SUSTAINABLE SURFACE WATER SOAKAWAY DESIGN

Generally sustainable drainage design is a planning approval condition (subject of course to practicality and ground conditions). Soakaway design & specification is to full Contractor Design Portion & must be to prior approval of the Ribble Valley BC BCO.

Designs must adhere where practically possible to non-statutory technical standards for the design, maintenance and operation of sustainable drainage systems (SUDS) to drain surface water. However, good practice also recommends that soakaway are only efficient when not sited in clay soil as ihas proven to be the case here.

As such, suitable Soakaway and Infiltration test must to be carried out in advance using NHBC Percolation test procedure for surface water soakaway. Prior to this, it should be bourne in mind that the ideal soakaway location is in ground which is at a lower level than that of the building and at least 5m away from it, and min 2.5m from any site boundary. Notwithstanding reservations over clay soil, the current soakaway position meets these criteria and is sited under a fit for purpose permeable driveway.

When excavating for crates, the dimensions to work to are that the crates themselves have a depth of 440mm, but you should allow for 150mm base, side and top fill, plus a minimum additional 150mm top cover for any garden applications but 350mm for light traffic applications (as is suggested in this schematic). This gives a total depth of 890mm for garden applications or 1090mm for light traffic applications.

Depths allow for a 150mm base layer of sharp sand, 150mm of sand or gravel side fill all around the outside of the crates and above fill of 150mm or 350mm sand/gravel layer depending upon the application.

Ensure that the sides and bottom of the excavation are straight and square. Ensure the base is smooth and level with no sharp protrusions or obstacles. Check that the slopes are cut back to a safe angle or adequately supported and that a safe access is always possible to allow site personnel to enter the excavation. Inspect the base for any soft spots. If there any present, excavate and replace with compacted granular fill material.

Lay a 150mm base layer of sharp sand to ensure the base of the excavation is level before laying your chosen membrane sheet ensuring a 150mm overlap. For filtration systems and for water storage use a non-woven membrane.

