CROWNHILL TOPSOIL ENVIRONMENTAL MANAGEMENT SYSTEM

Unit 1009, Caerwent Army Training Estate, Caerwent

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Title	Crownhill Topsoil – Environmental Management System		
Location	Unit 1009 Caerwent Army Training Estate		
Document Ref	Environmental Management System CH012	**Issue / Revision:**	01
File reference	CH012		
Date	10/02/16		
Prepared by	David Findon	Signature 	Date 10/02/16
Checked by	Julian Gregory	Signature 	Date 10/02/16
Authorised by	Julian Gregory	Signature 	Date 10/02/16

Rev	Date	Purpose	Prepared by	Checked	Authorised
1	12/09/2016	Update to reflect operational changes	Julian Gregory		
2	17/11/2016	Updates to satisfy NRW requirements	David Findon		

Contents

1. Site Details

Name of the applicant	Crownhill Topsoil
Activity address	Unit 1009 Caerwent Army Training Estate
National Grid Reference	ST 46457 92070
Document reference and dates for Site Condition Report at permit application and surrender	Site Condition Report CH013 – 08/08/16

Crownhill Topsoil's Waste Management Facility of proposed to be located at Unit 1009 of the Caerwent Army Training Estate. This is a facility operated by the Ministry of Defence and managed by Landmarc. It is predominantly used for the training of MOD personnel and the storage of MOD assets. Sections of the site are now let to companies for use as commercial / industrial facilities.

2. Introduction

The aim of the EMS is to identify all the likely environmental aspects and impacts of the processes carried out at Crown Hill Topsoil's Waste Management Facility at Unit 1009 of the Caerwent Army Training Base and to propose suitable mitigation to minimise their environmental impact.

3. The Service

Crown Hill Topsoil (trading name of Sole Trader Simon Stone) provide recycled topsoil and aggregates to the construction industry, biomass wood chip to the biomass industry and skip hire to commercial and domestic clients.

We provide a range of different quality soils, sands and aggregates to private and commercial customers.

The key aspects of this service are:

- Sourcing and collecting aggregates;
- Assessment of sourced material;
- Inspection of sourced material for possible contaminants;
- Grading the soil and aggregate using a screen to produce topsoil and graded aggregates;
- Testing soils and aggregates produced;
- Storage of graded aggregates, soil and timber;
- Loading and delivery of processed material to customers, with gradings to demonstrate compliance with BS 3882:2015 and the Specification for Highway Works Series 600.

We provide wood chip to the biomass industry for the production of heat and power.

The key aspects of this service are:

- The sorting of treated and un-treated timber;
- The storage of treated and un-treated timber;
- Chipping and screening of timber to form ENBS P16A / P16B (G30 and G50) chips;
- Storage of chipped timber pending shipment to biomass facility.

We provide skip hire to commercial and domestic customers:

The key aspects of this service are:

- Storage of empty skips;
- Delivery of empty skips to client's facilities;
- The collection of full skips;
- The emptying of skips onto the sorting floor, within the sorting building;
- The sorting of wastes into waste fractions, which are then placed in segregation bays for onward recycling or disposal;
- Re-loading of waste streams into appropriate containers for onward recycling / disposal;
- Shipment of wastes with relevant Waste Transfer Notes.

4. Site Location

Our Depot is at Unit 1009 of the Caerwent Army Training Estate in Caerwent, Monmouthshire.

Access is gained to the site from the A48 and is controlled by an MOD checkpoint, where visitors and deliveries are required to sign in and be issued a valid permit for the day.

5. Location Sensitivity

The Caerwent Army Training Estate is a large area of land in Caerwent, Caldicot, owned by the Ministry of Defence. It is predominantly used for training exercises, but a portion of the land is segregated off for use commercially.

The entire estate is fenced off, and access is only permitted by passing a checkpoint at the entrance, which will grant permission for entry. As a result, there is very little traffic movement through the area, with little interaction with the general public.

Unit 1009 lies within the NW section of the estate. A section of the Dinham Meadows SSSI lies approximately 70m east of the site and another section 50m west. The Coombe Valley Wood SSSI also lies 600m west adjacent to the Llanmelin Hillfort.

Llanmelin wood is located immediately adjacent to the northern boundary of the site. This woodland contains Llanmelin Hillfort, which is an iron age hillfort located approximately 220m north west of the site.

The site is around 850m from the nearest residential property, which is a farm house to the west of the site. The nearest residential area is the housing estate to the south of the training estate, 1150 metres from the site border. These are unlikely to be affected by site activities, however there is a negligible risk that they may experience nuisance from noise and dust generated from the works.

The MOD buildings in the area are sparse, and often vacant, although there are several other small commercial companies within the estate. When in use, the buildings may also be affected by noise and dust generated from the site.

There is a small un-named watercourse flowing through the centre of the site in a north to south direction. This watercourse is dry for much of the year, but flows during periods of rain. Surface water runoff from the site discharges into this watercourse. The Castorogi Brook is located approximately 330m west of the site.

Geology - There are some superficial deposits to the south of the site along the line of the access road. This is comprised of River Terrace Deposits (silt), which have low to moderate permeability.

The bedrock is comprised of Limestone, primarily Dolostone with some Ooidal Limestone in the south east. These have a permeability level of High to Very High.

Hydrogeology - The superficial deposits on site are designated as “Unproductive: rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.”.

The bedrock deposits are categorised as “Principal: Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.”.

Groundwater - The site is located with a Source Protection Zone categorised as Zone 1: Inner Catchment.

The groundwater has been identified as vulnerable to soil leaching. The soil has been given a vulnerability category of "I1: Soils which can possibly transmit a wide range of pollutants". The site has therefore been assessed as having a high sensitivity to groundwater pollution. Great care will be required to ensure activities at the site do not release substances which could impact the underlying aquifer. All activities likely to generate contaminated runoff must be undertaken on an impermeable surface draining via an appropriate drainage system.

No contaminated land has been identified at the site during visual and olfactory observations at the site, although the site has previously been used as an MoD facility, although the exact use is unknown. The site was previously used by WormTech Ltd for the production of compost. We have received anecdotal information that there were issues with this operation which resulted in the release of leachate from green waste decaying anaerobically. This will not have been persistent within soils at the site and would have decayed following exposure to atmospheric conditions.

6. Roles and Responsibilities

The Managing director shall have overall responsibility for overseeing the management of the environmental aspects of the operation of the facility.

Role	Responsibility
Simon Stone – Managing Director	Ensure this management system is updated to reflect changes in procedures and the nature of operations at the facility. Oversee the implementation of this management system; Ensure compliance with legal requirements; Ensure conformance with the conditions of the Environmental Permit for the facility. Act as Incident Controller, taking charge in the event of an Environmental Incident on site; Appoint a Deputy Incident Controller, to take charge during an incident when the MD is not on site; Ensure procedures for receiving waste to site are implemented and adhered to; Ensure procedures and paperwork required for exporting waste and materials from site are adhered to and paperwork is compliant. Instruct environmental monitoring to ensure compliance with this plan and with the Environmental Permit for operations at the site.
Emma Stone – Office Manager	Ensure paperwork is correct and is filled for all waste and material movements. Log weighbridge information.
Deputy Incident Manager	Take charge in the event of an incident.

6.1 Contact details:

Simon Stone – Managing Director

Tel: 01291 430 066

Mob: 07880 722 436

7. Wastes Accepted to Site

The following wastes are accepted to site:

7.1 Topsoil and Recycled Aggregates

LOW Number	Description	Notes
17 01 01	Concrete	Accepted as part of the inert waste operation and as part of the skip operation, with this waste stream sorted and processed as part of the aggregate production process.
17 01 02	Bricks	
17 01 03	Tiles and ceramics	
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	
17 03 03	Bituminous mixtures other than those mentioned in 17 03 01	Limited volumes accepted, these will be screened and returned to the aggregate market.
17 05 04	Soil and stones, other than those mentioned in 17 05 03	Accepted as part of the inert waste operation and as part of the skip operation, with this waste stream sorted and processed as part of the aggregate production process.
17 05 08	Track ballast other than those materials mentioned in 17 05 07	
19 12 09	Minerals (for example sand, stones)	

7.2 Treated and Untreated Timber

LOW Number	Description	Notes
17 02 01	Wood	Segregated wood, received as part of the wood processing. Also received as part of the skip operation. Wood will be segregated and processed into biomass or other suitable products through shredding and screening.
19 12 07	Wood other than those mentioned in 19 12 06	

7.3 Mixed Household and Industrial Waste

LOW Number	Description	Notes
17 02 01	Wood	Segregated wood, received as part of the wood processing. Also received as part of the skip operation. Wood will be segregated and processed into biomas or other suitable products through shredding and screening.
17 02 02	Glass	Small volumes of glass received as part of other wastes i.e. old windows.
17 02 03	Plastic	Segregated and recycled.
17 04 01	Copper, bronze, brass	This would be segregated into scrap bins by metal type.
17 04 02	Aluminium	
17 04 03	Lead	
17 04 05	Iron and steel	
17 04 07	Mixed metals	
17 08 02	Gypsum-based construction materials other than those mentioned in 17 08 01	Segregated into quarantine cell for disposal via Gypsum skip.
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03.	Segregated and included within the inert aggregate section of the business.
19 12 01	Paper and Cardboard	Segregated and recycled.
19 12 02	Ferrous Metal	This would be segregated into scrap bins by metal type.
19 12 03	Non-ferrous metal	
19 12 04	Plastic and rubber	Segregated and recycled.
19 12 05	Glass	Small volumes of glass received as part of other wastes i.e. old windows.
19 12 07	Wood other than those mentioned in 19 12 06	Segregated and included within the wood treatment process.
19 12 08	Textiles	If clean, segregated and recycled. If not clean, included within the wastes for onward disposal and further treatment stream.
19 12 09	Minerals (for example sand, stones)	Segregated and included within the inert aggregate section of the business.

