

surface water management

**Grasmere Gardens,
Chestfield, Kent**

CCE-S102-PL-RP-02

July 2021

For Kitewood Estates

Document Review Sheet

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Reference	Date	Author	Checked
<i>CCE-S102-PL-RP-02-P01</i>	<i>30th July 2021</i>	<i>JM</i>	<i>DL</i>

Contents

1.0	Introduction	2
2.0	Existing and Proposed Site Drainage	3
3.0	Maintenance Responsibilities	4
4.0	Maintenance	5
5.0	Contamination and Spillage Control	8

Appendix A

S102-PL-DR-200-P02 Surface Water Layout Sheet 1 of 3

S102-PL-DR-201-P02 Surface Water Layout Sheet 2 of 3

S102-PL-DR-202-P02 Surface Water Layout Sheet 3 of 3

Appendix B

Construction Spill and Silt Measures

1.0 Introduction

- 1.1 This report has been prepared in support of the Kitewood development at the Grasmere Gardens Site located in Chestfield, Kent. The development was granted outline planning approval at appeal (decision APP/J2210/W/19/3229319 (CA//17/00469/OUT)).
- 1.2 The proposed development comprises 300 residential units with an element of commercial space.
- 1.3 The surface water drainage strategy has been prepared with reference to the approved Fairhurst Addendum Flood Risk Assessment (FRA) (126788-REP-001) prepared in November 2018 and the subsequent strategy prepared by Cannon in 2021.
- 1.4 The proposed surface water strategy drawings are provided in Appendix A.

2.0 Existing and Proposed Site Drainage

- 2.1 The site in its current form is an open field with a fall from west to east. Drainage ditches are located along the northern, southern and western boundary. To the east lies the Swalecliffe Brook where the site surface water system outfalls.
- 2.2 Surface water runoff will be intercepted via traditional methods such as highway gullies and rain water pipes and conveyed to various storage structures on site via an underground piped network. A number of storage techniques are proposed on the site as follows:
- Permeable Paving
 - Swales
 - Basins
 - Underground storage
- 2.3 To control the flow of surface water through the system, a number of orifice controls are utilised. The outfall is controlled by a hydrobrake which limits the maximum flow to 49.3 l/s in accordance with the Canterbury City Council Drainage Policy.
- 2.4 Due to existing soil conditions, infiltration does not form part of the drainage design philosophy.

3.0 Maintenance Responsibilities

- 3.1 The surface water drainage system is proposed to be adopted by ICOSA under Section 104 of the Water Industry Act. Once adopted, ICOSA will carry out maintenance of both the piped network and also the SuDS features.
- 3.2 The main access road and spine road network will be offered for adoption to Kent County Council under Section 38 of the Highways Act and as such, gullies and leads will be maintained by KCC.
- 3.3 As per the current Sewerage Sector Guidance, drainage serving more than one plot will be adopted. The remainder of the system will be subject to maintenance by individual homeowners.
- 3.4 The foul drainage network will also be offered for adoption and therefore maintained by the chosen adoption body.
- 3.5 The approved Section 104 and Section 38 plans should be referenced for the extent of adopted drainage.
- 3.6 Following completion of the drainage system, a CCTV survey should be carried out to ascertain the integrity of the new sewers. It is expected that this requirement will form part of the adoption process.

4.0 Maintenance

- 4.1 Ongoing maintenance is essential in the continued operation of the drainage system. Failure to carry out maintenance may result in flooding to properties and infrastructure, which may extend downstream of the site.
- 4.2 The following schedules are based upon CIRIA C753 advice. Additional maintenance may be required based on manufacturer recommendations. Entry to chambers associated with cellular systems to be undertaken only as necessary and in accordance with an approved risk assessment and method statement.
- 4.3 Highway gullies form part of the adopted highway system and therefore will be maintained by the highway authority.

Highway Gully Maintenance

Maintenance schedule	Required action	Frequency
Regular Inspections	Visually Inspect gully cover and surrounding pavement. Inspect gully pot for litter and debris/silt	Quarterly to biannually
Regular maintenance	Remove litter, clear gully pot (mechanical suction)	Annually (or more frequently as informed by inspections)
Occasional maintenance	Repair/Replace gully cover	As required
	High pressure jetting of gully lead	As required
Remedial actions	Repair/Replace gully cover and surrounding pavement.	As required

- 4.4 The following items will fall under the remit of the drainage authority which in this case is anticipated to be ICOSA.

Control Chamber Maintenance

Maintenance schedule	Required action	Frequency
Regular Inspections	Inspect control covers for blockage or damage, correct positioning	3-6 months on first year then Biannually
	Check chambers for siltation and blockage	Biannually
	Check operation of orifice and cover for blockage	Quarterly
Occasional maintenance	Remove litter and sediment from chamber through mechanical suction. Remove pipe blockages through high pressure jetting/suction	Annually or as required
Remedial actions	Replace/Repair orifice control and cover, repair fixings or chamber.	As required but likely to be >10 years

Cellular Storage Maintenance

Maintenance schedule	Required action	Frequency
Regular Inspections	Generally inspect to identify any area of underperformance and correct (repair, improve etc)	Monthly for 3 months then annually
	Inspect surface and remove debris from drained area to prevent entry to the system	Monthly
	Check that outlets, inlets, vents, and overflows are in good condition and working as intended	Annually
	Inspect cellular units (CCTV etc) for silt and debris build up, damage etc	As required/at least every 5 years
Occasional maintenance	Remove sediment from traps/catchpits etc	Annually/as required
	Remove sediment from cellular units through suction or other remote methods	As required
Remedial actions	Replace/Repair chambers, inlets and outlets and cellular units as identified through inspection	As required but likely to be >10 years

