Contractor

FCBC
Queensferry Crossing

DRAGADOS | AMERICAN BRIDGE INTERNATIONAL
HOCHTIEF | MORRISON CONSTRUCTION

Project

FORTH REPLACEMENT CROSSING

Document title

WASTE MANAGEMENT PLAN

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06	25/01/16	Minor changes in section 1.1.2, table A1 and 2	MRN	SWR	CGR
05	14/10/14	Additional information added for the disposal of asbestos.	SSN	LSN	LSN
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03	30/10/13	Response to EDT comments (Compliance Report Ref – FRC-PC-EMP-CRN01724) and some restructuring of the plan	ESE	NAM	NAM
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C O N T E N T S

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1 INTRODUCTION

1.1.1 This Waste Management Plan (WMP) is an important tool to allow Forth Crossing Bridge Constructors (FCBC) to improve environmental performance, meet regulatory commitments and reduce waste disposal costs. The aim of this WMP is to determine the waste types and amounts to be produced during design and construction and to identify appropriate waste management controls.

1.1.2 FCBC are aiming towards sending zero waste to landfill. As part of this objective there is a target to divert 92% of waste from landfill during 2016 and until completion of the construction period in 2017. In 2015, FCBC diverted 92.01% of waste from landfill.

1.1.3 FCBC have signed up to Zero Waste Scotland's 'Halving Waste to Landfill' commitment.

1.1.4 FCBC have adopted an integrated approach to waste management and minimisation by implementing the "waste hierarchy", as shown in Figure 1.

1.1.5 This management plan explains the definition of a waste material, details the permits and licences which FCBC holds, describes FCBC's procedures for reducing, re-using and recycling waste during design, procurement and on-site, and explains the monitoring strategy.

1.2 What is waste?

1.2.1 Waste is defined as any substance or object which the holder discards, intends to discard or is required to discard.

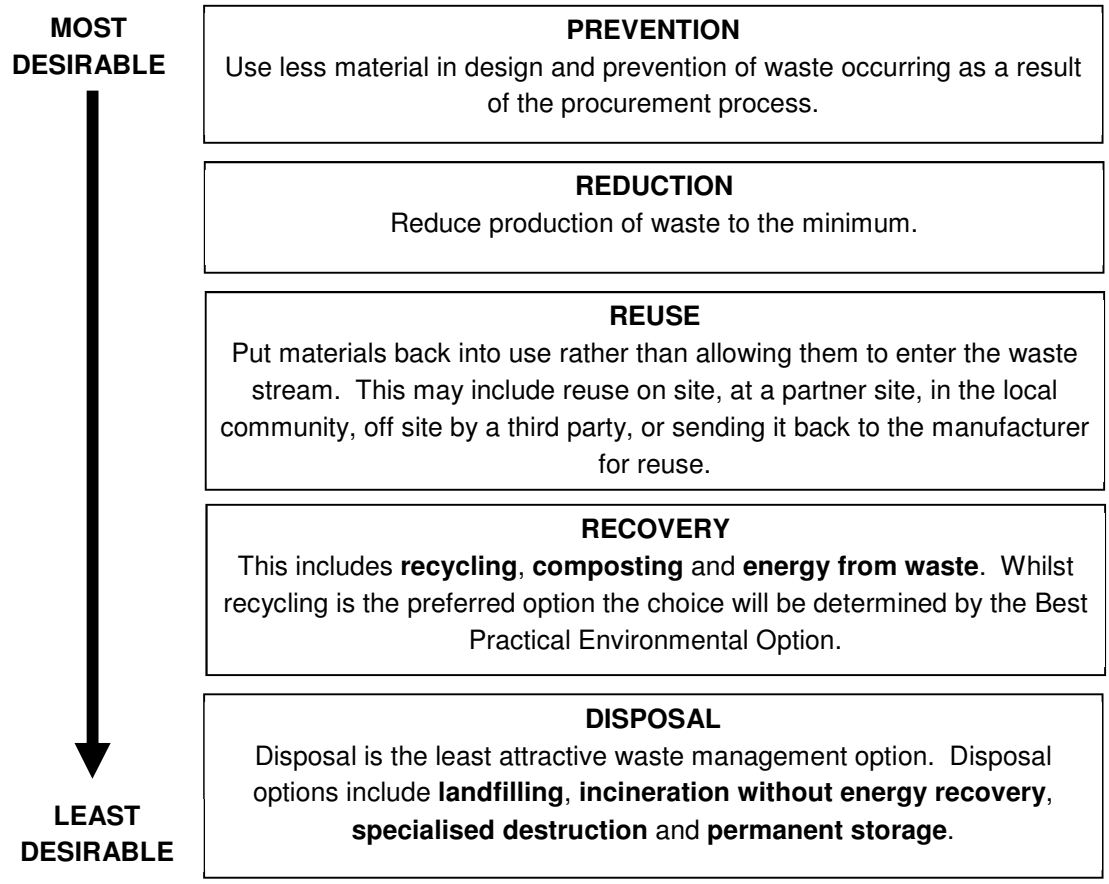
1.2.2 For the purposes of this project any material which is not suitable for re-use on site is classified as waste. Any material which is suitable for re-use on site is not classified as waste. In determining whether material is suitable for re-use, FCBC will follow the procedure set out in Appendix 1.

1.2.3 Waste can be classified into the following three types:

- **Special**: this is anything that is labelled or identified as hazardous (highly flammable, flammable, toxic, corrosive, explosive, oxidising and infectious). Usual identification is via the black on orange warning (CHIP) label on the packaging.
- **General:** comprises anything that does not fall into inert or hazardous and includes all recyclables, e.g. general builders waste, plastics, paper.
- **Inert:** Non contaminated soils (not topsoil), concrete, bricks, or asphalt

1.2.4 Materials which require treatment before re-use, e.g. contaminated soils will be considered to be a waste until fully treated and fit for purpose.

