AGETUR UK LTD
HEALTH AND SAFETY STANDARD

POLLUTION PREVENTION

TABLE OF CONTENTS

1. INTRODUCTION

1.1 The is where we all live, more specifically it can be defined as any physical surrounding consisting of air, water and land, natural resources, flora, fauna, humans, and their interrelation.

2. WHAT IS AT RISK FROM POLLUTION?

2.1 **Water environment** – pollution can kill fish and affect other users such as farmers, industry and drinking water abstractions. In the UK, public drinking water supplies come from rivers and groundwater so we must protect them from pollution.

2.2 Surface waters include rivers, lakes, lochs, loughs, reservoirs, ponds, streams, canals, ditches, including those that are temporarily dry, estuaries and coastal waters up to three miles offshore.

2.3 Groundwater is all water below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

2.4 Surface waters and groundwater have legal protection. It is an offence to pollute them.

2.5 Silt and oil are the most common construction site pollutants to water. Your site doesn't need to be next to a river to cause a problem; any pollutants getting into drains can end up in a river even if it's miles away from site and can be traced back to their source. Drainage systems, including land drains, act as unseen pathways. If your site is near surface waters or drainage connection leading to surface waters, you'll need to take extra care to manage your site activities to reduce the risk of pollution.

2.6 If you're working in or near a watercourse, you need to refer to PPG 5 Works and maintenance in or near water.

2.7 Land and soil – support a variety of species (plant and animal) which can be directly harmed through chemical and oil pollution, or changes to pH. Effects can be immediate or arise over time depending on the pollution and quantities.

2.8 Air quality – emissions to the air can affect people's health, be a nuisance to site neighbours (odour and dust) and have an impact on ecology.

2.9 People – noise, light and vibration can all create nuisance affecting people's quality of life.

3. WHAT IS POLLUTION PREVENTION?

3.1 Pollution is the release of any substance that can harm people or animals, plants, soil, water or air; for example, an oil spill, silty water getting into a river or smoke into the air.
Common pollutants from sites include silt, oil (including fuel), cement, concrete, grout, chemicals, sewage, waste materials, dust, and smoke.
Common causes of pollution are illegal discharges, burning waste, pollutants carried by rain water run-off, poor maintenance or supervision, accidental spillage and vandalism.

4. ENVIROMENTAL DUTIES OF A CONTRACTOR

4.1 It is important that when carrying out construction works that at the earliest opportunity the key local environmental issues are identified to avoid carrying out any uncontrolled construction activities which may cause damage to the environment.

PP01 POLLUTION PREVENTION SITE: DORCHESTER LIVING PHASE 10

Water courses near site

Gallos Brook which is situated to the south of the site approx. 370-400m away from Phase 10
Aves ditch running north to south on the western side of the site approx.: 1.3km away

Report extractions from Remediation strategy R1742d-R04-V1 September 2022

Investigation Coverage

2.2.1. The total of the 48 entries across the site (~51,573 m2) is roughly equivalent to an average of 1 entry per 1,074m2 or an approximate 33m grid spacing across the site. Entries from both investigations included targeted entries, specifically around POL21, the decommissioned fuel line and AST / Valve Pit in the south, and non-targeted entries over the remainder of the site to provide good spatial coverage. A limited number of entries targeted within the POL2 area, although entries surrounding this location were undertaken.

2.2.2. The site investigations completed are considered to cumulatively provide a good assessment of ground conditions at the site appropriate to its development history and anticipated ground conditions. On this basis, it is concluded that although localised sources could have been missed and some areas (specifically within the POL2 area) were not included, the investigations have been sufficient to develop an appropriate Remediation Strategy.

Hydrogeology and Hydrology

Groundwater encountered 1.12m BGL to 5.02m BGL

3.4.1. The Great Oolite Group is classed as a Principal Aquifer which is described as 'geology with a high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river baseflow on a strategic scale'. The site is not located within a Source Protection Zone.

3.4.2. Groundwater during the Hydrock intrusive investigation was limited to a moderate groundwater flow within TP109 at a depth of 2.6m bgl. A summary of the depth to groundwater during monitoring works is produced within the Jomas report (Table 4.3) which encountered groundwater from 1.12m bgl (JWS2) to 5.02m bgl (JBH6 and JBH13).

