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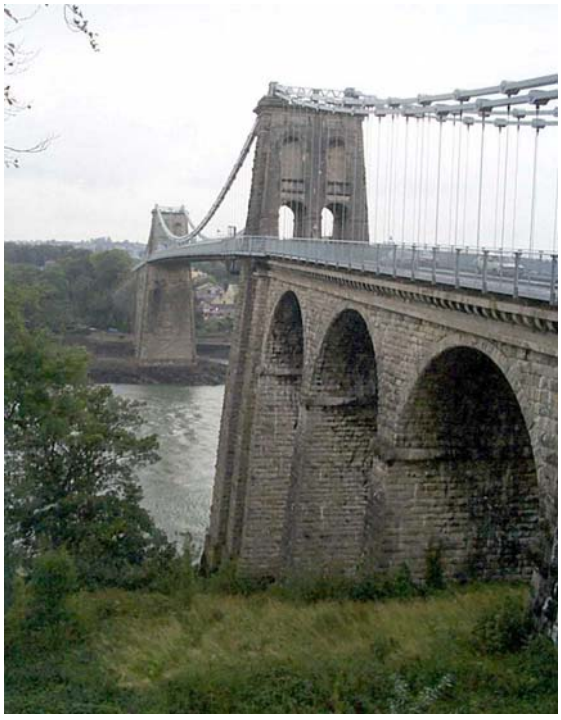
TELFORD'S HOLYHEAD ROAD, (A5) North Wales



Archaeological Survey Report

Commissioned by: CADW

Telford's Holyhead Road
North Wales

Archaeological Assessment Report

Report no 1998-99/039/AUA7839

Checked by Project Manager. ..... Date
Passed for submission to client. ..... Date

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March 1999

'The science which has been displayed
in giving the general line of the road a proper inclination
through a country whose whole surface consists of a succession
of rocks, bogs, ravines, rivers and precipices,
reflects the greatest credit upon the engineer who had planned them'.

(Report of the Select Committee, 1819)

CONTENTS

CONTENTS

ACKNOWLEDGEMENTS **5**

SUMMARY **6**

1. INTRODUCTION **7**

2. HISTORY OF THE TELFORD ROAD **9**
2.1 Background to the construction of the Telford Road 9
2.2 Thomas Telford 9
2.3 Survey and Construction 10
2.4 Completion and Use 12

3. METHODOLOGY **14**
3.1 Project Design 14
3.1 Documentary Survey (Task 1) 14
3.2 Fieldwork (Task 2) 17
3.3 Data processing (Task 3) 19

4. DOCUMENTARY STUDY RESULTS **21**
4.1 Introduction 21
4.2 Telford's Specifications 21
4.3 Ordnance Survey first edition mapping 26

5. FIELDWORK RESULTS **28**
5.1 Introduction 28
5.2 Section 1 - Holyhead to Gwalchmai (Lots A9, A10, A6, A1, A2) 28
5.3 Section 2 - Gwalchmai to Menai Bridge (north side) 29
(Lots A3, A4 or A22, A5, A12 and A19)
5.4 Section 3 - Menai Bridge (north side) - south end of Lot 28 30
(Lots 65, 80, 61,20, 68, 22,23, 24 and 28)
5.5 Section 4 - South end of Lot 28, Pont Rhyd-Goch (Lots 59, 1, 2, 8) 32
5.6 Section 5 - Pont Rhyd-Goch - Dinas 34
(Lots 9, 60, 25, 77 or 10, 47, 48 and 3)
5.7 Section 6 - Dinas to Glasfryn (Lots 82, 75, 4, 26, 27, 66, 35) 36
5.8 Section 7 Glasfryn - Corwen 38
(Lots 35, 67, 36, 37, 38, 62, 11, 57, 43, 58, 13, 55, 44, 56, 49, 29, 63, 70)
5.9 Section 8 - Corwen to Llangollen (Lots 40, 71, 45, 72, 14, 30, 31) 39
5.10 Section 9 - Llangollen to Chirk Bridge (Lots 32, 52, 42) 41
5.11 General Comments 41

6. ASSESSMENT OF THE SURVIVAL OF TELFORD'S ROAD **44**
6.1 Generalised Assessment of the survival of Telford's road 44
6.2 Detailed Assessment of Road Survival 44

7. ASSESSMENT OF THE CURRENT CONDITION OF TELFORDIAN FEATURES .....
7.1 General Observations .....

7.2 Detailed Condition of Telford Features ....

8. THE SOCIAL AND ECONOMIC IMPACT OF TELFORD'S ROAD .....
8.1 Introduction.....
8.2 Route Studies .....
8.3 To Ireland before Telford.....
8.4 Thomas Telford.....
8.5 The Holyhead Road Commission .....
8.6 Passenger Services .....
8.7 Freight Traffic.....
8.8 Decline .....

9. THE IMPACT OF STATUTORY AND NON-STATUTORY DESIGNATIONS .....
by Rick Turner

10. CONCLUSIONS.....

11. RECOMMENDATIONS .....
11.1 Listing as Historic Buildings .....
11.2 Management Recommendations.....

12. BIBLIOGRAPHY
12.1 Published Sources .....
12.2 Unpublished Sources .....

APPENDIX 1.....
Project brief

APPENDIX 2.....
Project Design

APPENDIX 3.....
Notes for a tour of the Holyhead Road, by Barrie Trinder

APPENDIX 4.....
The Holyhead Road: notes, principally from Parliamentary Reports, prepared for Cadw by Barrie Trinder

APPENDIX 5.....
Site Gazetteer

ILLUSTRATIONS .....

Fig 1 Location Map (Holyhead - Betws-y-coed)
Fig 2 Location Map (Betws-y-coed - Chirk)
Fig 3 Telford Lots distribution map (Holyhead - Betws-y-coed)
Fig 4 Telford Lots distribution map (Betws-y-coed - Chirk)

PLATES.....

Plate 1 Example of Telford's specification maps for Lot 5 (Llanfair PG to Menai Straits)

Plate 2 Example of walling from Nant Ffrancon (Site 245)
Plate 3 Telford specification for Stanley Embankment
Plate 4 Stanley Embankment (Site 03)
Plate 5 Telford's Road and embankment specification
Plate 6 Embankment at Nant Ffrancon and the adjacent earlier turnpike (Site 802)
Plate 7 Telford's specification for a Bridge to the south of Llyn Ogwen
Plate 8 Treban Bridge (Site 059)
Plate 9 Telford's specification for a bridge over the river Ogwen
Plate 10 Halfway Bridge (Site 233)
Plate 11 Pont y Bengiog bridge in Nant Ffrancon valley (Site 307) from the south-west side
Plate 12 Engraving of the Pont y Bengiog bridge (Harper 1902)
Plate 13 Pont y Bengiog bridge in Nant Ffrancon valley (Site 307) from the north-eastern side
Plate 14 Menai Bridge from the west
Plate 15 Telford's specification for the Bridge at Llyngwy
Plate 16 Double arched bridge at Llyngwy (Site 395)
Plate 17 Waterloo Bridge, Betws-y-coed (Site 379)
Plate 18 Engraving of Waterloo Bridge (Site 379)(Harper 1902)
Plate 19 Telford's specification for a typical milestone
Plate 20 Milestone 61 (Site 088)
Plate 21 Example of a stone walled depot (Site 229)
Plate 22 Example of slate edged depot from Llugwy valley (Site 717)
Plate 23 Example of hedged depot (Site 330)
Plate 24 Early turnpike tollhouse near Betws y Coed (Site 68)
Plate 25 Telford's specification for Llanfair PG tollhouse
Plate 26 Llanfair PG tollhouse (Site 197)
Plate 27 Telford's specification for typical tollhouse on the mainland
Plate 28 Y Bwthyn tollhouse (Site 112)
Plate 29 Telford's specification for the typical toll gate
Plate 30 Toll gate at Stanley Embankment tollhouse
Plate 31 Weigh bridge at Y Bwthyn toll house
Plate 32 Mona coaching inn (Site 801)
Plate 33 Cernioge coaching inn (Site 806)
Plate 34 Engraving of Cernioge coaching inn (Harper 1902)

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Fieldwork was undertaken during late October/early November 1998 by Jo Bell and Peter Redmayne: data processing and graphics by Peter Redmayne, Andrea Scott and Mark Tidmarsh. The report was written by Jo Bell, Barrie Trinder and Rick Turner with contributions from LUAU staff. The report was edited by Jamie Quartermaine and Richard Newman. The project was managed by Jamie Quartermaine.

SUMMARY

This report presents the results of a study by Lancaster University Archaeological Unit (LUAU) commissioned by Cadw: Welsh Historic Monuments and the Welsh Office Highways Directorate. The study was commissioned to assess the archaeological and historical significance of remains associated with Thomas Telford's Holyhead-London road within Wales, built between 1815 and 1828. The route runs from Holyhead at the north-western tip of Anglesey, to Chirk Bridge on the Welsh/English border.

One of the recommendations of the management strategy for the A5, Llandegai to Chirk, published by the Welsh Office in May 1997, was that this study should be undertaken. The strategy recognised the historical importance of the road and acknowledged that several planned improvements would further reduce its integrity. In particular the A5 west of Llandegai to Holyhead has already been the subject of several modern, off-line improvements, and a new route is to be constructed across Anglesey. The status and the use by vehicles of the original road will change in the coming years, and it is hoped that some of the heavier freight traffic will be diverted away from it.

The study was to include not only features such as the characteristic toll houses, which are often protected as listed buildings, but also structural engineering features integral to the road which have sometimes been overlooked, for example the drains, embankments, cuttings and floating foundations which Telford used to counter the uneven terrain of north Wales.

After a discussion and a rapid field visit in the company of Rick Turner of Cadw and Barrie Trinder, consultant historian to the project, the principles on which to conduct data collection, fieldwork and data processing were agreed. Record forms were designed and agreed upon by all parties.