Figure 1: Waste Hierarchy



2 DESIGN

2.1.1 During the design phase, the Design Team have adopted the waste hierarchy to optimise reuse and recycling options so as to minimise ultimate disposal to landfill. The Design Team, as a matter of course and best practice, look to optimise the design to produce a lean product. This includes minimising waste and working with the construction team to ensure the bridge can be built creating as little waste as possible.

2.1.2 Waste materials are reused on and off-site or on other sites, where possible, whilst ensuring that an appropriate waste management licensing exemption is obtained. Exemptions must be obtained, or full recovery achieved, before works involving the waste material commence.

2.1.3 Examples of re-use of materials on the project to date include using Beamer Rock and N2 excavated material at Ferrytoll as embankment fill. This has reduced the amount of material to be disposed of at sea and reduce the amount of imported fill materials required.

2.1.4 Where opportunities for reusing materials are possible and crushing is necessary, FCBC ensure that these activities are controlled under the appropriate legislation (i.e., a valid Environmental Permit / Waste Management Licence or exemption is obtained) and any mobile plant used has a valid mobile plant licence.

2.1.5 Additionally, the design team consider material specifications so as to optimise the overall proportion of recycled materials, within commercial and quality restrictions, by considering opportunities for:

- reducing the necessity for waste disposal;
- material reuse; and
- use of secondary and recycled materials.

3 PROCUREMENT

3.1 Reduction of Waste

3.1.1 Throughout the pre-construction and construction phases, the Operations Management Team ensures the reduction of waste through:

- Ordering only the correct amount of materials required.
- Arranging 'just in time' deliveries to reduce storage and material losses.
- Sourcing materials from companies with certified environmental standards, where feasible.
- Reducing and recycling the volume of packaging used for materials delivered to the site.
- Rejecting deliveries if materials are damaged.
- Ensuring storage areas are safe, secure and weatherproof, where required.
- Storing liquids away from drains, burns and in bunded areas to prevent pollution.

3.2 Procuring Recovered Material

3.2.1 If FCBC are procuring recovered aggregates then the relevant Works Manager will check that the Producer has provided detailed documentation to ensure that FCBC are not receiving waste. Checks will include:

- reviewing the producer's quality or test reports to ensure that the material meets the recovered specification; and
- inspecting the recovered aggregate to determine suitability, including identifying any residual contamination.

4 ON-SITE

4.1 Introduction

4.1.1 The Operations and Environmental Management Teams ensure that waste management during on-site construction activities is effectively managed through:

- Waste management documentation and monitoring – notes, certificates and licences.
- Waste identification, storage and handling.
- Waste performance monitoring and reporting.

4.1.2 The outputs from this process are calculated in the site management check list (refer to Appendix 2). The checklist is completed, as required, by the Operations Management Team.

4.2 Waste Identification, Storage and Handling

4.2.1 FCBC have identified the waste streams arising on site and provide appropriate on-site disposal locations accordingly. Within site offices (Ferrytoll Compound, Admiralty House and Echline Compound) and welfare units, segregated office recycling facilities are provided. On site, skips are available for the disposal of all construction waste, general waste and hazardous waste. Appendix 3 lists the storage arrangements on site for the various waste streams identified (not exhaustive) and it is the responsibility of the Operations Management Team to ensure that all wastes (including recyclables) produced on site are appropriately stored as listed. Prior to removal from site, all wastes are segregated at the waste compound at Echline. FCBC work with subcontractors to ensure appropriate on-site disposal points, including skips and office waste recycling bins, are identified and utilised for the various waste streams.

4.3 Materials Management

4.3.1 Where possible, waste is re-used on site under an appropriate Waste Management Licence (WML) exemption. If this is not possible then the segregated waste is transferred off-site. Materials listed in Table 1 are segregated on-site for recycling. Where it is not possible to recycle materials other options are considered; mixed waste (waste that it is not possible to sort on site or the residues of the segregation process) is sent to transfer station for sorting whilst all food waste from site is transferred to an anaerobic digestion plant for re-use. The segregation of material is vital in order to maximise the amount of material diverted from landfill (for details of waste disposal to landfill refer to Appendix 4). Waste is removed from site as required. Care is taken to ensure the skips are not filled to capacity.

4.3.2 For the storage and handling of soil and other associated materials, refer to the Materials Management Plan (REP-00162) which forms part of the Sustainability Management Plan.

Table 1 – Recycled materials

Material	requirements	Recycle options
Concrete	• Keep it clean • Designated skip available for waste concrete at the Batching Plant • Check the Specification to ensure that a recycled option can be utilised	• Aggregate for fresh concrete - special expertise needed • Sub-base or drainage layer - processing required • General fill - no crushing needed but exemption required if material is being imported • Wet concrete can be recycled using special plant whereby the aggregate is recovered
Blacktop		• In bound layers of road pavement • In lower layers of road pavement • As bulk fill • Sold as track building material to farmers – but in this case the farmer will need to have an exemption in place.
Topsoil & subsoil	• No disposal – project design to ensure a net material balance is obtained with all surplus materials re-used within the scheme.	Maximise the use of soils by: • Segregation of topsoil and subsoils • Avoid contamination • Move as little as possible • Store no more than 2m high
Timber	• Ensure separation from all other wastes.	Reuse on site if possible, if not send offsite for reclaiming. If not suitable quality for reclaiming, can be recycled: • Mulch – to prevent soil erosion and enrich soils Composting Agent – sawdust and chipped wood can be used as a bulking agent to improve air flow and decomposition
Metals	• Leave on material as long as possible for protection • Segregate to bale or compact • Return to supplier if possible	Valuable resource – investigate reuse opportunities on site. Recycling options well established.
Aerosol cans	• Store carefully in separate storage area • Pierce container using aerosol recycling equipment to allow paint to dry	• Once pierced can be recycled as scrap metal
Batteries	• Ensure separation from other wastes.	• reused as a secondary raw material • well established methods for recycling. • Seek guidance on how to recycle from distributor or manufacturer • Send batteries back to manufacturers for recycling or reprocessing where available
Ink Cartridges	• Segregate • Return to supplier	• Re-fill
Glass	• Segregate • Return to supplier if possible	• Well established collection and recycling systems available
Paper & cardboard	• Segregate	• Well established collection and recycling systems available
Electric and Electronic Items	• Segregate	• Well established collection and recycling systems available
Plastics and cans	• Segregate	• Well established collection and recycling systems available
WEEE	• Segregation	• Refurbishment of items for reuse or recycling

