body. This is assigned on a scale of High, Good, Moderate, Poor, or Bad, and based on four ecological classification components (e.g. Environment Agency, 2022a), as follows:

- Biological: This test is designed to assess the status indicated by biological quality elements such as the abundance of fish, invertebrates, or algae and by the presence of invasive species. The biological quality elements can influence an overall water body status from Bad through to High.
- Physico-chemical: This test is designed to assess compliance with environmental standards for supporting physicochemical conditions, such as dissolved oxygen (DO), phosphorus, and ammonia. The physicochemical elements can only influence an overall water body status from Moderate through to High.
- Specific pollutants: This test is designed to assess compliance with environmental standards for concentrations of specific pollutants, such as zinc, cypermethrin or arsenic. As with the physico-chemical test, the specific pollutant assessment can only influence an overall water body status from Moderate through to High.

- Hydromorphology: For natural, non-HMWBs, this test is undertaken when the biological and physico- chemical tests indicate that a water body may be of High status. It specifically assesses elements such as water flow, sediment composition and movement, continuity, and structure of the habitat against reference or 'largely undisturbed' conditions. If the hydromorphological elements do not support High status, then the status of the water body is limited to Good overall status. For artificial or HMWBs, hydromorphological elements are assessed initially to determine which of the biological and physico-chemical elements should be used in the classification of ecological potential. In all cases, assessment of baseline hydromorphological conditions are an important factor in determining possible reasons for classifying biological and physico- chemical elements of a water body as less than Good, and hence in determining what mitigation measures may be required to address these failing water bodies. Section 3.2.1.1 below provides further discussion of Artificial and Heavily Modified Water Bodies

3.2.1.1 Additional AWB and HMWB hydromorphology considerations

Artificial Water Body (AWB) and Heavily Modified Water Body (HMWB) hydromorphological elements are assessed using a three-stage process, firstly looking at flow, then mitigation measures and biological quality elements.

Flow conditions are assessed initially on a Pass or Fail basis to determine which of the biological and physico-chemical quality elements should be used in the classification of ecological Potential.

Where the flow conditions are unaffected by the physical modification (flow conditions pass), the water body potential is determined by the worst of either the mitigation measures assessment, or any element that is not sensitive to the modified nature of the water body. Where the flow conditions are significantly impacted by the physical modification (flow conditions fail), the water body potential is determined by the worst of any of the Mitigation Measures assessments or the assessment of biological quality elements, physico-chemical quality elements or specific pollutants.

3.2.2 Chemical status

Chemical status is a further classification component defined by compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances, in accordance with e.g. the Environmental Quality Standards Directive (2008/105/EC). This is assigned on a scale of Good or Fail only. Surface water bodies were historically only monitored for priority substances where there were known discharges of these pollutants; otherwise surface water bodies were reported as being at good chemical status. In recent years the expansion of the number of chemicals assessed, to include parameters such as Polybrominated diphenyl ethers (PBDE) has resulted in an increased number of water bodies failing to meet Good Chemical status.

3.3 No Deterioration Assessment

The definition of WFD Deterioration was clarified following a ruling by the Court of Justice of the European Union (CJEU) in July 2015 (C-461/13):

- "deterioration of the status" of the relevant water body includes a fall by one class of any element of the "quality elements" even if the fall does not result in a fall of the classification of the water body as a whole;
- 'Any deterioration' in quality elements in the lowest class constitutes deterioration; and
- Certainty regarding a project's compliance with the Directive is required at the planning consent stage; hence, where deterioration 'may' be caused, derogations under Article 4.7 of the WFD are required at this stage.

While deterioration within a status class does not contravene the requirements of the WFD, (except for Drinking Water Directive parameters in drinking water protected areas), the WFD requires that action should be taken to limit within-class deterioration as far as practicable. The no deterioration baseline for each water body assessment is taken to be the 2021 status as reported in Section 3.5.

The principle of this assessment is to assess the potential for impact on, and therefore deterioration to, each of the (relevant) WFD supporting elements. Where a potential for impact is identified, the scale of change is considered in the context of the relevant environmental standards for the baseline classification band i.e. if a baseline supporting element is at Good, any potential impact to that supporting element would be characterised in the context of the Good/Moderate classification boundary standard.

3.4 Future Status Objectives

RBMPs are used to outline water body pressures and the actions that are required to address them. The future status objective assessment considers the ability of the development to contribute to WFD objectives for the water body. Assessments in this Project will be based on the mitigation measures assessments, future objectives, and programme of measures set out within NRW's Water Watch Wales website for each water body.

