

Manure Management Plan

A step by step guide for farmers

Name	PB Williams & Co.
Farm Address	Greenway Shanhamlach Brecon Powys
Date	12-11-14

14/11481

Department for
Environment,
Food & Rural Affairs

June 2003



Colour coding of pollution risk areas

Your plan will contain some or all of the following coloured areas:

- **Red areas** should never be used for spreading and to do so may break a legal obligation (e.g. in Nitrate Vulnerable Zones).
- **White areas** are not normally used for operational reasons but may be brought into use in the future.
- **Orange areas** cannot be used when certain conditions apply, but they will usually be available at some times of the year. For example, fields which cannot be used when they are at field capacity in winter may be used in spring. However, they may also be at very high risk if the soil cracks over drains in summer.
- **Yellow areas** may be used for spreading at most times of the year but application rates must be no more than 50m³/hectare (4,500 gallons/acre) in a single application when certain conditions apply.
- **Green areas** may be used for spreading at most times of the year.

And additionally:

- **Cross-hatched areas** must not be used for spreading slurry, poultry manure or liquid digested sewage sludge during closed periods in **Nitrate Vulnerable Zones**. Such areas consist of sandy or shallow soils. The “no-spreading periods” are from 1 August to 1 November on arable land where no autumn crop will be sown; and from 1 September to 1 November on grassland, and also on arable land where an autumn crop will be sown.

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Note:

To reduce the risk of nitrate leaching, whenever practicable, avoid applications of manures high in available nitrogen (i.e. slurries and poultry manures) during the autumn and early winter period. Delaying application until late winter or spring period will improve N utilisation by the crop.



Annex 2

Typical maximum annual livestock manure and sewage sludge application rates

Table 7: Typical maximum annual application rates to supply 250 kg/ha (200 units/acre) of total nitrogen

Manure or sludge type	Metric	Imperial	Total N kg/m ³ or kg/t
Cattle farmyard manure	42 tonnes/ha	17 tons/acre	6.0
Pig farmyard manure	36 tonnes/ha	14.5 tons/acre	7.0
Sheep farmyard manure	42 tonnes/ha	17 tons/acre	6.0
Duck manure	38 tonnes/ha	15 tons/acre	6.5
Poultry layer manure	16 tonnes/ha	6.5 tons/acre	16
Poultry broiler litter	8 tonnes/ha	3.2 tons/acre	30
Turkey litter	8 tonnes/ha	3.2 tons/acre	30
Dairy cattle slurry, 2% dry matter	167 m ³ /ha	14,900 gallons/acre	1.5
Dairy cattle slurry, 6% dry matter	83 m ³ /ha	7,400 gallons/acre	3.0
Dairy cattle slurry, 10% dry matter	63 m ³ /ha	5,600 gallons/acre	4.0
Beef cattle slurry, 2% dry matter	250 m ³ /ha	22,300 gallons/acre	1.0
Beef cattle slurry, 6% dry matter	109 m ³ /ha	9,700 gallons/acre	2.3
Beef cattle slurry, 10% dry matter	71 m ³ /ha	6,400 gallons/acre	3.5
Pig slurry, 2% dry matter	83 m ³ /ha	7,400 gallons/acre	3.0
Pig slurry, 4% dry matter	63 m ³ /ha	5,600 gallons/acre	4.0
Pig slurry, 6% dry matter	50 m ³ /ha	4,500 gallons/acre	5.0
Dirty water, less than 1% dry matter	833 m ³ /ha	74,400 gallons/acre	0.3
Strainer box cattle slurry	167 m ³ /ha	14,900 gallons/acre	1.5
Weeping-wall cattle slurry	125 m ³ /ha	11,200 gallons/acre	2.0
Mechanically separated cattle slurry	83 m ³ /ha	7,400 gallons/acre	3.0
Sewage sludge: digested liquid	125 m ³ /ha	11,200 gallons/acre	2.0
Sewage sludge: digested cake	33 tonnes/ha	13 tons/acre	7.5
Sewage sludge: thermally dried	7 tonnes/ha	3 tons/acre	35
Sewage sludge: lime stabilised	42 tonnes/ha	17 tons/acre	6.0

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Table 1 - Calculating the area not available for spreading

List in this table **only** your fields which have red or white areas. Remember ditches and watercourses have two sides.

