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of Ordnance Survey maps in preparing
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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

The use by the Great Western Railway of Ordnance Survey maps in preparing land plans

Gavin Johns

Railways required records of land ownership. In the nineteenth century the majority of railway companies produced bespoke land plans of their lines typically at a scale of 2 chains to an inch. These were masterpieces of surveying and cartographic skill. At the time of promoting the railway, plans showing land required and limits of deviation were produced to support the parliamentary process. After authorisation and construction a survey was undertaken and land plan produced to show the completed work. The objective of the land plan was to record ownership, title deeds and other relevant property information and transactions such as disposals. Over time these documents reflected the variety of property activity undertaken by railway companies and ultimately the closure and sale of many routes in the mid-twentieth century.

The land plan's presentational format varied considerably. Some companies favoured large format pages bound into huge – and unwieldy – books. The London Brighton & South Coast Railway, and Merthyr, Tredegar and Abergavenny branch of the London & North Western Railway fell into this category. Others adopted smaller page formats and sometimes strip format bound in 'concertina' books.

In the early years bespoke surveys were favoured, with little direct use of Ordnance Survey products.

There were some notable exceptions, for instance the Great Eastern Railway used Ordnance Survey 1:2500 plans to form the base of the plan. Ordnance Survey sheets were cut into strips (11" wide) and then annotated with parish and county boundaries, title deed boundaries and plot numbers.

In addition, other railways used, for example, bound folios of plans at 1:500 (41.66 feet to one inch) or 1:2500. A folio produced for the Midland Railway (MR) comprises five of the nineteen sheets published in 1886 of the town plans for Stamford in Lincolnshire. The folio is stamped 14 March 1907. It is assumed that this folio was produced for commercial purposes, as a land plan to the usual MR format (page size 32" x 21" at a scale of 2 chains to an inch) had been produced.

The grouping of the railways in 1923 under the terms of the Railways Act, 1921, caused overnight a substantial change in property ownerships. Four large companies were created: London Midland & Scottish Railway (LM&SR), London North Eastern Railway (LNER), Southern Railway (SR) and the Great Western Railway (GWR). In the early days after grouping the task of integrating the component companies into one large new company was immense and one aspect not overlooked was the need for new land plans. Some companies (LNER, SR and LM&SR) integrated the records of the old companies augmenting them with new plans as required. These new plans were based on Ordnance Survey 1:2500 sheets. The LNER, for example, commissioned land plans for the Great Northern Railway (GNR) area using Ordnance Survey 1:2500 maps, showing property ownership with green tint (but not title deed information, original GNR

records had to be used to find that) and the application of printed station name labels to the plan.

The GWR solution was different.

The GWR had prior to 1923 followed the same approach as other companies. Bespoke surveys, and meticulously drawn '2 chain' land plans produced on large sheets but then bound on linen in a concertina form (6" x 12") for use in offices. This format had been produced for at least the preceding 40 years.

An example of a 1908 plan at Defiance Platform, Saltash, Cornwall, is shown in figure 1.¹

Grouping overnight presented a formidable task of integration. The companies absorbed by the GWR are shown in Table 1.²