All wastes listed above are subject to the strict screening protocol outlined in section 11.1 of this document prior to their processing at the site.

8. Aspect Identification

Before they can be controlled, it is necessary to identify all of the likely environmental aspects associated with the works and to ensure that they are fully understood. The following table **WILL be** reviewed **6 MONTHLY** for the duration of the works. Overall responsibility for the completion of this table lies with the **Managing Director.**

The table will be used to gauge the likelihood and the significance of impacts. Significance is scored using the assessment method below:

Key:	L = Likelihood	I = Magnitude of Impact	S = Significance
Significance Rating:	A = Unlikely	1 = No Impact	A 1 – 4
	B = Possible	2 = Low / Insignificant Impact	B 1 – 4
	C = Probable	3 = Moderate Impact	C 1 – 4
	D = Identified Impact	4 = High Impact	D 1 – 4

Consents/Consultation	Potential	*Applicable* ✓/x	*Significance*			*Control Measures Reference*
			L	*I*	*S*	
Does the project require an Environmental Impact Assessment under the regulations		X				
Does the site require planning permission?	Planning Permission granted with specific conditions on environmental performance to be fulfilled.	✓				
Will consultation be required with the LA Env Health Dept	Potential for nuisance to residents- noise, vibration, dust, light, traffic and mud on roads	✓	B	2	B2	10.6 - Nuisance
Does the site fall within any designated areas (SSSI, SAC, LNR, NNR, etc)		X				

Surface and Groundwater	Potential	Applicable ✓/x	Significance			Control Measures Reference
			L	I	S	
Does a watercourse run through the site?	There is a small un-named watercourse flowing through the site in a north south direction. This is dry for much of the year but flows during periods of wet weather.	✓	B	2	B2	**Error! Reference source not found.** – Protection of Surface and Groundwater
Is the site within a Source Protection Zone.	The site is located with a Source Protection Zone categorised as Zone 1: Inner Catchment. This indicates an area of high sensitivity to groundwater pollution with potential for abstraction for drinking water sources.	✓	B	4	B4	10.1 - Protection of Surface and Groundwater.
Is there a requirement for a soakaway on site?		X				
Will it be required to discharge to a mains sewer?	There is no mains sewer within a distance where it is possible to make a connection.	X				10.1 - Protection of Surface and Groundwater.
Is the site in a flood risk area?	No flood risk indicated on NRW Flood Mapping.	X				Natural Resources Wales Flood Risk Map does not indicate risk of flooding.

Risks of Pollution	Potential	Applicable ✓/x		Significance			Control Measures Reference
				L	I	S	
Hydrocarbon and metal contaminated runoff from contaminated land, entering watercourses and groundwater.	No contaminated land identified during visual inspections of the site. Past uses have not been fully defined. Former WormTech facility potentially released organic leachate but high potential that this will have degraded in soils. Potential for historic contamination below concrete slabs or within deep soils, cannot be ruled out.	✓/X		B	3	B3	10.1– Protection of Surface and Groundwater.
Silt contaminated runoff into watercourses and groundwater	It is likely that surface runoff from the site discharges into the River Severn although this is some distance away and linked by a series of ditches / reens. The site is underlain by a Zone 1 of a Source Protection Zone. Preventing contaminated runoff from infiltrating into the underlying aquifer.	✓		B	2	B2	Site runoff will enter existing drainage which will drain to the watercourse flowing through the centre of the site. 10.1 – Protection of Surface and Groundwater 11 – Emergency Preparedness and Response
Hydrocarbon contaminated runoff into watercourses and groundwater	Leaks from plant and machinery, spillage during transport, storage or refuelling.	✓		B	4	B4	10.1– Protection of Surface and Groundwater
Silt contaminated runoff into Surface Drains	Existing surface drainage will be retained and utilised, on site. Silt	✓		B	3	B3	10.1– Protection of Surface and Groundwater

	contamination can arise from soil stockpiles and the processing of soils and aggregates.						11 – Emergency Preparedness and Response
Hydrocarbon contaminated runoff into Surface Drains	Leaks from plant and machinery, spillage during transport, storage or refuelling.	✓		B	4	B4	10.1 – Protection of Surface and Groundwater 11– Emergency Preparedness and Response
Asbestos Contamination	No asbestos identified on site. Asbestos not accepted within incoming waste.	X					

Ecology	**Potential**	**Applicable ✓/x**		**Significance**			**Control Measures Reference**
				L	**I**	**S**	
Have any protected species been identified around the site? -	There is historical data of great crested newt presence in the area.	✓		D	3	D3	Great Crested Newt Mitigation Strategy.
Surface and Groundwater	**Potential**	Applicable ✓/x		**Significance**			**Control Measures Reference**
				L	**I**	**S**	
Does the work directly affect a watercourse e.g. alteration of		X					

alignment, bridge construction, etc.						
Does a watercourse run through the site?	A small un-named watercourse flows through the centre of the site.	✓				
Will the works take place in a sensitive catchment?	All runoff from the works eventually feeds into the River Severn.	X ✓	B	3	B3	10.1– Protection of Surface and Groundwater
Will the works affect groundwater or drainage into an aquifer?	Potential for runoff to permeate through surface/underlying geology into aquifer which is classed as Zone 1 of a Source Protection Zone.	✓	B	4	B4	10.1– Protection of Surface and Groundwater
Will the works require abstraction from a watercourse or aquifer?		X				
Will the works require discharge to a watercourse or aquifer?	Drainage from low risk areas of the site will drain to the un-named watercourse flowing through the centre of the site, via a treatment system to remove silt and hydrocarbon contamination.	✓	B	4	B4	10.1– Protection of Surface and Groundwater
Will it be required to discharge to a mains sewer?	No mains sewer within reasonable distance of the site.	X				
Are the works in a flood risk area?	National Resources Wales Flood Risk Map does not indicate risk of flooding.	X				

Storage Risks	Potential	Applicable ✓/x		Significance			Control Measures Reference
				L	I	S	
Fuels – Storage location – watercourses, boreholes, etc	Fuel for plant and equipment stored in static and mobile bowsers, leakage from plant and machinery.	✓		B	4	B4	10.1 – Protection of Surface and Groundwater 11 – Emergency Preparedness and Response
Will Chemicals/Hazardous materials be stored and used on site?	.	X					
Will hydrocarbons be stored on site?	Bulk hydrocarbons will be stored in a bunded tank on the eastern side of the site. Leakage, spillage to ground or into watercourses. Compliance with the Oil Storage Regulations required.	✓		B	4	B4	10.1 – Protection of Surface and Groundwater 12 – Emergency Preparedness and Response
Will refuelling of plant take place on site?	Refuelling of plant will be carried out on hard surfaced areas draining via the hydrocarbon interceptor.	✓		B	2	B2	10.1 – Protection of Surface and Groundwater 11 – Emergency Preparedness and Response

Nuisances	Potential	Applicable ✓/x		Significance			Control Measures Reference
				L	I	S	
Will potentially noisy activities take place on site?	Use of plant and machinery, including, wood shredder.	✓		C	3	C3	10.6- Nuisance
Will the works produce odours?	The production of odours is unlikely. Odours could be produced if wastes which the facility is not permitted to accept are inadvertently accepted.	X					
Will the works generate significant amounts of dust?	Dust could be generated during delivery and processing of materials	✓		B	2	B2	10.6 – Nuisance 10.3 – Control of emissions to air.
Will the works generate ground borne vibration?	Low levels of ground borne vibration could be produced during dumping and sorting of materials.	✓		A	2	A2	10.6 - Nuisance
Will the works cause Traffic Disruption		X					
Will additional lighting be required for the works?	Localised task lighting could be required.	✓		C	2	C2	10.6- Nuisance
Will the facility be visual intrusive.		X					
Will nuisance affect residential properties?	There are residential properties 850m to the east of the works which may be affected	✓		B	2	B2	10.6- Nuisance

Will nuisance affect business properties	There are a few business properties surrounding the site which may be affected	✓		B	3	B3	10.6- Nuisance
Will nuisance affect recreation, schools, worship, community buildings		X					

Contaminated Land	**Potential**	**Applicable ✓/x**		**Significance**			**Control Measures Reference**
				L	**I**	**S**	
Is there identified contamination on site?	There is no visual or olfactory evidence of contamination. There is little information on previous potentially contaminative uses. Discovery of contaminated land cannot be ruled out.	X/✓					
Is there asbestos on site?	No asbestos has been identified on site. Asbestos not accepted within wastes.	X					
Is there evidence of disused drums and canisters on site?	No evidence.	X					

Archaeology and Heritage	Potential	Applicable ✓/x	Significance L	Significance I	Significance S	Control Measures Reference
Will the facility affect a scheduled ancient monument?		X				
Will the facility impact on a listed building or structure?		X				
Does the facility affect any known archaeology?	No known archaeology, precautionary approach to be adopted.	X				

Agriculture:	Potential	*Applicable* ✓/x	*Significance L*	*Significance I*	*Significance S*	*Control Measures Reference*
Will the facility affect agricultural land?		X				

9. Materials Register (COSHH Register)

Material	Storage	Use	Disposal
Diesel	In double skinned bunded tank with all delivery pipes being in a locked container within the bund – refer to section: 11.2.2	Re-fuelling only to be undertaken by competent personnel. Any spillage of fuels to be immediately contained and cleaned up. If plant or vehicles are found to be leaking fuels, they will be taken out of service with a drip tray placed below the leak until the leak has been repaired.	All plant and machinery to be inspected for leaks throughout the working shift. Care to be taken during refuelling – procedure I 10.1.1
Lubricants	In double skinned bunded tank with all delivery pipes being in a locked container within the bund – refer to section: 11.2.2	If vehicles are leaking lubricants or hydraulic oils, they are to be taken out of service with s drip tray placed beneath the leak, until the leak has been repaired.	All plant and machinery to be inspected for leaks throughout the working shift. Care to be taken during refuelling – procedure I 10.1.1
Unauthorised wastes	Placed into quarantine bay in appropriate container. Wastes which have potential to leach liquids or for compounds to volatilise from them will be placed into sealed skips or clip top 205l drums.		Disposal to be assessed on a case by case basis, with consideration given to the nature, properties and state of the materials. Hazardous Waste assessment in line with WM3 if required.

