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## SuDS Management Plan

### Proposed Housing Development

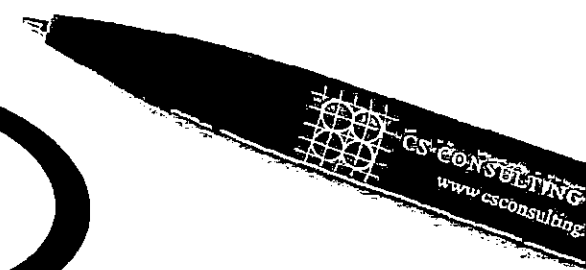
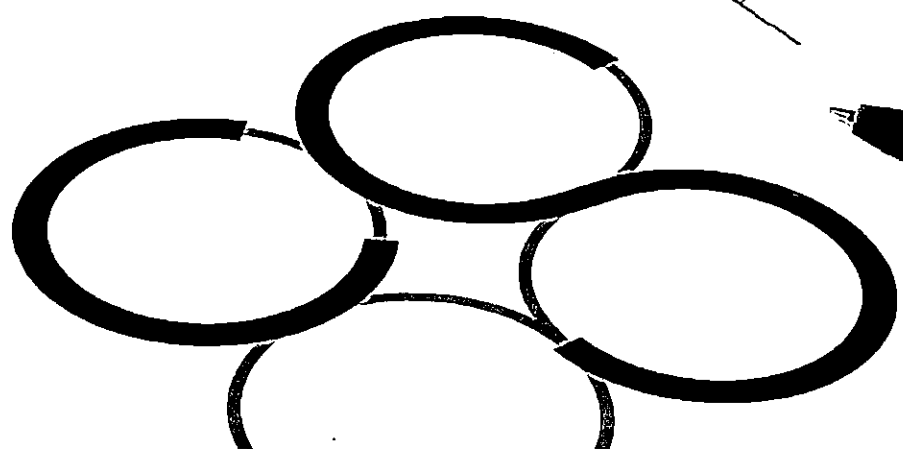
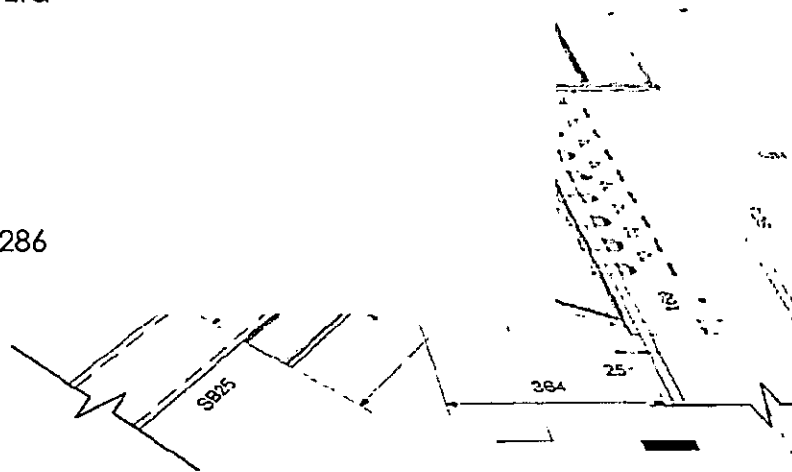
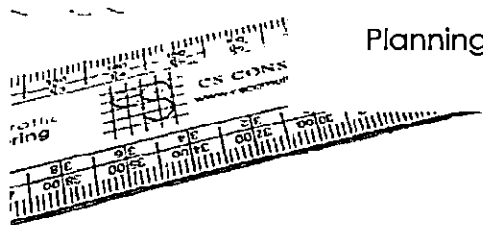
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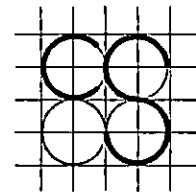
Client: Deane & Deane Ltd

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Planning reg. ref. SD22A/0286





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## SUDS MANAGEMENT PLAN

### PROPOSED HOUSING DEVELOPMENT, MAIN STREET, NEWCASTLE, CO. DUBLIN

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**BS 1192 FIELD**

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## **1.0 SUDS OPERATION AND MAINTENANCE PLAN**

### **1.1 SuDS Maintenance**

For the SuDS strategy to work as designed, it is important that the entire drainage system is well maintained. It will be the responsibility of the site management team to ensure the drainage system is maintained. Maintenance and clearing of gullies, drain manholes (including catch pits), and attenuation tanks will ensure adequate performance.

