Site Materials Management Plan

Kenson River

Draft Report

04/08/2025

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Natural Resources Wales

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Revision History

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P01 / 4th June 2025	Draft for comments	Rachel Drabble
P01 / 4th August 2025	Draft Report for comment	Natural Resources Wales (NRW)

Contract

This report describes work commissioned by Natural Resources Wales (NRW). Jon Howard of JBA Consulting carried out this work.

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Principal Consultant

Purpose

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1 Introduction

1.1 Overview

This document forms a high-level Materials Management Plan (MMP) outlining how the main contractor intends to follow the general principles of the CL:AIRE Definition of Waste: Code of Practice (DoW CoP) guidance for the reuse of material excavated from the Kenson River restoration works. The DoW CoP provides a clear, consistent and efficient process which enables the reuse of excavated materials onsite and supports the sustainable and cost-effective development of land.

This MMP covers the Kenson River site, as shown in the Figure 1 below.

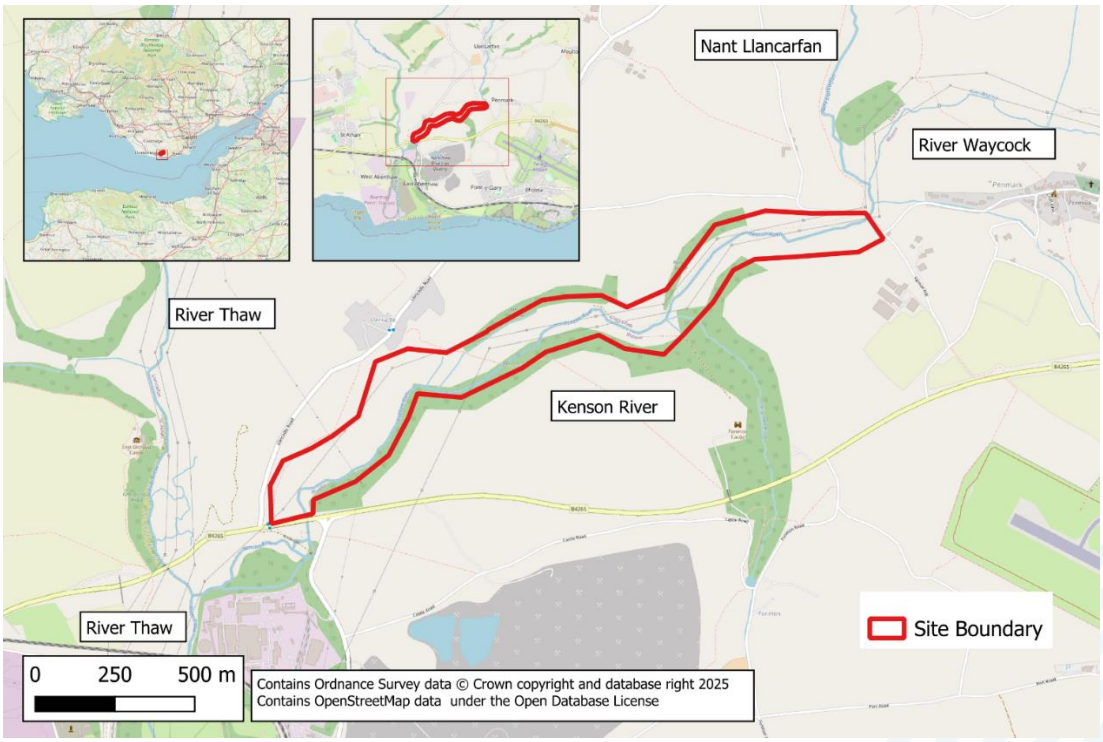


Figure 1. Site boundary at the Kenson River

This document and a subsequent validation report are intended to support the management of the works in line with best practice.

1.2 Site Details

Site/ Project(s)	2025s0023 – NRW Kenson River Restoration
Re-use/receiving site name and details	Kenson River site Approximate National Grid Reference: ST 04343 68371.

1.3 Landowners

Name of Landowner(s) (full address and contact details) – where excavated materials are to be reused/being excavated from	Nigel Ford, Fonmon Castle Limited Fonmon Castle, Fonmon, Vale of Glamorgan, Barry,

	CF62 3ZN nigelford@allthingsruralltd.co.uk

2 Site Summary and Objectives

The site is situated on a stretch of the Kenson River between Kenson Hill (NE) to the location where the Kenson River passes under the B4265. The river flows southwest through grassland and riparian habitats until its confluence with the River Thaw approximately 500m southwest of the site boundary. The site of interest is a 2.3km long reach which is centralised at National Grid Reference ST 0434 68371. It is irregular in shape and occupies an area of 33.3 hectares.