10. Consents

Consents will be required for the following aspects of the project:

Aspect	Consent Required / Consenting Body
Operation of a Commercial, Industrial and residential Waste Management facility.	Environmental Permit for Waste Management
The production of Hazardous Waste – i.e. grease canisters, oil filters and oil from the servicing of plant on site.	Hazardous Waste Producers Premises Notification – National Resources Wales
Expansion of working areas, requiring the clearance of vegetated areas or areas where soils and aggregates have been stockpiled.	A European Protected Species License may be required in respect of Great Crested Newts if it is required to undertake operations into green areas.

11. Environmental Management Procedures

11.1 Waste Acceptance and Storage

All waste movement to and from site will be recorded including volumes of materials recovered / recycled to allow Waste Returns to be accurately completed.

All materials received to site must be accompanied by a Waste Transfer Note and Duty of Care information from the waste producer. For the skip hire this is a signed declaration that the skip / bin does not contain any materials which the site is not permitted to accept.

Wastes will be inspected against Waste Declarations and test data to ensure information is representative of the wastes received.

This declaration will form part of the Terms and Conditions of the hire agreement, along with a clause that if skips contain materials which the site is not permitted to receive, skips will be rejected and returned to the client and a hire rate will be charged until, there materials have been removed the Crownhill are able to uplift the skip.

If the skip has been tipped, and materials are found for which the site is not permitted, the cost of the disposal of these materials will be included within the hire.

All skip materials leaving site must be accompanied by a Waste Transfer Note, which will accurately describe the waste and contain details of the volume of waste being disposed of and the receiving facility.

All topsoil / aggregates leaving site must have relevant test information to confirm that it has been turned into a product, in line with the Factory Quality Control Plan. Suitable geotechnical testing - BS 3882:2015 – Specification for Topsoil or gradings in line with Series 600 of the Specification for Highways Works - Earthworks.

Action Point:

All personnel on site to be trained by the Competent Operator, Simon Stone in the recognition of wastes streams and which waste streams / materials / items are to be

allowed onto site and which are to be rejected (prior to tipping) or quarantined (if discovered following tipping)

11.1.1 Inert Waste

Only wastes which fall within the waste codes outlined in section 7 are accepted onto site. In order to ensure that no materials outside of those listed are brought onto site, a duty of care check is undertaken on the site from which the waste has been sourced. This includes a site inspection for indicators of contamination, a review of any ground investigations undertaken for the site and additional ground investigation, sampling and testing if required, i.e. if site investigation information suggested previous contaminative uses.

Once a duty of care check has been undertaken and materials have proven to be clear of contamination, the materials are imported to the facility and stored in managed stockpiles to a maximum volume of 25,000 tonnes. Wastes are inspected during and following tipping on site, to identify potential contamination i.e. litter within soils, materials not consistent with the waste stream within soils, visual or olfactory indicators of contamination.

Any wastes found to contain materials not listed in Section 7 of this document are quarantined and placed in a suitable container. This container is then removed from the site to a disposal facility licenced to handle its contents.

Inert wastes are stored in stockpiles in the open but processed soils are stored within the large fully enclosed sheds on site.

11.1.2 Mixed Waste

As the Mixed Waste stream is the material most likely to contain materials not listed in section 7, which may include hazardous or problematic material, additional measures are undertaken to ensure this is not the case. The Mixed Waste is first brought into the covered shed to the north west of the site. This shed is specific to this process, and is not used for any of the other materials brought onto site.

The skips are inspected prior to tipping. If any items are present which are note listed in Section 7, such as asbestos or hydrocarbon containers, the skip is immediately rejected and returned to the site from which it came.

If any such materials are discovered once the skip has been tipped, the material is quarantined and placed in a container suitable to the nature of the material. Arrangements are then made to transport the material safely to a facility licenced to handle it. Any material which may have been contaminated is included alongside the source of the contamination within the container.

The floor within the shed is composed of impermeable concrete which prevents any potential contaminants from percolating through to groundwater. This floor has been thoroughly checked, and any cracks have been filled and expansion joints have been inspected with defects and damage repaired to ensure they do not allow water to drain away.

Runoff from the material is minimal as the tipping and sorting areas are both under cover. In the event that the material is wet and runoff is present, this drains to the sealed drainage channel running along the entrance to the building. This drainage system channels all water to a storage tank. This tank is inspected daily to ensure it does not overfill. This inspection is recorded via an inspection form filled out by the operative performing the check. Once the tank is full, a tanker is called to site to remove the contents to a facility licenced to dispose of it.

Action Point – Daily inspection to be undertaken of drainage tank accepting runoff from skip sorting and storage areas. Inspection to be recorded. Once tank is ¾ full, tanker to be called to site to empty it.

11.1.3 Wood Waste

Wood is received on site either as dedicated wood waste skips or as a waste stream within mixed waste skips. Skips are tipped within the mixed waste tipping area and dedicated wood skips are inspected for foreign objects. These are removed either into sorting bays or into the quarantine area if the waste is outside those for which the site is permitted.

Wood is then transported to the stockpile within the wood storage and treatment area, where it is stockpiled, ensuring that the stockpiles do not exceed the volumes and dimensions set out in the table below:

Table 2: Maximum pile size and minimum separation distance

Material	Max height (m)	Length / width (m)	Max vol (m^3)	Max area (m^3)	Min separation (m)
Paper, cardboard and rags	5	20	750	235	6
Plastic, rubber and other materials	5	20	450	235	6
Fridges, computers and electrical equipment	5	20	300	235	6
Processes wood including sawdust, shavings, chip.	3	10	150	100	6
Unprocessed wood	5	20	750	235	6

Information from Fire Prevention and Mitigation Plan Guidance – Waste, Version 1, May 2016 – Natural Resources Wales / South Wales Fire and Rescue Service.

Un-processed wood stockpiles must be stored a minimum of 7m from buildings.

Wood and wood chip stockpiles will be regularly turned to prevent anaerobic degradation which could result in temperatures within the core of the stockpile reaching ignition temperature.

Wood will not be chipped until it is due to be removed from site, to prevent large volumes of wood chip being stored on site.

Wood chip will be stored within bays inside a building of solid construction with no leaks. Stockpiles within bays will be maintained dry and regularly turned to prevent chip within the core of the stockpile becoming anaerobic and degrading giving off heat and causing a potential point of ignition. Inspections of these stockpiles will be included within weekly site inspections. Stockpiles of wood chip will not be left in place for more than 3 months.

Temperature probes will be installed within wood chip stockpiles to monitor temperatures within the stockpile.

11.2 Protection of Surface and Ground Water

11.2.1 Site Drainage

The management of site drainage, including the control of discharges to the watercourse is outlined within the Drainage Strategy (CH 017). This covers the protection of the groundwater and surface water present within the vicinity of the site.

As the site is located on predominantly on hardstanding surface runoff from rainfall flows into site drainage which is discharged to the watercourse flowing through the centre of the site, via attenuation lagoons which remove suspended solids and a hydrocarbon separator to remove traces of hydrocarbons from vehicle and plant movements around the site (Refer to Drainage Plan in Appendix 2 and Drainage Strategy)

Operations which present an elevated risk of contamination of surface water i.e. the sorting of skip waste, will only be undertaken within a covered building (Building 5) to prevent rainwater falling onto wastes and becoming contaminated and then flowing into site drainage. Leachate from wastes or water contained in skips prior to tipping, will be captured by a sealed channel flowing into a sealed tank. Liquids from this tank will be removed from site by tanker and taken to a suitably permitted facility. Liquids within this tank will be tested prior to removal to allow Crownhill Topsoil to accurately describe their wastes.

All concrete surfaces at the site will be surveyed for cracks and other damage. All expansion gaps will be surveyed for water tightness. Cracks will be filled using SIKA concrete crack repair epoxy or similar product. Expansion joints will be repaired using a flexible sealant such as SIKAFLEX Pro 3 Movement Joint Sealant.

Only Inert Wastes are to be stored on permeable surfaces.

Drainage from the lower section of the site, drains into the attenuation pond running along the front of the site. This pond discharges into the unknown watercourse via a hydrocarbon separator.

Drainage from the upper level of the site drains into gullies, which discharge via a manhole to the west of the site, into an attenuation pond. This then flows into a hydrocarbon separator, which discharges into the watercourse.

This watercourse is dry for the majority of the time, but during high intensity rainfall events, receives runoff from the woodland above the site. Much of the drainage from this wood has been diverted into a separate watercourse.

Site drainage does not flow to the Dinham Meadows SSSI to the west, nor does it discharge to Llanmelin Wood to the north. Surface runoff from the site flows south into the training base.

Monthly inspections of the settlement pond will ensure that it does not become overloaded with silt, resulting in the drainage backing up and the water flowing around the site uncontrolled. If significant silt build up is identified during the course of these inspections, the silt will be cleared and the silt fence replaced.