Field name or number	Whole field area in hectares (ha)	Ditches and watercourses		Other red areas (ha)	White areas (ha)
		Total length in metres (m)	* metres ÷ 1,000 = ha		
Glaswm near	5.63	375	0.375	1.0	
20 acre	8.61			0.5	
Behind clomp.	3.74	250	0.25	0.25	
Next 20 acre	8.3	350	0.35		
Highgrove mead	2.22	400	0.4		
Bank.	5.79		0.06		
Quarry	2.57	250	0.25		
steep	4.24		0.42	0.5	
Above wire	5.21	250	0.25		
On way to Slade	2.59	425	0.425	0.4	
Slade mead	3.37			1.0	
Pare Newydd	4.27	320	0.32		
Manent bottom	4.65	350	0.35		
Cmawr	4.6	300	0.3		
Far below line	2.51	170	0.17	0.037	
40 acre	0.49			0.49	
Next bank.	5.48	360	0.36		
15 acres above rd.	6.10	430	0.43		

Total farm area:

A 317.9

4.395 3.897 17.44

from other sheet

Areas not available for spreading: Totals

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x 8.685	y 8.074	z 17.44
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*This calculation is derived from ditches x 10 m (red area) ÷ 10,000 to give hectares. If we do not multiply by the 10 m first, we only need to divide by 1,000.

Note: If you use a 1:2,500 scale map; 1 grid square = 1 hectare, 1 side of a square = 100 metres
If you use a 1:10,000 scale map; 1 grid square = 100 hectares, 1 side of a square = 1,000 metres

Area available for spreading: A minus (x + y + z) =

B 283.7 ha



		<u>Ditches & watercourses</u>	<u>Other red</u>	<u>White</u>
byddyn wood	2-23			2-23
Track.	1-02			1-02
Tunnel wood	0-49			0-49
Tram line	2-29			2-29
Sheep shed pad.	0-66			0-66
40 acre wood	0-38			0-38
Sheep shed	0-47			0-47
Wet fld wood	1-18			1-18
Wood above line	2-50			2-50
Slade wood	1-43			1-43
Slade track	0-97			0-97
Highgrove buildings	1-14			1-14
Crossroads quarry	0-10			1-10
ing field	5-61	360	0-36	
Well	2-9	50	0-05	1-0
Square	1-96	50	0-05	
L shape	5-14	425	0-425	
Next Mill	4-03	150	0-15	0-7
Next mill lower.	3-64			0-13
Triangular	2-02	325	0-325	0-03
Big mead	5-69	350	0-35	
Big field	4-16	320		0-097
Little field	1-38	180	0-18	
Wern	5-17	850	0-85	
'aen Shep.	2-75	60	0-06	0-21
Below Manent.	4-75	80	0-08	1-73
Top Wood	1-73			
Next Polymas	2-81	190	0-19	
Next mill	2-73	125	0-125	
Next O/D Large	6-21	225	0-225	
Next O/D small	1-69	225	0-225	
Manent buildings	1-04			1-04
Manent paddock.	0-54			0-54
Bung. mead.	3-73	330	0-33	
Coed ce	3-47	200	0-2	
Wern & little back mead	1-93	220	0-22	
Back mead				

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Totals.
for page.

x = 4-395 y = 3-897 z = 17-44

Areas for spreading (subject to restrictions)

Identify areas which meet the conditions in **Table 2** and mark them on your map in **orange** (very high risk) or **yellow** (high risk) as indicated.

