



# Lauren Terraforte

## 20/ 00248

DATE: 25/ 10/ 2023      REPORT: Final  
3.0 REPORT TITLE: Water Quality  
Impact Assessment

## IMPORTANT INFORMATION

### Exo Environmental Ltd

The Enterprise Centre  
University of East Anglia  
Norwich Research Park  
Norwich NR4 7TJ  
Telephone: 0330 80 80 377  
Email: enquiries@exo-env.co.uk  
Website: www.exo-env.co.uk

### Client Information

Lauren Terraforte  
The Den  
Sandwich  
Kent  
CT139JG

### Authors

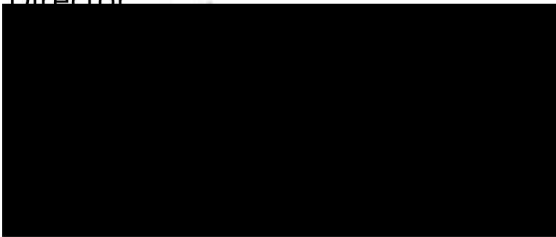
William Coulet MSc, BSc, MCIWEM  
Izaak Reeder MSci

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William Coulet  
Director



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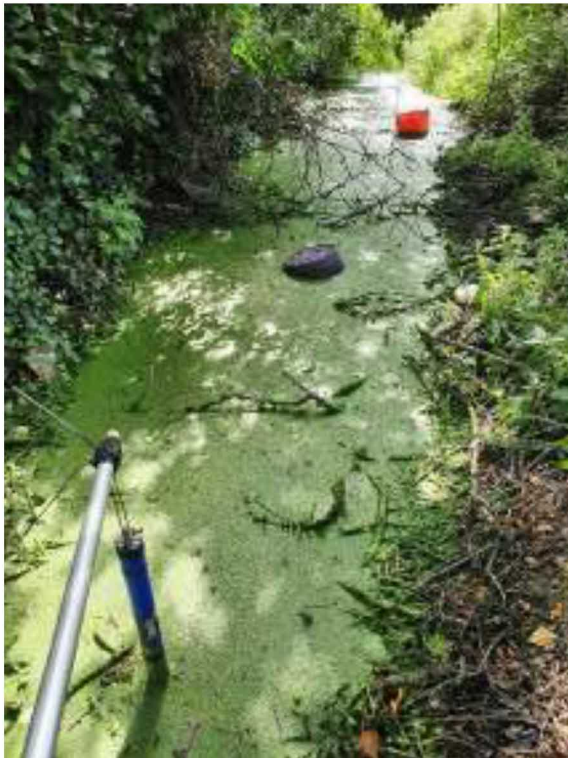


Figure 1. Drainage ditch east of the development site.

Figure 2. North Poulders stream closed penstock

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# 1. Introduction (the site)

This report is a revision (report number 3.0 Final) of the original report submitted as part of Planning Application 20/00248 and supersedes the previous report titled 2021-08-24\_Terra Final 2.0 (revision).

The land situated south of 'The Den', Richborough, Sandwich, is currently in use as horse pasture, with the proposed development into 8 holiday lodges. This has been reduced from the original 22 initially proposed. Please refer to the full application for further details, Dover District Council Planning Application 20/00248.

## 1.1 Water courses

From the site plan (Appendix 1 and figure 3) it can be made out that the site is situated north of North Poulders stream and to the west of Richborough Road. There is also a minor ditch to the east and west that are not actively maintained. The North Poulders stream has a closed connection to the river Stour, with water control structures (sluice) that are managed by the Environment Agency (EA) and The River Stour (Kent) Internal Drainage Board (IDB). The flap-valve on the Stour side is heavily silted up and a functioning penstock on the landward side is predominantly closed.

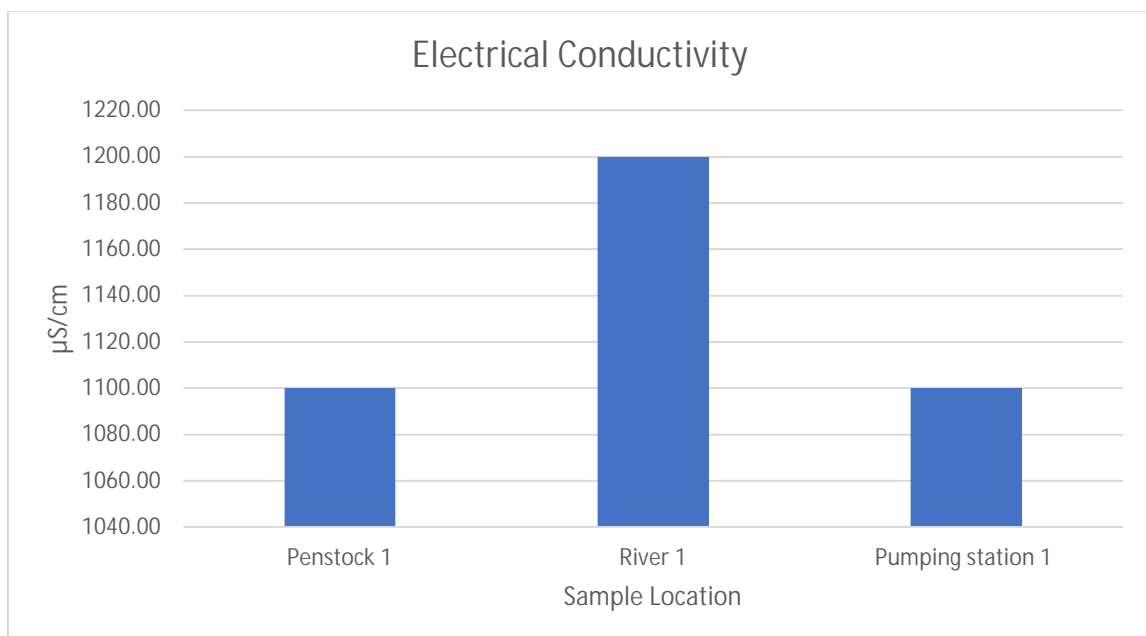
The main purpose of the water control structure is to feed water from the Stour into the North Poulders Stream and on to the wider marshes during summer (dry) conditions. Water is pumped via the Poulders Pumping Station (TR32118 58823) to control the water level in the marshes. In theory the water control structure could discharge water into the Stour during low tide, under extreme conditions (failing of the pumping station), however this is not common practice.

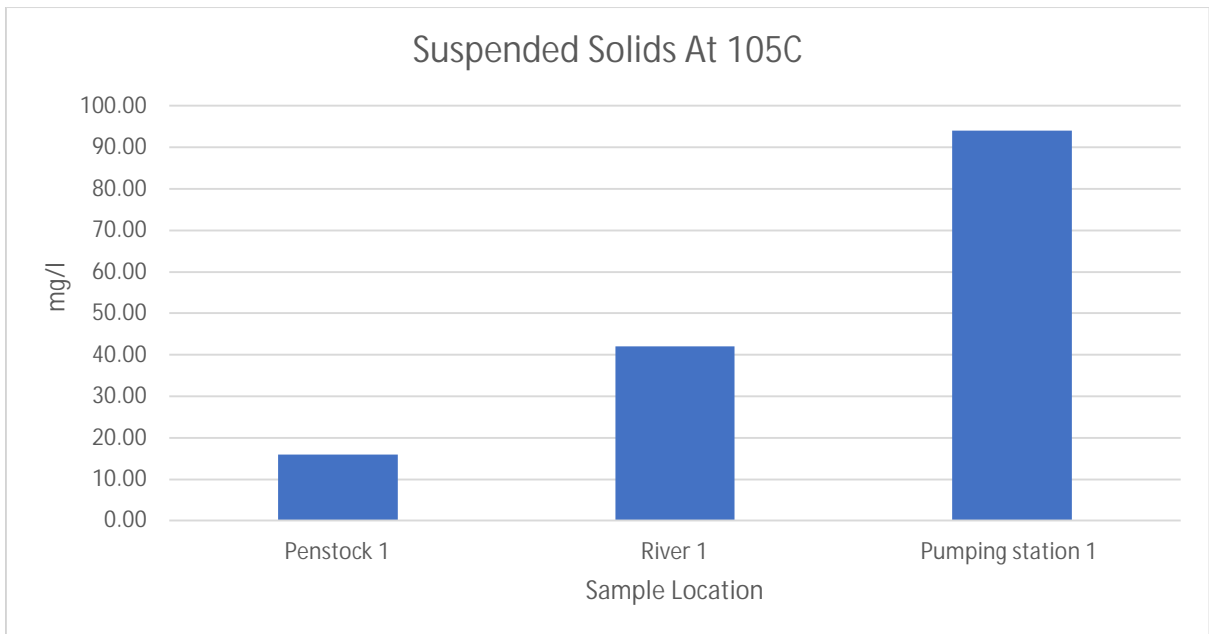
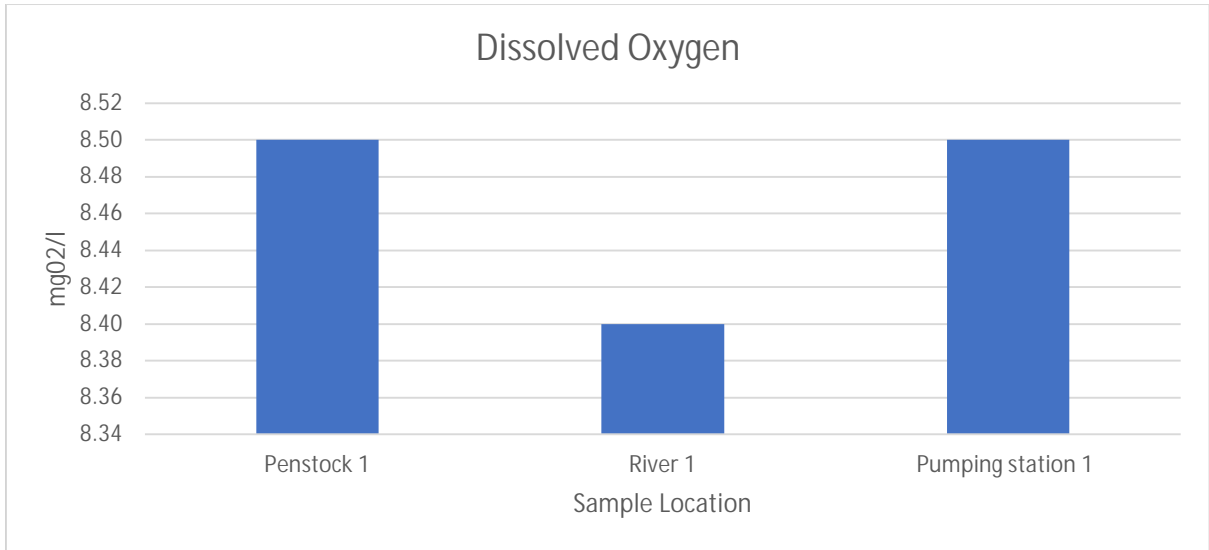
The Poulder stream has a very low flow due to extensive vegetation growth mostly consisting of Common Reed "*Phragmites*" and flow direction is to the west towards the railway and Poulders pumping station after which enters into the Gosshall Mainstream which eventually discharges into the river Stour (TR 32181 59522), via 1.25km of water course, from the development site.

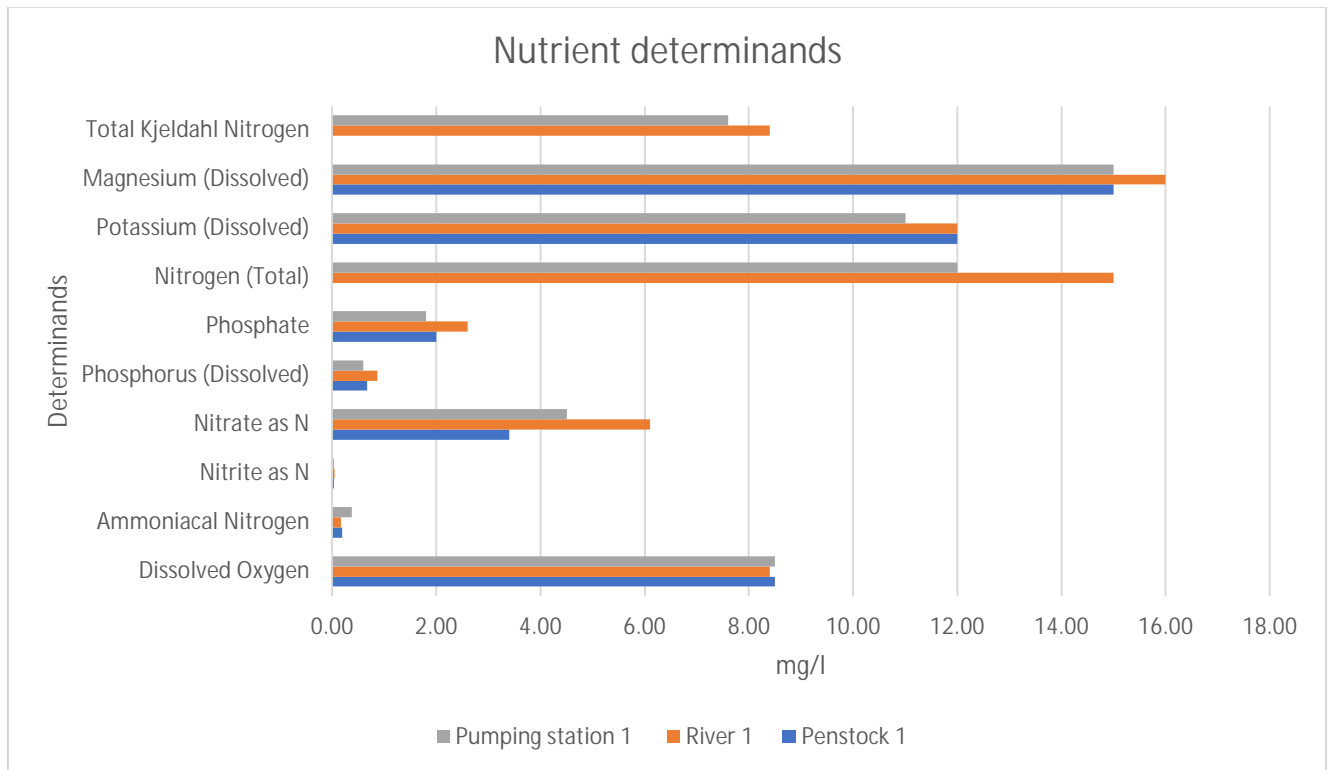


## Water quality

Water quality was assessed at three main locations throughout the study area. Repeat surveys were conducted in summer 2023 to update data previously collected in 2021 and presented in previous report versions. The new 2023 data is shown below. Water samples were collected at the penstock (sluice), the Poulders Pumping station and the river Stour.







