Head Office
Cogen Court
151 Cranmore Boulevard
Shirley
B90 4LN
Tel: 0121 708 5000

Environmental Contamination / Silt Prevention Plan

Issue: March 2023

Table of Contents

TABLE OF CONTENTS **3**

PREVENTION OF CONTAMINATION TO SURROUNDING WATERCOURSES **4**

CONTROL MEASURES 4
Grass strips *4*
Silt Barriers *4*
Excavations *5*
Cut-off ditches *5*
Exposed Ground and Spoil Heaps *5*
Plant and Wheel Washing *6*
Cleaning Site Roads / Sweeper Waste *6*
Groundworker Execution Strategy Plan (example) *8*
Gully Bags *9*
New / Existing Manholes *9*
Refuelling Areas *10*
Jetting Drainage Runs *10*
Concrete, Cement & Mortar Washout - *11*
OVER-PUMPING 11
WATER SAMPLING 12
PLANT MAINTENANCE 14
DIESEL STORAGE AREAS 14
SPILLAGE RESPONSE PROCEDURE 15
APPENDIX A – INSPECTION & MONITORING FORMS 16
HS57 Gully Inspection Register *16*
HS64 Water Sampling Register *16*
HS71 Silt Management Inspection Form *16*

Prevention of Contamination to Surrounding Watercourses

Control Measures

Below are examples of control measures that MV Kelly will seek to implement when acting as Principal Contractor to Prevent contamination of watercourses / silt management during the construction phase of a project. When acting as a sub-contractor MV Kelly will follow the client's control measures when requested.

Grass strips – Leave a grass strip or clean shingle stone strip along the watercourse so far as reasonably practicable, this will act as a filter for water run-off.

Silt Barriers – Install Terra Stop (or similar geotextile material) barriers to reduce/prevent transporting silt into an existing watercourse from site run-off. These can be installed along the watercourse, in front of the outfall/headwall, etc. Straw bails can also be installed with the barriers to improve the filtration.

Excavations - Where possible, prevent water from entering excavations. Construct water diversion ditches to prevent entry of surface water. Construct the corner of the excavation as a sump to facilitate over-pumping to designated areas.

Cut-off ditches - Create cut-off ditches to divert the site's water run-off to enter the watercourse at one point rather than trying to control different areas. The ditch can be lined with a clean gravel material and silt barriers/straw bails installed at regular intervals to filter any silt present. Water must be clean (60NTU or below) when entering the watercourse.

Exposed Ground and Spoil Heaps - Minimise the amount of exposed spoil heaps where possible and where practical locate these where water course contamination from water run-off is minimal. Spoil heaps can be seeded/covered, or silt barriers installed at the base of the stockpile to help control water run-off. Consideration of water run-off must be controlled as well as water saturation / ponding prevention (10° fall across the stockpile).

To minimise the effects of spalling (earth coming away from the stockpile) the top and sides are to be compacted by the excavator bucket. Water run-off and silt protection to be controlled as per risk assessment of the local conditions / weather etc.

Plant and Wheel Washing – When Principal Contractor wheel washes and plant washing facilities are to be utilised so that dirty water can be contained for correct treatment and disposal (purpose-built run-off area with silt filtering / catchpit for example). There are various solutions to wheel washing from jet washing by hand to hired-in washing facilities.

Cleaning Site Roads / Sweeper Waste – Prevent unnecessary mud build-up on site roads by keeping plant clean, introducing key crossing points in-line with the build program (*see Groundworker execution strategy plan for further guidance*). Where mud build-up cannot be avoided regularly scrape and brush to minimise cross-contamination from mud and silt. All gullies are to have protective gully bags fitted.