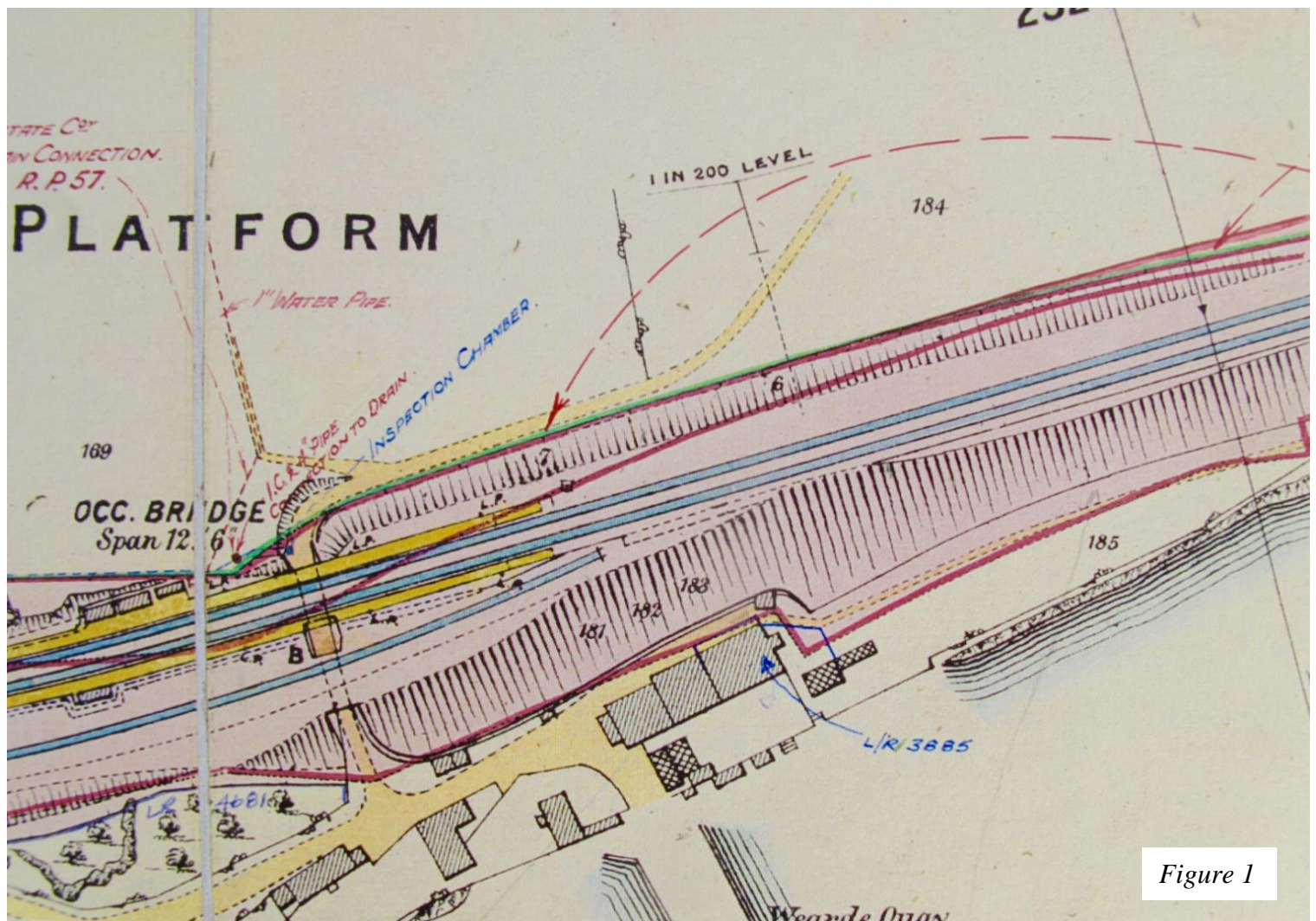


Figure 1

¹ All extracts are from copies held in a private collection.

² Source: Railway Gazette, GW Staff Magazines and line histories.

Table 1

<i>Company</i>	<i>Route mileage</i>	<i>Date of acquisition of Company by GWR</i>	<i>Land plan OS corrected date</i>
Alexandra (Newport & South Wales) Docks and Rly	19	1 Jan 1922	1931
Barry Rly	68	1 Jan 1922	1925 - 28
Cambrian Railways	300	1 Jan 1922. Van, Mawddwy and W&LLR: 1 Jan 1923	1922 - 33
Cardiff Rlys	12	1 Jan 1922	1931
Rhymney Rly	51	1 Jan 1922	1931
Taff Vale Rly	124	1 Jan 1922	1929 - 1933
Didcot, Newbury & Southampton Rly	45	1 Jan 1923	Not known
Exeter Rly	8	1 July 1923	1927
Forest of Dean Central Rly	5	1923	1881
Lampeter, Aberayron & New Quay Light Rly	12	1 Jan 1922	Not known
Liskeard & Looe Rly	9	1 Jan 1923	1909 2 chain
Princetown Rly	10	1 Jan 1922	c1890
Ross & Monmouth Rly	13	1 Jan 1922	Not known
Teign Valley Rly	8	1 July 1923	1927
West Somerset Rly	14	1 Jan 1922	Not known
Brecon & Merthyr Tydfil Jn Rly	60	1 Jan 1922	1929
Burry Port & Gwendraeth Valley Rly	21	1 Jan 1922	1926
Cleobury Mortimer & Ditton Priors Light Rly	12	1 Jan 1922	Not known
Gwendraeth Valley Rly	3	1 Jan 1923	1926
Llanelli & Mynydd Mawr Rly	13	1 Jan 1923	1924
Midland & South Western Junction Rly	61	1 July 1923	1928
Neath & Brecon Rly	40	1 Jan 1922	1925
Port Talbot Rly & Docks	33	1 Jan 1922	1927
Rhondda & Swansea Bay Rly	29	1 Jan 1922	1914 2 chain
South Wales Mineral Rly	12	1 Jan 1923	1925