From the above graphs it can be denoted that the water in the study area is fresh water (with some brackish influence noted in the Stour from the high electrical conductivity but relatively low suspended solid level) there is a notable difference between the Stour and the other two sites, primarily related to the dissolved oxygen and electrical conductivity, but otherwise no significant observations to be highlighted.

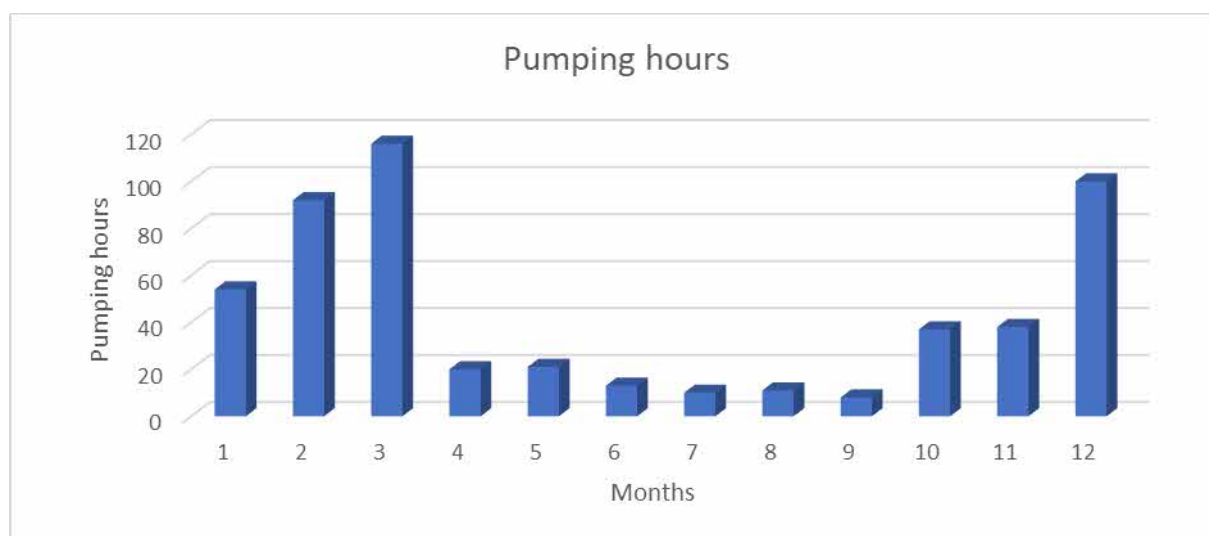
In the graph below the nutrient levels in water samples from the study area is tabulated, showing relatively low nutrient concentrations, of all parameters analysed. The most noteworthy result is the Total Nitrogen in the River (15mg/l) and Pumping station (12mg/l) which suggests enrichment but is still significantly below the 50mg/l to classify as a Nitrate Vulnerable Zone and a risk to Human health.



Determinand	Units	Penstock	River	Pumping station
Dissolved Oxygen	mg O2/l	8.50	8.40	8.50
Ammoniacal Nitrogen	mg/l	0.19	0.17	0.37
Nitrite as N	mg/l	0.03	0.04	0.03
Nitrate as N	mg/l	3.40	6.10	4.50
Phosphorus (Dissolved)	mg/l	0.67	0.87	0.60
Phosphate	mg/l	2.00	2.60	1.80
Nitrogen (Total)	mg/l	< 5.0	15.00	12.00
Potassium (Dissolved)	mg/l	12.00	12.00	11.00
Magnesium (Dissolved)	mg/l	15.00	16.00	15.00
Total Kjeldahl Nitrogen	mg/l	< 1.0	8.40	7.60

## 1.2 Flow

In order to provide a representation of flow through the Poulders Pumping station, the Environment Agency has kindly supplied typical pump hours from January 2020 to December 2020. It was not possible to measure flow in the North Poulders stream due to significant vegetation growth south of the paddocks. The amount of water traveling through Poulders pump is mainly from the Delf stream, rather than from North Poulders stream because of the representative catchment area. The Poulders Pumping station operates an Archimedes screw pump with around 400-450 litres a second output.



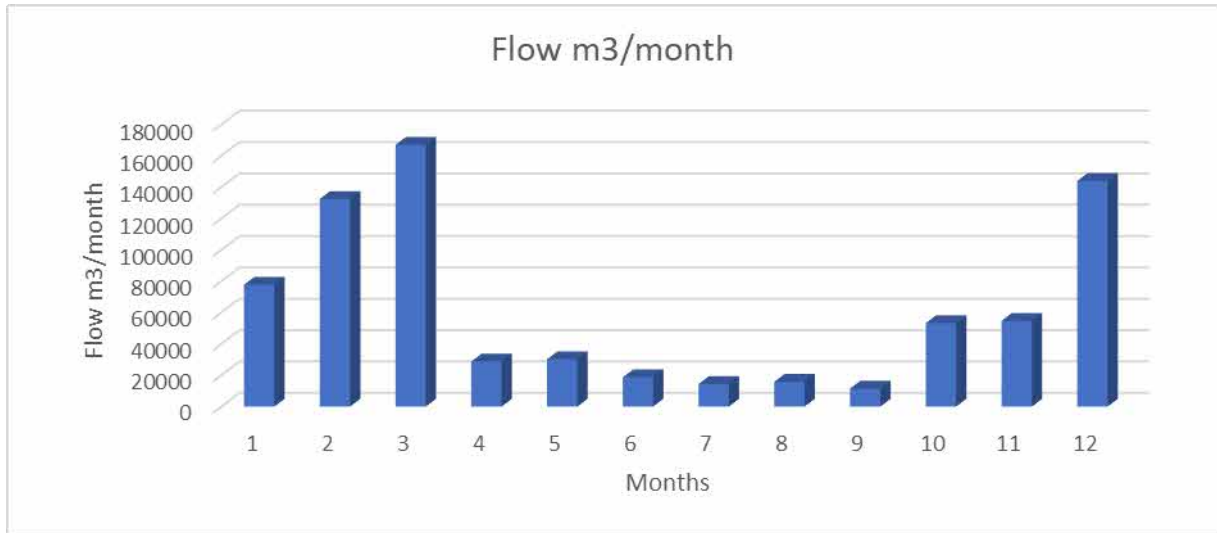


Figure 4. Main river as considered by the Environment Agency, with flow direction arrow. accessed 2021/08/24 at <https://www.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a56386>

## 1.3 River Stour

The Stour is a tidal river (Figure 5) with a typical 1.5m tidal fluctuation at Sandwich. There is an Environment Agency gauge at Sandwich Quay, with typical tidal fluctuations shown in Figure 6. Freshwater and marine water mixes and at the Sluice the river Stour is prevalent fresh water (see chapter 0). Although a saline presence is suggested to facilitate marine habitat features (saltmarsh) up to 1.5 km upstream from site (Figure 7), this is clearly incorrect.

Spot flow measurements were taken at the Sluice (Figure 5) with a Valeport 801 electromagnetic flow meter. At the point of measurement, the river Stour was approximately 16 metres wide with a wet perimeter of approximately 25m<sup>2</sup>. The average ebbing flow measured was 0.390 to 0.461m/sec (31 August 2021 at 12:15). Suggesting a flow of 9.75m<sup>3</sup>/sec to 11.52m<sup>3</sup>/sec or 35,100m<sup>3</sup>/hour to 41,472m<sup>3</sup>/hour. This represents a 0.49m tide at Sandwich Quay neap tide (typical low is 0.5m), as can be noted from Figure 6 greater flows are seen during spring tides and as such the above measurements can be taken as a low representation.



*Figure 5. River Stour at the 'sluice' (TR 32380 58930)*

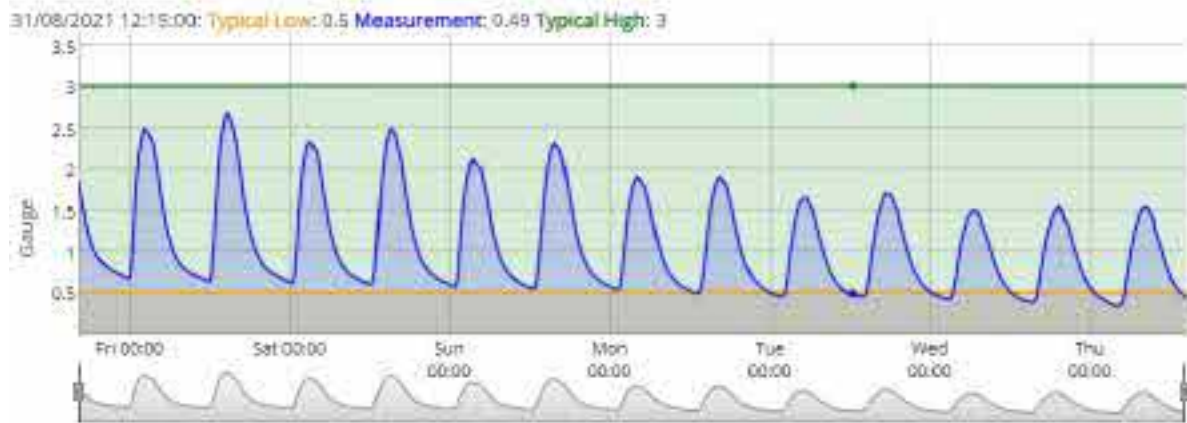


Figure 6. Tidal Fluctuations at Sandwich Quay. Accessed on 2021-09-02 at <https://riverlevels.uk/river-stour-sandwich-quay>

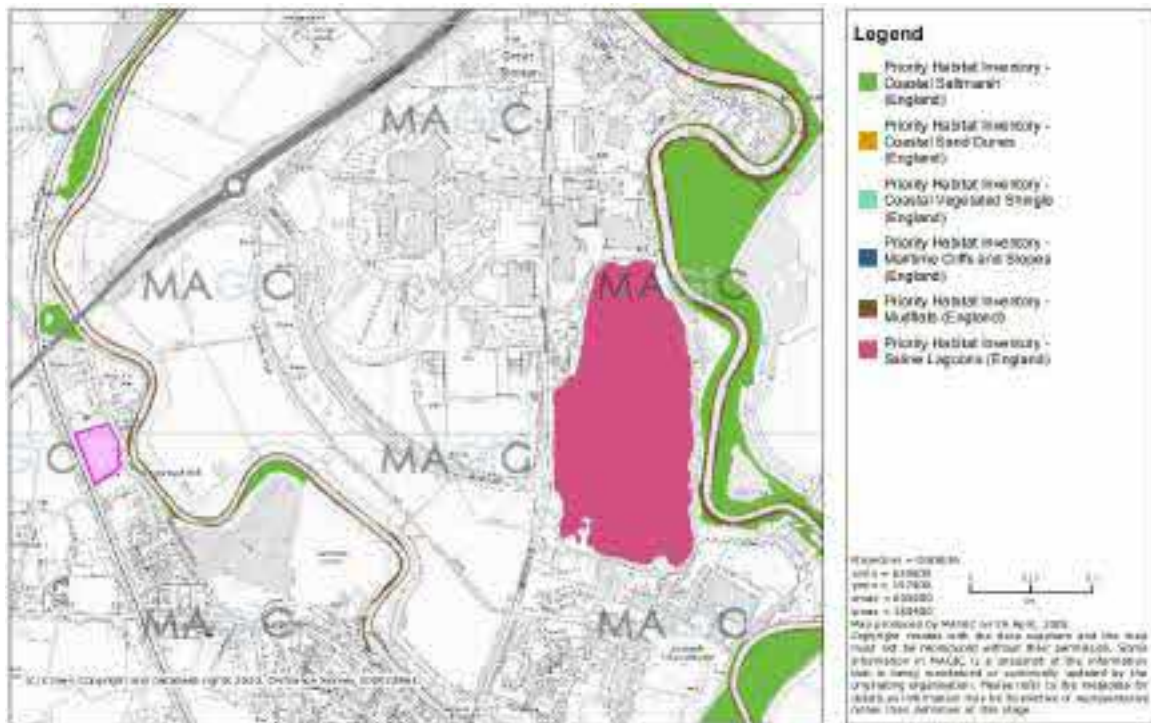


Figure 7. Coastal (marine) habitats. The proposed development site is shown in magenta. Defra magic map, accessed on 29/04/2020

## 2.Sewerage connection

Due the absence of information on sewerage in the planning application, Natural England has requested further information, including an assessment of potential water quality impacts, caused by the development (Planning consultation, 10 December 2019).

