[Web address: nature.scot/peatlandaction](http://www.nature.scot/PeatlandACTION)

Monitoring Fund Application Spatial Data Templates v1.0

Definitions and guidance

# Introduction

This document provides an overview, a detailed description, and definitions of each of the spatial data layers (templates) that should be completed as part of your application for Peatland Action funding for a monitoring project.

The data template is provided for QGIS3.28.5. QGIS is recommended as free and open source software.

If you require further assistance with using the spatial data templates, please contact [PEATLANDACTIONDATA@nature.scot](mailto:PEATLANDACTIONDATA@nature.scot)

The spatial data layers provide a consistent approach to recording the location of monitoring projects funded by Peatland ACTION. This enables the Peatland ACTION team to store and communicate this information more effectively. **It is important that the provided template is used as-is – changes to layer names or other modification will invalidate the application.**

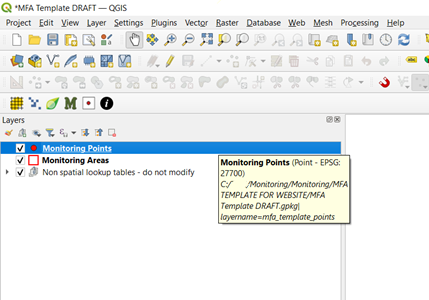
In addition, project files[[1]](#footnote-1) have been developed to enable a more user-friendly means of interacting with these spatial data layers – they provide the styling for the individual layers and drop down options for some of the values where these are constrained to a particular set of values (see Layer Descriptions).