Manholes should be lifted regularly on interceptors and the interceptor inspected for silt ingress and build up. Interceptors will be emptied annually. Calendar alerts should be set to indicate dates on which this is to happen.

Highways are regularly swept to keep them free of site material. This further reduces the potential for silt to enter the drainage water.

Action Point – Daily inspection to be undertaken of drainage tank accepting runoff from skip sorting and storage areas. Inspection to be recorded. Once tank is ¾ full, tanker to be called to site to empty it.

11.2.2 Storage of hydrocarbons and chemicals on site:

Definitions:

Double skinned tank – twin walled tank where there is a small gap between the inner skin and the outer skin. All ancillary equipment i.e. inlet outlet pipes, sight glasses etc fall outside the second skin.
Secondary Bund – bunded area around an oil, fuel or chemical container which encompasses all of the ancillary equipment from the containers i.e. inlet/outlet pipes, sight glasses etc.
Integrally Bunded Tanks – These are purpose built storage units whereby the tank is situated within a liquid tight steel container. All gauges and ancillary equipment are also located within the container. The containers are lockable to prevent tampering.

Risks:

Leakage of fuels and oils from plant and machinery.
Leakage/spillage of fuels, oils and chemicals from containers.
Spillage of fuel during refuelling.
Runoff from excessive use of shuttering oil.
Hydrocarbons washed out from un-cured bituminous paints and sealants.

Pathway:

Hydrocarbons and chemicals entering existing site drainage.
Hydrocarbons and chemicals entering watercourses or groundwater.
Hydrocarbons and chemicals entering drainage from site offices, canteen, storage units.

Controls:

- All runoff from site will be discharged through attenuation ponds and bypass hydrocarbon separators. Separate systems are in place for the eastern and western sections of the site.
- Re-fuelling of plant and machinery shall not take place within 10m of a watercourse or 50m of a borehole. Fuelling is only to be carried out by appropriately trained personnel, issued with appropriate PPE.
- The re-fuelling of static and small items of plant shall be carried out by a suitably trained, designated person using fuel cans with spouts which can be inserted into re-fuelling apertures of the plant being re-fuelled. If such fuel cans are not available a funnel will be used.
- Bowsers used for the re-fuelling of plant shall be Integrally bunded and stored in a secure location overnight.
- All fuels, oils and chemicals to be stored in suitable containers within controlled secondary bunded enclosures such as concrete bunds or drip trays. These shall be positioned remote from surface water drainage.
- Suitable security shall be provided for fuel and chemical storage areas.
- The secondary containment system must provide storage for at least 110% of the tanks maximum capacity. If more than one container is stored, the system must be capable of

storing 110% of the biggest container's capacity or 25% of the capacity of all of the containers within the bund, whichever is the greater.

- Drip trays and bunds shall not be penetrated by any valve or pipe used for draining the bund.
- All tanks shall be labelled to show their contents, volume, refill procedure and spill response procedure.
- Plant and vehicles should be inspected for oil and fuel leaks prior to the start of each shift.
- All static plant should be placed within a drip tray which more than covers the footprint of the plant with a capacity of 25% of the fuel or oil capacity of the plant. Drip trays should be fitted with integral oil traps to allow them to drain or provision should be made for the removal of water during wet weather.
- All containers of hydrocarbons or chemicals used out on site should be placed in a drip tray as above.
- COSHH and Environmental Hazard data sheets shall be obtained for all chemicals bought to site and copies shall be kept at the same location as the chemicals are stored. Attention shall be paid to instruction for environmental conditions in which chemicals are to be stored i.e. temperature, humidity, expose to ultra violet light, etc.

11.3 Monitoring of Discharges of Site Surface Runoff:

Runoff from the facility will be discharged at two points, both into the dry watercourse running through the centre of the site. There are two discharge points, one for the eastern section of the site and another for the western section of the site. Please refer to the Drainage Plan in Appendix 2.

Key contaminants of concern during normal operating conditions will be suspended solids and hydrocarbons.

Visual inspections of site discharges will be undertaken during periods of rainfall. Observations will be made for suspended solid contamination and for hydrocarbon sheens on the surface of water.

Water samples will be taken monthly and will be sent to a UKAS accredited laboratory to be tested for the following parameters.

Proposed Surface Water Action Levels:

Pollutants	Units	EQS	UK DWS	Compliance Limit	Comments.
pH	pH	**6-9**	**6.5 – 10**	6-9	Based on EQS
Sulphate	mg/l	**400**		400	Based on EQS
Ammoniacal Nitrogen	mg/l	**0.2**	-	5.8	Based on max measured + 25%
Suspended Solids	mg/l	**25 Ψ**	-	60	**** Based on discharge to ground
Biochemical oxygen demand (BOD)	mg/l	**3-7.5**	-	5	Based on EQS
Arsenic (dissolved)	µg/l	**50**	**10**	50	Based on UK DWS
Cadmium (dissolved)	µg/l	**≤0.08***	**5**	5	Based on UK DWS
Copper (dissolved)	µg/l	**1***	**2000**	2000	Based on max measured + 25%

Pollutants	Units	EQS	UK DWS	Compliance Limit	Comments.
Chromium (dissolved)	µg/l	**4.7**	**50**	50	Based on EQS
Iron (dissolved)	µg/l	**1000**	**200**	1000	Based on max measured + 25%
Lead (dissolved)	µg/l	**7.2**	**25**	25	Based on EQS
Mercury (dissolved)	µg/l	**0.05**	**1**	1	Based on EQS
Nickel (dissolved)	µg/l	**20**	**20**	20	Based on EQS and DWS
TPH Total C6-C40 (w)	µg/l	**10**	**-**	50	Compared against upstream value.
Anthracene (w)	µg/l	**0.1**	**0.1**	0.1	Based on UK DWS and EQS
Benzo(a)anthracene (w)	µg/l	**-**	**-**		Compared against upstream value.
Benzo(a)pyrene (w)	µg/l	**0.05**	**0.01**	0.05	Based on EQS
Benzo(b)fluoranthene (w)**	µg/l	**0.03**	**-**	0.03	Based on EQS
Benzo(k)fluoranthene (w)**	µg/l	**0.03**	**-**	0.03	Based on EQS
Benzo(ghi)perylene (w)**	µg/l	**0.002**	**-**	0.002	Unless exceeded by upstream value.
Indeno(123-cd)pyrene (w)**	µg/l	**0.002**	**-**	0.002	Unless exceeded by upstream value.
Chrysene (w)	µg/l	**-**	**-**		Compared against upstream value.
Dibenzo(ah)anthracene (w)	µg/l	**-**	**-**		Compared against upstream value.
Fluoranthene (w)	µg/l	**0.1**	**-**	0.1	Based on EQS
Fluorene (w)	µg/l	**-**	**-**		Based on max measured (LOD)
Naphthalene (w)	µg/l	**2.4**	**-**	2.4	Based on EQS
Phenanthrene (w)	µg/l	**-**	**-**		Based on max measured (LOD)
Pyrene (w)	µg/l	**-**	**-**		Based on max measured (LOD)
Total PAH (based on total 4 PAHs**)	µg/l	**-**	**0.1**	0.1	Based on UK DWS

If the result of sampling reveals levels above these limit values, mitigation will be reviewed to identify defects or areas where improvements can be made. This investigation will also look at whether the recorded results are an anomaly. If this is the case, testing will be repeated. If limit values are exceeded, the NRW Permit Compliance Team will be contacted to inform them of the exceedance and measures being taken to rectify it.

Conditions outside normal operating parameters include fire, where water is used for fire suppression. For information on how this will be dealt with, refer to the Fire Prevention and Mitigation Plan.

11.4 Control of Emissions to Air:

11.4.1 Dust and Particulates:

Dust emitted from site can cause severe nuisance to surrounding residents, businesses and facilities. In its simplest form it can cause additional cleaning work and reduce resident's quality of life but in its most severe form it can have acute effects on people health especially those suffering with respiratory conditions such as asthma. Dust can also carry contaminants which has great impacts on health.

The nearest residential property is 850m from Unit 1009, which is a farm to the west. The nearest property to the south is 1000m away. None of the surrounding units are currently occupied and

most of the surrounding buildings are ammunition stores, which could not easily be adapted for other usage.

Dust can also have an impact on the ecology of the area blanketing vegetation preventing it from transpiring and reducing food sources for animals and invertebrates. This is sensitive due to the presence of the Dinham Meadows SSSI 70m to the east and 5om to the west. The site also backs onto Llan-melin Wood.

Risks:

- Dust emitted from material processing operations
- Dust emitted from vehicle movements
- Dust emitted from cutting operations
- Dust emitted from materials handling.

Controls:

Material Handling

- All material will be stored within manufacturer's containers, in a secure dry location.
- Tipping heights and rates will be minimised for materials which contain fine particles.
- In handling areas, bowsers, sprinklers, spay mist systems and screens, shall be used to prevent dust.

Vehicles & Plant Movement

- Haul routes will be maintained clear from site material and if required shall be dampened down in dry weather conditions, using water from grey sources where possible.
- All vehicles and plant on site shall be fully serviced and maintained, where possible vehicles used will comply with Euro IV and V standards.
- No vehicle on site shall be permitted that emits black smoke.
- No plant or machinery shall be left running when not in use.
- Site speed limits shall be enforced and speeds limits on haul roads reduced in dry weather to reduce dust generation,

Control of Site Operations

- Equipment likely to generate excessive quantities of dust shall be enclosed, shielded, fitted with dust suppression, extractors, filters and scrubbers.
- Drop heights shall be kept to a minimum during the movement of materials.
- Where appropriate spray mist systems, windbreaks, netting screens or semi-permeable fencing shall be used to reduce dust emissions.
- Where necessary, water sprays shall be employed to control dust generated during construction operations.
- If equipment which produces excessive dust does not have suppression equipment fitted, a water mist shall be used to damp down dust i.e. backpack sprayer or in extreme circumstances a jet wash.