3.4.3. Gallos Brook, a tertiary river is present to the immediate south beyond Camp Road and within the Phase 9 development area. Historical mapping shows this as a surface watercourse, however more recent mapping shows the watercourse no longer present suggesting it has been culverted. Historical mapping does not show that the watercourse extended onto the site, and it is assumed the source is a spring located along Camp Road.

3.4.4. Groundwater movement beneath the site is likely to be significant with groundwater flow direction as confirmed by Watermans (ref. EED10658-109-R-14.1.7.FA) to the southeast. Waterman's, who undertook a detailed assessment on the site hydrogeology, report that the NSA can be described as a two-aquifer system separated by a mudstone/siltstone layer of significantly lower permeability although there is evidence of some leakage between the aquifers.

3.4.5. Site drainage is considered to predominantly be infiltration and sub-surface flow within the bedrock aquifer within areas absent from hardstanding. Waterman's report that the NSA is drained by Gallos Brook which ultimately discharges into the river Cherwell. Monitoring undertaken by Waterman in Gallos Brook (June 2011 – August 2011) recorded TPH concentrations between <0.01 and 0.03 mg/l.

Hydrocarbons

3.5.6. Hydrocarbon exceedances were limited to 2 locations, JBH3 (0.25m bgl) and JBH4 (1.5m bgl) with exceedances of the Aromatic C16-C21 and Aromatic C21-C35 fractions. Exceedances were minor with a maximum concentration of 880 mg/kg for the C16-C21 fraction compared to the GAC of 260 mg/kg and 1,300 mg/kg for the C21-C35 fraction with a GAC of 1,100 mg/kg.

Groundwater Contamination

3.6.1. Groundwater samples were collected by Hydrock during a single round of monitoring within boreholes BH05, BH10, BH11, BH12, BH13 and BH14). Minor exceedances of heavy metals (copper, manganese, nickel and zinc), however these were not indicative of any pollution risk.

3.6.2. Hydrocarbons were below detection limits within BH13, whilst elevated concentrations were reported within the remaining boreholes. A summary of the maximum concentrations is as follows:

- BH05: Ali C12-C16 – 1,600 µg/l
- BH10: Ali C8-C10 – 3,800 µg/l
- BH11: Ali C12-C16 – 790 µg/l
- BH12: Ali C12-C16 – 1,800 µg/l and Aro C10-C12 & C12-C16: 1,600 µg/l
- BH14: Ali C12-C16 – 1,500 µg/l

3.6.3. Concentrations of VOCs and SVOCs (excluding PAHs) were below analytical detection limits within all samples except for BH12 which recorded the presence of:

- Isopropylbenzene (27.8 µg/l)
- N-propylbenzene (27.8 µg/l)
- 1,3,5 – trimethylbenzene (33.4 µg/l)
- 1,2,4,-trimethylbenzene (86.5 µg/l)
- Sec-butylbenzene (22.1 µg/l)
- 2-methylnaphthalene (37 µg/l)

3.6.4. Jomas carried out two rounds of monitoring within both their newly installed wells (JBH1-JBH9 and JWS2-JWS3) and within the existing Hydrock wells (BH05 and BH10-BH14). Minor exceedances of heavy metals (copper and to a lesser extent lead and nickel) were reported which is consistent with that reported by Hydrock. Exceedances of total cyanide were also reported within JBH7, JBH8, JBH9 and BH11, however further assessment undertaken by Jomas concluded there was no risk from the reported copper and cyanide concentrations within the groundwater.

3.6.5. Hydrocarbon concentrations reported above the WHO drinking water guideline values were reported as follows:

- JBH6 – Ali C10-C12 – 730 µg/l

Ali C12-C16 – 580 µg/
Aro C10-C12 – 390 µg/l and 390 µg/l
Aro C12-C16 – 350 µg/l and 190 µg/l

- JBH4 - Aro C10-C12 – 210 µg/l and 200 µg/l

Aro C12-C16 – 200 µg/l and 280 µg/l

- BH10 - Aro C10-C12 – 140 µg/l and 96 µg/l

Aro C12-C16 – 120 µg/l and 93 µg/l

3.6.6. JBH6 and JBH4 are located either side of POL21 whilst JBH4 is adjacent to the ASTs on the southern boundary. Exceedances were generally minor when compared to the WHO drinking water limits and were highly localised with elevated concentrations not reported within downgradient boreholes. It is also observed that hydrocarbon concentrations within BH10 have substantially decreased since the original Hydrock reporting (Ali C8-C10 – 3,800 µg/l) compared to that by Jomas (Ali C8-C10) where concentrations were below detection limits (<1 µg/l). Jomas concluded that locations where hydrocarbon exceedances were reported were highly localised with no evidence of off-site migration of impacted groundwater.