The initial task of the programme involved the collation of documentary records for the road, and in particular a comprehensive set of specifications prepared in long hand by Telford for the whole of the route. This was followed by a programme of fieldwork which was undertaken in October 1998. This involved a rapid but thorough inspection of the road, with archaeologists visiting each section of the road and recording its main features on record sheets and in photographs. Each feature was investigated and recorded in conjunction with the Telford specifications, and it was therefore possible to make an assessment of the survival and condition of the road features.

The textual description was transferred to a database, which was designed in accordance with compatibility with the Gwynedd and the Clwyd Powys SMRs. The survey data was incorporated with scanned rasta data of the OS first edition maps within a CAD system and the overall route was divided into 2.5km long sections within the CAD system (54 planlets in all).

During the fieldwork and subsequent analysis, a distinctive 'signature' emerged of Telford's road. Field workers developed a clear sense of the difference between features belonging to the original Telford road, and features added during subsequent maintenance or alteration. Recommendations were accordingly made for the future preservation and presentation of the features associated with the historic road.

1. INTRODUCTION

1.1 Thomas Telford's road between Holyhead and London (of which this report studies only the 83 miles in Wales) has been called '*perhaps the best example of road engineering of its period in Europe*' (Trinder 1980). It includes some of his most innovative solutions to engineering problems - for example the Menai Bridge, which at its construction in 1826 was the first suspension bridge of great size (579 feet), and the Stanley Embankment which crossed the Sands of Anglesey's Beddmanach Bay on a floating platform.

1.2 The importance of the road was recognised within a management strategy for the A5, Llandegai to Chirk, published by the Welsh Office in May 1997, which recommended the implementation of a study to record the surviving elements of the Telford road. The strategy recognised the historical importance of this road and that several planned improvements would have further reduced its integrity. The strategy stated that the department '*will develop for its own use a maintenance strategy for the whole route consistent with already published guidance to ensure that all maintenance activities are undertaken within an overall framework and follow with these principles. Improvement schemes will continue to be designed to accord with the route strategy*'. This initiative has been confirmed in '*Driving Wales forward: a strategic review of the Welsh Trunk Roads Programme'* (Welsh Office 1998, 6.61). The A5 west of Llandegai to Holyhead has already been the subject of several modern improvements, and a new route is to be constructed across Anglesey.

1.3 Lancaster University Archaeological Unit (LUAU) was commissioned to undertake an archaeological survey of the Holyhead road in October 1998 at the request of CADW. The prime purpose of the survey was to establish the extent to which the original elements of Telford's road survive today and thereby inform the management of the extant resource. A project design was produced by LUAU in accordance with a project brief by Rick Turner of CADW. The survey was designed as a series of tasks, which provided for an archival study (Task 1) to collate documentary records of the Telford's road, a field survey (Task 2) to record the extent to which the documented features of the road survive and finally the assimilation of mapping and a gazetteer of the extant features to be presented in conjunction with a written report. The fieldwork was undertaken in October and November 1998.

1.4 The final stage of the programme (Task 3) was the assimilation of the data into a CAD system and data base and the production of a report. This report presents the results of the survey programme, an assessment of the condition and survival of Telford's road, an historic account of the social and economic impact of the road and an assessment of the use of existing statutory and non-statutory designations in protecting the historic fabric of the road. This is presented in conjunction with the gazetteer of the extant remains and detailed maps of the survey results which are overlain onto Ordnance Survey first edition mapping.

1.5 Please note that throughout the text, place names and other features are given the names shown on current Ordnance Survey maps. Whilst we appreciate that in some cases there may be a Welsh or alternative place name, this report serves as a work of reference and should be used in conjunction with current maps to allow cross-referencing by people unfamiliar with the terrain.

2. HISTORY OF THE TELFORD ROAD

2.1 BACKGROUND TO THE CONSTRUCTION OF THE TELFORD ROAD

2.1.1 The road now known as Telford's Holyhead road was commissioned in response to a genuine need for an improved route between London and Holyhead, and by extension between the capitals of England and Ireland, since the Dublin ferry left from Holyhead.

2.1.2 The road in existence at the beginning of the nineteenth century was notoriously bad, including gradients of up to 1 in 6½, sharp curves, boggy ground, unsurfaced or pot-holed tracks and stretches of open water. The journey was a dangerous one for coaches or horses, and at best an unpleasant one for pedestrians. In 1808 the Post Office attempted to establish a regular mail service between Shrewsbury and Holyhead, but there were many instances of coaches breaking shackles or springs, and the roads prohibited even a reliable riding post - 'the legs of three horses having been broken in one week' according to a partisan biographer of Telford (Smiles 1874, 252). London coachmen refused to attempt the roads, and the mail service remained unpredictable and erratic. Anglesey, in particular, had 'no made road, but only a miserable track, circuitous and craggy, full of terrible jolts, round bogs and over rocks, for a distance of twenty four miles' (*ibid*, 252).

2.1.3 The Act of Union which united the parliaments of England and Ireland in 1800 increased the numbers of eminent people travelling between London and Dublin, and, in Telford's words, '*produced constant irritation and complaints respecting the road through North Wales and gave rise to warm discussions in Parliament*'. Britain was at war with Napolean's French empire and a reliable route to Dublin was also strategically valuable; two important military depots, the barracks at Weedon in Northamptonshire and the Armoury in Shrewsbury were in due course built alongside the new road. In 1801 Joseph Huddart and John Rennie investigated the routes between London and Dublin and recommended that via Holyhead and Howth the most suitable for improvement, but their report was ignored. A further parliamentary committee was directed to enquire into the routes to Holyhead in 1810 and 1811, and it was this committee which first brought Thomas Telford, already regarded as '*an engineer of great eminence*', into contact with the project.

2.2 THOMAS TELFORD

2.2.1 Telford was a Scottish engineer, working at this time as County Surveyor for Shropshire, where the county town of Shrewsbury was at the centre of the coaching route from London to Holyhead. His first major commission, in 1793, had been the Ellesmere Canal whose aqueduct lies close to the Welsh/English border at Chirk. Telford was an experienced engineer well known for using iron in applications where stone or timber had been the traditional materials: in turnbridges or lock gates on canals, and in road bridges. He did not do so indiscriminately: of 42 bridges he built as County Surveyor, only five were of iron (Smiles 1874, 176).

2.2.2 However, he himself acknowledged that '*the formation of roads has been my chief occupation*' (Telford 1838, 205). He had conducted a famously successful campaign of road-building in the Highlands of Scotland, where the social and economic effects or the road were wide-ranging. Telford himself did not scruple to say that as a result of his road-building '*The moral habits of the great masses of the working classes are changed...it has been the means of advancing the country at least a century*' (*ibid*, 205).

2.3 SURVEY AND CONSTRUCTION

2.3.1 ***Survey:*** In May 1810 he was ordered to begin a survey of the road 'without regard to special interests'. His reports give a melancholy picture of the state of the road. Between 1 January and 27 March 1810, a period of 85 days, the mail coach from Shrewsbury to Holyhead was between one and five hours late on 71 of them, and in the reverse direction was similarly delayed on 75 occasions. Between April and December 1809 the coach suffered six major accidents through overturning, or through failures of shackles or springs caused by the uneven condition of the road service.

2.3.2 ***Construction:*** work on the road began in the autumn of 1815, and Telford made it his first priority to improve what he regarded as the worst sections of the road in Wales, particularly that from Betws-y-Coed across the River Conway and along the three-mile face of Dinas Hill to Rhydlanfair. Telford divided the Welsh section of the road into three districts for managerial purposes: Shrewsbury - Chirk, Chirk - Cernioge and Cernioge - Bangor Ferry. By 1819 he reported that '*many of the most dangerous portions were rendered commodious and safe*'. After 1819 work west of Shrewsbury was carried on under the act of 1815 and that of 1819, and separate reports were presented annually to parliament. Within just over ten years of the establishment of the Holyhead Road Commission the principal engineering works in Wales were completed, the road through the pass of Nant Ffrancon, the pass of Glyn Dyfwy, the new road across Anglesey (completed in the spring of 1822), the Stanley Embankment, Chirk Bank and the Menai Suspension Bridge (opened on 30 January 1826). Later in that year Telford reported that '*this great length of road in North Wales continues to be maintained by the Commissioners in a perfect state, and the merits of the substantial plan on which it has been constructed become every year more apparent*', and in 1827 he reported that '*from Chirk along the Parliamentary Road to Holyhead, the surface of the road is uniformly hard and smooth, constant attention being bestowed in maintaining it in perfect order*'.

2.3.3 Although the Act of 1815 permitted work on the English section, it was not until 1819 that serious work began east of Shrewsbury, although some major improvements were carried out before that date by the more enlightened turnpike trusts. There was some hesitation to invest during the 1820s while Telford was proposing a new and direct route from Wellington to Chirk, avoiding Shrewsbury. The Commission was also looking to expand its role by extending its work to other routes, including the road along the North Wales coast between Llandegai and Chester, where it was responsible for the Conway Suspension Bridge and new routes around Penmaenmawr and Penmaenbach, and the route from Stonebridge near Coventry to Liverpool.

2.3.4 ***Design:*** To co-ordinate and standardise the construction of the 83 miles of road in Wales, Telford and his subordinates adopted a system of 'lots' or subdivisions of the road. The length of the road through Wales was divided into lots or parcels, and a single specification was produced for each lot. These were numbered 1-22 in Anglesey, where it was called the 'Anglesey Road' and 1-101 in mainland Wales, where it was called the 'Holyhead Road'. East of Chirk it was called the 'Holyhead and Chester Road'. Lots were numbered, not in west-east sequence, but apparently in the order in which they were to be completed by contractors. Contractors agreed to a set fee and a completion date for each lot, and these were largely achieved.

