

CONSTRUCTION SURFACE WATER MANAGEMENT PLAN

Site Name:

Contractor Name:

Reference Number:

Planning Application No:

Index

- 1. Introduction & Aim
- 2. Site Details
- 3. Roles & Responsibilities
- 4. Managing Surface Water During Construction
- 5. Flood & Weather Alert
- 6. Legislation & Guidance
- 7. Company, Contractor Accreditation (e.g. ISO) and Environmental Policies
- 8. Appendices List



Content Amendment Record

Issue No	Revision	Description	Date	Signature

1. Introduction & Aim

- 1.1 The requirement for a Construction Surface Water Management Plan (CSWMP) is based on the duty to ensure that surface water quality and quantity is managed throughout the construction process to mitigate impacts off site.

2. Site Details

- 2.1 Location:

3. Roles & Responsibilities

3.1 This section identifies the key roles and responsibilities for the scheme. This is to be completed by the appointed contractor.

Role	Contact	Company Name & Address	Contact No & Email	Key Responsibilities
Site Owner	Tom Hobbs	Herin Property Investments LLP	investments@herininvestments.co.uk	Site Owner
Principal Contractor		Suffolk Timber Homes Ltd		

4. Managing Surface Water During Construction

Tick one option box from the type of surface water system you intend to use and supply details as an appendix.

Option 1.

Build, use and remediate permanent surface water drainage system

Option 2.

Install, use and remove a temporary surface water drainage system

Option 3.

Utilise existing system with pollution control measures (Brownfield sites only)

Details to include:

- Construction Surface Water Drainage System Design
- Construction Management, Maintenance and Remediation Schedules
- Required Consents (e.g. Land Drainage Act, Environmental Permit etc)
- Flood Risk Controls
- Pollution, Water Quality & Emergency Control Measures
- Phasing Plan (if required)
- Construction Site Plan showing compounds, material storage areas, temporary site parking etc

5. Flood & Weather Alert

5.1 Flood Alert (River and Sea Flood Risk)

Project Manager and Works Manager should sign up to the Environmental Agency flood warning system <https://www.gov.uk/sign-up-for-flood-warnings> if the site is within a flood zone 2 or 3.

Alert Level	Definition	Action	Responsibility
Flooding Alert	Flooding is possible – be prepared		
Flood Warnings	Flooding is expected – immediate action required		
Severe Flood Warning	Severe flooding danger to life		



5.2 Weather Alerts (Surface Water Flood Risk)

Project Manager and Works Manager should sign up to the Met Office weather warning system <https://www.metoffice.gov.uk/public/weather/warnings>

Alert Level	Definition	Action	Responsibility
Yellow: Be Aware	Yellow warnings can be issued for a range of weather situations. Many are issued when it is likely that the weather will cause some low-level impacts, including some disruption to travel in a few places. Other yellow warnings are issued when the weather could bring much more severe impacts to many people but the certainty of those impacts occurring is much lower. It is important to read the content of yellow warnings to determine which weather situation is being covered by the yellow warning.		
Amber: Be Prepared	There is an increased likelihood of impacts from severe weather, which could potentially disrupt your works plans. This means there is the possibility of travel delays, road and rail closures, power cuts and the potential risk to life and property.		
Red: Take Action	Dangerous weather is expected and, if you haven't already done so, you should take action now to keep yourself and your works force safe from the impact of the severe weather. It is very likely that there will be a risk to life, with substantial disruption to travel, energy supplies and possibly widespread. You should avoid travelling, where possible, and follow the advice of the emergency services and local authorities.		

6. Legislation & Guidance

The Water Environment (England and Wales) regulation 2009
Land Drainage Act 1991
SEPA Engineering in the Water Environment Good Practice Guide Temporary Construction Methods

Methods
Control of Water Pollution from Construction Sites – Guide to Good Practice (SP156)
Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (C532)
Control of Water Pollution from Linear Construction Projects – Technical Guidance (C648)
Control of Water Pollution from Linear Construction Projects – Site Guide (C649)
Environmental Good Practice – Site Guide (C650)
The SUDS Manual (C753)
BS 8582:2013 Code of practice for surface water management for development sites
BS 8582:2013 Code of practice for surface water management for development sites

7. Company, Contractor Accreditation (e.g.ISO) and Environmental Policies

8. Appendices List

APPENDIX A

CONTENTS

PDC Engineering Construction Surface Water Management Plan. Revision 0



**Construction Surface Water
Management Plan**
Revision 0

Job No. 29478

Proposed Mixed Use Development
Willisham Hall
Barking Road
Willisham
Suffolk
IP8 4SL

Client: Herin Property Investments LLP

February 2024

REPORT CONTROL SHEET

Client: Herin Property Investments LLP **Job No.:** 29478

Project Name: Proposed Mixed Use Development
 Willisham Hall
 Barking Road
 Willisham
 Suffolk
 IP8 4SL

Issue		
Revision 0	February 2024	Report Prepared by: Sally Hare B.Sc (Hons) CSci, MEnvSc, MCIWEM Director - Environmental
		Report Reviewed & Authorised by: Matt Hare B.Sc, CEng, MCIWEM, C.WEM, MICE, MIMechE Director - Infrastructure

CONDITIONS OF INVESTIGATION & REPORTING

This report and its findings should be considered in relation to the terms of the brief and objectives agreed between PDC Engineering and the Client.

PDC Engineering are only able to work with information available at the time the Construction Surface Water Management Plan is carried out which have been applied to the Construction Surface Water Management Plan in accordance with current best practice. PDC Engineering cannot be held responsible for any subsequent flooding to the development or surrounding area.

The details contained in this Construction Surface Water Management Plan are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by PDC Engineering has not been independently verified by PDC Engineering, unless otherwise stated in the report.

This report was prepared and provided for the sole and specific use of the client. PDC Engineering shall not be responsible for any use of the report or its contents for any other purpose. Copies of the report to other parties for information should be copied in full but PDC Engineering shall extend no professional liability or warranty to other parties in this connection without written consent. The copyright of this report and other plans and documents prepared by PDC Engineering are owned by them.

TABLE OF CONTENTS

REPORT CONTROL SHEET I

CONDITIONS OF INVESTIGATION & REPORTING I

TABLE OF CONTENTS..... 1

1.0 INTRODUCTION2

1.1 Background Information2

1.2 Objectives.....2

2.0 SITE DESCRIPTION2

2.1 Location & Site Setting.....2

2.2 Existing Site Layout & Topography3

2.3 Hydrology4

3.0 PROPOSED DEVELOPMENT4

3.1 Description4

3.2 Proposed Surface Water Drainage4

4.0 INSTALLATION OF THE DRAINAGE SYSTEM4

5.0 PREVENTION OF SEDIMENTS & POLLUTION DISCHARGING OFF-SITE..... 5

5.1 Sediment Forebay & Attenuation Pond.....5

5.2 Good Site Practice6

6.0 PRIOR TO OCCUPATION9

7.0 SUMMARY.....9

8.0 REFERENCES 10

DRAWINGS APPENDIX

- Drawing No. 46010IPLS-02 - Topographical Survey Sheet 2 of 5
- Drawing No. 46010IPLS-05 - Topographical Survey Sheet 5 of 5
- Drawing No. 22 200 - 01 E - Proposed Site Plan
- Drawing No. 29478/005 - Surface Water Drainage Plan
- Drawing No. 29478/010 - Drainage Details
- Drawing No. 29478/015 - Detention Basin Plan and Details

APPENDIX A

Silt Control Toolbox Talk⁽⁷⁾

1.0 INTRODUCTION

1.1 Background Information

This Construction Surface Water Management Plan (CSWMP) was prepared by PDC Engineering. The report was commissioned by Hollins Architects and Surveyors on behalf of Herin Property Investments LLP.

