

# Zoning: Technical Guidance Note 5

**Updating Zoning Layers** 

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EUROPE & SCOTLAND European Regional Development Fund Investing in a Smart, Sustainable and Inclusive Future

## Table of Contents

1.	Introdu	ction	3
2.	The Pro	ocess	3
2.2.	Addir	ng Newly Acquired Land	6
	2.2.1.	Creating An 'Acquired' layer	6
	2.2.2.	If An 'Acquired' Layer Already Exists	6
2.3.	Buffe	ring 'Acquired' Land to 0m	7
2.4.	Divid	ing 'Acquired' Land	7
2.5.	Spati	al Join	8
2.6.	Attrib	ute Table	9
2.7.	Rem	oving Locations With Health & Safety or Access Issues	9
2.8.	Merg	ing Shapefiles	11
2.9.	Refin	ing Survey Area Size	12
2.10	). Sn	apping to Adjoining Polygons	14

## 1. Introduction

Local Authority land ownership and areas of responsibility are not static. Therefore, it is necessary to periodically update the zoning layers to reflect any changes. It is important when making these changes, that the unique identifiers associated with unchanged land are not affected.

Technical Guidance Note 6 provides a step-by-step guide to updating zoning layers in future years..

## 2. The Process



Figures 1 and 2 provide a simple example to demonstrate the process:



Figure 1: Survey areas 2017 (herefter referred to as '2017')





Changes since the 2017 assessment have been highlighted as follows:

- A red square has been used to highlight where land has been sold; and
- A black square has been used to highlight where further land has been acquired.

These changes to the land boundary need to be reflected for the 2018 survey areas.

### 2.1. Removal of Sold Land

The first step is to create a layer that represents land that you are no longer responsible for (henceforth referred to as sold). If you already have such a layer skip to Paragraph 2.8.

#### 2.1.1. Creating A 'Sold' Layer

To create the 'Sold' layer you need to cut the '2018 Boundary' layer from the '2017' layer. The process is as follows:

• Vector > Geoprocessing Tools > Difference

🕺 Difference	?	×
Input vector layer		
2017		•
Use only selected features		
Difference layer		
2018 Boundary		•
Use only selected features		
Output shapefile		
	Brov	vse
Add result to canvas		
0% OK	Clos	se

#### 2.1.2. Removing Sold Land

The removal of land that has been sold involves cutting the 'Sold' layer from the '2017' layer. The process is as follows:

• Vector > Geoprocessing Tools > Difference:

🕺 Difference	? ×
Input vector layer	
2017	<b>~</b>
Use only selected features	
Difference layer	
Sold	*
Use only selected features	
Output shapefile	
	Browse
Add result to canvas	
0% OK	Close

- Important: Create a sub-folder called 'merge' and save the 'Output shapefile' there.
- You now have a layer ('2017 Sold') that takes into account the land that has been sold:



## 2.2. Adding Newly Acquired Land

The next step is to create a layer that represents land that has been acquired since the 2017 survey areas were created (hereafter referred to as 'Acquired'). If you already have such a layer skip to Section 2.2.2.

#### 2.2.1. Creating An 'Acquired' layer

To create an 'Acquired' layer you need to cut the '2017 Sold' layer from the '2018 Boundary' layer. The process is as follows:

• Vector > Geoprocessing Tools > Difference

🕺 Difference		?	$\times$
Input vector layer			
2018 Boundary			-
Use only selected features			
Difference layer			
2017 Sold			•
Use only selected features			
Output shapefile			
		Brows	e
Add result to canvas			
0%	OK	Close	

#### 2.2.2. If An 'Acquired' Layer Already Exists

If you have just created an 'Acquired' layer you can skip to Section 2.3.

It is important that your 'Acquired' layer doesn't overlap the '2017 Sold' layer. Therefore it is recommended you cut the '2017 Sold' layer from the 'Acquired' layer before proceeding.

The process is as follows:

• Vector > Geoprocessing Tools > Difference

🕺 Difference		?	×
Input vector layer			
Acquired			-
Use only selected features			
Difference layer			
2017 Sold			-
Use only selected features			
Output shapefile		-	
L		Brows	se
Add result to canvas			
0%	ОК	Close	e

## 2.3. Buffering 'Acquired' Land to 0m

To ensure more uniformly shaped survey areas, the 'Acquired' layer should be buffered to 0m. This should dissolve the layer and have the additional benefit of removing a lot of the errors (further details on dissolving/buffering are provided in Zoning: Technical Guidance Note 4).