There was only one acquisition after 1923.³

Table 2

<i>Company</i>	<i>Route mileage</i>	<i>Date of acquisition</i>
Corris Railway (incl. Ratgoed tramway)	10 (incl. Upper Corris branch)	1930

In addition, after grouping some new lines and major works were built (eg the Westbury and Frome cut-offs). Land plans were produced for these.

The size of the task facing the GWR was huge. It is not clear what criteria determined the sequence of preparation of new GWR plans. It may be that the condition of the absorbed company records was the main factor. In any event little material from the pre-grouping companies appears to have survived. A parallel action and perhaps symptomatic lesson can be drawn from the GWR treatment of absorbed company locomotives where many of the older locomotives were quickly withdrawn and replaced by standard GWR types or, where economic, rebuilt using standard GWR parts. Driving this was a need to reduce costs, and standardisation was seen as one way to achieve this. Perhaps this logic permeated through to land plan production as well.

Nevertheless, the preferred solution was to commission new land plans for most routes embarking on the programme with remarkable speed, the first surveys and land plans being produced in 1923.

The new land plan specification was:

1. scale 1:2500, a change from the 2 chain
2. a correction of the OS base: the customisation emphasising railway features
3. typically only showing the railway and land about 130 yards either side of the line, although this varied significantly if there were goods yards, outlying property and rights of way
4. retention of the existing well proven land plan colour scheme:

Table 3

<i>Feature</i>	<i>Colour</i>
Title deed plot boundary	Red line
Station platforms	Yellow
Rail track	Blue
Roadways	Light brown
Land in Company occupation	Light pink
Slopes	Dark brown feathering (on 2 chain sheets drawn on engraving/lithograph) later engraved in black.
Water	Edged and coloured blue (previously shaded blue)

³ Source: Railway Gazette.

Parish and County names were prominently displayed, and on later surveys reference to adjacent railway land plans made. This was especially useful in South Wales, where many lines were in close, and confusing, proximity.

Plans were annotated: 'NOTE: This Plan is based on the Ordnance Survey Map with the sanction of the Controller of H.M. Stationery Office.'

The outcome was a land plan as shown in figure 2.