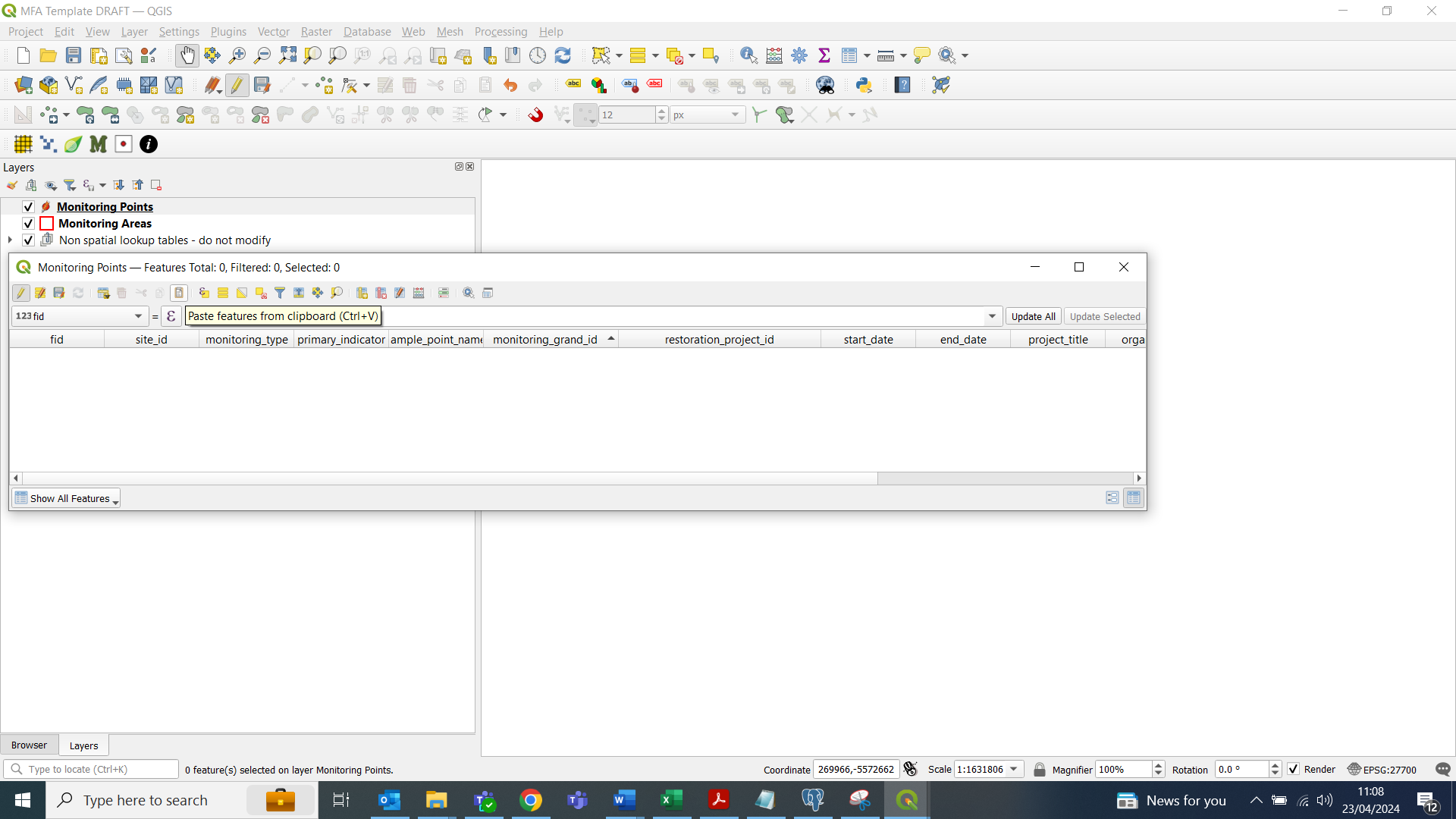
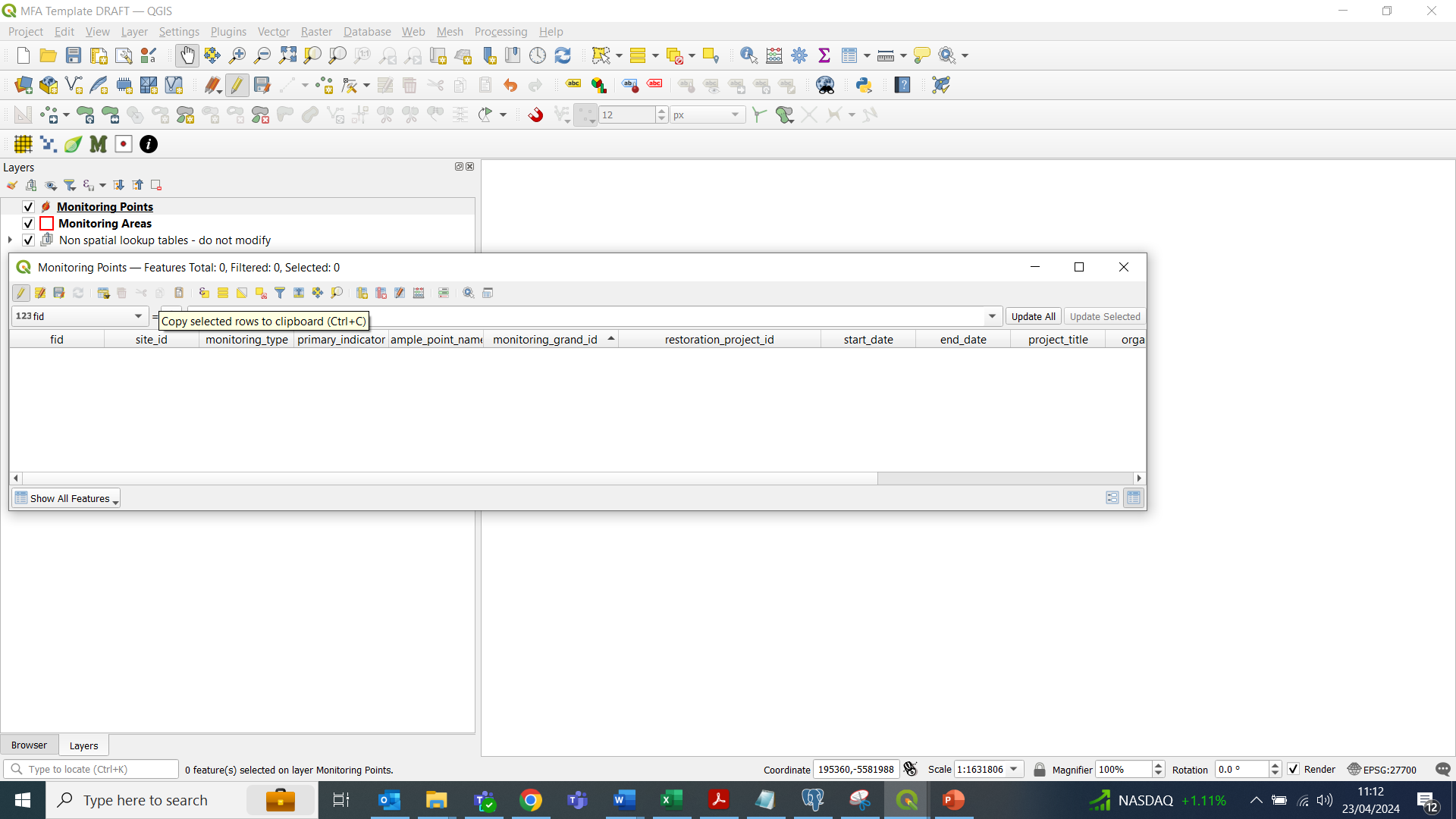
Below is a list of the layers included in the zip file, along with a brief overview. [Layer descriptions](#_Layer_descriptions) provides a description of the attributes and associated sets of allowed values for each layer.