3.6.7. Samples were also submitted for VOC analysis by Jomas with concentrations reported below analytical detection limits.

3.6.8. Hydrock's assessment concluded that the recorded groundwater contamination on Phase 10 does not represent a significant risk of pollution to the groundwater beneath the site but that existing fuel stores (tanks / pipelines) and impacted soils should be removed which again is in line with the recommendations outlined by Watermans and the approved remedial approach adopted within the wider NSA. This is in agreement with the overall conclusion made by Jomas

PART 1 SITE DETAILS

CLIENT NAME	DORCHESTER LIVING
SITE NAME	DORCHESTER LIVING PHASE 10
SITE ADDRESS	UPPER HEYFORD, BICESTER
RESPONSIBLE PERSON	LEE OULTON

Activities	Pollution Controls
Fuel Storage on site	▪ Storage of fuels and oils will be controlled to prevent spillages. ▪ Bulk fuels will be stored double skinned tanks, and in an impervious bund. ▪ All drums of fuel, spare oils etc. will be stored in suitable drip trays. ▪ Small tools i.e., generators are to be used and refuelled in suitable drip trays or plant nappies. ▪ A spillage kit will be maintained on site at all times. ▪ Any spillages are to be cleaned up and reported. ▪ Position storage areas away from areas of potential collisions from moving traffic ▪ Large storage areas must be positioning a minimum of 10m away from any water course, ditch, or drainage channel
Mud on roads	▪ Dampening down of working areas to reduce dust emissions and in wet weather may lead to mud being transferred from site to site and public roads. We will prevent or minimise this by: ▪ Provide cleaned hard standing for vehicles entering, parking and leaving site. ▪ Provide cleaned hard standing for vehicles being loaded on site. ▪ Use road sweepers to clean hard standings and roads within the site. The road sweeper is to be readily available whenever the need for cleaning arises ▪ The provision of suitable wheel washing facilities, where practicable ▪ Set up and use designated managed sweeper discharge points, with suitable control of water runoff i.e., silt-buster. if required ▪ Assign working areas and access routes for clean vehicles and off-road vehicles. And develop methods around keep off road vehicles off road and clean vehicles on road
Drainage protection	▪ Gully bags or witches hatS installed at selected collection points with minimum standard **See Appendix A** ▪ Manhole protection installed as per **Appendix H** ▪ Ensure the measures are inspected: - Weekly inspections removing any retained material if required - 3 Monthly suction cleaning if required - Replace any degraded bags where required
Cleaning down tools contains asphalt materials	▪ Clean down area must be position 15m away from any gully or primary receptor on site ▪ Ensure all tools are cleaned down on a non-permeable surface I.e drip tray ▪ Use T99 tar slip instead of Diesel products ▪ Do not allow any clean off residue enter any drainage system or primary report on site
Sock piles	▪ Materials will be stored on site. These will include aggregates, crushed and reclaimed demolition materials (on a limited basis) which will increase the potential for dust. ▪ In prolonged periods of dry weather, and where materials are stored for long periods, measures will be taken to keep the material in a damp condition by water spraying if required or the installation of netting ▪ The stockpiles will be held in areas wherever possible out of the wind and kept to minimum practicable height ▪ The stockpiles will be inspected daily for dust and when necessary dampened down and again if necessary screened with dust screens. ▪ The handling of these stockpiles will be by conventional construction equipment, either an excavator or front loader. ▪ All material being loaded will be from an area that is thoroughly soaked.
Controlling dust	▪ Sufficient Water Bowser's for site size and location and time of year/weather patterns. ▪ Water Canon for wetting down heaps and of Dump trucks, crushing and shaker areas. • Sufficient Road Sweepers for size of site,