This has been prepared to address Mid Suffolk District Council’s Planning Condition 13 of Planning Application, Reference DC/20/02426, for the erection of eleven dwellings, five commercial B1 (office) space units, a A1/A3 farm shop/cafe, play area, footpath, and associated parking at Willisham Hall, Barking Road, Willisham, Suffolk, IP8 4SL, referred to here within as the site.

1.2 Objectives

This CSWMP has been prepared in response to Mid Suffolk District Council’s Planning Condition 13, Part H & I, that requested the following;

“13 h. Details of a Construction Surface Water Management Plan (CSWMP) detailing how surface water and storm water will be managed on the site during construction (including demolition and site clearance operations) is submitted to and agreed in writing by the local planning authority. The CSWMP shall be implemented and thereafter managed and maintained in accordance with the approved plan for the duration of construction. The approved CSWMP and shall include:

i. Method statements, scaled and dimensioned plans and drawings detailing surface water management proposals to include :-

- 1. Temporary drainage systems*
- 2. Measures for managing pollution / water quality and protecting controlled waters and watercourses*
- 3. Measures for managing any on or offsite flood risk associated with construction.”*

A variety of public, published, and site-specific information sources have been consulted in the compilation of this report, a list of these sources can be found in **Section 8.0, References**.

2.0 SITE DESCRIPTION

2.1 Location & Site Setting

The proposed site is located to the south-east of the settlement of Willisham, to the west of Barking Road, **Table 2.1** below provides a site summary, and **Figure 2.1** below details the site’s location.

Site Summary	Details
Site Address	Willisham Hall, Barking Road, Willisham, Suffolk, IP8 4SL
OS Pathfinder Grid Reference	TM 06982 50615 ⁽¹⁾
Local Planning Authority	Mid Suffolk District Council
Lead Local Flood Authority (LLFA)	Suffolk County Council

Site Summary	Details
Environment Agency Area of Responsibility	East Anglia ⁽⁶⁾
Internal Drainage Board (IDB)	None ⁽²⁾

Table 2.1 Site summary⁽¹⁾



Figure 2.1 Location of the site, red line denotes the site boundary⁽³⁾.

The site is situated in a village setting, where dwellings are located along Barking Road to the south, and north. Agricultural land is located to the west, north, and east of Barking Road.

2.2 Existing Site Layout & Topography

The existing site comprises of a series of agricultural storage buildings that are connected by a concrete road and yard area adjacent to Barking Road. An area of undeveloped land is located to the west of the agricultural buildings. Refer to Drawing No.'s 46010IPLS-02 & 05 in the **Drawings Appendix**.

A drainage ditch is located to the north of the site, and flows parallel to Barking Road. Another ditch is located to the south-west of the site within land owned by the applicant.

The site is accessible via an existing access road off of Barking Road.

Ground levels vary across the site from approximately 67.50m AOD in the south, to 70.04m AOD in the north.

2.3 Hydrology

As identified in **Section 2.1** drainage ditches are located to the north and south-west of the site. The ditch to the south-west of the site flows southwards eventually outfalling into The Channel, an Environment Agency Main River which is located 780m south of the site.

3.0 PROPOSED DEVELOPMENT

3.1 Description

The proposed development is for demolition of the existing structures to enable the erection of eleven dwellings, five commercial office units, a farm shop/cafe, play area, footpath, and associated parking, refer to Drawing No. 29478/005 and 22 200 - 01 E in the **Drawings Appendix** detailing the proposed site layout. The site will be accessible from Barking Road to the east.

3.2 Proposed Surface Water Drainage

The surface water runoff from the proposed hardstanding will be conveyed to an attenuation basin in the west of the site. The basin will attenuate the flow prior to the water discharging at a restricted rate into the existing ditch network via a flow control, refer to Drawing No. 29478/005 in the **Drawings Appendix**.

The attenuation basin will be 1.3m deep with bank slopes of 1 in 4 and a 1.5m wet bench located 0.6m from the base. It will also include a gabion permeable berm, that will create a sediment forebay, and enable flows to pass through, as well as a low flow channel and aquatic planting.

The pervious areas will be lined with a filter Geotextile, such as Polypipe Permafilter SuDS Geotextile. The incorporation of the filter Geotextile will improve the water quality of the surface water entering into the ground.

The drainage system is designed to contain up to and including the 1 in 100 year rainfall event including climate change, refer to Drawing No.'s 29478/005, 010, & 015 in the **Drawings Appendix** detailing the proposed drainage system, basin sections, and drainage details.

4.0 INSTALLATION OF THE DRAINAGE SYSTEM

During construction phase, before the new drainage system is installed, there is the potential for uncontrolled surface water runoff from the site. In order to mitigate against surface water flooding during construction activities, the construction works will be programmed so that the associated drainage infrastructure is constructed, and operational throughout the construction programme.

The installation of the surface water drainage network will therefore be undertaken during the early stages of the construction project which will enable the capture of surface water runoff.

Pervious paving will also be installed as part of the proposed drainage scheme, where the pervious paving is required to carry site or construction traffic prior to completion, consideration must be given to avoiding contamination of the sub-base. Measures should be taken to avoid this by identifying areas and routes for construction traffic that avoid the pervious sub-base areas. Where this is not possible, the pervious paving will have an asphalt cap to prevent any silt entering into the sub-base storage area.

5.0 PREVENTION OF SEDIMENTS & POLLUTION DISCHARGING OFF-SITE

During construction, and especially following the removal of any vegetation, there is the potential for sediments, and pollutants to be washed off-site within surface water runoff, which without mitigation has the potential to pollute on- and off-site ditches. Sediment within the water can result from a number of different activities on-site, and the following mitigation measures will be incorporated in the construction phase of works to minimise silt/sediment/pollution accumulation in the local ditch network.

Vigilant site management, and mitigation measures as detailed in **Section 5.1, Good Site Practice** will be incorporated into the construction phase of works to minimise the amount of sediment, and pollution accumulation entering into the drainage system or discharging off-site.

At no time should water containing silt be pumped directly into the ditch network.

5.1 Sediment Forebay & Attenuation Pond

The sediment forebay in the attenuation basin will enable the sediment build up to be easily monitored, and any required sediment removal activities will be concentrated in a smaller area. This will prevent damage, and reduce the risk of pollution/sedimentation to the main area of the attenuation basin, and subsequently the local drainage network.