11.5 Monitoring of Emissions to Air:

11.5.1 Dust and Particulates:

Visual monitoring for dust shall be undertaken daily during periods of dry weather.

A dust deposition gauge will be placed on Building 1 and will monitor dust for 1 week during May and 1 week during October. This will be analysed for AAC and EAC. A target has been set for dust emissions from the site to be maintained below 7% EAC/Day. Calendar reminders will be set to prompt monitoring.

If monitoring indicates an exceedance of 7% EAC Natural Resources will be informed as this is a breach of the Environmental Permit for the site. A Remedial Strategy will be developed to bring dust emissions into compliance and this will be implemented and submitted to NRW. Monitoring will then be repeated to demonstrate that the Remedial Strategy has been effective.

11.5.2 Smoke:

Burning on site is prohibited unless under consent of the Natural Resources Wales and the local Authority Environmental Health Department.

11.6 Waste Reduction and Management:

For all waste issues connected with the project please refer to the 'Site Waste Management Plan'.

11.7 Nuisance:

11.7.1 Noise and Vibration:

The estate is not very busy due to the restricted access of the area. There are several small business operating in the area and a residential property 850m to the west. There is, therefore, little potential for noise and vibration to cause a nuisance.

Noise and vibration can disturb wildlife but animals tend to become habituated to background noise.

Risks:

- Disturbance to wildlife within areas surrounding the site.
- Disturbance to visitors, of the hill fort or Llanmelin Woodland.

Noise Controls:

1 (a) All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order to ensure effective noise reduction;

(b) All compressors shall be 'sound reduced' models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use, all ancillary pneumatic percussion tools shall be fitted with mufflers or silencers of the type recommended by the manufacturer and shall be maintained in good and efficient working order to ensure effective noise reduction;

(c) Machines in intermittent use shall be shut down in the intervening periods between work or throttled down to a minimum. Ensure equipment is turned off when not in use;

(d) All audible warning systems and alarms shall be designed, where reasonably practicable, to minimise noise. Non-audible warning systems shall be utilised in preference;

(e) Plant known to exhibit acoustic directivity, i.e. emit noise strongly in one direction, shall be oriented so that the noise is directed away from noise sensitive receptors;

(f) Where possible carry out loading and unloading during working hours and away from noise sensitive areas.

2 The normal working hours within the Site shall be Monday to Friday between 07:00 and 19:00 hours and Saturday between 07:00 and 13:00, with no working on Sundays and public holidays.

3 The noise levels (see Note (i) below) scheduled below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working.

Vibration

In the event that vibration levels are perceived to be causing damage to properties, Crownhill Services are required to evaluate possible damage in accordance with:

BS 7385: Part 1 and Part 2 and

BS 5228: Part 4: 1992

Control of Vibration at Source

General

Vibration can be more difficult to control than noise, and there are few generalisations that can be made about its control. It should be borne in mind that vibration may cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement.

Substitution

Where reasonably practicable, plant and/or methods of work causing significant levels of vibration should be replaced by other less intrusive plant and/or methods of working.

Vibration Isolation of Plant at Source

Vibration from stationary plant (eg generators, pumps, compressors) may, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment should be relocated or isolated using resilient mountings.

Controlling the Spread of Noise

Methods of Control

If noisy processes can be avoided, then the amount of noise reaching the neighbourhood should be limited. Alternative ways of doing this are either to increase the distance between the noise source and the listener or to introduce noise reduction screens.

Distance

Increasing the distance is often the most effective method of controlling noise. This may not be possible when work takes place on a restricted site or fixed structures, eg railway tracks.

Stationary plant such as compressors and generators can be located away from the work area so as to avoid being close to any noise-sensitive area.

Controlling the Spread of Vibration

Where reasonably practicable, vibrating equipment should be located as far from sensitive premises as possible, and if on a structure, not on one which is continuous with that of the sensitive premises. In some instances it may be possible to reduce transmitted vibration by cutting a structure to separate site work from sensitive premises. It is important to take account of safety and structural issues before carrying out any work of this nature.

11.7.2 Dust:

A requirement for dust suppression will be assessed. If required, dust suppression will be implemented during periods of dry weather. Jet washers and mobile bowsers will be used for this. A water source will be established within the site compound.

11.7.3 Mud on Roads:

All tipping of material occurs within the covered areas. These areas have solid concrete floors, which helps to keep all delivery vehicles free of mud. The tipping area within each shed is swept as required to prevent the vehicles accruing mud which may spread to the access roads.

Machinery utilised for managing site material such as excavators and dumpers are not permitted to use the access roads to the site unless absolutely necessary. In the event of these vehicles using the access roads, the surfaces are inspected to assess any mud deposited on the road.

Access roads are swept as required to remove any mud present.

If site material is noted on highways around the site, a road brush will be bought to site to remove it.

11.7.4 Lighting:

Site lighting will be minimised and will be set up to ensure it does not shine onto surrounding areas of wildlife habitat.

11.7.5 Complaints

Complaints are received either into the main switchboard or via the MOD Gatehouse. We have no formal procedure for dealing with complaints, but complaints are taken seriously with actions taken as soon as possible.

11.8 Ecological Constraints and Mitigation

There is historical data of the presence of Great Crested Newts (GCNs) in the vicinity of the site. Recent surveys commissioned by the Ministry of Defence suggests that there is no GCN presence near the site.

Please refer to the Great Crested Newt Mitigation Plan in Appendix 3 for information.

12. Emergency Preparedness and Response:

12.1 Emergency Contacts:

Managing Director: Simon Stone - 07880 722 436

Natural Resources Wales: 03000 653 000

Emergency Services: 999 (Request service required)

12.2 Definitions:

Environmental emergencies can be broken down into two categories, Environmental Incidents and Environmental Issues.

12.2.1 Environmental Incident:

An inappropriately controlled emission to land, sea, air or water (e.g. spillage, fumes, dust, vibration, noise, disposal) that has potential to cause environmental harm if not controlled properly.
A substantiated complaint from a third party affected by the project.
An event causing major quantifiable environmental harm.
A breach of a consent licence that may lead to statutory intervention.
A breach of Environmental Legislation.
Issue of a statutory enforcement notice, Local Authority, Natural Resources Wales (Works Notice)
An environmental emergency (i.e. an event on site that is not under control and requires assistance from external bodies to minimise potential harm to the environment)

Examples:

Spillage of fuels, oils and chemicals on land and into water.
Silt contaminated runoff entering watercourses, drainage and other sensitive environments.
Discharge of concrete or grout into surface/ground water or other sensitive receptor.
Unauthorised burning of material on site.
Unreasonable noise at sensitive receptor.
Breach of local authority consents for noise, vibration or dust.
Incidents involving Natural Resources Wales action or intervention. (e.g. sampling)
Nuisance from dust blowing off site

12.2.2 Environmental Issue:

An unforeseen occurrence which will impact on the works.
An environmental incident caused by a third party not connected with the scheme but which impinges on the scheme.
An environmental incident beyond the control of the contractor.

Examples:

The discovery of contaminated material, where no contamination indicators were found in the SI or historical site documents.
Discovery of protected species where there were no indicators.
Flooding from events outside the 1 in 100 year probability.

12.2.3 Responsibilities

In all cases responsibility for immediate action lies with the person discovering the incident. They should take whatever actions they can, to immediately stop the source and contain the pollution.

In all cases the incident shall be immediately reported to the manager. The Incident Controller shall coordinate resources to put the containment and mitigation plan in place.

CrownHill will assist in post incident training, incident reporting/monitoring and documentation for the EMS.

12.2.4 Specific Pollution Incidents.

Fuel or Oil entering a watercourse or drainage:

The response will depend on the amount of hydrocarbon spilt and the flow of the river. As a general rule the following steps should be taken.

- Stop release of fuel by removing the source or by using plastic sheeting and bunding.
- Deploy an oil absorbent boom across the watercourse to contain the spill.
- Place oil absorbent mats on the water surface to absorb the oil. N.B. once used these are to be stored and disposed of as special waste. Impermeable gloves and boots and disposable overalls are to be worn.
- The above items can be found in the oil spill kit, these are located with foremen, environmental coordinator, store man and in the environmental emergency area in main stores.
- Contaminated water can also be pumped from the watercourse into a sealed container for disposal by a registered waste handler.
- Natural Resources Wales to be contacted (0800 807060)

Fuel or Oil spillage on land:

- Stop release of fuel by removing the source or by using plastic sheeting and bunding.
- Excavate oil contaminated soil and place in an oil tight container. This must be disposed of by a specialist waste handler as special waste.
- If spillage is onto a hard surface, all drains and gullies must be sealed immediately. Absorbent materials such as sand, sawdust, straw or oil absorbent granules/mats are to be placed over the contaminated area to soak up the spill. These should then be removed and stored and disposed of as special waste. Impermeable gloves and boots and disposable overalls are to be worn.
- The above items can be found in the oil spill kit, these are located with foremen, environmental coordinator, store man and in the environmental emergency area in main stores.
- National Resources Wales to be contacted (0800 807060)

Spillage of chemicals:

- Where possible remove source of pollution.
- Obtain as much information on the chemical spilt as possible to evaluate the potential harm it could cause to staff and the environment.
- If it can be ascertained that there is no significant health and safety risk the chemicals should be dealt with as oil, above.

- If a potential health and safety risk is identified the area should be evacuated and the emergency services contacted.

12.2.5 Environmental Response Equipment

Spill kits are available in the site office and the workshop.