2.3.5 This systematic organisation of the road building programme, including the creation of binding contracts for each lot with a set completion date, was perhaps as influential in civil engineering history as the construction of the road itself. Telford knew from experience

building the Caledonian Canal, in the early years of the century, that a good management strategy was essential to the success of a large-scale civil engineering project (Penfold, 1980, 129-150). He was a good manager of personnel and resources, with an engineer's understanding of where they would be best employed. He hand-picked his supervisory staff. Usually these were men whom he knew from earlier contracts (such as John Provis, his chief engineer) and who had proved themselves committed and trustworthy, so that Telford felt they would represent the best interests of the Commission, and not of individual contractors. Parliamentary representatives also inspected work in progress, for double surety. The workmen had fixed wages. The lot-and-contract system ensured that every contractor knew exactly which section of the road he was responsible for, and that he would not be paid in full unless it was completed to Telford's satisfaction, for 10% of the contractor's bill was retained until satisfactory completion (Telford 1838, 210). It was this management system, above all, that allowed Telford to achieve consistently high standards throughout the road, and to complete it in a relatively short time.

2.3.6 Once Telford and his surveyors had marked out the line of the road on the ground, construction began. Telford felt that absolute and consistent adherence to specifications was the key to a reliable and permanent road. Supervising engineers were supplied with a simple gauge to check the broken stones for size, and were empowered to check any features they thought suspect. For instance, specifications for drain-building state that *Where it is deemed necessary by the Engineer, the Drains both above and below the road, within the distance of Twenty yards shall be opened at the Expense of the Contractor* (General specifications, 7). The supervising engineers, whilst hardly likely to be popular, were essential in overseeing the rigorous application of Telford's standards. The practice of withholding 10% of the contractor's bill until satisfactory completion, further encouraged work to be done within the specified time, and to the specified standards.

2.3.7 ***Road Building:*** a brief description of the road building may be useful here, although the precise requirements of specifications are described more fully in Section 4. The road was made according to Telford's 'General Conditions' (specifications, page 6). Topsoil was removed and on boggy ground a bed of brushwood was laid down, before road stone was applied in three layers, the size of the stones decreasing with each layer. Where the road was to be embanked, compaction of the embankment by pounding or weathering was required to ensure that it would not crumble or collapse. Since extremely muddy conditions had plagued earlier roads, Telford was concerned with drainage. The whole road was cambered, the centre being two inches higher than the sides, and in hilly terrain Telford further encouraged drainage by building wherever possible on the sunnier slope, so that the road would dry out quickly after rain. Drains and culverts were put in very frequently, and Telford specified that the bottoms of these should be paved to discourage accumulating debris. Telford also specified the construction of road side depots throughout the length of the route. These were made to hold road-building materials, but since they could not be built until the road they stand on was at least partially finished, they could hardly have stored material for its construction and were probably designed to store road surface materials and so ensure the surface could be easily repaired after settling.

2.3.8 Particularly difficult or time-consuming sections were built first. Telford took care to appoint experienced contractors for these areas, which included the section near the Llugwy waterfall, a stretch between Ty Gwyn and Lake Ogwen, and the '*rugged pass at Glyn-Conway*' (Telford 1838, 211). Lots 1 and 2 run west of Llyn Ogwen along Nant Ffrancon, whose rocky valley required a huge programme of cutting and embankment. These were to be completed by the

18th November 1815. Many of the later lots refer to building toll houses or other, relatively undemanding engineering ventures.

2.3.9 ***Major Monuments:*** his road incorporated substantial bridges in particularly difficult sites, and major feats of engineering technology such as the Menai Bridge and the Stanley Embankment. The Menai Suspension Bridge was the most ambitious design to be included in the new road. Telford himself considered the Menai Straits '*the most formidable obstacle in the whole line of communication between London and Dublin*' (Telford 1838). The desirability of a bridge was not in doubt. Travellers of the time crossed to Anglesey on foot over the Lavan Sands, or by ferry. Both routes were badly affected by rapid tide changes and strong winds. Travellers over the sands were sometimes swept away, and 180 lives were lost on the short ferry crossing between 1664 and 1842 (Harper 1902, 280). Telford was not the first to consider bridging the Straits: indeed Edward I built a pontoon bridge across the straits in 1283 (R Turner, pers comm). His most recent predecessor was John Rennie, who had proposed a single-span cast iron arch. Telford himself initially favoured a similar design, but abandoned it in the face of objections that large ships would not be able to negotiate it.

2.3.10 His final design was for a suspension bridge, which was to be the largest in the world at that time. Plans were submitted to the Parliamentary Commission and authorised in 1819. Work was completed in 1825, and the bridge was opened in January 1826. Although it was subject to repairs after gales in 1839, it was generally free of structural problems and by 1827 the Commissioners could say that '*the public have acquired a perfect confidence in its stability*' (1827 Parliamentary Report]).

2.4 COMPLETION AND USE

2.4.1 By 1819 many of the most difficult sections had been completed, and in 1824 the first report of the Parliamentary Commissioners stated that the steepest gradient remaining on the road was 1 in 17, west of Betws y Coed. By 1831, when the whole road in Wales was complete, the journey between London and Holyhead had been reduced from its 1815 duration of 41 hours and 12 minutes, to only 28 hours and 6 minutes.

2.4.2 Once completed, Telford's road operated on the same principle as the turnpike roads, collecting tolls from road users to defray the cost of road-building. Having found that his Highland roads suffered neglect by the turnpike trusts which took them over at completion, Telford convinced the Commission that it should assume responsibility for the Holyhead road, and it was therefore to them that tolls were paid (Telford 1838, 212). The Toll houses and gates were characteristic features of his road, and a few also had weigh-bridge machine houses to assess the weight of loaded carts.

2.4.3 The cost of the road necessitated a draconian approach to toll collection, and as patterns of road use emerged new toll houses were occasionally called for. Where heavy slate carts were found to be using (and eroding) a short stretch of the road near Betws-y-coed without paying tolls, a new toll gate was rapidly commissioned. In some cases (for instance at Llanfair and Nant) additional gates were installed to prevent traffic slipping on to nearby parish roads, thereby avoiding tolls (Trinder 1998, n.p). The 1844 report noted that a single toll house between Llangollen and Corwen could not bring in enough to maintain the local sections of the road (*ibid*).

2.4.4 Ongoing maintenance included consolidation of drystone walling, which had been affected by stone-robbing in some places, and vandalism in others - the 1815 Parliamentary Report noted that coach passengers often amused themselves by pushing stones from the parapet wall down

the steep hill (Trinder 1998, n.p), and the 1837 report noted that a fine had been imposed for anyone removing stones from walls.

2.4.5 In use, the road was subject to increasing heavy traffic from growing industries, particularly the collieries in Anglesey which, from the late 1830s, caused problems of road erosion and sinkage. The slate quarries near Bethesda and Bangor also caused considerable wear on the roads.

2.4.6 At Telford's death in 1834, the Holyhead road was all but complete, and at the height of its success as a route for trade, freight and passenger traffic. However, its success as a popular route was severely diminished within only twenty years, ironically by a further engineering advance. The coming of the railways quickly robbed the road of much of its traffic, particularly the mail, and the heavy industrial traffic which was wearing the road severely and to which, during their construction, the railways themselves contributed. Coach services declined, to the extent that coaching inns such as that at Cernioge Mawr quickly went out of business, and some communities saw their economic focus shift from road to railway. By 1850 concern was voiced in Parliament that the Holyhead road should continue to be given grants, now that the railways were complete (Trinder 1998 n.p), and in 1851, only thirty years after much of it was completed, the road in Anglesey was becoming overgrown with grass (Trinder, 1998, n.p).

2.4.7 The road continued as a toll road until very late, since parts of Wales were the last to be freed from tolls by Acts of Parliament. Parts of it were still subject to tolls until 1895. A toll gate survived *in situ* at Pont Cyfyng until 1890 (Harper 1902, 250) and the Menai Bridge retained tolls until the refurbishment of the bridge in the 1930's.

2.4.8 Until the last quarter of the twentieth century, the Telford road was the main route between Holyhead and London, and the Anglesey section is still part of that route. The road survives within Wales to a degree that is not mirrored in its English counterpart, and it is heavily used as a main road, somewhat to the detriment of the Telfordian fabric. It is to be hoped that new initiatives will see heavier traffic bypassing the Telford route, and its increasing use as a focus and conduit for tourism. To this end it has been designated an 'Historic Route'.

3. METHODOLOGY

3.1 PROJECT DESIGN

3.1.1 A project design (*Appendix 2*) was submitted by LUAU in accordance with a project brief (*Appendix 1*) prepared by Rick Turner of CADW. The project design required that a documentary study (Task 1) be undertaken to collate and process cartographic and documentary records pertaining to the construction and subsequent history of Telford's road. This was to be followed by a field survey (Task 2) to identify the extant elements of the historic road and earlier turnpikes. Finally a gazetteer, detailed mapping and a report were to be produced, presenting the results of the survey and examining the survival and condition of the road (Task 3).

3.1.2 An option within the project design for the scanning of OS first edition maps was requested, and the survey data was presented superimposed onto the rasta OS first edition mapping.

3.1.3 The work has been undertaken in accordance with the project design (*Appendix 2*) and this report presents the results of the recording programme.

3.2 DOCUMENTARY STUDY (TASK 1)

3.2.1 A corridor of 50m on each side of the Telford road, which mostly coincides with the present A5, was agreed upon as a suitable study area.

3.2.2 The documents used are listed in chronological order, as far as possible. Documents are described where appropriate (particularly in the case of the lot specifications), and details are given of how they were used. Secondary sources are listed in the bibliography. The main documents used were Telford's specifications, the first edition Ordnance Survey maps, current Ordnance Survey maps and Listed Building documentation.

3.2.3 Telford's specifications for the construction of the road were used extensively throughout the project, in the form of photocopies of the relevant Ministry of Works files held in the Public Record Office. They are a tremendously rich source of engineering and topographic information, and have not previously been systematically studied alongside the physical remains of the road they refer to. The specifications were written mostly in a single copperplate hand, with a few possibly written by a second clerk and in a slightly different format from that outlined below. Spellings of place names do not always tally with modern usage, but for the most part the specifications are easily legible.