When the sediment forebay is constructed a fixed sediment depth marker will be installed in the forebay to enable the accumulation of sediment to be monitored during the construction phase, and allow the sediment to be removed as required. Before final completion the sediment forebay will be dredged and the sediment removed, the new drainage system will also be inspected to ensure that all debris has been removed.

The sediment from the forebay has the potential to contain low levels of pollutants such as metals, and hydrocarbons, therefore removal/disposal of this will be undertaken in accordance with the requirements of relevant waste management legislation.

Daily inspections of the sediment forebay and basin will be undertaken, with additional inspections during periods of heavy rainfall.

At the end of each working day a visual inspection of the basin will be undertaken to confirm that the basin contains clean surface water runoff only, and settlement has occurred. Providing the inspection confirms this, discharge into ditch network via the flow control and vortex separator will then be permitted. At the start of the next working day the penstock control will be re-installed to prevent discharge to the ditch. Should the inspection confirm that the water is not clean, the water

will be pumped out into a tanker for appropriate off-site disposal. The basin and on-site drainage network will then be cleaned prior to discharge into the ditch.

Should any works lead to temporary excessive surface water ponding, in particular adjacent to the site boundaries which could result in off-site flooding, surface water will be pumped into the sediment forebay, and additional measures potentially taken to prevent any flow e.g. installation or increasing the scale of soil bunds on-site.

Measures will be taken to prevent water entering into excavations, through the use of cut-off ditches. However, should water be generated from dewatering of excavations it will be pumped into the sediment forebay, to enable settlement.

The sediment forebay, and to a lesser extent the attenuation basin, have the ability to intercept the majority of the sediment, and pollution that would typically arise during the construction phase, and stop this from entering into the ditch network. However, through vigilant site management as detailed in the subsequent **Section 5.2, Good Site Practice** the amount of sediment, and pollution entering the sediment forebay will be limited.

5.2 Good Site Practice

5.2.0 Demolition

The existing drainage system for the existing structures on-site should be utilised until the point of demolition. Just prior to demolition the structures they should be disconnected from the existing system, and the system sealed and decommissioned to prevent anything from entering it.

5.2.1 Soil Bunds

Ground levels fall to the south, therefore should flow paths be identified during the construction phase, soil bunds should be installed to prevent the silty water discharging off-site or into the surrounding ditch network. Soil bunds restrict the flow of water and suspended sediments entering into the ditch network.

5.2.2 Emergency Spill Kits

As identified in **Section 2.1 & 2.3** drainage ditches are located to the north and south-west of the site

Emergency spill kits will be kept on-site in areas appropriate to their risk. As part of the site induction all construction workers will be briefed on the importance of water quality, the location of the surface water features on- and off-site, and the location and use of the spill kits.

The site operatives will be trained in their use and how to deal with any spillages of materials likely to contaminate the local ditch network.

All spill kits will be fully stocked at all times, and an inventory of equipment within the container will be clearly displayed on the lid.

In the event of a spillage, the material must be contained (using absorbent material such as sand, soil, or commercially available booms). In the event of a significant occurrence the Environment Agency will be notified immediately.

Spills that may pollute the water environment have the potential to result from variety of activities, the following will be considered when undertaking the below tasks;

- **Deliveries:** Special care will be taken during deliveries, especially when fuels, and hazardous materials are being handled. All deliveries will be supervised by a responsible person.

Storage tank levels will be checked prior to delivery to prevent overfilling, and to ensure that the product is delivered to the correct tank. Should a spillage occur, suitable materials should be readily available to contain the spill.

- **Refuelling:** The risk of spillage of fuel is greatest during the refuelling of plant. Mobile plant will be refuelled in a designated area, preferably on an impermeable surface away from any drains. A spill kit will be available in this location. Hoses and valves are to be checked regularly for signs of wear, and will be turned off and locked away when not in use. Any diesel pumps and similar equipment are to be placed on drip trays to collect minor spillages, trays will be checked regularly, and accumulated oil will be removed for disposal.

5.2.3 Use of Concrete and Cement Products

Concrete and cement products have the potential to have a serious impact on the water environment. It is essential to take particular care with all works involving concrete and cement. Construction of concrete structures during the construction phase shall be monitored to prevent associated contaminated material entering the surface water drainage network. Pre-cast work or permanent formwork shall be used where possible to reduce the amount of in-situ concreting required. Washing out of concrete wagons or other equipment used in concreting operations shall only be undertaken in designated contained washout areas. These shall be located away from the surface water drainage network, and shall be impermeable to prevent infiltration into the ground.

5.2.4 Storage of Substances that have the Potential to Cause Pollution

Some of the materials used within the construction process have the potential to cause pollution to the water environment, including fuel, oil, chemicals, cleaning materials, and paint. All of these substances must be sited on an impervious base, within a bund, and secured. The base and bund walls must be impermeable to the material stored and of an appropriate capacity. Leaking or empty oil drums must be removed from the site immediately, and disposed of via a licensed waste disposal contractor.

The contents of any tank will be clearly marked on the tank, and a notice displayed requiring that valves and trigger guns be locked when not in use. All valves and trigger guns are to be protected from vandalism and unauthorised interference.

All containers will be maintained and kept in a good condition to prevent any leaks and/or contamination of the surrounding area. General good housekeeping practices will be applied, and lightweight materials will be covered or weighted down.

Browsers will be stored within a secure compound when not in use.

5.2.5 Geotextile Matting

All surface water drains in the working area or those susceptible to sedimentation during the construction process, will have a geotextile matting which will permit water to pass through but prevent silt and debris entering into the drainage network.

5.2.6 Placement and Covering of Soil Heaps

Soil heaps will be located and configured in a way that will reduce the risk of contamination of the local ditch network e.g. protective coverings used to prevent any erosion of the soil.

5.2.7 Stockpiling

Stockpiling of materials during construction may restrict flow and result in ponding of water on-site. In order to minimise flow paths across the site, stockpiling will be kept to a minimum and space will be provided between stockpiles to minimise the impact on overland flow.

5.2.8 Road Sweeping/Wheel Washes/Plant Washing Facilities

The requirement, and frequency of road sweeping will be dictated by site conditions.

Any wheel washes and plant washing facilities are to be securely constructed with no overflow, and the effluent will be contained for proper treatment, and disposal. The effluent will not be allowed to infiltrate into the ground.

5.2.9 Limiting Compaction of Natural Ground & Stripping Unnecessary Areas

Due to the presence of the existing infrastructure it is less likely that there will be a need for vehicles and traffic to cross unmade ground, which would have the potential to compact soils across the site, and reduce the natural drainage potential of the ground. However, if needed vehicles and traffic will be limited to set paths to avoid unnecessary compacting of soils. In addition to unvegetated and newly disturbed areas will be limited in exposure to decrease the likelihood of erosion and runoff.

5.2.10 Weather Warnings

The site will register with the Met Office to receive Severe Weather Warnings, so that in the event of extreme wind, snow or rain, tasks that have the potential to cause sedimentation/pollution are postponed.

