PLANNING APPLICATION DRAWING

NOTES

Do NOT scale from this drawing or any other prepared by JDA in connection with this project

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The Contractor is to check all dimensions on site and report any discrepencies PRIOR TO commencing work.

All details shown on this drawing are based upon typical site conditions related to the area. No resposibility can be accepted for abnormal conditions unless theyhave 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, Building Regulations, Agrement Certificates and Manufacturers printed instructions.

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

ACCESSIBILITY

LEVEL DWELLING APPROACH

Provide a level approach to the principal entrance door no steeper than 1:20 and at least 900mm wide, with cross falls no greater than 1:40. Approach surface material to be firm and non-slip, capable of supporting the weight of a wheel chair and its user (loose material such as gravel and shingle would not be suitable).

ACCESSIBLE LEVEL DOOR THRESHOLDS INTO THE BUILDING

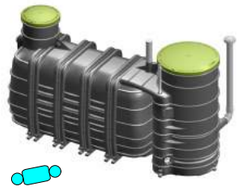
Entrance door to have an accessible level threshold provided with a weather bar (maximum height 15mm) with suitable drainage channel. Landings to have a fall of 1:40-1:60 away from the door. Principal entrance door to have a minimum 775mm clear opening between the door leaf and doorstops.

EXTERNAL SURFACE WATER DRAINAGE

Drainage of paving areas to be carried out in accordance with BS 6367:1983 and Approved Document H.

Hard surfaces around the building should be provided with a proprietary non slip permeable surface laid to manufactures details and in compliance with BS6717, to allow adequate drainage or provided with a non slip surface and cross fall of 1:40 – 1:60 draining away from the building (for a minimum of 500mm) to a suitable soakaway.

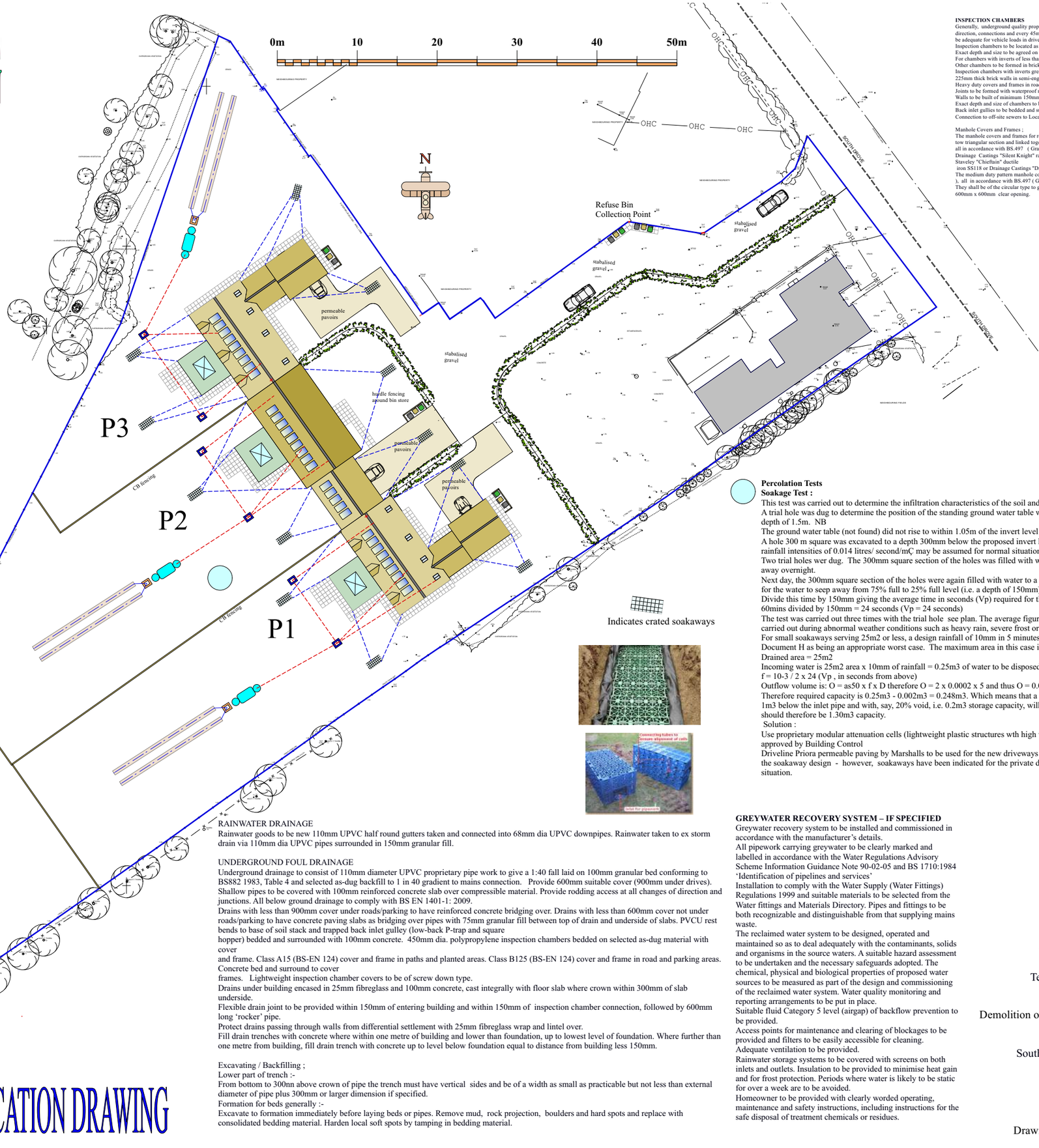
Paths, driveways and other narrow areas of paving should be free draining away from any buildings to a pervious area such as grasslands or to a suitable soakaway.



