

Resource Efficiency Management Plan

Swansea University Bay Campus May 2022

The contractors who will be responsible for completing the works are: Gavin Griffiths Recycling. As a consequence, we have updated the approved Resource Efficiency Management Plan (REMP) template although the content that needs to be addressed remains consistent with the approved document. This REMP template has been drafted by Savills but completed by Gavin Griffiths Recycling.

1. Introduction

This Plan has been developed in order to aid projects and contracts in managing the materials and resources procured to maximum efficiency. This plan will be implemented at tender stage where sections 1-6 will be completed and then sections 7-12 will be completed at pre-start stage. The plan will then be handed to the production team in order for the necessary modifications to be made and the further sections to be addressed. The plan integrates requirements that were originally covered in a pre-start Site Waste Management Plan in order to comply with necessary BREEAM requirements. These BREEAM requirements will be identified throughout the plan as required. All projects are encouraged to complete this plan fully in order to obtain the most benefit from it and indeed those projects that need to meet BREEAM requirements will need to do so. The plan itself will be treated as a live document and will require frequent reviews in order to keep all information current and eventually close the plan out at the end of the project.

In regards to waste reporting all projects and contracts that generate waste will be expected to use the intranet based environmental reporting system - Footprint. The projects will upload all waste data in relation to waste transfers and it will be collated as part of the Environmental Performance Indicator (EPI) process. This information will be submitted by the projects each month for inclusion in the company's reports. However, as this system will be a live working system dashboard reports on the data will be available as soon as it is uploaded. These dashboard reports will provide information on how Divisions, Regions and Projects are performing against company objectives and requirements. The Footprint system is designed in order to replace and go beyond the reporting functions of the BRE SMARTWaste system and work in conjunction with this plan in order to fully meet the requirements to obtain the applicable BREEAM credits.

2. BREEAM Compliance

This plan is designed in conjunction with VINCI's Construction UK Footprint system in order to meet the requirements of BREEAM credits WST01 and in relation to section 13 MAN03. The whole plan will need to be completed in order to achieve the necessary credits.

BREEAM credits associated with WST01 relate to non-hazardous construction waste only (excludes demolition and excavation) generated by the building's design. The table below outlines the relevant thresholds in order to meet the applicable credits:

BREEAM Credits	Amount of waste generated per 100m2 (gross internal floor area)*	
	M3 (actual volume not bulk)	Tonnes
One credit	< 13.3	< 11.1

Two credits	< 7.5	< 6.5
Three credits	< 3.4	< 3.2
Exemplary level	< 1.6	< 1.9

*Currently footprint can provide this figure per m2 within the waste dashboard. Projects will have to multiply the obtained figures in order to meet BREEAM compliance.

Where existing buildings on site will be demolished a pre-demolition audit of existing buildings, structures and/or hard standing must be carried out in order to secure credits under WST01. This will determine if, in the case of demolition, refurbishment/reuse is feasible. If refurbishment/reuse is not possible then the aim will be to maximise the recovery of material from demolition for subsequent high grade/value applications. The audit must be referenced within section 9 of this plan and address the following:

- Identification of the key refurbishment/demolition materials
- Potential applications and any related issues for the reuse and recycling of key refurbishments and demolition materials.

Corresponding BREEAM Credits table for waste diversion from landfill:

BREEAM credits	Type of waste	Volume	Tonnage
One Credit	Non-demolition	70%	80%
	Demolition	80%	90%
Exemplary level	Non-demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

The waste minimisation actions that the project will undertake will be captured within this plan in section 10. The waste management options that the project will use in order to maximise the amount of waste diverted from landfill will be identified within section 12.

Gavin Griffiths Recycling environmental objectives and targets are available on the company intranet. Each project is then required to implement the Divisional objectives & targets and set project-specific objectives as required. These targets relate to areas including the amount of construction waste per £100,000 turnover, waste diversion from landfill, reduction in CO2 emissions and the number of environmental incidents.

Project data will be captured within the environmental Footprint system on a monthly basis as part of the EPI process. The dashboards within Footprint can then be used to display the project's performance against targets.

3. Project Details and Responsibilities

- a) Start Date: May 2022

- b) Finish Date: December 2022
- c) Floor Area: N/A
- d) Project Value: N/A

Scope of the Project

The applicant has existing soil available at Hendrefoilan now. The remaining land in Phase 2 of the Bay Campus has the capacity for the net fill of 32,900m³ across a site area of 3.17 hectares. The intention is to transfer soil to Bay Campus in a phased manner, with the areas of the site which are least ecologically sensitive being prioritised for the receipt of soil first. The phases (detailed on plan reference: 05746-SK-9004-P1) comprise:

- Phase 1 – Land to the south of the car park and north of the existing sand dune habitat
- Phase 2 – The remnant triangle of land to the north of the existing temporary car park
- Phase 3 – The temporary car park

Phase 1 and 2 have combined area of 17,900m² and a net fill capacity of 22,600 m³. The temporary carpark, which will be the last phase to receive fill, extends to 13,800m² in area and has the capacity of 10,300m³ net fill.