Basin/swale Maintenance

Maintenance schedule	Required action	Frequency
Regular Inspections	Inspect surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be >20 years

5.0 Contamination and Spillage Control

- 5.1 Due to the site use as primarily residential, the risk of spillage and subsequent environmental pollution is low. Nonetheless, site users should undertake pollution control measures in the event of a spillage with the most effective method is to use sand to soak up any spillage.
- 5.2 It is however understood that in residential situations, sand may not be readily available and as such, other materials may such as clothing, towels etc may be used.
- 5.3 All sand and other materials should be disposed of in accordance with current waste regulations.
- 5.4 Where a spillage occurs which enters the drainage system, risk exists for the impact on the wider drainage network and environment. As such, the Environment Agency should be contacted.
- 5.5 A higher risk of spillage exists during construction and as such adequate measures must be implemented. Spill management and silt control measures during construction are outlined in Appendix B.

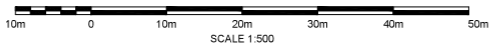
Appendix A

S102-PL-DR-200-P02 Surface Water Layout Sheet 1 of 3

S102-PL-DR-201-P02 Surface Water Layout Sheet 2 of 3

S102-PL-DR-202-P02 Surface Water Layout Sheet 3 of 3

MH	VOLUME (m³)
71	448.40
94	99.75
121	152.00
115	93.00
123	163.88
101	36.10
111	28.50
55	565.20
36	97.80
81	139.50
83	217.62
46	35.34
47	50.92
48	41.80
75	251.10
77	195.30
92	251.10
113	208.32
100	148.80
110	127.64
93	83.7
114	125.55
99	186.00
109	302.25
117	272.03
119	418.50
23	439.15
29	892.80
49	1,159.00
89	2,223.00
TOTAL VOLUME	9,482.05

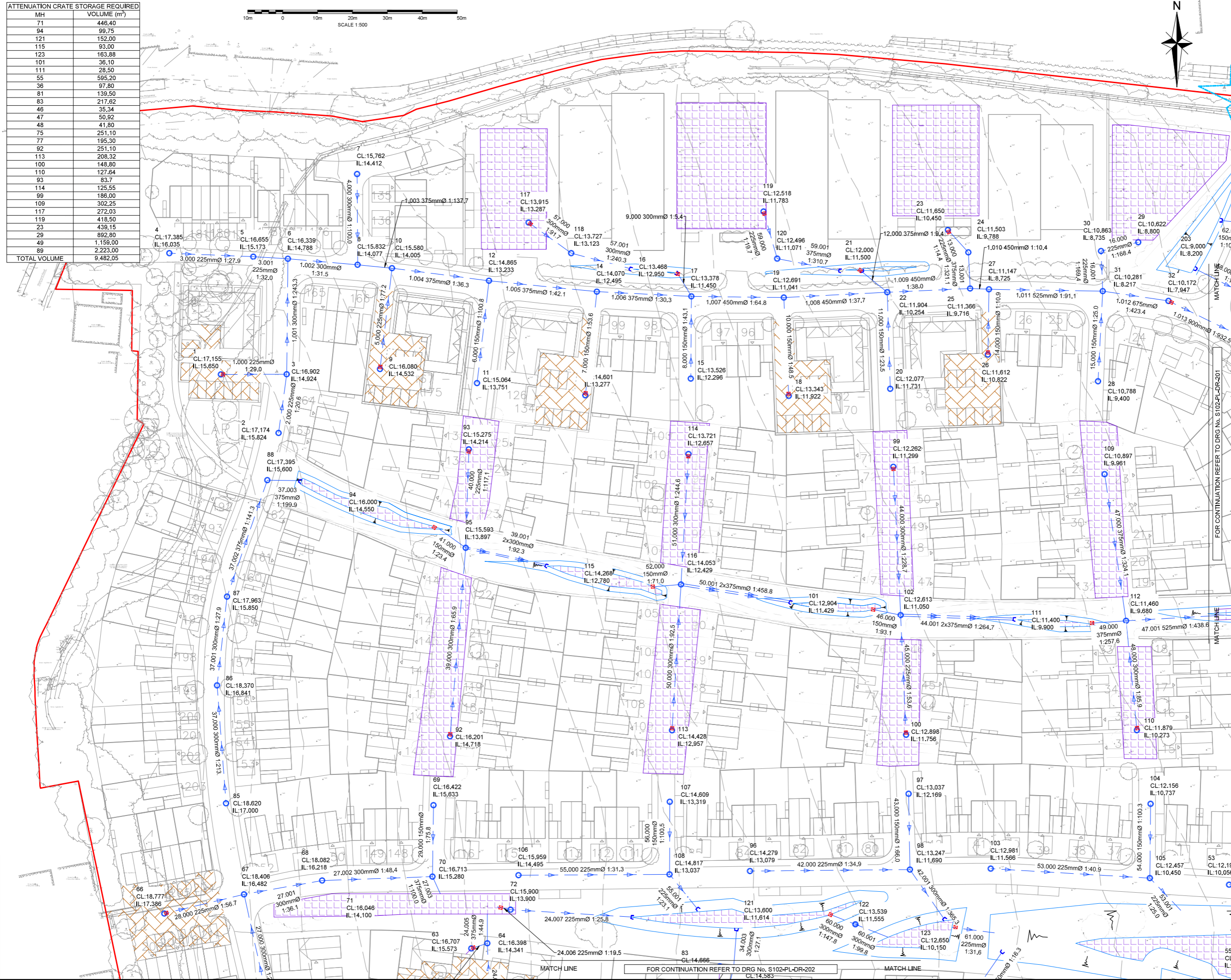


KEY

- SITE BOUNDARY
- SURFACE WATER MANHOLE
- SURFACE WATER PIPE
- PERMEABLE PAVING
- PROPOSED BASIN
- STORAGE CRATES
- PROPOSED HEADWALL
- PROPOSED CONTROL
- 1% AEP FLOODING
- 0.1% AEP FLOODING