5 DUTY OF CARE

5.1 Introduction

5.1.1 The disposal of waste is legally controlled through various statutory instruments. The procedures differ for recyclable waste, stable inert waste and hazardous waste. Section 6 sets out the controls required when disposing of site generated waste. This section sets out the licences and registrations that FCBC have obtained to dispose of waste.

5.1.2 Under current legislation, the waste producer has a "Duty of Care" to ensure that waste is disposed of in accordance with the regulations. This means that FCBC is responsible for the waste from the point at which it leaves the sites until it reaches an appropriately licenced facility.

5.2 Waste Carriers

5.2.1 FCBC currently holds a valid Waste Carriers Registration, as detailed: Galliford Try Infrastructure Limited: Registration number: SEA/072238/CB; expires March 28th 2016. This carrier's licence covers Galliford Try PLC (the parent company of Morrison Construction) and all Joint Ventures, including FCBC activities. Skipeez (Recycling and Data Services Ltd) are also employed as the licenced waste contractors on the project. Skipeez segregate waste, carry waste and/or arrange for the waste to be carried by other waste companies. All companies that transport, handle, dispose of, or recover any waste arising from the project are listed in Table 2.

5.2.2 All waste leaving site must be accurately described and given a six digit European Waste Classification (EWC) code. Typical waste descriptions expected from the project and EWC codes are given in Appendix 3. Where codes are not listed in Appendix 3, reference should be made to the European Waste Catalogue and the Environmental Manager consulted.

Table 2: Licenced waste companies

Waste Stream	Company	Address	WCL		WML/Permit Number
			Licence Number	Expiry	
All	Galliford Try Infrastructure Ltd (covers all joint ventures)	Gallifrod Try PLC	SEA/072238/CB	28/03/2016	N/A
	Skipeez	576 Lanark Road, Edinburgh, EH14 5EL	Waste Broker SCO/334065	24/11/2017	N/A
Timber	Egger Wood Recycling (Timberpak)	Unit 11 Belgrave Street, Bellshill Industrial Estate, Bellshill, ML4 3NP	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/XS/1088079
	AWJ Woodwaste Ltd	Carriden Industrial Estate, Bridgeness Road, Bo'ness, EH51 9LH	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/E/20202
Paper & Card	Shred-it	South Tyne Mill, Hexham, NE46 3SD	SEA/074787	16/05/2017	CB/FP3276PP
Green Waste	Forth Resource Management Ltd	Seacliff Park, North Berwick, East Lothian, EH39 5PP	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/E/220228
Canteen Waste	William Tracey	5 Redwood Cresent, East Kilbride G74 5PP	SWE/017796	02/04/2016	WML/W/20110
	City of Edinburgh Council	Powderhall Transfer Station, 500 Gorgie Road, EH11 3YJ	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/E/20155
Mixed Waste	Wm. Russell & Sons Ltd	Lilliehill, Dunfermline, Fife, KY12 0TE	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/E/256
	Biffa Waste Services	West Shore Road, Edinburgh, EH5 1QD	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/E/108
	Biffa (Previously Shanks)	Glendeovon Recycling, No 8 Westerton Road, Broxburn	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/E/20002
Special Waste	Viridor	Langmuir Way Bargeddie Glasgow G69 7RW	SWE/018756CB	15/07/2016	WML/W20118
	Northburn Industrial	70 Northburn Road, Northburn Industrial Estate, Coatbridge, ML5 2HY	SWE/017751	02/04/2016	PPC/A/1048515
	Safetykleen UK Ltd	16 Cunningham Road, Springkerse Industrial Estate, Stirling, FK7 7SW	CB/BN5677YZ	04/04/2016	WML/E/334
	HazCo	3 Muir Road, Houston Industrial Estate, Livingston, EH54 5DR	SCO/333941	12/03/2018	WML/E/20182
	Nixon Hire	99 Camburn Street, Shettieston, Glasgow, GL52 6AX	CB/SP3111YM	01/04/2016	WSW2078C
WEEE	LAMH Recycle	Unit 2, Wishaw Business Centre, King Street, Wishaw, ML2 8BT	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/W/220105
Metals	European Metal Recycling (Henderson Kerr)	Kirklee Road, Bellshill, Lanarkshire, ML4 2QW	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/W/00193
	Thomas Muir	Cromarty Campus, Rosyth, KY11 2YB	N/A (Skipeez deliver loads)	N/A (Skipeez deliver loads)	WML/XC/1091093

5.3 Waste Management Licences

5.3.1 A Waste Management Licence (or exemption) for the point of disposal must be obtained if there is a commercial relationship with the receiving site. This does not currently apply to FCBC therefore FCBC have not applied for any Waste Management Licences. Where applicable, Waste Management Licences for those companies receiving waste from FCBC are included in Table 2.