The restoration project has been carried forward to include:

- Riparian improvement/ planting
- Scrape creation
- Bank regrading
- Install woody material/ large wood within the Kenson channel
- Creation of in-channel berms
- Localised bed raising
- Reconnection of palaeo channels
- Backwater creation
- Wetland creation

The reach has been split into six different sections as shown in Figure 2 below.

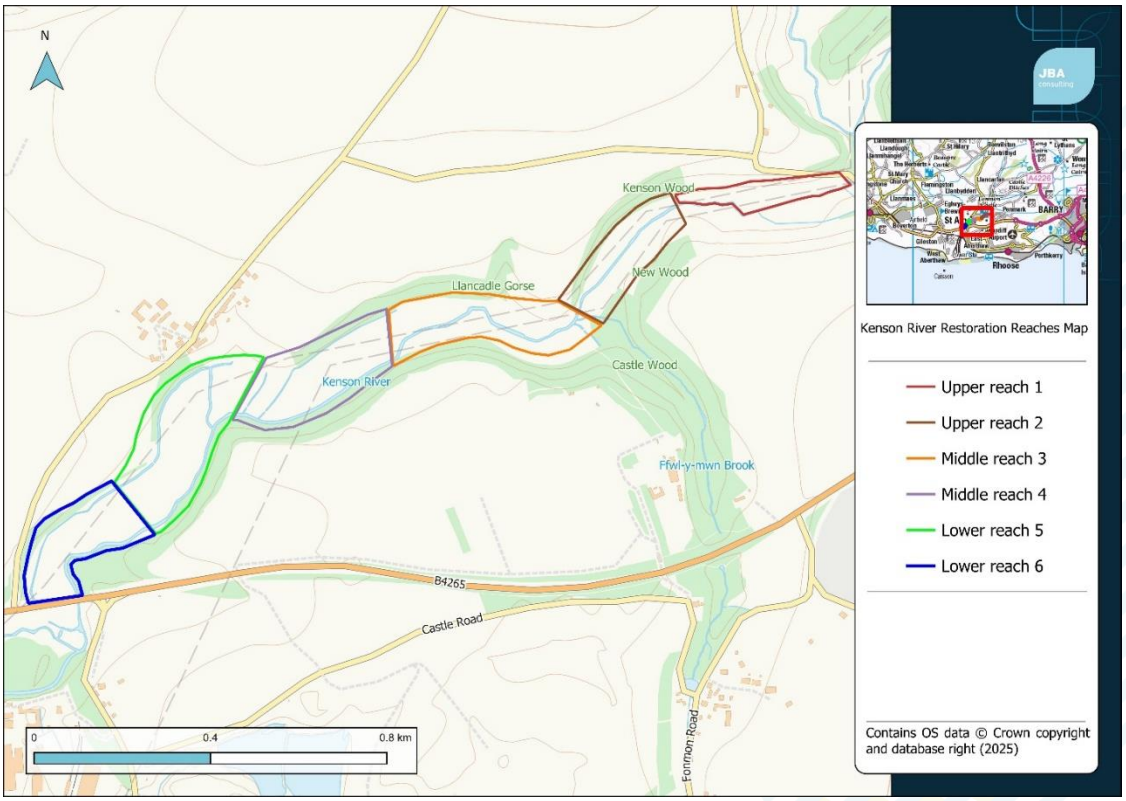


Figure 2. The location of the six restoration reaches along the Kenson River

The proposed site of the river restoration scheme falls within the grounds of Fonmon Castle. The Kenson River is noted for its trout and water voles which are in the process of being reintroduced and managed by Fonmon Castle. For the majority of the area, the valley meadows are not enclosed and used for cattle grazing, with the valley sides containing ancient woodlands.

The southern riverbank is mainly covered by riparian woodland, and many of these are classified as Ancient Woodland. The northern riverbank consists of several cut drains and open space along the river's corridor, with patches of woodland. The wider surrounding area is mainly covered with arable and pastural farmland with small villages and towns.

