General Notes

Do not scale this drawing. If in doubt, consult with the Engineer

1. This drawing is to be read in conjunction with all other relevant Engineers, Architects and Specialist design drawings and specifications.
2. All dimensions and levels are in metres unless noted otherwise.
3. This drawing is for information purposes and all information displayed is subject to detailed design.
4. Cover levels noted are indicative or best design levels. constructed levels should take into account as-built surfacing levels and gradients.
5. The Contractor shall be responsible for checking all tie-ins for line and level with existing foul and surface water systems before commencing any works.
6. The Engineer shall be notified immediately, in writing, should any errors or discrepancies be found prior to the commencement or continuation of any works. All work is to be carried out in accordance with current British Standards, Building Regulations and NHBC Standards.
7. All drainage work is to be strictly in accordance with the requirements of the Building Regulations 2010, Approved Document Part H, "Drainage and waste disposal".
8. It is the responsibility of the Contractor to execute the works at all times in strict accordance with the requirements of the Health and Safety at Work Act 1974, and the C.D.M. Regulations 2015. The Contractor will be deemed to have allowed for full compliance, including full liaison with the Principle Contractor, within his rates.
9. All existing land drains encountered on site during construction are to be re-connected.
10. Should any departure from the proposed slab or external levels be considered, agreement shall be sought from the Engineer immediately and prior to the commencement or continuation of any works. Proposals should take full account of all restrictions to the slab level.
11. Temporary protection to be provided to drainage work during construction as necessary.
12. Power supply to separator/treatment units, alarm, panel, vent etc to be provided by contractor in accordance with manufacturers recommendations.
13 Topographical survey shown is based upon Site Survey Solutions drawing no.1473 001 001
14 Architects layout shown is based upon Eight One Two Architects Layout drawing no.23_815 102 This layout may be subject to change and is intended for indicative purposes only.

Specification Notes

15. The following types of pipe may be used unless noted or agreed otherwise;

- Pipes up to 300mm diameter to be Structured Walled to BS EN 13476, Polypropylene to BS EN 1852 or PVC-U to BS EN 1401.
- Pipes 300mm diameter or over to be Concrete to BS 5911.

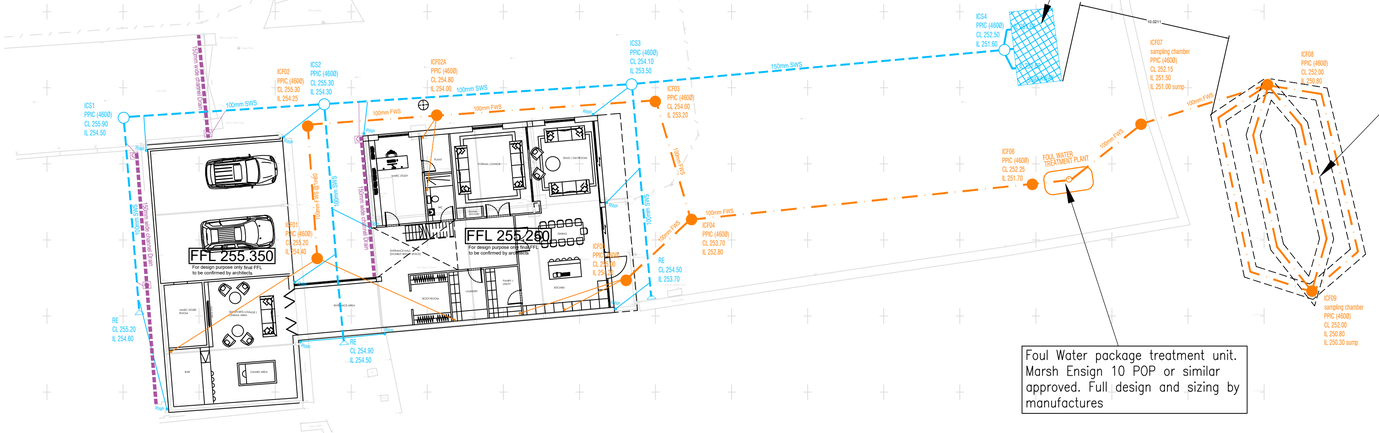
16. Both Clay and Concrete pipes shall be strength class 120 (100/150mm min crushing strength 28kN/m). Thermoplastic pipes shall have a minimum ring stiffness of SN4.
17. Pipes which run adjacent to buildings shall be installed in strict accordance with Part H, Clauses 2.23 to 2.25.
18. All pipes, chambers and fittings shall be installed, bedded and backfilled in accordance with the manufacturers instructions subject to the following minimum requirements;