5.4 Waste Legislative Checks

5.4.1 It is the responsibility of the Operations Management Team to undertake the appropriate legislative checks to ensure that FCBC have the correct licences for the disposal of different waste streams.

5.5 Waste Incident

5.5.1 Should a breach of legislation or any breach of this management plan occur, the Environmental Manager should be informed immediately. The Environmental Manager will then determine the appropriate course of action including informing regulatory bodies and client.

6 DISPOSAL OF WASTE FROM SITE (NON HAZARDOUS WASTE INCLUDING RECYCLABLES)

6.1.1 To remove waste from site FCBC must complete a Waste Transfer Note prior to collection. The Environmental Department ensures that all the Waste Transfer Notes are in place by keeping copies of Waste Transfer Notes and checking these against waste reports.

6.1.2 Waste transfer notes declare the following information:

- The location of waste production, a qualitative description of its nature, the corresponding waste code and how it is contained.
- Signatures and dates declaring that the information regarding the waste is correct.
- Signatures and dates of the haulier of the waste (also known as the transferee) or the operator at the point of disposal. This section includes date and time of collection, the vehicle registration and waste carriers registration. Information should be given regarding the point of disposal.

6.1.3 The completed forms are retained with a duplicate copy retained by the haulier and the operator at the point of disposal.

6.1.4 When a waste type is consistent throughout the year then a "Seasonal Waste Transfer Note" is used. In this instance, a Waste Transfer Note is not required for every load if it is being transported by the same contractor and is going to the same location. The Seasonal Note must state the commencing and termination date, the receiving location (with licence registration details), the waste carrier's registration details and be limited to a maximum of one year. A seasonal Waste Transfer Note is currently in use for the collection of food waste from site.

6.1.5 If it is found that, through monitoring, inspection or auditing any haulier/subcontractor/disposer is not complying with the Duty of Care requirements, the Operations Manager shall cease transferring waste via the associated company and notify the Environmental Manager. The Environmental Manager may then inform SEPA if necessary.

7 DISPOSAL OF WASTE FROM SITE - HAZARDOUS WASTE (SPECIAL WASTE)

7.1.1 The Operations Manager will ensure that the disposal site is licensed to receive Hazardous waste and that the Haulage Contractors are appropriately registered.

7.1.2 A Consignment Note for the carriage and disposal of hazardous waste shall be obtained by the Operations Manager from SEPA. Parts A and B of the Consignment Note shall be completed for each load of hazardous waste to be moved and a unique code entered which shall have been obtained from SEPA. Where the site is disposing of multiple loads then Part A can be set up as a succession notice for a maximum duration of one year. Part B needs to set out the number of disposal operations or total volume.

7.1.3 At least three working days prior to the shipment, the Operations Manager shall send the top copy (white sheet) to the SEPA Office responsible for the waste's eventual destination. If SEPA does not respond within the three working days then the shipment can proceed. Note: If a succession has been set up, there is no requirement to pre-notify after the first shipment. Instead, the pre-notice number from the first load to be disposed of should be inserted at the top of the sheet.

7.1.4 The Operations Manager shall ensure that hazardous waste is loaded into a suitable vehicle and sheeted prior to leaving site. The Operations Manager shall ensure that the carrier checks the load against the Consignment Note and completes Part C of the form. The carrier shall then hand back the set to the Operations Manager. The Operations Manager shall complete Part D of the set and hand back the three remaining sheets to the carrier's driver and retain the green sheet on site.

7.1.5 On arrival at the disposal site, the carrier shall give the three sheets to the disposer, who completes part E. The disposal site shall keep the pink (third) sheet and send the yellow (second) sheet to the local SEPA office. It is prudent to ask the haulier for a copy of their waste ticket as proof that the material has been disposed of appropriately.

7.1.6 Copies of Consignment Notes relating to hazardous waste produced shall be retained on site by the Office Manager.

7.1.7 Asbestos will be treated as special/hazardous waste and will follow the same protocol detailed in the paragraphs above. The removal of asbestos will be undertaken by a UKAS approved company in line with guidance outlined in HSE document EM9 Disposal of asbestos waste (HSE, 2012) and SEPA guidance (SWAN/12) (SEPA, 2005).

7.1.8 Asbestos waste will be packed in UN-approved packaging with a CDG hazard sign and asbestos code information visible (standard practice is to use a red inner bag with asbestos warnings, and a clear outer bag with the CDG sign). The asbestos waste will be carried from site to a licenced disposal site using a sealed skip, or a vehicle with a segregated compartment for asbestos which is easily cleanable and lockable. This will be provided by the UKAS approved company who will also be responsible for the completion of a waste Consignment Note.

7.1.9 The management of any asbestos found on site is outlined in the FCBC Health and Safety Management System Standards (H&S-STD-A02). Copies of Consignment Notes and Waste Transfer Notes relating to asbestos hazardous waste produced shall be retained on site by the Office Manager.

8 DISPOSAL OF WASTE WATER

8.1.1 The disposal of wastewater to surface water sewers, foul sewers and soakaways is considered in the Surface Water Management Plan. At present, FCBC hold a Form H consent for the disposal of wastewater from Ferrytoll. Other disposals of wastewater to sewers are covered by existing consents held by other parties. Where wastewater is not able to be discharged to sewers or to soakaways, a waste contractor removes the waste from site for disposal at a licenced site. This waste is treated as a hazardous waste and as such the controls listed in Section 7 are employed.