Number the orange areas on your map using the reasons and number key from Table 2. Number the map with all the conditions affecting it.

Colour the remaining areas of crops and grass **green** (lower risk). Green areas **do not** have effective pipe or mole drains. Remember you may need to leave some areas white (Step 1).

And additionally, identify any sandy or shallow soils in **Nitrate Vulnerable Zones (NVZs)** and mark the areas on your map by **cross-hatching**. These areas must not receive slurry or poultry manure during closed periods.

Note: In NVZs - A sandy soil has sand, loamy sand or sandy loam texture to 40 cm depth and sand or loamy sand to 80 cm; the topsoil will contain less than 8.5% organic matter (5% organic carbon). A shallow soil has 40 cm or less depth over rock which is commonly chalk, limestone or sandstone. See Annex 4: PB5505.

Slurry and solid manure should never be spread when:

- The ground is frozen hard or snow covered as a subsequent thaw or rainfall can cause a significant risk of run-off.
- The fields are so wet that tractor-drawn machinery will damage the soil. You may consider that areas you have marked yellow are not available during the winter for this reason.

Colour in the boxes and attach the keys below to your map to help you identify areas more easily.

✂-----

Colour Key



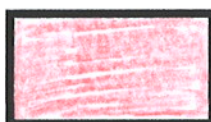
Orange areas
Very high risk



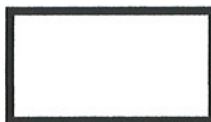
Yellow areas
High risk



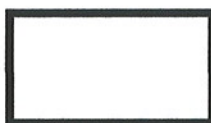
Green areas
Lower risk



Red areas
Land where manure and organic waste should never be spread



Cross-hatched areas
Never apply slurry or poultry manure in NVZ closed periods



White areas
Land not normally used for spreading

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Orange Areas Number Key

- 1 Do not spread on these fields when the surface is compacted or waterlogged
- 2 Do not spread when there is a risk of flooding
- 3 Do not spread when the soil is at field capacity i.e. when the soil is fully wetted



Table 3 - Calculating minimum area of land needed

Stock unit	<u>A</u> Number of stock units	<u>B</u> Months housed	<u>C</u> Hectares needed per stock unit	<u>D</u> Total area needed (ha)
1 dairy cow (650 kg)		X	X 0.039	=
1 dairy cow (550 kg)		X	X 0.032	=
1 dairy cow (450 kg)		X	X 0.025	=
1 dairy heifer replacement over 24 months (500 kg)		X	X 0.019	=
1 suckler cow	51	X 5-5	X 0.019	= 5.33
1 grower/fattener over 24 months (500 kg)		X	X 0.019	=
1 grower/fattener over 12 to 24 months (400 kg)	88	X 6	X 0.016	= 8.45
1 follower/young stock 6 to 12 months	157	X 6	X 0.008	= 7.54
1 bull beef cattle 6 to 14 months		X	X 0.012	=
1 calf (to 6 months)	15	X 6	X 0.005	= 0.45
1 bull for breeding (1,350 kg)	2	X 5-5	X 0.019	= 0.21
1 breeding sow place, including piglets			X 0.078	=
1 weaner place			X 0.012	=
1 grower pig place			X 0.024	=
1 light cutter pig place (35 to 85 kg)			X 0.038	=
1 bacon pig place (35 to 105 kg)			X 0.042	=
1 maiden gilt place			X 0.052	=
1 boar place			X 0.064	=
1,000 laying hens			X 2.64	=
1,000 free range laying hens			X 2.32	=
1,000 broiler places			X 1.98	=
1,000 broiler breeders			X 3.90	=
1,000 replacement pullets			X 0.50	=
1000 male turkey places	28.16		X 5.56	= 156.57
1000 female turkey places			X 2.60	=
1000 fattening duck places			X 3.60	=
1 sheep	1300	X 2	X 0.003	= 7.8
1 fattening lamb (to 6 months)		X	X 0.001	=
1 fattening lamb (6 to 12 months)		X	X 0.002	=
Imported livestock manures (if any)	Number from Box M (Annex 1, page 17) =			