The process is as follows:

• Vector > Geoprocessing Tools > Buffer(s):

💋 Buffer(s)		? ×
Input vector layer		
Acquired		+
Use only selected features		
Segments to approximate	60	<b></b>
O Buffer distance	0	
O Buffer distance field		
id		7
☑ Dissolve buffer results		
Output shapefile		
		Browse
Add result to canvas		
0%	ОК	Close

## 2.4. Dividing 'Acquired' Land

The newly buffered acquired land ('Acquired B') can now be divided using the 'Polygon Divider'.

The process is as follows:

• Click on the 'Polygon Divider' button 🗮 in the top toolbar (or select from the 'Plugins' pulldown menu):

💋 Polygon Divider		?	×
Input Layer			
Acquired B			-
Output File			
Target Area (in CRS Units)			
1000			
Cut Direction			
left to right			-
Absorb Offcuts	ОК	Can	cel

Further details on the 'Polygon Divider' are provided in Zoning: Technical Guidance Note 4.

#### 2.5. Spatial Join

**Please note:** This step is only required if you have dissolved or buffered your 'Acquired' layer prior to dividing it.

Before performing the 'Spatial Join', it is important that any fields relating to the original undissolved 'Acquired' layer are removed. This is to ensure the joined layer doesn't have duplicates that impact the prescribed attribute naming conventions.

The process for deleting fields from the 'Attribute Table' is as follows:

- Left click on the divided layer in the 'Map Legend';
- Click on the 'Attribute Table' button is on the top toolbar;
- Make the layer editable *(*;
- Click on the delete fields button
- Select the layers you want to delete from the dialog box and click 'OK';
- It may take a few minutes if you are deleting a number of fields from a large database; and
- Save the changes and stop the layer from being editable

The only fields remaining after the above process should be:

- Poly\_ID;
- Unique\_ID;
- Area;
- PointX; and
- PointY.

The 'Spatial Join' process is as follows:

- The 'Spatial Join' tool is accessed via Vector > Data Management Tools > Join Attributes by Location;
- The 'Target vector layer' is the divided polygon;
- The 'Join vector layer' is your original undissolved/unbuffered 'Acquired' layer;
- Browse to where you want to save the new layer;
- **Important**: Change the 'Output table' from the default position to 'Keep all records (including non-matching target records)';
- Click 'OK':

💋 Join attributes by location	?	×
Target vector layer		
Divided Polygon		•
Join vector layer		
Acquired		-
Attribute Summary		
Take attributes of first located feature		
<ul> <li>Take summary of intersecting features</li> </ul>		
Mean Min Max Sum Median		
Output Shapefile		
	Brov	vse
Output table		
<ul> <li>Only keep matching records</li> </ul>		
Keep all records (including non-matching target records)		
0% OK	Clos	se .

## 2.6. Attribute Table

Any unwanted or duplicate fields should be deleted from the 'Attribute Table'. The exact fields that should remain:

- Org;
- Ward;
- Identifier;
- Zone;
- H\_and\_S;
- Reason;
- Poly\_ID;
- Unique\_ID;
- Area;
- PointX; and
- PointY.

### 2.7. Removing Locations With Health & Safety or Access Issues

The next step is to remove any new survey areas that have H&S or access issues.

The process is as follows:

- Left click on the layer in the 'Map Legend';
- Click on the 'Select features using an expression' 🔤 button in the top toolbar;
- In the dialog box, expand the 'Fields and Values' list and double click on 'h\_and\_s';
- Type: IS NOT;
- Click on the 'all unique' button and double click on 'Y' in the box above;
- The dialog box should look like this:

Expression Function Editor  = + - / * ^ II ( ) '\n' Search  "h_and_s" IS NOT 'y'  > Color  Conditionals  Condition		
= + · / * ^ II ( ) ''n' Search group Field "h_and_s" IS NOT 'y' > Color ^ > Conditionals ^ Conditionals ^		
"h_and_s" IS NOT 'y'  Color  Conditionals  C		^
Date and Time     Date and Time     Date and Values     Policy JD     NULL     UNIQUE_ID     AREA     POINTX     POINTY     Org     ward     identifier     zone     h_and_s     Failogo	expression string	~
Fuzzy Matching     Load values     all unit	que 10 samp	es