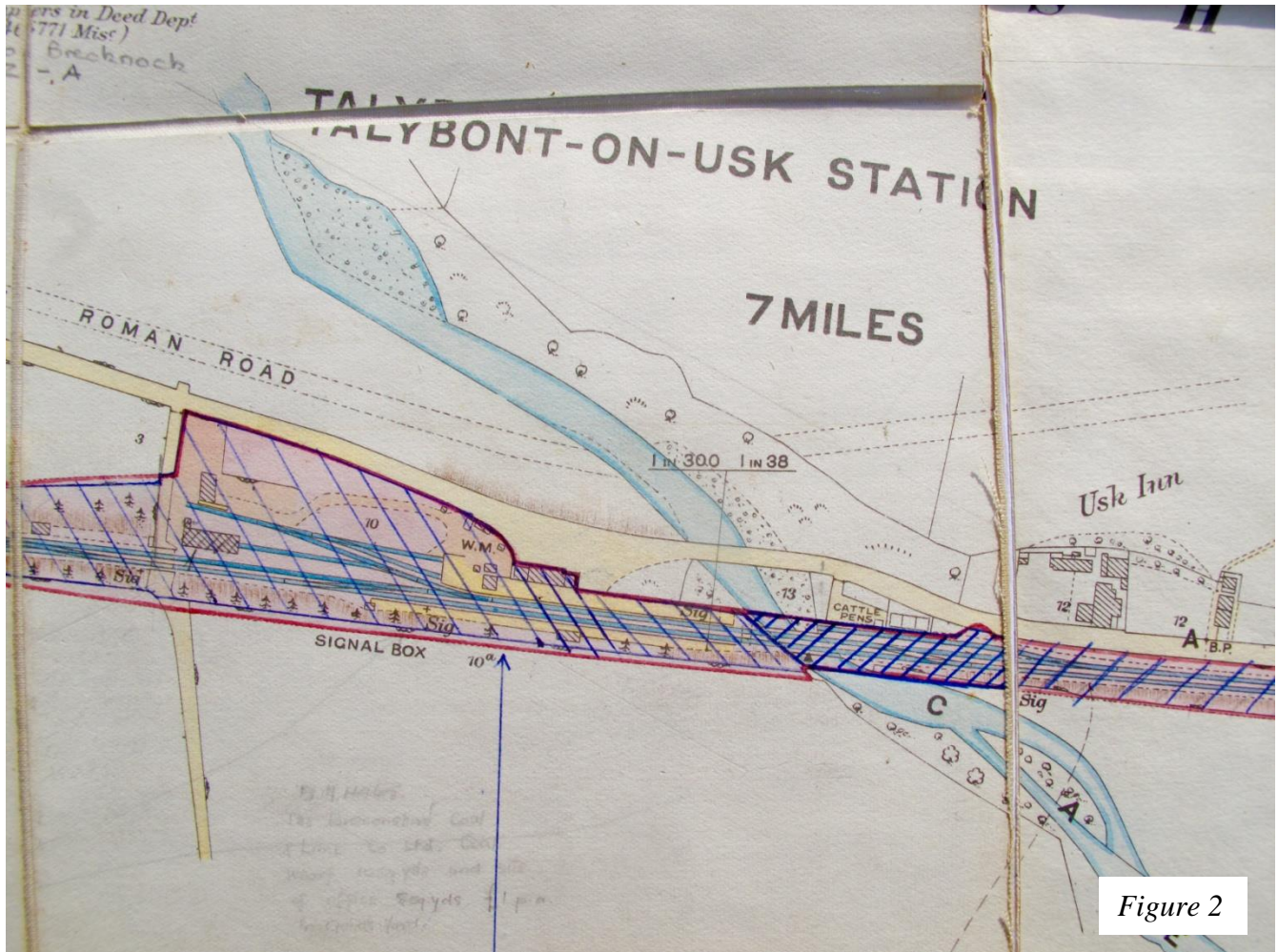


Figure 2

We will look later at in detail at an example of this approach. The outcome was, in my opinion, a most attractive final product and one that was a pleasure to use in the field.

A rail route would be shown on a number of sheets. The sheet size was 42" by 27" (comparable with the size of an Ordnance Survey 1:2500 sheet). Each sheet showed about two to three miles of route normally in two strips, top and bottom. This would vary if the route was curvaceous, or large features such as marshalling yards or docks needed dealing with.

An example of the sheet layout shown in figure 3. This is part of the Barry Railway line between Barry and Pontypridd. (This sheet was produced to show land for disposal after closure of the railway in 1963. It has been annotated with information from the local permanent way gangers to show adjoining land owners).



Figure 3

For a line such as the Whitchurch to Pwllheli line of the Cambrian Railways, this resulted in forty-five sheets for the 132.75 miles. The Aberystwyth branch was shown on six sheets for the 16.5 miles from Dovey Junction. The concertina binding format (6" x 12") was continued for the new routes. For the Whitchurch to Pwllheli line this resulted in six volumes.

Inside each volume a label was pasted, stating:

GREAT WESTERN RAILWAY.

MEMO to be affixed to each of the new surveys.

This Plan is to be kept by the Heads of Departments for their own use only. It is not to be produced, nor is any part of it to be copied for information of Owners of adjoining property or others.

Care has been taken to make the Plan as accurate as possible, but there is reason to doubt whether it can in all cases be relied upon.

If cases should arise as to the rights or Title of the Company, the Plans to the Title Deeds must alone be relied upon to supply the necessary information.

[Name],
Secretary.

and a hand entered date stating when the volume first entered into use. We can see therefore the date of survey/production (the Ordnance Survey Correction date) and the date the line plan was released for use. Occasionally there are significant gaps between survey and completion.

A number of companies were used to do this work. The majority were printed by Cook, Hammond & Kell, some by Vincent Brooks, Day & Son, London WC2.

What did Ordnance Survey Corrected mean? The latest OS 1:2500 sheets were used as the base. Correction meant limiting updating railway features on the OS plan to reflect the railway at that point in time, then railway specific data was enhanced or added: station names and title deed information, county and parish boundaries, mile posts, details of structures. The colour was applied by hand.