One of the objectives of the MMP is to ensure that identified human health risks are adequately mitigated and to promote the use of site-won materials, minimising offsite disposal and the import of virgin material. It is therefore essential that materials are managed appropriately, off-site disposals of surplus soil are managed in accordance with relevant legislation, and, where fill/surplus materials are either site-won or newly imported, they do not represent a source of contamination and cannot be considered a waste material.

This materials management plan will document all of the key details associated with the movement of materials on and off-site.

The proposed restoration strategy indicates that earthworks will comprise of both cut and fill. Since the site requires cutting, it will generate a surplus of material which, if cannot be reused either onsite or at a donor site, will require disposal off-site at an appropriately licensed facility. The plan is to spread all of the surplus material across the wider Fonmon estate as shown in Figure 3 below. The material which is subject to reuse will have to be compliant with geotechnical and chemical requirements listed below.

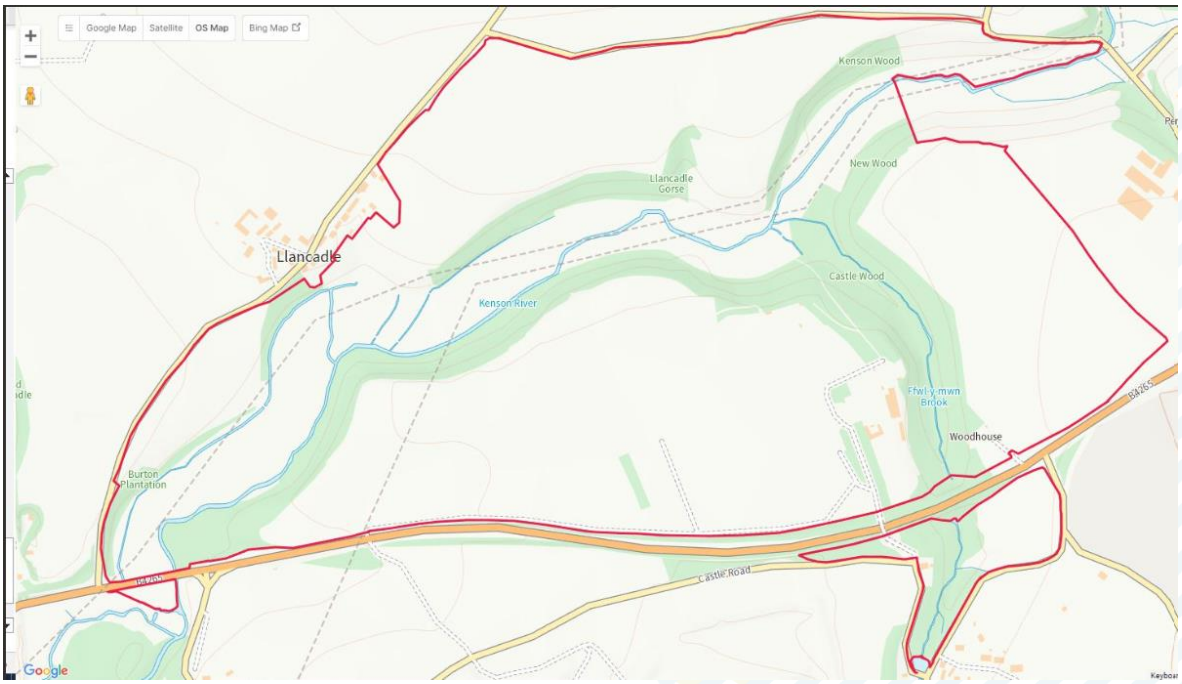


Figure 3. The wider Fonmon estate which will be the acceptor site for reused materials.

3 General Plans and Schematics

Figure 2, located in Section 2, shows the reaches of the river where the proposed earthworks for the cut and fill are planned to take place at the site.

Figure 3 shows the wider area across the Fonmon estate, which will host the excess materials which are suitable for reuse.

4 Parties Involved and Consultation

Main earthworks contractor where materials are to be re-used	The earthworks contractor has not been appointed yet, although it will be a NRW Framework contractor. Once they have been, their details will be provided here.
Main earthworks contractor – from where materials are arising	As above.

4.1 Correspondence with the Planning Inspectorate

The project had not gone forward to planning at the time of writing this Materials Management Plan. Therefore, this section will be updated in a later amendment.

5 Lines of Evidence for Material Re-Use

The following section covers the four factors which are considered to be of particular relevance for material reuse under the CL:AIRE DoW CoP.