12.2.6 Incident Reporting

All personnel on site have a duty to report any situation, occurrence or activity which poses a risk to the environment. Reporting shall be broken down into three categories: Hazard, Near Miss and Incident.

All occurrences shall be reported to the Section Foreman or Site Agent immediately.

Incidents must be reported immediately to the Incident Controller who will be responsible for assessing the incident and reporting it to the responsible agencies (EA, CADW, CCW, ENV Health, etc)

The following details should be recorded by the Incident Controller:

- Time, date and location of the incident
- The root causes of the incident
- Actions taken to remedy the incident
- Personnel involved
- Third parties and statutory bodies involved
- Procedures put in place to ensure there is no re-occurrence.

13. Training:

All staff working at the site shall be trained to a level to ensure that they are more than capable of carrying out their duties with minimal environmental impact.

Personnel will be given detailed training on the waste streams and materials which the site is permitted to receive and how to recognise them. This training will include the segregation of waste streams, materials which have to be quarantined and actions required to safely store these materials. New personnel will be closely supervised, with regular checks made that they have the required level of knowledge to undertake their duties without impact to the environment.

Personnel will be trained in actions to be taken in the event of an Environmental Incident.

Personnel will be trained in the contents of this plan, the Fire Prevention Plan, the Great Crested Newt Mitigation Plan and the Odour Management Plan.

14. Documentation, Reporting and Data Gathering:

14.1 Documentation:

14.1.1 Waste:

All materials received to site must be accompanied by a Waste Transfer Note and Duty of Care information from the waste producer. For the skip hire this is a signed declaration that the skip / bin does not contain any materials which the site is not permitted to accept. This will form part of the Terms and Conditions of the hire agreement, along with a clause that if skips contain materials which the site is not permitted to receive, skips will be rejected and returned to the client and a hire rate will be charged until, there materials have been removed the Crownhill are able to uplift the skip.

If the skip has been tipped, and materials are found for which the site is not permitted, the cost of the disposal of these materials will be included within the hire.

All skip materials leaving site must be accompanied by a Waste Transfer Note, which will accurately describe the waste and contain details of the volume of waste being disposed of and the receiving facility.

All topsoil / aggregates leaving site must have relevant test information to confirm that it has been turned into a product, in line with the Factory Quality Control Plan. Suitable geotechnical testing - BS 3882:2015 – Specification for Topsoil or gradings in line with Series 600 of the Specification for Highways Works - Earthworks.

Please also refer to the Site Waste Management Plan in Appendix 1 for information on waste management documentation.

14.1.2 Control of substances Hazardous to Health (COSHH):

COSHH data sheets will be required for all materials and substances bought onto site and for any man made materials or substances encountered on site. COSHH data sheets shall be filed alphabetically and stored in the Site Agents Office.

14.2 Environmental Site Inspections:

Environmental site inspections shall be carried out weekly by the Managing Director. These will involve a site walk through, with observations being made and corrective actions assigned. The findings of site inspections shall be recorded and shall be communicated to the site team during construction meetings and actions shall be assigned to close out the corrective actions. Progress against these actions shall be reported at the next construction meeting and closeout of site inspections shall be carried out through the QA document control process.

Appendix 1: Site Waste Management Plan

This document covers:

- Waste management licence and exemption requirements
- Procedures for the segregation and storage of waste on site
- Waste avoidance and reduction
- Disposal of waste to Registered Carriers
- Premise notification for the production of hazardous waste (oil filters, waste oil, etc from vehicle and plant servicing and produced during the operation of the site)
- Waste documentation required
- Auditing and monitoring of final waste disposal arrangements
- Arrangements for the storage and disposal of hazardous waste.

1. Waste Definitions:

Waste is defined under Article 1a of the European Waste Framework Directive as

"Any substance or object…. which the holder discards or intends or is required to discard".

Wastes can be broadly classified into:

- Controlled wastes, and
- Non-controlled wastes.

1.1 Controlled Waste:

Controlled waste is defined as any waste subject to the provisions of the Control of Pollution Act 1989 (COPA, as amended) and the Environmental Protection Act (EPA). Controlled wastes are: commercial and industrial waste (including construction and demolition waste); household waste. Agricultural and mining waste are not controlled waste. All controlled wastes are listed in the List of Wastes (formerly, European Waste Catalogue 2002 (LOW)) and are assigned a unique six digit reference number. This number must be used when describing the waste during the completion of waste transfer notes (see below)

Non-controlled Waste – anything which is not controlled waste i.e. certain wastes from agriculture, mines, quarries and sewage treatment works.

Controlled waste can be further divided into:

- Hazardous
- Hazardous Inert
- Non Hazardous

Construction and demolition wastes are classified as Controlled Waste unless they have hazardous properties i.e. contain substances which are hazardous to health or the environment (see Hazardous Waste below) such as, asbestos, oil, heavy metals, toxic substance, etc. As controlled waste they are regulated by legislation. The principal piece of waste legislation is the 'Waste Management Regulations'

1.2 Hazardous Waste:

This section deals with the correct storage and disposal of Hazardous Waste produced at the site during the operation of the site. The site does not accept hazardous waste.

The 'co-disposal' of Hazardous Waste and Non-Hazardous Wastes in landfill is illegal. If Hazardous Waste is to be disposed of to landfill, that landfill must be authorised to accept it. Some landfill sites which are classed as non-hazardous may be able to accept certain stable non-reactive Hazardous Wastes.

Article 1(4) of the Hazardous Waste Directive (HWD, Council Directive 91/689/EC) defines Hazardous Waste as wastes featuring on a list drawn up by the European Commission, because they possess one or more of the hazardous properties set out in the HWD. There are 14 hazardous properties set out in Annex III of the HWD and each is given a Hazard Reference H1 to H14. Information on the assessment of Wastes can be found in the Natural Resources Wales publication WM3.

H1	'Explosive' – substances or preparations which may explode under the effects of flame or which are more sensitive to shocks or friction than dinitrobenzene.
H2	'Oxidising' – substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.
H3A	'Highly Flammable' - Liquid substances having a flashpoint of below 21°C, or - Substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or - Solid substances and preparations which may readily catch fire after brief contact with a source of ignition, or - Gaseous substances and preparations which are flammable in air at normal pressure, or - Substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.
H3B	'Flammable' – liquid substances and preparations having a flashpoint equal or greater then 21°C and less than or equal to 55°C.
H4	'Irritant' – non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with skin or mucous membrane, can cause inflammation.
H5	'Harmful' – substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.
H6	'Toxic' – substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.
H7	'Carcinogenic' – substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.
H8	'Corrosive' – substances and preparations which may destroy living tissue on contact.
H9	'Infectious' – substances containing viable micro-organisms or their toxins which are known or believed to cause disease in man or other living organism.

H10	'Toxic to Reproduction' – substances or preparations which, if they are inhaled or ingested or if they penetrate the skin, may produce and increase in the incidence of non-hertibale adverse effects in the progeny and/or of male or female reproductive functions or capacity.
H11	'Mutagenic' - substances or preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.
H12	Substances and preparations which release toxic or very toxic gases in contact with water, air or an acid.
H13	Substances and preparations capable by means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.
H14	'Ecotoxic' – substances or preparations which present immediate or delayed risks for one or more sectors of the environment.

The first stage in ascertaining whether a waste is a Hazardous Waste is to determine whether it is a Directive Waste or a Controlled Waste. If it is neither of these it cannot be classified as a Hazardous Waste. A directive waste is a waste as defined in Article 1(a) of Council Directive 75/442/EEC and a controlled waste is defined in Section 75(4) of the Environmental Protection Act. These are both relatively complex pieces of legislation but with some exceptions they describe controlled or directive wastes as those specified in the European Waste Catalogue and hence given a unique six figure reference.

The LOW then outlines a procedure for classifying hazardous wastes. Certain wastes are designated as being Absolute Entries and LOW and others are categorised as being Mirror Entries. An absolute entry is one which is deemed hazardous regardless of its composition i.e. it does not matter what percentage of the waste is composed of hazardous properties. If a waste is deemed an absolute entry no further assessment is required. Potential Absolute Wastes used in the construction industry are:

- 08 01 21 – waste paint or varnish remover.
- 16 01 07 – oil filters
- 17 03 03 – coal tar or tarred products.

Absolute entries are highlighted in red in the LOW and are marked with an 'A' in the consolidated version. There are however a number of absolute entries which have corresponding non-hazardous entries, which should be used when the absolute entry is not appropriate.

Mirror entries are wastes which have potential to be hazardous or non-hazardous depending on their composition and the concentration of 'dangerous substances'. The majority of hazardous mirror entries are easily identified because they make a general reference to 'dangerous substances' and include the phrase 'containing dangerous substances'. To ascertain whether a mirror entry is hazardous, an assessment has to be carried out of the waste. This will involve assessing the substances within the waste, which can often be done from manufacturers data sheets but if no data sheets are available 'waste acceptance criteria tests' (WAC) will need to be performed by a laboratory. The exact nature of these tests will depend on the likely composition and nature of the waste (providing there is sufficient knowledge regarding the likely composition of the waste, there is no point testing for substances which know will not be present). A laboratory or consultant could offer advice on this. Information on waste composition can also

be found in the Approved Supply List which gives hazard information for many common chemicals.

Hazardous mirror entries are highlighted in blue in LOW or marked with an 'M' in the consolidated version.

Hazardous Wastes likely to be encountered are:

- Aerosols – paints, cleaners, oils, etc
- Grease Cartridges – Grease inserts from grease guns used for lubricating machines.
- Wastes Oils and Oily Materials – oil from machines, oily rags and gloves, oil filters, etc
- Surplus Paints, Thinners and Sealants and their Containers.
- Batteries – all types of batteries are now covered under the EU Batteries Directive but to all intents and purpose should be treated as Hazardous.
- Fluorescent Lighting Tubes – These should be kept intact as they contain hazardous gasses and metals, including mercury.