3.2.4 Apart from the 'general specifications of work' (Specifications, pages 6 and 7) which set out the standard methods to be used throughout the road, and the first eleven mainland specifications which appear in a slightly condensed form, most of the specifications are identical in format. The example, quoted below at some length from Anglesey Lot 5, is absolutely typical in form and phraseology and was accompanied by sketch mapping (Plate 1). Each specification includes:

i) ***Summary:*** a brief summary of the route, identifying start- and end-points, the parishes and counties within which the lot falls, and confirming that work must be done in accordance with the general specifications. In Anglesey Lot 5 the summary reads: '*This Lot is to commence where Lot 4 terminated a little east of Gairwenucha Windmill, to proceed from thence along Fields on the south side of Carnan, and nearly in a straight line to the north side of a Lake, from thence on the south side of the Marquis of Anglesey's Column, and along sloping ground to the Head of the Tide Mill Pool north of*

Llandisilio. All in the Parishes of Llanfihangel-Ysgeifiog, Llanfairpwllgwingell and Llandisilio, in the County of Anglesey. It is to be executed agreeably to the Map hereunto annexed, the general Specification and Sections for Holyhead Road Improvements, and the following particulars'.

ii) ***Specification:*** A detailed specification of work to be done throughout the lot, from west to east. Typically it might include instructions for raising or lowering the surface of an existing road, rock-cutting or making-up to lay a new road, and responses to obstacles such as rock outcrops or marsh land. In Anglesey Lot 5, the first two parts of the route are described thus: '*88 linear yards - Across corner of first Field from Road, to be 32 feet wide and have a Stone Dyke on each side. The bank in the middle must be cut down so as to reduce the fall to one uniform incline. 944 linear yards - Across the next six gently sloping Fields. The sundry inequalities are to be cut or embanked so that the fall thro the last two Fields shall be no where steeper than 1 in 25, and thro the first four it shall be one uniform incline. To be 32 feet in breadth in the first two Fields and 28 feet for the rest, to have Breast walls where embanked and a Stone Dyke on each side for the whole length.*'

iii) ***Plan:*** usually, a simple plan of the route including field boundaries, existing roads and salient structures such as inns or named farmhouses. These plans are not necessarily oriented with north at the top of the page. The maps included with specifications were intended only to show the 'new' road and its immediate surroundings, so coverage is partial and limited. Sufficient detail is usually shown, allowing comparison with later maps. Where the line of an existing road was marked, it was usually in areas where it would be bypassed by the new road, but for much of the route Telford's road followed the line of its predecessor. The plan attached to Anglesey Lot 5 (Plate 1) has north at the top of the page. It shows an oblique line at the beginning and end of the lot: field boundaries, in this case are shown in some detail; also shown are fragments of existing roads, such as the one 'to Beaumaris': and landmarks such as farm names and the coast at the Menai Straits. Some lots do not have maps attached: unfortunately, these include the first eight mainland lots, where deviations from the earlier road were significant.

iv) ***Elevations and Plans of key structures:*** usually, elevations and plans of structures unique to the lot, such as bridges, embankments or toll houses are shown. Anglesey Lot 5 includes elevations and plans for two bridges (eg Plate 7 for nearby Lot 8), one of 10-foot and the other of 15-foot span with measurements, brief annotations and simple descriptions. The 15-foot arch is described thus: '*The Abutments, Arch, String course, and Newels are to be of good hammer dressed Ashlar, well bedded, jointed and bonded, without pinnings on the face. The Spandrels Parapets and Wing Walls to be of good rubble work. There must be an inverted Arch of dry Stones extending 15 feet above, thro, and 15 feet below the Arch. There must also be four Water Wings each 15 feet long, founded as low as the Invert, built up to the Springing of the Arch, to be 2ft 6in thick at the bottom and 1ft 6in at the top. All the Masonry except the Invert and Water Wings to be built in good Lime and Sand Mortar. The Water Wings to have the Coping set in Mortar. The Parapet Coping to be of Stones on edge, reaching quite across the Wall, but not overhanging it.*' Major or unusual structures such as the Menai Bridge or the Waterloo Bridge were not generally included, and were given specific lot numbers of their own.

v) ***Contract:*** an undertaking by the contractor to perform the work by a certain date and at a set price. In Anglesey Lot 5, Isaiah Gill, Richard Hodges, John Preston and Robert Price undertook to do the work '*for Alexander Milne Esq (acting for and on behalf of the*

Commissioners under the Act of 55 Geo. III Cap 152)....and to complete the same in a substantial and workmanlike manner on or before the 1st day of June 1822.....[at a cost of] Six Thousand Seven Hundred and Twenty Two Pounds four Shillings and Six pence'. The agreement is signed by the contractors and by Telford's chief engineer in Wales, John Provis, and is dated 10 October 1820.

3.2.5 All parts of the specifications proved extremely useful in the field. Their use is described in Section 5. Specifications showed the beginning and end of each lot, described and often illustrated significant structures within it as well as the pre-existing roads nearby, explained diversions from the usual constructional methods, mentioned landmarks which allowed now-absent features to be located, and indicated how many depots, drains or other features were to be found in each stretch of road. This information was invaluable in interpreting field data. For instance, the description of standard stone dyke walling aided recognition of Telford features.

3.2.6 ***Ordnance Survey first edition Maps:*** first edition OS maps at a scale of 6" to 1 mile were consulted at Cadw's office in Cardiff, and copies were obtained. They were surveyed in the early 1890s, it is important to bear in mind that they show the Telford road some sixty to seventy years after its completion, when minor changes might already have been made.

3.2.7 The OS first edition maps show routes which can be identified by comparison with Telford's lot maps as pre-Telford roads. Some of these were shown as roads of apparently equal status to the Telford road. Others had fallen out of use for traffic, and survived as tracks or footpaths. The OS maps also show much of the extant road furniture, such as milestones, depots and tollhouses.

3.2.8 Telford's sequence of lots was reconstructed by comparing each specification with the relevant OS first edition 6" map. A first edition map extract was prepared for each lot, and the course of the lot as shown on Telford's map was marked in coloured pen. A larger-scale map was then produced on which all of the lots were marked in coloured pen and given their lot number, allowing the sequence to be seen and gaps between lots to be spotted. This was a time-consuming but fruitful exercise, whose results are discussed in *Section 4*. Ordnance Survey first edition map extracts were also used in fixing the route which was printed on overlays (*Section 3.3*), and in the quantitative comparison of maps and fieldwork seen in *Section 5*.

3.2.10 ***Ordnance Survey 1:10,000 maps, current series:*** these maps, dating mostly to the late 1980s, were supplied by Cadw. They were used to check the apparent survival of features seen on OS first edition maps, but like them could not identify features as Telfordian or otherwise without supporting field evidence. These maps show the locations of some surviving milestones, but not of depots.

3.2.11 The current maps showed some areas where the modern A5 or A55 diverge from Telford's road, but some significant changes such as the new cutting near Ty-nant have been made within the last five years, and were not shown.

3.2.12 Listed Buildings were noted and the listings briefly assessed. Cadw's listing maps were consulted for each community through which the road passes, and a printed listing obtained for each structure within approximately 50m of the road. These sites were printed, with their individual numbers, onto the transparencies used in the field to allow comparisons between field evidence and the listing descriptions.

3.2.13 The relevant Sites and Monuments Offices were consulted, but advised that they held no records of any features explicitly associated with the Telford road, other than those included as Listed Buildings (*Section 3.2.12*). This was part of the reason for the present study.

3.2.14 Highway Office structure records were also consulted. These records, held at the Welsh Office in Cardiff, contain brief locational and descriptive notes of all the main features on the A5. They are intended as operational records to inform roadworks, but include photographs, elevations and dating information which was very useful in the field as a supplement to other sources. Not all of the files for retaining walls were consulted, as this would have been time-consuming and was not considered a priority, but files for bridges in particular were useful for identifying twentieth-century repairs.

3.3 FIELDWORK (TASK 2)

3.3.1 The fieldwork had two main objectives: firstly to locate and record features associated with the Telford road, and secondly to assess their quantity and condition.

3.3.2 It was initially proposed that a survey would be best achieved by walking the whole length of the road, with two field workers walking in opposite directions. However, a rapid inspection of the route with Dr R Turner, Dr B Trinder and Mr A Cochran showed that health and safety concerns made this impractical. It was decided that the two field workers would walk in the same direction, covering both sides of the road. In areas of particularly narrow, busy road or in extreme weather, it would be impossible to travel on foot. It was agreed that in such circumstances the distance would be covered slowly by car, with care taken to observe the safety of other road users.

3.3.3 Features were recorded in three ways - on record sheets, on overlays and photographically.

i) Recording sheets designed by LUAU and approved by Cadw were used in the field. They were of two types: one for linear features such as embankments or retaining walls, and one for structures such as bridges or toll houses. Their design allowed each unique feature of the Telford road to be briefly described, located with a grid reference and cross-referenced to annotated overlays, photographs and listings.

ii) Transparent overlays showing the route of the Telford road against current 1:10,000 OS maps, allowed field workers to check the route of the Telford road, locate features and note relationships between them, or between Telford's and earlier roads. Annotations were made in waterproof pen.

iii) Photographic recording was at three levels. Firstly, it was desired that all features should be recorded as black and white prints, and this was achieved with some exceptions. Secondly, colour prints were used to record representative features, for example stretches of retaining wall. Thirdly, a digital camera produced images of good examples, or of general views. The relatively low memory capacity of the digital camera meant that it was used more selectively than conventional cameras. Photographic sheets were filled in to allow cross-referencing of photographs, overlays and record sheets.

3.3.4 Fieldwork was undertaken at a time of unusually severe rain, and recording was somewhat hampered by the conditions. Photography in particular was compromised, as some features which could be visited only once in our schedule could not be photographed in heavy rain, and recording sheets could not always be completed on site. In these cases annotation on the transparent overlay, using waterproof pen, was transferred to record sheets as soon as possible after completing fieldwork. It was not possible in these circumstances to visit on foot all sections of pre-Telford road, although representative sections were fully recorded.