Pipe Location	Cover to crown	Clay/Concrete Pipe * Bedding	Plastic Pipe Bedding	Backfill
Roads (HGV)	>1.2m <1.2m	Class S Class 'A' (Concrete)	Class S (S1or2) Class 'A' (Concrete)	Type 1Granular
Drives / car parking	>0.9m <0.9m	Class S Class 'A' (Concrete)	Class S (S1or2) Class 'A' (Concrete)	Type 1 Granular
Hard and soft Landscaping	>0.6m <0.6m	Class S Class 'A' (Concrete)	Class S (S1or2) Class 'A' (Concrete)	Suitable as dug material

19. The first flexible joint in pipes adjoining a manhole shall be a maximum length of 600mm from the inside face of the manhole, connecting to a rocker pipe. The length of the rocker pipe shall be as follows;

Pipe diameter	Length of Rocker pipe
150-600mm	600mm
675-750mm	1000mm
over 750mm	1250mm

20. All manholes and inspection chambers situated in areas subject to vehicular loading to have class D400 covers and frames to BS EN124 and those not subject to vehicular loading to have class minimum class B125 covers and frames.
21. Drainage frames must be tied to manhole risers by use of manufacturers ties (eg. Polypipe ref FRK500 fixing kit and FRK501 black ties.) The ground works contractor will be held fully responsible for any accidents due to incorrect fitting or failure to use the correct manufacturers fixing equipment.
22. All drains in the vicinity of existing or proposed trees to be constructed in accordance with the requirements of NHBC Practice Note 3.



Soakaway currently sized on infiltration value of 5x10-5 based on visual ground inspection infiltration testing to BRE 365 required prior to construction

Surface water attenuation/Soakaway to be provided.
Crate Soakaway. 11m3 storage volume.
size currently based on full infiltration with approximate infiltration value of 5x10-5 used.
infiltration rate based on ground conditions visible,
Full infiltration testing to be completed.

Minimum 500mm cover depth (no vehicle loads)
size currently based on 4.5m x 3m x 1.0m deep crate units, 95% void ratio

IL 252.60. in
TOT 251.800
BOT 250.80
Min CL 252.25
impermeable new site area = 430m2

10% urban creep allowed to SW calculations

Drainage Field.

75m of 150mm perforated pipework laid in 900mm wide trench, 300mm deep granular layer. Trench filled with suitable granular backfill. 600mm minimum cover to drainage field

Drainage field subject to EA approval. and designed in accordance with BS6297 and BR part H. based on 7 person occupancy

Drainage Field currently sized on VP value of 50. based on visual ground inspection infiltration testing to BS6297 required prior to construction

Drainage Field size subject to detailed design

Foul Water package treatment unit. Marsh Ensign 10 POP or similar approved. Full design and sizing by manufactures

Suitable vent location maybe required

Connection/discharge to ground. EA approval maybe required. currently assumed the development is within the EA general binding rules criteria.

Key.

- Proposed foul sewer (Invert level shown) — F1 (1200ø) CL 130.900 IL 130.000
- Proposed Combined water sewer — C1 (1200ø) CL 130.900 IL 130.000
- Proposed surface water drain (roof water/ highway/treated external area flows only) — S10 (1200ø) CL 131.050 IL 128.391
- 600/460/225 "non -accessible" inspection chambers
- Minimum 1200Ø "accessible" manholes
- Proposed road gully and lateral Connection
- Proposed Rodding Eye point — RE
- Proposed channel drainage system - hauraton faserfix super or similar approved. 150mm wide.
- Proposed surface water attenuation/soakaway unit
- Proposed surface water flow control unit
- Foul Water package treatment unit. marsh Ensign or similar approved.
- Land drainage system - cut off drain. 600mm wide 600mm deep.