5.1 Site Won Materials

5.1.1 Factor 1: Protection of human health and protection of the environment

In April 2025, Ecoefficiency Ltd. took 3No. soil samples from the site, from shallow hand pits, and sent them to ChemTech Environmental laboratory for Waste Acceptance Criteria (WAC) testing. The samples were taken from west of the bridge, at Kingfisher Hide and beside the pond. The testing included analysis for heavy metals, asbestos, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs) and inorganics. The laboratory tests were accredited by UKAS.

Following this, Ecoefficiency Ltd. ran the analysis through the HazWaste Online System. The results classified all three of the samples as Non-Hazardous with no elevated levels of contamination. In addition, no Asbestos Containing Materials (ACMs) were identified in the 3No. samples.

Per-fluoroalkyl substances (PFAS) was also tested for in the 3No. soil samples, due to the presence of the Cardiff Roose Airport located approximately 800m south of the upstream end of the site. No PFAS contaminants were detected above their limit of detection levels, indicating that there is now a low likelihood of PFAS contamination onsite. However, it should be noted that samples were only analysed under WAC criteria. The methodologies for testing for WAC and general PFAS suites are slightly different and can sometimes lead to discrepancies in reported contaminant concentrations. Since there were no detections identified within the WAC tests, it suggests that there was no PFAS contamination present, however, further testing for the potential presence PFAS contamination within soils should be undertaken to confirm this.

Although no samples were analysed under the Public Open Space Criteria 2 end use, given the very low contaminant results within the WAC analysis, it is anticipated that there will be a low risk to human health and the environment. As such, it is considered that the emplacement of this material, as planned, meets with the CL:AIRE DoW CoP requirements around protection of human health and protection of the environment. Further sampling and analysis should be undertaken prior to reuse onsite to confirm the nature of the materials.

5.1.2 Factor 2: Suitability for use, without further treatment

Since the materials onsite are considered to be of low risk to human health, they are unlikely to need treatment ahead of placement into fill areas.

There is not anticipated to be Made Ground across the site, only topsoil above superficial Alluvium deposits. This material is likely to have an end use and screened under public open space criteria 2 screening criteria and therefore would be suitable for reuse without the need for further treatment.

A description of the anticipated geological profile onsite, described in the contaminated land desk-based study is outline in Table 1 below.

Table 1. Descriptions of typical strata likely to be encountered, based on the JBA Contaminated Land Desk Study Report.

Strata	Depth to Top of Strata (m bgl)	General Thickness (m)	Description
Quaternary Period Superficial Geology	Topsoil	Variable	Freely draining but slightly acid but base rich soils (loamy in texture). Likely to be found across the majority of the site.
	Alluvium	Variable	Clay, silt, sand and gravel. Sedimentary superficial deposits formed between 11.8 thousand years ago and present day, during the Quaternary period. Likely to be found across the majority of the site.
	Head Deposits	Variable	Clay, silt, sand and gravel. Sedimentary superficial deposits formed between 2.58 million years ago and the present day, during the Quaternary period. Likely to only be found in the northeastern portion of the site.
Bedrock Hattangian Age	Porthkerry Formation	Variable	Limestone and mudstone interbedded. Sedimentary bedrock formed between 201.3 and 190.8 million years ago during the Jurassic period. Likely to be found across the majority of the site.

Materials should still be sent for chemical analysis and undergo confirmatory screening to ensure that the materials reused onsite are below the remedial criteria for Public Open Space Criteria 2 end use. Confirmatory sampling and analysis should be undertaken as specified in Tables 2 and 3.

The threshold criteria are based upon the CL:AIRE C4SLs, where available in the first instance, and the CEIH S4ULs when C4SLs are unavailable. For organic determinands, a conservative Soil Organic Matter (SOM) content of 1% has been assumed. These threshold criteria are assumed to be for public open space criteria 2 end use.

Table 2. Material Re-use and Import Sampling & Testing Frequency

Type	No of Samples	Testing Schedule	Assessment Criteria
Virgin Quarried Material	1 or 2 depending on the type of stone utilised, to confirm the nature of the material.	Metals suite as prescribed in Table 3.	As prescribed in Table 3.
Crushed Hardcore, Stone, Brick	Minimum 3 per source or 1 per 250 m3 (whichever is greater)	Metals suite, PAH suite, total TPH and asbestos as prescribed in Table 3.	
Site Won Topsoil	Minimum 3 per material type or 1 per 1000 m3 (whichever is greater) up to 10,000 m3, then reviewing testing frequency depending on results.	Metals suite, PAH suite, total TPH and asbestos as prescribed in Table 3.	
Site Won Subsoil	Minimum 3 per material type or 1 per 1000 m3 (whichever is greater) up to 10,000 m3, then reviewing testing frequency depending on results.	Metals suite, PAH suite, total TPH and asbestos as prescribed in Table 3.	