NOTES

- DO NOT SCALE FROM THIS DRAWING WORK FROM FIGURED DIMENSIONS ONLY.
- ALL MEASUREMENTS SHOWN IN METERS UNLESS NOTED OTHERWISE.
- ATTENUATED VOLUME APPLIES TO SURFACE WATER ONLY.
- DRAINED CATCHMENT AREA - 12,32Ha
- ALLOWABLE DISCHARGE RATE - 49.3l/s (BASED ON 4l/s/ha)



REV	DESCRIPTION	DE	DR	CH	DATE
P03	PIPE NUMBERS REVISED	MM	MM	JM	17/03/21
P02	SW REVISED	MM	MM	JM	08/02/21
DESIGNED BY	DRAWN BY	CHECKED BY			
MM	DL	MM			
SCALE @ A1 SIZE	DATE				
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PROJECT TITLE	GRASMERE GARDENS, CHESTFIELD, KENT				
DRAWING TITLE	SURFACE WATER LAYOUT SHEET 1 OF 3				
CLIENT	KITEWOOD ESTATES LTD				

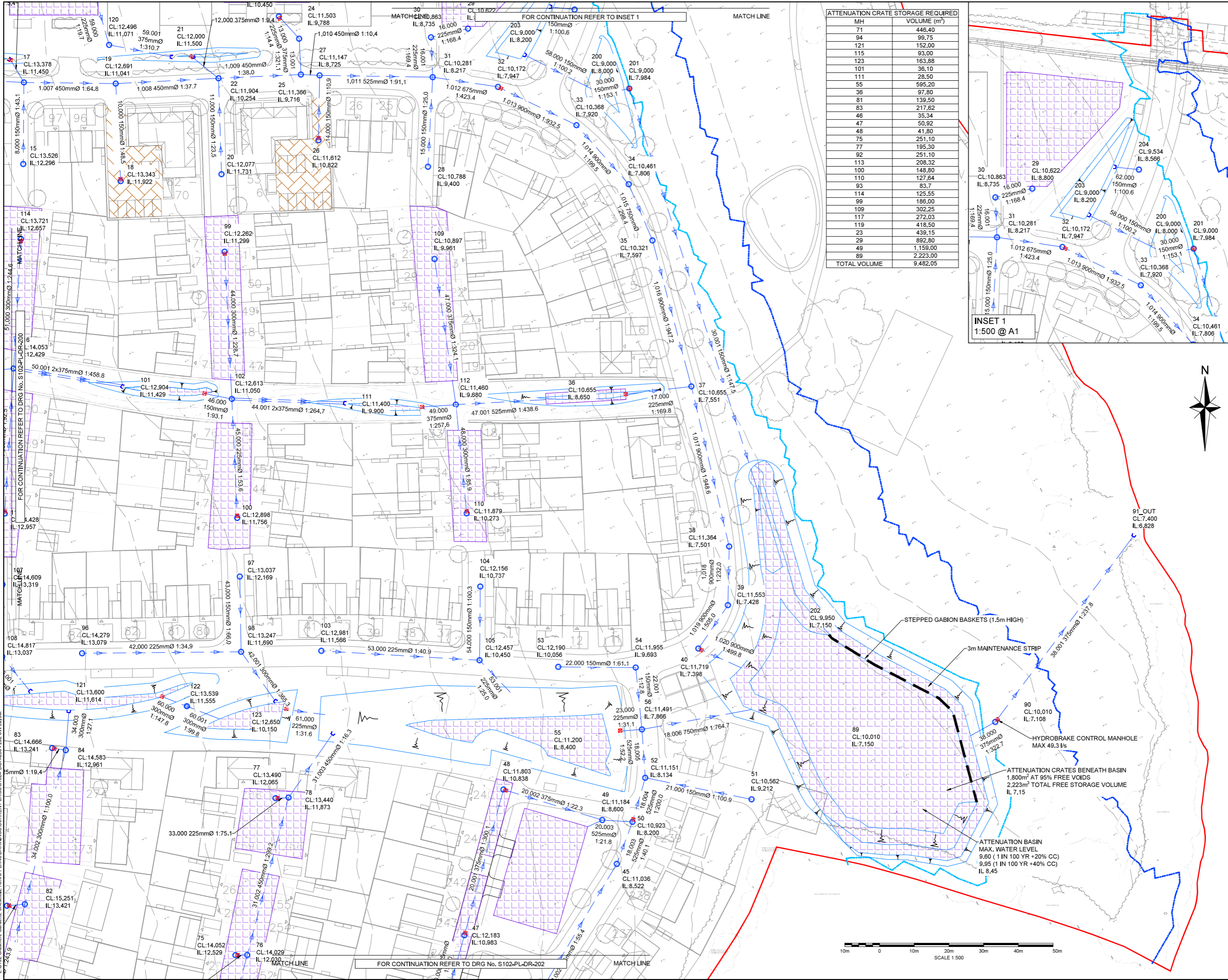
CANNON CONSULTING ENGINEERS
Highways, Transport & Infrastructure Planning