- Click on the 'Select' button on the bottom right of the dialog box:
- Close the dialog box:
- Right click on your layer in the 'Map Legend' and select 'Save As...';
- **Important:** Save file to the 'Merge' sub-folder;
- Make sure the CRS is British National Grid;
- **Important**: Check the 'Save only selected features' checkbox;
- Click 'OK':

💋 Save vector layer as		? ×
Format ESRI Shapefile		
Save as CRS Selected CRS (EPSG:27700, OSC	8 1936 / British National Grid)	Browse
Encoding	System	•
Save only selected features Skip attribute creation Add saved file to map		
Symbology export	No symbology	•
Scale	1:50000	A ¥
▼ Geometry		
Geometry type	Automatic	-
Force multi-type		
Include z-dimension		
Extent (current: layer)		
▼ Layer Options		
RESIZE NO		•
SHPT <default></default>		-
Custom Options		
	OK Cancel	Help

## 2.8. Merging Shapefiles

The next step is to merge the previously created '2017 Sold' layer to the layer you have just created. Both layers should have been saved in the 'Merge' sub-folder. The process is as follows:

• Vector > Data Management Tools > Merge Shapefiles to One:

💋 Merge shapefiles		?	$\times$
Select by layers in the folder			
Shapefile type	Polygon		•
Input directory			
		Brows	æ
Output shapefile			
		Brows	æ
Add result to map canvas		_	
			0%
			0%
	ОК	Close	2

• The 'Input directory' is the 'Merge' folder.

You now have a divided layer, that takes into account the sold and acquired land (Figure 4).



Figure 3: Merged layers

#### 2.9. **Refining Survey Area Size**

The process of removing and adding sections of land may have resulted in the creation of survey areas that are smaller or larger than required. Therefore, we need to refine the size of the survey areas within the merged layer ('2018 M') so that only those with an area between 800m<sup>2</sup> and 1200m<sup>2</sup> are included.

The process for refining the survey areas is as follows:

- Left click on your '2018 M' layer in the 'Map Legend'; •
- Click on the 'Select features using an expression' E button in the top toolbar; •
- In the dialog box, expand the 'Geometry' list and double click on '\$area':
  - Type: > 800 AND \$area <1200 0
  - It is important that you do not use "Area" from 'Fields and Values'. 0
  - Click on the 'Select' button at the bottom right of the dialog box:





Close the dialog box.

•

Figure 4: Survey areas of defined area that have been selected (yellow)

- Right click on your merged layer (2018 M) in the 'Map Legend' and select 'Save As...';
- Browse to where you want the new layer to be saved;
- Make sure the CRS is British National Grid;
- Important: Check the 'Save only selected features' checkbox;
- Click 'OK':

Format ESRI Shapefile		•
Save as		Browse
CRS SElected CRS (EPSG:27700, 0	SGD 1936 / Drush Nauonal Ghu)	
Encoding	System	•
Save only selected features Skip attribute creation		
Add saved file to map	No symbology	_
Scale	1:50000	
▼ Geometry		
Geometry type	Automatic	•
E Force multi-type		
Include z-dimension		
Extent (current: layer)		
Layer Options		
RESIZE NO		•
SHPT Cefault>		•
Custom Options		
	OK Cancel	Help

You now have a layer ('2018') that represents the 2018 survey areas (see Figure 6). In other words, a layer that maintains the previously assigned survey areas and accounts for the subsequent changes in land ownership.



Figure 5: '2018' survey areas

## 2.10. Snapping to Adjoining Polygons

Finally, there may be instances where there are unnecessary gaps between sections of newly acquired land and existing survey areas. Where this occurs, the snapping tolerances should be set (see Zoning: Technical Guidance Note 1), the layer should be made editable, and the polygons snapped together.

Once the adjustments have been made, the 'Topology Checker' should be used to make sure no overlaps have been created (See Zoning: Technical Guidance Note 3).

The process of updating the zoned layer is now complete.



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