Severe weather warnings are available in a number of ways, including radio, television, the Met Office website, social media, smart phone apps, RSS, and via email alerts. Details on signing up to the email alert service are available on the Met Office webpage 'Guide to Email Alert Service' <https://www.metoffice.gov.uk/about-us/guide-to-emails>.

Table 5.2 below defines the Met Office alert levels, which range from Yellow (be aware) to Red (Take Action).

Alert Level	Definition	Action	Responsibility
Yellow Be aware	Severe weather is possible over the next few days and could affect you. Yellow means that you should plan ahead, thinking about possible travel delays, or the disruptions to day to day activities.	Review site mitigation measures.	Project Manager
	The Met Office is monitoring the developing weather situation and Yellow means keep an eye on the latest forecast and be aware that the weather may change or worsen, leading to disruption of plans in the next few days.	Undertake any actions as instructed by the Project Manager to ensure the site is prepared.	Works Manager
Amber Be prepared	There is an increased likelihood of bad weather affecting you, which could potentially disrupt plans, cause travel delays, road closures, interruption to power and the potential risk to life and property.	Review site mitigation measures.	Project Manager
	Amber means you need to be prepared to change plans, and protect the site, and its workers from the impacts of the severe weather.	Undertake any actions as instructed by the Project Manager to ensure the site is prepared.	Works Manager
Red Take action	<p>Extreme weather is expected.</p> <p>Red means you should take action now to keep yourself and others safe from the impact of the weather.</p> <p>Widespread damage, travel, and power disruption, and risk to life is likely. You must avoid dangerous areas and follow the advice of the emergency services and local authorities.</p>	<p>Review of site, take action to secure or move equipment and materials.</p> <p>Red alert will normally require the closure of site to protect the workforce. Project Manager and Works Manager to be consulted.</p>	Project and Works Manager

Table 5.2 Met Office alert levels and required site actions⁽⁴⁾.

6.0 PRIOR TO OCCUPATION

Before final completion the new drainage system will also be inspected to ensure that all debris has been removed, in addition to being jetted and cleaned. Following this the sediment forebay and /attenuation basin will be dredged and the sediments removed, in addition to holes being drilled in the pervious paving.

7.0 SUMMARY

With good practice and the measures outlined in Section 5.0 and 6.0 above, the risk of sedimentation and pollution to the surface water ditch network will be no greater than during the operational phase. Should site operatives require further details, reference should be made to CIRIA

C532 Control of Water Pollution from Construction Sites⁽⁵⁾, and C768 Guidance on the Construction of SuDS⁽⁶⁾. Frog Environmental's Silt Control Toolbox Tool⁽⁷⁾ has been included in **Appendix A** to provide further details on silt management.

8.0 REFERENCES

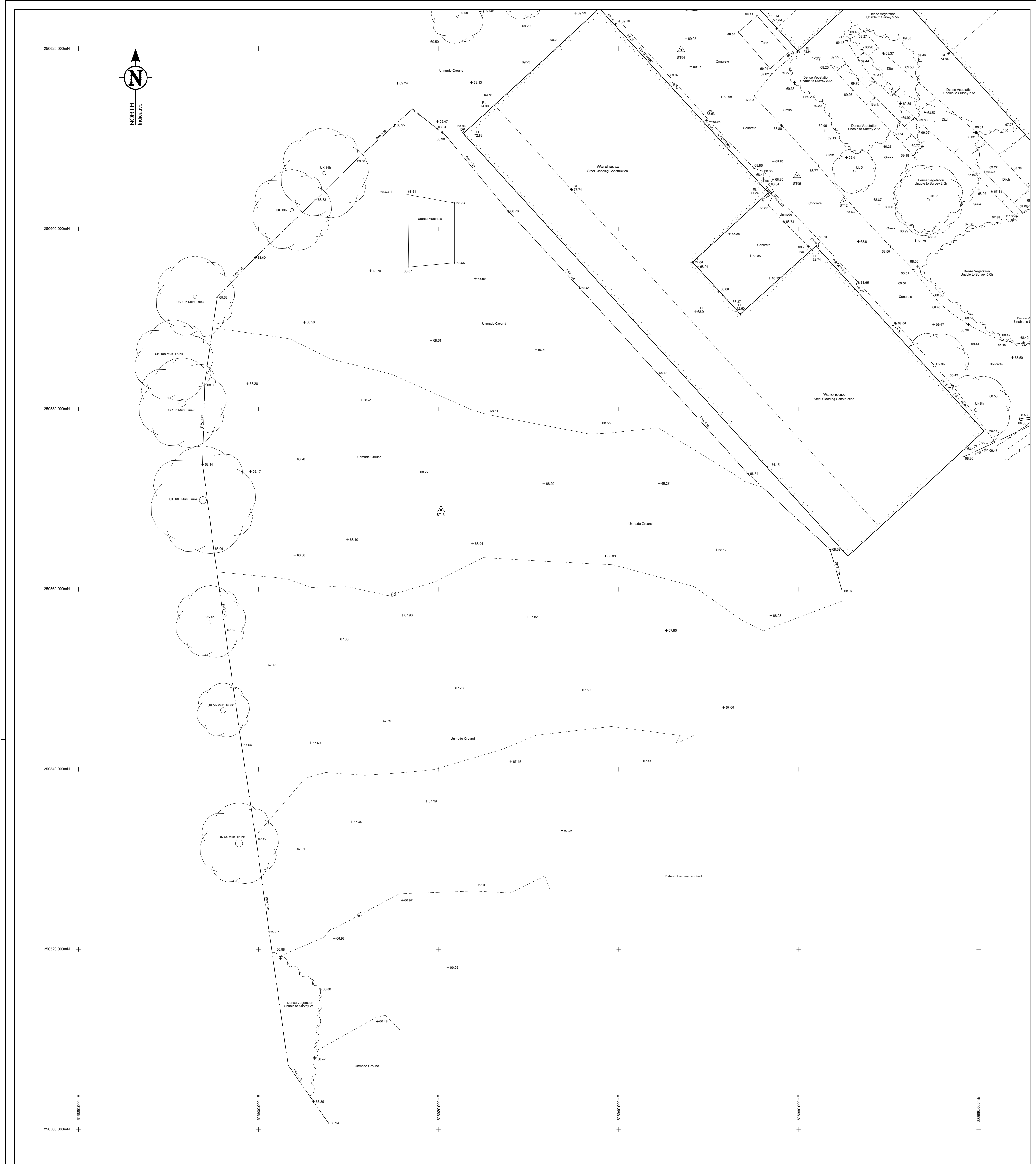
A variety of public, published, and site-specific information sources have been consulted in the compilation of this report, a list of these sources can be found below.

