

DRAINAGE DETAILS



John Dickie Associates
Chartered Building Engineers
5, Victor Way,
Cherry Holt Road, Bourne, Lincs PE10 9PT
Tel 07778 297733 jda@ndirect.co.uk

ERECTION OF NINETEEN HOLIDAY LODGES, RECEPTION BUILDING, FACILITY MANAGER'S ACCOMMODATION AND MAINTENANCE SHED. FORMATION OF TWO FISHING LAKES AND ASSOCIATED HARD AND SOFT LANDSCAPING. BLEU RAY FARM, MILL GATE, WHAPLODE PE12 6RY

CLIENT ; VMM PROPERTIES LIMITED

DATE ; OCTOBER 2024

PROJECT REF ; JDA/2024/885 V1

This document is part and parcel of a Condition discharge application submitted to South Holland District Council

1.0 Introduction :

1.1.2. Condition 3 :

The application site area is defined on the submitted OS based Location Plan. The site area is 22,780 sq m – 5.63 acres.

2.0. Drainage Design ;



HEADWALL OUTLET TO IDB WATERCOURSE



MARSH POLYLOK SEWAGE TREATMENT PLANT DETAILS

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Ultra:Polylok L

Sewage treatment plants

Intensive biological processing for off-mains wastewater

Overview

The Marsh Ultra:Polylok L (UPL) draws upon Marsh Industries' extensive experience in the industrial and commercial sewage treatment sectors, bringing its outstanding performance and high-quality engineering to the domestic sector.

The UPL is available in SPE and GPE models, is approved to BS EN12566-3 and carries an impressive effluent quality of 20/30/25, within national consent standards.

Both models are compact and easy to install, meeting the needs of installers and specifiers alike.

Operating principle

The UPL uses a similar operating principle to the Marsh E design.

In addition to anaerobic digestion taking place in the primary settlement chamber (1), the UPL unit allows the clarified water to pass into a second 'aeration chamber' (2) where it is treated to remove the dissolved constituents. Here aerobic bacteria, supported by diffused air and mobile media, ensures full treatment is achieved before the treated effluent and 'sloughed off' bacteria flows to a final settlement chamber (3). The final effluent is then discharged to the drainage field or watercourse via a Polylok filter (9).

Key

- Inlet
- Primary settlement chamber
- Aeration chamber
- Compressor with dam
- Compressor housing
- Air diffuser
- Bi-media
- Final settlement chamber
- Polylok tertiary filter
- Outlet
- Heavy duty lid

Whisspur
Acoustic Vibration Reduction (AVR) unit
Suitable for all types of diaphragm compressors.
See page 14.

Specifications

Model	Inlet	Length	Width	Height	Inlet		Outlet	
					Invert	Ø	Invert	Ø
UPL 6	1700	1700	2050	850	110	725	110	
UPL 12	2300	2000	2050	850	110	725	110	

Notes:
+ For precise lane sizes and configurations, please consult Marsh Industries.
= All dimensions in mm.

Benefits

- Tested and approved to the most stringent European Standards: EN12566-3:2005+A1:2009
- Small footprint and shallow dig for easy installation provides enhanced health and safety benefits
- Heavy duty shell as standard enables installation in all ground conditions. Unique 'keying-in' lip assists anchoring into granular or concrete surrounds.
- Near silent, energy efficient compressor (located externally) with integral alarm (approximate annual running costs of £35 platinum)
- High specification bio-media (133m² per m³) and intensive diffuser ensures even circulation and maximum treatment efficiency
- Unique Polylok tertiary filter reduces suspended solids and BOD by a further 40% helping to extend drainage field life
- Sledge return pump improves system circulation
- Variable inverters for ease of installation at various depths – 250, 500, and 750mm (two available)
- Pumped outlets available

PROTOCOL

ON PRODUCT TYPE TESTING



Czech

Registration No. 1017 – CPD – 05.686.914

Issued in compliance with Article 5 Section 1 Clause b) of Government Order No. 190/2002 Coll. and in compliance with Council Directive No. 89/106/EEC of 21st December, 1988, on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products, amended by Council Directive 93/68/EEC, by the Notified Body No. 1017.