9 DECOMMISSIONING OF SITE

9.1 Re-using material bought for use on site

9.1.1 Any item of plant, equipment, material, or temporary site accommodation and cabins bought for use on site is not considered to be a waste when either a project ceases, or its current use is no longer required, if it meets the following conditions:

- The item's condition permits use on other Third Parties' projects. The following checks will be undertaken:
  - checking temporary fill material for contamination;
  - tanks are empty before transportation or their contents are known and not contaminated; and
  - plant items and tools are undamaged.
- There is a defined and current requirement for the item at the receiving site.
- The use of the item is the same as that on the issuing site.

9.1.2 It is the Operations Manager's responsibility to ensure that, during decommissioning of a site, an inventory is made of plant, materials, and equipment to be demobilised and advertised to other FCBC partner projects.

9.2 Transferring material recovered on site to a third party

9.2.1 If FCBC's construction activities generate inert construction or demolition wastes, typically either concrete, hard-core or planings, which FCBC wish to transfer to another site or a third party, FCBC are required to comply with the waste regulatory regime. The Environmental Team shall monitor this.

9.2.2 Hard-core, crushed concrete and other secondary aggregates are a third parties waste. However, they cease to be waste when they have been fully 'recovered'. The WRAP recommendations for the production of aggregates from inert waste' sets out the principles ensuring that they can be processed and recovered into aggregates free of waste regulatory control. Typically, the recovery process will be undertaken using authorised crushing and screening equipment.

9.2.3 If FCBC have processed the material in accordance with the WRAP principles and can demonstrate that it has been fully recovered, then the material ceases to be waste. FCBC will maintain testing records showing compliance with the protocol which will be kept on site.

9.3 Completion Declaration

9.3.1 The following table (Table 3) must be completed within three months of construction works having been completed.

Table 3 – Completion Declaration

COMPLETION DECLARATION			
FCBC confirms that the plan has been monitored on a regular basis to ensure that work is progressing according to the plan and that the plan was updated to record details of the actual waste management actions and waste transfers that have taken place.			
DEVIATIONS			
Explanation of any deviations from the planned arrangements:			
Issue	**Details**		
Waste Forecasts Exceeded			
Waste Forecasts not met			
Other			
Estimated Cost Savings:			
In order to calculate the estimated cost, it has been assumed that all waste would have been sent to a licenced landfill site. Therefore: Cost Saving = Cost of all waste to landfill – Actual cost of waste disposal as per the Site Waste Management Plan			
COST SAVING = £			
Principal Contractor	Signature	Date	
Client	Signature	Date	
SWMP Author	Signature	Date	

10 WASTE PERFORMANCE MONITORING AND REPORTING

10.1 Site Waste Data Sheets

10.1.1 Site Waste Data Sheets, which record the estimated and actual quantities of waste, are completed by the Environmental Team on a periodic basis (refer to Appendix 5a and 5b).

10.1.2 The Site Waste Data Sheet is submitted to the Environmental Manager. The Environmental Manager will report the estimated and actual monthly quantities to the Employer's Delivery Team. The overall site waste data will be reported via the Sustainability Appraisal which will be updated at varying intervals throughout the project.

10.1.3 It is the responsibility of the Environmental Manager to ensure that FCBC employees and subcontract staff are provided with appropriate training (e.g. tool box talks) to ensure all staff understand the requirements of this SWMP.

10.2 Monitoring

10.2.1 To ensure all aspects of this WMP are complied with, regular checks (i.e. weekly) shall be made by the Environmental Team during Environmental inspections.

11 REFERENCES

EM9 Asbestos Essentials: Disposal of Asbestos Waste (HSE, 2012)

Land Remediation and Waste Management Guidelines, (SEPA, no date)

Site Waste Management Plan: Guidance for Construction contractors and Clients (DTI, 2004).

Scotland's National Waste Plan.

Scottish Planning Policy: Planning for Waste Management (Scottish Government, 2007).

Special Waste Advisory Note: Asbestos Contaminated Waste (SWAN 12), (SEPA, 2005)

Waste Carriers Registration database- http://www.sepa.org.uk/waste/waste_regulation/waste_carriers_and_Brokers/who_is_registered.aspx

APPENDIX 1 – MATERIAL ASSESSMENT FOR RE-USE

The production of rock and/or soil material and its reuse within the project for structural fill is not considered a waste as long as it meets the criteria set out below:

- is the intended use of the material a certainty?
- is the material suitable for its intended use without further treatment (see Earthworks Specification)?
- is only the quantity necessary for the specified works being used?

In determining whether the material has a defined purpose it is essential to refer to the original design objectives and planning permission. If there is no prior defined use then the material will be considered a waste and subject to waste regulatory control.

All excavated material must be deemed environmentally suitable before reuse on site after being reviewed by the on-site UKAS Laboratory supported by the Environmental Team.

APPENDIX 2 – SITE WASTE MANAGEMENT CHECK LIST

Points to consider		Y / N (Initials)	Comment If 'Yes', what action have you taken / do you propose to take? If 'no', why not?
On-site Activities			
1	Have estimates been made of potential waste streams and potential disposal amounts e.g. excavated material?		
2	Has responsibility for waste management planning and compliance been assigned to the subcontractor, including named individual?		
3	Has responsibility been assigned to generate and submit waste performance reports (i.e., waste quantities and treatment disposal routes)?		
4	Has an area of the site been designated for waste management, including storage and segregation?		
5	Have provisions been established to adequately store and segregate waste materials?		
6	Have measures been put in place to deal with expected (and unexpected) hazardous waste?		
7	Has disposal of liquid waste such as wash-down water and lubricants been considered?		
8	Have the most appropriate sites for disposal of waste from the project been considered?		
9	Have toolbox talks been planned for all site personnel about waste management on-site?		
10	Have provisions been established to clearly label containers / skips / drums?		
11	Have means been developed to ensure that Duty of Care requirements are complied with? Namely: Provision of transfer notes Verifying registered carriers / brokers Verifying registered exempt sites Validation on the scope / validity of waste disposal sites		
12	Have means been developed to periodically check that wastes are received at intended disposal site(s)?		