1. UK Grid Reference Finder website (2024) UK Grid Reference Finder Maps.
2. ADA website (2016) Internal Drainage Boards, England Wall Chart.
3. Google Maps (2024) Google Maps.
4. Met Office website (2024) Weather Warnings Guide.
5. CIRIA (2001) Control of Water Pollution from Construction Sites. CIRIA C532.
6. CIRIA (2017) Guidance on the Construction of SuDS. CIRIA C768.
7. Frog Environmental (2018) Silt Control Toolbox Talk (refer to **Appendix A**).
8. Open Government Data (2024) Open Government Licence v3.0, website <https://data.gov.uk/>.

DRAWINGS APPENDIX

CONTENTS

Drawing No. 46010IPLS-02	-	Topographical Survey Sheet 2 of 5
Drawing No. 46010IPLS-05	-	Topographical Survey Sheet 5 of 5
Drawing No. 22 200 - 01 E	-	Proposed Site Plan
Drawing No. 29478/005	-	Surface Water Drainage Plan
Drawing No. 29478/010	-	Drainage Details
Drawing No. 29478/015	-	Detention Basin Plan and Details



TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

AH	Arch Head Height	ER	Earth Road	RESD	Roller Shutter Door
AR	Assumed Route	ET	EP+Transformer	RSJ	Roller Steel Joint
AV	Air Valve	FB	Flower Bed	SI	Sign Post
BB	Bibula Beacon	FBD	Floor Board Direction	SP	Arch Spring Point Height
BH	Bore Hole	FH	File Holder	SV	Stop Valve
BL	Bed Level	FL	Floor Level	SW	Surface Water
BO	Bobard	FP	Flag Pole	SY	Cable Stay
BP	Brace Post	FW	Fuel Water	Tac	Tackle Parking
BS	Bus Stop	GG	Gully Grate	TC	Telecom Cover
BU	Bush	GV	Gas Valve	TH	Trail Pit
BW	Barbed Wire Fence	HC	Head Height	THL	Threshold Level
BX	Box (Bibula)	IC	Inspection Cover	TL	Traffic Light
CB	Close Board Fence	IL	Invert Level	TOW	Top of Wall
CH	Cill Height	IR	Iron Railings	TP	Telegraph Pole
CL	Cover Level	KO	Kerb Outlet	TS	Traffic Signal Cover
CL	Chain Link Fence	LP	Lamp Post	TV	Cable TV Cover
C-Lev	Ceiling Level	MH	Manhole	UB	Universal Beam
Col	Column	MP	Marker Post	UC	Unknown Cover
COP	Chestnut Paling Fence	NB	Name Board	UK	Unknown Tree
CR	Cable Riser	CHL	Overhead Line (approx)	UMG	Unmade Ground
CW	Chicken Wire	Pan	Panel Fence	USB	Under Side Beam
DC	Drainage Channel	PB	Post Box	UTL	Unable To Lift
DH	Door Head Height	PM	Parking Meter	UTS	Unable To Survey
DI	Dilapidated	PO	Post	VP	Vent Pipe
DP	Down Pipe	PIR	Post & Rail Fence	WB	Waste Bin
DR	Drain	PW	Post & Wire Fence	WH	Weep Hole
EBx	Electric Box	PWd	Partition Wall	WL	Water Level
EL	Eaves Level	RE	Rodding Eye	WM	Water Meter
EP	Electric Pole	RL	Ridge Level	WO	Wash Out
		RP	Reflector Post	WOC	Floor to Ceiling Height
		RS	Road Sign	WOC	Floor to False Ceiling Ht
				WOC	Floor to False Ceiling Ht

Survey Station

DRAWING NOTES

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Surveyed physical features may not necessarily represent the legal boundary line.

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

Cill heights are measured as floor to the cill and head heights are measured from cill to the top of window.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

© Land Survey Solutions Limited holds the copyright to all the information contained within this document and their written consent must be obtained before copying or using the data other than for the purpose it was originally supplied.

Do not scale from this drawing.

SURVEY CONTROL CO-ORDINATES

STATIONS	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION
ST01	607017.546	250659.999	69.422	Mag Nail
ST02	606979.459	250659.354	69.614	Mag Nail
ST03	606956.451	250637.092	69.525	Mag Nail
ST04	606946.935	250619.993	69.071	Mag Nail
ST05	606959.819	250605.909	68.790	Mag Nail
ST06	606989.015	250583.281	68.544	Mag Nail
ST07	607013.751	250601.396	68.928	Mag Nail
ST08	606981.048	250713.217	69.630	Mag Nail
ST09	606943.254	250606.050	70.403	Peg & Nail
ST10	606706.561	250589.170	70.281	Peg & Nail
ST11	606946.771	250629.036	69.144	PK Nail
ST12	606964.983	250603.073	68.674	PK Nail
ST13	606920.269	250568.788	68.278	PK Nail

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) national grid at a single point using Smartnet, then orientated to grid north with a scale factor of 1.000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data.

REV	DESCRIPTION	DRAWN	APPR	DATE

Original Sheet Size A1V

SURVEY SOLUTIONS

LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING

0845 040 5969
survey-solutions.co.uk

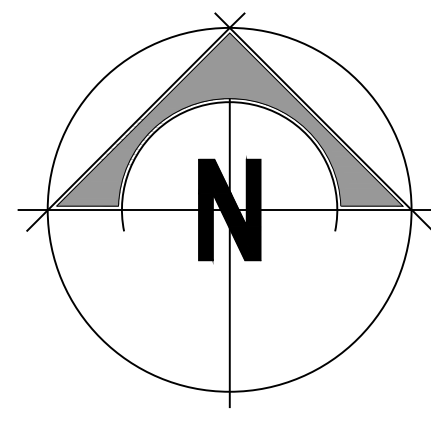
IPSWICH BEDFORD COVENTRY GLASGOW LONDON MANCHESTER NORWICH NOTTINGHAM YEOVIL

PROJECT TITLE
BARKING ROAD, WILLISHAM, IPSWICH
SUFFOLK, IP8 4SP.

DRAWING DETAIL
TOPOGRAPHICAL SURVEY
Sheet 5 of 5

CLIENT MARK GAYWOOD	SCALE 1:200
SURVEYOR JPB	SURVEY DATE 14/11/2022
CHECKED BY DWB	APPROVED BY JLH
DWG STATUS FINAL	ISSUE DATE 15/11/2022
DRAWING NUMBER 46010PLS-05	REVISION

RICS
Chartered
ICES
THE SURVEY ASSOCIATION
QMS 150 14001 2018 REGISTERED



Note General:

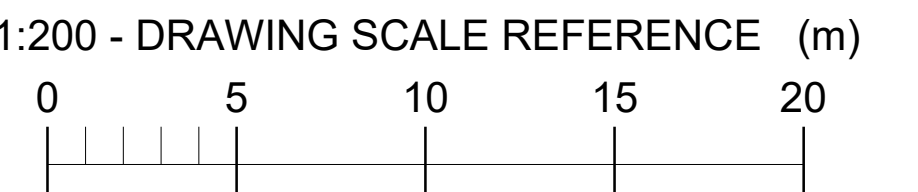
1. This document has been created in accordance with PDC Engineering terms & conditions along with the scope of works provided by the client to PDC Engineering. Any use of this document other than for its original purpose is prohibited. PDC Engineering accepts no liability for any third party use of this document.
2. PDC Engineering is to be informed immediately of any alterations/deviations identified on-site from the information shown on the engineering drawings.
3. PDC Engineering to be immediately notified of any suspected omissions or discrepancies.
4. All proprietary materials to be fixed strictly in accordance with manufacturer's recommendations using materials approved by the manufacturer.
5. Inspections by the Local Authority, shall be arranged by the contractor to suit their program.
6. Until technical approval has been obtained from the relevant authorities it should be understood that all drawings issued are preliminary and not for construction. Should the contractor start site work prior to approval being given, it is entirely at their own risk.