Road sweepers are to be clean on arrival to site (to prevent cross-contamination). There are 2 options for disposing of the waste:

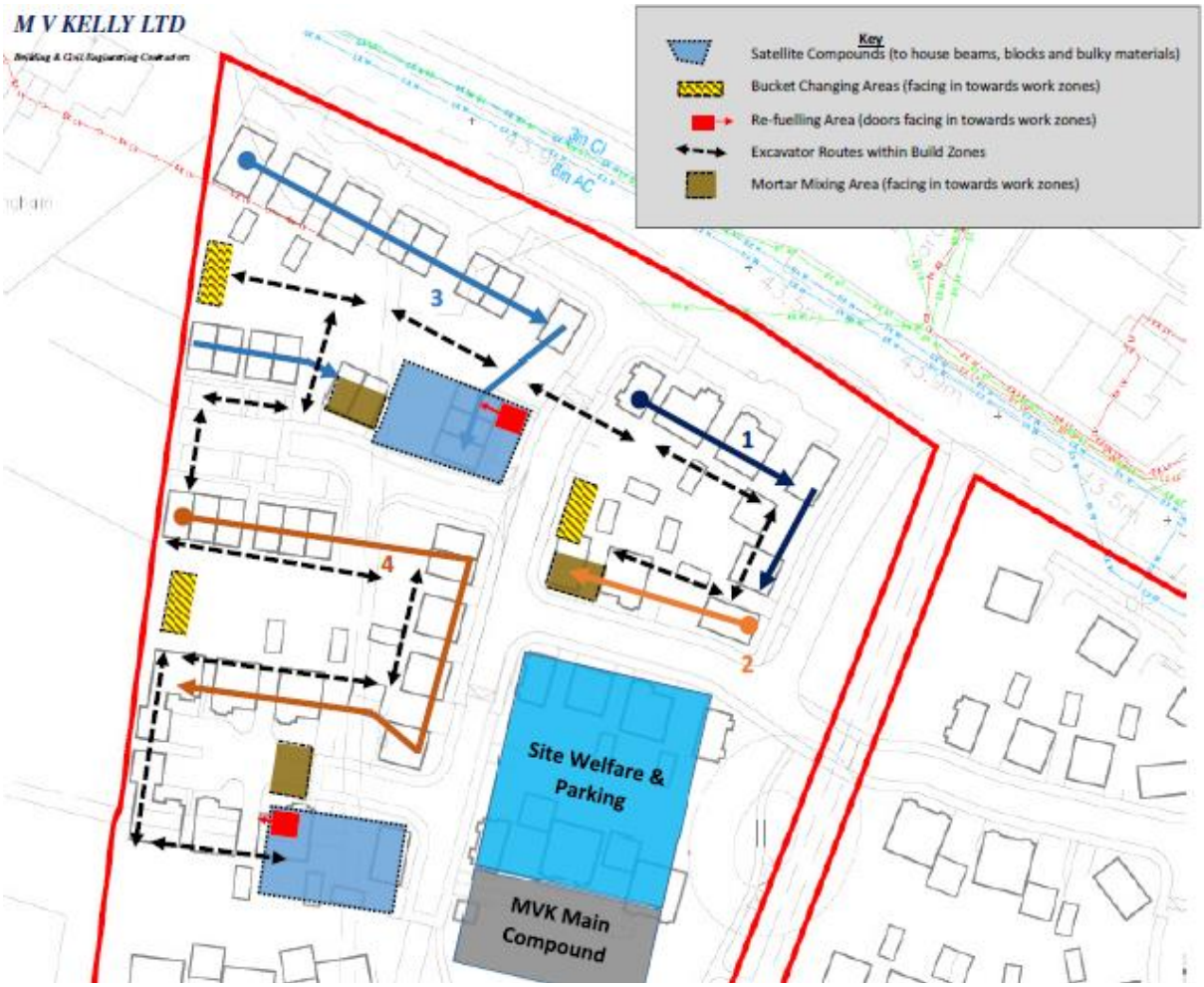
Option 1 - Waste to be removed from site by the Sweeper company (check whether this is a specific client stipulation)

Option 2 - Waste tipped and re-used on site.