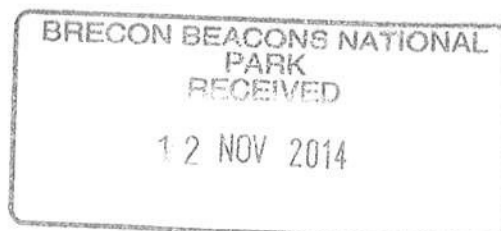
Total = Minimum land needed

C

186.35 ha

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Transfer C to next page



Enter C from previous page into box

Total = Minimum land needed

C

186.35 ha

Area available for spreading manure
(Transfer B from page 5)

B

283.7 ha

If C is bigger than B:

Extra area is needed to spread livestock manures (C minus B)

ha

- You may wish to consider if some of the white areas on your map which are used for cropping could be safely used for spreading to make good the difference.
- Alternatively you should make arrangements to spread the excess manure on another farm or dispose of it in other ways. You should always follow the advice in the Water Code.
- You should reconsider any decisions to import livestock manures.

If you have any land in a Nitrate Vulnerable Zone or are a registered organic farmer:

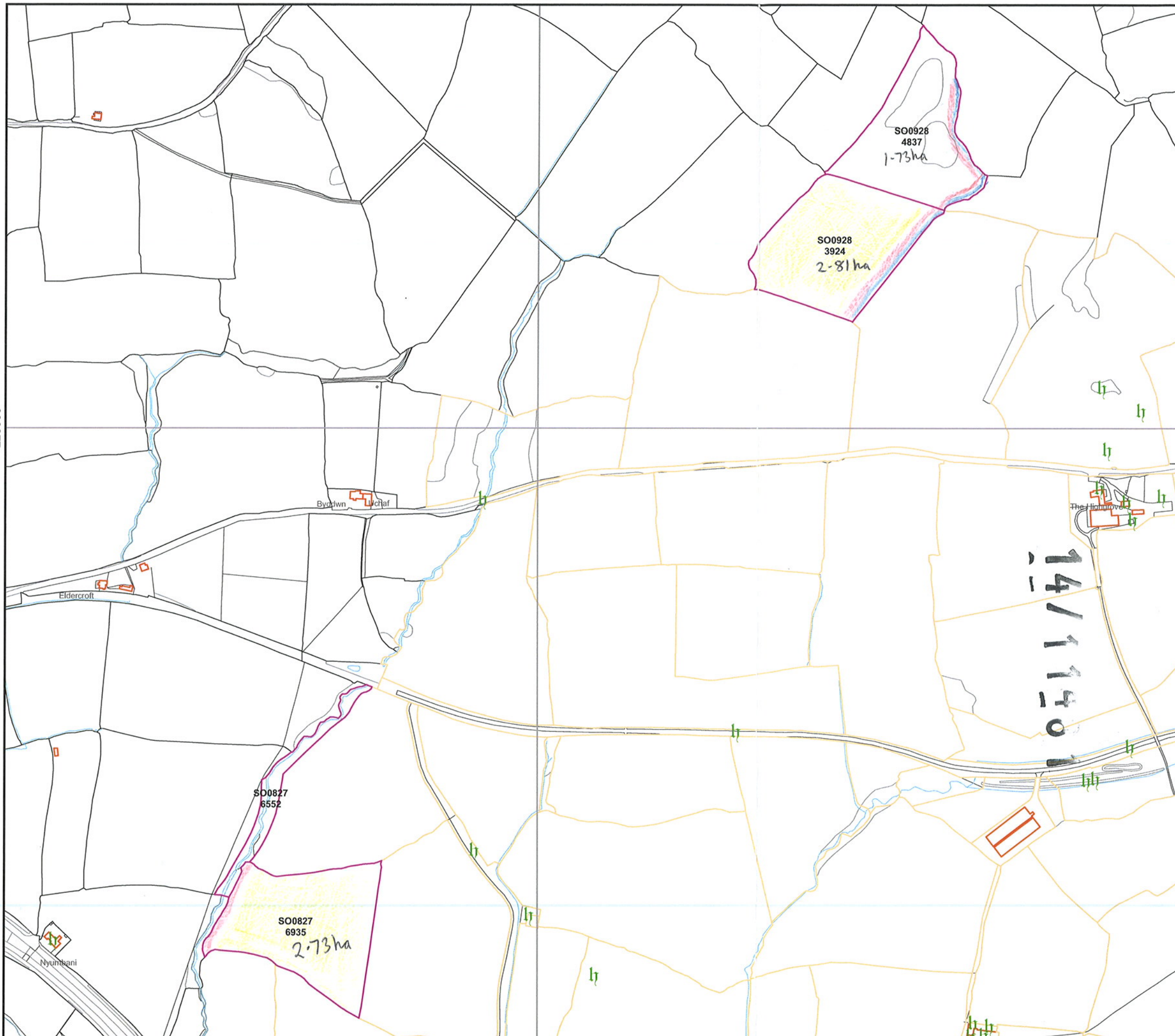
- You must check that you can comply with the farm-based limits for nitrogen from organic manure loadings.
- The farm-based limits may mean that you have to spread excess manure on another farm, even if **C is less than B**. And you may need more area than the 'extra area' calculated (C minus B). **Organic farmers must** use another organic farm.
- In NVZs, you must not apply more available nitrogen than the crop requires.

