

MIL_FOR_ENV_032

Project Sampling and Analysis Plan

Project Name	Stanhope Road Bridge Replacement		
Contract No.	3411042/70085596		
Project Address	Stanhope Road / Avenue Road, Highgate, London, N6 5DF		
Project Start Date	February 2024		
Project Duration	11 Months		
Prepared By	Amy Redpath	Sign: 	Date: 01/03/2024
	Senior Environmental Advisor		
Reviewed By	Ryan Carley	Sign: 	Date: 01/03/2024
	Site Agent		
Approved By (Document holder)	Hassan Soboh	Sign: 	Date: 01/03/2024
	Senior Project Manager		

Revision	Summary of changes made	Revision by	Approved by	Revision date
01	First Review	AR	RC	01/03/2024

Contents

1	General Guidance	2
1.1	Standard Label Requirements.....	2
1.2	Considerations for Sampling Solids.....	2
1.3	Sample Container Guidance	3
1.4	Suite of Analysis.....	4
2	The Sampling Process	6
2.1	Record Keeping.....	6
2.2	Sampling Frequency	6
2.3	Sampling Method	7
2.4	Sample Preservation	7
2.5	Sample Labels.....	7
2.6	Chain of Custody.....	7
3	Reporting.....	8
3.1	Test Results	8
3.2	Assessment.....	8
	Appendix 1: Sampling and Analysis Instruction Form	9

1 General Guidance

This form should be completed for every project, job, or scheme that requires sampling.

All samples should be given a sample number, information on location, depth, the type of container used, and which tests are required.

Any suspicious layers identified during sample extraction, for example old tar bound layers that have been constructed over should be reported to the Environment Team and the requirement for additional testing established.

Samples should be kept cool and away from direct light using cool boxes where appropriate to minimise degradation and volatilization.

Sample containers should be adequately packed with protective packaging materials to prevent damage during transit.

To prevent sample deviation disclaimers on the resulting test report please ensure samples are provided in:

- The correct containers;
- In date (taken within 48 hours of sending) with the date listed on sample pot; and
- Accompanied by a completed chain of custody (COC) form (provided by the laboratory).

Samples should be taken in accordance with the sampling requirements. See below guidance specifying the number and type of containers and detail on the samples required.

1.1 Standard Label Requirements

When completing the sample labels, the sampler should include the following information:

- Company name;
- Project name;
- Sample type;
 - For example: soil, water, or soil.
- Sample location reference;
- Depth
 - This would be N/A if the sample was taken from a stockpile.
- Date; and
- Time.

1.2 Considerations for Sampling Solids

When sampling a solid material or waste, consideration must be taken to the sample container(s) the laboratory requires to test the sample.

For material or wastes that are larger than the sampling vessel, they must be broken down into smaller pieces. Larger materials or wastes should not be sampled in a bag separately, as a bag would be the wrong sample container and would affect the testing results. It is imperative that the samples are sampled into the containers specified by the laboratory. For example, a wood/timber waste is often too large to large for a typical sample container; to sample it, the wood/timber waste would require breaking down into shavings or

chippings, being mindful to include shavings/chippings from the entire cross section of the waste so that the sample would be representative of the whole.

If the material or waste is heterogenous (comprised of two or more different materials or wastes such as concrete and tarmac), the sampler should estimate the composition of the heterogenous material or waste. For example:

- Concrete (70%); and
- Tarmac (30%).

This should be recorded on both the label and the chain of custody (CoC).

1.3 Sample Container Guidance

The sample containers required may differ depending on the laboratory you use for the same suite of analysis.

The sample containers required may also differ depending on the material or waste being sampled.

Furthermore, the sample containers required by the same lab for the same suite of analysis over time. This could be due to changes to:

- Changes to the standards that dictate how the laboratory test your samples;
- Changes to the testing method utilised by the laboratory; and
- Changes to official documents such as guidance, legislation, orders, etc.

The chosen laboratory should be consulted before each 'round' of sampling to ensure that the sample containers are correct.

An example of sample containers required by laboratory Eurofin Chemtest for soil can be seen below in Figure 1.



Figure 1 - Soil Sample Containers Required by Eurofin Chemtest

An example of sample containers required by the same laboratory for water can be seen below in Figure 2.

Water Sample Containers



Figure 2 - Water Sample Containers Required by Eurofin Chemtest

The sample containers in Figure 1 and Figure 2 are only examples. In practice, the sample containers will vary depending on what the laboratory is asked to test for.

1.4 Suite of Analysis

A sample of material or waste must be representative of the whole.

A sample of material or waste must be scheduled for testing that will be representative of what is in that waste/material. For example, a material that is known to be contaminated with diesel due to a fuel spill is only tested for heavy metals; this testing wouldn't be representative of the material as it wouldn't show the fuel contamination.

Milestone Infrastructure Ltd (MI) utilise a 'Standard Excavated Waste Suite' for all material destined for off-site disposal or recovery. This can be seen below in Table 1.