### **1.2 StormTech Attenuation Tanks by Cubic M3**

The Isolator Row of the StormTech attenuation system is designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, the applicable rules and regulations for confined space entries should be followed. Maintenance is accomplished by jetting the Isolator Row. The jetting process employs a high-pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/jetting combination vehicles. Selection of an appropriate jetting nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45° are best. Most jetting reels have 120 metres of hose, allowing maintenance of an Isolator Row up to 50 chambers long. The jetting process shall only be performed on StormTech Isolator Rows that have the correct woven geotextile (as specified by StormTech) over their angular base stone.

### **1.3 Permeable Paving**

Regular inspection and maintenance are important for the effective operation of pervious pavements. Permeable pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Sweeping twice per year should be sufficient to maintain an acceptable infiltration rate on most sites. However, in some instances, more may be required, and the frequency should be adjusted to suit site-specific circumstances and should be informed by inspection reports.

A brush and suction cleaner (which can be a lorry-mounted device or a similar precinct sweeper) should be used for regular sweeping. Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material in permeable paving. Any lost material should be replaced. It is also possible to clean the surface using lightweight rotating brush cleaners combined with power spraying using hot water.

If the surface has clogged then a more specialist sweeper with water and oscillating and rotating brushes may be required, especially for porous asphalt surfaces, to restore the surface infiltration rate to an acceptable level. The specialist sweeper should be adjusted so that it does not strip binder from the aggregate in the asphalt.

Post completion, road openings in the porous asphalt should be kept to an absolute minimum and they are likely to lower performance of the permeable asphalt as it will be difficult to replace like with like.

### **1.4 Swales**

Swales will require regular maintenance to ensure continuing operation to design performance standards. The treatment of swales is dependent on maintenance. The major maintenance requirement for dry swales is mowing. Mowing should ideally retain grass lengths of 75-150mm across the main

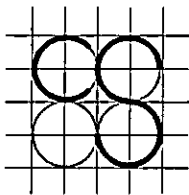
"treatment" surface, to assist in filtering pollutants and retaining sediments and to reduce the risk of flattening during runoff events. However, longer vegetation lengths, where appropriate, are not considered to pose a significant risk to functionality.

### **1.5 Tree Pits**

Maintenance requirements of trees will be greatest during the first few years, when the tree is becoming established. Early maintenance should involve regular inspection, removal of invasive vegetation and possibly irrigation during long dry periods, particularly in soils with high void ratios. The expertise of an arboriculturist or landscape architect with local knowledge should be sought regarding appropriate irrigation schedules. Maintenance responsibility for a tree pit or planter should always be placed with an appropriate organisation.

### **1.6 Bioretention**

The main cause of failure of bioretention systems is clogging of the surface, which is easily visible. Underdrains and drainage layers are beneath the ground, and malfunctioning is not so easy to detect and therefore could potentially be ignored. During the first few months after installation, the system should be visually inspected after rainfall events, and the amount of deposition measured, to give the operator an idea of the expected rate of sediment deposition. After this initial period, systems should be inspected each quarter, to verify the appropriate level of maintenance. Litter picking should be frequent, as rubbish is detrimental to the visual appearance of bioretention systems. Frequent street sweeping in the catchment area will increase the time interval between cleaning out forebays or the filter surface and will reduce the loading of fine suspended solids that can potentially clog the filter medium. Plants should be assessed for disease infection, poor growth, and invasive species, and replaced as necessary.



## 1.7 Detention Basin

Maintenance of detention basins is relatively straightforward for landscape contractors, and typically there should only be a small amount of extra work required over and above what is necessary for standard public open space. Litter and debris removal should be undertaken as part of general landscape maintenance for the site and before any other SuDS management task. All litter should be removed from site.

Regular mowing in and around detention basins to 75-150mm would be required along maintenance access routes, amenity areas (e.g. footpaths), across any embankment, and across the main storage area. The remaining areas can be managed as required for landscape/amenity/recreational or aesthetic reasons. Occasionally sediment will need to be removed (e.g. once deposits exceed 25mm in depth). Inlets, outlets, and overflows should be regularly inspected for blockages and cleared if required.