Table 3. Public Open Space 2 Criteria

Contaminant	Units	Threshold Value
pH	pH Units	
Asbestos	%w/w	<0.1
Arsenic	mg/kg	168
Cadmium	mg/kg	880
Chromium III	mg/kg	33,000
Chromium VI	mg/kg	250
Copper	mg/kg	44,000
Lead	mg/kg	1,300
Elemental Mercury	mg/kg	30
Nickel	mg/kg	800
Zinc	mg/kg	170,000
Selenium	mg/kg	1,800
Naphthalene	mg/kg	1,200
Acenaphthylene	mg/kg	29,000
Acenaphthene	mg/kg	29,000
Fluorene	mg/kg	20,000
Phenanthrene	mg/kg	6,200
Anthracene	mg/kg	150,000
Fluoranthene	mg/kg	6,300
Pyrene	mg/kg	15,000
Benzo(a)anthracene	mg/kg	49
Chrysene	mg/kg	93
Benzo(b)fluoranthene	mg/kg	13
Benzo(k)fluoranthene	mg/kg	370
Benzo(a)pyrene	mg/kg	11
Indeno(1,2,3-c,d)pyrene	mg/kg	150
Dibenzo(g,h,i)perylene	mg/kg	1.1
Total TPH (C4-C44)	mg/kg	<1000
Benzene	mg/kg	90

If the tested materials are below the screening criteria, the site materials are considered suitable in their current state to meet the requirements of factor 2.

5.1.3 Factor 3: Certainty of material use

A reuse strategy has been designed for the site material being maintained on site which is considered to be the most sustainable option in terms of minimal vehicle movement to/from the site.

It has been agreed with the landowners that all of the material taken from the cutting of the site will be spread and reused within the Fonmon estate (estate ownership boundary is shown in Figure 3). Therefore, there will be no excess material and hence no offsite disposal. This then satisfies the CL:AIRE DoW CoP section requiring certainty of use and hence no excess.

5.1.4 Factor 4: Quantity of use

A breakdown of the approximate volumes of the proposed excavated materials from the site and the fill volumes placed across the site is presented in Table 4 below. Material movements will be tracked during the works and the actual final volumes excavated and emplaced will be recorded in the verification report.

Table 4. The volumes of cut and fill across the site.

Area	Cut (m^2)	Fill (m^2)	Net (m^2)
Upper Reach 1	0	0	0
Upper Reach 2	8,941	146	-8,795
Middle Reach 3	11,028	926	-10,102
Middle Reach 4	11,116	2,080	-9,036
Lower Reach 5	4,563	0	-4,563
Lower Reach 6	2,855	0	-2,855
Total	38,503	3,152	-35,351

5.2 Imported Materials

Imported materials (e.g. gravels) are likely to be used in parts of the development. Where import is required, the methodology detailed in Tables 2 and 3 should be applied to ensure that the chemical suitability of the imported materials meets criteria. This testing does not replace any testing of these materials specified in the earthworks specification to ensure its geotechnical suitability and should be carried out in addition.

Assuming the materials meet these criteria, they will be suitable for infill at the site.

6 Contingency Arrangements

6.1 Encountering unexpected contaminated materials

The strategy for encountering unexpected contamination will be included in the Construction Environment Management Plan (CEMP) for the scheme. In brief, should any unexpected signs of contamination (such as asbestos containing materials, hydrocarbons, animal carcasses, etc.) be encountered during the works, then works in that area will stop and the contamination will be assessed, segregated and sampled for appropriate disposal (if required).

6.2 Prevention of non-suitable material being accepted

All materials for reuse will be assessed for visual and olfactory signs of contamination prior to being emplaced. Photographs will be taken of all material to evidence this assessment, and material movements will be tracked as detailed below.

To confirm the low contaminant concentrations in the site won material, a laboratory sample will be collected every 5,000m^3 of material.