We do not import manures from other farms
We do not import sewage sludge
We only produce solid farm yard manure.

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Map 8 o 9 / Map 8 of 9

Symbolau IACS / IACS Symbols

Ffiniau Parseli IACS		IACS Parcel Boundary
Rhif Dalen	SA1234	Sheet Number
Rhif Parsel	6789	Parcel Number
Parseli ar Ddalen Map Arall (Wedi'u Cynnwys)		Parcels on Another Map Sheet (Included)

Heneb Restredig		Scheduled Ancient Monument
Heneb Anrhestredig		Unscheduled Ancient Monument

Bydd y data pwynt yn lleoli rhan yn unig o'r ardal restredig, ni ddangosir ei maint llawn.

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Adeiladau Buildings

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Graddfa Fras / Approx. Scale 1:5,000
50 0 50 100 150 200 250 m

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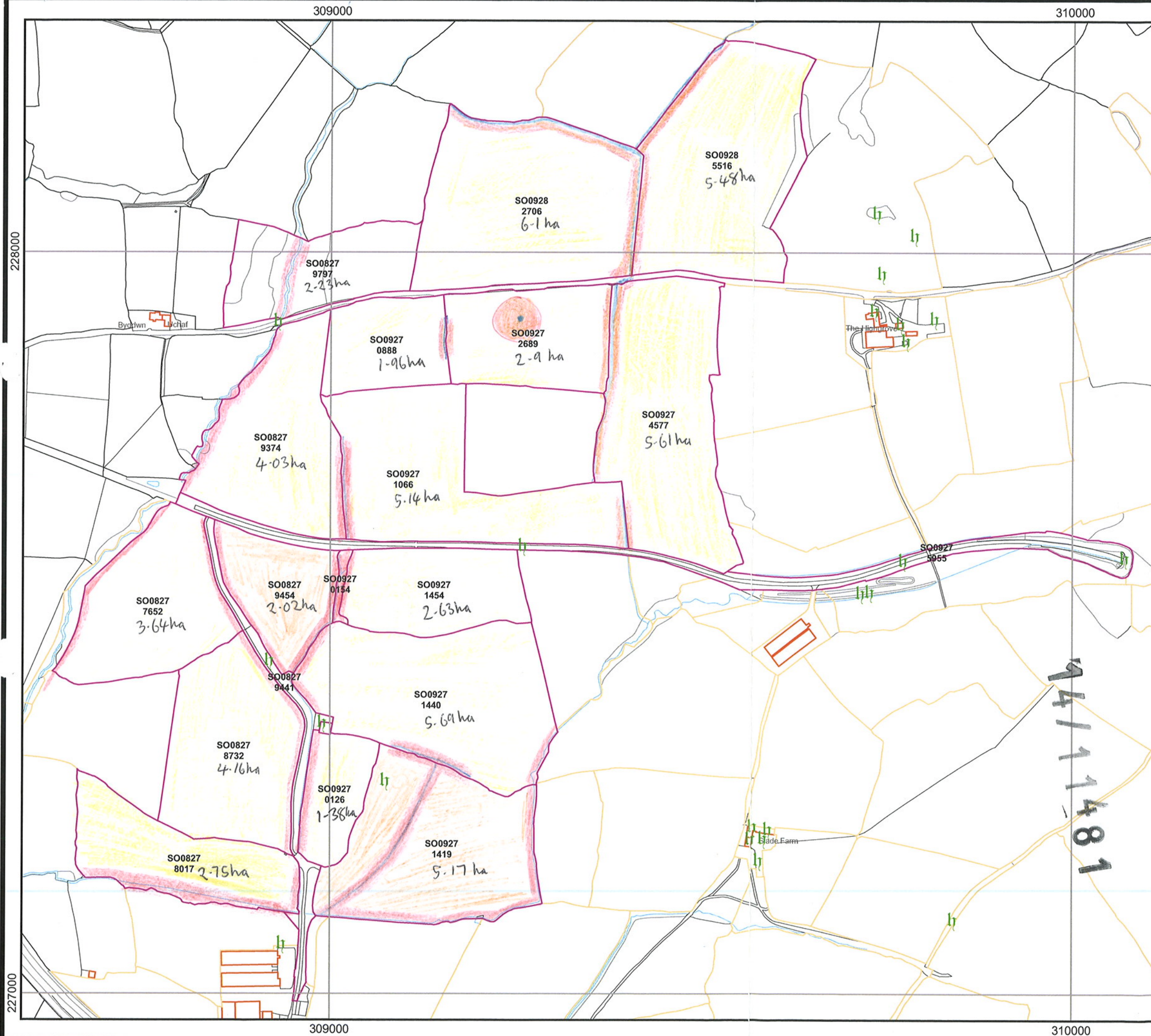
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Map 7 o 9 / Map 7 of 9

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Rhif Parsel	6789	Parcel Number
Parseli ar Ddalen Map Arall (Wedi'u Cynnwys)		Parcels on Another Map Sheet (Included)

Heneb Restredig		Scheduled Ancient Monument
Heneb Anrhestredig		Unscheduled Ancient Monument