The proposed works have been designed by PJA engineers and will be completed by Gavin Griffiths Recycling.

4. Tender and Design Elements

Use this section in order to record efforts made by the tender and/or the design team to affect how the scheme is designed in order to maximise the efficient management of materials and waste.

Project element	Action	Intended result	Cost saving
The soil is available at Hendrefoilan, Swansea (which is owned by the applicants) and requires translocation off site.	Transfer the soil which is surplus to requirements at Hendrefoilan to Bay Campus (which is owned by the applicants)	Raising of the levels of the land at Swansea University Bay Campus to protect the land from flood risk, futureproofing the land for redevelopment in accordance with its allocation for additional student academic and accommodation floorspace.	Cost of disposing of soil – TBC.

5. Responsibilities

	Name	Job Title	Company	Company Type
5.1 Who is responsible for drafting the management plan	Jake Stephens	Senior Project Manager	Steve Whitehouse	Construction / Principal Contractor
5.2 who is responsible for implementing the plan	Site Team	Senior Construction Manager	Owen Morris	Construction / Principal Contractor
5.3 who is the waste champion	Gavin Griffiths Recycling	Site Manager / Engineer	Owen Morris	Construction / Principal Contractor
5.4 Who is the permission in charge of the project?	Jake Stephens	Senior Project Manager	Steve Whitehouse	Construction / Principal Contractor

Where will this plan be kept? Hard copy on site and project server.

Declaration: We agree that 'Client' and 'Principal Contractor' will take reasonable steps to ensure waste and duty of care is complied with, material are handled efficiently and waste is managed appropriately.

Signature	
Print Name	
Date	

6. Training and Communication

This section will capture how the project plan to apply training and communication of environmental issues including but not limited to this plan, roles and responsibilities, waste procedures on site, hazardous waste, duty of care and material storage. Proposed training and communication methods (Y/N):

	Induction	Toolbox Talks	Workshops	Meetings	Posters	Others
Training	YES	YES	YES	YES	YES	TBC
Communication	YES	YES	YES	YES	YES	TBC

Record of training and communication delivered to site team, will be maintained in site records.

7. Materials to be used

Material	Phase of the Project	Work Package	Efficiency Measures Implemented

In this section record all information about how materials within each work package will be managed in order to reduce the amount of waste generated e.g. use of soil material (cut and fill) within the project to avoid removing it as waste, use of pre-fab units in construction, reuse of off-cuts, use of grey water (if possible) etc. Also, consider the energy that has gone into creating the material being used and where it has come from. Examples could be using material with recycled content, for example recycled aggregate, the embodied carbon such as within concrete, which has a notoriously high embodied carbon. Also, consider the distance a material has to travel to get to site. Preference should be given to local suppliers where possible.

8. Waste Minimisation

The section should include decisions taken before the plan was drafted on the nature of the project, design, construction methods and materials to plan waste minimisation:

	Type	Work package	Waste minimisation decision taken	By whom	Intend results
8.1 Inert					
8.2 Non-hazardous					
8.3 Hazardous					

9. Waste Forecast

This section is for the estimation of amounts and types of waste that will be generated during the project. Utilise Appendix 2 for the average wastage rates for priority construction products.

	Project phase	Work package	Type of waste	Estimate amount (tonnes)
9.1 Inert				

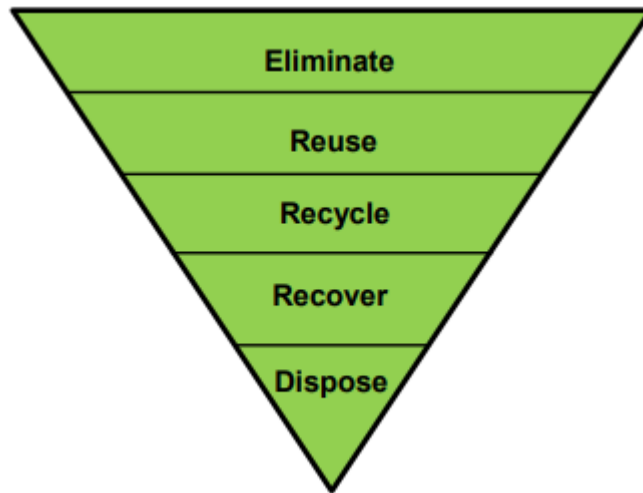
9.2 Non-hazardous				
9.3 Hazardous				

10. Waste Management Options

Use this section to identify areas that are at risk of generating large volumes of waste and what the potential opportunities are for reusing or recycling the waste created e.g. crushing of demolition waste for onsite reuse, take back schemes for reuse of pallets or recycling of plasterboard etc.