Note Drainage:

1. Unless noted otherwise all pipework shall be constructed from PVC-U to BS EN 1401-1 bedded and backfilled as per the manufacturer's recommendations and the above listed publications.
2. All private drainage shall be in accordance with BS EN 752 and relevant sections of Approved Document H of the Building Regulations. The Contractor's attention is drawn to Diagrams 7 and 8 of The Building Regulations Approved Document H showing details of drains laid below and near to buildings.
3. Generally, pipes to have granular bed & surround in accordance with manufacturer's recommendations, ensuring adequate protection with respect to depth and location.
4. All surface water pipes to be 150mm ø, and laid no flatter than 1:100 unless stated otherwise.
5. RWP's are shown indicatively only. Refer to architect's drawings for accurate locations.
6. Where surface water drains to ground, the existing ground should be broken up prior to laying the subgrade to aid infiltration.
7. All covers, gratings and frames to chambers, gullies, channels etc. shall be of the correct load class to suit their location.
 - Load Class A15 Domestic gardens (not accessible by vehicles.)
 - Load Class B125 Pedestrian areas where occasional vehicular access is likely
 - Load class C250 Driveways, public open space, paved areas and landscaping
 - Gratings in pedestrian areas to be designed for pedestrian use (in heel safe).
8. All pre-cast and in-situ concrete and mortars used in the construction of drains and sewers shall be made from sulphate resisting cement.
9. All levels and dimensions should be checked on-site by contractors and relevant sub-contractors.
10. Existing services & sewers indicated on this and any other related drawings are not necessarily shown on the drawings. The contractor shall liaise with the utility provider to determine precise location of existing services. Existing services should be marked out on-site prior to any excavation works. All utility company guidelines, and health & safety procedures must be strictly followed.
11. Prior to commencement of the works all drainage outfall points, whether existing sewer, drain, or watercourse, shall be verified on-site by the Contractor. If the outfall point is found to be higher or significantly lower than shown on the drawings then PDC Engineering shall be notified immediately. Prior to commencement of construction on-site the Contractor shall install all off-site drainage connections, or satisfy themselves that there are no obstructions or other reasons why the drainage connections cannot be made.

Feature Key

Site Boundary	—
Proposed Surface Water Sewers	---
Pipe Diameter / Pipe Gradient (Modelling Ref) / Pipe Length	150 @ 1:150 (1.021.25.5m)
Proposed Paving Drain	---
Rainwater Filter Chamber	RFC
Water Butt	WB
Rodding Eye	RE
Overland Flow Routes	→



FOR PLANNING

0	22-02-24	-	MJH	First Issue
Rev	Date	By	Checked	Description

pdc PLANNING DESIGN CIVIL

Units T6 & T7 Snettleton Business Park
Haring Road Snettleton Norfolk NR16 2JU
Telephone: (01953) 452001
E-mail: pdc@pdconengineering.co.uk www.pdconengineering.co.uk
PDC Engineering a Flansted Ltd Company

civil • structural • environmental • surveying

Client
Herin Property Investments

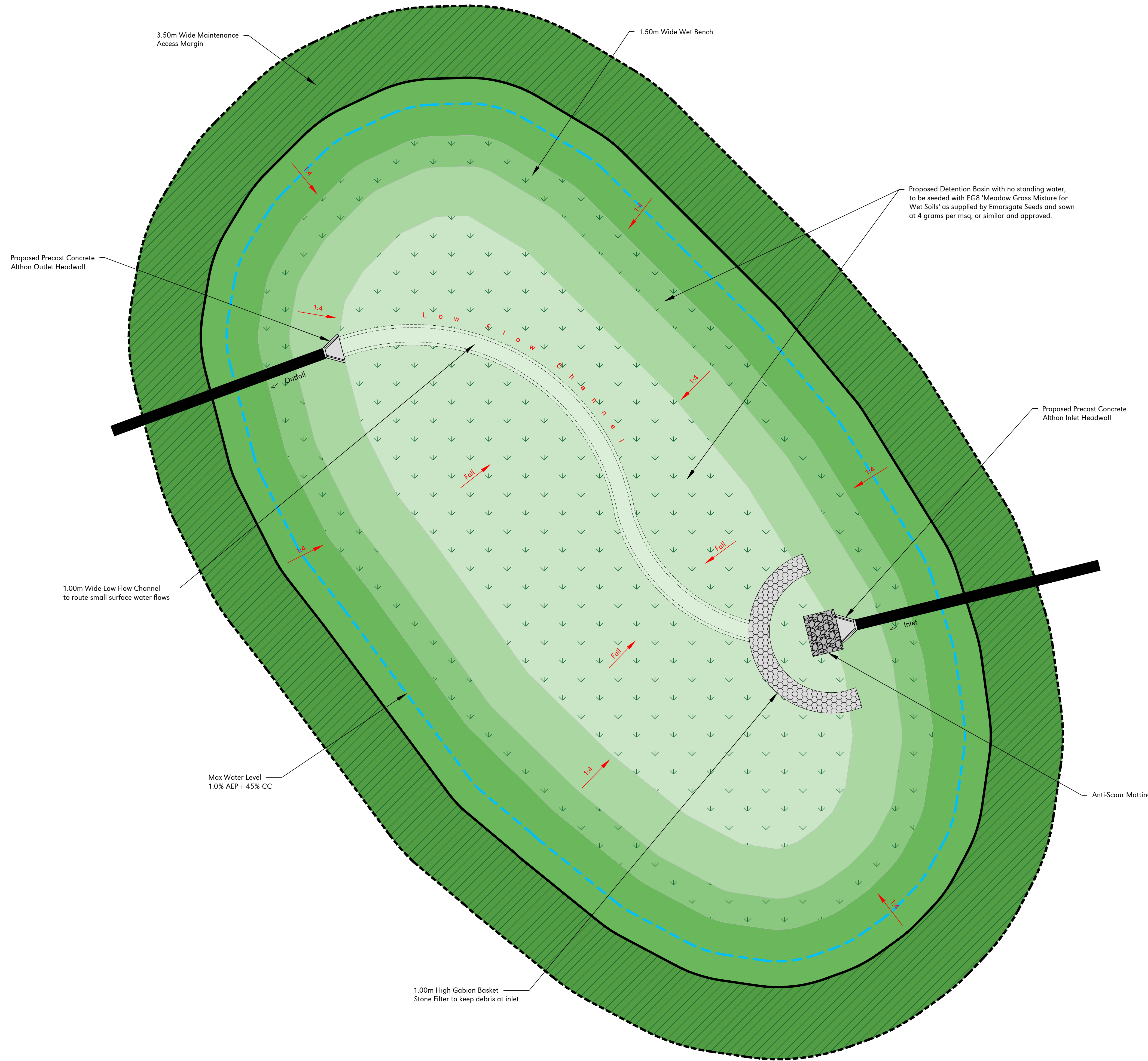
Project
**Willisham Hall
Willisham Hall Road
Willisham, IP8 4SL**