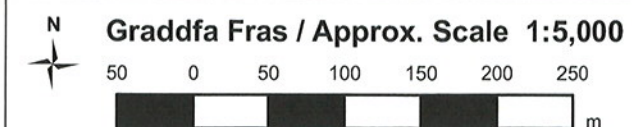
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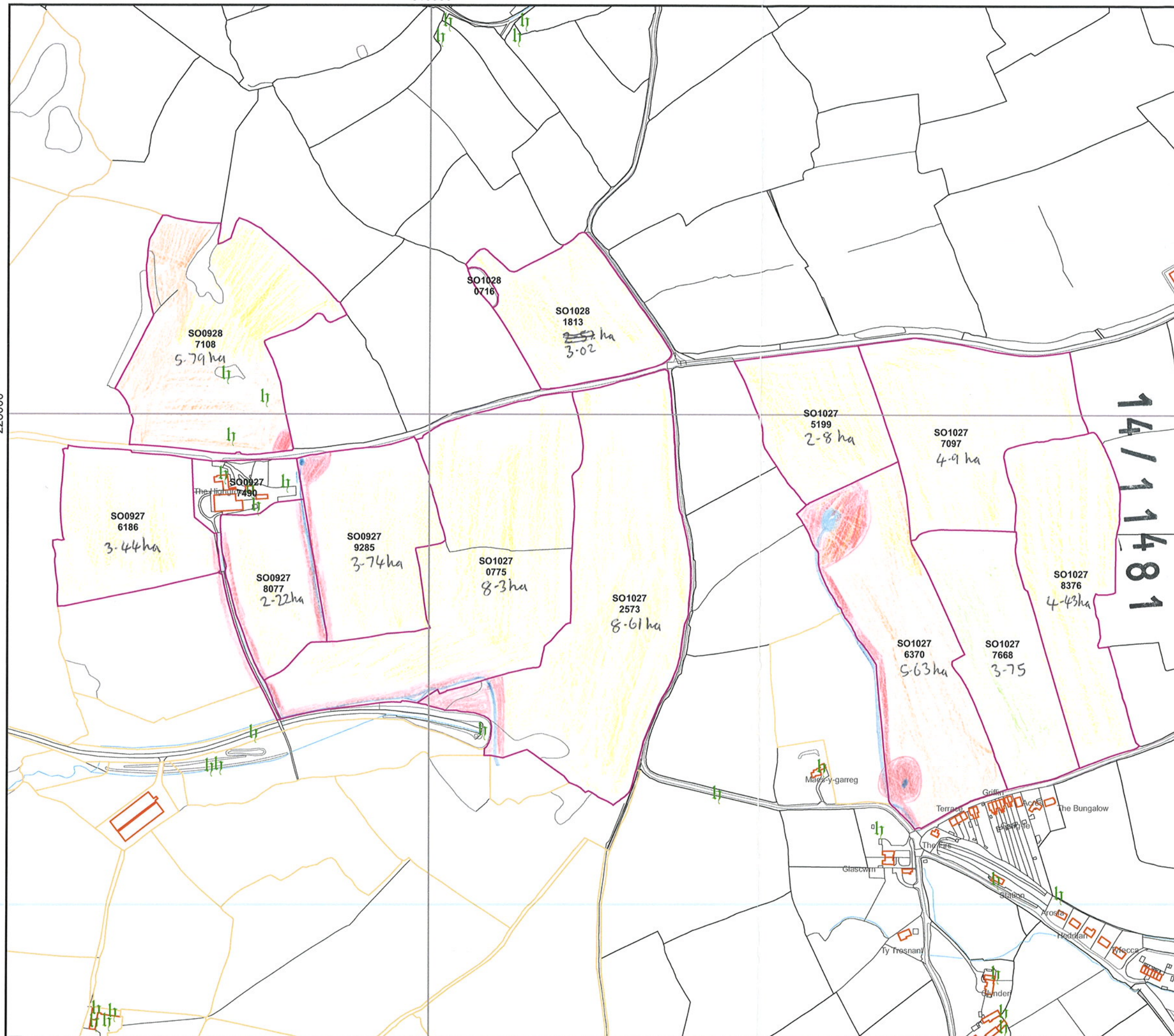
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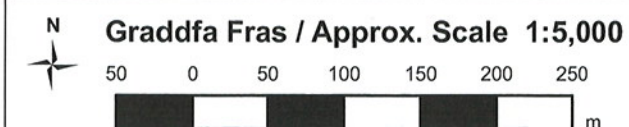
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Rhif Dalen	SA1234	Sheet Number
Rhif Parsel	6789	Parcel Number
Parseli ar Ddalen Map Arall (Wedi'u Cynnwys)		Parcels on Another Map Sheet (Included)