Dewatering excavations	**The site has 3 attenuation capture points the site can use as part of the water exit plan, The site should look to install these as early as possible to give the site a controllable capture point for the water in construction phase.** **There are no other known existing capture points other than the existing sewer systems** **Attenuation Pond protection** Head wall points will have a filtration system similar to **Appendix G installed** to filtrate any exiting and in coming surface run off water. **Water containing Silt sediment** • Excavations will have a sump and pump set up to remove water through a Rhino sediment bag (100 microns filtration with hydrocarbon indicator strip installed) or gravity settlement tank • Dispose of the water to an area to one of the attenuation area on site ensuring the dewatering RPS is met and monitored • Abstraction Environmental permit installed if the pumping operations are to exceed 20000 litres a day **Water containing hydrocarbons** **Option A** • Dispose of the water straight to an existing foul sewer ensuring a water authority consent is in place for this. • Abstraction Environmental permit installed if the pumping operations are to exceed 20000 litres a day **Option B** • Environmental permit installed for the site • Treat the water on site through Separation processes • Dispose of the water to surface waters via storm sewer ensuring the water meets the permit conditions • Regular water Monitoring carried out on site **Dewatering actives must meet the RPS requirements detailed by the Environmental agency:** **The discharge must:** ▪ be clean water, for example clear rainwater or infiltrated groundwater which has collected in the bottom of temporary excavations ▪ not result in water containing fine or coarse suspended solids (silty water) entering surface water ▪ not last more than 3 consecutive months (the activity may stop and restart but the clock does not restart) - if the activity is likely to go over 3 consecutive months then you need to apply for a permit ▪ be made to surface water, such as a river, stream or the sea ▪ have a method statement that minimises the risk of pollution
Concrete washouts	**Concrete washout** Concrete washout is to be carried out inside the Poured foundations excavations Additionally a concrete washout skip will be on site with a teram filtration lining and waste water will be taken off site via tanker

When should I use Gully Guard™?

Infrastructure Planning

- Ideal for agricultural sites, food and drink processing and industrial plants
- Transport and utilities maintenance
- Supports health and safety requirements
- Quick to install and easy to maintain
- Reusable - reduces gully maintenance costs
- Prevents build-up of toxins and debris in the gully
- No restriction to water flow into water transport drainage systems
- Standard gully pot and bespoke sizes available

Food processing

Infrastructure maintenance

Agriculture management

Phosphate pollution - surge in algae over production

Construction

- Reduces labour and mechanical costs involved in emptying the gullies
- Protects gullies during site construction
- Prevents gullies from being blocked by silt and debris
- Visible silt and debris management system

Remedial Solutions

- Aids in containment of contaminated silt and suspended solids
- Assists in protecting the water course from pollutants found in run-off storm water. E.g. hydrocarbons, heavy metals
- Environmentally friendly

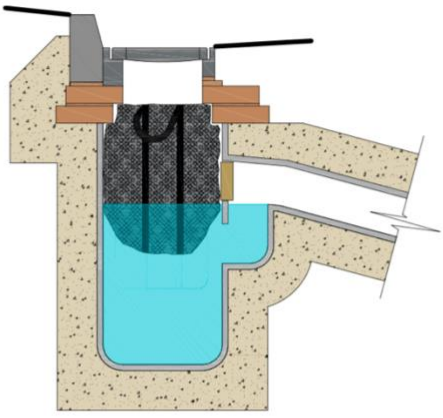
Gully Guard™ Installation **Takes minutes!**

Our customers reported no Gully pot clogging issues! And the cleaning process is simple - just hose down and reinstate!

1. Lever open gully grid. Gully Guard™ can fit a range of gully pot sizes.
2. Hold handles at top of the Gully Guard, work beads to top and insert base into gully pot.
3. Lower the Gully Guard into the pot. The beads will fall freely into the size void within the pot.
4. Tuck the holding handles to the side of the Gully Guard™.
5. Close and secure gully grid.

How much does Gully Guard™ filter out?

- 97.91% is trapped in the Gully Guard
- 1.92% is trapped in the Gully Pot base
- 0.17% passes through the Gully pot



wildlife | specialist | biodegradables | **geotextiles** | agrotextiles | accessories

Hy-Tex **Ultra Drain Guard** for Drainage Gully Sediment Control

Ultra Drain Guards are designed to remove oil and sediment pollution from surface water running into gully drains from surrounding construction sites, farms, industrial estates, or other areas prone to storm water pollution or cleaning operations.

Ultra Drain Guards are made from a high permeability non-woven polypropylene geotextile that trap solids and oils but allow water to drain through and also incorporate bypass ports to further maintain flow into the drain.

They are designed to be easily placed directly into the drain gully pot to filter out materials as they flow into the drain without compromising drainage, and the Oil and Sediment model absorbs up to 3.29 litres of hydrocarbons as well as up to 18 kg of sediment, sand or debris.