6.3 Excess Materials

Prior to the disposal of any material that is deemed to be in surplus at a licenced facility, the material will be classified as either hazardous or non-hazardous in line with the WM3 Waste classification guidelines and subject to the appropriate Waste Acceptance Criteria (WAC) testing.

7 Material Tracking

7.1 The Tracking System

Progress will be tracked onsite using a materials tracking form (example included as Appendix C) against the earthworks program. Site logs, sampling of site won materials, and photographic records will record progress throughout the works which will be audited during scheduled/periodic visits from the Environmental Advisor.

The tracking form will include details on:

- Material origin
- Date excavated
- Material volume
- Destination on site
- Stockpile location (if appropriate)
- Final location
- Date emplaced at final location
- Information on laboratory sampling

At the end of the job, as built surveys will show the final quantities moved across the site when compared to the original surveys.

7.2 Records

Records are to be kept in site offices (photographs, drawings, sketches, soil audit sheets etc.). NRW should complete a verification report on completion of the remediation works to verify that all the works were completed as described in this document.

8 Verification Plan

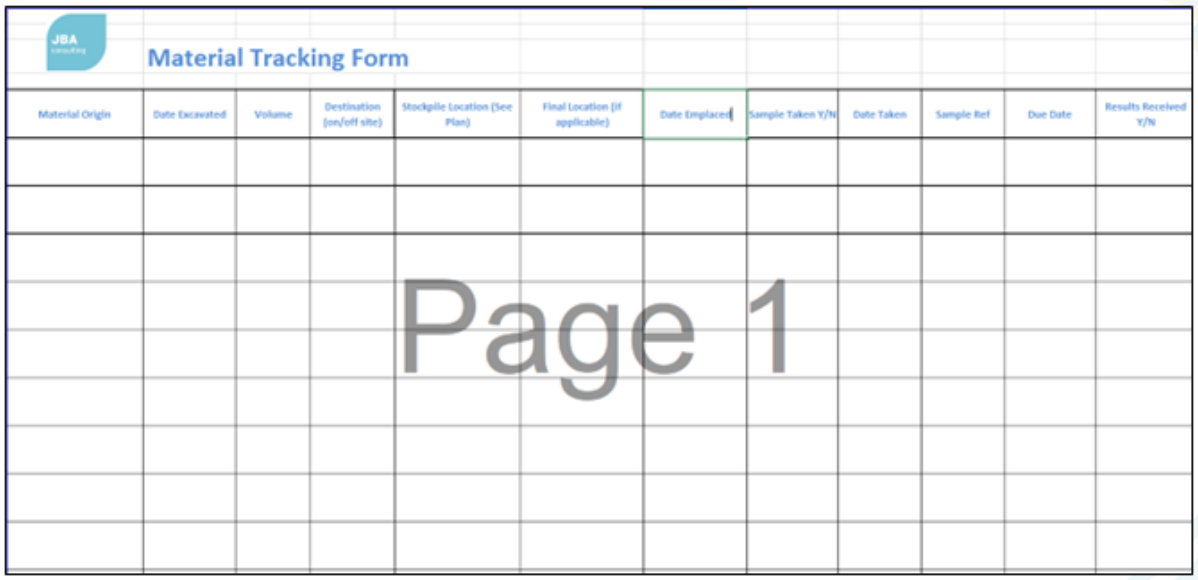
Upon completion of the remediation works, a Verification Report will be produced. The report will include the following information:

- summary of completed works in relation to the Restoration Strategy, identification, and discussion of any deviations;
- tracking/log of material movements and placement as per the MMP;
- any changes that may have been made to the MMP as alterations to the project have been formally made and/or contingency arrangements have been implemented;
- photographic records of the completed works;
- log of any quarantined unsuitable material;
- results of additional monitoring and verification laboratory sampling;
- evidence that any imported soil is from a suitable source if required;
- topographical surveys of final site levels;
- copies of relevant waste documentation for any unsuitable material removed from the site as required; and,
- Updated risk assessment for the site confirming success of completed works.

The report will be issued to the CL:AIRE representative and Natural Resource Wales to confirm the required works have been completed to satisfy the planning condition.

Appendices

A Materials tracking form example



Material Tracking Form

Material Origin	Date Excavated	Volume	Destination (on/off site)	Stockpile Location (See Plan)	Final Location (if applicable)	Date Emplaced	Sample Taken Y/N	Date Taken	Sample Ref	Due Date	Results Received Y/N

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