Completed by:	
Position:	
Date:	

APPENDIX 3 - WASTE STREAMS, ASSOCIATED EWC CODES & PLANNED STORAGE

Waste Stream	EWC† Code	Storage Arrangements (where practicable)
Admixture	03-30-00*	Hazardous waste skip (1100 l)
Bituminous mixtures (Blacktop)	17-03-01	Construction waste skip (16yrd)
Bricks	17-01-02	Inert waste skip (8cyd)
Cement	17-09-01*	Hazardous waste skip (1100 l)
Concrete	17-01-01	Inert waste skip (8cyd)
Contaminated rags / cloths / wipes	15-02-02 *	Hazardous waste skip (1100 l)
Contaminated spill materials	15-02-02 *	Hazardous waste skip (1100 l)
Dredging spoil containing dangerous substances	17-05-05 *	Designated leak proof skip
Dredging spoil not containing dangerous substances	17-05-06	Designated Skip
Fluorescent Tubes (FT)	20-01-21 *	FT Coffin
Mixed Municipal Waste	20-03-01	General waste skip (14cyd)
Mixed Construction and Demolition Waste	17-09-04	Construction waste skip (16cyd)
Glass	17-02-02	General waste skip (14cyd)
Lead Batteries	16-06-01 *	Battery drum
Mixed Metals	17-04-07	Designated metal skip
Mineral based non-chlorinated engine, gear and lubricating oils	13-02-05 *	Waste oil tank
Oil Filters	16-01-07 *	Hazardous waste skip (1100 l)
Paint Cans	15-01-10*	Hazardous waste skip (1100 l)

Waste Stream	EWC† Code	Storage Arrangements (where practicable)
Paper and Cardboard	20-01-01	General waste skip (14cyd)
Plasterboard	17-08-02	Construction waste skip (16cyd)
Plastics	17-02-03	General waste skip (14cyd)
Retarding Agents	15-01-10*	Hazardous waste skip (1100 l)
Soil & stones containing dangerous substances	17-05-03 *	Designated leak proof skip
Soil & stones not containing dangerous substances	17-05-04	Designated Skip
Solvents and refrigerants	14-06-02/3*	Hazardous waste skip
Synthetic engine, gear & lubricating oils	13-02-06 *	Hazardous waste drums
Track ballast containing dangerous substances	17-05-07 *	Designated leak proof skip
Track ballast not containing dangerous substances	17-05-08	Designated Skip
Tyres	16-01-03	Designated Skip
Wood	17-02-01	Construction waste skip (16cyd)

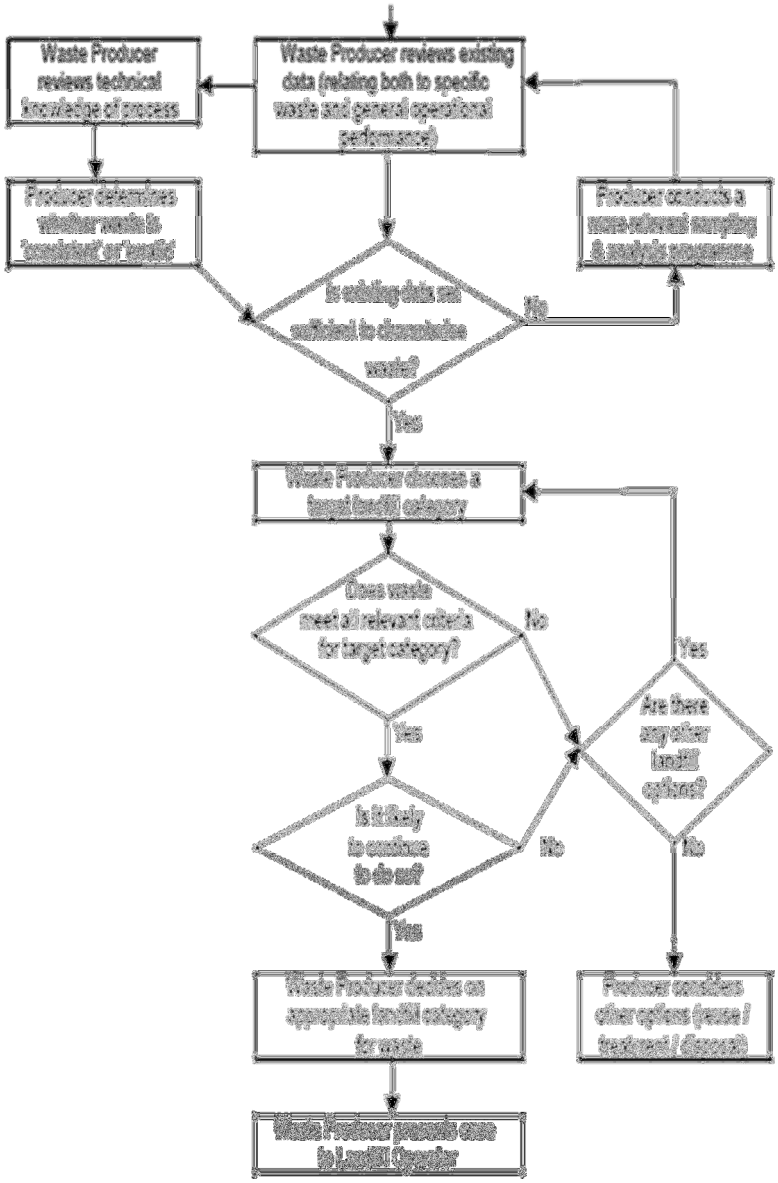
† EuropeanWaste Catalogue Code (Refer to http://publications.environment-agency.gov.uk/pdf/GEHO1105BJVS-e-e.pdf)
* Denotes a hazardous waste stream

APPENDIX 4 – WASTE DISPOSAL TO LANDFILL

Waste Characterisation for Waste going to Landfill

Landfills can be classified as Hazardous, Non-hazardous or inert. Waste characterisation for all wastes destined for direct disposal to landfill therefore requires wastes to be segregated, characterised and described in a systematic fashion. The general steps that must be implemented are described below and in Figure A1.