Domestic Wastewater Treatment Plant

Type range: **Marsh Uni Ensign**

Types: **6PE, 10PE, 12PE, 16PE, 20PE, 25PE, 30PE, 35PE, 40PE, 45PE, 50PE**

EN 12566-3:2005+A1:2009

MARSH INDUSTRIES LIMITED

Units 3-13, Little Addington Business Park, Irthlingborough Road, Little Addington,
Kettering NN14 4AS UNITED KINGDOM
VAT Ident. No.: GB866868943

Place of the production: See above

TÜV SÜD Czech s.r.o. performed the initial testing of the respective product characteristics described in Annex ZA of the standard

EN 12566-3:2005+A1:2009

The testing results are presented in the Evaluation Report Reg.No. 05.686.242 from 20-04-2012, which consists of 3 pages and forms an inseparable part of this Product Type Testing Protocol.

Treatment efficiency on organic daily loading BOD ₅ = 0,49 kg/day	BOD ₅	97,4 %	11,5 mg O ₂ /l
	COD _{CR}	91,0 %	71,5 mg O ₂ /l
	TSS	94,1 %	19,2 mg/l
	N-NH ₄ ⁺	81,0 %	8,4 mg/l
	P _{total}	42,0 %	5,7 mg/l
Watertightness	Passed		
Structural behaviour	Passed		
Durability	Passed		