Due to the absence of mains sewerage, the holiday lodges will be connected to an underground sewage treatment plant (see site plan).

Connection to mains sewerage, managed by Southern Water, was attempted however no mains sewerage is within a practicable vicinity, nor available with adequate capacity. Therefore, a state-of-the-art underground sewage treatment plant is planned on site, in proximity of the site entrance. The system originally selected was an APEX Submerged Aerated Filter system with a capacity for 150 people, well exceeding the expected site capacity. A smaller version of the submerged aerated filter was selected but final supplier may vary; Premier Tech Aqua UK's Conder SAF Package Sewage Treatment plant (From here referred to as 'STP) (Appendix 7 and 8). The system is compliant with the EN12566-3 certification as required by current regulation.

### 2.1 Environment Agency discharge permit

The Environment Agency manages discharge permits in England and the Client must apply for a discharge permit in order to comply with the current regulations. Because of the absence of mains sewerage, a set of 'General Binding Rules' exist that provide guidance to permitted discharges and licenced discharges. An example of the general binding rules is that the sewage treatment system must comply with the BS EN 12566 for small sewage treatment plants and BS 6297:2007 for drainage fields. Due to the nature of the development involving 8 holiday lodges it is anticipated that a bespoke discharge permit is required to suit the 3.264m<sup>3</sup> daily discharge (see chapter 2.3).

### 2.2 Performance (load)

It can be confirmed that the STP performance in relation to effluent standard is compliant, with BOD, suspended solids and Ammonia levels below the tolerated limits (as shown in the below graph), as could be expected of a system that is compliant with the EN12566-3 certification. The Condor SAF STP is designed for a minimum population of 25 to meet this performance.

Below table represents the effluent quality, following rigorous treatment.

Pollutant	Environment Agency Limits	Design Effluent Quality (95% basis)
COD	-	n/a
BOD	20 mg/l	<20 mg/l
Suspended solids	30 mg/l	<30 mg/l
Ammonia (NH <sub>4</sub> -N)	20 mg/l	<20 mg/l

In addition to the STP treatment, effluent will be directed into a partial drainage field to treat water by passing it through the soils before entering into the water course. This is achieved by installing a length of perforated pipe between the sewage treatment plant and the drainage ditch, instead of a solid pipe (as per Environment Agency guidance). This allows some of the wastewater to soak into the ground when the ground is dry and flows in the watercourse are likely to be lower. It can therefore be reasonably expected that the loading will be lower than the performance load provided by the supplier.

Technical guidance:

Chemical oxygen demand (COD) is the depletion of dissolved available oxygen through (chemical) reactions in a measured solution. Untreated sewage has a varying COD, between 600 and 900 mg/l.

Biological Oxygen Demand (BOD) is the depletion of dissolved available oxygen by aerobic biological organisms at a certain temperature and over a period of time. BOD is an important factor in decomposition of organic matter (including plant matter). Typical values of BOD for sewage effluent is around 20 mg/l, whilst rivers have a BOD between 1 and 5 mg/l depending on their overall health and general make-up. Untreated sewage has a varying BOD, between 200 and 600 mg/l.

Suspended solids are a measurement of non-dissolved particles by dry weight.

Ammonia (NH<sub>4</sub>N), ammoniacal nitrogen, sewage related measure of ammonia.

## 2.3 Flow

The flow from holiday lodges are in this instance compared to static caravans as most appropriate comparison. The information from this chapter is derived from the business plan provided by the client and the Code of Practice for Flows and Loads ISBN 978-1-903481-10-3. The below table indicates the flow of a sewage treatment system (per person per day).

Information derived from Hoseasons (see business plan) suggests 68% occupancy rate. We have estimated a maximum occupancy of 32 people. Therefore, the daily flow rate of treated effluent is expected to be 68% of the max at 3.264m<sup>3</sup> and the monthly flow rate of treated effluent is expected to be 101.184 m<sup>3</sup>.

	People	Flow (l)*	Total daily flow m <sup>3</sup>	Total monthly flow m <sup>3</sup>
Lodges	32	150	4.8	148.8
Staff	0	0	0	0
Subtotal	32	150	4.8	148.8
68% occupancy rate	22	103	3.264	101.184

\* Code of Practice for Flows and Loads ISBN 978-1-903481-10-3.

## 3. Water Framework Directive

The proposed development site housing the lodgings is situated within the Stour Marshes operational catchment, one of five operational catchments within the South East River Basin District. 65% of the South East RBD is used for agricultural and livestock purposes with the basin covering over 10,200km<sup>2</sup> (Environment Agency, 2019).

### 3.1 South East River Basin District

The South East RBD contains 315 water bodies of natural, artificial and heavily modified nature, with 282 bodies being categorised as surface water bodies. Most features within the RBD are natural features comprising of mostly rivers, canals and surface water transfers. While most features are natural, none of the surface water bodies have an ecological potential of “high”, likely due to agricultural and water industry impacts on the basin.

Water Body Categories	Natural	Artificial	Heavily Modified	Total
Rivers, canals and surface water transfers	138	13	69	220
Lake	2	16	10	28
Coastal	2	0	9	11
Estuarine	1	5	17	23
Groundwater	33	0	0	33
Total	176	34	105	315

	Ecological status or potential						Chemical status		
	Bad	Poor	Moderate	Good	High	Total	Fail	Good	Total
By 2015	1	2	40	44	0	87	2	277	279
By 2021	0	0	2	9	0	11	0	0	0
By 2027	0	0	6	178	0	184	0	3	3
Beyond 2027	0	0	0	0	0	0	0	0	0
Total	1	2	48	231	0	282	2	280	282

Although the chemical status of the RBD is mostly “good”, only two water bodies within the RBD are expected to remain as a fail by the end of the 2027 deadline,



with three bodies remaining at a “bad” or “poor” ecological status or potential. This may link again to the use of the basin for primarily arable farming and livestock businesses.

### 3.2 Stour Marshes Operational Catchment

The Stour Marshes operational catchment covers approximately 3,000 hectares and is one of seven operational catchments within the Stour Management

Catchment, bordering the North and South Streams operational catchment south of Sandwich. The catchment contains two artificial and two heavily modified rivers of moderate ecological status and good chemical status with all four bodies having a “good” ecological potential by 2027. As



Figure 8. Map of the Stour marshes Operational Catchment (Environment Agency 2020)

the four bodies do not have a “high” ecological potential, we can infer that the water bodies have been modified or impacted by humans (hence their artificial or modified nature). While the four surface water bodies do not cover the proposed development area within the catchment, they provide an indication on the status of the catchment and must be considered.

Ecological status or potential						Chemical status	
Number of water bodies	Bad	Poor	Moderate	Good	High	Fail	Good
4	0	0	4	0	0	0	4

The reasons for not achieving a good status (RNAGS) relate mostly to agricultural and rural land management sectors with 28 out of 75 RNAGS caused by this sector, and a further 18 by the water industry, primarily due to pollution from rural areas and wastewater. This is concerning due to the poor status of the management catchment and the terrestrial/marine designations within the catchment which rely on a high quality and quantity of water. However, while the water industry contributes to the problem of wastewater pollution, there are no

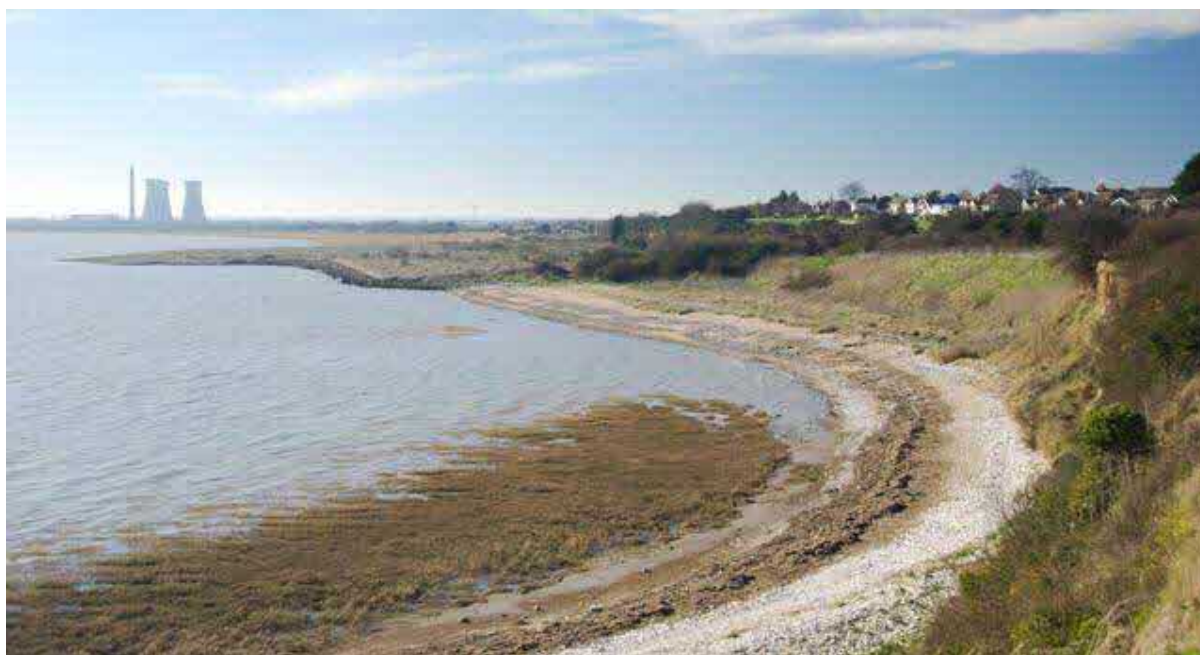
pre-existing problems regarding the waste treatment and disposal sector as cited by the Environment Agency in their reasons for not achieving good status, therefore we can conclude that the concern of sewage and effluents are not a pre-existing condition on the Stour Marsh operational catchment.

## 4.Relevant designations

### 4.1 SSSI

The Sandwich Bay to Hacklinge Marshes Site of Special Scientific (Appendix 3) interest lies approximately 1.9 kilometres from the proposed holiday site and overlaps (although not entirely) with other SAC, SPA and Ramsar sites in the locale, following along the River Stour adjacent to the Sandwich Industrial Estate and sewage treatment works. The SSSI is 1756.5 hectares in size and stretches from Northbourne to Ramsgate while stretching across Sandwich Bay.

The site has been designated as an SSSI due to its significant sand dune system along with other sensitive habitats such as mudflats, saltmarsh and freshwater marshes. As a result, the area supports unique flora and fauna including but not limited to bedstraw broomrape and the rare Carthusian snail.



*Figure 9. Sandwich Bay to Hacklinge Marshes SSSI, Wikipedia, accessed 29 April 2020.*

#### 4.1.1 SSSI Risk Zones

According to widely used online viewer from Natural England, [www.magic.gov.uk](http://www.magic.gov.uk), the site's location is within the SSSI risk zones and the discharge to surface water triggers planning screening procedures when the discharge is greater than 5m<sup>3</sup>/day. The risk posed by the discharge and the integral design considerations are highlighted in the assessment chapter (5).

## 4.2 SAC

The Sandwich Bay Special Area of Conservation Site (Appendix 4), underpinned by the Sandwich Bay to Hacklinge Marshes SSSI contains five designated features which sprawl the coast from Deal in the south up to Ramsgate in the North, following the Sandwich Bay. There are also designated areas along the River Stour 1.9 kilometres from the proposed holiday site. All five designations are related to the sand dune system of the local area. These include embryonic shifting dunes, white dunes, grey dunes, dunes with *Salicion arenariae* and humid dune slacks.

## 4.3 SPA

The Thanet Coast and Sandwich Bay Special Protection Area (Appendix 5), which occupies areas of Lydden Valley in the South up to Ramsgate in the North, also follows along the River Stour close to the Sandwich Industrial Estate 1.9 kilometres from the development site. The designation was given following the need to protect three species of bird which reside within this locale, the golden plover (*Pluvialis apricaria*), the little tern (*Sternula albifrons*) and the turnstone (*Arenaria interpres*). Habitats following Sandwich Bay consist of grassland and some arable land for the golden plover to roost and feed, intertidal mud and sand flats, and intertidal reed provide more feeding and roosting grounds for these particular species of bird.

