



Environmental Benefits from Nature (EBN) Tool QGIS Template User Guide – Beta Version 1.0

Automating BASIC assessment data collection and processing

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This report can be downloaded from the Natural England Access to Evidence Catalogue: <http://publications.naturalengland.org.uk/> . For information on Natural England publications contact the Natural England Enquiry Service on 0300 060 3900 or e-mail enquiries@naturalengland.org.uk.

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We are grateful to the members of the EBNT User Community who helped trial the prototype version of the QGIS template and provided feedback to guide development.

Foreword

This user guide accompanies the Beta EBNT QGIS Template, which provides an optional extension for more technical users working on larger and more complex projects. Files required to complete the tasks and modules set out in this user guide are found within the EBNT QGIS Template Zip folder.

The EBN QGIS user guide should be used alongside the main EBNT User guide to ensure data is entered correctly into the EBN tool. Use of the EBNT Data Catalogue is also required to provide necessary details for non-mapped datasets (such as landscape diversity); non-Open Government Licenced datasets (such as soil drainage); and non-server-based data (such as population density and public access information) which are not available through this template. Information for these indicators should be entered directly into the EBNT tool.

As with other user guidance, this template should be used having first read the EBNT Principles to ensure a reasonable understanding of how the tool operates and should be used and interpreted.

PLEASE NOTE: This product is in Beta Development and reliant on stable access to Government Servers, which may be subject to offline periods for essential maintenance and/or future change. Should you experience any issues using the product or accessing the Government servers via the tool - that cannot be addressed using the troubleshooting list below - please contact ebn@naturalengland.org.uk.

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1. Introduction

The Beta Environmental Benefits from Nature (EBN) Tool QGIS Template has been designed to support [QGIS](#) users working on larger or more complex projects. It is intended to complement the updated EBNT v1-1 tool by providing a faster, custom, means of data access and processing. It allows the user to match mapped habitat data (required by Biodiversity Net Gain (BNG)) to the contextual counterparts required by the EBNT, to support a BASIC level assessment of ecosystem service change.

The following user guide provides step-by-step instructions to allow users to go from a completed Biodiversity Metric QGIS template starting point, to a completed assessment in 4 easy steps. While aimed at technical QGIS users, the instructions do not require a specific knowledge of QGIS or QGIS programming.

The EBNT QGIS Template has been designed as an extension to the Biodiversity Metric QGIS Template. Spatial habitat data produced by any other means will not be compatible with this project and should be first transferred into the Biodiversity Metric- QGIS Template before proceeding. Further information on the Biodiversity Metric QGIS Template and other supporting resources can be found at [The Biodiversity Metric Supporting Documents - JP039 \(naturalengland.org.uk\)](#)

Before you start

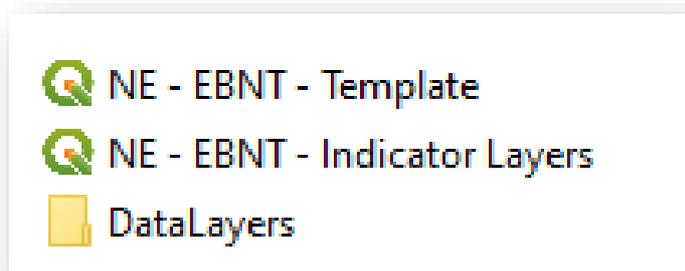
- 1. Ensure the correct version of QGIS is downloaded** - The EBNT QGIS template was created and tested in QGIS 3.34.4 (Version “3.34”, sub version “.4”), which at the time of development was the stable long-term release (LTR). It is therefore recommended that QGIS version 3.34 (any sub-version) is downloaded and used to follow the below guidance. This is available to download from the QGIS Project webpage <https://www.qgis.org/en/site/index.html>.
Once 3.34 is no longer the long-term release, it will still be available from the “All Releases” page in the downloads section of the QGIS website <https://www.qgis.org/en/site/forusers/download.html>.
- 2. Ensure you have the correct habitat data in the correct format** The EBNT QGIS Template is designed to work with the QGIS Template for the statutory biodiversity metric tool, link below:
<https://publications.naturalengland.org.uk/publication/6049804846366720>
Use of earlier versions of the QGIS Template will result in the EBNT QGIS Template failing to function correctly.
- 3. Ensure the QGIS settings are set to the following to ensure best performance**
– Go to Settings->Options->Processing->Invalid Features. Filtering needs to be set to “Do not filter (better performance)” – failure to do so can cause issues accessing contextual data (see Troubleshooting).
- 4. Ensure measurement units are hectares for area and kilometres for length**
– Go to Project->Properties->General->Measurements->Units for distance measurement = Kilometres.

- Go to Project->Properties->General->Measurements->Units for area measurement = Hectares.
5. **Familiarise yourself with the EBNT QGIS File Structure & layers, layer groups and models**– see below.

File Structure

The EBNT zip folder contains two QGIS project files and a folder containing four GeoPackages.

Figure 1. Files and folder in the EBNT QGIS Template Folder



The first project file “**NE – EBNT – Template**” is the main project file undertakes the following:

- Import habitats from the Biodiversity Net Gain/ Biodiversity Metric QGIS Template files.
- Import indicator data from online data sources.
- Intersect habitat data with indicator data.
- Consolidates spatial data and creates the output table that will then be inputted into the EBNT calculator spreadsheet.

The second project file “**NE – EBNT – Indicator Layers**” contains connections to all EBNT indicator data sources and allows users to view these datasets in their entirety and can be used as a reference but will not undertake any of the geoprocessing as described above.

The folder “**DataLayers**” contains four GeoPackages. The geoprocessing tasks undertaken by the “**NE – EBNT – Template**” will automatically save the results to these GeoPackages and user will not have to access these files manually.

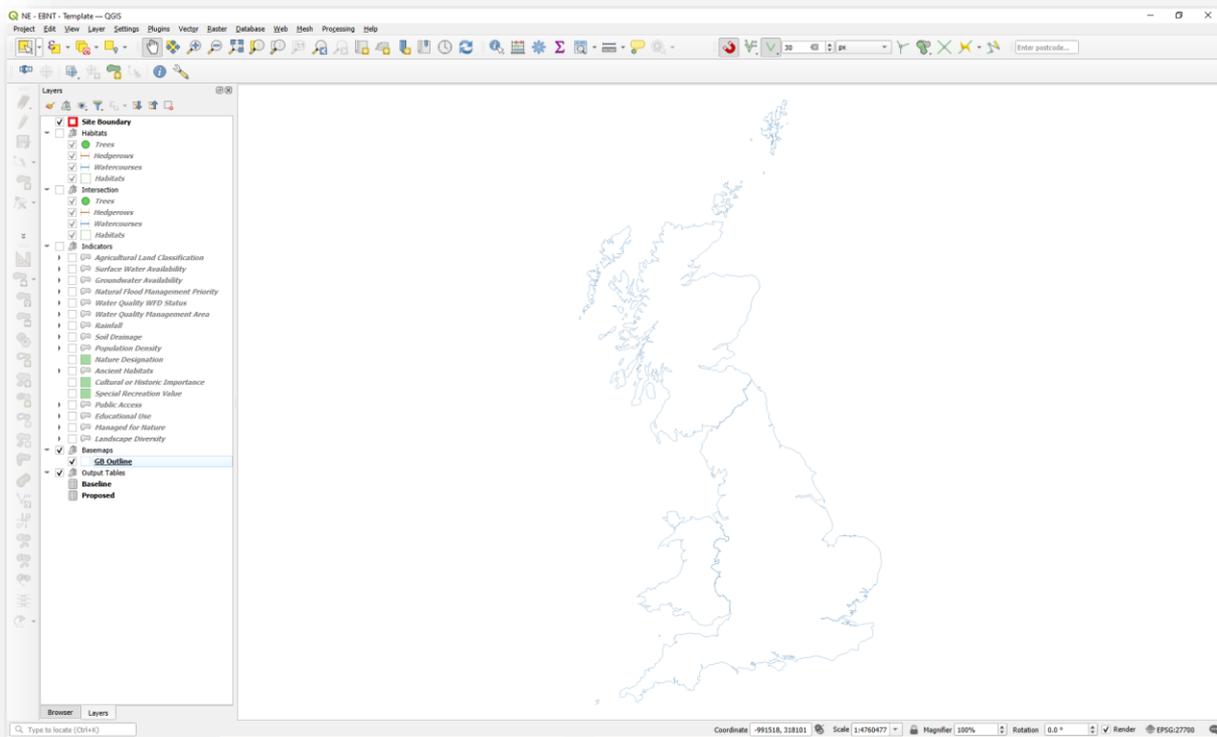
QGIS Template layers, layer group and models

The EBNT QGIS Template contains 27 spatial layers within 5 layer groups which are automatically populated by a series of QGIS Models. A QGIS model is a collection of commands and calculations such as buffers, union and intersections that run in a predefined sequence to undertake complex geoprocessing.

The layers and layer groups in the EBNT QGIS Template are:

- **A site boundary** which contains the site boundary extracted from the Biodiversity Net Gain, Biodiversity Metric QGIS Template files.
- **Habitats group** which contains Tree, Hedgerow, Watercourse and Habitat layers extracted from the BNG/ Biodiversity Metric QGIS Template files.
- **Indicators group** which contains a series of layers which contain a subset of spatial data extracted from online data sources based on the projects site boundary.
- **Intersection Group** contain the results of the intersection between the BNG/ Biodiversity Metric habitat layers and the indicators data.
- **Basemaps Group** contains a GB outline map.
- **Output Tables Group** contains the tables that will be inputted into the EBNT calculator spreadsheet.

Figure 2. Screen Shot showing initial GB Outline Map generated on opening the template



2. Getting Started, running models

The EBNT QGIS Template uses 4 key models to run the key tasks required to complete an assessment. These need to be completed in order as set out in the section below. These are:

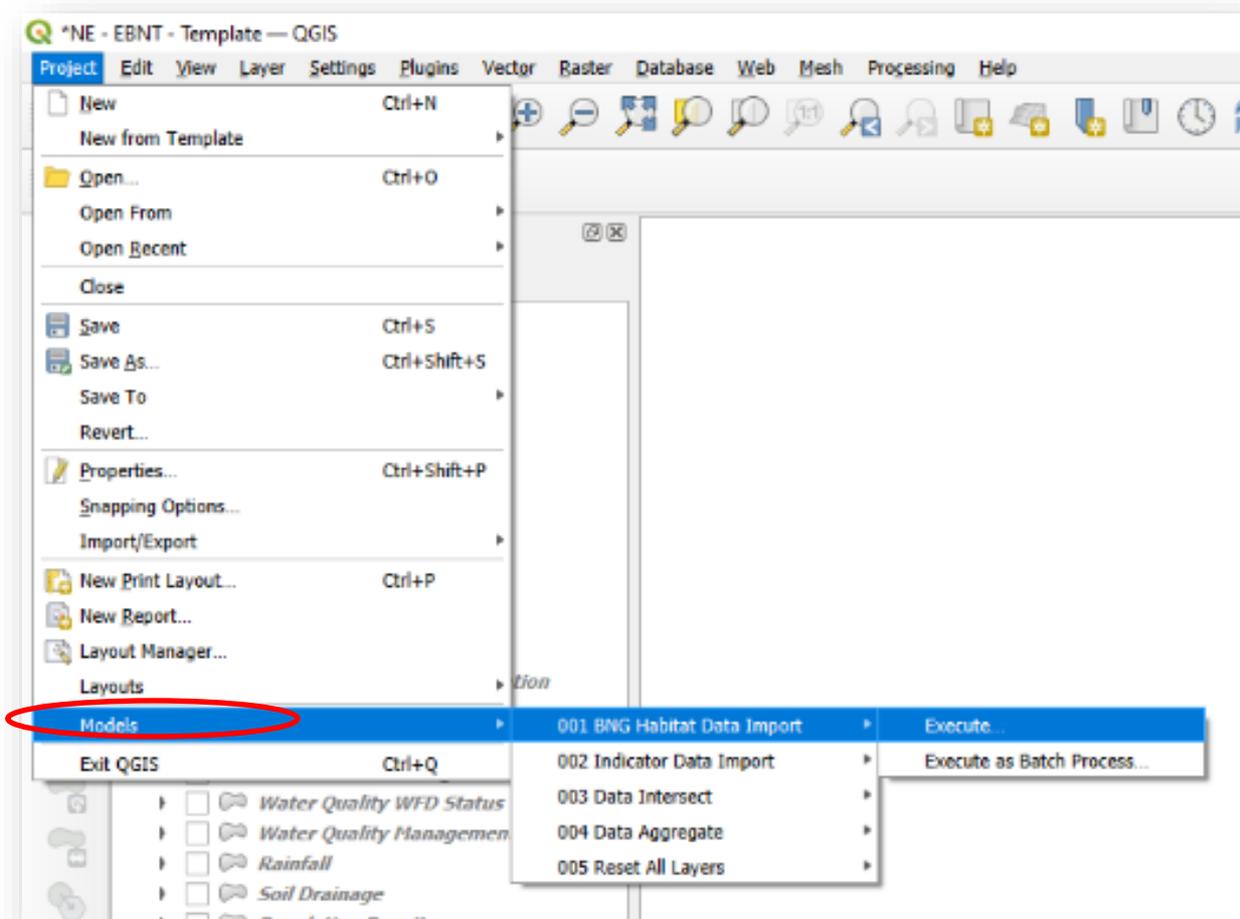
1. **001 BNG Habitat Data Import Model**– transfers habitat and site boundary information from the BNG/Biodiversity Metric QGIS template to the EBNT template, ready to be matched to contextual data.
2. **002 Indicator Data Import Model** – accesses Government servers to pull the relevant contextual datasets required by the EBNT relevant to the site area.
3. **003 Data Intersect Model** – “cookie cuts” contextual data overlapping each habitat.
4. **004 Data Aggregate Model** – groups data with shared attributes prior to export.