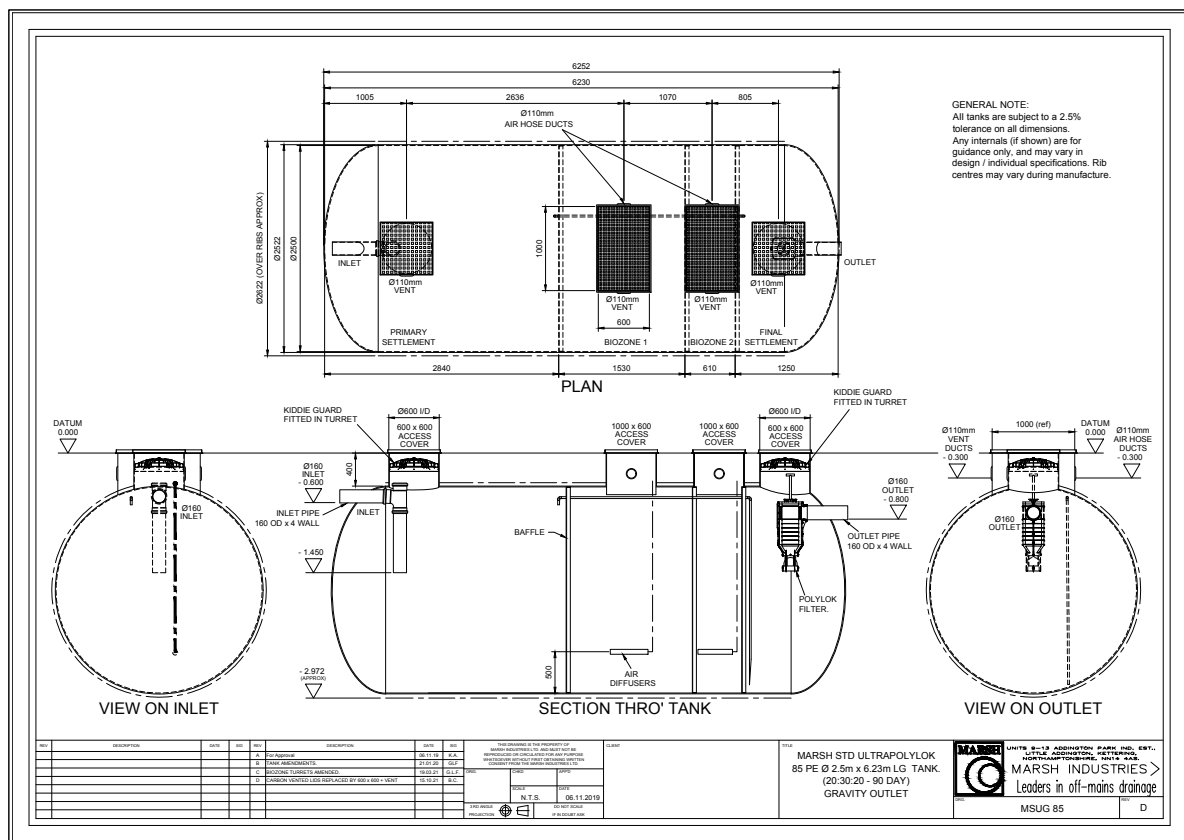
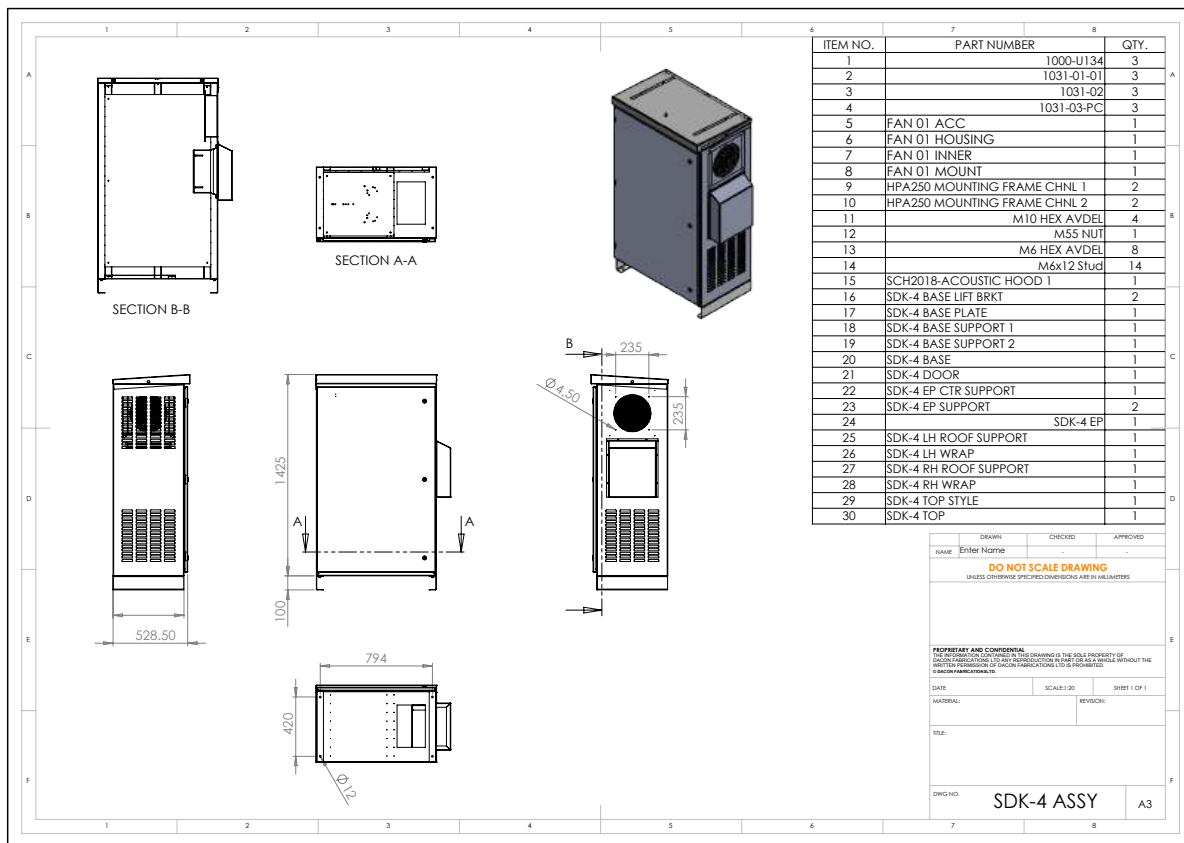
In Prague, 03.05.2012



On behalf of the Notified Body 1017

TÜV SÜD Czech s.r.o. • Novodvorská 994 • 142 21 Prague 4 • Czech Republic • certification@tuv-sud.cz

TUV®





John Dickie C. Build E MCABE

John Dickie Associates
Chartered Building Engineers
5, Victor Way,
Cherry Holt Road, Bourne, Lincs PE10 9PT
Tel 07778 297733 jda@ndirect.co.uk

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APPENDIX A. DRAINAGE DETAILS

RAINWATER DRAINAGE

New rainwater goods to be new 110mm UPVC half round gutters taken and connected into 68mm dia UPVC downpipes. Rainwater taken to new soakaway, situated a min distance of 5.0m away from any building, via 110mm dia UPVC pipes surrounded in 150mm granular fill.