Figure A1 – Flow Chart for the Characterisation of consistent Waste (note- if the waste is not fit for purpose then it cannot be reused)



Firstly, the waste will be characterised to see if it is inert. The waste is inert if it meets the inert definition as specified in regulation 2 of The Landfill (Scotland) Regulations 2003). In practice this will mean that the waste would be classed as inert if-

- does not undergo any significant physical, chemical or biological transformations;
- does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and
- has insignificant total leachability and pollutant content and ecotoxicity of its leachate are insignificant and, in particular, does not endanger the quality of any surface water or groundwater (see table A1);

In the event that waste is not classified as inert, the waste should be classified as either hazardous or non-hazardous. The Environmental Manager will determine whether the waste is hazardous based on the guidance- Hazardous Waste: Interpretation of the definition and classification of hazardous waste (WM2).

An appropriate sampling regime, technique and analysis will be implemented to ensure the WM2 assessment is correct and whether multiple characterizations are required based on the history of it and treatment it receives. The Environmental Manager will determine what sampling and analysis is necessary in consultation with SEPA.

Depending on the classification, the Environmental Manager may, at this stage, be able to review the waste management options, which may enable the avoidance of disposing the waste in landfill. The choices available may result in further assessments. If going to landfill then the appropriate WAC (waste acceptance criteria) assessment will be conducted and appropriate decisions taken at this point.

It should be noted that if the waste has been classified under WM2 as hazardous and meets hazardous WAC, then an assessment will be made to see if it meets stable non-reactive hazardous waste criteria. If it meets this criteria then an application to SEPA will be made, usually by the landfill (that is permitted to accept this waste) to apply the derogation.

Hazardous waste will not be mixed with non-hazardous waste and will be segregated by waste type and hazardous property on site.

The treatment of non-hazardous and hazardous waste, as a legal obligation must have defined objectives. These objectives must meet the three point test:

- it must be a physical, thermal, chemical or biological process including sorting;
- it must change the characteristics of the waste;
- it must do so in order to:
    - reduce its volume;
    - reduce its hazardous nature;
    - facilitate its handling;
    - enhance its recovery.

Records of each waste material being characterised will be given to the Environmental Manager for review. This (with supporting information) should be submitted to the landfill operator to agree the appropriate disposal option.

Non-hazardous Waste for Disposal to Landfill

The list below sets out the types of wastes which may be disposed of to landfill which are characterised as non-hazardous inert wastes as long as it can be demonstrated that the material is uncontaminated. Inert wastes include the following types:

- soil and stones (not including top soil);
- brick;
- concrete;
- tiles and ceramics; and
- mixtures of the above.

If the material is not listed as one of the inert categories above then its properties must be fully evaluated before it can be characterised as an inert waste. If the material comes with product information from a reputable supplier then this should be reviewed and assessed for any non-inert properties. If in doubt, the material should not be disposed of until a testing regime has been developed in consultation with the Environmental Manager or Material Engineer and the results evaluated.

Hazardous Waste for Disposal to Landfill

Hazardous waste can be sub-divided in to a large range of categories e.g. oil, paint, solvents, adhesives, batteries and waste water. To dispose of hazardous waste, known as special waste in Scotland, information must be provided to the waste disposer on the waste's properties. Common information sources include:

- any product information available including copies of labels;
- any testing undertaken by the supplier;
- COSHH sheets;
- chip documentation;
- supplier information; and
- environmental manager.

If the waste properties are variable, as with potentially contaminated waste soils (including made ground), then a sampling regime must be implemented to determine the waste characteristics. Each sampling plan will set out the tests to be undertaken, the frequency of the assessment (for both characterisation and compliance determination) and the steps to be undertaken if the materials composition unexpectedly changes. The sampling plan will be determined in consultation with the Environmental Manager.

A testing suite as part of the sampling plan will be used to identify the different substances that are expected to be present. All materials will be subject to a full Waste Acceptance Criteria (WAC) test: the WAC determinants are set out in Table A1. The samples must be categorised as either monolithic (a waste that has been deliberately treated to solidify it and strongly bind it) or granular (all wastes that are not monolithic).