# Initial Steps

* Go to the NatureSCOT website and download the data pack to your local drive. You should always download a new monitoring fund application form from the NatureSCOT website to ensure the latest template is being used.
* Locate the download and extract the folder, you should have the documents and files shown in the table below.

|  |  |
| --- | --- |
| File Type | File Name |
| Word Document | Peatland ACTION – Monitoring Fund Application Spatial Data Guidance v1 – 13/05/2024 |
| QGIS Project (.qgz) | Monitoring\_Fund\_Application\_Spatial\_Data\_Template |
| GPKG File (.gpkg) | Monitoring\_Fund\_Application\_Spatial\_Data\_Template |

* The monitoring application form should be completed alongside the spatial data template, ensuring that they both discuss the same number of/area of monitoring points/sites.
* To open the QGIS project, double click on the .qgz file. This should automatically open in QGIS. It is set up to read the geopackage of the same name within the folder (you can hover over a layer and read the file path of the gpkg to check this). Don’t rename either the QGIS project or geopackage as they may become unlinked. 
* The minimum requirement is to complete one of the three layers – monitoring points, lines, or areas. Data can be submitted in multiple layers but you should **avoid duplicating the same information** – for example you may wish to include a site boundary in the monitoring areas layer and then specific point or line features within the monitoring layers.
* You should complete all the fields marked as mandatory in the layer description table below for the layer/s you choose to submit. If any of the mandatory layers are incomplete, then your application will be returned immediately as unfinished.
* To populate a layer in QGIS, toggle on the editing by clicking on the layer you wish to update in the layers browsing panel on the left and then clicking the pencil icon.
* You should add features in the map view. You can then update the data within the attribute table. This mitigates against creating features with no associated geometry.
* If copying from another GIS file, open the attribute table and select the items you wish to copy. Use the copy and paste symbols at the top of the attribute tables to copy and paste the items – you may wish to choose the ‘paste all including invalid’ option. If you do this you will then need to go back and update the fields within the attribute table, however you can carry out bulk updates using the ‘update all’ toolbar at the top of the table.



*Screenshot of QGIS attribute table to Monitoring points with copy and paste button locations.*

A screenshot of a computer

Description automatically generated

*Screenshot of QGIS attribute table to Monitoring points demonstrating use of update all/update selected toolbar for updating multiple entries at once.*

# Mandatory layers

For monitoring applications, the data you provide us with **must** contain **features in *at least one* of the following tables:**

* Monitoring Points
* Monitoring Lines
* Monitoring Areas

The **Lookup tables** are included for reference only and should not be altered. These are the non-spatial tables monitoring\_type and primary\_indicator.

# Offline / Fieldwork

Several options are available for field data collection using the templates. These include the following:

[**QField**](https://qfield.org/) – Free open source field data collection application. At the time of writing only available for Android although an iOS version is in development. The project can easily be configured for use in QField – the mobile app for offline field data collection (for tutorials see: <https://qfield.org/docs/getting-started/index.html>). To take photos in QField, the separate Open Camera app is recommended – this can also burn timestamps and bearing into your image (see: <https://qfield.org/docs/prepare/add-1-n-pictures.html>)

**Mergin Maps –** Field spatial data collection application fully based on the cloud that works with QGIS. This is not a free tool and a monthly subscription is required. For more information see: https://merginmaps.com/

**Avenza Maps –** This is a popular app mainly for outdoors activities but it also allows capturing spatial data and exporting it to shapefile. The free plan is limited to import up to 3 maps at a time. For more information see: https://support.avenzamaps.com/hc/en-us.