Details on how to execute each model are provided below and include final reset model allows the template to be reused.

Running Models

To run a model, select “Models” from the “Project” menu, select the model you want to run then “Execute”.

Figure 3. Screenshot showing how to select “models” from QGIS Project Menu



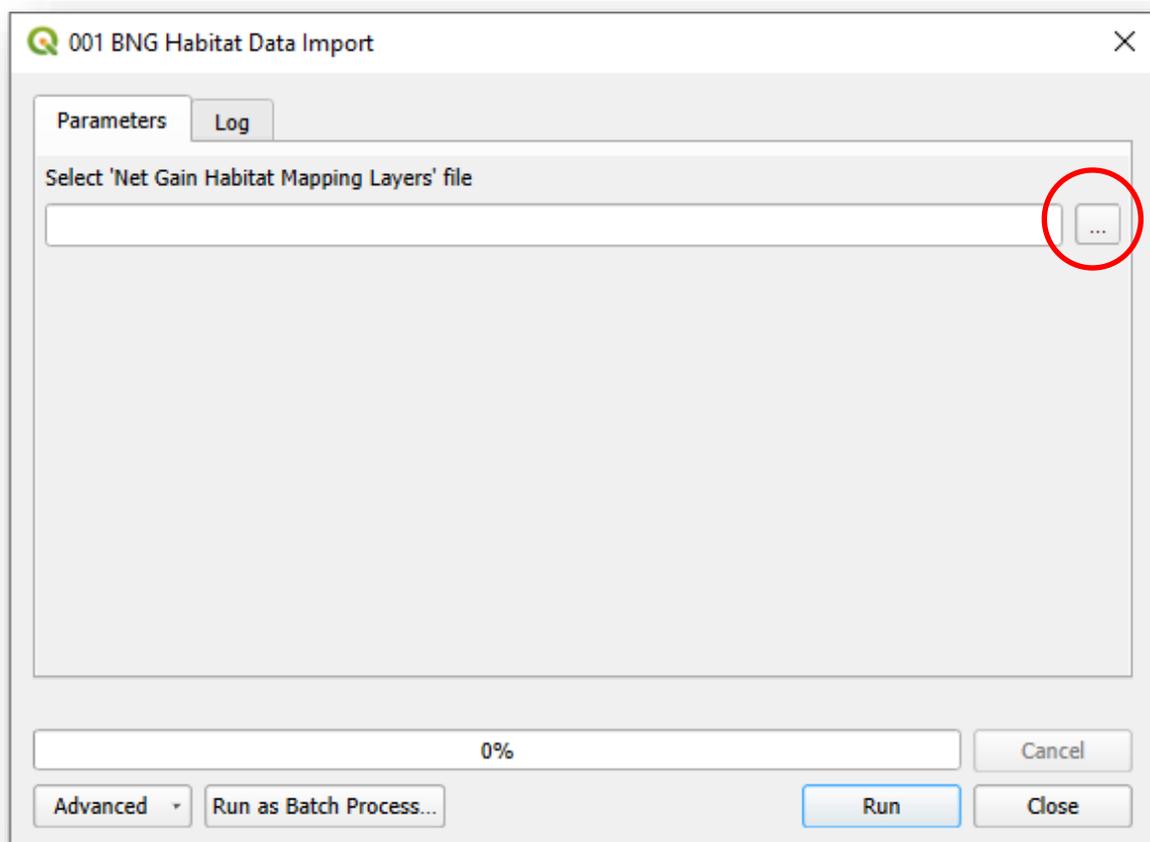
A new, model dialog box will appear. If the model requires user input, such as a file path, this must be provided before running the model. To run the model, after any additional data has been supplied, press “Run”.

In total, the EBNT QGIS Template has five models available. As stated above, the first four carry out the required geoprocessing for an EBNT assessment and will be described in more detail below. The fifth model deletes all data created by the other 4 models resetting the template.

BNG Habitat Data Import Model

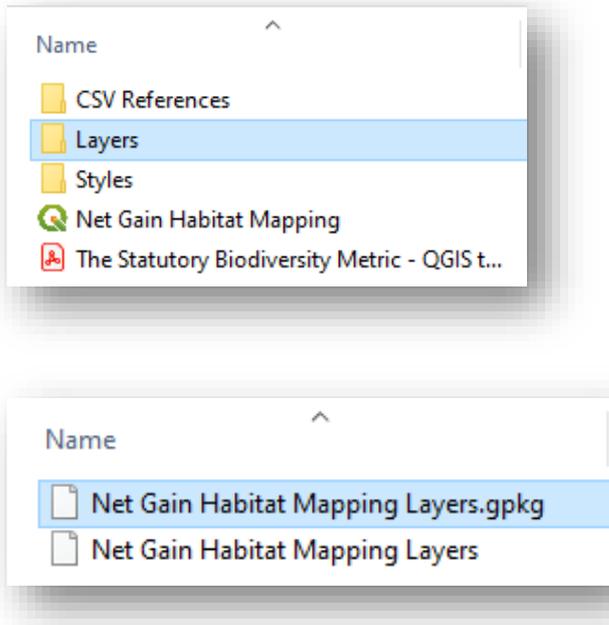
The first model “001 BNG Habitat Data Import” requires the user to define the location of the BNG/Biodiversity Metric QGIS Template GeoPackage files. To provide the file’s location press on the three dots on the right side of the input box.

Figure 4. Screenshot showing the prompt to select file location in Model 001



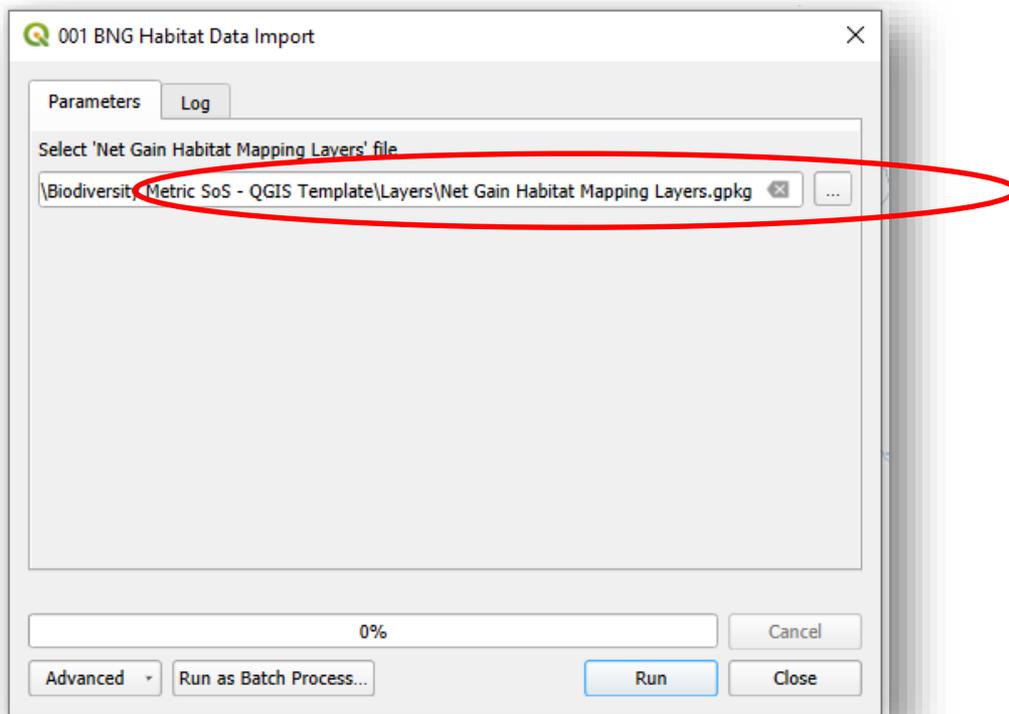
Go to the folder location that contains the BNG/Biodiversity Metric QGIS Template files and then open the “Layers” folder. Select the file named “Net Gain Habitat Mapping Layers.gpkg”.

Figure 5. Screenshot showing the Layers folder and mapping layers found within it where Net Gain Habitat mapping layers should be stored



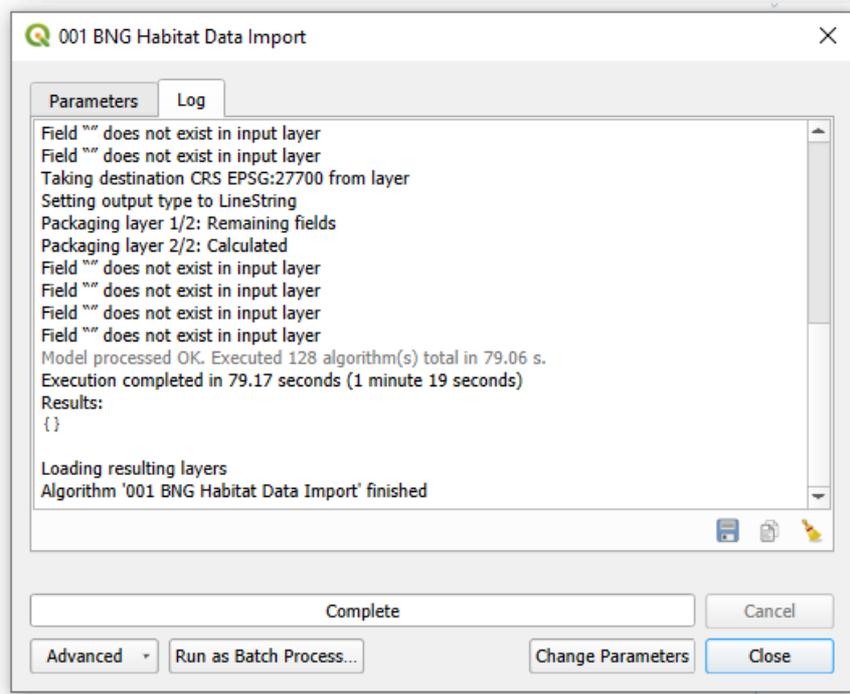
Once the file has been selected, press run.

Figure 6. Screenshot showing file path to selected habitat data layer



When running, the model will output some text to the model window. If the model has run successfully, the output will appear as below.