The assessment considers whether the Project has the potential to further exacerbate known pressures (Tier 1 pressures e.g. Physical Modification due to Flood Protection) or the ability for the water body to achieve the current aspiration dates to achieve Good.

3.5 Relevant water body status

3.5.1 Dee (N. Wales) (GB531106708200)

The latest Dee (N. Wales) water body characterisation information, taken from NRW's Water Watch Wales website (NRW, 2025) has been summarised below and is based on 2021 RBMP data:

- The overall classification (2021) is Moderate.
- Ecological classification is Good.
- Chemical classification is Moderate.

Cycle 2 and 3 classification data for the Dee (N. Wales) body are provided in Table 2 below.

Table 2 Dee (N. Wales) Water Body Cycle 2 and 3 classifications

Parameter		2015	2021
Water body ID	GB531106708200		
Water body area	109.29 m^2		
Water body type	Transitional (heavily modified)		
Overall Water body		**Moderate**	**Moderate**
Ecological, chemical or quantitative potential	**Ecological**	**Moderate**	**Good**
Ecological, chemical or quantitative potential	**Chemical**	**Fail**	**Moderate**
Component	**Priority substances**	**Not assessed**	**Moderate**
Component	**Priority hazardous substances**	**Not assessed**	**Moderate**
Ecological supporting elements	Mitigation Measures Assessment	**Good**	**Good**
	Invertebrates	**/**	**Good**
	Fish	**/**	**Good**
	Macrophytes	**/**	**Not assessed**
Physico-chemical quality elements	Ammonia (Phys-Chem)	**/**	**Not assessed**
	Dissolved oxygen	**/**	**Not assessed**
	pH	**/**	**Not assessed**
	Phosphate	**/**	**Not assessed**
	Temperature	**/**	**Not assessed**
Hydromorphological Supporting Elements	Hydrological Regime	**/**	**Not High**

3.5.2 RBMP

The Dee (N. Wales) water body falls within the Dee RBMP for 2021-2027 (NRW, 2025). The objectives in this RBMP are to prevent deterioration in water body status, achieve the objectives for Protected Areas and to achieve good overall status or potential for all surface and ground waters where necessary measures are technically feasible and not disproportionally expensive. It should be ensured that even those water bodies that do not achieve good status will be under the least pressure possible by 2027.

3.5.3 Ecology

A Shadow HRA (Atmos Consulting, 2024) identified a likely significant effect (LSE) to the River Dee and Bala Lake SAC through indirect pollution effects and permanent increased levels of lighting. An Appropriate Assessment was carried out which assessed features of the SAC immediately adjacent to the working areas. This showed the SAC species present could be significantly affected and that the conservation objectives of the River Dee & Bala Lake SAC would not be maintained if the works went ahead without mitigation. Mitigation was considered for all the LSE anticipated on the qualifying features, and was reduced such that there is not anticipated to be any effects from the proposed works on the integrity of the River Dee and Bala Lake SAC, therefore, following the implementation of mitigation, the works passed appropriate assessment. As a result, the HRA concluded that work can proceed without affecting the integrity of River Dee and Bala Lake SAC. Appropriate good working practice are to be put in place to minimise disruption of the typical species found within the SAC during the proposed works and the operational phase of the Site.

An extended phase 1 habitat survey (JNCC, 2010) was carried out in May 2023 to include the land within the Site boundary and a 100m buffer, where access permitted. The entire Site is comprised of arable fields, at the time of the survey the top two fields were planted with a grass type cover crop and the third field had recently been ploughed and planted. Hedgerows ran along all field boundaries. Habitats within the wider area consisted of improved and arable fields with a small patch of mixed plantation woodland along the eastern Site boundary, the River Dee adjacent to the north, improved grassland to the south and hardstanding and industrial buildings to the west. A data search returned records for Atlantic salmon all of which were located upstream from the Site.

3.5.4 Flood risk

A flood consequences assessment (Weetwood, 2024) indicates that the risk of flooding to the proposed development from all identified sources is assessed to be low, with the exception of tidal sources which presents a high risk. The site is not expected to impact on flood risk elsewhere. Mitigation measures proposed include suitable fencing around the proposed development, and a Flood Warning and Evacuation Plan to be developed in consultation with Flintshire County Council.