An example of how this worked is Towyn (now Tywyn, Gwynedd). After the grouping, the GWR quickly implemented the recommendations from the investigation into the Abermule accident in 1921, where two trains collided head-on on a single track line. Changes in the way signalling and train working equipment were located on the Cambrian Railways were required, and the GWR promptly set about building a new central signal box at Towyn. The new box opened in July 1923. The OS Corrected land plan dated 1923, shows the new box and the two older boxes removed. Similarly the Welsh Highland Railway at Portmadoc opened on 1 June 1923 is shown in full. So the plans could show the up-to-date position.

The overall programme was put in hand quickly but the final plans were only produced some eleven years later. Table 1 indicates survey production dates (Ordnance Survey corrected). It is not clear what determined the overall programme. It certainly wasn't based on commercial importance, as the Taff Vale Railway for instance, was very late in the overall programme. In some cases provisional surveys comprising of 1:2500 sheets cut and mounted on linen, were produced in concertina form to cover the period before final plans could be produced.

Again, there were exceptions. The 1929 survey of the Brecon & Merthyr line between Newport and New Rhymney was produced at a two chain scale. The remainder of the line to Merthyr and Brecon was produced to the new post-1923 specification.

Some minor lines (Van or Mawddwy Rlys of the Cambrian Railways) or some of the narrow gauge lines taken over by the GW did not get the same methodical treatment, whereas the Welshpool & Llanfair Light Railway, included in the Cambrian Railways, did :

Table 4

<i>Line</i>	<i>Nature of land plan</i>	<i>Date</i>
Corris	Annotated bound OS 1:2500 sheets	post 1931
Welshpool & Llanfair	OS Corrected survey	1924
Vale of Rheidol	Annotated bound OS 1:2500 sheets	British Railways (Western Region) 1950
Van Rly	Rough traced GW 1:2500 plan	1945
Mawddwy Bch	Act of Incorporation roll plan	c1860

The Welshpool & Llanfair land plan contains a rare example of an insert at a scale of 40ft to one inch showing the complex title detail in the Severn Stars area of Welshpool (see figure 4).