SOAKAWAY USING CRATES

Trench of soakaway to be provided slightly largely than designed depth after porosity test (if required) but just over 1m³ min from invert level of pipe. Provide suitable geotextile over the base and up the sides of the trench over 100mm level and compact bed of coarse sand. Install AquaCell crate units or equivalent as manufacturer's details. Geotextile to be wrapped around crates. Provide 100mm of coarse sand between the trench walls and over the AquaCell structure. Backfill with suitable material.

UNDERGROUND FOUL DRAINAGE

Underground drainage to consist of 110mm diameter UPVC proprietary pipe work to give a 1:40 fall laid on 100mm granular bed conforming to BS882 1983, Table 4 and selected as-dug backfill to 1 in 40 gradient to mains connection. Provide 600mm suitable cover (900mm under drives). Shallow pipes to be covered with 100mm reinforced concrete slab over compressible material. Provide rodding access at all changes of direction and junctions. All below ground drainage to comply with BS EN 1401-1: 2009.

Drains with less than 900mm cover under roads/parking to have reinforced concrete bridging over.

Drains with less than 600mm cover not under roads/parking to have concrete paving slabs as bridging over pipes with 75mm granular fill between top of drain and underside of slabs.

PVCU rest bends to base of soil stack and trapped back inlet gulley (low-back P-trap and square hopper) bedded and surrounded with 100mm concrete.

450mm dia. polypropylene inspection chambers bedded on selected as-dug material with cover and frame. Class A15 (BS-EN 124) cover and frame in paths and planted areas. Class B125 (BS-EN 124) cover and frame in road and parking areas. Concrete bed and surround to cover frames.

Lightweight inspection chamber covers to be of screw down type.

Drains under building encased in 25mm fibreglass and 100mm concrete, cast integrally with floor slab where crown within 300mm of slab underside.

Flexible drain joint to be provided within 150mm of entering building and within 150mm of inspection chamber connection, followed by 600mm long 'rocker' pipe.

Protect drains passing through walls from differential settlement with 25mm fibreglass wrap and lintel over.

Fill drain trenches with concrete where within one metre of building and lower than foundation, up to lowest level of foundation. Where further than one metre from building, fill drain trench with

concrete up to level below foundation equal to distance from building less 150mm.

Excavating / Backfilling ;

Lower part of trench :-

From bottom to 300mm above crown of pipe the trench must have vertical sides and be of a width as small as practicable but not less than external diameter of pipe plus 300mm or larger dimension if specified.

Formation for beds generally :-

Excavate to formation immediately before laying beds or pipes.

Remove mud, rock projection, boulders and hard spots and replace with consolidated bedding material.

Harden local soft spots by tamping in bedding material.

INSPECTION CHAMBERS

Generally, underground quality proprietary UPVC 450mm diameter inspection chambers to be provided at all changes of level, direction, connections and every 45m in straight runs. Inspection chambers to have bolt down double sealed covers in buildings and be adequate for vehicle loads in driveways.

Inspection chambers to be located as shown on drawings.

Exact depth and size to be agreed on site with Building Inspector.

For chambers with inverts of less than 900mm use Hepworth preformed polypropylene chambers or equal approved.

Other chambers to be formed in brickwork.

Inspection chambers with inverts greater than 900mm to be purpose built as follows :

225mm thick brick walls in semi-engineering brick laid in English Bond. Bricks with frogs to be laid with frogs uppermost.

Heavy duty covers and frames in roads and parking areas, medium duty elsewhere.

Joints to be formed with waterproof mortar and to be flush and smooth.

Walls to be built of minimum 150mm thick concrete base and dimensions not less than outside dimensions of chamber.