Table A1: WAC testing

Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Determinand ↓	**Units ↓**			
Total Organic Carbon	%	3	5	6
Loss on Ignition	%			10
Total BTEX	mg kg-1	6		
Total PCBs (7 congeners)	mg kg-1	1		
Mineral Oil	mg kg-1	500		
Total (of 17) PAHs	mg kg-1	100		
pH			>6	
Acid Neutralisation Capacity	mol kg-1		To evaluate	To evaluate
Eluate Analysis		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10		
Determinand ↓	**Units ↓**			
Arsenic	µg l-1	0.5	2	25
Barium	µg l-1	20	100	300
Cadmium	µg l-1	0.04	1	5
Chromium	µg l-1	0.5	10	70
Copper	µg l-1	2	50	100
Mercury	µg l-1	0.01	0.2	2
Molybdenum	µg l-1	0.5	10	30
Nickel	µg l-1	0.4	10	40
Lead	µg l-1	0.5	10	50
Antimony	µg l-1	0.06	0.7	5
Selenium	µg l-1	0.1	0.5	7
Zinc	µg l-1	4	50	200
Chloride	mg l-1	800	15000	25000
Fluoride	mg l-1	10	150	500
Sulfate	mg l-1	1000	20000	50000
Total Dissolved Solids	mg l-1	4000	60000	100000
Phenol Index	mg l-1	1		
Dissolved Organic Carbon	mg l-1	500	800	1000

For made ground and potentially contaminated soils, testing will be undertaken on representative samples against the 'Standard Soil Suite' and the full WAC leachate test. Changes the way waste is classified and assessed came into force 08 June 2015 (Scotland). This is now covered under the Classification, Labelling and Packaging Regulation (CLP) (2008/1272/EC) which state that classifying your waste now requires a WM3 assessment.

If the materials' properties are determined as neither hazardous nor inert then the material can be disposed of at a non-hazardous (controlled) landfill. Basic treatment will be required for disposal of non-hazardous wastes in landfills that have been licensed post 1st April 2005. This treatment could include

simple segregation and if necessary further treatment to reduce the volume of non-hazardous and hazardous wastes.

If the materials' properties are hazardous (Special Waste Amendment (Scotland Regulations 2004)) then they must be treated. Treatment processes must reduce the hazardous properties to below the thresholds determined by these regulations. If the WAC leachate tests are below the Stable Non-Reactive Hazardous Waste (SNRHW) thresholds then the waste may be disposed of at a suitably licensed non-hazardous landfill.

If WAC leachate thresholds for hazardous granular waste (Table.A1) are above SNRHW thresholds but below the hazardous thresholds then it may be disposed of at a hazardous landfill facility. If the WAC leachate results exceed the hazardous threshold then the waste must undergo further treatment until the results are below the threshold levels. The waste will be sent to an approved supplier (Chemtest) and results reviewed and verified by the Environmental Manager/Laboratory Manager.

APPENDIX 5A– SITE WASTE DATA SHEET – EXAMPLE

SITE WASTE DATA SHEET

Project Name / Address:	Roadside Development, Dorridge, West Midlands, B93 7PS	For Guidance on completion of this sheet please refer to HS&E-BPG-W01-105	
Contract Number:	6578	**Project value:**	£1.3M
Month Completed:	Apr-09	**Waste data report no.:**	3
Completed By:	Mick Goulding	**Position:**	Site Agent

MATERIAL	EWC Code	Waste Category	ESTIMATE (m³)	ACTUAL (m³)		MONTHLY TOTALS (m³)						
				Cumulative	Monthly	Reused on-site	Reused off-site	Recycled for use on-site	Recycled for use off-site	Sent to transfer station	Sent to WML exempt site	Disposed to Landfill
Bricks	17-01-02	I	100.0	40.0	24.0	6.0	0.0	0.0	6.0	6.0	0.0	0.0
Aerosols	15-01-11	H	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contaminated spill materials	15-02-02	H	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
Lead batteries	16-06-01	H	6.0	5.0	4.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
Concrete	17-01-01	I	50.0	35.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
Scrap wood	17-02-01	NH	90.0	120.0	73.0	0.0	0.0	4.0	65.0	4.0	0.0	0.0
Plastics	17-03-03	NH	12.0	8.0	6.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Mixed metals	17-04-07	NH	20.0	12.0	6.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0
Soil & stones	17-05-04	NH	5,000.0	4,200.0	3,706.0	0.0	3,168.0	0.0	0.0	0.0	590.0	0.0
Plasterboard	17-08-02	NH	40.0	25.0	8.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0
Mixed Construction Waste	17-09-04	NH	112.0	40.0	66.0	0.0	0.0	0.0	0.0	16.0	0.0	40.0
General waste	20-03-01	NH	745.0	800.0	533.0	0.0	0.0	0.0	0.0	533.0	0.0	0.0
Septic tank sludge	20-03-04	NH	60.0	50.0	48.6	0.0	0.0	0.0	48.6	0.0	0.0	0.0
End of life tyres	16-01-03	NH	80.0	70.0	60.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0
					0.0							
					0.0							
					0.0							
					0.0							
					0.0							
					0.0							
TOTALS			[illegible]	[illegible]	[illegible]	36.0	3,168.0	4.0	127.6	621.0	590.0	46.0

EXAMPLE

Waste Category = Inert (I), Non hazardous (NH) or Hazardous (H) or Special (S) in Scotland
WML = Waste Management Licence exempt site i.e. site / operation carrying out an activity which does not require a full waste management licence.

APPENDIX 5B – SITE WASTE DATA SHEET

SITE WASTE DATA SHEET

Project Name / Address:			For Guidance on completion of this sheet please refer to HS&E-BPG-W01-105
Contract Number:		**Project value:**	
Month Completed:		**Waste data report no.:**	
Completed By:		**Position:**	

MATERIAL	EWC Code	Waste Category	ESTIMATE (m^3)	ACTUAL (m^3)		MONTHLY TOTALS (m^3)						
				Cumulative	Monthly	Reused on-site	Reused off-site	Recycled for use on-site	Recycled for use off-site	Sent to transfer station	Sent to WML exempt site	Disposed to Landfill
					0.0							
					0.0							
					0.0							
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TOTALS			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Waste Category = Inert (I), Non hazardous (NH) or Hazardous (H) or Special (S) in Scotland

WML = Waste Management Licence exempt site i.e. site / operation carrying out an activity which does not require a full waste management licence