3.3.5 Location of Telford features in the field depended on the use of the documentary sources discussed above, and on recognition by archaeological criteria. Generally, each section of the route was visited at least twice. Day-to-day fieldwork took the following pattern: at the

beginning of each day's work a decision was made as to how much ground could reasonably be covered, usually a distance of between six and ten miles. A brief inspection was made of relevant lot specifications, first edition maps, current maps and the overlays showing Telford's route against Listings and SMR features. This was followed by a journey along the route, walking wherever possible. Features of the Telford road and where possible, pre-Telford roads were located and described on record sheets and photographs, with a photographic index allowing cross-referencing to other records. Transparent overlays printed with the Telford route allowed evidence to be checked and located quickly against current 1:10,000 map coverage.

3.3.6 A second visit, usually by car because of time constraints, allowed the location and descriptions of features to be checked, along with apparent discrepancies between map evidence and field observation. These discrepancies were mainly due to changes which have taken place since publication of the 1:10,000 maps. For instance, milestones shown on the current map had occasionally been relocated or removed, and the most recent improvements to the current A5 are not always shown.

3.3.7 Each feature on the right hand side of the road, travelling from Holyhead to Chirk, was given a unique and arbitrary even number, and all features on the left side an odd number. This number was noted on the relevant overlay as the feature was seen, and on the recording sheet which describes the feature. The sequence was applied indiscriminately to linear and structural features.

3.3.8 Occasionally constraints of weather or circumstances such as dangerous traffic, made it impossible to complete a record sheet in the field. In some cases depots (storage embankment) could be only recorded visually from a moving vehicle and the overlay and current 1:10,000 map were used to fix and note the location, and short descriptive notes were made on the overlay. The feature was then entered on a recording sheet later in the day, with the grid reference being read off the map. Similarly, any feature which was not allocated a number in the field by oversight or for other reasons, was numbered later, so that the sequence does not run uninterrupted from Holyhead to Chirk. It is proposed to renumber all sites to enable a systematic sequence from west to east prior to submission of the data to the SMRs.

3.3.9 Simple symbols were used on the map overlays to indicate the main types of remains. Depots (road side bays for storing road materials) were indicated by a dot (•), milestones by an arrow (↓), and the beginning and end of linear features such as Telford retaining walls with offset arrows (↵). Each symbol is accompanied by the feature number it applies to. Roads believed to be pre-Telford roads on the evidence of specifications and first edition maps were marked with a dashed line, and treated as linear features.

3.4 DATA PROCESSING (TASK 3)

3.4.1 This work commenced before fieldwork began in order to make data collection in the field as easy and focused as possible, and to ensure compatibility with the systems used to process and interpret it later.

3.4.2 ***CAD:*** The line of the modern A5 and OS reference data was digitised from the current OS maps and this was divided into planlet boxes, each of which corresponded to a *c*2.5km length of the route. Ordnance Survey first edition maps obtained from Cadw were scanned by a commercial scanning company into a Rasta TIF format. These digital files were then read into the AutoCAD 14 as a backdrop to the digitised data, and were scaled and positioned to provide a best 'fit' with the modern mapping. The listed buildings and the extent of Telford's

lots were input onto CAD system, the latter by comparing the lot maps and the OS first edition mapping.

3.4.3 Transparent overlay plots were generated from the CAD system which fitted maplets based on current 1:10,000 OS maps, and were numbered in a west/east sequence for the whole length of the road in Wales.

3.4.4 When fieldwork was completed, data processing became a matter of inputting and displaying information that had been gathered in the field. The sites were digitised from the field maplets into the CAD system and could be then compared with the appropriate depiction on the OS first edition map. For the most part there was a close correlation between the digitised data, and the OS first edition, which demonstrated the quality and accuracy of the early mapping.

3.4.5 ***Database:*** the design of the database was undertaken using Microsoft Access 97 and was based upon the database formats of the Gwynedd and the Clwyd Powys SMRs. However, as the database was specifically designed to record the Telford road it included a number of fields, that are not represented within either of the two SMRs, examples are: Milestone Number, Telford's Lot Number, and the Planlet Number. The text was extracted from the site record sheets and additional information, such as National Grid References was obtained from OS mapping in the office. The completed database was translated into a word processer format for incorporation into the present report.

4. DOCUMENTARY STUDY RESULTS

4.1 INTRODUCTION

4.1.1 The primary purpose of the documentary study was to inform the fieldwork, and *Section 5*, describing the fieldwork results, incorporates much of the data from the documentary sources. This section therefore describes only that information which was gathered from documentary sources in advance of the fieldwork. It is arranged in chronological order of sources, thus Telford's specifications are discussed first, then the OS first edition maps and then later sources.

4.2 TELFORD'S SPECIFICATIONS

4.2.1 The sequence of lots from west to east has been reconstructed by close study of Telford's specifications and a comparison of their maps with the first edition and current 1:10,000 maps. The locations of the lots are shown on Figs 3 and 4 and the descriptive locations are shown in the following table. The prefix 'A' denotes an Anglesey lot number and lots marked ⁎ correspond to areas which Telford himself described as 'particularly difficult' (Telford 1838, 211):

Lot sequence

Lot No.	Location
A9	Holyhead Harbour - W end of Stanley Embankment
A10	Stanley Embankment
A6	Through Dyffryn/Valley
Gap	
A1	Caergeiliog
A2	Through Bryngwran - Gwalchmai
A3	Gwalchmai - Cefncwmwd
A4 and A22 (overlap)	Cefncwmwd - Gaerwen
Gap	
A5	East of Llanfair P G
A12	South of Menai Bridge town
A19	Immediately north of Menai Bridge
65	Menai Bridge and beyond
80	Into Bangor ⁎
61	Continuing through Bangor
20	From Maesgeirchen
17	Through Llandegai ⁎
68	Past Cochwillan
22	(overlaps 68) To Halfway Bridge

23	To outskirts of Bethesda *
24	Through Bethesda
28	South from Braichmelyn
59	Along Nant Ffrancon
1	South to Llyn Ogwen *
2	Short stretch at west tip of Llyn Ogwen
8	Along south of Llyn Ogwen
9	Along Afon Llugwy *
60	Through Capel Curig *
25	From Pont Cyfng to Swallow Falls *
Gap	
77 (and 10, overlaps)	Through Pentre Du
47, 48	Near Hendre Rhys Gethin
Gap	
3	Near Dinas Mawr
Gap	*
82	Bridge at Rhydlanfair
75	Short stretch to Lady's Dingle
4	Past Glan Conwy to Padog *
26	Toward Pentrefoelas
27	Long stretch to Cernioge Mawr
66	Short stretch eastwards
35	Through Glasfryn
67	Short stretch south-eastwards
36	To Pant Dedwydd
37	Short stretch north of Cerrigydrudion
Gap	
38	Short stretch south of Cerrigydrudion *
62	To Hendre Arddwyfaen
11	Past Arddwyfaen
57	Past Disgarth-uchaf
43	Disgarth-isaf - Ty-nant
58	Very short stretch east of Ty-nant
Gap	
13	Past Dinmael to Maerdy
55	SW from Maerdy

44	Short stretch eastwards
56	From last, to junction at Druid
49	Very short stretch at Druid
Gap	
29	South of Rûg, to Ty'n-y-cefn
Gap	
63	Across river to Corwen
70 (includes 40)	Corwen - Bonwm (Lot 40 is Lon-isa toll house)
71	East from Bonwm
45	To Penarth
72	To Llidiart y Parc
14	Through Llidiart to Owen Glendower's mound *
30	From last to Glyndyfrdwy *
31	Glyndyfrdwy - north of Bryn-newydd
16	To Birianallt
46	Birianallt - north of Llangollen
Gap	
52	South of Ddol-isaf to Fron
32	Fron - Royal Oak, north of Chirk
42	Royal Oak to Chirk Bridge

4.2.2 The table accounts for 69 of the 123 lots which apply to Anglesey and Wales. Of the lot numbers that were not included in the table, some were concerned with the building of branch roads (as with lot 11, a road to Llangefni). Several of these belong to a secondary road running north-west from Llandegai to Conway. At least one lot (no.17) describes a route which was not followed, and in this case was a proposed bypass around Llandegai which was abandoned. At least fifteen lots dealt with structures such as toll houses and gates, and a very few were missing altogether.

4.2.3 Those missing include major structures such as the Menai Bridge and the Waterloo Bridge, which may have been dealt with separately or removed from the collection (Lot 65 includes the Menai Bridge area and Lot 3 the location of the Waterloo Bridge, but both describe road-building operations on each side, rather than construction of the bridge). A few lots near Llangollen (probably no more than three) have not yet been precisely located because first edition maps were not available at the time of writing. However, the lot sequence set out below covers almost the entire road.

4.2.4 Areas which did not fall within a lot are shown as 'Gaps'. Because the beginning and end of each lot were precisely defined, it is unlikely that these are false gaps, and it seems rather that they were never included within a lot. Most are short and can be accounted for by oversight or imprecise wording in the specification, but some may be areas where an existing road required little or no improvement. Notable gaps at Cerrigydrudion and Llangollen suggest that road improvements here were undertaken by the parish highways overseers, although a long

and carefully-described section through the centre of Bangor was clearly undertaken by Telford (Lot 80).

4.2.5 In some areas two lots overlap, or one lot (such as a toll house) is entirely contained within another. It is not clear why two lots concerned with road-building should duplicate a single stretch, as in Anglesey lots 4 and 22. As stated above, the lots were numbered generally, but not infallibly, according to the order in which they were built.

4.2.6 The lots vary in length, some stretching for several miles whilst others deal only with the building of a new bridge or improvements to a junction. Those in Anglesey tend to be long, unbroken and largely straight, for Telford was here setting out an entirely new line (Telford 1838, 208). By contrast, the area around Corwen is broken into many very short stretches.