**Collector/ Field Maps** – Esri field collection application, available for a subscription to Esri services. Note that the geopackage format cannot be published as a hosted feature layer on ArcGIS Online so transformation to a geodatabase format will be required.

# Monitoring feature layers

These layers contain the information about the proposed / completed monitoring work. At least one of the following three layers must contain features:

### [Monitoring points](#Restoration_points)

### Used to record points where monitoring is planned or has been undertaken. This layer is particularly useful for studies involving monitoring at specific locations e.g. water quality sampling, vegetation quadrat sampling and in-site equipment. These can be approximate locations at the time of application and then updated with the confirmed final locations at the time of final report.

### [Monitoring Lines](#Restoration_areas)

Used to record where linear surveys are planned or have been undertaken. This layer may be useful for transect surveys (e.g. butterflies), or for identifying watercourse reaches where sampling is intended to take place.

### [Monitoring areas](#Restoration_areas)

Used to record larger areas of planned or completed monitoring. This may be useful for projects which are assessing changes in habitat, surveying fauna, or using remote sensing tools. This layer can also be used alongside the points or lines layer to identify the boundary of a monitoring site if it is deemed useful.

The three layers share the same fields but allow for the representation of different monitoring projects via the different geometry types. There are two fixed columns which are restricted to lookup values, these are the monitoring type and the primary indicator.

# Layer descriptions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monitoring Areas/ Points/Lines** | | | | |
| Attribute | Data type | Unit | Description | Mandatory |
| fid | Integer |  | Unique ID – auto-generated | Yes |
| Site ID | Integer |  | ID used to relate to monitoring areas in the spatial data with the monitoring application form. | Yes |
| Monitoring Type | Text array (constrained) |  | See ‘Monitoring Type’ lookup below. Linked to monitoring strategy -https://www.nature.scot/doc/peatland-action-monitoring-strategy. | Yes |
| Primary Indicator | Text array (constrained) |  | See ‘Primary Indicator’ lookup below. | Yes |
| Sample Point Name | Text (constrained) |  | Where multiple sample points are proposed this should be completed in order to help identify the different locations – can be either a text or numeric identifer. | No |
| Start Date | Date |  | Proposed start date for the monitoring project. | Yes |
| End Date | Date |  | Proposed end date for the monitoring project. | Yes |
| Project Title | Text (constrained) |  | Title for the proposed monitoring project. | Yes |
| Notes | Text |  | Used to record monitoring type or primary indicator when ‘Other’ is selected. Can also be used for additional notes as required. | No |
| Geometry | MultiPolygon, MultiLinestring or MultiPoint; EPSG 27700 |  | The geometry associated with the monitoring project. | Yes |

|  |
| --- |
| **Monitoring Type lookup** |
| Monitoring strategy, Objective A |
| Monitoring strategy, Objective B |
| Monitoring strategy, Objective C1 Water quality |
| Monitoring strategy, Objective C2 Water quantity and flood alleviation |
| Monitoring strategy, Objective C3 Fire risk control |
| Monitoring strategy, Objective C4 Biodiversity |
| Monitoring strategy, Objective C5 Social and economic outcomes |
| Monitoring strategy, Objective C6 Greenhouse gas (GHG) storage and sequestration |
| Developing tools for monitoring peatland condition and the effects of peatland restoration. |
| Other (provide details in notes) |
| Monitoring strategy, Objective C4 Biodiversity |
| Monitoring strategy, Objective C5 Social and economic outcomes |
| Monitoring strategy, Objective C6 Greenhouse gas (GHG) storage and sequestration |
| Developing tools for monitoring peatland condition and the effects of peatland restoration. |
| Other (provide details in notes) |

|  |
| --- |
| **Primary Indicator Lookup** |
| Vegetation/habitat |
| Water quality |
| Water table dynamics |
| Water – other (i.e. water quantity) |
| Fauna (e.g. birds, insects) |
| GHG exchange |
| Remote sensing |
| Other |

1. These are the \*.qgz (for QGIS) files included in the zip file [↑](#footnote-ref-1)