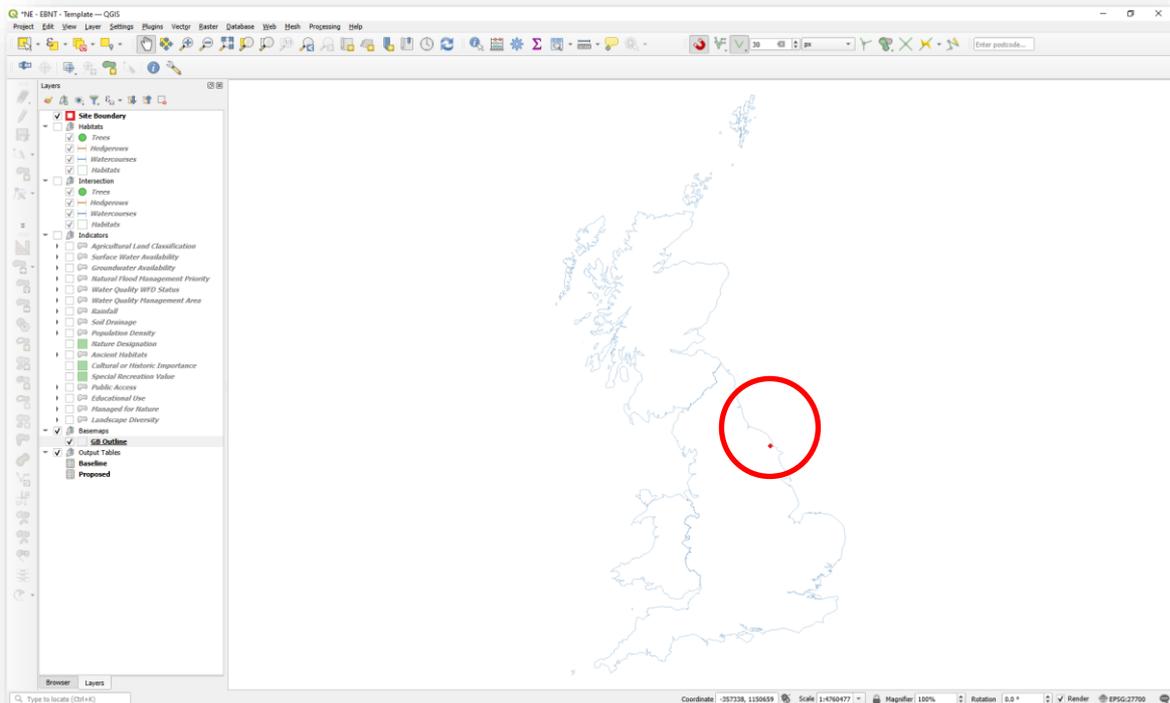
Figure 7. Screenshot showing dialogue box generated on successful output



The model window can now be closed which will return you back to the main map canvas. The site boundary will appear when the map canvas is refreshed. This can be done by scrolling or zooming the map, pressing the refresh button in the “Map Navigation Toolbar” or by pressing F5.

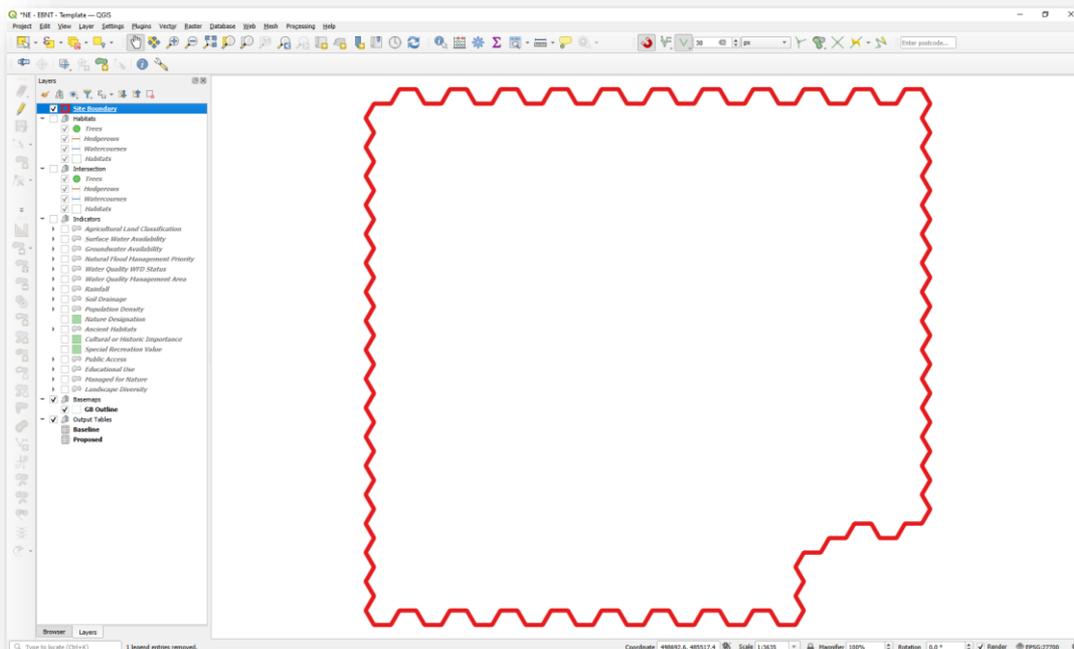
In the test data shown in this user guide, the site is located near Scarborough in North Yorkshire and can be seen at the scale below as a red dot.

Figure 8. Screenshot showing site boundary generated on open GB canvas (test example)



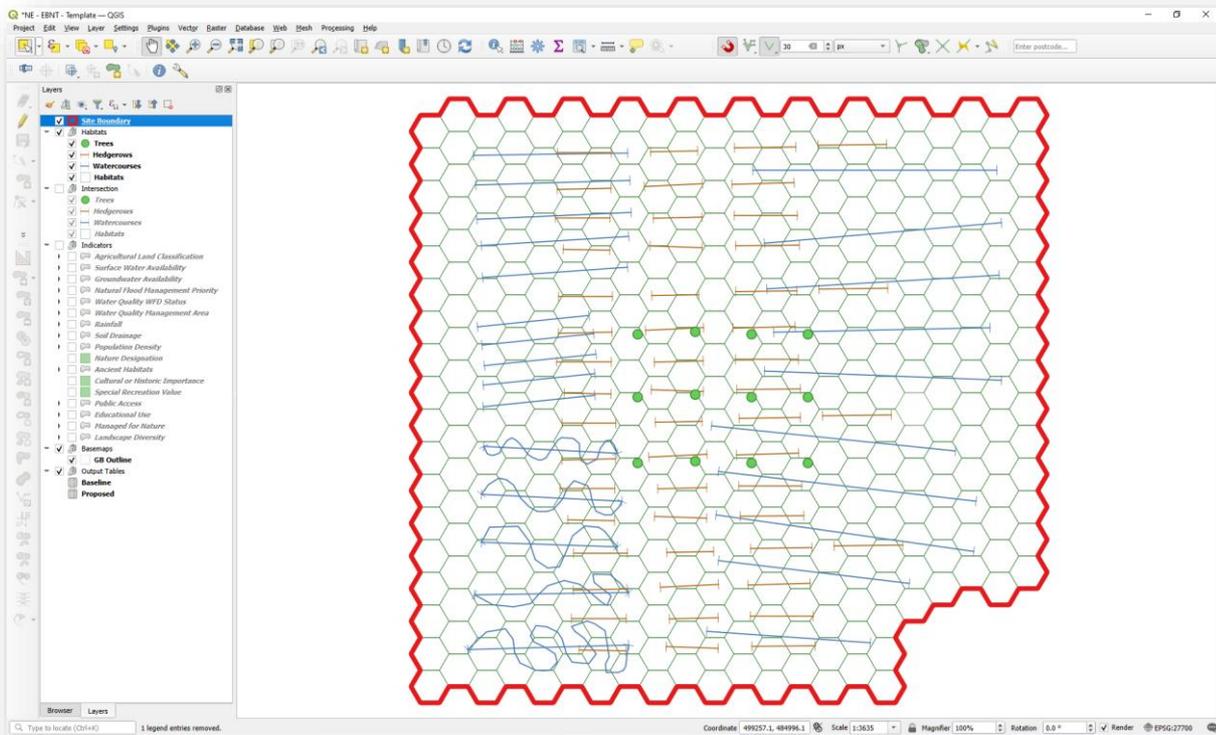
Using standard QGIS tools, zoom to the site boundary. The test data shown in this user guide is based on a hexagonal grid and is unlikely to resemble a standard assessment site.

Figure 9. Screenshot showing zoomed simplified site boundary (test example)



When zoomed to the site boundary the habitats layer group should now be turned on to show the tree (green dots), hedgerow (brown lines), watercourse (blue lines) and area habitats (green outline) that have been imported from the BNG/ Biodiversity Metric file.

Figure 10. Screenshot showing site boundary (red) with habitat layer switched on showing trees (green) hedgerow and water course data (test data)



The “**001 BNG Habitat Data Import**” model imports the relevant data from the Biodiversity Metric BNG files and also converts BNG categories into the EBNT equivalents including the baseline and proposed habitat types.

If a habitat type is not recognised due to a missing value, one that has been manually changed, or if the BNG data has been created in an unsupported version of the Biodiversity Metric QGIS Template the following will be displayed in the attribute table as “*****ERROR - HABITAT TYPE NOT FOUND*****”.

It is advised that the attribute tables for all four different habitat types (tree, hedges, watercourses and area habitats) are checked for errors and corrected either in the original BNG Biodiversity Metric QGIS file or in the EBNT layer before running the second model.

Optional Data Input – Width and Starting Habitat

In addition to the spatial data extracted from the BNG/ Biodiversity Metric QGIS Template files, the EBNT assessment also requires the width of hedgerows and watercourses to calculate their area and the starting habitat for newly created habitats. Width data will default to 1m for hedgerow and watercourse habitats and for newly created habitats the “Starting Habitat” will default to “Soil removed”. If these defaults are not appropriate, then

open the attribute table for the habitat layers and change the value from the default to a more accurate value.

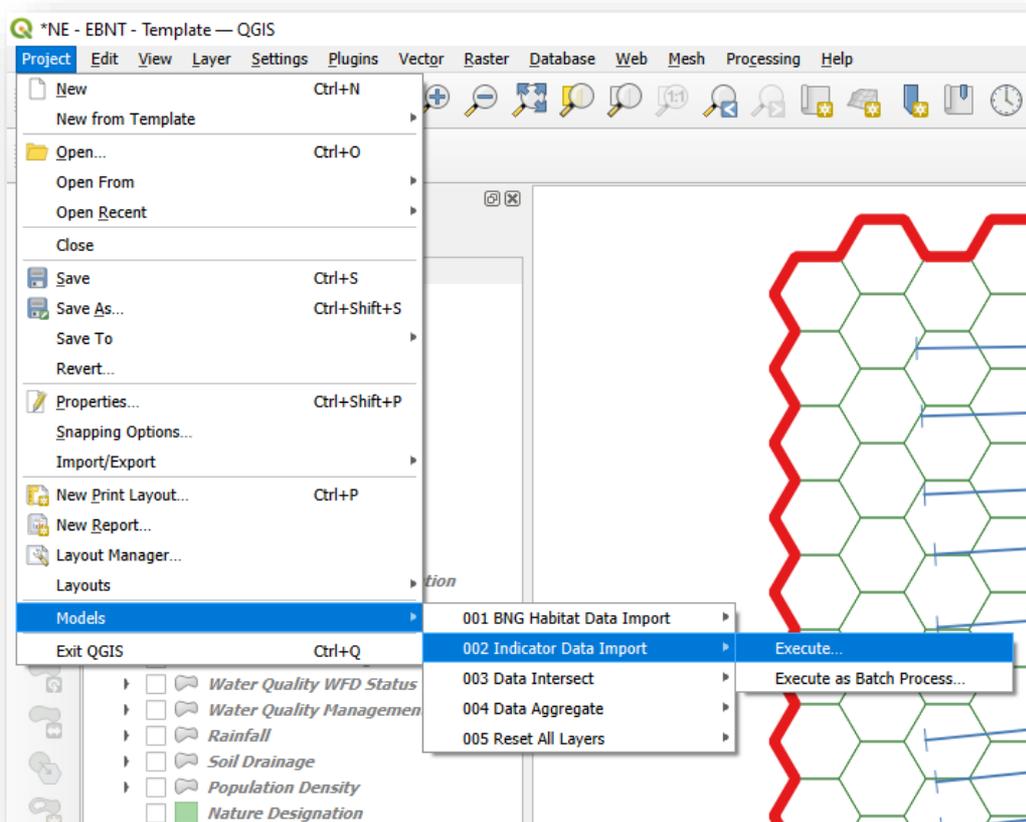
Indicator Data Import Model

The second model “002 Indicator Data Import” controls the import of the EBNT indicator data.