Installation:

1. Remove catch basin grating
2. Clean dirt and debris from grating ledge
3. Insert Drain Guard.
4. Reinstall grate. To insure maximum effectiveness, Drain Guard skirt should be secured (pinched) between grating and ledge.
5. Cut the excess fabric off with a blade or knife if desired.

Maintenance and disposal:

6. The Ultra-Drain Guard filters are designed to be used for 3 to 6 months under normal conditions.
7. Where heavy contamination is present the unit will have a reduced life expectancy. When the unit has collected about 6 inches of sediment it is recommended that it be replaced. The unit should also be replaced if free oil can be seen floating and is not being absorbed. The Ultra-Drain Guards should be inspected on a regular basis.
8. Dispose of unit in accordance with applicable environmental laws and regulations. The user is solely responsible for compliance with maintenance and disposal laws and regulations. The manufacturer or seller assumes no responsibility for proper or improper maintenance or disposal.

Model	Code	Oil Capture	Sediment Capture	Collection Area	Flow Rate	Size
Oil & Sediment	9217	3.29 l (.87 gal)	18 kg (40 lbs)	25.4 x 45.7cm (10" x 18")	1893 l/min (500 gpm)	121.9 x 91.4 x 45.7cm (48" x 36" x 18")

All of this was removed from 50 Ultra Drain Guards after just two weeks in storm drains

Property	ASTM Test	Value
Material		Non-woven polypropylene geotextile
Grab Tensile Strength	D 4632	979 N (220 lb)
Elongation	D 4632	50%
Trapezoid Tear	D 4533	423 N (95 lb)
Puncture Resistance	D 4833	600 N (135 lbs)
Mullen Burst	D 3786	2,896 kpa (420 psi)
Permittivity	D 4491	1.4 sec^{-1}
Pore Size	D 4751	180 micron (80 US sieve no)
UV Stability	D 4355	70% strength retained after 500hr
Weight	D 5261	272 g/m^2 (8 oz/yd^2)
Flow Rate - Fabric	D 4491	3,660 $l/min/m^2$ (90 $gal/min/ft^2$)
Flow Rate - Bypass Ports	D 4491	2,914 l/min

Aldington Mill, Mill Lane,
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Hy-Tex (UK) Limited
Committed to Quality, Value & Service


SEDIMENT
FILTRATION SYSTEM
green rhino


FILTRATION SYSTEM
0845 475 0289

Technical information — Silt Fence

Dimensions: 100 metres x 0.9 metres (single roll)

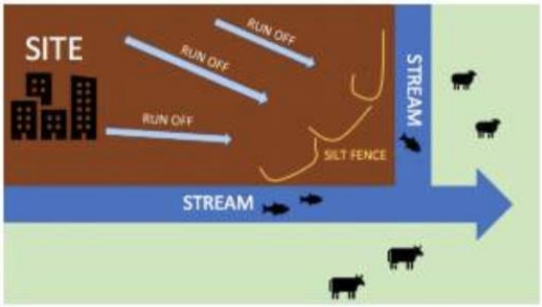
Dry Weight p/m: 110 g/m2 (9.9 kg single roll)

Permeability: 7 (l/m2 /sec)

Material used: tear resistant polypropylene geotextile, PFSC timber stakes (cable ties or staples/ nails to fix)

Function: creates a temporary fence to provide a pooling function that allows silt to drop from suspension

Disposal: all materials fully reusable or recyclable



Shorter J shaped runs of silt fence typically provide more effective pollution control than longer runs

Silt Fence can be used as a temporary measure to prevent muddy water escaping from construction sites

10 TIPS for successful Silt Fence deployments:

- Fence posts should be spaced a maximum of 1.5m apart
- Silt Fence should be trenched a minimum of 20cm into the ground and compacted
- Shorter 'J shaped' installations of Silt Fence act like mini-retention areas and are typically more effective than longer runs (as shown in the diagram above)
- Longer runs of silt fence will concentrate water in the lowest point, where the fence can become weakened and water can undercut or overflow the fence avoid these where possible
- Water flowing around the edges of silt fence can cause erosion and add to the pollution loading from site
- The lower part of the end of each run of silt fence should ideally be above the top of the middle section of the run
- Removal of accumulated silt and regular inspection are key maintenance activity for silt fence. A named individual should be responsible for this action on site
- Silt fences are not designed to handle continuous high volume flows and will not be an effective stand-alone control in these circumstances
- Factors such as soil type, slope angle and slope length are key factors in determining how much silt fence is needed on site
- If ground conditions are clayey Silt Fence alone is unlikely to be an effective pollution control

for technical support and sales of
Silt Fence contact frog environmental
0345 057 4040
info@frogenvironmental.co.uk
www.frogenvironmental.co.uk
@frogenv