## 4.4 RAMSAR

The Thanet Coast and Sandwich Bay Ramsar site (Appendix 6) is the smallest designation of the four listed, with the designation starting nearby the Sandwich Industrial Estate at 2.3 kilometres from the development site, occupying the Sandwich Flats which encompasses sand flats covered by sea water at all times along the stretch of the coastline.

## 4.5 Ash Level and South Richborough Pasture Local Wildlife Site (LWS)

Ash Level and South Richborough Pasture Local Wildlife Site (LWS) is a large complex of grazing marsh. Although the marshes have a diverse flora, it is primarily designated on account of the biodiversity of the ditches, supporting a nationally important population of water voles, wetland plants, birds and invertebrates.

## 5. Assessment

The project is considered to have two phases, construction of the infrastructure and operation of the holiday lodges.

The assessment is based on the assumption that Code of Construction Practice (CoCP) and best practice in construction will be applied during this project.

Considering the proposed project construction phase potential effects (mainly groundworks; short term temporary disruption), it can be concluded that the resulting cumulative impact will not significantly affect the water quality and or its receptors and very unlikely to impact the water body scale.

With regards to the operational phase, the sewage treatment package proposed is compliant with the EN12566-3, it is specifically designed to discharge an effluent that is acceptable for water courses. It is proposed to discharge the STP through a partial drainage field to allow some of the effluent to be filtrated through the soil.

The water quantity discharged on a monthly average is calculated at 101m<sup>3</sup> in contrast to 62,400m<sup>3</sup> on average traveling through the Poulders Pumping station. This is less than 0.17% of the total volume of water entering into the Gosshall Mainstream. In comparison to the river Stour whereby a neap tide flow is anticipated at least 30 million m<sup>3</sup> per month the proposed discharge is negligible.

Nutrient concentrations present in the study site are relatively low and a discharge of treated effluent will mix swiftly at the Poulders Pumping station. It is considered that cumulative impacts of nutrients will not have a significant effect on the waterbody.

In particular, the impact of potential nutrient enrichment on the water vole population of the South Richborough pasture LWS was assessed to be minimal / negligible, as the increase in nutrient loading is expected to boost riparian macrophyte growth and provide more suitable foodstuffs and shelter for water vole populations. Additionally, research has shown that it is predator presence (Primarily American Mink (*Neovison vison*)), rather than water quality which is the limiting factor determining water vole presence in water ways, as evidenced by Lawton & Woodroffe 1991, Barreto et al. 1998, Halliwell & Macdonald 1996 and Brzeziński et al. 2018a.

The Ash Level and South Richborough Pasture Local Wildlife Site (LWS) is mainly reliant on water from the watercourse system, with the majority of the water flowing from the Delft stream (as identified by the Environment Agency), rather than from the North Poulders stream, the quantity of water from the North Poulders stream is not going to have a notable effect on the hydrology. The water quality after treatment of the effluent with the proposed systems is not believed

to influence the status or designated features of the South Richborough pasture LWS.

The other designated sites identified including SSSI are part of a different hydrological system and only plausibly indirectly connected to the Stour, to which the proposed discharge is negligible.

Therefore, the effects from the treated sewage effluent are unlikely to affect the status at water body scale or the designated sites.

Although the discharge triggers the SSSI Impact Risk Zones, for a discharge greater than 5m<sup>3</sup> per day to surface water, there is no direct hydrological connection with the designated sites (as detailed in Chapter 1), and furthermore potential impacts of this discharge are avoided through integral design considerations:

The discharged effluent is rigorously treated by a state-of-the-art sewage treatment package, compliant with the EN12566-3.

A partial drainage field will further filter water through the soil and reducing high flows of effluent during dry conditions, compliant with BS 6297:2007.

## 6. Conclusion

The water quality impact assessment indicates that, based on the current understanding of the project, the cumulative impacts will not significantly affect the various elements considered of the Stour Marshes operational catchment. The project is very unlikely to impact the water body status; no deterioration, or prevent the potential to achieve, future good status. Nor is the project likely to impact the designated sites or their features.

It is recommended that reed (*phragmites*) in the North Poulder Stream and associated ditches are maintained and cut annually between December and March in order to remove excess nutrients from the system. The reeds should be removed from site in order to allow this to have effect.

It is furthermore recommended that the sewage treatment plant is operated, maintained and serviced according to manufacturer's standards to ensure its treatment process is preserved at the appropriate standard.

## 7.References

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Halliwel E.C. & Macdonald D.W. 1996: American mink *Mustela vison* in the Upper Thames catchment: relationship with selected prey species and den availability. *Biol. Conserv.* 76: 51–56

Lawton J. & Woodroffe G. 1991: Habitat and distribution of water voles: why are there gaps in a species' range? *J. Anim. Ecol.* 60: 79–91.



[www.exo-env.co.uk](http://www.exo-env.co.uk)

+44 (0) 330 80 80 377

[enquiries@exo-env.co.uk](mailto:enquiries@exo-env.co.uk)

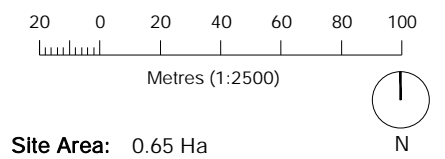
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The Enterprise Centre,  
University of East Anglia,  
Norwich Research Park, NR4 7TJ



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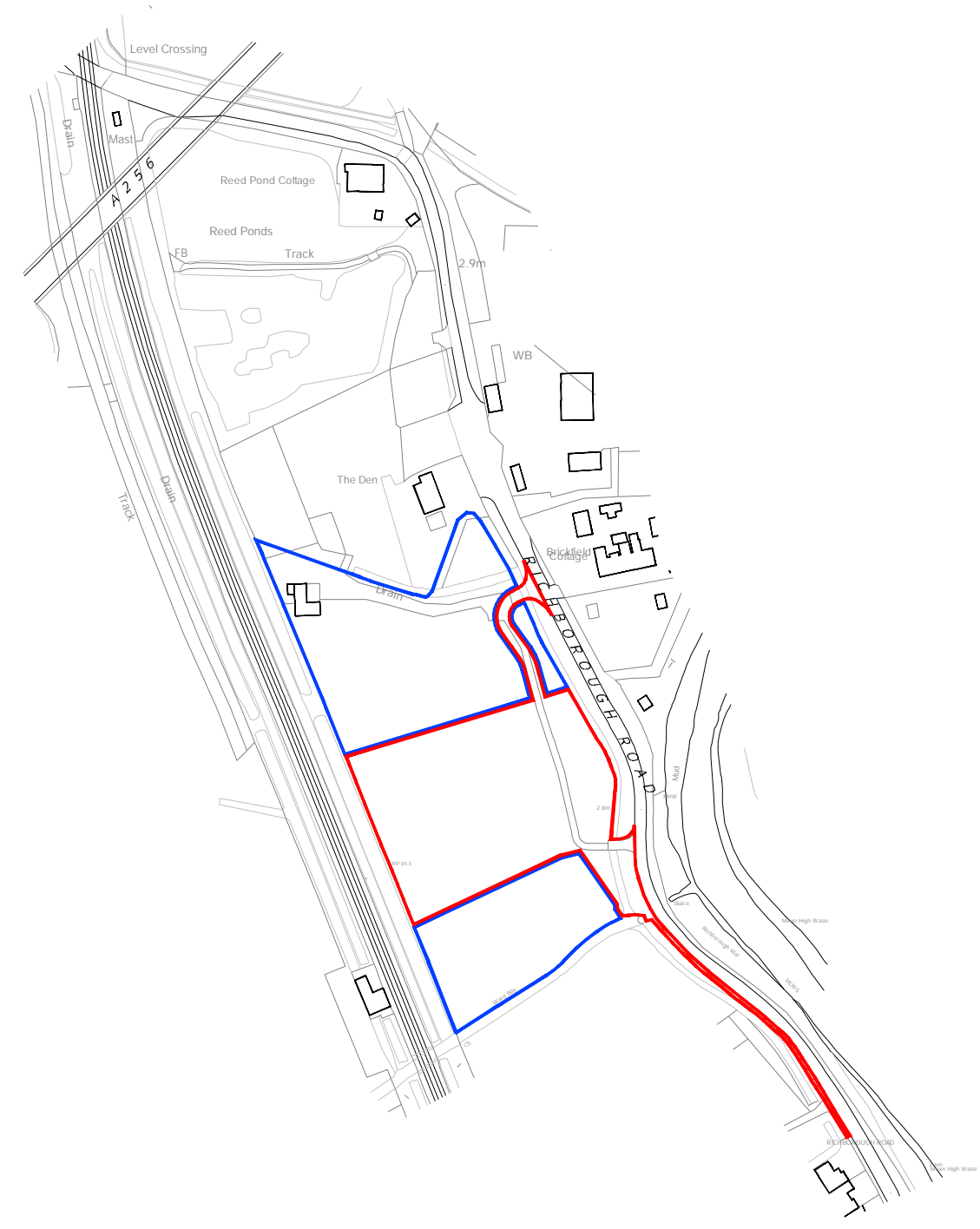
# Appendix 1. Site Plan

Development of land south of The Den in Sandwich.



Site Area: 0.65 Ha

- Application Boundary
- Applicant Ownership



Rev: Reason: Date:

Client:  
TERRAFORTE, MS L

Project:  
LAND SOUTH OF THE DEN,  
RICH BOROUGH ROAD, SANDWICH, CT13 9JG

Title:  
SITE LOCATION PLAN

Drawing No: Rev: Scale: Date:  
DHA/31158/01 1:2500 OCT 2023



Eclipse House, Eclipse Park, Sittingbourne Road  
Maidstone, Kent. ME14 3EN  
t: 01622 776226 f: 01622 776227  
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CAD Reference: DHA\_31158\_LAND SOUTH OF THE DEN\_MC01 A3

Site Location Plan  
1:2500 @ A3

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## Appendix 2. Laboratory results

Development of land south of The Den in Sandwich.



# Final Report

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**Report No.:** 23-29197-1

**Initial Date of Issue:** 14-Sep-2023

**Re-Issue Details:**

**Client** Exo Environmental Ltd

**Client Address:** The Enterprise Centre  
University of East Anglia  
Norwich Research Park  
Norwich  
Norfolk  
NR4 7TJ

**Contact(s):** William Coulet

**Project** The Den Sandwich

**Quotation No.:** Q23-32101

**Date Received:** 31-Aug-2023

**Order No.:**

**Date Instructed:** 31-Aug-2023

**No. of Samples:** 6

**Turnaround (Wkdays):** 5

**Results Due:** 06-Sep-2023

**Date Approved:** 14-Sep-2023

**Approved By:**



**Details:** Stuart Henderson, Technical  
Manager

---

## Results - Water

**Project: The Den Sandwich**

Client: Exo Environmental Ltd		Chemtest Job No.: 23-29197											
Quotation No.: Q23-32101		Chemtest Sample ID.: 1695880 1695881 1695882 1695883 1695884 1695885											
Client Sample ID.:		1		2		1		2		1		2	
Sample Location:		Penstock		Penstock		River		River		Pumping Station		Pumping Station	
Sample Type:		WATER		WATER		WATER		WATER		WATER		WATER	
Determinand	Accred.	SOP	Units	LOD									
pH	U	1010		N/A	[A] 8.4	[A] 8.4	[A] 8.4	[A] 8.4	[A] 8.4	[A] 8.4	[A] 8.5		
Electrical Conductivity	U	1020	µS/cm	1.0	[A] 1100	[A] 1100	[A] 1200	[A] 1100	[A] 1100	[A] 1100	[A] 1100		
Salinity	N	1020	ppt	2.0	[A] < 2.0	[A] < 2.0	[A] < 2.0	[A] < 2.0	[A] < 2.0	[A] < 2.0	[A] < 2.0		
Suspended Solids At 105C	U	1030	mg/l	5.0	[A] 16	[A] 120	[A] 42	[A] 28	[A] 94	[A] 120			
Dissolved Oxygen	N	1150	mg O2/l	0.50	8.5	8.5	8.4	8.4	8.5	8.5			
Ammoniacal Nitrogen	U	1220	mg/l	0.050	[A] 0.19	[A] 0.19	[A] 0.17	[A] 0.21	[A] 0.37	[A] 0.52			
Nitrite as N	U	1220	mg/l	0.010	[A] 0.030	[A] 0.043	[A] 0.037	[A] 0.037	[A] 0.033	[A] 0.030			
Nitrate as N	U	1220	mg/l	0.50	[A] 3.4	[A] 5.2	[A] 6.1	[A] 5.6	[A] 4.5	[A] 4.3			
Phosphorus (Dissolved)	N	1220	mg/l	0.020	[A] 0.67	[A] 0.70	[A] 0.87	[A] 0.87	[A] 0.60	[A] 0.53			
Phosphate	U	1220	mg/l	0.200	[A] 2.0	[A] 2.1	[A] 2.6	[A] 2.6	[A] 1.8	[A] 1.6			
Nitrogen (Total)	N	1340	mg/l	5.0	< 5.0	13	15	14	12	12			
Potassium (Dissolved)	U	1455	mg/l	0.50	[A] 12	[A] 12	[A] 12	[A] 12	[A] 11	[A] 11			
Magnesium (Dissolved)	U	1455	mg/l	0.20	[A] 15	[A] 15	[A] 16	[A] 15	[A] 15	[A] 15			
Total Kjeldahl Nitrogen	N	1340	mg/l	1.0	< 1.0	7.5	8.4	8.3	7.6	8.1			

## Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

<b>Sample:</b>	<b>Sample Ref:</b>	<b>Sample ID:</b>	<b>Sample Location:</b>	<b>Sampled Date:</b>	<b>Deviation Code(s):</b>	<b>Containers Received:</b>
1695880		1	Penstock		A	Plastic Bottle 1000ml
1695881		2	Penstock		A	Plastic Bottle 1000ml
1695882		1	River		A	Plastic Bottle 1000ml
1695883		2	River		A	Plastic Bottle 1000ml
1695884		1	Pumping Station		A	Plastic Bottle 1000ml
1695885		2	Pumping Station		A	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1030	Total Suspended Solids	Total suspended solids	Filtration of a mixed sample through a standard glass fibre filter and determination of the mass of residue retained dried at 105°C.
1150	Dissolved Oxygen	Dissolved Oxygen (DO)	Electrometric determination (on site preferred), using oxygen sensitive membrane electrode.
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1340	Total Nitrogen in Waters	Total Nitrogen and organic Nitrogen	Persulphate digestion followed by colorimetry.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).