4. Water Framework Directive Assessment

4.1 General Approach

The WFD assessment is presented as Appendix A WFD Assessment Table, assessing the effects of the Project on each of the relevant WFD elements (Table 2). Although not all strictly relevant to this assessment location, to ensure full compliance with the NRW's risk assessment guidance, the following receptors are also used as assessment criteria:

- **physical habitat** – the distribution and diversity of habitat including the physical processes that sustain and create new habitat. Physical habitat is essential for fish, macrophytes and invertebrates to live and thrive
- **water quality** – particularly physico-chemical aspects of water quality - such as levels of dissolved oxygen, phosphorus, and ammonia
- **fish and eels**
- **macrophytes** - water plants visible to the naked eye, growing in the river
- **invertebrates** - insects, worms, molluscs, crustacea etc living on the river bed
- **diatoms** - microscopic diatoms (algae) found on rocks and plants.

The WFD assessment reports on the following considerations:

- identification of the likely impacts of the Project on individual WFD receptors;
- estimate of the magnitude of those impacts;
- estimate of the probability of those impacts occurring;
- identification of the residual risk once any action has been undertaken to avoid the risk, minimise it, mitigate it or compensate for it within the water body (if required);
- evaluation of the significance of the risk (where relevant) with reference to the RBMP status thresholds and objectives.

4.2 No Deterioration Assessment

The WFD assessment in Appendix A WFD Assessment Table systematically assesses potential effects against each of the listed WFD supporting elements. The discussion in this section is intended to summarise those assessments in a holistic and readable format, under the general headings of water quality and ecology.

4.2.1 Construction Phase

4.2.1.1 Water Quality

There are a number of pathways in which the water quality of the Dee (N. Wales) waterbody could be impacted during the construction phase. The use of vehicles or machinery requiring fuel or hydraulic oil, may pose a risk (via accidental spillage) in terms of increased concentrations of e.g. benzo(a)pyrene at a localised scale. This could have an acute effect on the water quality of the river.

The projects design also include construction of a storm water outfall and associated headwall on the River Dee, the location of which can be seen in the Location Plan (Appendix B Site Location Plan). The new headwall is proposed to be constructed as per the Drainage Layout (Appendix C Drainage Layout). The new headwall will provide a new outfall into the River Dee, following the process of the existing outfall. Construction of the outfall and headwall will not require any in channel works and construction will follow the below mitigation measures to ensure the outfall and headwall do not result in any potential impacts on the water quality of the River Dee (i.e. through pollution or potential spillages during construction).

NRW have been consulted on the construction of the new headwall and have no objection in principal. Flintshire County Council have approved a new outfall with a limit of 90.l/s as peak surface water discharge rate. The proposed design has a reduced outfall with 73.0l/s as the peak surface water discharge rate so it is inside the previously agreed limits and no impacts are expected on the flow of the River Dee. Treatment for water quality has been designed in accordance with the Simple Index Approach of CIRIA Report C753 and as replicated within the Statutory SuDS Standards for Wales.

In the short term the construction of the gravel surface and increase in machinery presence has the potential to result in increased levels pollution and sedimentation within the River Dee reducing water quality. In the long term the creation of a new outfall drainage system could have an impact on the level of pollution and sedimentation entering the River Dee and potentially resulting in deterioration in the water quality supporting elements of the Dee (N. Wales) WFD waterbody.

Without consideration for specific mitigation the construction phase has the potential for slight to large adverse effects on the water environment as a result of decreased water quality, and increased pollution potential — albeit likely at a localised, rather than water body scale.

A number of mitigation measures are proposed as part of the Project – see Appendix A WFD Assessment Table. All contractors would need to adopt water pollution prevention procedures in line with best practice, as set out in a project specific Construction Environmental Management Plan (CEMP). The risk of sediment laden water propagating downstream and of leakage or spillage of fuel, chemicals and other potentially polluting substances would be mitigated through good Site practice and management, implemented in line with the CEMP. Large catchpit chambers will be installed at the intermediate points of the carrier drains to retain silts/fines locally and catch pitch/sump chambers will be in place at flow control points.

It is noted that the works are of short duration (any effects would be temporary) and localised, therefore, no significant water quality impacts are expected, especially not at the waterbody scale. With the adoption of the planned mitigation measures, the WFD status of the water quality related supporting elements of the Dee (N. Wales) waterbody is not expected to deteriorate (high confidence).

4.2.1.2 Ecology

Impacts on ecology could come from a number of pathways, including allowing increased sediment load to enter the watercourse, pollution through spillages of oil or chemicals, the spread of invasive species and harm to local wildlife from construction noise of entrapment.