Drawing Title
**Surface Water Drainage
Plan**

Scale	U.N.O.	Date	Drawn By
1:200 (A0)		February 2024	CES
Drawing No.	29478/005	Rev	0

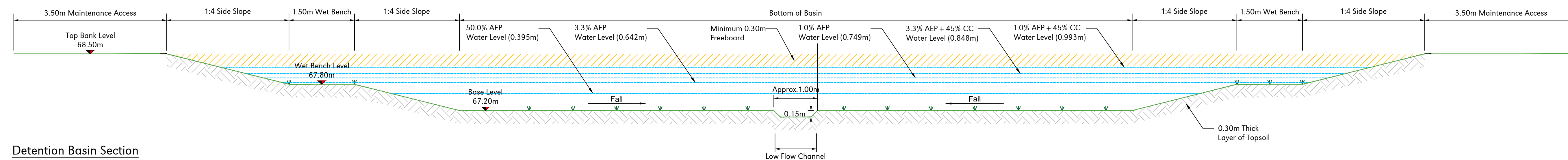


This drawing and the works depicted herein are the copyright of Flansted Ltd. Unauthorised reproduction infringes copyright.



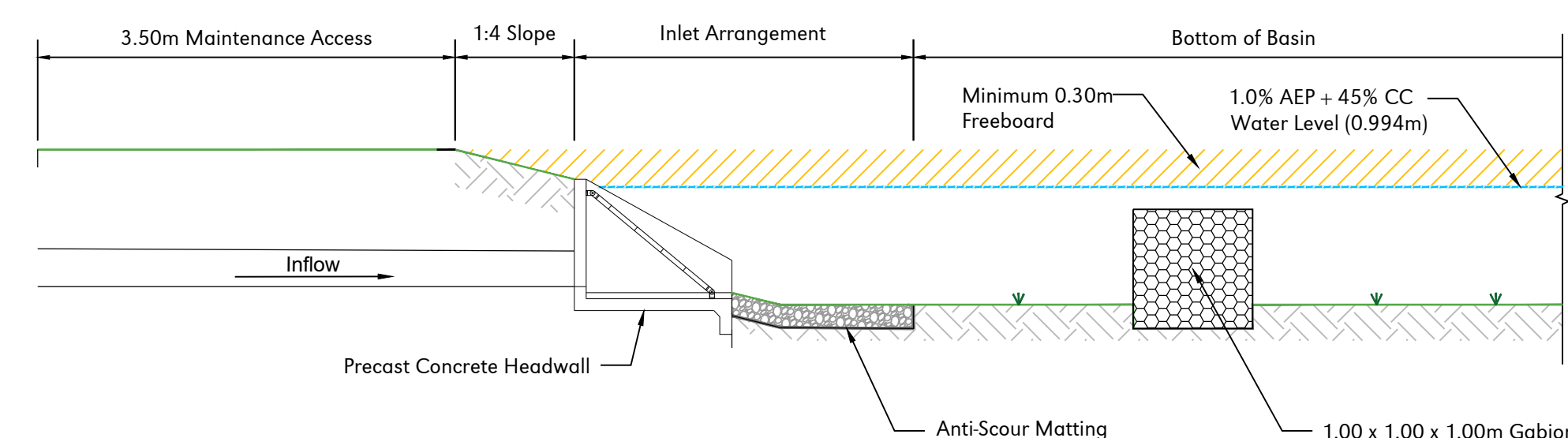
Detention Basin Schematic Plan

Scale 1:100



Detention Basin Section

Scale 1:50



Detention Basin Inlet Section

Scale 1:50

This drawing and the works depicted herein are the copyright of PDC Consulting Engineers Ltd. Unauthorised reproduction is illegal.

Note General:

1. This document has been created in accordance with PDC Engineering terms & conditions along with the scope of works provided by the client to PDC Engineering. Any use of this document other than for its original purpose is prohibited, PDC Engineering accepts no liability for any third party use of this document.
2. PDC Engineering is to be informed immediately of any alterations/deviations identified on-site from the information shown on the engineering drawings.
3. PDC Engineering to be immediately notified of any suspected omissions or discrepancies.
4. All proprietary materials to be fixed strictly in accordance with manufacturer's recommendations using materials approved by the manufacturer.
5. Inspections by the Local Authority, shall be arranged by the contractor to suit their program.
6. Until technical approval has been obtained from the relevant authorities it should be understood that all drawings issued are preliminary and not for construction. Should the contractor start site work prior to approval being given, it is entirely at their own risk.

Note Drainage:

1. Unless noted otherwise all pipework shall be constructed from PVC-U to BS EN 1401-1 bedded and backfilled as per the manufacturer's recommendations and the above listed publications.
2. All private drainage shall be in accordance with BS EN 752 and relevant sections of Approved Document H1 of the Building Regulations. The Contractor's attention is drawn to Diagrams 7 and 8 of 'The Building Regulations Approved Document H' showing details of drains laid below and near to buildings.
3. Generally, pipes to have granular bed & surround in accordance with manufacturer's recommendations, ensuring adequate protection with respect to depth and location.
4. All surface water pipes to be 150mm ø, and laid no flatter than 1:100 unless stated otherwise.
5. RWPs are shown indicatively only. Refer to architect's drawings for accurate locations.
6. Where surface water drains to ground, the existing ground should be broken up prior to laying the subgrade to aid infiltration.
7. All covers, gratings and frames to chambers, gullies, channels etc. shall be of the correct load class to suit their location:
 - Load Class A15 Domestic gardens (not accessible by vehicles)
 - Load Class B125 Pedestrian areas where occasional vehicular access is likely
 - Load class C250 Driveways, public open space, paved areas and landscaping
 - Gratings in pedestrian areas to be designed for pedestrian use (i.e. heel safe)
8. All precast and in situ concrete and mortars used in the construction of drains and sewers shall be made from sulphate resisting cement.
9. All levels and dimensions should be checked on-site by contractors and relevant sub-contractors.
10. Existing services & sewers indicated on this and any other related drawings are shown indicatively. All existing public utility services and private apparatus are not necessarily shown on the drawings. The contractor shall liaise with the utility provider to determine precise location of existing services. Existing services should be marked out on-site prior to any excavation works. All utility company guidelines, and health & safety procedures must be strictly followed.
11. Prior to commencement of the works all drainage outfall points, whether existing sewer, drain, or watercourse, shall be verified on-site by the Contractor. If the outfall point is found to be higher or significantly lower than shown on the drawings then PDC Engineering shall be notified immediately. Prior to commencement of construction on-site the Contractor shall install all off-site drainage connections, or satisfy themselves that there are no obstructions or other reasons why the drainage connections cannot be made.