## **Report Information**

### **Key**

---

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

### **Sample Deviation Codes**

---

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

---

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

[customerservices@chemtest.com](mailto:customerservices@chemtest.com)

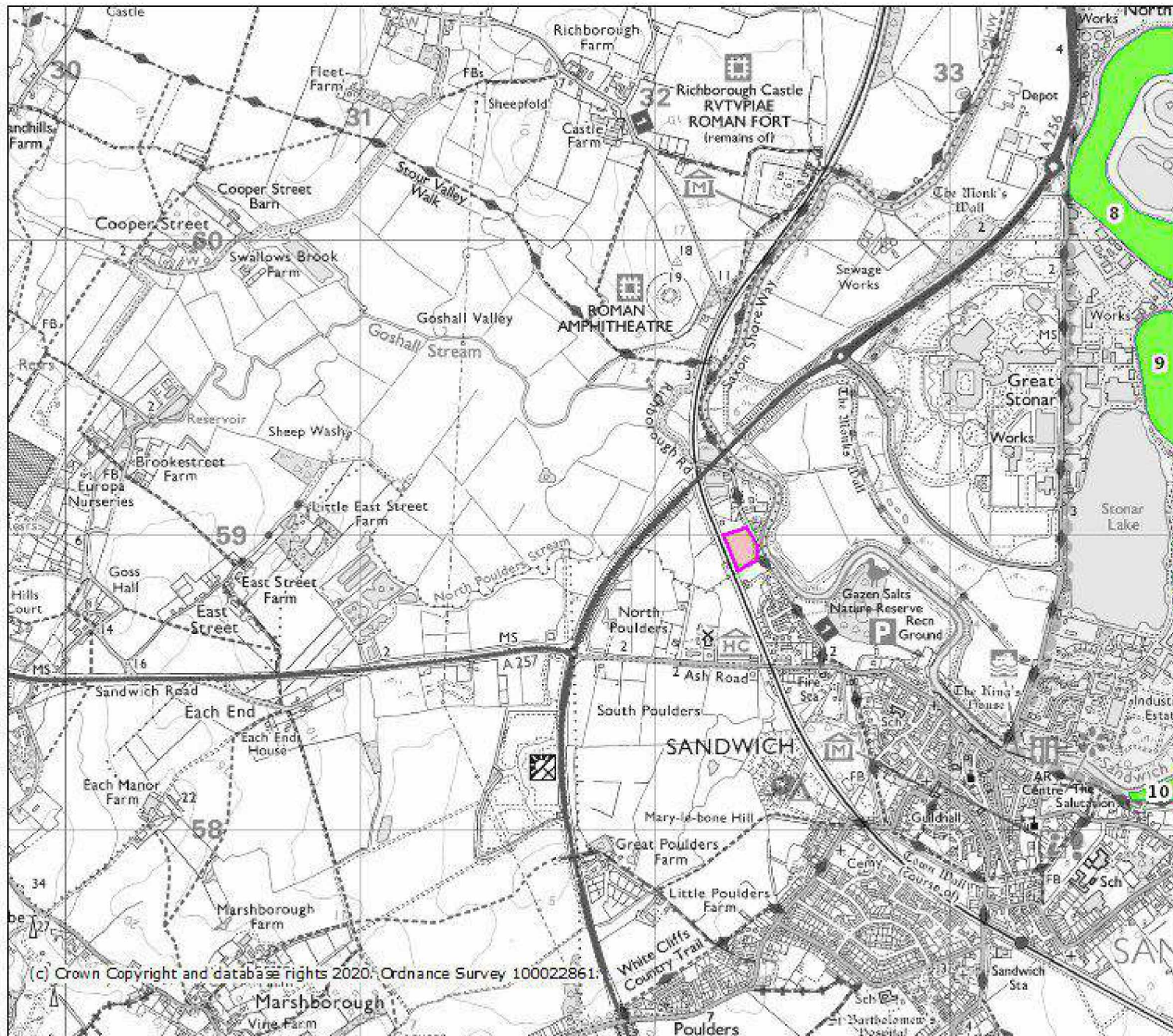


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## Appendix 3. SSSI map

Development of land south of The Den in Sandwich.

# MAGiC Sites of Special Scientific Interest (1:20,000)



## Legend

### Sites of Special Scientific Interest Units (England)

- Favourable Condition
- Unfavourable Recovering
- Unfavourable no change
- Unfavourable Declining
- Part Destroyed
- Destroyed
- Not Assessed

Projection = OSGB36

xmin = 626800

ymin = 156700

xmax = 636800

ymax = 161400

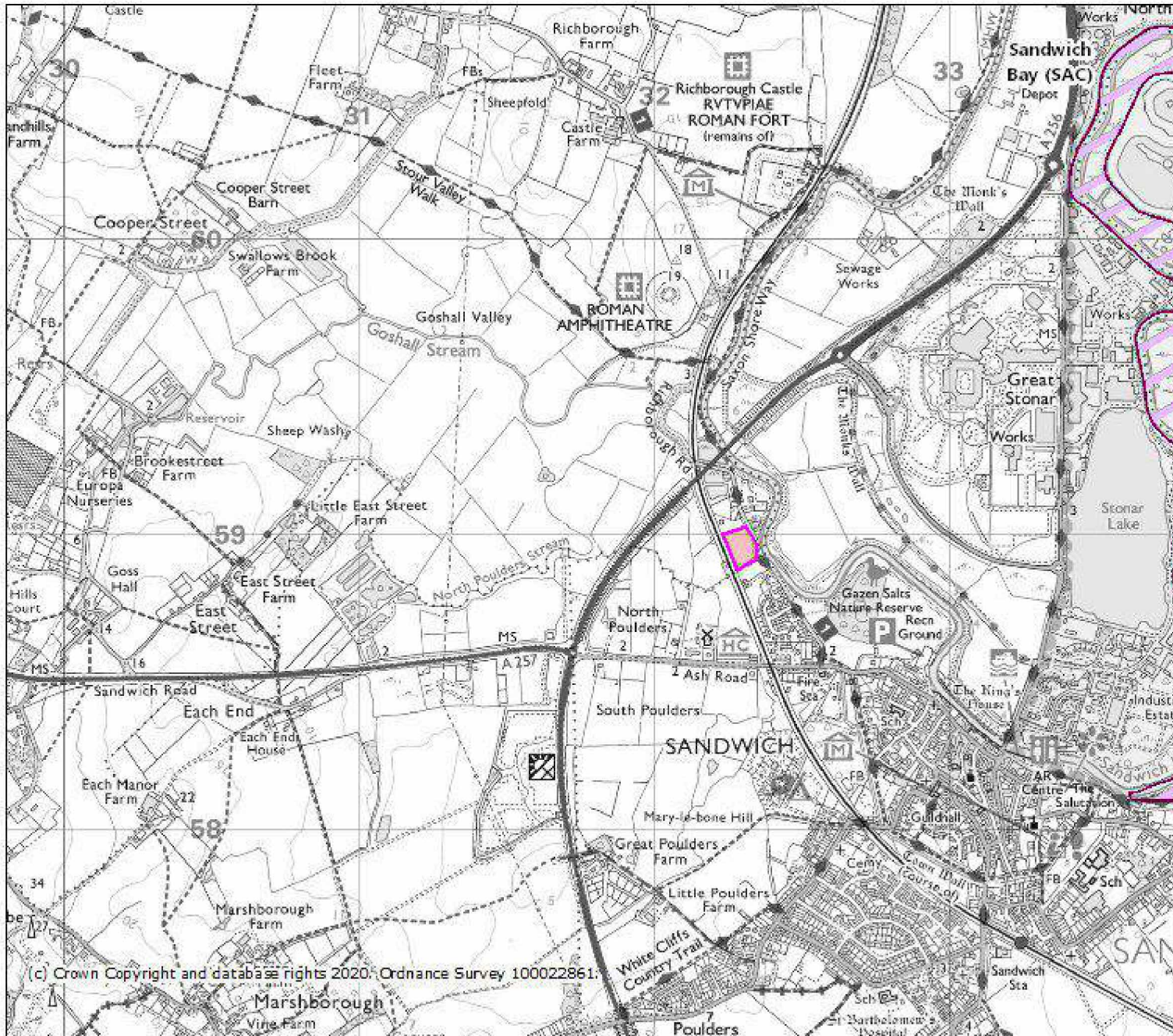
Map produced by MAGiC on 28 April, 2020.

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## Appendix 4. SAC map

Development of land south of The Den in Sandwich.



### Legend

-  Special Areas of Conservation (England)

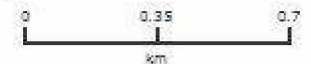
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ymin = 161400



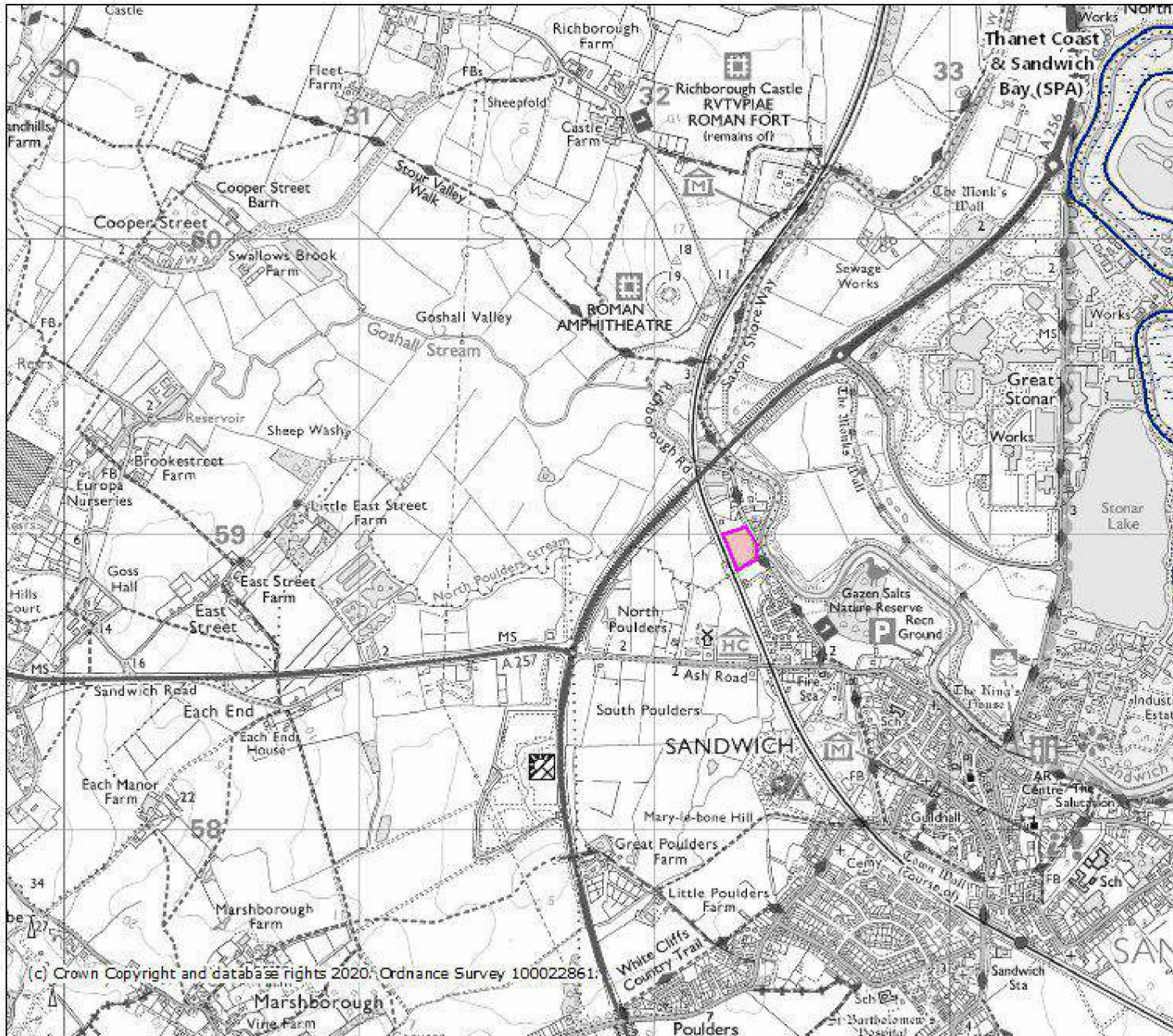
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## Appendix 5. SPA map

Development of land south of The Den in Sandwich.