To tip Sweeper waste on site please follow the procedures set out below:

- Select an area adjacent a spoil heap, level and bund the edges to allow the contents to spread thinly
- Set up excavator adjacent the tipping area
- Bank the sweeper to the tipping area and deposit the waste in the prepared bund
- Once the Sweeper has left the area the Excavator will agitate the deposited contents with the dry bunded material

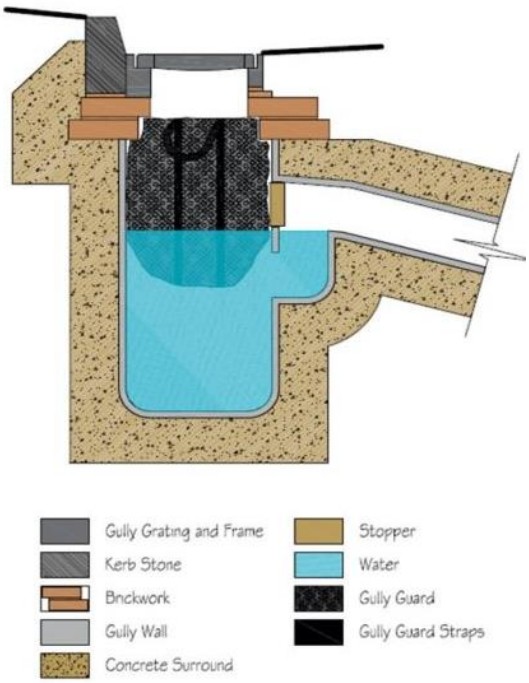
Groundworker Execution Strategy Plan (example)



The above plan has been created to provide an example of how to execute stage 1 works in-line with SHE Standards and shows how plant movements can be reduced during the build sequence.

- 13T excavators and above are only permitted within work zones and should not be tracked on any estate roads unless authorised to do so on designated crossing points
- Allocate 'clean dumpers' and 'dirty dumpers' (where applicable)
- All frontages for stage 1 works to be completed with 8T and below excavators with rubber tracks
- Diesel areas to be facing inwards from the site road, towards the work zones, incorporate a hard standing area for 'clean dumpers' to use
- Bucket changing areas to be facing inwards from the site road, this will also prevent unnecessary tracking on the site roads
- Mortar mixing areas to be placed at the end of each build route, facing in towards the work zones (sand to be placed on the roadside allowing deliveries to tip on hard standing / Tarmac
- Plan to place satellite storage areas within the work zone. These are to be designed to house bricks, blocks, beams & insulation which require lifting with an excavator and will reduce tracking distances
- Main compounds will house kerbs, slabs, plastic drainage etc. these can be transported using forklift / dumper.
- Plant lockdowns within work zones (where practical) to reduce tracking to and from main compounds at the start and end of each shift.

Gully Bags – Install gully bags into the gully pots at the earliest opportunity to prevent silt entering the drainage network. Fill with water as per below diagram then install the bag. Tying the bags without filling the gully with water leads to the ties being damaged and the gully bag dropping which stops the gully bag from working effectively. The gully bags are to be monitored regularly and replaced as/when necessary.



New / Existing Manholes - Cover manholes at the earliest opportunity to prevent silt entering the drainage network. They can either be covered with a steel plate that covers the entire opening or the specified iron work.

Refuelling Areas - These are to be set up at least 10m away from a known receptor (water course, gully). Drip trays to be used under generators, when refueling small plant items. Follow the execution strategy for setting up refuelling area. This will also reduce unnessessary mud build-up on roads.

Jetting Drainage Runs – When jetting storm water runs a check on the last outfall Manhole will be completed by the MVK Site Supervisor and Jetting Contractor before works commence (Use HS115 Sub-contractor Pre-start Checklist). Hydro-brakes must be in place to prevent silt running directly into the watercourse system or the outlet must be stoppered, and the manhole used as a catch pit to allow for the contents to be pumped out. Where the outfall runs directly into a watercourse through a headwall then silt protection must be installed. Works to be checked and signed off before leaving site.