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info@cannonco.uk

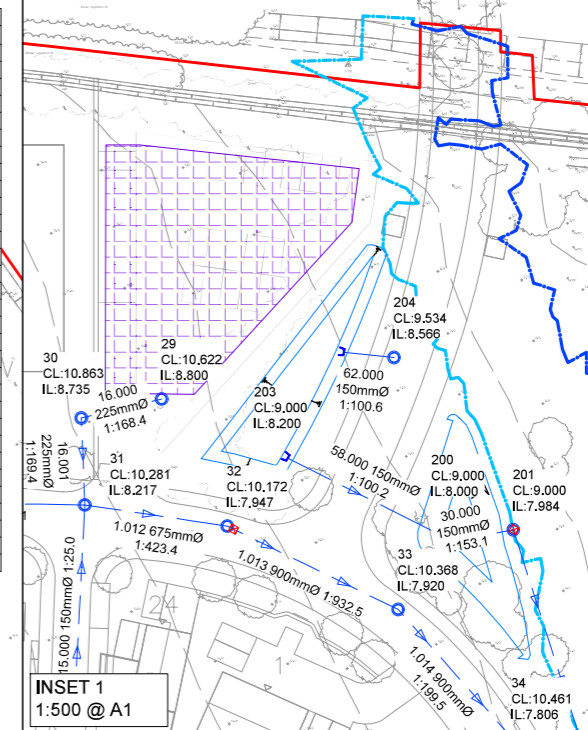
Cambridge House, Lanwades Business Park, Kentford, Newmarket, CB8 7PN
Tel: 01638 555107
www.cannonco.uk

DRAWING NUMBER	REV.
S102-PL-DR-200	P03

L:\S102 Grasmere Gardens, Chestfield\Kitewood\PLANS\DRAWINGS\CURRENT\DRG\S102-PL-DR-200_202_SWL Layout



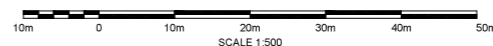
MANHOLE NUMBER	VOLUME (m³)
71	446.40
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121	152.00
115	93.00
123	163.88
101	36.10
111	28.50
55	595.20
36	97.60
81	139.50
63	217.62
46	35.34
47	50.92
48	41.80
75	251.10
77	193.30
92	251.10
113	208.32
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PO2	SW REVISED	MM	MM	JM	08/02/21
REV	DESCRIPTION	DE	DR	CH	DATE
MM	DL	MM	MM	MM	MM
SCALE @ A1 SIZE	DATE				
1:500	08/10/20				

PROJECT TITLE
GRASMERE GARDENS, CHESTFIELD, KENT

DRAWING TITLE
SURFACE WATER LAYOUT SHEET 2 OF 3

CLIENT
KITEWOOD ESTATES LTD

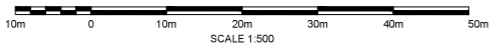
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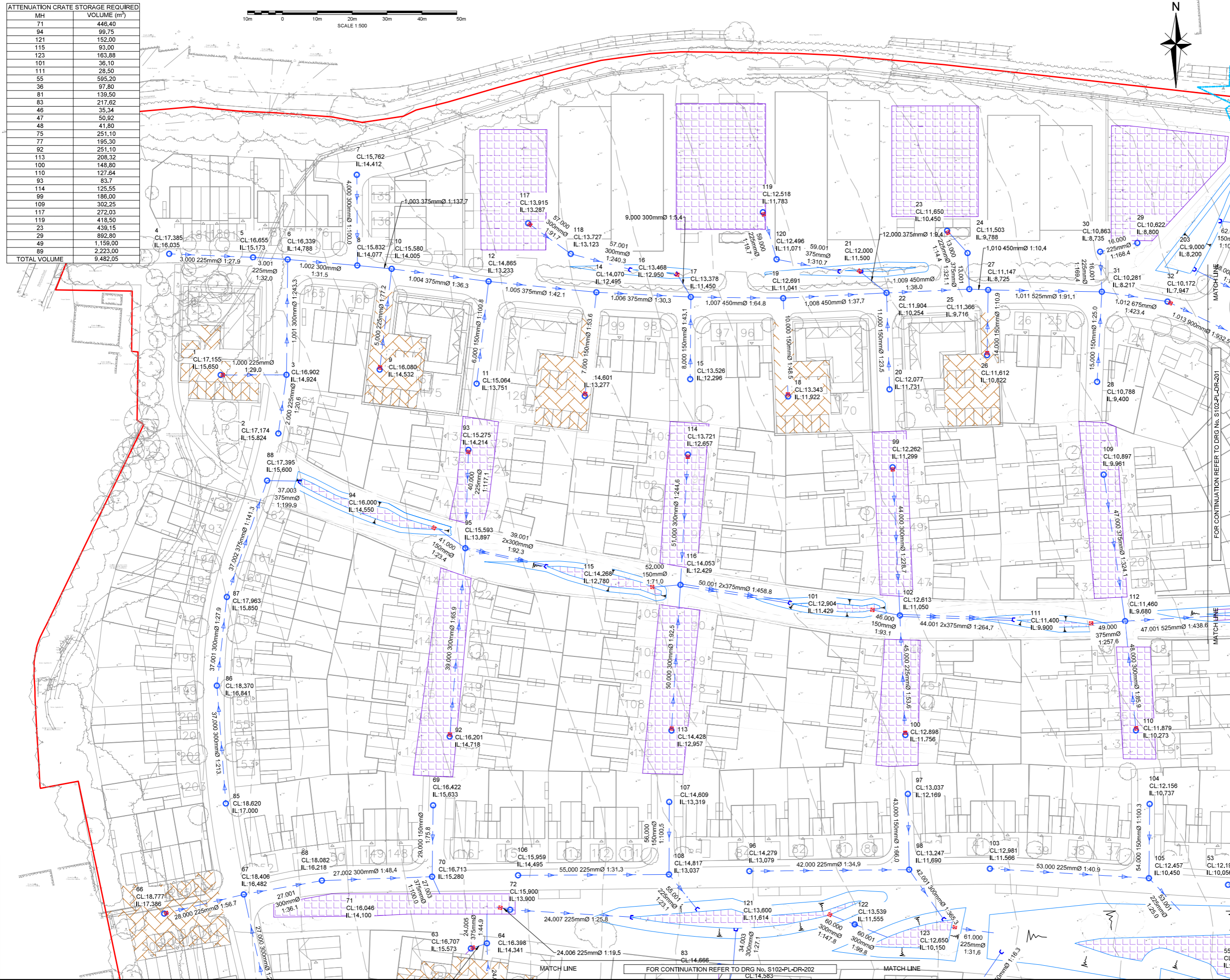
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S102-PL-DR-201	P03