	Project Phase	Waste Type	Reuse	Recycle	Recover	Dispose	Container Type	Waste Management Contractor (WMC)
10.1 Inert								
10.2 Non-hazardous								
10.3 Hazardous								

The waste hierarchy must be taken into account in the consideration of waste management decisions taken. Prevision should be aimed for as the best case scenario and conversely disposal should only be considered as a last resort, often only when the waste is hazardous in nature and no other option exists. Reporting of waste removed from site will be captured within the Environmental Footprint system.



In the traditional linear business model products are created using raw materials and then these products are disposed of when they have come to the end of their lives. This process is inherently wasteful and leads to a permanent loss of resources in some instances.

The circular economy is a different concept. Consideration is given to manipulating the product's life cycle so that it generates a loop of regeneration of useable product. There are four main considerations to take into account when thinking about the circular economy. Processes at the top of this list have a smaller impact on the environment and therefore have a larger benefit:

- Maintain or repair e.g. correct maintenance of plant/tools can ensure that they last longer and function in a more efficient way
- Reuse or redistribute e.g. can excess materials be used elsewhere on a project or another project?
- Refurbish or remanufacture e.g. if there features within a project that can retained with a new coat of paint
- Recover and recycle e.g. crushing demolition material in order to use it within the project

11. Project Specific Targets

This section is to be used in order to record project specific targets. Take in to account the Company and Divisional level targets in order to ensure that the project targets are aimed at achieving these higher level targets. The table within this section can be used to structure the targets.

Objective	Target	Timescale	Responsibility	Actions
Maximise the amount of waste diverted from landfill	90% of C, D and E waste diverted from landfill	Review each month	Waste Champion	Record all data via Footprint

12. Duty of Care Documentation

All waste duty of care documentation will be obtained and retained by each project within their site files. This information will also be captured within the Footprint system in order to accurately record each waste movement from site.

13. Transport of Construction Materials and Waste

Efficiency measures are not simply restricted to physical materials and waste. The emissions produced by the transportation of materials and waste are an indirect resource consumption related to Gavin Griffiths Recycling operations. The table in Appendix 1 can be used to keep a record of vehicle movements in relation to transportation of both materials and waste to and from site including movement type (skip/bin delivery, waste removal, material delivery etc.), vehicle type (short wheel base van, long wheel base van, 8-wheel tipper etc.), fuel type (diesel, petrol, LPG etc.) and distance travelled (km). The data gathered can be entered into a tool such as the BREEAM scoring and reporting tool in order to identify the total fuel consumption and carbon dioxide emissions.

14. Importing Reused/Recycled Materials to Site

Use this section to record materials that have been imported to site from another VINCI Construction UK project or third party location. Examples of this can include reused hoarding from a recently finished project to a new project, excess excavation material from finished or currently running project or crushed demolition material that is reused as aggregate or fill. A file should be established on site to maintain physical evidence of the reuse nature of the material. In the example to hoarding this could take the form of previous chain of custody information for the original purchase. With Demolition material the project will need to obtain a copy of the exemption (T7) for crushing of the material on the original site and have their own exemption (U1) for the reuse of the material on the receiving site.

Material Type	Reused or Recycled	Supplier	Evidence	File reference	Cost savings

15. Unplanned On-Site Reuse or Recycling

In this section the project will be expected to record details of any onsite reuse, recycling or recovery that was not pre-planned (as part of section 8 and 9). This may include situations where the scope of

the works was changed during the project to incorporate the reuse of waste material or even the avoidance of removing something from site thereby eliminating waste in the first instance.

Material Type	Reused or Recycled	Work package	Evidence	File reference	Cost savings

16. Ongoing Review

This section is to be used to carry out an ongoing review of this plan at pre-determined intervals throughout the project e.g. every six months.

Reviewed by	Date	Comments

17. Final Review, Cost Savings and Lessons Learned

This section includes a final review of the effectiveness of the plan including a summary of cost savings that were generated by the efficient management of materials and generated waste. This may be as simple as working out the savings by diverting waste from landfill and the associated taxes involved or even the prevention of haulage costs by reusing waste on site. Include the cost savings mentioned within section 12 and 13.

Provide feedback on how successful this plan has been in improving the efficient use of materials. Consider the input from different aspects of the project life cycle, including design and tender stages.