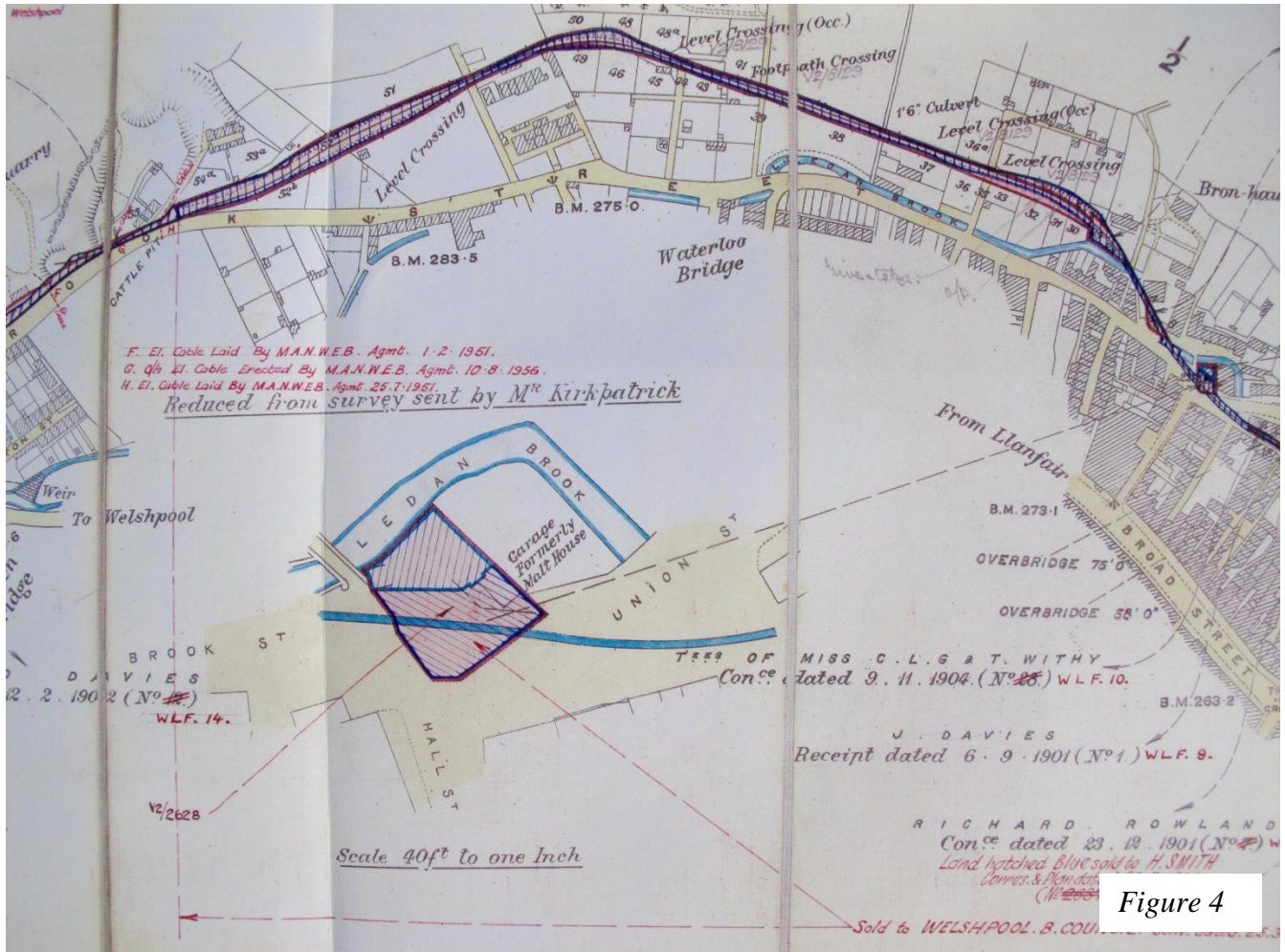


Figure 4

New lines or major works

A final category of land plans produced between the wars recorded new lines or major works, for example the widening of the main line between Swindon and Didcot. In these cases the scale was determined by two factors. Firstly, the scale of adjacent land plans. It made sense to maintain a degree of continuity and fit with adjacent plans. Secondly, the fact that in many cases there would not be a Ordnance Survey plan showing the new work to base a land plan on, so a bespoke survey of the completed work would be required.

Examples of this approach are:

- Swansea District Line between Briton Ferry and Pontardulais. The line opened in 1912-1913. After survey by GWR between 1922 and 1929, the land plan was published for use in 1931 at a scale of 2 chains to an inch.
- The survey at Uffington, Berks showing the results of widening work, on the Didcot to Swindon section was produced in 1934 at a 2 chain to an inch scale.
- Down in the far West the last section of the West Cornwall Railway line plan between Marazion and Penzance was re-surveyed, following completion of extensive works, in 1922 and produced at a scale of 2 chains to an inch.

- Lastly, the Westbury cut-off line in Wiltshire, opened in 1933, where the land plan survey of 1934 was produced at the 2 chain to an inch scale.

Looking at an example in detail

Machynlleth shows how the GWR prepared two new line plans, firstly on absorption of the Cambrian in 1922 and secondly on the acquisition of the Corris Railway in 1930.

The Ordnance Base plan is dated 1901 at a scale of 1:2500. The changes to the Base map recorded on the Ordnance Survey Corrected version for the GW of 1923 are:

Table 5

<i>Base map Second Edition 1901</i>	<i>OS Corrected amendments 1923</i>
SP	Sig.
-	WALL added.
SB	SIGNAL BOX - not specifically named
Crane	CRANE
-	75 MP (milepost) shown
-	ENGINE and GOODS SHED labelled
-	MACHYNLLETH STATION labelled
Cattle pens	CATTLE PENS
-	additional sheds on down (south) side between goods shed and station.
-	Corris Rly tracks shortened to Abercwmeiddew wharf
-	New 1904 Corris Rly station building shown
-	New Corris carriage shed shown
-	Revised track layout on Corris Rly shown
-	Machynlleth Corris Railway station marked.
	RATGOED QUARRIES SLATE SHEDS marked
-	Deed and title information overlaid.
	parish and county names

An extract from this land plan is shown in figure 5.