4.2.7 The lot maps do not explicitly refer to the state or nature of earlier roads, though much can be inferred about them from Telford's requirements for his own road. No distinction is made on the lot maps between turnpike and other roads, though the maps often refer to the 'old' or 'present' Mail road, suggesting that this was the best available road prior to Telford's. The specifications do, however, allow some deductions about earlier roads. Telford frequently insists that the surface of an existing road should be raised or lowered to form 'one smooth incline' usually of no more than 1 in 30, but never more than 1 in 22. Existing roads were evidently much steeper, and this was confirmed by field observation of their archaeological remains (*Section 2.1*).

4.2.8 Documentary evidence was the only source for information about the structure of the road, as the subsurface structure of Telford's road lies entirely beneath modern road surfacing and was not exposed during fieldwork. Telford's 'General Conditions' (Telford specifications, page 6) are very precise about how the road should be constructed in various kinds of terrain. Many of his more insistent requests sprang from an understanding of the weaknesses of earlier roads, such as shoddy drainage and poor masonry.

4.2.9 On generally level ground, topsoil was to be removed and the surface '*brought to a perfect level*'. Ground which was soft or boggy at the surface, but with harder ground below at some depth, was to be stripped of topsoil and covered with '*two rows of swarded Turf, the One laid with its swarded face down and the other upwards'* or a layer of brushwood, six inches thick when compressed (Telford specifications, page 6). On sloping ground, the road was to be cut directly into the hillside, or embanked on the lower side with material cut from the upper. Realising that the embankments must be absolutely firm to withstand continual use, Telford specified that they should be compacted '*by means of water, beaters, or an iron roller, or shall be left there a part of the Winter to receive the Snow, and rains; but no soft, boggy, or peat substance is on any account to be laid behind the breast, or Retaining walls'* (*ibid*).

4.2.10 Roadstone was to be laid in three layers of decreasing size to ensure firmness and durability. Thus on solid ground a 'rough pavement' at the bottom gave way to stones of 'six inches in thickness, none of which shall exceed 2½ inches in their greatest dimensions' and finally, a three-inch layer of blinding – '*very small rock rubbish, or Small gravel, mixed with some binding substance....chiefly intended to keep the upper stones in their places, and render the Surface of the New Road fit for immediate use, without injury to the Horses feet'* (*ibid*). On boggy ground the 'rough pavement' was replaced by a four-inch layer of broad stones laid flat, and the usual six-inch layer of broken stone was increased to eight inches.

4.2.11 Standard walling was described with the same precision, and cross sections were supplied. Telford was particularly eager to avoid the weaknesses he had observed in rubble walling. He forbade stones to be set on edge except in coping, and insisted that in embankment and retaining walls '*every one of the back Stones, are to be regularly connected with the body of*

the Wall, and not to depend upon the earth behind them' (ibid). Stones were to be laid flat and '*as regular as the nature of the stones will allow*', for, as Telford was aware, most of the local stone is unsuited to close-fitting masonry.

4.2.12 Insufficient or badly-constructed drainage had left some earlier roads subject to flooding, and many were impassable in bad weather even for pedestrians. Telford's road surface was to be cambered, a height of seven inches high at the centre falling to five inches at each side, to allow run-off of water. This was by no means a new development, but Telford's instructions for the building of drains was more unusual, phrased meticulously to ensure that they would not be clogged up by the matter washed into them. Side drains were *'not to be intercepted by points of rock or large stones'* and if steeper than 1 in 25 were to be partly paved. Drystone cross drains were to be built by the contractor wherever he was told to put them by Telford's engineer, and were generally eighteen inches square. They were to be paved with flat stones '*which shall go quite across the bottom and at least four inches under each side wall*' or with smaller stones at least nine inches deep. Close joined or overlapping stone covers ensured that *'there shall not be any opening to admit soil or small stones falling down into the drain'* (*ibid*), and a projecting drain mouth threw water clear of the wall and its foundation.

4.2.13 Some specifications contain plans and elevations for toll houses. Those on Anglesey were of a different plan to those in mainland Wales. Anglesey toll houses were of a short L-shape plan, of which one wing was a small wash-house and the other a bedroom, with a two-storey hexagonal tower at the corner of the L (Plate 25). Those on the mainland were generally single-storey and slightly larger than those on Anglesey, with an almost cross-shaped plan (Plate 27). They varied somewhat, but as a rule the kitchen and the toll room, with its distinctive angled façade, formed a block running back from the road, flanked on each side by a bedroom. An exception is the house at Irishman's Bridge, which is not on the Holyhead road proper but on a branch road near Llangollen. Specifications for Lot 69 show that it conformed closely to the Anglesey plan, and includes illustrations of an outside privy and gates.

4.2.14 Lot 40 is noteworthy because it concerns a toll house and weigh-bridge (at Ty Isaf, west of Corwen) (Sites 112 and 601). Only two of these survive, the other one being at Lon Isa near Llandegai. Another formerly stood at Chirk, and one at Corwen which may in fact be the Ty Isaf house (Trinder 1998, n.p). The Ty Isaf house is the only weigh-bridge house for which a specification is known (Plate 31). It specifies '*A Privy to be built in the Garden*' and '*a small building to be erected for lever and weights of a Weighing Machine, with a passage thro it for the public footpath....On the side of the road next the Machine House a Pit is to be sunk for a Weighing Engine, the sides to be walled round.....and the machine to be carried from Bangor and fixed in its place, exactly similar to that lately put down at Lon-Issa near Llandegai*'. No further information is supplied about the mechanism, although it would clearly consist of a bridge platform onto which the vehicle would drive, with a system of weights and pivots below (Rutland LHS 1982, 112). However, the specification confirms that the machines at Lon Isa and Ty Isaf were identical and were probably manufactured at the same time. It suggests too that the machine house at Ty Isaf, now somewhat altered, was identical to the better-preserved one at Lon Isa.

4.2.15 Taken as a whole, the specifications demonstrate that the government-funded Holyhead project benefited from an integrated and centrally-managed approach, which was not possible for turnpike roads built by local speculative consortia. Telford often specified, for example, that spoil made by cuttings to lower the ground surface should be transported to an adjoining lot, where the ground was to be raised. This relied on co-ordination between contractors on adjacent lots, and a large labour force.

4.2.16 The specifications often illustrate the nature of Telford's improvements to existing roads. Where specification-maps show an 'old road', it is sometimes clear that Telford's route improved it by removing a sharp bend or steep incline, as at Chirk where a hairpin bend immediately before the bridge was replaced with a straight, evenly sloping embankment. Where existing routes were followed, the most commonly repeated stipulation is that 'no incline must exceed 1 foot in 30' and the specified works generally relate to cutting down or building up steep slopes to make an even gradient. Previous road-builders with less expertise or less money at their disposal had been forced to follow natural contours more closely.

4.2.17 Secondary sources included Telford's own *Life (Telford 1838)*, and biographies which, almost by definition, are not objective in their accounts of Telford's achievement. In particular, the bad conditions and notoriety of the pre-Telford roads may have been exaggerated to Telford's benefit. A number of books and articles were consulted for supplementary information about the road, or features such as weighing equipment from contemporary roads.

4.3 ORDNANCE SURVEY FIRST EDITION MAPS

4.3.1 Ordnance Survey first edition maps were consulted, and were photocopied for use in the field. The first edition is the first accurate survey of the completed road. It was published in 1892, sixty to seventy years after Telford's lot maps were produced. The lot maps illustrate the planned, not the finished road, and it was expected that adaptations during road-building, and seventy years of use, would have resulted in minor deviations between the lot maps and the first edition. However, the two sets of maps are remarkable for their internal consistency and suggest that no significant alterations were made in the nineteenth century. The road survived almost intact, and certainly no significant route change was made. Field boundaries and place names changed little in these first seventy years, so that it was often possible to match landmarks shown on the lot maps with those on the first edition.

4.3.2 The first edition does not express survival rates, for example, how much original roadside walling or how many drains survived in 1892, but some evidence of Telford's structures can be retrieved. Regularly-spaced depots are shown (by symbol rather than accurate plan) and the locations of milestones are given, with a summary of the distance shown on each plate.

4.3.3 The first edition maps also show the fate of stretches of earlier road, bypassed by Telford and shown on the lot maps. Since many of these were avoided by Telford because of steep gradients or sharp bends, it is unsurprising that some had fallen out of use for wheeled traffic by the 1890s, and were shown as paths or field boundaries if at all. Others continued in use, but the maps give no indication of the type or frequency of traffic using them.

5. FIELDWORK RESULTS

5.1 INTRODUCTION

5.1.1 This section offers a summary of the results gathered from fieldwork, which were naturally informed by documentary research, and is presented in conjunction with the site gazetteer (*Appendix 5*). The results are arranged in nine unequal sections corresponding to those in *Section 6* where quantitative and qualitative assessments are given (Figs 1 and 2). Numbers given in the text, as in 'the Stanley Embankment (003)' are feature numbers, corresponding to annotated field maps and to the site gazetteer (Appendix 5). General comments on the findings of fieldwork follow these nine sections.

5.2 SECTION 1 - HOLYHEAD TO GWALCHMAI (LOTS A9, A10, A6, A1, A2) (PLANLETS 1 - 8)

5.2.1 Telford's exact starting point, the Eagle and Child Inn, was not located. The present route started south of the harbour at Holyhead (SH 2470 8205). The first part of the Telford road is badly damaged. In all towns and villages along the route, ongoing changes such as the insertion of private drives and the creation of lay-bys have disrupted the Telfordian fabric, but in Holyhead this is particularly noticeable and the Telford road is almost indistinguishable. It is likely that the present roadside walls incorporate some Telfordian wall material, but the construction of the railway (which affected the Telford road wherever they met) and subsequent improvement of roads around it have substantially altered the road's line and associated features.

5.2.2 Immediately south-east of Holyhead, the Telford road ran in a straight line south-east, to the west end of the Stanley embankment at SH 2760 8030 (as shown on specifications and the first edition map). This section has been entirely destroyed by the construction of an aluminium smelting works, and no trace of the road survives in the grounds. The present A5 now takes a curving route to the west and south west. Where the route of the Telford road resumes, *c*100m north-west of the Stanley embankment, road-widening has again destroyed evidence of it.