This model should only be run once the first model has been run as the indicator data will be imported based on the location of the site boundary.

To run the model, select “Models” from the “Project” menu, then select “002 Indicator Data Import” then “Execute”.

Figure 11. Screenshot showing selection of model 002. to import indicator data



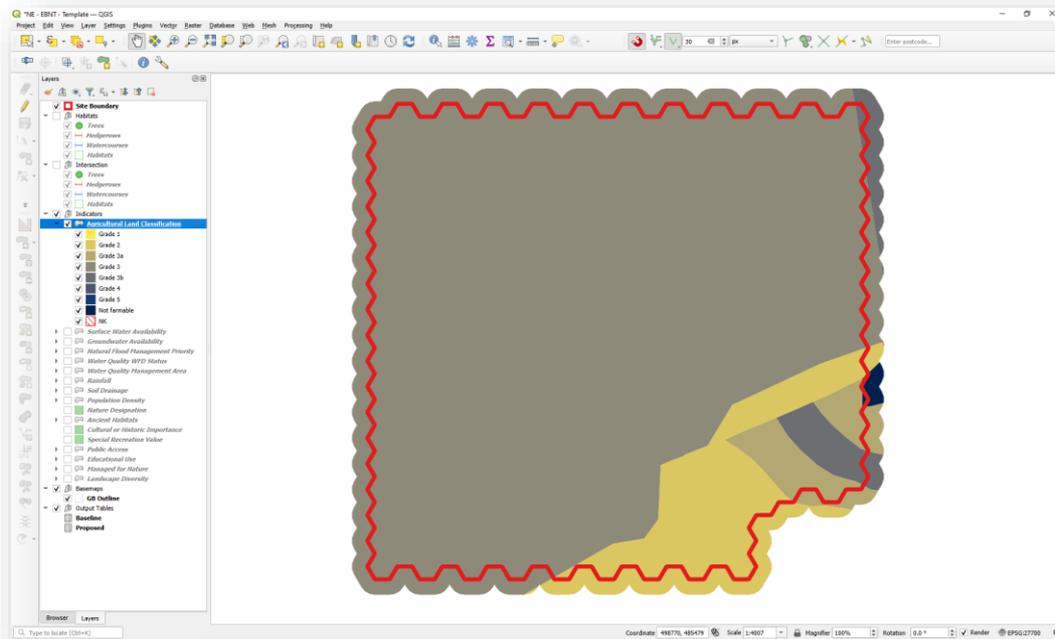
This model does not require user input and so will not open a model dialog box but will show a progress bar at the top of the screen.

Once the model has completed, turn off the habitats layer and expand the indicators group.

You can now view the spatial data created for each of the EBNT indicators by turning on and off the relevant layer. Please note that indicator data extracted from the online data

sources will extend past the site boundary. Do not manually clip this data to the site boundary as this may lead to later models not functioning correctly.

Figure 12. Screenshot showing selection of Agricultural Land Class data within the site – different colours display different grades of land



This model accesses online data held across different Government servers. Occasionally the connection to these temporarily fails which will cause this model to fail. If this occurs you can run the model again which will usually then run successfully.

Only indicators hosted on Government servers with open government licences (OGL) will populate. The indicators that require manual data entry are:

- **Soil Drainage** (dataset available on MAGIC for non-commercial use / or purchase for commercial use from <https://www.landis.org.uk>).
- **Population Density** (viewable on [Green Infrastructure data portal](https://www.ons.gov.uk/datasets/TS006/editions/2021/versions/4) / download from <https://www.ons.gov.uk/datasets/TS006/editions/2021/versions/4>).
- **Public Access** (viewable on [Green Infrastructure data portal](https://www.data.gov.uk/dataset/f335ab3a-f670-467f-bedd-80bdd8f1ace6/green-and-blue-infrastructure-england) / download from <https://www.data.gov.uk/dataset/f335ab3a-f670-467f-bedd-80bdd8f1ace6/green-and-blue-infrastructure-england>)
- **Education Use.** Using Public access (as above and local knowledge).
- **Landscape Diversity** (requires manual assessment see EBN Data Catalogue for instruction).

Manual Editing of Indicator Data

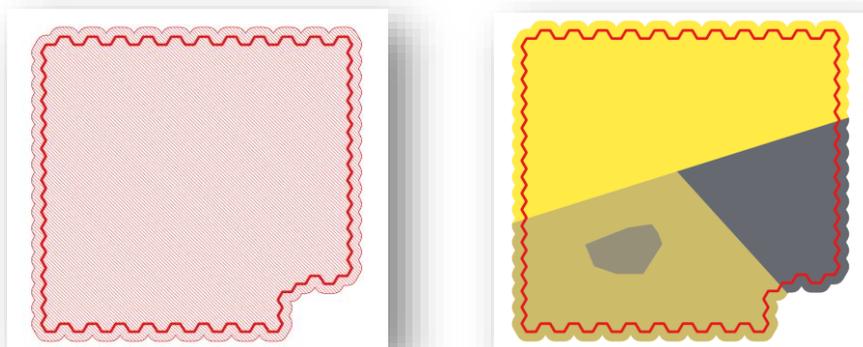
If additional data is known about any of the other indicators, such as adding local wildlife sites to the nature designation layer then these layers can also be edited. Please note,

where multiple attributes are present such as “Site Name” and “Designation” e.g. in the Nature Designation layer, then please enter data for all of the attributes - as these are used to calculate the final indicator values.

This user guide does not provide details of data entry in QGIS but recommends the following:

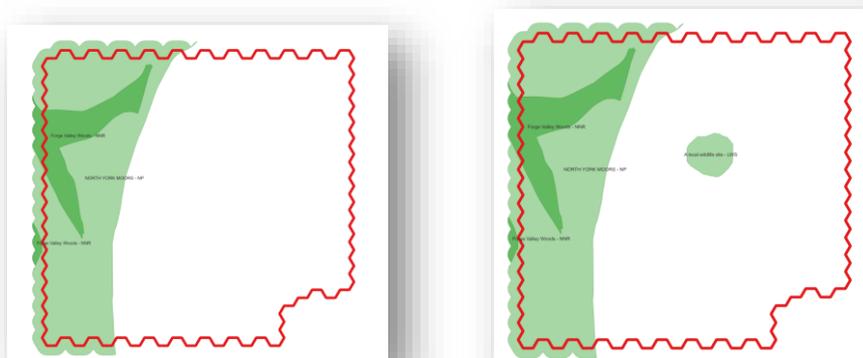
- For layers that have been pre-populated with a polygon or polygons that form a continuous area that covers the whole site boundary, such as soil drainage, use the “split features” and “fill ring” tool from the advanced digitising toolbar to subdivide the existing polygon. Do not add additional polygons or make the area smaller by deleting parts.

Figure 13. Screenshot showing how a manual intersection of a data layer should look once complete (left: original layer, right: after manual intersection)



- For layers where the layer does not fully cover the entire site boundary area, such as “Nature Designation”, “Cultural or Historic Importance” and Special Recreation Value, then simply use the “Add polygon feature” tool from the Digitising toolbar.

Figure 14. Screenshot showing additional data – Local Wildlife Site manually added (right)



Once any additional data has been added to these layers, and saved, the next model can be run.

Please note, if this model is run for a second time after any data has been manually edited, those changes will be lost and replaced with the standard data set based on the spatial data stored on the online data servers.

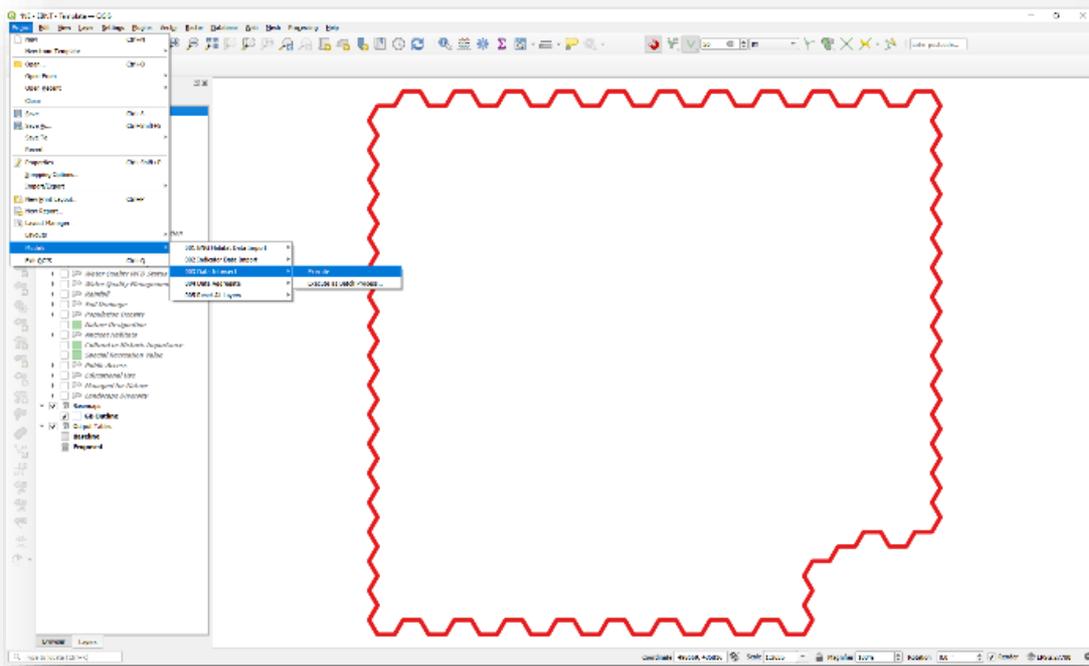
Data Intersect Model

The third model “**003 Data Intersect**” intersects the BNG Biodiversity Metric habitat data boundaries with the indicator data boundaries, subdividing the habitat parcels further if an indicator boundary passes through the parcel.

This model should only be run once the first two model have been run as it requires both habitat data from the Biodiversity Metric QGIS files and indicator data from the online data sources.

To run the model, select “Models” from the “Project” menu, then select “003 Data Intersect” then “Execute”.

Figure 15. Screenshot showing selection of 003 intersect model

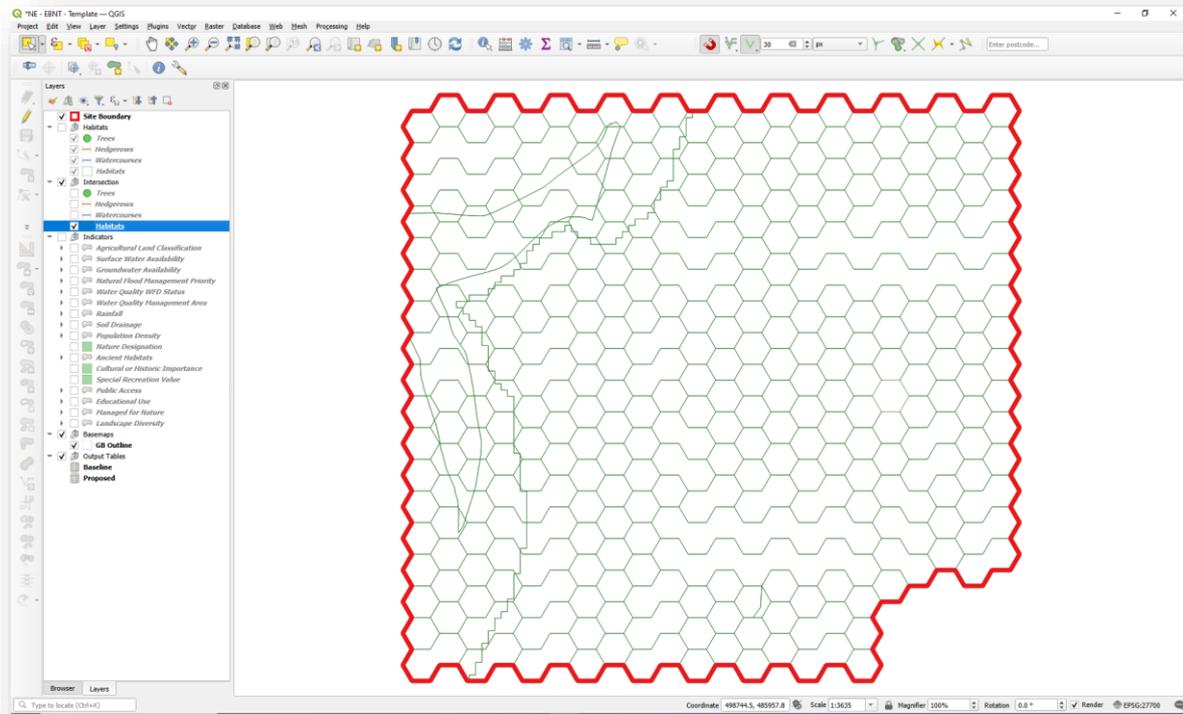


As with the previous model, this model does not require user input and so will not open a model dialog box but will show a progress bar at the top of the screen.