MONOBLOCK SEWAGE TREATMENT PLANT



Marshalls Drivesett Tegula
Priora Permeable Paviors
for Driveways



Indicates crated soakaways

RAINWATER DRAINAGE

Rainwater goods to be new 110mm UPVC half round gutters taken and connected into 68mm dia UPVC downpipes. Rainwater taken to ex storm drain via 110mm dia UPVC pipes surrounded in 150mm granular fill.

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 300nn 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 that 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 ither 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.

Percolation Tests

Soakage Test :

This test was carried out to determine the infiltration characteristics of the soil and was carried out as follows:
A trial hole was dug to determine the position of the standing ground water table which was not encountered at a max excavation depth of 1.5m. NB
The ground water table (not found) did not rise to within 1.05m of the invert level of the proposed distribution pipes.
A hole 300 m square was excavated to a depth 300mm below the proposed invert level of the incoming drainage pipe.(Design rainfall intensities of 0.014 litres/ second/mÇ may be assumed for normal situations).
Two trial holes wer dug. The 300mm square section of the holes was filled with water to a depth of at 300mm allowed it to seep away overnight.
Next day, the 300mm square section of the holes were again filled with water to a depth of 300mm and time observed, in seconds, for the water to seep away from 75% full to 25% full level (i.e. a depth of 150mm).
Divide this time by 150mm giving the average time in seconds (Vp) required for the water to drop 1mm. In this case - average 60mins divided by 150mm = 24 seconds (Vp = 24 seconds)
The test was carried out three times with the trial hole see plan. The average figure from the tests was taken. The test was not carried out during abnormal weather conditions such as heavy rain, severe frost or drought.
For small soakaways serving 25m2 or less, a design rainfall of 10mm in 5 minutes is quoted in the Building Regulation Approved Document H as being an appropriate worst case. The maximum area in this case is 25 sq m.
Drained area = 25m2
Incoming water is 25m2 area x 10mm of rainfall = 0.25m3 of water to be disposed of.
f = 10-3 / 2 x 24 (Vp , in seconds from above)
Outflow volume is: O = as50 x f x D therefore O = 2 x 0.0002 x 5 and thus O = 0.002m3
Therefore required capacity is 0.25m3 - 0.002m3 = 0.248m3. Which means that a traditional rubble filled soakaway measuring 1m3 below the inlet pipe and with, say, 20% void, i.e. 0.2m3 storage capacity, will not be adequate and the soakaway volume should therefore be 1.30m3 capacity.
Solution :
Use proprietary modular attenuation cells (lightweight plastic structures wth high void ratio) - Polystorm by Polypipe or similar approved by Building Control
Driveline Priora permeable paving by Marshalls to be used for the new driveways - these areas were therefore NOT included in the soakaway design - however, soakaways have been indicated for the private driveway to mitigate against a flash flood situation.

GREYWATER RECOVERY SYSTEM – IF SPECIFIED

Greywater recovery system to be installed and commissioned in accordance with the manufacturer's details.
All pipework carrying greywater to be clearly marked and labelled in accordance with the Water Regulations Advisory Scheme Information Guidance Note 90-02-05 and BS 1710:1984 'Identification of pipelines and services'
Installation to comply with the Water Supply (Water Fittings) Regulations 1999 and suitable materials to be selected from the Water fittings and Materials Directory. Pipes and fittings to be both recognizable and distinguishable from that supplying mains waste.
The reclaimed water system to be designed, operated and maintained so as to deal adequately with the contaminants, solids and organisms in the source waters. A suitable hazard assessment to be undertaken and the necessary safeguards adopted. The chemical, physical and biological properties of proposed water sources to be measured as part of the design and commissioning of the reclaimed water system. Water quality monitoring and reporting arrangements to be put in place.
Suitable fluid Category 5 level (airgap) of backflow prevention to be provided.
Access points for maintenance and clearing of blockages to be provided and filters to be easily accessible for cleaning.
Adequate ventilation to be provided.
Rainwater storage systems to be covered with screens on both inlets and outlets. Insulation to be provided to minimise heat gain and for frost protection. Periods where water is likely to be static for over a week are to be avoided.
Homeowner to be provided with clearly worded operating, maintenance and safety instructions, including instructions for the safe disposal of treatment chemicals or residues.

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Demolition of Class Q Consented Agricultural Buildings and Erection of Three Dwellings
Witteman Nurseries
South Drove, Spalding Lincs. PE11 3BD

Drawing Title : Drainage
Date : August 2022
Scales 1 to 500 at A3 Portrait

Drawing No JDA/2023/720/DRAINAGE/001

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