These wastes must be segregated from the general waste stream and must be assessed for their acceptance to landfill.

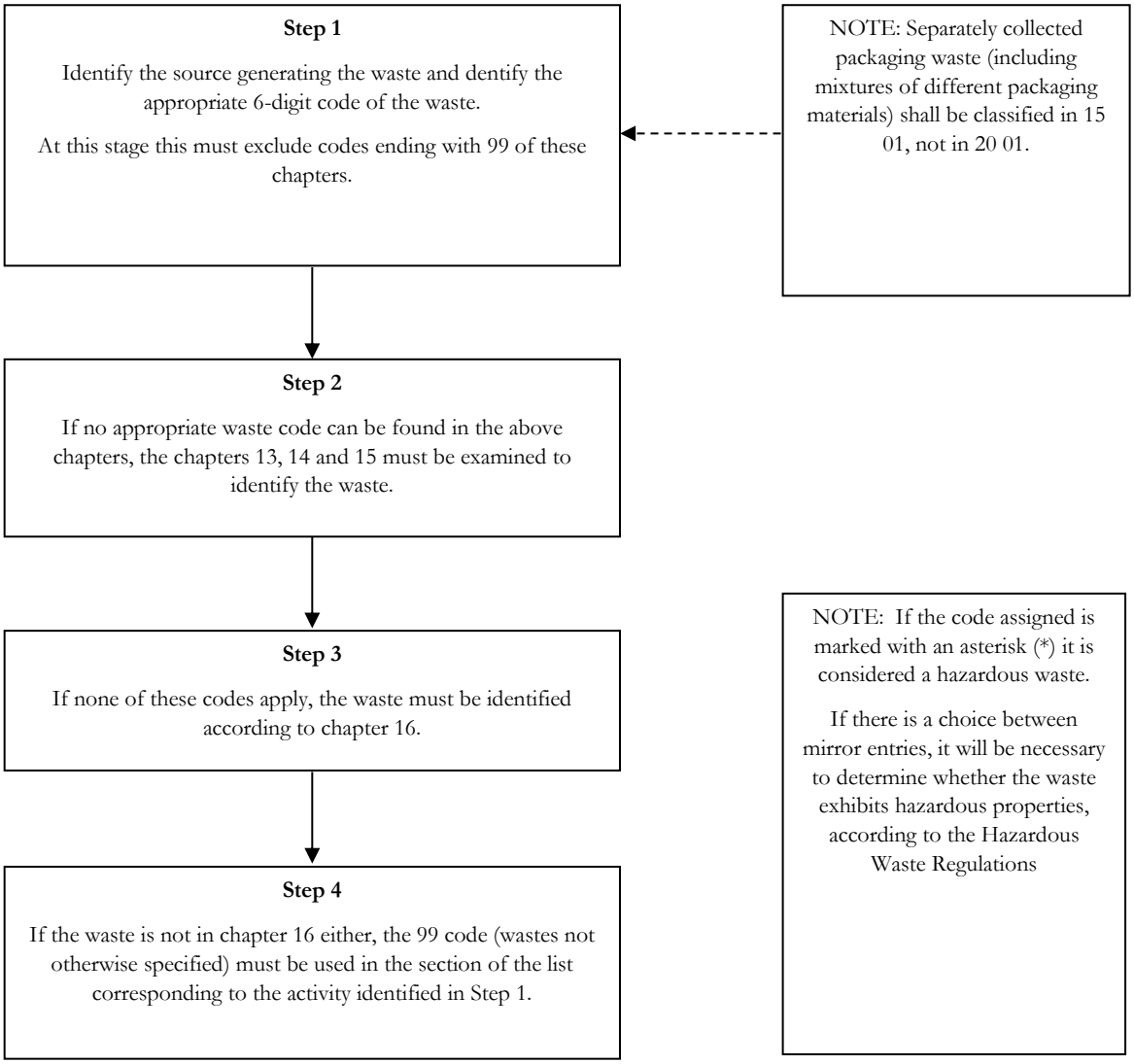
1.3 Hazardous Waste Premises Notification:

If it is likely that more than 500kg of hazardous waste will be produced per year you must register as a hazardous waste producer. This can be done via the Natural Resources Wales web site for a fee of £18:00 per annum. This must be done for each facility or site from which hazardous waste is to be collected.

Site / Facility	SIC Code	Hazardous Waste Producers Registrations No	Start Date
Unit 1009, Caerwent Army Training Estate, Caldicot. NP26 5XL	45.21	Not currently required as we do not believe the site will produce more than 500kg of Hazardous Waste per year. This situation will be continuously reviewed.	

1.4 Obtaining the List of Waste (formerly European Waste Catalogue) number for a waste:

For this procedure, a copy of the LOW will be required**:**



Environmental Permitting (EP), Formerly Waste Management Licensing (Wml):

Sites where waste is processed, treated or disposed of, need to hold a valid Environmental Permit issued by Natural Resources Wales. As part of our Duty of Care for the wastes we produce we must ensure that the site to which the waste is being taken is licensed to accept that waste. Certain waste management activities are designated as being exempt from Waste Management Licensing and can operate under a Waste Exemption. Waste Exemptions are issued under the following categories:

- Use
- Treatment
- Disposal
- Storage

1.6 Duty of Care:

Duty of care is a legal obligation under Section 34 of the Environmental Protection Act 1990. Detailed requirements for waste transfer notes are set out in the Environmental Protection (Duty of Care) Regulations 1991.

Under the duty of care, a waste producer has a duty to ensure that any waste they produce

Waste is stored, transported and disposed of in line with all current legislation. The duty of care extends until the waste has reached its final disposal point and the producer is responsible for the waste until this time.

Under the Duty of Care for wastes it is vital that you are aware of where your waste is going and that the required paperwork is in place. The following procedure should be followed for all wastes:

1) Ensure you have a copy of the Waste Carriers License for any companies which will be carrying waste from the works. Licenses can be checked on the NRW / EA Public Registers.
2) Ensure that a Waste Transfer Note has been produced for the waste. This will need to contain the following information:
   - The name and location of the producer (you)
   - The name and location of Waste Handler i.e. the facility at which it is to be processed, re-used or disposed.
   - The name of the carrier and the registration of the vehicle
   - The date the waste was given to the Waste Carrier and date it was delivered to the Waste Handler and signatures from authorised individuals at each location.
   - A description of the waste and the container in which it is held. This description should be as detailed as possible and must include the six digit European Waste Catalogue number
3) A copy of the Waste Management License, Environmental Permit or Waste Exemption for the premises to which the waste is being taken.
4) Discretely follow one of the Waste Carriers vehicles to these premises to ensure that the waste is being taken to where they say it is. Remember the waste is still your responsibility until its final disposal.
5) Inspect the Waste Management Companies facilities to ensure you are satisfied with the way in which your waste is being treated or disposed of.
6) Copies of Waste Transfer Notes must be retained for a period of two years.

1.7 Filling in the Paperwork:

When waste is transferred from one person to another, the person accepting the waste must have a description of that waste in order for them to be able to correctly transport, store and dispose of the waste. This is achieved through the use of a Waste Transfer Note which contains details on the waste producer, the waste acceptor and the nature of the waste via a physical description and a six digit waste code which is taken from the European Waste Catalogue. Waste transfer notes must be retained by the waste consigner.

1.8 Identification of Specific Waste Streams:

The key waste streams produced by the company are wood and general construction waste i.e. worn out or damaged PPE, empty paint and sealant containers, wood treated with preservatives, geotextile offcuts, etc. The fate of these and other potential wastes needs to be considered to ensure that they are disposed of within the duty of care for the waste and also in the most sustainable manner. Use the table below to detail all of the wastes associated with the company and record strategies for their re-use, recycling or disposal. Consideration should also be given to the storage of the wastes prior to recovery or disposal. The priority for the disposal of wastes should be considered in this order:

- Re-use
- Recovery
- Recycle
- Disposal

Waste	Waste Designation	Recovery/Disposal Route
Waste Wood	Controlled	Placed into the wood recycling system.
Mixed Waste: General mixed waste.	Controlled	Placed into skip waste recovery process.
Waste oils, from contamination of oils stored on site and residues caught in drip trays.	Hazardous	All waste oils are removed from site by our service agents and disposed of through a licensed waste management company.
Waste plastic, aluminium, glass beverage containers from the office and yard.	Controlled	Office – Plastics, glass and cardboard is recycled through a recycling bin in the office canteen. This is recycled by our landlord. Yard - These are collected in recycling bins, and then collected by the Local Authority as part of their black box scheme.
Waste office paper and newspapers	Controlled	This shall be collected in the recycling bin in the office and then emptied into the recycling bin in reception.
Canteen and food waste.	Controlled	Office – Food waste is disposed of into the bin in the kitchen. Yard – Operatives take all food waste home with them.
Dry Cell Batteries	Hazardous	Placed into the battery recycling box in the office.
Electrical and Electronic Equipment - WEEE	Controlled/Hazardous	If electrical or electronic items which are no longer required were purchased after 13th August 2005 and are being exchanged for equivalent equipment the distributor must accept the equipment back and arrange for its disposal. If this is not the case WEEE must be disposed of via an Approved Authorised Treatment Facility (AATF). WEEE must also be stored separately from other waste streams. Some WEEE will be classed as Hazardous Waste and must be disposed of as such (computer screens, TV's, etc)

1.9 Waste Handling and Storage:

This section sets out the requirements for waste storage within the offices and stores. Waste produced on site will be either returned to the yard for re-use, recycling or disposal or will be disposed of in line with our clients EMS / Site Waste Management Plan under their Duty of Care.