Once the model has completed, turn off the indicators layer group and expand the indicators group.

Turning on the area habitats, hedgerows and watercourses layers will show the new intersected boundaries and opening the attribute tables will show the indicator values for each habitat parcel (or line).

Figure 16. Screenshot showing the results of the intersection of habitat parcels with the indicator layers



Trees

As trees are defined spatially as points these features cannot be intersected, but the attribute table will show the indicator values of the indicator parcels they fall within. Where they fall on the boundary between two indicator values, the higher value will be selected.

Watercourses

Watercourses form a special case as they require the comparison of line data with line and also polygon data. Where watercourse lines are compared to line data in the indicator data, it is unlikely that both data sets (even when relating to the same watercourse) will align precisely. Therefore, watercourse lines are subdivided and compared to the indicator data sets with a buffer distance. If a section of a watercourse deviates more than 10m from how it is represented in the indicator dataset then that section will be displayed as NK for those indicator values. This is especially true with Water Quality WFD Status and therefore it is suggested that for watercourses, the indicator values assigned are manually checked and manually edited before running the final model.

In the intersection layers group, trees, hedgerows and habitats are styled the same as the habitats layer. Watercourses however are styled based on the Water Quality WFD Status for each of manually verifying these attribute values as described above.

Not Known “NK” vs “No”

“Ancient Habitats”, “Special Recreation Value” and “Managed for Nature” all have “Yes” or “No” value options. When the model intersects these layers with the habitat layers all values are either set to “Yes” where an overlapping feature is present or “NK” when no feature has been imported. If by using knowledge of the site, and any other data sources available to the user, there is certainty that the indicator value should be “No” and not “NK” this value can be changed in the attribute table to reflect this before running the final Data Aggregate Model.

Data Aggregate Model

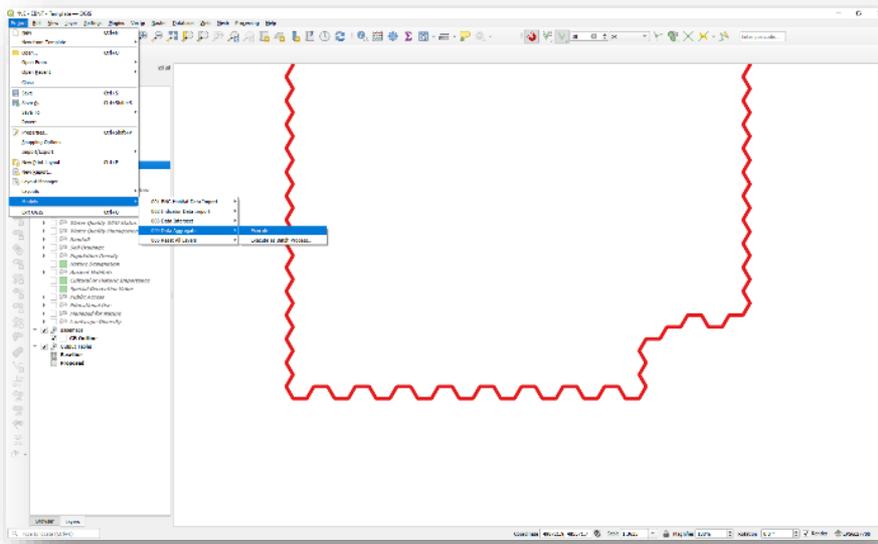
The final model, “**004 Data Aggregate**” undertakes the following steps:

- Merges trees, hedges, watercourses and area habitats into a single layer.
- Splits baseline and proposed habitats into two separate layers.
- Changes all indicator values to NA where that indicator value is not applicable for that habitat type.
- Aggregates areas of the same habitats together that also share the same indicator values.

The aggregate model also has an optional spatial aggregate option that merges areas below a defined threshold into adjacent areas and adopts the adjacent indicator values. This can be useful in large complex sites, but be aware that while total area will remain the same, habitat values will also be merged as well as indicator values, reducing the precision of the assessment.

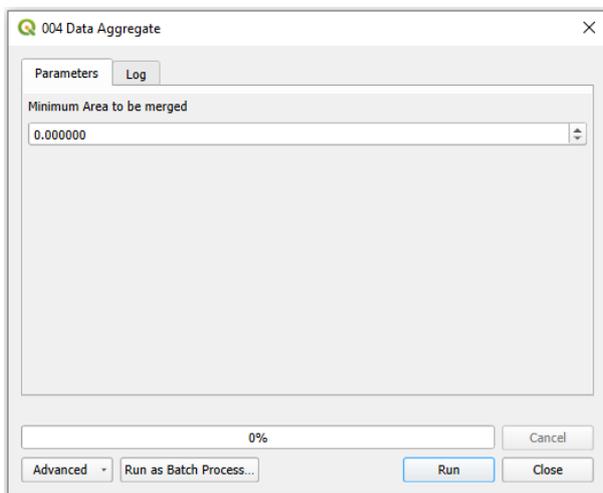
To run the model, select “Models” from the “Project” menu, then select “004 Data Aggregate” then “Execute”.

Figure 17. Screenshot showing selection of 004 Model from the Project Menu



To use the optional spatial aggregation, enter a value in the text box. The value is in hectares so a value of 0.01 will merge any areas smaller than 10 x 10 metres. Entering a zero value will result in no spatial aggregation.

Figure 18. Screenshot showing the dialogue screen to select minimum area to be merged



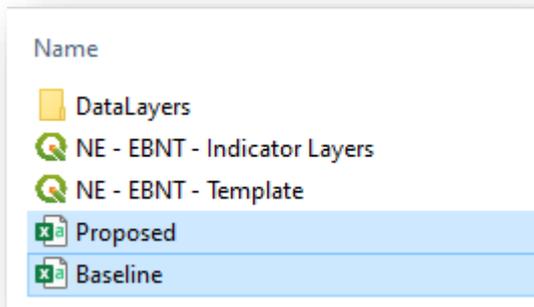
Once the model has completed running, close the dialog window. There will be no spatial output but an output of two tables found in the "Output Tables" layer group. Open the attribute table for these layers to view the table data.

Figure 19. Screenshot showing the output tables linking the contextual data to habitats in the format required for EBNT

fid	ID	On/OffSite	BaselineHabitatType	Area	AgriculturalLandClass	rface/Water Availabl	oundwater Availabl	#FloodManagement	sterQuality/WFDSStat	QualityManagement	Rainfall	SoilDrainage	PopulationDensity	NatureC
1	1	On site	Acid grassland	1.949635900685	NA	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	0
2	2	On site	Standing open water	0.308846533472	NA	Water not available	Poor	Low	NK	High priority	600-800	NK	NK	3+
3	3	On site	Intensive orchards	0.649880008736	Grade 3	Water not available	Poor	Low	NA	NA	600-800	NK	NK	3+
4	4	On site	Dwarf shrub heath	1.212224492182	NA	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	0
5	5	On site	Broadleaved, mix...	1.949636996523	NA	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	0
6	6	On site	Seagrass beds	0.649879596472	NA	NA	NA	Medium	NK	High priority	600-800	NK	NK	0
7	7	On site	Coastal saltmarsh	1.299757128308	NA	Water not available	Poor	Medium	NK	High priority	600-800	NK	NK	0
8	8	On site	Dwarf shrub heath	0.014119369471	NA	Water not available	Poor	Low	NA	High priority	600-800	NK	NK	1
9	9	On site	Arable field margins	2.599523047958	NA	Water not available	Poor	Low	NA	High priority	600-800	NK	NK	1
10	10	On site	Open mosaic hab...	0.541368340439	NA	Water not available	Poor	Low	NA	High priority	600-800	NK	NK	3+
11	11	On site	Arable fields, hor...	0.866506999338	Grade 3	Water not available	Poor	Low	NA	NA	600-800	NK	NK	3+
12	12	On site	Arable fields, hor...	0.649879825259	Grade 3	Water not available	Poor	Low	NA	NA	600-800	NK	NK	1
13	13	On site	Bioswale	0.649880282956	NA	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	1
14	14	On site	Seagrass beds	0.649880874739	NA	NA	NA	Low	NK	High priority	600-800	NK	NK	1
15	15	On site	Green wall	0.649878773109	NA	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	0
16	16	On site	Neutral grassland	0.649880966303	NA	Water not available	Poor	Low	NA	High priority	600-800	NK	NK	3+
17	17	On site	Broadleaved, mix...	0.889315861883	NA	Water not available	Poor	Low	NA	High priority	600-800	NK	NK	1
18	18	On site	Allotments, city f...	0.649879322633	NA	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	0
19	19	On site	Rain garden	0.323498760164	NA	Water not available	Poor	Low	NA	High priority	600-800	NK	NK	1
20	20	On site	Traditional earthwards	0.618292137563	Grade 3	Water not available	Poor	Medium	NA	High priority	600-800	NK	NK	0

The model will also save these results to .csv files in the EBNT project folder, ready to be copied into the EBNT spreadsheet via the additional data import tool.

Figure 20. Screenshot showing new csv files added to the QGIS folder for Baseline and Proposed works ready for export into the updated EBNT



Watercourse footprint

Please note, if your BNG QGIS habitats included “Watercourse Footprint” which is used in BNG/Biodiversity Metric template as a visual layer only and not used in any of the BNG calculations, this will be removed during the aggregation process. The area occupied by watercourses is calculated by the watercourse length and width and therefore watercourse footprint is removed to avoid double counting of these areas.

Reset All Layers Model

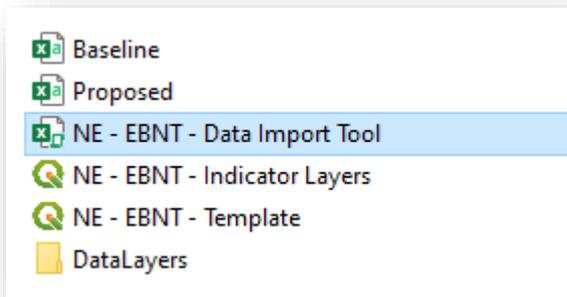
The final model is not required to undertake an EBNT assessment. Its function is to reset all of the layers within the QGIS Project by deleting all features.

3. Exporting Tabular data to the EBNT

The QGIS EBNT Template is accompanied with an additional data import to allow data transfer between QGIS and the EBNT spreadsheet.

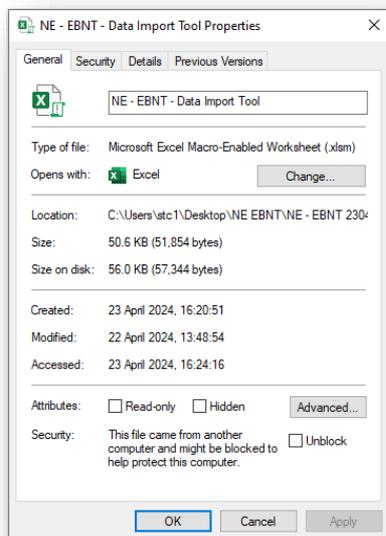
This tool will be found within the same folder as the QGIS EBNT Template.