### Legend

-  Special Protection Areas (England)

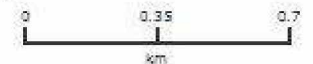
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xmax = 636800

ymin = 161400



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## Appendix 6. RAMSAR map

Development of land south of The Den in Sandwich.



### Legend

 Ramsar Sites (England)

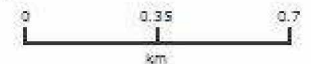
Projection = OSGB36

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ymin = 156700

xmax = 636800

ymax = 161400



Map produced by MAGiC on 28 April, 2020.

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# Appendix 7. Premier Tech Aqua information sheet

Development of land south of The Den in Sandwich.



## **Conder<sup>®</sup> SAF**

Submerged Aerated Filter



# Sewage treatment plant for small and large scale projects

Premier Tech Aqua UK's Conder SAF Package Sewage Treatment Plant is the perfect solution for small and large scale projects, where a population range exceeds 25 and mains drainage is unavailable.



From housing developments and other small scale projects right up to larger commercial applications including caravan parks, leisure facilities, hotels, schools, offices and industrial situations, the plant will serve a population from 30 - 600 PE as a single stream unit.

Larger populations can be accommodated with multiple stream plants.

## Superior Technical Performance

Premier Tech Aqua UK's highly successful Conder SAF is designed and tested in accordance with BS EN 12566-3, the British Water Code of Practice for Flows and Loads as well as being CE approved.

In standard configuration the plant offers treatment better than a 20mg/L BOD:30mg/L SS: 20mg/L NH3 effluent quality standard with options for 10 or 5mg/L NH3 effluent quality and improved BOD and SS quality.

## Standard Features Include:

- **Integrated air filter** - draws in fresh air from the outside and filters any particles to protect the blower.
- **Pressure switch** - air filter benefits from a pressure switch which monitors any pressure drop across the filter.
- **Blower pressure monitoring and protection** - if a high pressure is detected, the blower will shut down and the alarm beacon will flash to notify the operator.
- **Automatic shut down** - and restart when high temperature is detected.



## Complete Below Ground Installation

Premier Tech Aqua UK has designed its Conder SAF to have a minimal visual impact on site location due to its total underground installation. The plant also offers a quiet, odourless operation which is assisted by a compact design with no below ground moving parts.



## Low Costs

The Conder SAF offers superior technical performance at a competitive price, offering real value for money without compromising on quality. The plant is particularly quick and easy to install which results in low initial costs, but also uses reliable, cost effective and energy efficient blowers, for operation with an integral flow management system, providing an overall competitively priced product for the duration of its lifetime.



## Quality, Adaptable Design

Used across the globe, Premier Tech Aqua UK has manufactured thousands of SAF plants and pioneered the development of package sewage treatment plants. Our SAF utilises a proved Submerged Aerated Filter (SAF) technology for optimum performance and dependability. The adaptable design offers the availability of pumped influent or effluent, deeper inverts and the availability of high nitrification options.

Premier Tech Aqua UK's Conder SAF Treatment Plant comes in four variations, dependant upon population size and application parameters.

- Unitank (singular tank)
- Semi Modular Tank (two tank system)
- Modular (three tank system)
- Multi Stream Systems (bespoke application design)

The tank(s) form three treatment stages; primary settlement, biological treatment (biozone) and humus settlement. Flow through all the treatment stages from inlet and outlet occurs through gravity and integral airlift.

## ! How it works

### STEP 1

The incoming wastewater is received in the primary settlement zone which has two purposes:

- To remove the majority of the incoming settleable material
- To store this material (primary sludge) along with humus sludge until it is periodically removed by desludging

### STEP 2

Flow from primary zone then passes through a built in impingement pre-filter, this prevents suspended solids from entering the biozone combined with forward flow entering the biozone. This is combined with forward flow into the biozone via an airlift which is controlled by a solenoid valve and timer. The biozone contains a number of sections, which contain loose plastic media. The high surface area of the media encourages growth of the bacteria and other organisms (biomass) which treat the wastewater.

### STEP 3

Air is then introduced below the media, by means of above ground blowers. This air fulfills the requirements for oxygen and also scours the media which removed excess biomass.

### STEP 4

The combination of treated wastewater and excess solids is then transferred forward into the humus settlement zone. Here, the humus solids settle to the bottom of the tank with the treated water being discharged at the top. These heavier solids are recycled into the primary zone by an airlift which is controlled by a solenoid valve and timer.

### STEP 5

The treated (final) effluent subsequently leaves the plant via the dipped outlet pipe. The movement of the fluid through the whole system is by gravity displacement. The option for a final clear effluent pumped discharge is available.



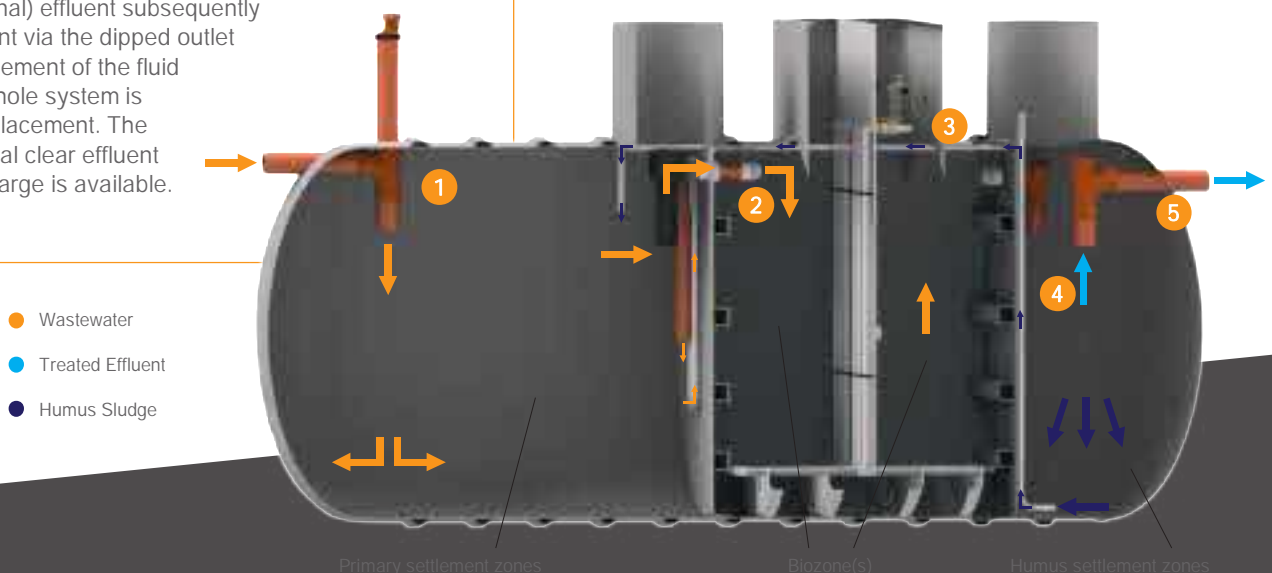
\*This image is for illustration purposes only, actual product may vary.

## Plant Kiosk

Premier Tech Aqua UK's Conder SAF products are provided with a mild steel kiosk. The kiosk houses the aeration blowers, timer valves and the electrical control panel.

The electrical control panel provides all the required electrical equipment for all starting, running and monitoring of the plant. The control panel can be adapted to accommodate other mechanical and electrical devices associated with the plant, for example a final effluent pump station or UV disinfection.

The kiosk is fitted with an alarm beacon as standard and can be provided with telemetry for remote plant monitoring. Other innovative features include thermostatic cut off controls and air filter monitoring to extend blower life.



## Specifications

The tables below can be used as a specification guide to choose the correct Conder SAF Treatment Plant for your project. All applications should be specified to comply with British Water Code of Practice for Flows and Loads. Further advice and assessments are recommended for all plants to ensure the correct equipment is proposed for each application.

### Unitank SAF System



Product Reference	Primary Settlement/Biozone/Humus Tank		Dry Weather Flow (DWF) (m <sup>3</sup> /day)	Max Load Per Day		Desludging Interval
	Tank Diameter (m)	Overall Length (m)		BOD (kg/day)	NH <sub>3</sub> (kg/day)	
CSAF 30 N20	1.8	4.59	6.0	1.8	0.24	120
CSAF 35 N20	1.8	5.40	7.0	2.1	0.28	120
CSAF 40 N20	1.8	5.90	8.0	2.4	0.32	120
CSAF 50 N20	1.8	7.30	10.0	3.0	0.40	120
CSAF 60 N20	2.5	4.25	9.0	3.6	0.48	90
CSAF 60 N10	2.5	4.85	9.0	3.6	0.48	90
CSAF 60 N05	2.5	5.46	9.0	3.6	0.48	90
CSAF 75 N20	2.5	4.81	11.3	4.5	0.60	90
CSAF 75 N10	2.5	5.57	11.3	4.5	0.60	90
CSAF 75 N05	2.5	6.32	11.3	4.5	0.60	90
CSAF 100 N20	2.5	6.28	15.0	6.0	0.80	90
CSAF 100 N10	2.5	7.28	15.0	6.0	0.80	90
CSAF 100 N05	2.5	8.28	15.0	6.0	0.80	90
CSAF 125 N20	2.5	7.78	18.8	7.5	1.00	90
CSAF 125 N10	2.5	9.03	18.8	7.5	1.00	90
CSAF 125 N05	2.5	10.29	18.8	7.5	1.00	90
CSAF 150 N20	2.5	9.26	22.5	9.0	1.20	90
CSAF 150 N10	2.5	10.77	22.5	9.0	1.20	90
CSAF 150 N05	2.5	12.27	22.5	9.0	1.20	90
CSAF 200 N20	2.5	11.00	30.0	12.0	1.60	60
CSAF 200 N10	2.5	13.00	30.0	12.0	1.60	60
CSAF 200 N05	3.0	10.66	30.0	12.0	1.60	60
CSAF 250 N20	2.5	13.67	37.5	15.0	2.00	60
CSAF 300 N20	3.0	11.81	45.0	18.0	2.40	60

### Modular Two Tank System



Product	Tank Ref:	Primary Tank		Biozone Tank		Dry Weather Flow (DWF) (m <sup>3</sup> /day)	BOD (kg/day)	NH <sub>3</sub> (kg/day)	Desludging Interval
		Tank Diameter (m)	Length (m)	Tank Diameter (m)	Length (m)				
CSAF 250 N10	PT27	2.5	5.590	3.0	8.26	37.5	15	2.0	60
CSAF 250 N05	PT27	2.5	5.590	3.0	9.94	37.5	15	2.0	60
CSAF 300 N10	PT32	2.5	6.970	3.0	9.80	45.0	18	2.4	60
CSAF 300 N05	PT32	2.5	6.970	3.0	11.82	45.0	18	2.4	60
CSAF 350 N20	PT36	2.5	7.762	2.5	11.95	52.5	21	2.8	60
CSAF 350 N10	PT36	2.5	7.762	3.0	11.33	52.5	21	2.8	60
CSAF 350 N05	PT36	2.5	7.762	3.0	13.69	52.5	21	2.8	60
CSAF 400 N20	PT40	2.5	8.600	3.0	10.17	60.0	24	3.2	60
CSAF 400 N10	PT40	2.5	8.600	3.0	12.87	60.0	24	3.2	60
CSAF 500 N20	PT50	2.5	10.880	3.0	12.58	75.0	30	4.0	60

### Modular Three Tank System



Product	Tank Ref:	Primary Tank		Biozone Tank		Humus Clarifier Tank			Dry Weather Flow (DWF) (m <sup>3</sup> /day)	BOD (kg/day)	NH <sub>3</sub> (kg/day)	Desludging Interval
		Tank Diameter (m)	Length (m)	Tank Diameter (m)	Length (m)	Tank Ref:	Diameter (m)	Length (m)				
CSAF 400 N05	PT40	2.5	8.60	3.0	12.00	HM22	2.5	5.005	60.0	24	3.2	60
CSAF 500 N10	PT50	2.5	10.88	3.0	11.33	HM30	2.5	6.265	75.0	30	4.0	60
CSAF 600 N20	PT60	2.5	12.95	3.0	9.31	HM35	2.5	7.755	90.0	36	4.8	60



## Multi Stream Systems

For large applications Premier Tech Aqua's UK's engineered solutions division offer multi stream systems to meet specific application requirements.

## Above Ground Systems

All standard and bespoke Premier Tech Aqua UK Conder SAF solutions can be manufactured for above ground installation.