Waste Materials (Feed Stock) – Waste materials to be processed are predominantly stored in the covered areas of the site, in stockpiles not exceeding 3m in height. The first level of materials classification is undertaken at the site of origin. The site of origin is visited to allow the materials to be assessed. Suppliers are required to provide reasonable evidence that there is no suspicion of contamination. Materials are further classified on arrival at site (see below) and are segregated into the relevant stockpile to aid blending.

Suppliers are required to demonstrate that materials are from an un-contaminated source through a desk study of the site identifying potential polluting activities. If contamination is suspected geochemical testing is required to demonstrate that the proposed materials are inert and free from contamination. We are extremely careful as to the source of our feed materials due to the risks and costs associated with the disposal of contaminated soils. All loads are inspected on arrival on site for evidence of contamination i.e. discolouration, odours, sheens on water within the soil, soapiness in texture, foreign objects such as containers or asbestos shards. If any of these factors are detected the load is rejected.

General Controlled Wastes – these will be everything which is not hazardous waste which cannot be reused, recovered or recycled. General controlled wastes will usually be stored in the container in which they are to be removed from site and this container should be sighted as close to the point of production for the waste as possible. Issues to be considered with regard to the sighting of controlled waste containers are:

- Containment – the waste within the container should not be allowed to pollute the surrounding environment. This could include contaminated runoff from containers, dust blown from containers containing dusty wastes, odours from odours wastes.
- Security – wastes should be stored so that they cannot be tampered with. This could include being set alight, being removed from their container and subsequently causing pollution, being available to vermin and thus presenting health issues.
- Ease of access – Waste containers should be easily accessed so that waste can be placed into them using whatever means required. This will prevent wastes being spilt around the container and causing contamination.
- Sufficient space – enough room should be allocated to allow for the correct number of containers to be stored to allow the necessary level of segregation of wastes.

Hazardous Wastes - by their nature these wastes are hazardous and so it is imperative that they are contained in a manner where they cannot cause 'harm'. Hazardous wastes should be stored in sealed containers which in turn are stored in a secure controlled location. Sealed containers can range from specialised skips to 205 litre barrels with sealable lids. Secure contained location could be a bunded area within a plant yard or a container from which liquids cannot escape. If bunded areas exposed to the elements can be covered this will prevent the unnecessary removal of contaminated rain water.

1.10 Waste Storage Locations:

Waste Stream:	Storage Location:
Wood	In the wood stockpile which the site compound.
Cardboard	In cardboard bin in yard.
General Mixed Waste	Placed into skip bay to be sorted and included within outgoing waste streams.
Beverage containers	In bins in canteens
Printer cartridges	In bin in reception
Paper	In recycled paper bins in offices and printing areas.
Batteries	In bin in reception.

2. Inspection, Auditing and Evaluation of Waste Management:

2.1 Waste inspections:

The Waste Champion shall be responsible for ensuring that waste is being disposed of in the most sustainable manner and stored and disposed of within the duty of care for that waste stream. They should therefore ensure that waste storage and disposal facilities are inspected regularly. Inspections should include the following points:

- Are materials which could be re-used being included in the waste stream?
- Are materials which could be recycled being included within the waste stream for disposal?
- Are wastes being stored in correct containers within the duty of care for that waste?
- Are containers in sound condition and secure?
- Are wastes being collected by reputable waste management companies/recyclers? Have you obtained copies of their waste carriers/management licenses or waste exemption registrations?
- The volumes of materials leaving sites as waste (broken down into waste types)
- The volumes of recyclable materials leaving site (broken down into material types)
- The volumes of materials diverted from the waste stream.
- Inspections shall be carried out of waste disposal facilities, to ensure waste is being correctly stored and disposed of. Findings shall be recorded on Audit Record Reports and shall be retained on site as part of the Duty of Care.

Inspections should be carried out at a frequency to ensure that measures put in place are effective.

2.2 Waste Audits:

Waste audits shall be carried out to the following schedule and will consider the following:

Audit	Frequency
Use the NRW / EA Public Registers to check that waste carriers have Carriers Licenses, waste handlers have Environmental Permits, Waste Management Licenses or Waste Exemptions.	As part of the procurement process as waste contractors are procured.
Inspections of skips and waste containers to confirm they contain the correct waste stream i.e. wood waste in wood waste skip. Ensure they have not been overfilled.	Daily
Inspections of recycling facilities to ensure they contain the correct recycling stream and that the recycling stream has not been contaminated.	Weekly
Audit of Waste Transfer notes and monthly returns. This should include controlled waste transfer notes, hazardous waste transfer notes and monthly returns.	Monthly

2.3 Waste Training and Competency

Staff shall be provided with adequate training to be able to:

- Identify waste types and be aware of the potential re-use/disposal route. Being able to classify wastes and ensure they are placed into the correct waste stream for onward recovery / disposal. For the majority of staff on site this will take the form of being able to accurately designate materials and wastes and the optimal recovery/disposal route.
- Personnel will be given specific training on identifying waste types, segregating waste types, storage and disposal of wastes in line with best practice. This should include information on correctly describing and consigning wastes and the necessary Quality Control to ensure compliance with regulatory obligations.

3. Frequently Asked Questions Regarding Waste:

Q: If I have a container which contained a substance which is hazardous e.g. paint, sealant, thinners. Is the container a Hazardous Waste?

A: Whether or not an item is Hazardous Waste is based on two criteria:

- Does the item contain a substance which has Hazardous properties.
- Does the item contain a sufficient quantity of that substance to be classed as hazardous?
- Determining this is complex and reference should be made to section 6.2 above.

Q: Should I segregate my waste on site or place it all into one container and then let the waste management company sort it at their Materials Recovery Facility?

A: These two options are known as source segregation and post sorting. On site separation is preferable as this reduces contamination to the wastes, i.e. if cardboard is mixes with general waste it can become contaminated (dirty, wet, etc) and can then not be recycled efficiently. The ability to segregate waste at source will be dependent on the nature of the project i.e. linear scheme with several small waste collection and storage areas or a small site with a single large waste collection and storage area. On some linear sites it may be possible to return most of the waste to the site compound where it could be segregated and then collect the remainder at other locations such as structures where it would need to be post sorted. Often it is possible to collect certain predominate waste streams which are produced in a certain area and then place all of the remaining waste streams into one container to be post sorted. Depends on the amount of room available at the site and the layout facilities the waste management company is able to offer. Many claim that they will

Q: What information does a **Waste Transfer Note** need to contain?

A: Controlled Waste Transfer Notes need to contain the following information:

- A Waste Transfer reference number so that the consignment can be tracked and can be identified on a monthly return.
- A description of the waste – this should include the six digit European Waste Catalogue / List of Wastes Number, a physical description of the waste and the type of container in which the waste is stored.
- The quantity of the waste. This can be in m3 or tonnes, but if given in m3 an estimate of the weight of the waste must be given.
- The date the waste was collected.
- Details on the current holder of the waste including – name, address, status i.e. Waste Producer, Waste Importer and the signature of their representative.
- Details of the person collecting the waste including – name address and status i.e. transportation company or waste disposer. It should ideally also contain their Waste Carriers License number.
- Details of the place of transfer of the waste including – the name and address of the waste management company, a description of the facility and the signature of the person receiving the waste.
- The date the waste was received by the waste management facility.

Q: What is **WEEE** and what do I need to do with it?

A: WEEE is Waste Electrical and Electronic Equipment i.e. anything with a plug or which requires batteries to work. The disposal of this equipment is covered under the WEEE Regulations. These state:

You can return WEEE free of charge to the manufacturer under the following conditions (note this is the manufacturer and not the supplier or retailer):

- It was purchased new after the 13th August 2005

- If you are replacing WEEE produced before the 13th August 2005 with equivalent EEE, you can return the WEEE free of charge to the manufacturer of the new equipment.
- If you rent or lease EEE you can also return WEEE free of charge to your equipment supplier.

In reality, most EEE suppliers will not directly accept WEEE but will deal with it through a 'take back system' operated by a compliance scheme. If you contact the supplier they will give you details of their compliance scheme and they will arrange disposal. To be able to do this you will need the **Producer Registration Number** which was supplied with the product, this allows you to identify the producer of the equipment. The retailer or supplier of the EEE may be able to arrange disposal directly but they are under no obligation to do this free or charge. To determine if the WEEE was produced after the 13th August 2005 look for the sticker with the **crossed out wheelie bin symbol.** Lists of approved WEEE producers, compliance schemes, recyclers and exporters can be found at http://www.environment-agency.gov.uk/business/topics/waste/32086.aspx

Q: Do I need to register my site as a Hazardous Waste Producer?

A: If you believe that your site will produce more than 500kg of hazardous waste in a year, you need to register it as a Hazardous Waste Producer. For a description of what constitutes a hazardous waste please refer to question above. If you are unsure but think that it is likely that you will produce close to or more than 500kg of hazardous waste per annum then it is prudent to register with the EA. This can be done via their website at www.environment-agency.gov.uk/business/topics/waste/32198.aspx at a cost of £18.00.

Q: HOW DO I DISPOSE OF / RECYCLE BATTERIES?

A: Under the Waste Batteries and Accumulators Regulations 2009 all 'Industrial' batteries and accumulators are banned from disposal in landfill. Industrial batteries include any batteries which are used in industrial equipment. These must be stored in a container which will not allow leakage of any substances from the batteries and is clearly labelled with the contents. Batteries can only be disposed of by a waste management company which has a license to accept that waste.

Appendix 2 – Site Drainage Plan

Appendix 3 – Great Crested Newt Mitigation Plan