Figure 21. Screenshot showing the NE EBNT Data Import Tool selected



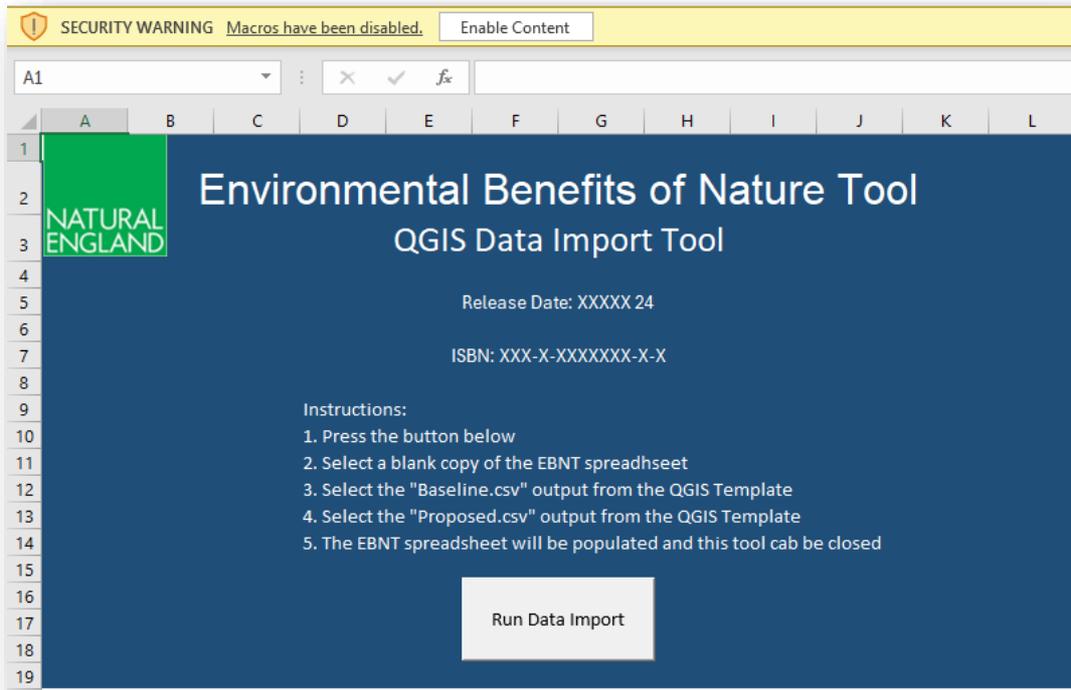
Before using this for the first time this file will need to be unblocked. Right click on the file, open its properties, check the “Unblock” box and click ok.

Figure 22. Screenshot showing details of the EBNT import tool unblocked



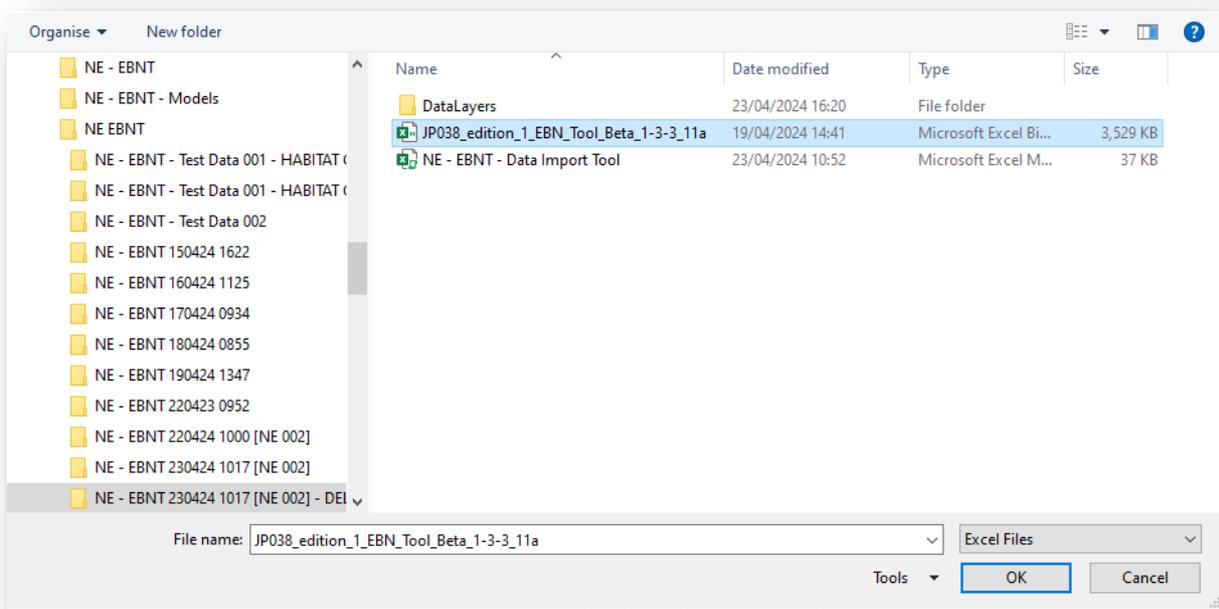
Open the file and press the “Enable content” button

Figure 23. Screenshot showing details of the EBNT import QGIS Data Import tool



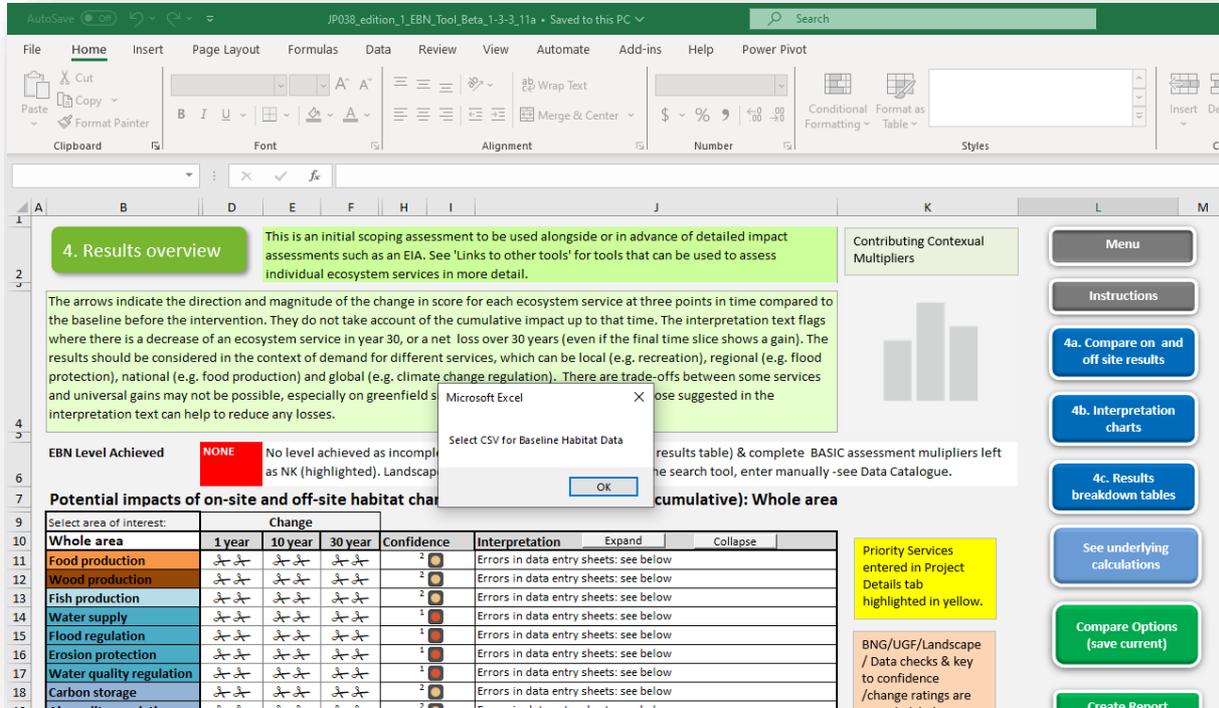
The tool is now ready to run. Press the “Run Data Import” button and you will be asked to “Select Destination Workbook” which should be a blank copy of the EBNT Spreadsheet.

Figure 24. Screenshot showing destination workbook highlighted



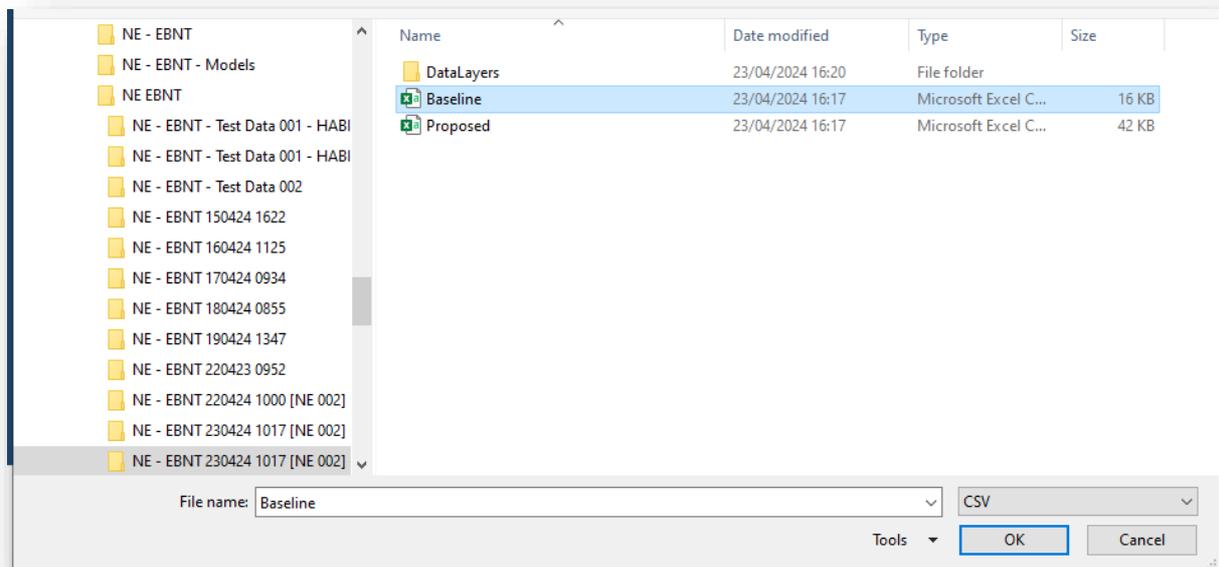
Find and select the file and press ok. The EBNT Spreadsheet will open and then you will then be prompted to supply the baseline habitat data file that is created by the QGIS EBNT Template.

Figure 25. Screenshot showing the prompt to select csv file



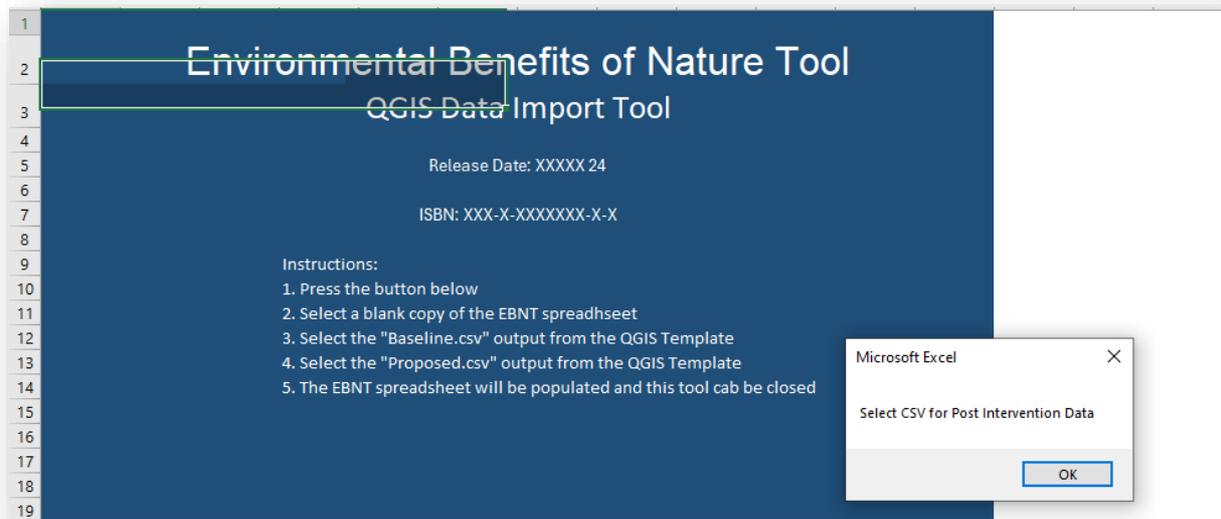
Press OK and locate the baseline habitat data file which will be in the same folder as your EBNT QGIS project file and again press ok.