Exact depth and size of chambers to be agreed on site with Building Inspector.

Back inlet gullies to be bedded and surrounded in 150mm concrete. Gullies to be roddable.

Connection to off-site sewers to Local Authority details.

Manhole Covers and Frames ;

The manhole covers and frames for roads shall be the heavy duty cast iron non-rocking three point suspension type, constructed in tow triangular section and linked together with mild steel bolts, all in accordance with BS.497 (Grade A). They shall be to BS Ref : MA60 or have a 600mm x 600mm clear opening and be either Drainage Castings "Silent Knight" range, cast iron No. DC5037 (Broads No. 70C) or ductile iron No. DC5050 or Stanton and Staveley "Chieftain" ductile iron SS118 or Drainage Castings "Dreadnought" range ductile iron No DC50553,

The medium duty pattern manhole covers and frames for fitment off roads shall be of cast iron and weigh not less than 100kg (2cwt), all in accordance with BS.497 (Grade B).

They shall be of the circular type to give clear opening of 600mm (24") or may alternatively be to BS Ref : MB2 – 60/60 with 600mm x 600mm clear opening.

PIPES PASSING THROUGH WALLS - FOOTINGS

Walls above pipes passing through substructure walls to be supported on suitable lintel on semi-engineering bricks. Pipe to be provided with a 50mm clearance all round, opening to be masked with granular backfill (pea shingle) around pipe. DPC to be provided as required by BCO.

PIPES PASSING THROUGH TRENCH FOUNDATIONS

The load-bearing capability of foundations must not be affected where services pass through. The pipe work should be sleeved and be provided with 'rocker pipes' at a distance of 150mm either side of the foundation concrete. The 'rocker pipes' should have flexible joints and be a maximum length of 600mm.

Alternatively

Pipework should pass through a suitably strengthened opening in the foundation, i.e. foundation shuttered and a provided with suitable lintel over the pipe allowing for sufficient space for movement to ensure that the drain is capable of maintaining line and gradient. Opening should be masked with granular backfill (pea shingle) around pipe.

Alternatively provide 75mm deep pre-cast concrete plank lintels over drain to form opening in wall to give 50mm space all round pipe: mask opening both sides with rigid sheet material and compressible sealant to prevent entry of fill or vermin.

DPC to be provided as required by BCO.

Advice from Building Control to be sought on suitability of pipe running through foundation before construction.

ABOVE GROUND DRAINAGE

All new above ground drainage and plumbing to comply with BS EN 12056-2:2000 for sanitary pipework. All drainage to be in accordance with part H of the Building Regulations. Wastes to have 75mm deep anti vac bottle traps and rodding eyes to be provided at changes of direction.

Size of wastes pipes and max length of branch connections (if max length is exceeded then anti vacuum traps to be used). Anti-syphon traps to be used where the possibility of induced syphonage exists. 110mm PVCU pan connectors to W.C. pan outgoes. 32mm or 40mm MUPVC solvent weld waste pipes to traps of fittings as appropriate.

Wash basin - 1.7m for 32mm pipe 4m for 40mm pipe

Bath/shower - 3m for 40mm pipe 4m for 50mm pipe

W/c - 6m for 100mm pipe for single WC

Urinal waste (if shown) to be 50mm with a 75mm p trap.

All branch pipes to connect to 110mm soil and vent pipe terminating min 900mm above any openings within 3m. Or to 110mm upvc soil pipe with accessible internal air admittance valve complying with BS EN 12380, placed at a height so that the outlet is above the trap of the highest fitting.

Waste pipes not to connect within 200mm of the WC connection. Supply hot and cold water to all fittings as appropriate.

All above ground drainage is to comply with BS 5572 : 1978. all to be air or water tested to ensure water tightness throughout

Soil and vent pipe is to be taken up 900mm above any window opening within 3m and fitted with a durable cage.

Shower waste to be 54mm with a 75mm p trap. shower tray is to be set on a raised plinth to allow access to trap etc. etc.

At first floor level if shown, the soil and vent pipe is to be laid to a 1 in 60 fall within the floor. access to be provided by screw fixed 19mm chipboard panels. Connect branch into the soil and vent pipe.