Heneb Restredig		Scheduled Ancient Monument
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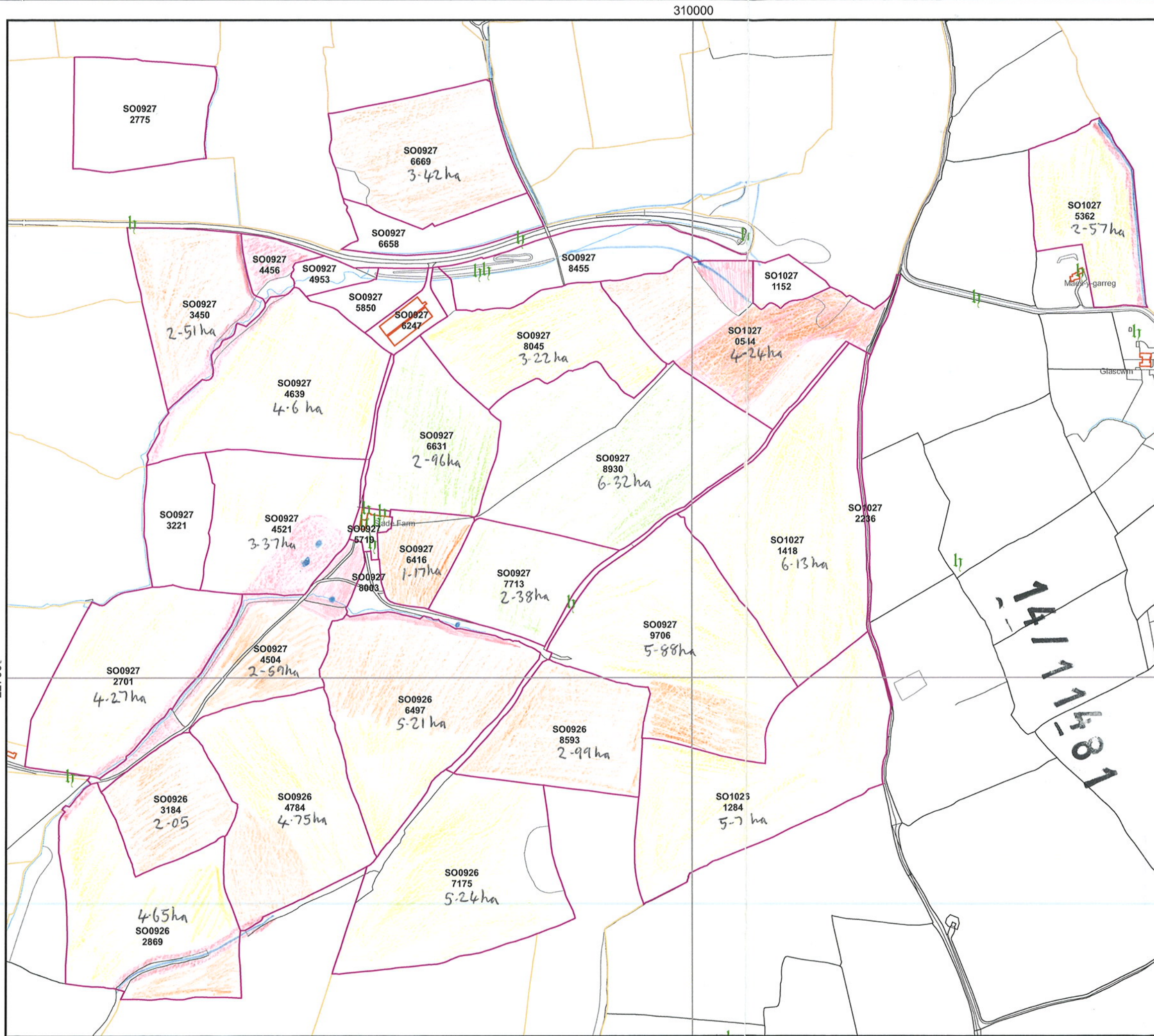


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