Figure 26. Screenshot showing the baseline csv file downloaded



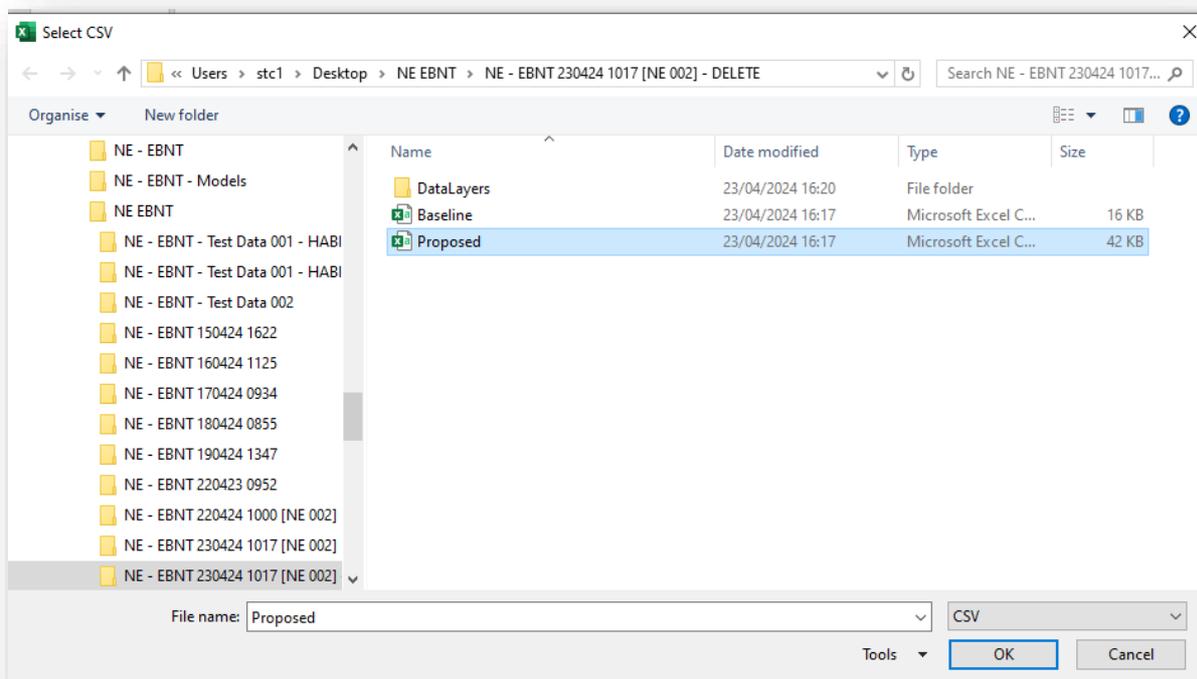
You will then be prompted to supply the proposed habitat data file.

Figure 27. Screenshot showing the prompt to select post-intervention data



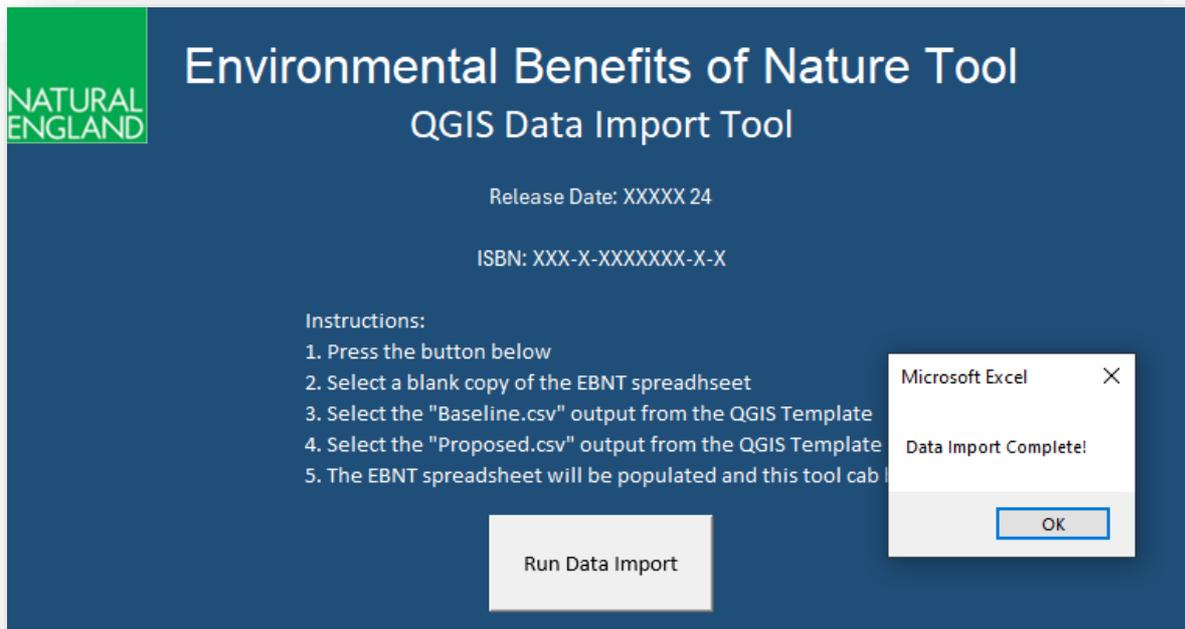
Press OK and locate the proposed habitat data file which will be in the same folder as your EBNT QGIS project file and again press OK.

Figure 28. Screenshot showing the post-intervention data csv selected



If the data import has been successful then this will be confirmed by a dialog box.

Figure 29. Screenshot confirming the data import is complete



The data import tool can now be closed, if prompted to save select don't save, and the EBNT Spreadsheet will now contain the data generated by the EBNT QGIS Template transferred.

Figure 30. Screenshot showing data successfully imported with missing data highlighted in yellow

ID	On site	Input habitat	Length	Width	Area	Eco-metric	EBN Habitat Type	Agri/Urban/Land Use Class	Surface	Gro	Flood	WQ	WQI	Flai	Dra	Pro	Des	Acc	Hist	Spe	Acc	Edu	Mat	Land
1	On site	Rain garden	0.000	0	0.32	0.32	Rain garden	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	NK	NK	NK	
2	On site	Neutral grassland	0.000	0	1.30	1.30	Neutral grassland	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
3	On site	Biogenic reefs	0.000	0	0.52	0.52	Biogenic reefs	NA	NA	Medium	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	NK	NK	NK	
4	On site	Brown roof or extensive green roof	0.00	0	1.30	1.30	Brown roof or extensive green	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
5	On site	Seagrass beds	0.00	0	0.43	0.43	Seagrass beds	NA	NA	Low	NA	High pl 600-80	NK	NK	1	NA	2	Yes	NK	NK	Yes	NK	NK	
6	On site	Dwarf shrub heath	0.00	0	0.01	0.01	Dwarf shrub heath	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	NK	NK	NK	
7	On site	Standing open water	0.00	0	0.06	0.06	Standing open water	NA	Water not Poor	Low	NK	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	NK	NK	NK	
8	On site	Bog	0.00	0	1.95	1.95	Bog	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
9	On site	Bare ground	0.00	0	1.30	1.30	Bare ground	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
10	On site	Wood pasture and parkland with scattered trees	0.00	0	0.65	0.65	Wood pasture and parkland	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
11	On site	Other littoral sediment	0.00	0	1.30	1.30	Other littoral sediment	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	NK	NK	NK	
12	On site	Unvegetated garden	0.00	0	0.65	0.65	Unvegetated garden	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
13	On site	Open mosaic habitats on previously developed land	0.00	0	0.11	0.11	Open mosaic habitats on previously developed land	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	3 or m	NA	1	Yes	NK	NK	NK	NK	NK	
14	On site	Seagrass beds	0.00	0	0.65	0.65	Seagrass beds	NA	NA	Medium	NK	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
15	On site	Improved grassland	0.00	0	0.65	0.65	Improved grassland	Grade 3	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
16	On site	Dwarf shrub heath	0.00	0	1.21	1.21	Dwarf shrub heath	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
17	On site	Neutral grassland	0.00	0	0.65	0.65	Neutral grassland	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	3 or m	NA	1	Yes	NK	NK	Yes	NK	NK	
18	On site	Sealed surface and buildings	0.00	0	2.60	2.60	Sealed surface and buildings	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
19	On site	Arable fields, horticulture and temporary grassland	0.00	0	0.14	0.14	Arable fields, horticulture and temporary grassland	Grade 3	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
20	On site	Vegetated garden	0.00	0	0.22	0.22	Vegetated garden	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	Yes	NK	NK	
21	On site	Vegetated garden	0.00	0	0.65	0.65	Vegetated garden	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
22	On site	Introduced shrub	0.00	0	0.24	0.24	Introduced shrub	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	Yes	NK	NK	
23	On site	Coastal lagoons	0.00	0	0.65	0.65	Coastal lagoons	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
24	On site	Fen, marsh and swamp	0.00	0	1.30	1.30	Fen, marsh and swamp	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	3 or m	NA	1	Yes	NK	NK	NK	NK	NK	
25	On site	Rain garden	0.00	0	0.21	0.21	Rain garden	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	Yes	NK	NK	
26	On site	Reedbeds	0.00	0	0.65	0.65	Reedbeds	NA	Water not Poor	Medium	NK	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
27	On site	Seagrass beds	0.00	0	0.65	0.65	Seagrass beds	NA	NA	Low	NK	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	NK	NK	NK	
28	On site	Arable fields, horticulture and temporary grassland	0.00	0	1.08	1.08	Arable fields, horticulture and temporary grassland	Grade 3	Water not Poor	Low	NA	High pl 600-80	NK	NK	1	NA	1	Yes	NK	NK	Yes	NK	NK	
29	On site	Bracken	0.00	0	0.65	0.65	Bracken	NA	Water not Poor	Medium	NA	High pl 600-80	NK	NK	0	NA	0	No	NK	NK	NK	NK	NK	
30	On site	Standing open water	0.00	0	0.31	0.31	Standing open water	NA	Water not Poor	Low	NK	High pl 600-80	NK	NK	3 or m	NA	1	Yes	NK	NK	NK	NK	NK	
31	On site	Introduced shrub	0.00	0	0.41	0.41	Introduced shrub	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	3 or m	NA	1	Yes	NK	NK	Yes	NK	NK	
32	On site	Broadleaved, mixed and vew plantation	0.00	0	0.41	0.41	Broadleaved, mixed and vew plantation	NA	Water not Poor	Low	NA	High pl 600-80	NK	NK	1	NA	2	Yes	NK	NK	Yes	NK	NK	

4. Checking and Editing Entered data in the EBNT

Once exported to the EBNT, the data should be checked and edited using the EBN User Guide and EBN Data Catalogue to ensure data entries have been entered correctly and gaps in data entry have been filled. Examples of gaps that will need to be filled include landscape diversity, which is not linked to use of spatial data, soil drainage which uses data not available under Open Government Licence and population density/public access data – which is not yet available via an active server link, but may be accessed via the [GI data portal](#). Users should also note that indicators will receive a NK return if no attributes are found from the server data requested, these will appear as highlighted gaps within the EBNT if not manually corrected/entered (see NK vs No p18). In these cases, if not already manually corrected, as part of earlier stages within QGIS, the EBN data catalogue should be consulted to manually complete the entry within the EBN Tool.