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REV	DESCRIPTION	DE	DR	CH	DATE
MM	DL	MM	MM	MM	MM

SCALE @ A1 SIZE
DATE 08/10/20

PROJECT TITLE
GRASMERE GARDENS, CHESTFIELD, KENT

DRAWING TITLE
SURFACE WATER LAYOUT SHEET 1 OF 3

CLIENT
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S102-PL-DR-200	P03

Appendix B

SILT MANAGEMENT – Company Standard

1 Introduction

Silt comprises the fine particles of solid material suspended in water, making it dirty, muddy or silty. Silt can be a problem on building sites, particularly where rainwater mobilises the silt causing it to enter drains or watercourses, or to pool on the site.

The Kitewood processes utilised for dealing with silt management are listed below. At the initial design stages of a project or with the support of the site's Principal Designer an evaluation and risk assessment of the project will be completed. This evaluation will result in either all of the below or a combination of solutions being used on a project to control the potential silt risks.

Silt is a pollutant and can cause serious environmental pollution and sites must be managed to minimise the risk of silt pollution.

Silt can:

- Pollute watercourses and kill fish;
- Raise water levels in watercourses causing flooding;
- Block drains creating nuisance issues; and
- Lead to enforcement action by the environmental agencies.



Terram not maintained leading to blockage and resulting in ponding of silty water



Gully unprotected allowing silt to block drain

2 Main causes of uncontrolled silt run-off:

- Site/soil characteristics, i.e. poor existing draining, sloping, etc.
- Excessive or unnecessary topsoil/vegetation stripping;
- Topsoil being stripped too early in the project; and
- Failure to keep drains/gutters clear of silt build-up.



Excessive/unnecessary soil strip

3 Key Considerations

- Avoid excessive stripping, consider leaving grassy areas as catchment or settlement areas.
- Batter back soil stockpiles (or sheet if necessary) and site away from rivers and drains.
- Avoid tracking or washing out next to surface waters.
- In hot weather, avoid using too much water to suppress dust.
- If you are dealing with a large amount of silty water that needs to be pumped, obtain specialist advice by calling the Environmental Advice Line (0845 003 8752).
- You must have an environmental permit/discharge consent (that includes the build phase) to discharge silty water to drains, surface waters and ground water.
- Temporary discharge of clean water to rivers and streams (i.e. those lasting less than 3 months) does not need an environmental permit/discharge consent
- Consents granted for your site need to be fully understood by the whole management team, contractors and operatives involved to ensure that adequate control is maintained to meet the conditions of the Consent.
- Protect any surface water features as detailed in your SSEAP. If not, obtain specialist advice to make sure they are protected.
- Ensure site campaign material, specifically 'Silt Run-off prevention and protection', is displayed prominently;
- Deliver a toolbox talk to your groundworkers to raise awareness of silt management.
- Inspect all drains and silt protection measures frequently and maintain during works.

4 Protection Measures:

A simple and effective way to prevent silt discharges to drains and watercourses is to directly protect them using Terram, Visqueen or straw, or a combination of these.



Protected Drain using Terram
Straw



Protected Drain using Visqueen



Protected Drain using

Other methods which can be used to control silt runoff include the use of grips and straw bales. These allow water to soakaway and contain any silt in the flow.



Where drains are identified as sensitive or where silt run-off is identified as significant, the groundworker should be encouraged to use 'Gulley Guards' or equivalent for the preventing the build-up of debris in the gulley while not restricting water flow off the site.



In more severe cases, the Design Team (or Regional HSE Advisor) may specify the installation of silt fencing.

This solution is used to control silt run-off into watercourses or onto roads where significant run-off is anticipated or identified.

The silt fence must be cleaned regularly and after any build-up from heavy rain to ensure effectiveness.



5 Silt Busters

Should the relatively inexpensive solutions described above be assessed as insufficient to control off-site discharges of silt, Silt Busters can be used to treat outflows prior to discharge. These devices provide a mobile silt trap that separates the suspended solids from the water, and comes ready for use on your site. On occasion additives may be required to aid separation at significant cost, so they should only be used as a last resort. Contact the supervisor or the environmental advice line if you think one may be required on site.



Silt Busters are divided into chambers to trap and retain silt

6. Excavations - Dewatering

General:

- You must understand the detail of any environmental permits or discharge consents relating to your site before the related work starts.
- You must allow suspended solids to settle out of silty water before it is discharged, e.g. by filtering through straw bales or silt trap.
- Water from contaminated sites or that is suspected to be contaminated (e.g. odour, sheen, colour) must be tested before pumping commences (contact your supervisor or the Environmental Advice Line if unsure of the action necessary).

Water generated by dewatering excavations will normally be heavily laden with silt and must therefore be treated prior to any discharge to drain or surface water.

The most simple solution may be to pump the water to a grassy area of the site to allow natural filtration to remove the silt. However careful control and supervision will be required to ensure there is not a break out of untreated silt-laden water.

Where possible the dewatering pump should be switched off before the last portion of water is removed as this is likely to contain highest levels of silt.