Table 1 - MI Standard Excavated Waste Suite

Standard Excavated Waste Suite (based on WM3 guidance)
Moisture content correction type, (wet or dry) & value specified. Request results are corrected to dry weight terms
pH
Asbestos screen (followed by immediate Identification and quantification if found) Asbestos ID and Gravimetry
Heavy Metals - Arsenic (As), Barium (Ba), Cadmium (Cd), Copper (Cu), Molybdenum (Mo), Lead (Pb), Mercury (Hg), Nickel (Ni), Selenium (Se), Zinc (Zn)
Chromium III & VI
TPH Criteria Working Group & Chromatographs
Confirmation whether Total Petroleum Hydrocarbons (TPH) has arisen from diesel or petrol

Phenol Index
Speciated 16 Poly Aromatic Hydrocarbons (PAH)
Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)
Flourocil clean up (optional test)

The Standard Excavated Waste Suite must be viewed as the minimum testing.

Additional testing must be scheduled if you suspect there is a risk posed from another contaminant that isn't included in Table 1.

A good way to determine whether additional testing is required is to look at the site investigation document to see what the site investigation contractor was looking for or finding.

If additional testing is considered necessary, the Environmental Manager and / or Environmental Advisor should be consulted before the samples are sent to the laboratory.

If a waste is destined for disposal at a landfill, additional waste acceptance criteria (WAC) testing will be required. The Environment Manager and / or Environmental Advisor should be consulted before sampling is conducted.

The Environmental Manager and / or Environmental Advisor should be consulted in all instances of water sampling.

2 The Sampling Process

2.1 Record Keeping

All samples taken should be recorded, stored electronically (as a scan or completed electronically) on the MI Sharepoint or Procore, and sent to the Environmental Manager and / or Environmental Advisor.

An example for how sample information should be recorded can be seen below in table 2.

Table 2 - Sample Record

Sample ID/Trial Pit	Depth	Sample or Test Type	No. and type of Containers	Sample Type (Individual/Composite)	Completed (Yes/No)
TP01					
TP02					
TP03					
TP04					
Stockpile 1					
(Add more as req.)					

A sampling plan should also be included in **Error! Reference source not found. Error! Reference source not found.** of this document, as a physical or digital drawing, that illustrates the location each sample was taken, including the sample ID/reference. The plan should correlate to the samples listed in Table 2 - Sample Record.

2.2 Sampling Frequency

The sampling frequency should be performed in accordance with the MI waste management guidance, which is available on MIMS. The sample frequency table from that guidance can be seen in table 3 below.

Table 3 - Sampling Frequency

Quantity to be excavated	Number of samples to be taken	
	Heterogeneous	Homogeneous
<100t	5	2
<500t	8	3
<1000t	14	5
10,000t	22	11
Plus per additional 10,000t	+10	+5

Homogeneous refers to one defined material or waste such as the same natural soil and stone.

Heterogeneous refers to two or more materials or wastes such as subsoil mixed with topsoil or concrete mixed with asphalt.

- This is to be planned and determined on a site by site basis. As a general rule cores should be taken as per the table below:

Length	Number of Cores
Up to 100m	Minimum 1
100 – 200m	Minimum 2
200 – 400m	Minimum 3
400m +	200m centres

- If a positive result is returned with the PAK marker then additional cores are to be taken to identify tar bound areas at between 25m and 50 m centres links as per ADEPT guidance

Where design requires full depth reconstruction (beneath the bound layers) further sampling to be completed via trial holes.

2.3 Sampling Method

Further to guidance provided above in 1.4 Suite of Analysis, all sampling should be performed in accordance with MI's HSE guidance and procedures.

All samples must be put into the required sample containers at the location of sampling. They should not be bagged and put into the sample containers at a later time.

2.4 Sample Preservation

Samples should be stored in a cool box (delivered by the laboratory with the sample containers) with ice packs whilst waiting to be taken to or collected by the lab.

Samples should be delivered or collected within 48 hours of being sampled.

2.5 Sample Labels

All sample labels on all containers should be completed in full at the location of sampling.

2.6 Chain of Custody

All samples should be included on the CoC.

All relevant sections of the CoC should be completed and an individual tick marked under the required testing against each individual sample.

3 Reporting

3.1 Test Results

The laboratory will email the testing results through to the contact listed on the CoC.

The test results should be reviewed immediately by the person that scheduled the testing to ensure all samples have been tested for the correct contaminants and there is no testing missing.

If there are any errors, the laboratory will typically retain your samples for two weeks as standard (this needs to be confirmed with the laboratory of choice) and you can schedule further testing.

Once the test results have been received and confirmed as correct, they must be sent to the Environmental Manager and / or Environmental Advisor for assessment.

3.2 Assessment

Once the Environmental Manager and / or Environmental Advisor has performed the assessment, they will confirm or deny approval for disposal and / or reuse.

Appendix 1: Sampling and Analysis Instruction Form

This shall be produced when sampling locations are confirmed. This Form shall show the locations which were tested and type of samples that were completed. This information shall be combined with the lead and asbestos surveys into the CEMP describing the results and management met