Concrete, Cement & Mortar Washout - Equipment, such as chutes, portable mixers, mortar tubs, barrows, pump lines, shovels, should be washed out in a designated area that has been specifically designed to contain wet concrete/wash water. This can be controlled by using a skip lined with an impermeable barrier, area 10m away from a watercourse/receptor lined with impermeable barrier. Surplus dry concrete, cement and mortar should be used elsewhere on site if possible, or as inert rubble.

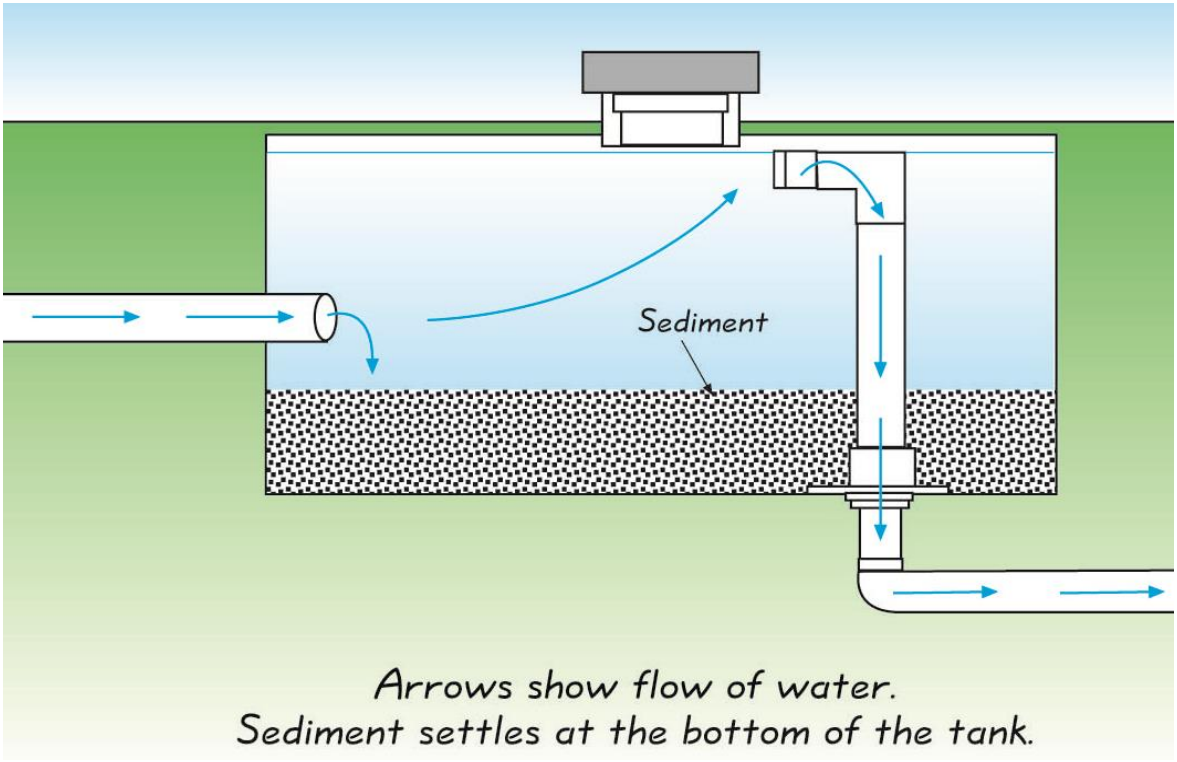
Over-pumping

Pumping into a live sewer will require consent from the water company. For pumping into controlled waters an environmental permit (permit to discharge) from the EA, NRW or NIEA will be required. However, an environmental permit for temporary water discharge is not required where the below applies:

- If the discharge is for less than three months (the activity may stop and restart, but the clock does not restart)
- Discharge is clean rainwater or infiltrated groundwater which has collected in the bottom of the trench
- It will not result in suspended solids entering the surface water and is not within 500m or less of conservation or protection areas.
- Discharge does not cause flooding from the surface water.
- Discharge does not cause erosion of the banks or bed of the surface water

Before over-pumping (when an environmental permit is not required) a permit to pump (HS039) must be completed. Below is a list of control measures that should be considered when over-pumping:

- Discharge water on existing vegetation, through silt barriers, across clean gravel, etc to act as filtration before the water enters a watercourse
- Use a sedimentation tank to allow sediment to settle before the water is discharged
- Attach a silt sock/bag to the end of the outlet hose



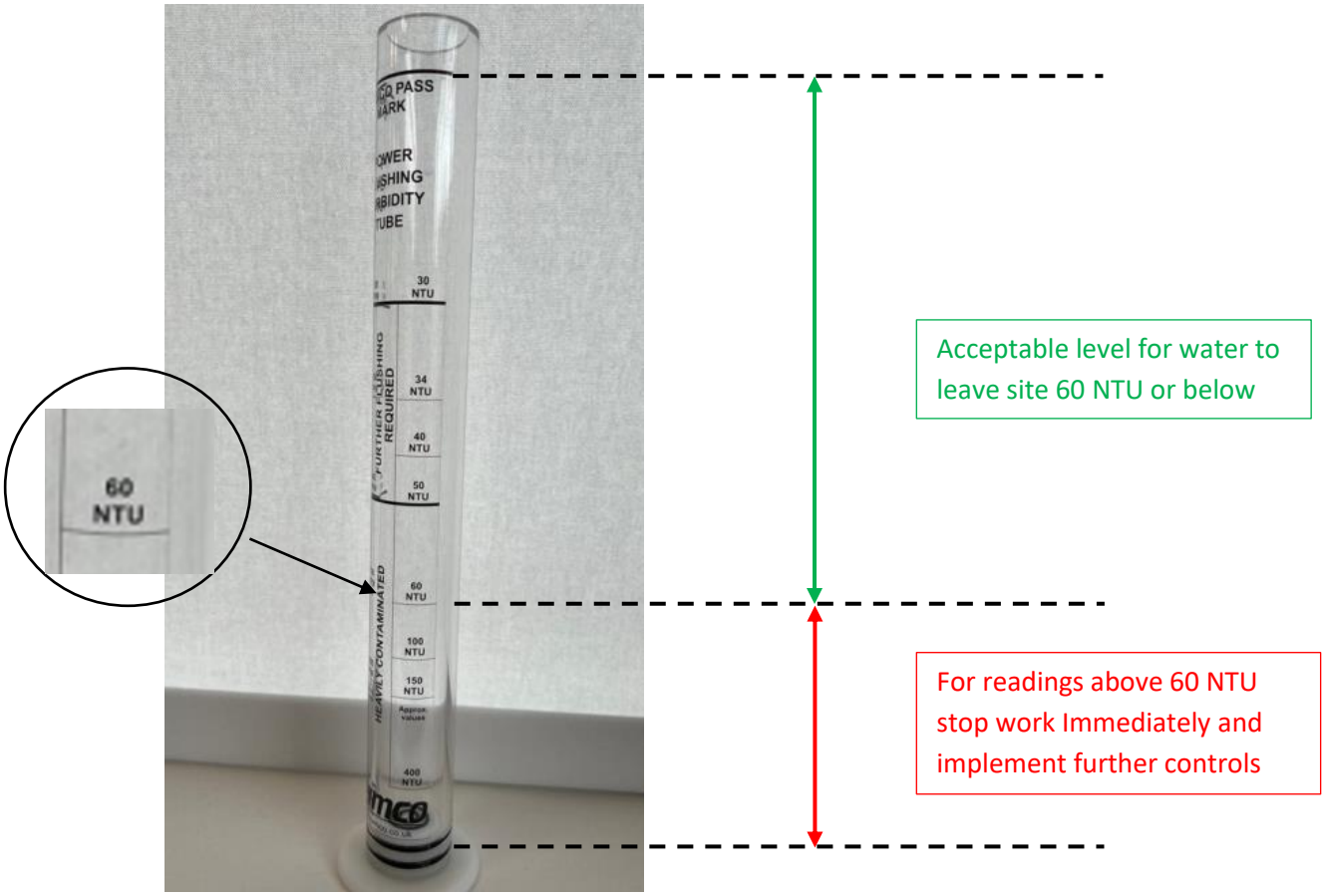
Water Sampling

Regular water samples are to be taken and documented during the construction phase of a project. They are to be taken in the following situations:

- Prior to commencing the construction phase – Sample to be taken from nearby watercourses to see if there is any sediment present before MVK commences work.
- When using a sediment tank– Random samples are to be taken of the water before going into the tank and one from the water being discharged. This is to test whether the sediment tank is filtering out the silt before being discharged.
- Regular samples from any watercourses on site, to demonstrate the construction works is not causing any contamination.