An increase in suspended sediments from construction activities can have a range of effects, e.g.:

- suspended sediment increases could adversely affect water quality which could indirectly impact fish and could (over time) result in shifts to turbidity-tolerant fish communities;
- If sediment were to be released it would smother out spawning grounds affecting preferred breeding habitat and impact on breeding;
- deposition of fine sediment is a key issue for aquatic vegetation due to reduced light availability for attached aquatic plants effecting photosynthesis and reducing biomass of algae communities and macrophytes through direct smothering of existing plants;
- Increases in suspended sediments can result in increased invertebrate drift, significantly altering the distribution of benthic invertebrates in streams and rivers which can have an overall impact on the food web and health of a river.

An experienced Ecological Clerk of Works (ECoW) will be appointed and attend Site at regular intervals throughout the project to oversee the works and ensure that the project complies with all environmental regulations, permits, and best practices. A biosecurity risk assessment will also be produced and followed so as not to introduce non-native species into the river.

The works are also proposed to be undertaken within September outside the spawning season for salmon (October-November), sea lamprey spawning season (May-July), brook lamprey spawning season (May-June), river lamprey spawning season (April-May) and bullhead spawning season (February-June).

It is noted that the proposed construction activities are short duration (any effects would be temporary) and localised, and no significant impacts on the river's ecology are anticipated. Mitigation should nonetheless be adhered to (as above) to minimise the potential for any impact generation during the construction phase (and thus remove any potential for ecological impact and WFD supporting element deterioration).

4.2.1.3 Hydromorphology

Due to the minor impacts identified above, and the design of the outfall and associated headwall, there would be negligible impacts on hydromorphology elements of the Dee (N. Wales) waterbody and no sensitive habitats are expected to be at risk. The Project also proposes to install scour prevention including reno mattresses at the outfall. Thus, no impacts on hydromorphology from the proposed works or impacts to the WFD status of the Dee (N. Wales) waterbody are anticipated.

4.2.2 Operational Phase

During operation, there is the potential for increased risk of pollution to the River Dee adjacent to the site, from increased use of the site (i.e. vehicle use). The pollution mitigation measures discussed above under construction, will also be implemented during the operation of the Project (e.g. adopting water pollution prevention procedures as set out in a project specific CEMP). With mitigation in place to prevent any potential pollution of the River Dee, the operational phase is not anticipated to result in any deterioration of WFD status of the Dee (N. Wales) waterbody.

4.3 Future Good Status

The Wales Waterbody Objectives identify a number of national measures including sustainable agricultural practises to improve the water quality. There are no local targeted measures in the vicinity of the site to improve water quality.

For the third cycle RBMPs, NRW aim to achieve a place-based approach to catchment prioritisation that also delivers WFD Regulations 2017 outcomes. Ten catchments were identified that represent the best suite of opportunities to deliver sustainable management for water and contribute to the well-being goals. The catchment assessed in this report does not fall within any of the ten opportunity catchments.

The 2021 Cycle 3 classified the Dee (N. Wales) water body as having a Moderate overall status, with all of the supporting elements of the water body having between High and Moderate status. Based on the above information, the Project is not predicted to cause a deterioration in the WFD status of the Dee (N. Wales) water body.

5. Conclusions

The WFD assessment indicates that, based on the latest Project design, there is potential for very minor localised effects on the Dee (N. Wales) water body during the works. However, due to the mitigation measures put in place and the short-term nature of the works, it is not anticipated that the scheme will cause any deterioration in the WFD status of the Dee (N. Wales) water body.

6. References

Atmos Consulting (2024). Copart – Sandycroft Industrial Estate Shadow Habitats Regulations Assessment.

Environment Agency (2015). Rules for assessing Surface Water Body Status and Potential; Decision document for 2015 new building block (cycle 2) Water Framework Directive classifications, Version 2.0 (updated October 2015).

Environment Agency (2016). Water Framework Directive risk assessment. How to assess the risk of your activity; 6 April 2016.

Joint Nature Conservation Committee (JNCC) (2023). River Usk/ Afon Wysg SAC. Available at: https://sac.jncc.gov.uk/site/UK0013007 (accessed November 2023).

Natural Resources Wales (2022). Water Watch Wales Map Gallery, available at https://waterwatchwales.naturalresourceswales.gov.uk/en/ (accessed July 2023).