Bend at the foot of the soil and vent pipe is to have a radius of at least 200mm at the centre line.

Waste pipes are to discharge below gully grating but above the water line.

Branch discharge pipe must not discharge into the stack lower than 450mm above the invert of the tail of the bend at the foot of the stack.

Internal soil vent pipes to be wrapped in 25mm unfaced mineral fibre and enclosed in minimum two layers of 12.5mm plasterboard (15g/m² mass per unit area) to provide adequate sound proofing. Soil

Ground and First floor fittings from WC (if shown on layout) to be connected to new 110mm UPVC soil pipe with accessible internal air admittance valve complying with BS EN 12380, placed at a height so that the outlet is above the trap of the highest fitting and connected to underground quality drainage encased with pea gravel to a depth of 150mm.

APPLICATION SITE AREA
22780 sq m.
5.63 acres

Blue Raye Farm

Home Farm

Drain

Wharfedale River

GP

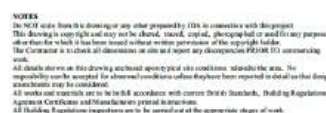
3.4m

3.0m

Hardtree Bank, B1165

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NOTES

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All details shown in this drawing are standard specification and conditions. Materials, methods, and workmanship may be accepted for approval/consent unless otherwise specified in detail within this drawing. Contractors may be consulted.

All works and materials are to be in full accordance with current Irish Standards, Building Regulations, Aggregates and Construction products standards.

Aggregates and Construction products standards are to be in full accordance with current Irish Standards.



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5, Victor Way, Cherry Hilt Road,
Bourne, Lincs PE10 9PT
Tel 07778 297733 jdm@ndirect.co.uk

Proposed Holiday Home Development at :
Bleu Ray Farm
Millgate, Whapload
PE12 6RR

Drawing Title : Lodge Design
Scale 1 to 1000 at A3 Portrait
Date April 2023
Drawing No JDA/2023/1851 LODGES.dwg

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All details shown on this drawing are based upon typical site conditions and/or records. No responsibility can be accepted for errors made under conditions unless they have been reported in detail so that design amendments may be considered.

All works and materials are to be in full accordance with current British Standards, British Standards Institution, Agreement Certificate and Manufacturers printed specifications.

All Building Regulations inspections are to be carried out at the appropriate stages of work.

[illegible]

CDM REGULATIONS 2005

CDM REGULATIONS 2016

The client must make by the Construction Design and Management Regulations 2015. The client must appoint a contractor, if more than one contractor is to be involved, therefore will need to appoint (in writing) a contractor to take responsibility for the construction phase of the planning and design and a principal contractor (in place, manage and coordinate the construction and ensure there are arrangements in place for managing any risks to the project).

Domestic Clients

The domestic client is to appoint a registered designer and a principal contractor when there is more than one contractor, if a single design will be used.

The designer can take on the duties, provided there is a written agreement between the client and the designer to do so.

The health and safety duties can be fulfilled as soon as possible to better construction to work safely if the work:

- (a) Last longer than 30 working days and has more than 20 workers
- (b) Is likely to be carried out in any part of the project, provided it is all on (c) At least 500 construction hours

[illegible]

PLANNING CONSENT COMPLIANCE

The underlying scheme shall be carried out as expeditiously as the five planning steps following the occupation of the dwelling to which it relates or the completion of development, whichever is earlier. The management plan shall be implemented in accordance with the order of the consent.

Any changes to the original form of the approved landscaping (e.g. removal, replacement or addition of plants) within the first five years of the implementation of the landscaping scheme shall be reported during the most suitable planting season to the relevant authority. The report shall include the species, number and spacing between any replacement or additional plants, and any other relevant details.

Any replacement or, details of proposed living within five years of planting shall be made in accordance with the approved order, number and spacing.

Therefore the planting scheme shall be carried out in accordance with the approved order of the consent.

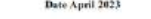
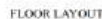
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Drawing Title : Facility Managers Accommodation

Scale 1 to 200 at A3 Portrait

Date April 2021

Drawing No. JDA/2023/885/MANAGERS.001



Date April 2023

Drawing No. JDA/2023/005-III

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