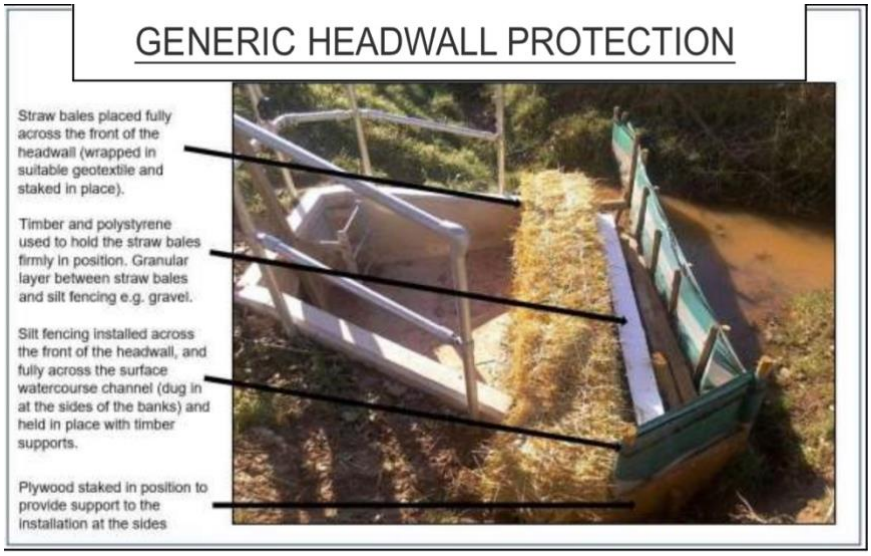
Wales: Uanwrda, Dyfed SA19 8NA
Midlands: The Byre, Blakenhall Park, Barton Under Needwood, Staffordshire, DE13 8AU

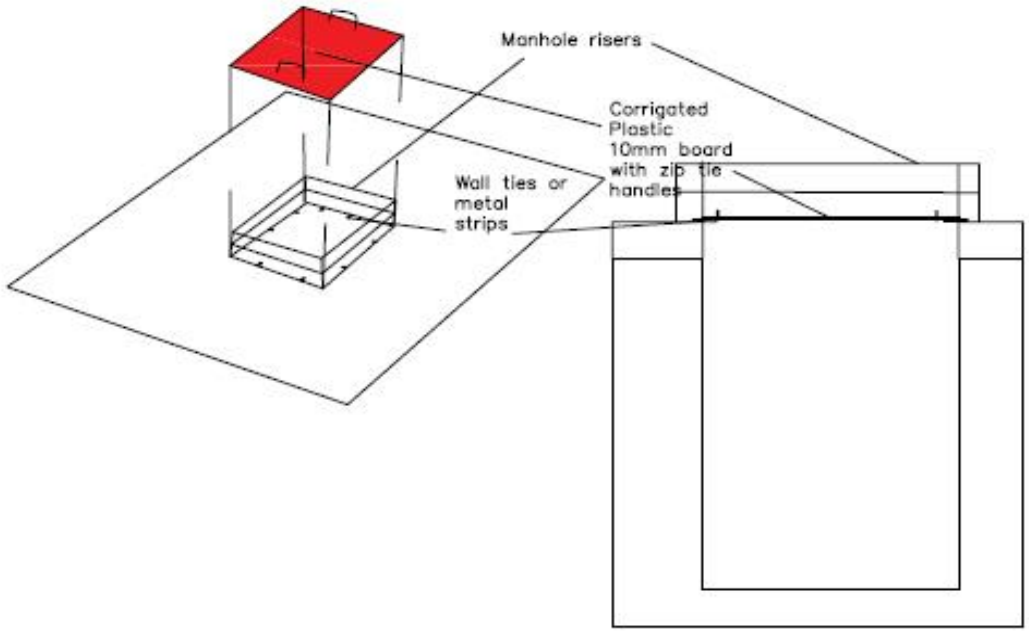
Appendix F Silt sediment settlement filtration

315044-R01(00)

Appendix B

Appendix G Head Wall protection




Manhole risers
Corrigated
Plastic
10mm board
with zip tie
handles
Wall ties or
metal
strips

Appendix I Site silt protection plan

Type equation here.