## Installation

Premier Tech Aqua UK work closely with a nationwide network of installation partners and detailed installation guidelines are provided for each product. All electrical work should be carried out in accordance with current regulations (for example NIC/EIC/Building Regulations)

Premier Tech Aqua UK Conder SAF Plants can be manufactured to allow installation with either a granular or concrete backfill.

## Servicing

Premier Tech Aqua UK recommend that a maintenance agreement is taken out to service the plant. Regular desludging (emptying) of the Primary Tank is also needed to ensure consistent operational efficiency. This should take place at intervals between 60 - 120 days, depending on the size of the plant and the plant loading (see table within specification section). Premier Tech Aqua UK can provide access to a nationwide network of service partners who can offer a comprehensive range of servicing contracts. Please contact the Premier Tech Aqua UK sales team for further information.

## Peripherals

- Access shafts (for deeper pipework inverts)
- Acoustically lagged control kiosks
- Hot climate kiosk
- Client specified control panel
- Standby blower
- Client specified control kiosk
- Sample chamber
- Phosphate reduction
- UV disinfection
- Scada/Telemetry
- GMS Dial out
- Tertiary Treatment with coco filter technology
- Heavy-duty covers
- Final effluent pump station to overcome discharge level issues
- Feed pump stations

Exo Environmental Ltd

## Appendix 8. Owner's manual and installation guide.

Development of land south of The Den in Sandwich.





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[Redacted]



[Redacted]



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- 
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- 
- 

Serial Number:

Commissioning

Date:

**Commissioning Company**



**Service Company**



If you require assistance finding a service company, please contact Premier Tech. Your warranty is invalidated if you do not keep to a regular servicing schedule.







6 Month Check

Date:

Servicing Company:

Notes:

1<sup>st</sup> Annual Service

Date:

Servicing Company:

Notes:

2<sup>nd</sup> Annual Service

Date:

Servicing Company:

Notes:

3<sup>rd</sup> Annual Service

Date:

Servicing Company:

Notes:

4<sup>th</sup> Annual Service

Date:

Servicing Company:

Notes:

5<sup>th</sup> Annual Service

Date:

Servicing Company:

Notes:

6<sup>th</sup> Annual Service

Date:

Servicing Company:

Notes:

7<sup>th</sup> Annual Service

Date:

Servicing Company:

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8<sup>th</sup> Annual Service

Date:

Servicing Company:

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9<sup>th</sup> Annual Service

Date:

Servicing Company:

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10<sup>th</sup> Annual Service

Date:

Servicing Company:

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11<sup>th</sup> Annual Service

Date:

Servicing Company:

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12<sup>th</sup> Annual Service

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13<sup>th</sup> Annual Service

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Servicing Company:

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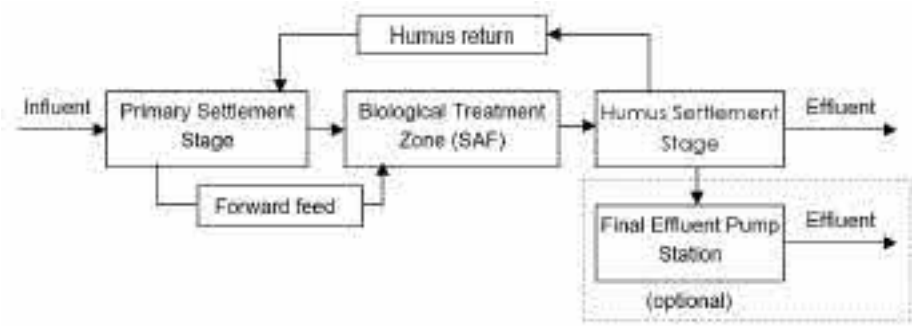
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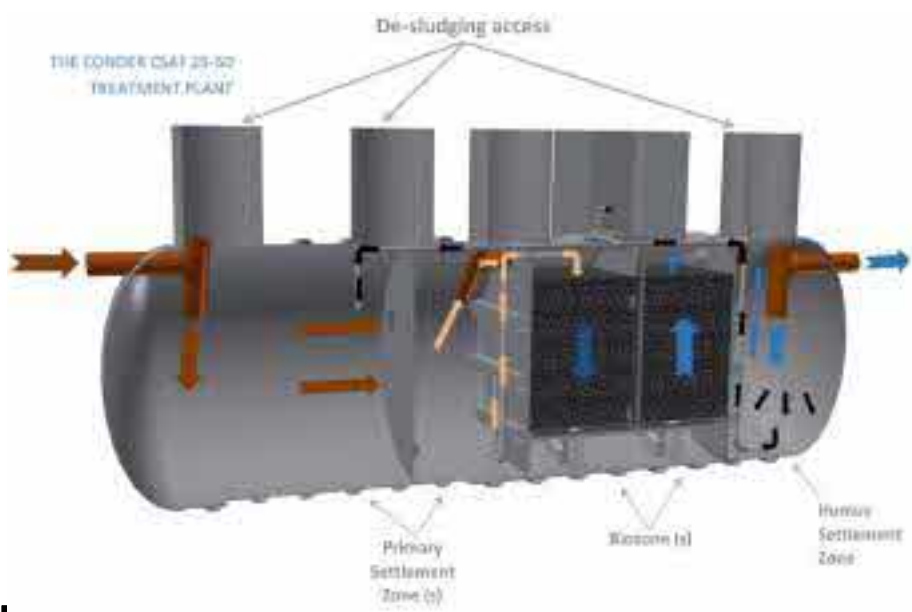
		









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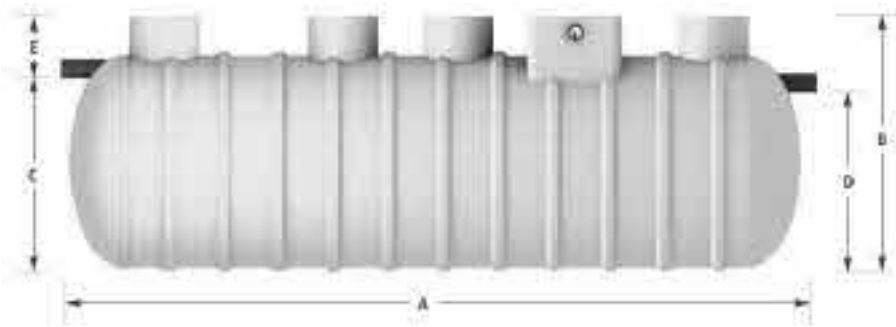
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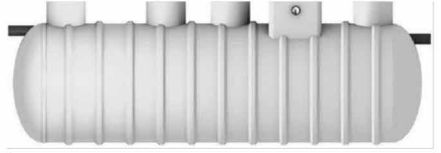
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## Unitank SAF System



Product Reference	Population Equivalent	Dry Weather Flow (DWF) M <sup>3</sup> /d	Peak Flow Max for 10min (l/s)	BOD kg	NH <sub>3</sub> kg	Minimum Desludge Period
CSAF 30N20	30	6	0.21	1.8	0.24	120
CSAF 35N20	35	7	0.24	2.1	0.28	120
CSAF 40N20	40	8	0.28	2.4	0.32	120
CSAF 50N20	50	10	0.35	3	0.4	120

### **Discharge Standard (95% ile):**

20 mg/l BOD<sub>5</sub>

30 mg/l SS (suspended solids)

20 mg/l NH<sub>3</sub>-N



Forward Feed and Humus Return Airlift Timer Valve

10mm Forward Feed and Humus return airlift air pipework connections to blower (push fit connectors)

Blower discharge pipework to plant (through duct)

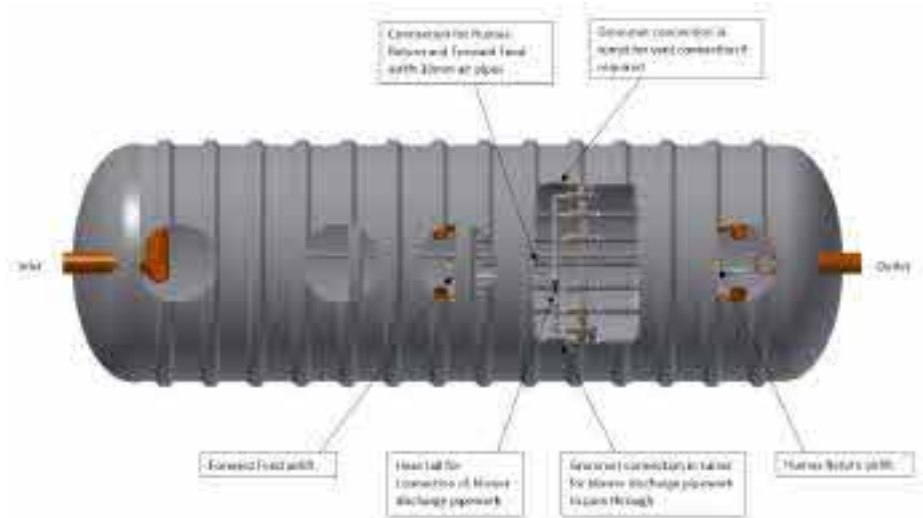
#### Generic Installed Kloak



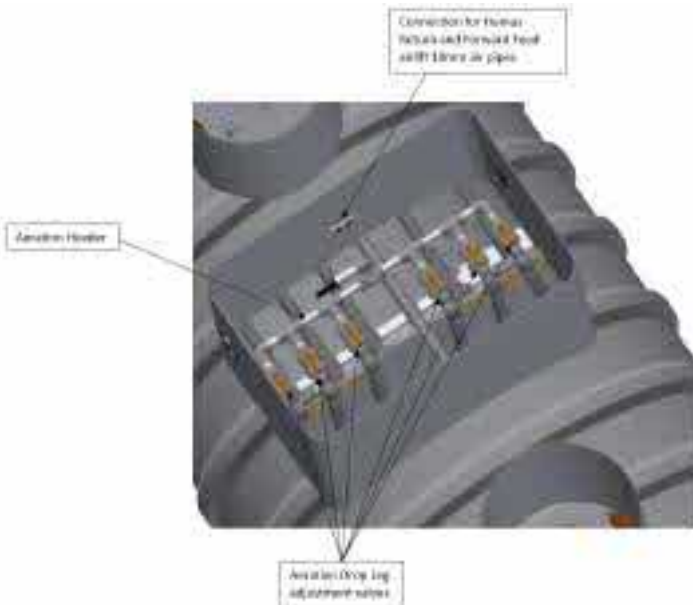
#### Timer Valves



## Plan View of CSAF



## Detail Showing Airlift Connection Points and Aeration Header



Part Number: **SAP1020K-A**

Description: **Weather Proof Sewage Treatment Plant Mild Steel Kiosk**

Applications:		
N20 Range	N10 Range	N05 Range
SAP025/030		



Indicative kiosk photo

	Options			
	Type	Qty	Motor size	Voltage
Sound Attenuation	Optional		N/A	N/A
Final Effluent Pump				
GSM Unit				
Humus Return				
Cooling Fans				

Kiosk Sizes:

Width	750mm
Depth	505mm
Height	750mm

Kiosk Material:

Painted Mild Steel

Nominal Air output:

26 m<sup>3</sup>/h @ 165 mbar

Blower 1:

Model	IDK-200	No of outlets	1
Motor Size	0.21kW	No of timer valves	2

Blower 2:

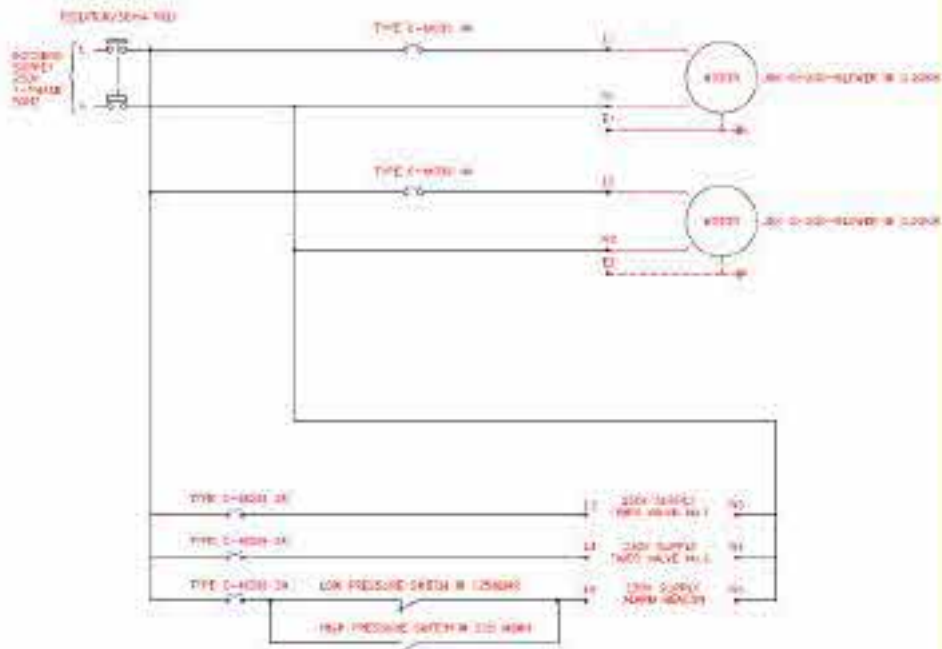
Model	IDK-200	No of outlets	
Motor Size	0.21 kW	No of timer valves	