Natural Resources Wales (2022) Western Wales river basin management plan 2021-2027 [online]. Available at: https://cdn.cyfoethnaturiol.cymru/media/694974/western-wales-rbmp-for-minister-approval.pdf

Natural Resources Wales (2022) CORE MANAGEMENT PLAN INCLUDING CONSERVATION OBJECTIVES FOR Afon Tywi / River Tywi SAC [online]. Available at: https://naturalresources.wales/media/670732/afon_tywi_-_man-plan-english.pdf

Favorido, N. (2024) New fish pass will improve migratory access on the Afon Clydach [online]. Available at: https://www.herald.wales/west-wales/carmarthenshire/new-fish-pass-will-improve-migratory-access-on-the-afon-clydach/

Weetwood (2024). Land at Prince William Avenue, Sandycroft. Flood Consequences Assessment.

Appendix A WFD Assessment Table

See separate Excel workbook.

Appendix B Site Location Plan

Mean Low Water

Boulders and Mud

Mean High Water

Tank

River Dee

Mud

Tank

PROPOSED NEW PCC HEADWALL W/T FLAP VALVE TO RIVER DEE.
(TO BE CONSTRUCTED UNDER SEPARATE FRAP AND/OR MARINE LICENCE)

ALL CONSTRUCTION WORKS WITHIN NRW FLOOD EMBANKMENT (AMX ID: EMB1501311)
AND TO RIVER BANK SUBJECT TO SEPERATE FRAP AND MARINE LICENCE APPROVAL

Mean Low Water

Vehicle Storage Compound

Path (um)

Mast

ESS

1 to 2

11

PRINCE WILLIAM AVENUE

Conveyor

Depot

El Sub Sta

Merchant House

Kings Court

5

13

12a

12b

El Sub Sta

Drain

MP 0.5

N

NOTES

GENERAL

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS RELATE TO ORDNANCE DATUM UNLESS NOTED OTHERWISE.
3. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
4. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
5. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
6.

NOTES:

1. EXISTING LEVELS AND CONTOURS TAKEN FROM TOPOGRAPHICAL SURVEY PROVIDED BY THE CLIENT.
2. ALL EXISTING LEVELS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
3. REFER TO SITE TOPOGRAPHICAL SURVEY FOR DETAILS OF EXISTING SITE CONDITIONS AND BENCH MARKS.
4. PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO LOCATE, PROTECT AND WHERE NECESSARY DIVERT ALL EXISTING SERVICES AFFECTED BY THE WORKS.
5. POSITION, ROUTE OF AND IMPACT TO EXISTING SERVICES FOLLOWING THE DEVELOPMENT TO BE CONFIRMED BY CLIENT.
6. CLIENT / CONTRACTOR TO SEEK PERMISSION FOR ALL WORKS WITHIN PUBLIC LAND OR WITHIN LAND NOT WITHIN THE CLIENTS OWNERSHIP.
7. ALL WORKS WITHIN AREA OF FLOOD EMBANKMENT AND RIVER BANK SUBJECT TO FRAP AND/OR MARINE LICENCE FROM NRW.

LEGEND

SITE BOUNDARY

REV	DATE	DESCRIPTION	BY	CHK
AMENDMENTS				

CLIENT: Copart

PROJECT: COPART SANDYCROFT, FLINTSHIRE

TITLE: FRAP APPLICATION; SI WORKS ONLY LOCATION PLAN

SHEAR design
Consulting Civil and Structural Engineers
7 Ashtree Court - Woodsy Close - Cardiff Gate Business Park - Cardiff - CF23 8RW
Tel: 029 2054 7000 - Fax: 029 2054 7001 - www.shear-design.com - enquiries@shear-design.com

DRAWN:	CHECKED:	DATE:	SCALE:
TDJ	DKK	DEC 2024	1:1250 @ A1

SHEAR DESIGN REF:	DRAWING NUMBER:	REVISION:
23009	23009-200	--

STATUS: P

Appendix C Drainage Layout

N

PROPOSED NEW PCC HEADWALL W/T FLAP VALVE TO RIVER DEE. (ALTHON SFABC O.S.A.)
IL 4.300mAOD
HEADWALL TO FEATURE DISSIPATION / CASCADE BLOCKS TO AID PREVENTION OF EROSION.
DESIGN OF ATTENUATION INCLUDES PROVISION OF POSSIBLE TIDAL LOCK SCENARIO SHOULD THE OUTFALL IL BE SUBMERGED.