5.2.3 At the west end of the embankment, a toll house, toll gate and a milestone with plate intact, on the north of the road (001 and 007) are the first significant Telfordian features to be encountered, but were carefully dismantled and relocated in the 1970s. The toll house, now run as a tea shop, is the only one to which public access is encouraged. The plan of the house remains essentially unchanged, although toilets and a laundry room have been added at the rear in recent years.

5.2.4 The Stanley embankment (003) was much affected by the arrival, in the 1840s, of the railway, whose engineers naturally widened the existing embankment rather than build a new one. The southern portion of the present embankment is therefore dedicated to the railway and the high wall dividing the two halves is contemporary with it. The northern half remains in good condition, although the footpath on the north edge is a modern addition which further widens the original structure. A sluice mechanism in the centre of the embankment and the walling which faces it are of the railway period.

5.2.5 The toll house at Caergeiliog (004) is a private house, which has suffered by the removal of whitewash or paint, and heavy pointing. It has been extended and modern windows have been inserted.

5.2.6 Telford walling throughout this section is much disrupted and in short sections, especially on the south side. The depots are regular semicircles, typically of 5.4m breadth at the widest point and 2.9m deep. One depot (013) in Valley has had a bus stop built inside it. They are heavily consolidated. From Tre Ifan, at a change between Telford Lots A1 and A2, the depots are usually of splayed plan, but there is little change between lots here after.

5.2.7 There is a good stretch of walling, somewhat interrupted, from east of Caergeiliog to Bryngwran. Large-scale embankments or retaining walls were not common in this section, which is mostly level. There is no Telford walling on the south side between the B5112 junction at SH 365 769 and Gwalchmai.

5.2.8 Apart from those missing in Holyhead all the milestones in Section 1 are intact and retain their plates.

5.3 SECTION 2 - GWALCHMAI TO MENAI BRIDGE (NORTH SIDE) (LOTS A3, A4 OR A22, A5, A12 AND A19) (PLANLETS 9 - 15)

5.3.1 A very long but frequently interrupted stretch of walling (125) survives on the north from Gwalchmai to the edge of Malltraeth Marsh, but is much repaired. In short stretches where the road had apparently been widened, for instance near the Heneglwys airfield, Telford walling was completely absent.

5.3.2 The toll house at Castell Eden (077) retains its plan largely intact, albeit without the first-floor roof skirting the tower, but has had particularly heavy and intrusive repointing which detracts from its appearance. A gate now at St Fagan's Museum of Welsh Life may have come from this toll house.

5.3.3 The former coach house at Mona (801) which may be the '*entirely new inn built in the middle of the Island of Anglesey*' around 1830 (Trinder 1998, n.p) survives as part of a farm and is still occupied. Access to the buildings at the rear was not available, though a brief view from the roadside suggested that the eighteenth- or nineteenth century buildings including coach house and stables survive. The house, a rectangular five bay structure on the south side of the road, is in need of some maintenance.

5.3.4 At Malltraeth Marsh, hedges were laid rather than stone dyke walls, which could not withstand the vibrations from heavy traffic (Trinder 1998, n.p). These, along with all of Telford's embankment and bridge over the marsh, have been destroyed by modern improvements to the road, making it a dual carriageway.

5.3.5 West of Pentre Berw is a stretch of well-preserved Telford wall, which is dark and weathered, and illustrates the difference between these early walls and the paler new sections, where stone is often machine cut. There are semicircular depots in this walling, and a milestone east of Gaerwen.

5.3.6 There is a long gap between lots, before Telford's Lot 5 begins immediately east of Llanfairpwllgwyngyll; there is the possibility that this reflects the loss of specifications rather than a section of road that was not allocated lots. Within this gap, the modern A5 leaves Telford's road to curve northwards and bypass the town, where Telford's road continues on its earlier alignment, running immediately south of the town. This stretch of road, like many others through towns and villages, has little trace of any remaining Telford wall or other structures, although a Listed milestone (195) survives.

5.3.7 East of Llanfairpwllgwyngyll the Telford road continues toward Menai Bridge town, as the A4080. Here the road has been widened and improved in a number of places and the Telford structures lost. However, a good section of embanking, with Telford retaining-wall and decayed dyke wall substantially intact, survives immediately east of the toll house, up to a modern car park and view point.

5.3.8 As the road enters the outlying areas of Menai Bridge town, the Telford walling is again obscured or absent. The approach to the Menai Bridge is substantially embanked.

5.4 SECTION 3 - MENAI BRIDGE (NORTH SIDE) - SOUTH END OF LOT 28 (LOTS 65, 80, 61,20, 68, 22,23, 24 AND 28) (PLANLETS 15-20)

5.4.1 The road continues as the A 4080. Lot 65, a standard road-surfacing specification, includes the area of the Menai Bridge (215) (Plate 14) but not the construction of the bridge itself. The bridge corresponds to its listing, which notes that the bridge was altered in the 1920s by the repositioning of suspension chains and the addition of a cantilevered footpath on either side and removal of its toll houses. Two iron 'sunburst' gates near the southern gatehouse are believed to be original Telford features, and are in good condition. The gate house on the south side contains several items of industrial machinery which are of considerable importance and would benefit from conservation and possibly removal to a museum.

5.4.2 The walling south of the bridge has been disrupted, and there are no significant remains of Telford structures until south of Bangor.

5.4.3 Bangor, like Holyhead, retains almost no trace of the Telford road within the town, apart from a series of milestones that are extant but not all *in situ*. There are no lot maps for the road through Bangor, but Telford describes the route 'going up the high street' and there are extant milestones on the line of the high street. It is reasonable to assume that boundary walls incorporate some Telford fabric, but specifications for Bangor are concerned mainly with the laying of pavements and road surfacing, and less with the construction of walls. As Telford was building the road through an already developed town on pre-existing roads, it is probable that there were never great quantities of walling or other structures in Bangor.

5.4.4 South-west of Bangor, modern road-widening schemes and the construction of a housing estate have destroyed much of the Telford road structure. A possible survival of pre-Telford road (217) may be seen in a short overgrown stretch running parallel to the modern road, and its retaining walls are visible at SH 594 715.

5.4.5 The Telford road continues south as a minor road or track, now bisected by a recently-built section of the A55. The road immediately south of the A55 at this point survives as a surfaced track, and includes one of the most remarkable surviving assemblages of Telford features. Lon Isa is a toll house (34), now a private dwelling but retaining its original plan, and it survives in close association with a weigh-bridge machine house (231) and well preserved depots. A milestone, plateless and no longer in association with its Telford wall, survives nearby (28). The machine house retains the slot into which the mechanism fitted. This is one of only two toll house/weigh-bridge combinations surviving on the Holyhead Road, the other being at Ty Isaf (601) near Corwen (*Section 5.8*).

5.4.6 This minor road rejoins the A5 shortly before the Halfway Bridge (233), and reasonably well preserved Telford walling survives on both sides of the road.

5.4.7 Halfway Bridge (233) (Plate 10) is one of Telford's broader bridges. Like many of its contemporaries it survives relatively intact below road level with some leaching from

modern pointing, but with a largely rebuilt parapet wall. This retains the appearance of a Telford wall, and a datestone (1819) with a drill- or boring mark can be seen in the north parapet wall.

5.4.8 At the bridge Telford's road deviates from the earlier one shown on his specification map for Lot 23. The earlier road (24A) ran parallel to the river Ogwen on its west bank but Telford, having crossed the river with the Halfway Bridge, took an equivalent route on the east bank. Both roads cling to the hillside above the river, supported by embankments with retaining walls, and with further substantial walls on the upper side. The pre-Telford road is still in use as a minor road serving a number of farms, one of which (Dinas Farm) may include eighteenth century buildings. Its dyke- and retaining walls are apparently very similar to Telford's in style and construction.

5.4.9 However, this road contrasts clearly with Telford's in that it includes steep gradients, slowly falling to Dinas Farm and then rising quickly in a sharp curve. It would seem that the builders of this road were unable, for technological or financial reasons, to construct larger embankments to overcome these gradients. It is narrower than the Telford road, and had he chosen to improve the existing road he would have had to widen and reinforce existing embankments.

5.4.10 Substantial retaining walls support the Telford road on its west side through its curving line. It was not possible to inspect these closely because of road safety concerns, but they are thought to be essentially Telfordian walls, built according to his illustrated specifications in Lot 23 for retaining walls of 40ft height. The east side of the road was cut into the hillside, and the spoil used in the embankment to the west.

5.4.11 Since Telford's route from Halfway Bridge to Bethesda was entirely new, the approach to Bethesda was able to take a straight line, terminating in a ten foot arch (243) which survives, intact on the south west side but concealed by a modern extension on the north east, where walkways have broadened the road.

5.4.12 In Bethesda itself, once described as '*a long, long street of the most furiously ugly houses that ever roof was put to*' (Harper 1902, 261), Telford structures have largely been removed, particularly on the east side, by modern road-widening. The bridges (239, a 40 foot arch and 241, a 20 foot arch) were not accessible due to road works at the time of fieldwork, but were seen from a short distance and seemed largely intact.

5.4.13 The toll house (245A) here is mostly intact and whitewashed, but has modern windows.

5.4.14 Beyond Bethesda, modern road-widening has again destroyed portions of Telford walling, particularly near Ogwen Bank, where large lay-bys have been constructed. However, a length of relatively well-preserved wall (245) with semicircular depots survives.

5.5 SECTION 4 - SOUTH END OF LOT 28 TO PONT RHYD-GOCH (LOTS 59, 1, 2, 8) (PLANLETS 20-23)

5.5.1 This was the most difficult stretch of terrain Telford had to contend with, and includes the first lots undertaken. In particular the mountainous section near Nant Ffrancon described in 1759 as '*the most dreadful horse-path in Wales*' (Harper 1902, 257) was Telford's first priority, and fell within Lot 1. It is generally well preserved and includes striking examples of Telford's expertise.