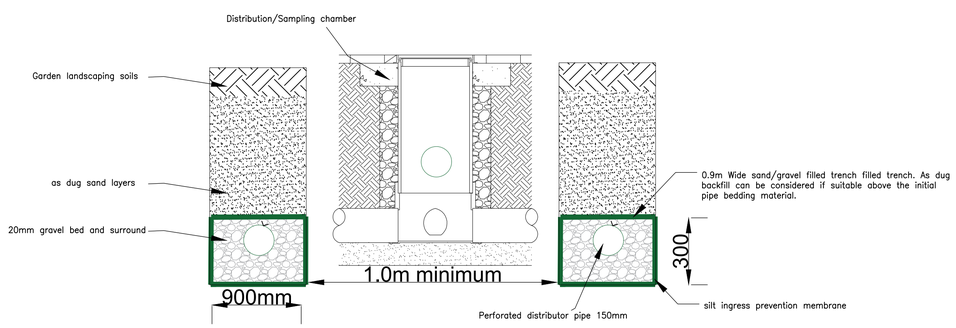
Drainage Design Subject to confirmation on proposed finished site levels and surface finishing. + infiltration testing

- FFL 130.000 — Proposed Finished Floor Level
- x131.05m — Proposed site levels
- 1:35 — Proposed Gradients
- Embankment (@1:3 unless stated)
- 600mm high — Retaining wall/SOE detail
- Porous paving construction
- Exceedance Flow routes.

Note: All Treatment units noted are for indicative costing purposes only. Full detailed design specification to be obtained from the manufactures prior to any orders being placed.

Levels provided are indicative only to assist with completion of drainage design works. For precise level information refer to architects/landscaping information

RWP and internal foul points positions are indicative only



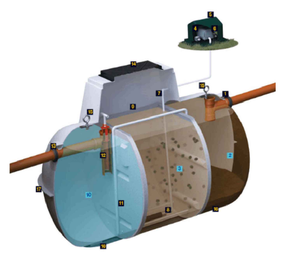
Typical Cross Section through Drainage Field - nts

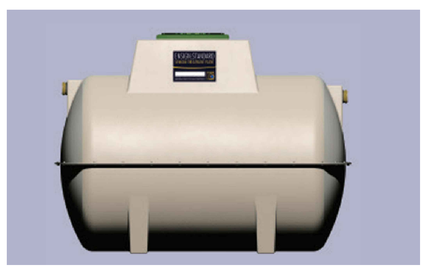
Operating principle

In addition to anaerobic digestion taking place in the primary settlement chamber [2] the Ensign unit allows the clarified water to pass into a second 'aeration' chamber [3] 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 [10]. The final effluent is then discharged to the drainage field or watercourse via a Polylok filter.

KEY

1. Inlet
2. Primary settlement chamber
3. Aeration chamber
4. Compressor with alarm
5. Compressor housing (External or internal options)
6. RCD / Electrical connection
7. PVC pressure pipe for diffuser(s)
8. Bio-media
9. Stainless steel mesh
10. Final settlement chamber
11. Sludge return
12. Unique Polylok tertiary filter (Only on Ensign:Ultra units)
13. Outlet
14. Access lid
15. Integral lifting eyes
16. Stabilising feet
17. Unique 'keying-in' lip





Typical Foul water treatment unit example - nts

REV	DATE	DESCRIPTION	BY
P01	25.11.24	Planning Issue- for approval	BD

CLIENT: Jebson Construction Ltd

PROJECT: Barn Conversion
Falledge Farm
Upper Denby - HD8 8YH

DRAWING TITLE: Below Ground Drainage Strategy

Planning/Approval

BACE
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Benjamin Allen Consulting Engineers

DRAWN BY: BD	DATE: 25.11.24
CHECKED BY:	SCALE: 1:200
PROJECT No: 77372	SHEET SIZE: A1
REVISION: P01	

DRAWING No: 77372-BACE-24-00-DR-C-500

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