300mm NON-RETURN FLOOD VALVE WITH DUCTILE IRON ACCESS BOX / D400 COVER (FORGEVALVE O.S.A)

SWMH19 w/t GRATED COVER (OVERFLOW)
CL 5.350m
IL 4.612m

WORKS WITHIN NRW FLOOD EMBANKMENT (AMX ID: EMB15013111) AND TO RIVER BANK SUBJECT TO FRAP AND MARINE LICENCE APPROVAL

DUE TO SITE'S SSSI & SAC DESIGNATION, ECOLOGICAL AND ENVIRONMENTAL CONDITIONS TO BE REVIEWED BY OTHERS WITH REQUIREMENTS RELAYED TO ENGINEER AND WIDER DESIGN TEAM.
CONSTRUCTION METHOD/S TO CONSIDER ALL FINDINGS AND REQUIREMENTS.

BREAK CHAMBER SUBJECT TO PUMPING STATION DESIGN & SPECIFICATION

IN

OUT

EXISTING COPART SITE

SWCP1
CL 5.230m
IL 4.030m

SWCP2
CL 5.149m
IL 3.438m

SWCP3
CL 5.350m
IL 3.851m

SWCP4
CL 5.117m
IL 2.590m

SWCP5
CL 5.023m
IL 3.898m

SWCP6
CL 5.029m
IL 2.949m

SWCP7 w/t
VORTEX FLOW CONTROL
CL 5.053m
IL 2.122m

SWCP8
CL 4.821m
IL 3.696m

SWCP9
CL 4.966m
IL 2.768m

SWCP10
CL 5.032m
IL 1.803m

SWCP11
CL 4.816m
IL 3.691m

SWCP12
CL 4.810m
IL 3.040m

SWCP13
CL 4.932m
IL 2.305m

SWCP14 w/t
VORTEX FLOW CONTROL
CL 4.884m
IL 1.524m

SWCP15
CL 4.874m
IL 3.674m

SWCP16 w/t
ORIFICE PLATE
ON OUTLET
CL 4.841m
IL 2.949m

SWCP18 w/t
VORTEX FLOW CONTROL
CL 4.803m
IL 1.364m

Ecological exclusion zone

Area of stone storage = 38acres

ADDITIONAL COLLECTOR DRAIN DUE TO EXISTING DIP IN SITE LEVELS ALONG THIS SITE EDGE

IL 3.700m

EXCEEDANCE FLOW:
2600m³ ATTENUATION STORAGE BASED ON INTENDED MAX 1.0m WATER DEPTH W/T 150mm FREEBOARD.
(LEVEL DURING CRITICAL 1in100yr+30%CC 4.358mAOD, APPROX. 500mm DEPTH)

INLET/OUTLET TO EXCEEDENCE FLOW BASIN
IL 3.725m

VORTEX FLOW CONTROL (HYDROBRAKE O.S.A.)
LIMITING DISCHARGE FROM THE EXTENSION SITE TO 73.0 l/s DURING ALL STORM EVENTS UP TO AND INCLUDING THE 1in100yr + 30%CC CRITICAL STORM.

PUMPING STATION @ MAX 73.0 l/s
CL 4.802m
IL TBC
PUMP & RISING MAIN TO MANUFACTURER'S DESIGN AND SPECIFICATION.

NOTES

GENERAL
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS RELATE TO ORDNANCE DATUM UNLESS NOTED OTHERWISE.
3. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
4. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
5. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
6. THIS DRAWING IS COPYRIGHT © PROPERTY OF SHEAR DESIGN LIMITED.

NOTES:

1. EXISTING LEVELS AND CONTOURS TAKEN FROM TOPOGRAPHICAL SURVEY PROVIDED BY THE CLIENT.
2. ALL EXISTING LEVELS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
3. REFER TO SITE TOPOGRAPHICAL SURVEY FOR DETALS OF EXISTING SITE CONDITIONS AND BENCH MARKS.
4. PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LIASE WITH ALL RELEVANT AUTHORITIES TO LOCATE, PROTECT AND WHERE NECESSARY DIVERT ALL EXISTING SERVICES AFFECTED BY THE WORKS.
5. POSITION, ROUTE OF AND IMPACT TO EXISTING SERVICES FOLLOWING THE DEVELOPMENT TO BE CONFIRMED BY CLIENT.
6. CLIENT / CONTRACTOR TO SEEK PERMISSION FOR ALL WORKS WITHIN PUBLIC LAND OR WITHIN LAND NOT WITHIN THE CLIENTS OWNERSHIP.
7. SITE STRIP 450mm WITH 450mm MINIMUM DEPTH OF CONSTRUCTION.
   7.1. (BASED ON GROUND INVESTIGATION INFORMATION PROVIDED AND TO VARY BETWEEN 200mm & 500mm ACROSS THE SITE, REFER TO DRG 23009-100 EXISTING LEVELS & CONTOURS)
8. REFER TO DRG 23009-511, PROPOSED DRAINAGE CONSTRUCTION DETAILS FOR TYPICAL FILL CONSTRUCTION DETAILS.
   8.1. SITE CBR ASSUMED TO BE >1% (TBC)
   8.2. CONTRACTOR TO ALLOW FOR CBR TESTING PRIOR TO COMMENCEMENT OF WORKS ON SITE AND/OR ORDERING OF MATERIALS. CAPPING TO BE ADJUSTED ACCORDINGLY.
   8.3. ALL SOFT-SPOTS TO BE SUITABLY IN-FILLED AND REMOVED WHERE REQUIRED
   8.4. SHOULD CBR RESULTS BE LOWER THAN 1%, FURTHER GROUND REINFORCEMENT AND / OR REVISED CONSTRUCTION MAKE UPS WILL BE REQUIRED (TO BE TO COMPLETED BY CONTRACTOR WITHIN DETAILED DESIGN.)
9. WHERE DEPTH FROM FORMATION, FOLLOWING SITE STRIP, TO PROPOSED SURFACE LEVEL EXCEEDS 450mm, SITE WON AND/OR TYPE 2C MATERIAL TO BE USED AND COMPACTED AS SPECIFIED IN COMPACTION REQUIREMENTS OF CLAUSE 612, TABLE 6/4 U.N.O.
10. SUB BASE TO BE LAID IN 2 SEPARATE LAYERS WITH TYPICAL COMPACTION SPECIFICATION AS FOLLOWS:
    10.1. VIBRATE EACH LAYER TO COMPACT
    10.2. FINAL PASS TAKEN WITH NO VIBRATION
    10.3. COMPACTION SHOULD CONTINUE UNTIL 97% OF THE COMPACTED BULK DENSITY ACHIEVABLE UNDER LABORATORY CONDITIONS HAS BEEN REACHED- MEASURED WITH A NUCLEAR DENSITY GAUGE.
11. ALL COMPACTION TO COMPLY AND BE CARRIED OUT IN ACCORDANCE WITH CLAUSE 612, TABLE 6/4