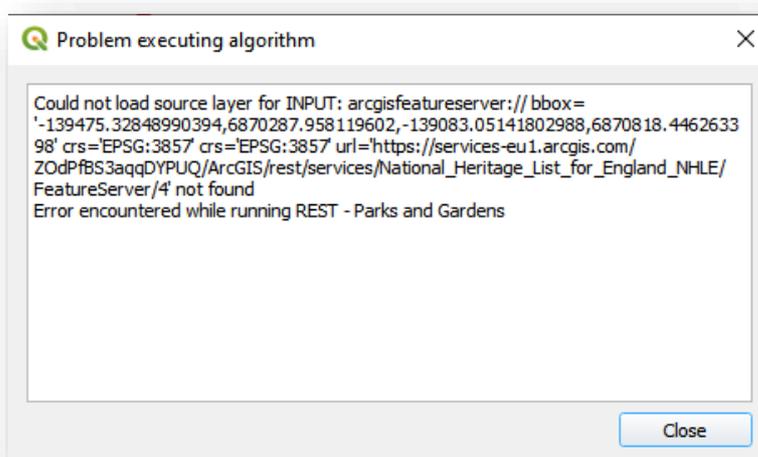
5. Troubleshooting

Successful use of the EBNT template is dependent on following the above instructions but can be impacted by external factors such as server updates which may impact operations.

Before reading the following section, ensure you are using the corresponding version of EBNT QGIS and BNG QGIS Template.

Issue 1: 002 Indicator Data Import Model. Indicator datasets failing to import (i) – server issues.

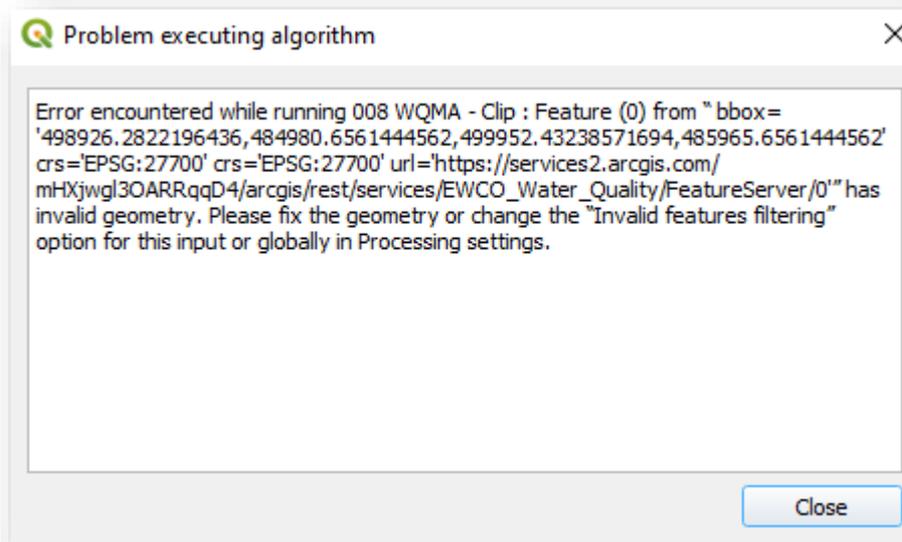
The following error message is generated when the model is having trouble accessing one of the different servers required to access the data. Such issues are relatively infrequent. When this message is generated, it is suggested that the user pauses (checks internet connection) and repeats the model at a later time.



Issue 2: 002 Indicator Data Import Model. Indicator datasets failing to import (ii) – incorrect QGIS processing settings.

The following error message is generated if the Processing settings have not been changed as outlined in the “Before you start” section.

Go to Settings->Options->Processing->Invalid Features and set to “Do not filter (better performance)”



Issue 3. 002 Indicator Data Import Model. Indicator datasets failing to import (iii) – persistent server issues.

If issues with data access persists it is possible that the location of one or more servers has been changed. In such cases, it will not be possible to complete module 2. Please contact ebn@naturalengland.org.uk to flag the issue and receive further advice.

Issue 4. NK returned for multiple values – highlighted as gaps in the EBNT

As covered in section 4. Certain sections require manual data entry/ confirmation (if no entry is found - see EBN Data Catalogue.

Annex 1. Data Layers

Indicator	Data source webpage	Server Link
Agricultural Land Classification	https://www.data.gov.uk/dataset/952421/ec-da63-4569-817d-4d6399df40a1/provi	https://environment.data.gov.uk/spatialdata/agricultural-land-classification-provisional-england/wfs

Indicator	Data source webpage	Server Link
	sional-agricultural-land-classification-alc	
Agricultural Land Classification	https://www.data.gov.uk/dataset/c002cea-d650-4408-b302-939e9b88eb0b/agricultural-land-classification-alc-grades-post-1988-survey-polygons	https://environment.data.gov.uk/spatialdata/agricultural-land-classification-grades-post-1988-survey-england/wfs
Surface Water Availability	https://www.data.gov.uk/dataset/b1f5c467-ed41-4e8f-89d7-f79a76645fd6/water-resource-availability-and-abstraction-reliability-cycle-2	https://environment.data.gov.uk/spatialdata/water-resource-availability-and-abstraction-reliability-cycle-2/wfs
Groundwater Availability	https://www.data.gov.uk/dataset/2a74cf2e-560a-4408-a762-cad0e06c9d3f/wfd-groundwater-bodies-cycle-2	https://environment.data.gov.uk/spatialdata/wfd-groundwater-bodies-cycle-2/wfs
Groundwater Availability	https://www.data.gov.uk/dataset/c5a3e877-12c3-4e81-8603-d2d205d52d7a/wfd-river-canal-and-surface-water-transfer-waterbodies-cycle-2	https://environment.data.gov.uk/spatialdata/wfd-groundwater-bodies-cycle-2-2019/wfs
Natural Flood Management Priority	https://www.data.gov.uk/dataset/2a4bcf6e-3880-4c0b-9986-6cafbec89faf/spatial	https://environment.data.gov.uk/spatialdata/spatial-prioritisation-of-catchments-suitable-for-using-natural-flood-management/wfs

Indicator	Data source webpage	Server Link
	-prioritisation-of-catchments-suitable-for-using-natural-flood-management	
Water Quality WFD Status	https://www.data.gov.uk/dataset/d88923dc-a394-4bbb-9f99-ca9d2d55f689/wfd-lake-water-bodies-cycle-2-classification-2019	https://environment.data.gov.uk/spatialdata/wfd-lake-water-bodies-cycle-2-2019/wfs
Water Quality WFD Status	https://www.data.gov.uk/dataset/0f6c2aee-3f8e-476c-93df-e629881bd985/wfd-transitional-and-coastal-water-bodies-cycle-2-classification-2019	https://environment.data.gov.uk/spatialdata/wfd-transitional-and-coastal-water-bodies-cycle-2-2019/wfs
Water Quality WFD Status	https://www.data.gov.uk/dataset/c5a3e877-12c3-4e81-8603-d2d205d52d7a/wfd-river-canal-and-surface-water-transfer-waterbodies-cycle-2	https://environment.data.gov.uk/spatialdata/wfd-river-canal-and-swt-water-bodies-cycle-2-2019/wfs
Water Quality Management Area	https://data-forestry.opendata.arcgis.com/datasets/df71f328b77f42dca80691b77e01aae6_0/explorer	https://services2.arcgis.com/mHXjwgl3OARRqgD4/arcgis/rest/services/EWCO_Water_Quality/FeatureServer/0

Indicator	Data source webpage	Server Link
Rainfall	https://climatedataportal.metoffice.gov.uk/datasets/TheMetOffice::annual-precipitation-observations-1991-2020-12km/about	https://services.arcgis.com/Lq3V5RFuTBC9I7kv/arcgis/rest/services/Annual_Precipitation_Observations_1991_2020/FeatureServer/0
Soil Drainage	-	-
Population Density	-	-
Nature Designation	https://environment.data.gov.uk/dataset/c626e031-e561-4861-8219-b04cd1002806	https://environment.data.gov.uk/spatialdata/ramsar-england/wfs
Nature Designation	https://www.data.gov.uk/dataset/a85e64d9-d0f1-4500-9080-b0e29b81fbc8/special-areas-of-conservation-england	https://environment.data.gov.uk/spatialdata/special-areas-of-conservation-england/wfs
Nature Designation	https://www.data.gov.uk/dataset/174f4e23-acb6-4305-9365-1e33c8d0e455/special-protection-areas-england	https://environment.data.gov.uk/spatialdata/special-protection-areas-england/wfs
Nature Designation	https://environment.data.gov.uk/dataset/ff213e4c-423a-4d7e-9e6f-b220600a8db3	https://environment.data.gov.uk/spatialdata/national-nature-reserves-england/wfs

Indicator	Data source webpage	Server Link
Nature Designation	https://www.data.gov.uk/dataset/acdf4a9e-a115-41fb-bbe9-603c819aa7f7/local-nature-reserves-england	https://environment.data.gov.uk/spatialdata/local-nature-reserves-england/wfs
Nature Designation	https://www.data.gov.uk/dataset/5b632bd7-9838-4ef2-9101-ea9384421b0d/sites-of-special-scientific-interest-england	https://environment.data.gov.uk/spatialdata/sites-of-special-scientific-interest-england/wfs
Nature Designation	https://environment.data.gov.uk/dataset/e819098e-e248-4a8f-b684-5a21ca521b9b	https://environment.data.gov.uk/spatialdata/national-parks-england/wfs
Nature Designation	https://www.data.gov.uk/dataset/80c075c3-1880-44a0-bffc-69e20f307c21/marine-conservation-zones-england	https://environment.data.gov.uk/spatialdata/marine-conservation-zones-england/wfs
Ancient Habitat	https://www.data.gov.uk/dataset/9461f463-c363-4309-ae77-fdcd7e9df7d3/ancient-woodland-england	https://environment.data.gov.uk/spatialdata/ancient-woodland-england/wfs
Cultural or Historic Importance	https://environment.data.gov.uk/dataset/e819098e-e248-4a8f-b684-5a21ca521b9b	https://environment.data.gov.uk/spatialdata/national-parks-england/wfs

Indicator	Data source webpage	Server Link
Cultural or Historic Importance	https://www.data.gov.uk/dataset/8e3ae3b9-a827-47f1-b025-f08527a4e84e/areas-of-outstanding-natural-beauty-england	https://environment.data.gov.uk/spatialdata/areas-of-outstanding-natural-beauty-england/wfs
Cultural or Historic Importance	https://environment.data.gov.uk/dataset/3c27e15d-e906-413b-8497-11c07a2230fe	https://environment.data.gov.uk/spatialdata/heritage-coasts-england/wfs
Cultural or Historic Importance - Scheduled Monuments	https://www.data.gov.uk/dataset/d53bd232-16e7-4867-8d10-b313ef41ac22/national-heritage-list-for-england-nhle	https://services-eu1.arcgis.com/ZOdPfBS3aqqDYPUQ/ArcGIS/rest/services/National_Heritage_List_for_England_NHLE_v02_VIEW/FeatureServer/6
Cultural or Historic Importance - Parks and Gardens	https://www.data.gov.uk/dataset/d53bd232-16e7-4867-8d10-b313ef41ac22/national-heritage-list-for-england-nhle	https://services-eu1.arcgis.com/ZOdPfBS3aqqDYPUQ/ArcGIS/rest/services/National_Heritage_List_for_England_NHLE_v02_VIEW/FeatureServer/7
Cultural or Historic Importance - Battlefields	https://www.data.gov.uk/dataset/d53bd232-16e7-4867-8d10-b313ef41ac22/national-heritage-list-for-england-nhle	https://services-eu1.arcgis.com/ZOdPfBS3aqqDYPUQ/ArcGIS/rest/services/National_Heritage_List_for_England_NHLE_v02_VIEW/FeatureServer/8
Special Recreation Value	https://environment.data.gov.uk/dataset/e819098e-e248-4a8f-b684-5a21ca521b9b	https://environment.data.gov.uk/spatialdata/national-parks-england/wfs

Indicator	Data source webpage	Server Link
Special Recreation Value	https://www.data.gov.uk/dataset/8e3ae3b9-a827-47f1-b025-f08527a4e84e/areas-of-outstanding-natural-beauty-england	https://environment.data.gov.uk/spatialdata/areas-of-outstanding-natural-beauty-england/wfs
Special Recreation Value	https://environment.data.gov.uk/dataset/3c27e15d-e906-413b-8497-11c07a2230fe	https://environment.data.gov.uk/spatialdata/heritage-coasts-england/wfs
Public Access	-	-
Educational Use	-	-
Managed for Nature	https://www.data.gov.uk/dataset/78d77039-e3ae-4840-828f-82898ddc910e/countryside-stewardship-scheme-2016-management-areas-england	https://environment.data.gov.uk/spatialdata/countryside-stewardship-scheme-2016-management-areas/wfs
Landscape Diversity	-	-

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