FOR PLANNING

Rev	Date	Rev By	Checked	Description
0	26-02-24	MIH		First Issue

pdc PLANNING DESIGN CIVIL

Units T6 & T7 Snettleton Business Park
Haring Road Snettleton Norfolk NR16 2JU
Telephone: (01953) 452001
E-mail: pdc@pdcengineering.co.uk www.pdcengineering.co.uk
PDC Engineering a Plandesci Ltd Company

civil • structural • environmental • surveying

Client

Herin Property Investments

Project

Willisham Hall,
Willisham Hall Road,
Willisham, IP8 4SL

Drawing Title

Detention Basin Plan
and Details

Scale: U.N.O. Date: February 2024 Drawn By: JFY

As Noted (A1) Drawing No. 29478/015 Rev 0

APPENDIX A

CONTENTS

Silt Control Toolbox Talk



Silt is the number one pollutant from construction sites.

Regulation is getting tougher and the fines are getting bigger.

Why do we need to control silt?

- Silt has the potential to harm aquatic plants and animals, smother important habitat, reduce water quality and transport other contaminants such as oil and chemicals.
- Silt pollution can also impact abstractions, affecting drinking water supplies, irrigation, aquaculture and angling as well as damaging the general recreational and amenity value of water.
- It is an offence to allow polluting materials to drain into a watercourse. Silt pollution can result in prosecution and with it the potential for large financial penalties and reputational damage.

What are the sources of silt?

There are a number of high-risk areas on site that are prone to silt mobilisation during rainfall:

- roads and parking areas
- exposed soil
- dewatering muddy excavations
- plant and wheel washing facilities
- vehicles tracking across rivers, streams and ditches
- material storage areas and stockpiles
- uncontrolled concrete wash waters

How does silt pollution escape from site?

Once sediments are mobilised they will travel the path of least resistance, often resulting in muddy water leaving site.

Key pathways include:

- ditches and streams
- overland flow
- land drains
- surface water and foul drains
- bore holes

What are the benefits of silt control?

- reduce the risk of delays and the associated cost
- save space and land acquisition costs by managing settlement ponds
- improve relationships with the client, regulator and neighbours
- reduce complaints, disputes and the potential for compensation claims
- enable quicker, cheaper and better land reinstatement
- maintain and improve reputation within the industry

Remember: it's easier and cheaper to prevent pollution than to have to respond to and control a pollution event

The following site checklist can be used as a guide to help plan silt management:

DO:

Before works start:

- ✓ Be aware of all rivers, streams, ditches and drains and where they flow to, plan to protect these from mobilised silt
- ✓ How much rainfall can reasonably be expected? Ensure any settlement ponds are sized appropriately
- ✓ Check what silt control interventions are needed e.g. filtration devices, pipe reactors, silt capture channels. Seek advice early if unsure
- ✓ Plan to divert clean water away from exposed soils and working areas i.e. minimise silt creation
- ✓ Plan ahead for disposal for silt and include this in the Site Waste Management Plan
- ✓ Minimise the extent and duration of soil disturbance, establish new vegetation on bare ground as soon as possible
- ✓ Retain a vegetated strip (buffer zone) adjacent to rivers, streams and ditches

During construction:

- ✓ As the site develops check if the silt control measures are still adequate
- ✓ Report to construction manager any pollution or evidence of discoloured water leaving site
- ✓ Prevent contaminated water from entering watercourses untreated
- ✓ Roads and drains on site should be kept free of sediment build up.
- ✓ Keep site access clean and free from mud and standing water
- ✓ Check site drainage and silt control interventions after rainfall events
- ✓ Check silt treatment systems are working and that water being finally discharged from site is clear of silt on a daily basis
- ✓ Monitor lagoons and silt traps, ensure they are working as planned

DON'T:

- ✗ Don't strip land of vegetation unless it is necessary. Aim to reduce exposed soil on site
- ✗ Don't store piles of excavated material within 10m of a river, stream or ditch
- ✗ Don't pump muddy water to rivers, streams or ditches without treatment in place
- ✗ Don't release muddy water from excavations or lagoons without appropriate controls
- ✗ Don't release road-sweeper waste or concrete washout directly onto the land or into drains, use designated site-specific methods of disposal
- ✗ Don't hose down roads, concrete or cement spills directly into rivers, streams, ditches or drains without controls in place
- ✗ Don't wash off any tools or plant directly in rivers, streams or ditches



It is less expensive to prevent silt pollution than to receive a fine. Even with good planning, intense downpours can lead to silt control problems. If conditions change, contact the site manager.



Civil engineering and building

- Industrial, Commercial, Agricultural and Domestic building design
- Foundation Design and ground improvements
- Highway Engineering including Civil 3D
- Retaining walls
- Sheet Piling
- Infrastructure planning and design
- Design of sustainable drainage system (SUDS)
- Soakaway design
- Architectural design of industrial buildings
- Planning and building regulation applications
- 3D conceptual models
- Renewable Energy Civil Engineering design and project management
- Anaerobic Digestion and Waste to Energy Project design and detail



Environmental engineering

- Contaminated Land reports
- Environmental impact assessments (EIA)
- Flood Risk Assessments
- Water supply, treatment, storage and distribution
- Foul and surface water & effluent/leachate drainage design
- Drainage network modelling
- 1D & 2D flood modelling
- Hydraulic river modelling
- Flood Alleviation
- Breach & overtopping analysis
- Reservoir flood inundation modelling
- Consent to discharge applications
- Environmental Permits
- Nutrient Neutrality



Structural engineering

- Structural calculations for Commercial, Agricultural and Domestic building design
- Structural design using steel, stainless & carbon steel, concrete, timber and masonry
- Maritime and Hydraulic structures
- Structural surveys and structural suitability surveys
- Structural failure studies
- Subsidence claims
- 3D Finite Element Analysis
- Structural monitoring
- Structural enhancement/remedial work
- Historic building advice
- 3D Revit & Level 2 BIM structural design & modelling



Surveying land and buildings

- Geomatic / topographical site surveys
- Building, Road, and Earthworks Setting out
- Engineering Setting out
- Establish precise site survey control
- 3D digital terrain modelling
- Volumetric analysis
- Site area computations
- Flood risk surveys using GPS active network
- Measured building floor plans and elevation surveys
- Land transfer plans to Land Registry requirements
- Drainage network surveys
- Assistance/Expert witness in land boundary disputes
- Deterioration monitoring
- Preparation of asset plans
- As built record surveys

PDC Engineering

Units T6 & T7, Snetterton Business Park,
Harling Road, Snetterton, NR16 2JU

t: 01953 452001

e: pdc@pdcengineering.co.uk

pdcengineering.co.uk

PDC Engineering is a trading name of Plandescil Limited whose registered company number is 01447113 and whose registered office is Units T6 & T7, Snetterton Business Park, Harling Road, Snetterton, NR16 2JU.