In 1930 on acquisition of the Corris Railway a decision was taken not to produce an Ordnance Survey Corrected land plan but to use annotated Ordnance

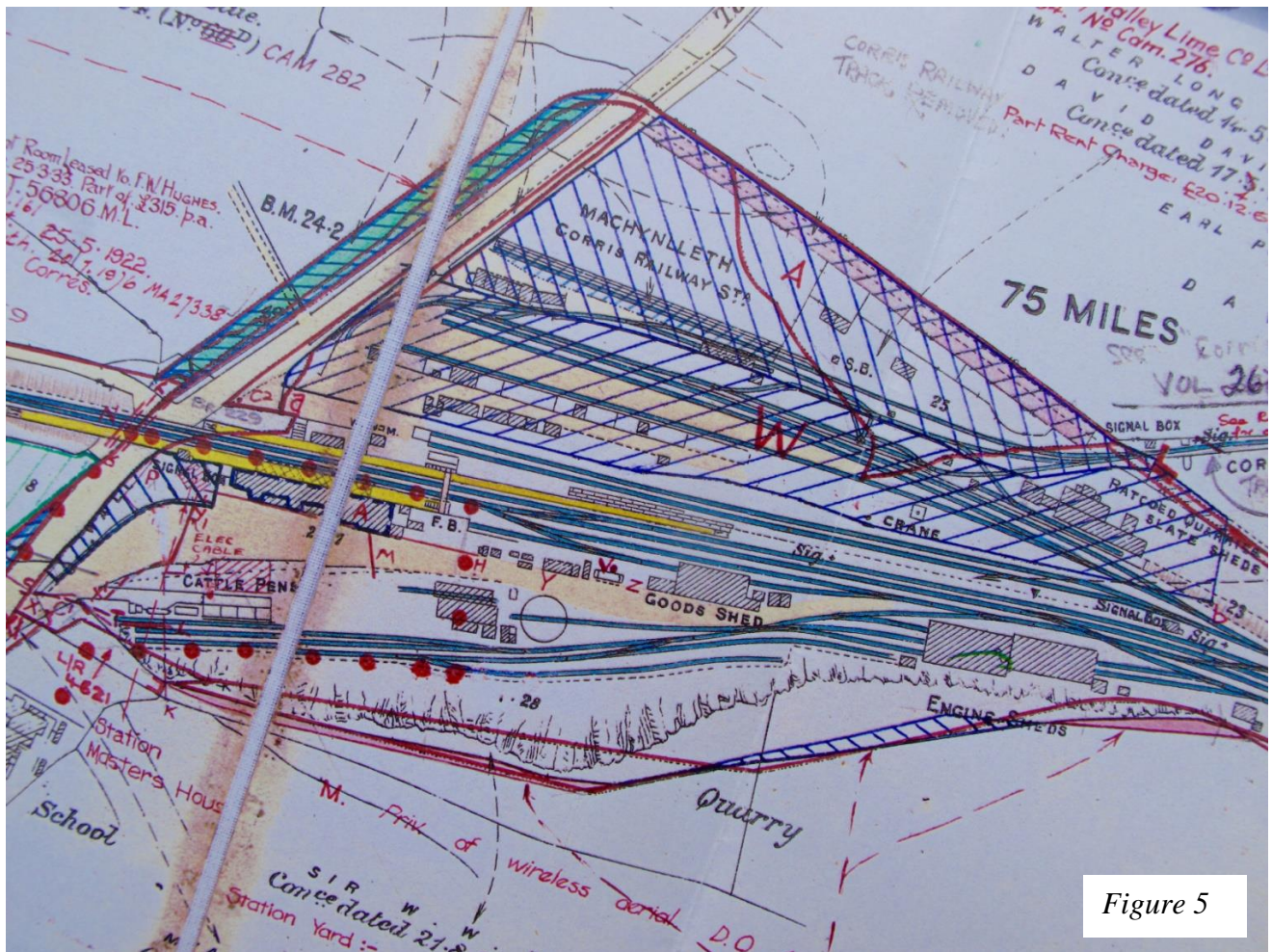


Figure 5

Survey 1:2500 sheets on linen. This land plan shows in one strip the Corris Railway route from Machynlleth to Ratgoed (8.5 miles) and the Upper Corris branch (2 miles).

The annotations applied by hand to the Corris Rly land plan were:

Table 6

Pink colour: land owned by the GWR
Parish names added
Railway information: mileposts; structures; sheep creeps; crossings; level crossings. Stations not named.
Title deed information
Some new tracks e.g. Aberlefenni and branch to quarry. No changes noted at Machynlleth.

The irony is that the plan produced for the Cambrian Railways line at Machynlleth in 1923, based on an OS Corrected version, was more up-to-date in respect of the Corris Railway than that produced for the Corris Railway after 1930 which used the 1901 OS Plan as a base.

It's a fascinating area of railway and cartographic interest and one which opens up so many questions and areas for research, as even this superficial examination shows.