Introduction

Environmental pollution caused by construction activities is a major problem, with wildlife, watercourses, sewers, land, buildings, structures and human health all potentially being affected. Companies found guilty of causing pollution can be fined with individual employees receiving custodial sentences for more serious incidents. Preventing spillages and pollution is essential, but ensuring that an efficient, effective response is implemented in the event of an incident is also critical.

These guidelines are intended for identifying the types of spill control materials available and the actions required when a spill occurs on site. It is a Company requirement that all construction sites carry out periodic practice drills to ensure that staff:

- Are familiar with the site emergency spill response plan
- Know what spill response equipment is available on site and how to correctly use it.

Practice drills also allow site management to assess the effectiveness of the emergency spill response plan, and make improvements where needed.

These guidelines are not prescriptive instructions - site management should adapt them so as to take account of the specific circumstances of an individual site. You must ensure that the relevant requirements of the Spill Response Plan ([HS&E-FRM-E04-01](#)) are completed and briefed via toolbox talk / site induction prior to work starting on site.

N.B. Client specific spill response procedures should be adhered to when working on client site(s) or when stipulated in the contract.

Types of spill kit

Types of absorbent:

This is important and will make a huge difference to the effectiveness of pollution control and ease of cleaning up. The appropriate type of spill kit to order will depend on the substances used on site and which could potentially be spilt. There are 3 main types of absorbent product available:

Oil Only – The products in this kit will only absorb oil based substances, they will not absorb water based liquids. These absorbents are ideal for absorbing only spilt oils which will float on the surface of any waterbody. This type will not sink in water.



Universal – The products in this kit will absorb oil based products and any non-aggressive chemicals. They will also absorb water and will sink should they be placed on/in a spill involving water.



Hazmat – The products in this kit will absorb any spilt substances, including aggressive chemicals and oil based spills. They will also absorb water and would sink if placed on/in water. This product is useful in a spill involving unknown substances.



IF IN DOUBT OR YOU REQUIRE ASSISTANCE CONTACT YOUR REGIONAL ENVIRONMENTAL ADVISOR

Types of product available in a spill kit:

Sheets and pads	Booms and sausages	Loose granules
<ul style="list-style-type: none"> - Use for proactive protection in drip trays and under stationary plant. - Good for floating on water to absorb trace oils (oil only type). 	<ul style="list-style-type: none"> - Lay thin sausages on the ground to block pollutant flow. - Use larger diameter booms to float on water to contain floating oils (always overlap the edges). 	<ul style="list-style-type: none"> - Easy to scatter. - Much harder to pick up. - Only use on hard standing to soak up free liquids.

Other points to remember when choosing your spill kits:

Don't get the impression that "oil only" absorbents are not as versatile as others. Spills often involve fuel or oil and these absorbents can be used to mop up spillage from wet ground or from the surface of any water. The size of the spill kit to order will depend on the quantity of substance at risk of being spilt. Check the contents of your spill kits regularly. Re-stock to ensure sufficient and appropriate supplies for site activities.



SPILL RESPONSE

The basic stages of dealing with any fuel / oil / chemical spillage on site are (in order):

1. **Assess Release** – Identify the scale of spill
2. **Isolate** – Control the spill area attempt to prevent more liquid being spilled
3. **Contain** – What's already being spilled
4. **Absorb** – Use spill kits / absorbents on spill
5. **Clean up** – Collect spent spill kits and absorbents for correct disposal
6. **Dispose** – Ensure the spent spill kits are stored and disposed of as hazardous waste
7. **Notify** – The site manager
8. **Reorder** – Stocks must be replenished.

ASSESS RELEASE

Determine the size of the spill and whether there are any injuries to any person(s) involved.

- If there are injuries medical attention should be sought and the most senior person on site informed
- If there are no injuries, an assessment should be made as to whether the spillage is safe to approach and contain. If there is doubt, the most senior person on site should be consulted
- Consideration should be given of the need to evacuate the site and / or neighbouring buildings. If necessary, the police and / or fire service should be contacted
- If the competent or trained person cannot handle the hazardous material spill then the Company's spill response contractor should be contacted – **Lloyds Environmental Services Ltd (01273 401888)** and/or the appropriate Environmental contractor allocated to the company
- Local EA needs to be contacted on a significant spill
- If action in accordance with the above is required you must also ensure contact is made with the HS&E Department / Regional Environmental Advisor.

IF IN DOUBT OR YOU REQUIRE ASSISTANCE CONTACT YOUR REGIONAL ENVIRONMENTAL ADVISOR

ISOLATE

- Control access to spill
- Do not allow unauthorised access to spillage area
- Identify the source of pollution and stop the flow or emissions as quickly as possible, if it does not endanger the health and safety of people
- Switch off or suppress any potential sources of ignition
- Extinguish naked flames and ensure there is no smoking
- Turn off electrical equipment
- If a valve has been knocked open, close it.

Examples:

- If a fuel drum is punctured on its sidewall, roll it over until the puncture is uppermost, or use a proprietary sealant
- If the bottom of a fuel drum has ruptured, turn the drum upside down (check that the top is securely in place first).