- Where there is a Site Water Management Plan (SWMP) in place, SHE Visits can include a sample of any vulnerable watercourses to show we are actively monitoring our works.

Samples are be taken using a turbidity tube which is designed to gauge the level of suspended solids within a water sample, the readings are shown using the NTU metric (nephelometric turbidity units). The action/trigger levels are as follows:

- Less than 60 NTU – Acceptable level for water to leave site
- 80 NTU or more – Immediately stop pumping/discharging. Investigate why the silt content is at this level and put control measures in place to reduce the silt concentration to an acceptable level (60 NTU or below)



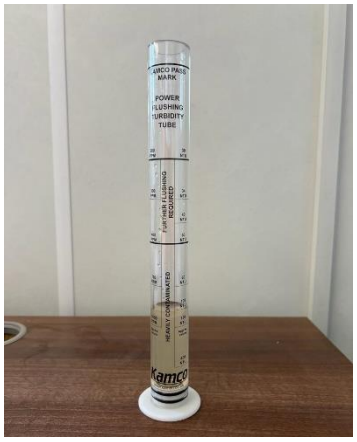
To use the turbidity tube follow the below steps:

- Use a jug/bottle to take a sample of water from a watercourse/pond/brook/stream/tank etc.
- Hold the cylinder vertically over a white surface and view downwards
- Slowly pour the contents of the sample into the top of the turbidity tube whilst looking directly down the tube from above, continue to pour the water sample until the defined mark (black circle) at the bottom of the tube is no longer visible.
- Read the turbidity value from the side of the tube.
- Document the reading and take pictures as evidence (these can be documented by the SHE Advisor in the Environment section in the SHE Inspection Form).

(Visable target rings)

Example 1

Example 1 - View from the top of the test tube shows the target rings are clearly visible and from the side of the test tube shows that it is within the acceptable level of 60 NTU and below



Example 2

Example 2 – You are unable to see the target rings from the from the top of the test tube and from the side of the test tube shows that it is within the unaacceptable level of above 60 NTU.