Total Installed Power:

0.42 kW 1 phase

Unit Weight:

70 kg



UNIT 14, REDWING INDUSTRIAL ESTATE  
SOUTH SHELTON, TYNNE AND HEAR, WESS-SEE  
TEL: 0191 434000  
FAX: 0191 434000  
WEB: WWW.SCHOFIELDELECTRICALS.CO.UK

ST ISSUE	DES	REV	DATE
REVISION	DRAWN BY	CHECKED BY	DATE

SAF 1C28A-0000

WIRING DIAGRAM

SHEET 1 OF 1

Part Number: SAF1030K-A

Description: Weather Proof Sewage Treatment Plant Mild Steel Kiosk

Applications:		
N20 Range	N10 Range	N05 Range
SAF035/D40		



Indicative kiosk photo

	Options			
	Type	Qty	Motor size	Voltage
Sound Attenuation	Optional		N/A	N/A
Final Effluent Pump				
GSM Unit				
Humus Return				
Cooling Fans				

Kiosk Sizes:

Width	705mm
Depth	505mm
Height	750mm

Kiosk Material:

Painted Mild Steel

Nominal Air output

30 m<sup>3</sup>/h @ 165 mbar

Blower 1:

Model	JDK-250	No of outlets	1
Motor Size	0.24 kW	No of timer valves	2

Blower 2:

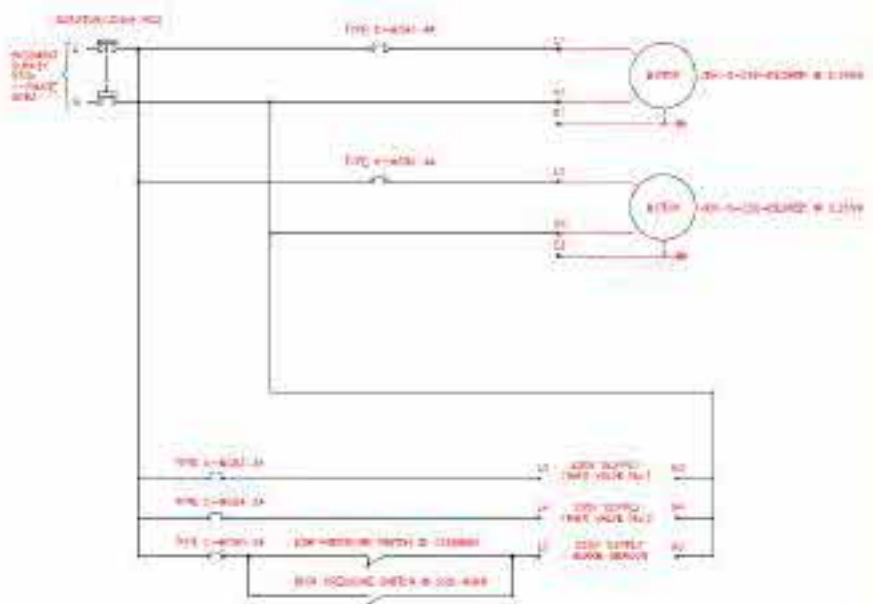
Model	JDK-250	No of outlets	1
Motor Size	0.24 kW	No of timer valves	

Total Installed Power:

0.48 kW 1 phase

Unit Weight:

75 kg



**Schofield Electricals.**

UNIT 12, HENGLING INDUSTRIAL ESTATE  
 SOUTH WALSLEY, WEST MIDLANDS B44 9JG  
 TEL: 0191 486270  
 FAX: 0191 486288  
 WWW.SCHOFIELDELECTICALS.CO.UK

REVISED	DATE	BY	CHKD BY	DATE

REF: 1030A-0000  
 WIRING DIAGRAM  
 SHEET 1 OF 1

Part Number: CSAF-1048A

Description: Weather Proof Sewage Treatment Plant Mild Steel Kiosk

Applications:		
N20 Range	N10 Range	N05 Range
CSAF050		



Indicative kiosk photo

Options				
	Type	Qty	Motor size	Voltage
Sound Attenuation	Optional		N/A	N/A
Final Effluent Pump				
GCM Unit				
Humid Return				
Cooling Fans				

Kiosk Sizes:

Width	750mm
Depth	405mm
Height	1250mm

Kiosk Material:

Painted Mild Steel

Nominal Air output

48 m<sup>3</sup>/h @ 175 mbar

Blower 1:

Model	SV-200/2/1.1KW	No of outlets	1
Motor Size	1.1 kW	No of timer valves	2

Total installed Power

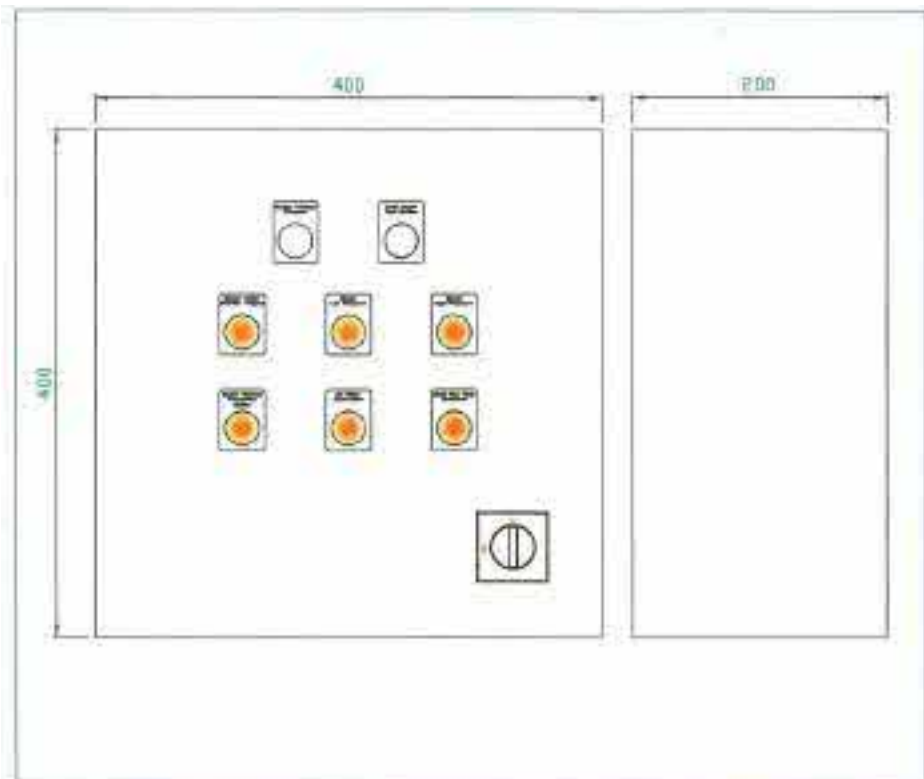
1.1 kW 1phase

Unit Weight

95 kg

Key Features:

- Thermostatic control, Automatic blower shutdown when maximum operating temperature is reached and automatic restart when kiosk cools sufficiently.
- Automatic blower shutdown and the alarm beacon flashes when a high pressure is detected (requires inspection and remedy).
- The air filter has a pressure switch to monitor the pressure drop across the filter, if it goes above 30mbar, which would indicate a dirty filter, then the blower automatically shuts down and the alarm beacon flashes (requires inspection and remedy).
- Integral pressure gauge to monitor blower operating pressure.



**TERMINAL DESCRIPTIONS FOR ASSES  
(INTERNAL AND EXTERNAL CONNECTIONS)**

1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-1-6	1-1-7	1-1-8	1-1-9	1-1-10	1-1-11
W	W	W	W	T	T	L	L	N	N	W
1-1-1	1-1-2	1-1-3	1-1-4	1-1-5	1-1-6	1-1-7	1-1-8	1-1-9	1-1-10	1-1-11
BLOWER	THRX VALVE 1	THRX VALVE 2	THX TRF	ALARM TRIG	CONTROL COMMON	CONTROL LIVE	CONTROL COMMON	ALARM BLOWER		

1. BLOWER MOTOR WIRING TO BE DONE BY OTHER CONTRACTOR. WIRING TO BE CHECKED AGAINST LABELS TO BE FITTED WITH CARE. TERMINALS TO BE USED DEPENDING ON SIZE AND TYPE OF TERMINALS.
2. CONTROL TERMINALS TO BE FITTED WITH CARE. TERMINALS FOR 20 AMP TO BE FITTED WITH THE TYPE OF CONNECTIONS.
3. ALL LABELS TO BE MADE TO BE LEGIBLE. CHECK ALL THE WIRING AGAINST THE WIRING DIAGRAM. BLACK AND GREY FOR VOLTAGE AND WIRE.
4. CHECK ALL VOLTAGE AND WIRE.
5. CHECK ALL VOLTAGE AND WIRE.
6. ALL LABELS ABOVE WIRING TO BE BLACK WITH THE SAME WIRE NUMBER. CHECK AGAINST WIRING DIAGRAM.
7. ALL WIRING LABELS TO BE CHECKED BY ALL OTHERS BY THE END OF WORKING HOURS.
8. WHEN A LABEL IS CORRECTLY FITTED TO THE TERMINAL, THE WIRING IS TO BE DONE AT THE TERMINAL POINT.

**GENERAL LAYOUT, TERMINAL DESCRIPTIONS AND WIRING NOTES**

THX = CUT OFF THERMOSTAT SET AT 40 DEG.  
 THX = RESET THERMOSTAT SET AT 35 DEG.



UNIT 14, REDWOOD INDUSTRIAL ESTATE  
 SOUTH BRIDGEMAN, TYNNE AND NEAR, HEDDLEY  
 TEL: 01832 509828  
 FAX: 01832 509829  
 WEB: WWW.SCHOFIELD.ELECTRICALS.CO.UK

REV	DATE	BY	CHK	APP
REVISED	08/04/15	DR	DR	DR
CSAF-1048-A ELECTRICAL CONTROL PANEL PRELIMINARY DRAWING REF: 175896				





# PANEL INDICATION/FAULT FINDING GUIDE

## Supply Voltage Present



The supply healthy light indicates that there is voltage present in the control panel.  
If this indicator is not lit check your supply to the block or consult a qualified electrician.

## Blower Motor Starter Tripped



The blower tripped light indicates that there has been a short circuit or an overload in the blower electrical circuit, the trip can be reset within the control panel.

It is recommended that if this lamp is illuminated and the blower will not restart after the trip has been reset, you should consult a qualified service engineer/electrician.

## Blower Low Pressure



The blower low pressure light, indicates that there is a pressure loss from the blower pipe work, check the pipe connections are secure and for any signs of air leaking an abnormal low level in the tank may also cause this signal.

The blower pressure can be verified by the pressure gauge, the low pressure signal will illuminate at a pressure of 150kbar or below.

If the levels in the tank are particularly low, this also may cause the low pressure light to illuminate.

## Blower High Pressure



The blower high pressure light, indicates that there is an air flow restriction within the blower pipe work.

check the pipe work for any signs of damage or crushing, check that the air diffuser valves have not been shut off.

Once the checks have been completed and the problem rectified, the reset button may be pressed, the blower will restart. If the problem is still present then the blower will stop and the signal will illuminate again.

## Air Filter Restriction



The blower 'Air Filter Restriction' light, indicates that there is a restriction within the blower air filter.

Remove the filter and check the condition, clean the existing filter and replace or replace with a new filter, check for any debris around the filter intake and remove/clean if necessary.

Once the filter has been cleaned/replaced, the reset button may be pressed and the blower will restart. If the problem is still present then the blower will stop and the signal will illuminate again.

## Block Max Temp Exceeded



The block max ambient temp light, indicates that the internal temperature of the block has exceeded the recommended operation temperature of the blower. The system will shut down the blower until the temperature returns to an acceptable level.

Once this occurs the blower will restart automatically and continue to operate as normal. (this is part of the normal operation for the plant)

Check that the louvre vents on the block are not blocked or restricted so as air can flow freely inside the block.

## Blower Motor Thermal Protection Active



The Blower Motor thermal protection light indicates that the motor temperature has exceeded its designed working parameter, this is part of the motor protection circuit and will self reset and restart, once the motor has cooled down.

It is recommended that if this lamp is illuminated and the blower will not restart after the motor has cooled, you should consult a qualified service engineer/electrician.

## Fault Reset Push Button



If there has been a high pressure, or filter restriction fault, the reset button will need to be pressed once the fault has been rectified.

Thank you for choosing Premier Tech Water & Environment. Your product must be registered to activate the standard warranty and any extended warranty offered on certain product ranges.

Products installed to protect the environment and avoid EA prosecution must be maintained and serviced regularly to ensure that they operate efficiently and effectively. Premier Tech Water & Environment has a nationwide network of service partners that can offer complete service and maintenance packages for peace of mind.

Our service partners can also commission your products should you wish.

In order to activate your extended warranty and a free post installation check, please use one of the following options:



Complete, print and return this form to:



Name

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Address

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Postcode

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Telephone Number

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Email Address

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Site Address (if different)

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Product Purchased

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Reference Number (if known)

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Where Purchased

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Proof of Purchase

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Please contact me regarding:

Commissioning quotations

Service and maintenance quotations