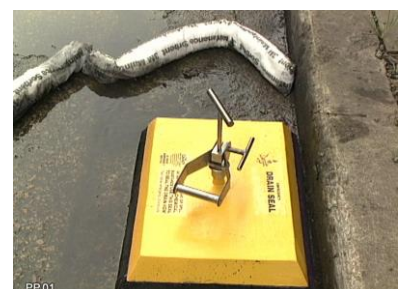
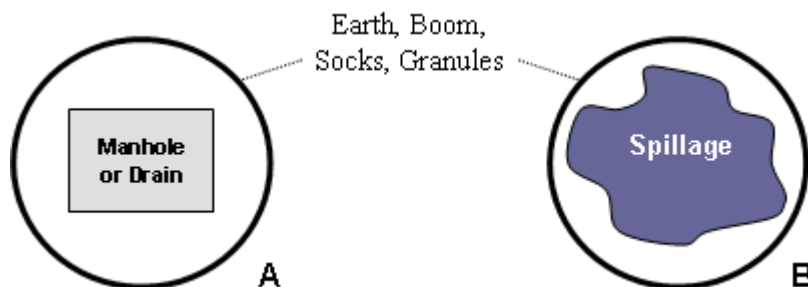


CONTAIN

- Ensure the correct PPE is used
- If the incident involves liquids, steps should be taken to stop it spreading, using earth, sand, or impervious material such as polythene
- If the incident involves liquids, the flow should be diverted from drains and / or watercourses
- Consideration should be given to the use of absorbent materials and / or booms, as a precaution, in environmentally sensitive locations
- Use absorbent materials (sand or earth, as an alternative) to assist spill containment.

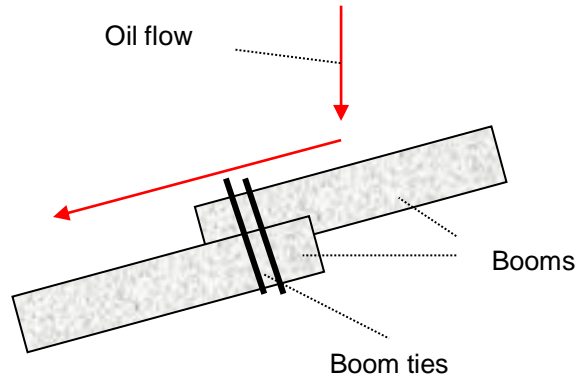
Examples:

- Seal off or isolate drains and manhole covers to contain the spillage on site. This can be done using drain blockers, earth, oil booms, socks or absorbent granules
- Place oil booms / socks / earth around a spillage to contain it in one place
- Use drip trays under punctured or leaking containers etc.

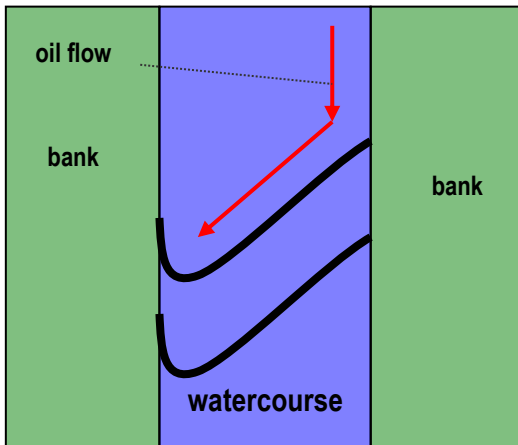


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Oil booms – act as a method of containing oil spilled into water. Several can be joined together by rope (usually part of the boom itself) – see below for how to arrange and tie them:

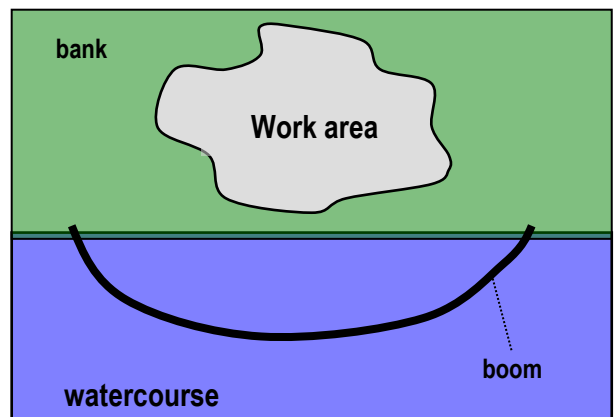


When deploying oil booms across a river, stream etc, it should be set up so that it forms a tick, as shown below. This makes removal of the oil from the water much easier.



When using oil booms in flowing watercourses, two should be used – one immediately downstream of the other. This will allow the oil-saturated (upstream) boom to be removed without allowing the remaining oil to escape downstream. A replacement boom should then be located immediately downstream of the remaining boom.

Booms can also be set-up so as to provide precautionary protection when working on the banks of watercourses – see below:



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ABSORB

- Spill response pads, sheets, booms and granules should be used to absorb the spilt material
- Sand and earth may be used, as a temporary alternative.

Examples

Absorbent socks – best for deploying on ground rather than on water (can be used on water in an emergency to help contain a spillage). Place the sock around a spillage to contain it. Alternatively, it can be placed around a manhole or drain cover to temporarily isolate a sewer or surface water drain and stop oil getting into it. If using more than one sock, ensure that where the socks meet they overlap (i.e. don't butt the ends of socks up against each other – this may allow oil to seep through the join).



Earth or sand – can be used in the same way as granules and socks to isolate a spillage or a drain or manhole. **Important:** earth and sand are not absorbents, so will eventually allow oil to pass through them. They should only be used to buy you time in which to deploy proprietary spill response equipment.

Absorbent granules – ideal for soaking up oil from both uneven ground and hardstandings. Sprinkle around spillage (so as to act like a dam around spillage), and then liberally on the spillage itself. Brush granules around until no more oil can be soaked up (brush inwards towards the centre of the spill so as to prevent spreading). Can also be used to temporarily isolate a drain or manhole from a spillage. Contaminated ground and granules must then be excavated and placed into a separate hazardous waste skip / container (or bagged up if a small amount of contaminated material). The container must be lined to prevent escape of contaminated liquids.