Plant Maintenance

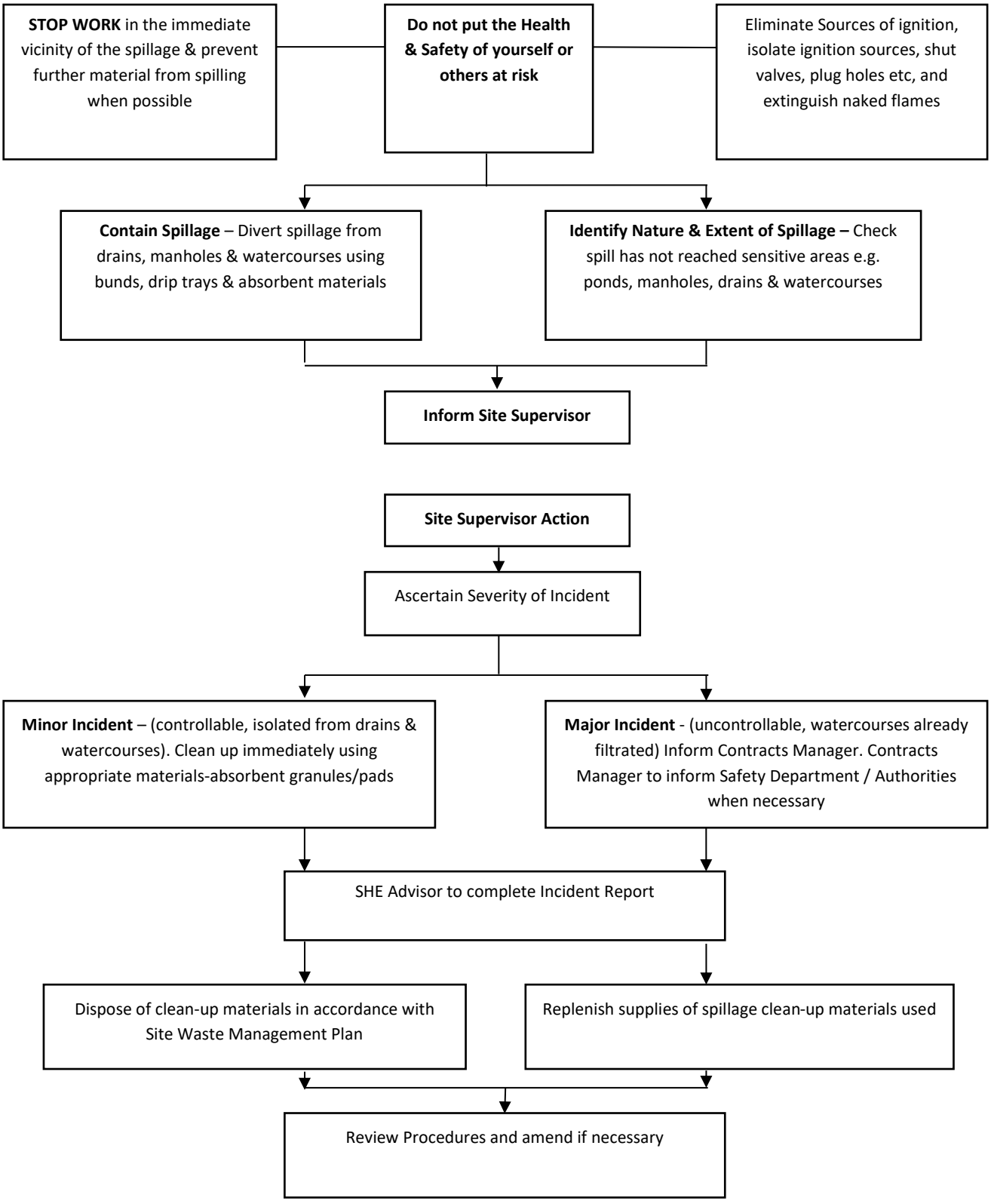
When fitters have to work on plant items all redundant Diesel / Oils will be removed from site in sealed containers and taken back to the plant yard where they will be temporarily stored before collection by a licenced waste contractor.

Diesel Storage Areas

Diesel tanks will be cited at least 10m away from a known water course / gully and set up on a bed of polythene, sand and gravel. Drip trays are to be used during the refueling process for all types of plant. When not in use Diesel tanks will be kept locked.

Spillage Response Procedure

Each construction site will be issued with spill kits which will be stored adjacent to the Diesel bowser. On discovering a spillage of any potentially polluting substance (e.g. oils, diesels), the following procedure will be followed where practicable.



Appendix A – Inspection & Monitoring Forms

HS57 Gully Inspection Register
HS64 Water Sampling Register
HS71 Silt Management Inspection Form