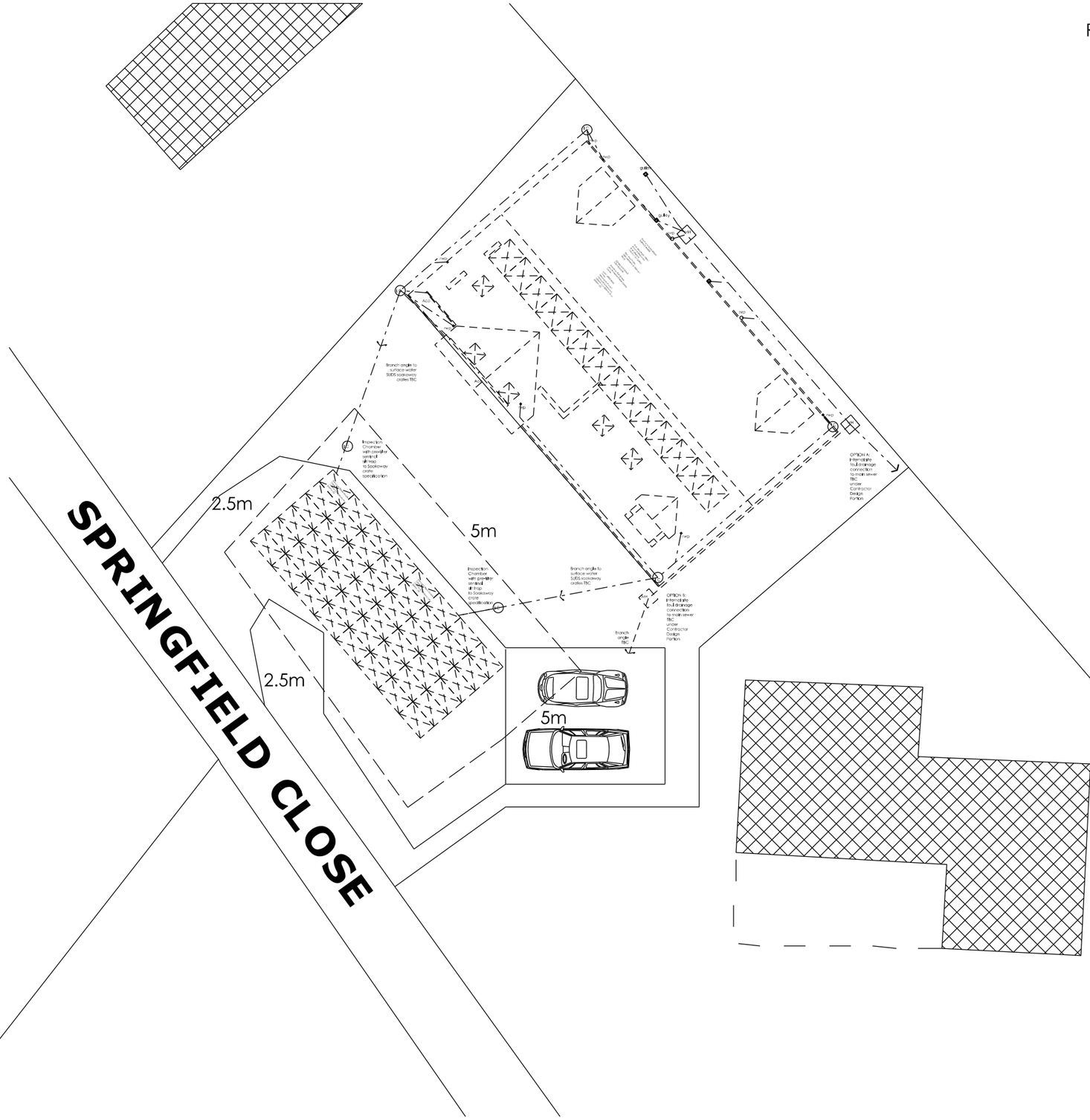
Assemble the soakaway units and install within the void in accordance with the design, specification & any regulations applicable to the installation site.

Complete the non-woven membrane encapsulation to the sides and the top of the installation, ensuring that the protection fleece has the required 150mm overlap. The membrane should be welded with double seams and inspected for damage, testing the welds as required.

Connect the drainage connections to the installation using proprietary adaptors. Alternatively for infiltration systems, use flange adapters and attach them to the crate units with self-tapping screws.

Place 75mm sharp sand protection layer if required over the top of the crates and continue to backfill as follows for trafficked areas: Type 1 or 2 sub base material compacted in 150mm layers in accordance with the Specification for Highway Works.

Finalise the paving construction or landscaping over the soakaway crate system such as creating an X-Grid gravel driveway or car parking.



ROOF & PAVING AREAS: SURFACE WATER

Plan Area Roof: 178m2
Effective Roof Area
@ 45 degrees
178m2 x 1.5 = 267m2

Plan Area Paths:
55m perimeter @ 750mm = 41m2

SOAKAWAY CRATE CALCULATION

Based on 300m2 max
and Rainsmart Ellipse Double Crates

Based on 125 Litres per c
rate holding capacity

6.0m³ (6000 litres)
Equating to 48 No.

Dimensions of each complete soakaway is 1430mm (L) x 800mm (W) x 860mm (D)

Soakaway and Infiltration test to be carried out in advance using NHBC Percolation test procedure for surface water soakaway

NOTES
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PROJECT AND DETAILS:
Proposed Two Storey House

scalable in metres
4 0 1 2 3 4 8 12
Metres

ADDRESS:
Tree Tops, Springfield Close,
Wiswell Lane, Whalley BB7 9AF

CLIENT:
Kevin and Helen Eastham

SCALE: 1:200 @ A3

DRAWN: IB

DATE: 09Dec22

REVISION -

DWG TITLE: SUSTAINABLE DRAINAGE LAYOUT

DWG NO: 354-BR320

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