DRAINAGE NOTES

1. THE PROPOSED DRAINAGE LAYOUT RELIES UPON ALL CONSTRAINTS, DESIGN PARAMETERS AND PRINCIPLES SHOWN WITHIN FCA PREPARED BY MEETWOOD SERVICES LTD.
2. EXISTING SEWERS TO BE REUSED SHALL BE CCTV SURVEYED AND REPAIRED IN ACCORDANCE WITH THE SEWER REHABILITATION MANUAL AND TO THE SATISFACTION OF THE DRAINAGE STATUTORY UNDERTAKER. ALL EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER.
3. MAIN SEWER AND COLLECTOR DRAIN RUNS SHOWN. CONTRACTOR'S DESIGN TEAM TO REVIEW ALL POSITIONS, SIZES AND DETAIL DURING DETAILED DESIGN.
4. THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL EXCAVATIONS IS MAINTAINED AT ALL TIMES.
5. SHALLOW SEWERS (<1.0m COVER TO PIPE SOFFIT) AND SEWERS ADJACENT TO EXISTING AND PROPOSED TREES / DENSE VEGETATION WILL REQUIRE CONCRETE PROTECTION IN ACCORDANCE WITH THE DETAILS; CLASS Z BEDDING.
6. ELSEWHERE PIPEWORK IS TO RECEIVE CLASS S BED AND SURROUND. BEDDING AND SURROUND MATERIAL SHALL MEET THE REQUIREMENTS OF THE PIPE MANUFACTURES RECOMMENDATIONS.
7. PIPEWORK CONNECTIONS TO MANHOLES ARE TO BE LAID SOFFIT TO SOFFIT.
8. VITRIFIED CLAY PIPES AND FITTINGS FOR GRAVITY SEWERS SHALL HAVE FLEXIBLE MECHANICAL JOINTS. PIPES SHALL COMPLY WITH THE RELEVANT REQUIREMENTS OF BS EN 295-1 AND BS 65 (SURFACE WATER PIPES ONLY).
9. THERMOPLASTIC STRUCTURED WALL SEWER PIPE SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 13476-1 AND WIS 4-35-01 AND BS EN 13476-2 OR BS EN 13476-3. PIPES SHALL BE BSI KITEMARKED OR HAVE THE EQUIVALENT THIRD PARTY CERTIFICATION E.G. OSMA DRAIN FOR PIPES < DN150mm OR OSMA ULTRARIB FOR PIPES > DN160mm
10. PIPES LESS THAN OR EQUAL TO 500mm IN DIAMETER SHALL HAVE NOMINAL SHORT-TERM RING STIFFNESS NOT LESS THAN 8 kN PER m2 (SN8) OR BE SUBJECT TO A QUALITY SYSTEM FOR STORAGE AND EMBEDMENT.
11. FOR PIPES GREATER THAN 500mm IN DIAMETER, A NOMINAL SHORT-TERM RING STIFFNESS OF 2 kN PER m2 (SN2) IS ACCEPTABLE, SUBJECT TO MANUFACTURER'S STRUCTURAL DESIGN LOAD CALCULATIONS IN ACCORDANCE WITH BS 9295:2019 WHICH SHALL BE PROVIDED TO SUPPORT THIS.
12. ALL PIPE WORK EQUAL OR >450mm TO BE PRE CAST CONCRETE.
13. ABANDONED SEWERS SHALL BE REMOVED OR GROUTED OVER THEIR FULL LENGTH AND ABANDONED MANHOLES SHALL BE BROKEN OUT AND BACK FILLED WITH LEAN MIX CONCRETE TO 1.5m BELOW GROUND LEVEL.
14. PIPE TO PIPE CONNECTIONS INCLUDING GULLY CONNECTIONS TO BE PREFORMED Y JUNCTIONS.
15. ALL BRANCH CONNECTION IN MANHOLES TO BE SWEPT IN THE MAIN FLOW DIRECTION.
16. CLIENT / CONTRACTOR TO SEEK PERMISSION FOR ALL WORKS WITHIN PUBLIC LAND OR WITHIN LAND NOT WITHIN THE CLIENTS OWNERSHIP.

LEGEND

- SAB SITE BOUNDARY
- PROPOSED INTERNAL FENCE LINE
- PROPOSED MAJOR CONTOUR AT 500mm INTERVALS
- PROPOSED MINOR CONTOUR AT 100mm INTERVALS
- UNCHANGED/EXISTING MAJOR CONTOUR AT 500mm INTERVALS
- UNCHANGED/EXISTING MINOR CONTOUR AT 100mm INTERVALS
- PROPOSED CARRIER DRAIN & CATCHPIT MH
- PROPOSED CARRIER DRAIN & FLOW CONTROL CATCHPIT MH
- PROPOSED 150mmø PERFORATED HDPE COLLECTOR PIPES
- PROPOSED RISING MAIN & PUMPING STATION (TO SPECIALIST / MANUFACTURER'S DETAILS & SPECIFICATION)
- PROPOSED 300mm NON-RETURN FLOOD VALVE (NTS)

ALL INFORMATION AND DETAILS ARE SHOWN ARE SUBJECT TO SAB APPROVAL.

REV	DATE	DESCRIPTION	BY	CHK
		AMENDMENTS		
P05	31.03.25	SAB APPLICATION BOUNDARY AMENDED	TDJ	DKK
P04	27.03.25	SAB APPLICATION	TDJ	DKK
P03	17.06.24	GENERAL AMENDEMENTS	TDJ/AA	DKK
P02	08.02.24	ADDITIONAL NOTES ADDED AND LINE TYPES UPDATED SITE DESIGN	TDJ	DKK
P01	02.02.24	DRAINAGE LAYOUT & MODEL AMENDED TO REFLECT REVISED SITE DESIGN	TDJ	DKK

CLIENT: Copart

PROJECT: COPART, SANDY CROFT
FLINTSHIRE

TITLE: PROPOSED DRAINAGE LAYOUT

SHEAR design
Consulting Civil and Structural Engineers
7 Ashtree Court - Woodsy Close - Cardiff Gate Business Park - Cardiff - CF23 8RW
Tel 029 2054 7000 - Fax 029 2054 7001 - www.shear-design.com - enquiries@shear-design.com

DRAWN	CHECKED	DATE	SCALE
TDJ	DKK	FEB 2024	1:750 @ A0

SHEAR DESIGN REF	DRAWING NUMBER	REVISION
23009	23009-500	P05
		STATUS: P