Absorbent pads – best for soaking up oil from smooth, flat surfaces such as floors and hardstanding. Also used for soaking up oil floating on the surface of water. When placed over manholes and drains, can also be used in an emergency (in conjunction with granules) to reduce the amount of oil entering a sewer or drainage system. Simply place the pads on the contaminated area and leave them to soak up the oil. When using them on firm ground they can be pressed down with boots to ensure that the whole area of the pad comes into contact with the oil. Should be bagged up and disposed of with contaminated ground.

**CLEAN UP**

- Contaminated sand, earth or absorbent materials should be placed into sacks or leak-proof containers, as appropriate
- Spilled materials should **not** be washed into the drainage system.

DISPOSE

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- Waste contaminated materials should be disposed of appropriately, refer to [HS&E-STD-W01](#); Waste Management
- All used absorbent materials are classified as hazardous waste.

All material used to clean up a spill will be classed as Hazardous for disposal. Make sure they are stored separately from other wastes prior to removal from site in accordance with Hazardous (Special in Scotland) Waste Regulations.

NOTIFY

If you have not already done so during the assessment of the spill, site operatives must notify their site supervisor. The site manager will then need to notify the relevant regulators, the client or landowner and any other relevant persons e.g. the HS&E Department, as appropriate.

You must complete [HS&E-FRM-A01-02](#) when the incident has been dealt with and send a copy to your line manager for minor incidents and a copy to your HS&E Advisor and Regional Environmental Advisor for significant incidents. A copy of the form must also be retained on site for action and close out.

REORDER

- Remember to replace used spill response equipment supplies.

SPILL RESPONSE PRACTICE DRILLS

It is important to make any practice drill as realistic as possible, without creating a genuine incident. Fuels, oils, chemicals etc. **must not** be used to simulate a spillage on site. Tap water may be used to simulate a spillage **only if** any associated run-off would not give rise to pollution (e.g. by entering a watercourse). Practice drills should be conducted as far away from watercourses, drains, aquifers etc as possible. Ideally, drills should be 'dry' - no liquids are used at all, suitable 'props' can be used to represent spillages, drains, manholes etc. Below are examples of how practice drills may be conducted:

Scenario 1 – Spillage onto the ground

A spill of polluting material is identified on site of approx a few litres. The spill is not running / moving off site. Spill response equipment is deployed to isolate the spill (i.e. absorbent socks, rolled up pads, earth, etc.). The spillage is then contained *in situ* using similar equipment, and absorbent pads and granules deployed over the spill to clean up.

Scenario 2 – Spillage into drain / manhole.

The spill is of sufficient volume to be running / moving around site and has entered or is about to enter a drain located on site. Site operatives / subcontractors should be asked to contain the spill and clean up as shown using the supplied spill response materials.

Scenario 3 – Spillage into a watercourse

It is not practical to use a watercourse for practice drills. The best approach is to mark out on the ground the imaginary banks of a watercourse and the imaginary direction of water flow. Identify the direction of flow and inform site operatives / subcontractors to contain the spill if possible. In this scenario the key requirement is to ensure all site personnel are aware of the external reporting requirements e.g. Environment Agency / Scottish Environment Protection Agency (SEPA) / external spill response contractor and this knowledge can be demonstrated during the spill test.

Scenario 4 – Punctured drum

A marker pen is used to draw the outline of a puncture hole on the sidewall of a drum. Spill response personnel roll the drum over so that the puncture is uppermost, or seal the hole with a proprietary sealant.

To make the scenario more realistic the drum could be filled with water and the drum actually pierced (if it is initially pierced near the top, further drills can be conducted by making piercings which are

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progressively lower down the sidewall). This alternative scenario must **only** be enacted if the inside of the drum being used is completely free from oil, fuel, chemical residues etc and there is no impact on health and safety or the environment.

Scenario 5 – Combined incident

All of the above scenarios can be enacted together in order to highlight the need for the response team to think quickly and prioritise actions to be undertaken when dealing with multiple incidents.

These are suggested ways in which practice drills could be conducted on sites. **It is at the discretion of the Site Manager how a spill drill is to be conducted.**

IMPORTANT POINTS TO NOTE

- Material contaminated with oils or fuels will be classed as Hazardous (Special in Scotland) waste for disposal purposes. This means that contaminated ground and response equipment must be safely stored (separately from other wastes). Always remember health and safety when dealing with any spillage – no smoking or eating, use of PPE.
- Do not hose down spillages, and do not use detergents (e.g. washing up liquid) – these only make matters worse.
- The Site Manager should ensure that the Spill Response Plan (SRP) is tested at least once on-site with the results (including photographic evidence, when relevant) being retained for the duration of the project to demonstrate that the SRP has been effectively tested. It is recommended that practice spill drills are conducted within one month of starting work. Further drills should also be conducted when there is a substantial change in the site workforce.
- Preventing incidents is equally important. Make sure that drip trays are used under plant, small containers (e.g. jerry cans) and during refueling operations. Make sure large containers are suitably bunded with a bund capacity of 110%. Do not accept leaking plant and containers onto site and ensure equipment developing leaks once on site is immediately repaired or replaced.

For the containment of 45 gallon oil / fuel drum the containment tray used must have a minimum capacity of 25% of the storage capacity (i.e. approx 50 litres). For multiple drums the capacity must be 25% of the aggregate capacity.



Plant Nappy™ is a versatile alternative to the metal drip tray. They can be used to control spills, drips and leaks from equipment such as generators, pumps and compressors. They absorb oil / fuel spills within the flexible tray and allow water to pass through the liner. No requirement to lift heavy metal trays full of water or disposal of 'oily' water has hazardous waste. More information on this equipment and how to purchase can be found at www.plant-nappy.co.uk



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