5.5.2 The section begins near Ty'n-y-maes, continuing in an almost straight line suggestive of an entirely new road to Ty Gwyn, then through increasingly rocky and steep crags rising east of

the road, to Pont Pen-y-Benglog at the west end of Llyn Ogwen. Telford walling (245) with many semicircular depots is largely intact on the east side, though the depots disappear from SH 644 621. The depots could not be fully recorded because of dangerous traffic and heavy weather, but it can generally be said that the northern part was poorly maintained, and the south part was more frequently repaired with obtrusive mortar pointing.

5.5.3 Telford built much of his road on the route of another then in use (Telford specifications, Lots 1 and 2). This road included several of the steep gradients he had promised to overcome. Telford's solution was to engineer a three-mile long cutting through the mountains with corresponding embankments to raise and level the valley sections, to achieve an even gradient of 1 in 22. Thus, in the length immediately north-west of Llyn Ogwen, the new road was '*to be 28 feet above the surface of the present*' (Lot 1).

5.5.4 Physical evidence for these improvements was clear. Very substantial embankments rise on the west side of the road as far as Pont Pen y Benglog (802). Immediately north-west of the bridge, the road appears to sit on top of an earlier embanked road, which serves as a raised foundation for Telford's even higher embankment (Plate 6). However, Telford's road is slightly to the east, not the west as specified (Lot 2), of the earlier road. The road is narrower in this section than in most others as a concession to the terrain. Both the earlier road and Telford's have subsequently been heavily buttressed, and the western elevation of the combined components (Plate 6) illustrates very clearly the relationship between the two roads, and their environment. It is not known whether the need for buttressing results from inherent weakness in the embankment, or pressure of modern traffic.

5.5.5 In addition to the massive retaining walls, which incorporate rebuilding of earlier ones, the parapet walls on the west side and the stone dyke walls on the east are well preserved Telfordian structures. Modern rebuilding has not been so conspicuous as in other areas, although some has undoubtedly taken place and a new rock-cut north of the bridge has widened the road to create a parking space.

5.5.6 This section is notable for the very large number of depots. Between Ty'n-y-maes and Ty Gwyn there is a semicircular depot roughly every 50-100m on the east side of the road (265-289). The large amounts of rock generated by cuttings in this mountainous area may have been surplus even to the requirements of the local embankments, in which case it could be stored on this first stretch of the new road until later sections were tackled.

5.5.7 Alternatively, these depots may have held road surfacing or blinding stone, the finest layer of gravel which formed a half-inch layer over the road surface. Telford preferred his roads to weather over the first winter, the work force returning in the spring to correct any inequalities or potholes that had emerged with further applications of roadstone.

5.5.8 Immediately north of the bridge, Telford left the earlier road '*to avoid very inconvenient rocky hills*' (Lot 2). Tool marks were seen on rock faces in this area on both sides of the road. The point of an iron wedge for splitting rock, and an iron bolt were also seen.

5.5.9 A small, square building at the head of Nant Ffrancon (803) was thought to be a powder house to store gunpowder for the extensive rock-cutting and blasting operations. It is similar to powder houses elsewhere in Britain which are invariably squat and strongly built, to contain any accidental explosion. However, the two tiny windows and a small enclosure suggest that this may be a foreman's cottage mentioned in the 1830 report (Trinder 1998, n.p). The building has a small irregular enclosure in front of the entrance, and there is the survival of a similar building on the other side of the valley which may imply that both buildings were bothies, perhaps for shepherds.

5.5.10 Tool marks are visible on rock faces near the bridge, on both sides of the road. On the west side, the point of an iron wedge for splitting rock, and an iron bolt which may be of Telfordian date, were also seen in the vicinity.

5.5.11 The bridge at Pen y Benglog (307) replaced an earlier one, and is built of stone from the rock cuttings (specification, Lot 1). It is particularly striking, bridging a steep drop with waterfalls. The south-west face remains virtually intact, (Plate 11) but the east side was widened and refaced in 1928 (Plate 13), and no longer has the appearance of a Telford bridge. A curious smaller arch within the extended span is not thought to be structural but was in situ by 1902 (Harper 1902) (Plate 12) and was possibly an earlier span.

5.5.12 The road continues along the south shore of Llyn Ogwen, where both sides of the dyke wall have been substantially rebuilt or replaced, truncating Telford depots in some cases. The southern wall has been entirely destroyed in places to accommodate parking spaces. The pale, rounded stones used in walling here suggest that worn stones from the lake were used.

5.5.13 A straight stretch between Llyn Ogwen and Pont Wern-gof confirms that Telford was again building a new road. The specification map (Lot 8) confirms that the former road ran to the south, in the valley bottom west of the River Llugwy. It survives as a low, flat-surfaced linear earthwork in heathland, and is visible on aerial photographs. Pressure of time did not allow it to be fully inspected, but it is preserved in the line of an unsurfaced footpath which becomes a track at Nant-y-Benglog, and rejoins Telford's route at Capel Curig (*Section 5.6*).

5.5.14 The turnpike's low-lying situation made it prone to flooding. Harper's comment that the disused turnpike '*is little less than the bed of a mountain torrent in winter-time, and even to pedestrians the exploration of it is difficult*' (1902, 253) may explain why Telford took an alternative route to the north of the river, crossing it at Pont Rhyd-Goch (Site 808).

5.6 SECTION 5 - PONT RHYD-GOCH - DINAS (LOTS 9, 60, 25, 77 OR 10, 47, 48 AND 3) (PLANLETS 23-30)

5.6.1 Section 5 includes stretches where Telford laid entirely new routes, bypassing existing roads on the south of the river Llugwy and usually taking a high route on the north. It was a technically demanding section, requiring rock-cutting and the building of several bridges, but is not generally well preserved.

5.6.2 The stretch from Pont Rhyd-Goch to Capel Curig is entirely of Telford's making, and closely follows the line of the River Llugwy. The former road was in places as narrow as 12ft, with no parapet wall, and was boggy and damp. As in many of the wetter areas, Telford here built a south-facing route which would catch the sun and help to dry the road (Planlet 23).

5.6.3 In this stretch Telford's roadside walling (309 and 50), whilst unimpaired by modern maintenance, has fallen into extreme decay. This is particularly true of the north side. It was originally built as drystone walling, but the report of 1836 suggests that this was remedied by a programme of pinning and pointing in that year (Trinder 1998, n.p). However, the wall is apparently unbonded for much of its length, and in a state of collapse such that it generally stands to only 0.3m. It is often used as the footing for modern wire fencing. The very numerous depots on the north and east side, especially those immediately north of Capel Curig, are similarly ruinous and many are outlined with slate palings.

5.6.4 At Capel Curig, Telford rejoined the turnpike route (*Section 5.5*) which survives as a minor road, that extended along the south side of the Llugwy valley. A depot and fine bridge (810) demonstrate its former status as a well-constructed road predating Telford's by only a

decade. It was little used by 1892, when the first edition Ordnance Survey map showed it as a track, and was certainly disused ten years later (Harper 1902, 253) (Planlets 23-25).

5.6.5 The toll house at Capel Curig (60) is not well preserved. It is a private house, substantially altered by the insertion of modern windows and addition of extensions to the south.

5.6.6 At the Cyfng Falls the Telford road again left the turnpike route. The earlier road crossed the river on Pont Cyfyng, curving south through low-lying fields. The heavy rain which fell throughout fieldwork made it clear that this route, which survives as a minor road, is still prone to flooding despite low embankments which raise it above the neighbouring fields. Like the turnpike section described in *Section 5.5*, it must have been very difficult to travel along in times of bad weather, especially before it was protected by tarmac. This is thought to be Telford's reason for taking a slightly higher route on the north bank of the river, skirting crags and meeting the turnpike route at Ty hyll. A very short and uncharacteristic curve in the Telford road west of the Cyfng falls has been bypassed by the modern A5, which passes a few metres south. It is not clear why this change was made, but the island between the two roads is now used as a parking area for residents of the few houses on the Telford road.

5.6.7 At Ty hyll the Telford bridge (395, Pont Ty-Hyll), unusually a two-arched structure, has been noticeably repaired in the twentieth century, with significant leaching from grouting, and conspicuous tie-plates and coping. Telford cross-drains are intact on the south side.

5.6.8 A gap between lots in this section falls between the Swallow Falls at SH 7654 5772X and Pentre Du farm at SH 7791 5685. It may be that the turnpike road whose line Telford followed, required little improvement. The presence of depots, built on the west in this gap because the east is an embanked parapet, and a Telford milestone (447) confirm that this road was at least updated by him.

5.6.9 Three short lots take the road through Betws-y-Coed, two of which (77 and 10) overlap. As was expected, little of the Telford wall or structures survive in the centre of Betwys-y-Coed, but north and south of the railway short stretches are present. There are two milestones (383 and 381), and at least one of then has been relocated, as they are less than 1km apart at present.

5.6.10 The Waterloo Bridge (379) is one of the structures which impose Telford's signature most clearly on the Holyhead Road. Its elaborately decorated cast iron superstructure includes the leek, thistle, rose and shamrock to denote a bridge built in Wales by a Scot, on a road linking the English and Irish capitals. Cantilevered walkways were added in the 1930s and the parapet wall has been rebuilt, but the bridge remains a great example of Telford's capabilities and his style. It is believed to stand on the site of a pre-existing bridge which Telford mentions only as '*the present Bridge*' (Lot 3). The legend, '*This arch was constructed in the same year the battle of Waterloo was fought*' and the inscription '*Thomas Telford Engineer*' are prominent in the arch surround. The bridge incorporates the spirit of nationalism and technological pride, which characterised the period in which the Holyhead road was built, and to which it was an important contributor.

5.6.11 One of several pre-Telford roads near Betws-y-Coed (70A) survives as a minor road. Starting from Fford Craiglan in the south of the town and running south, it continues as an unmarked forestry track with embanking, and much decayed dyke walling of similar drystone construction to Telford's. The walling is interrupted by the railway, which the road bridges, but resumes afterwards. The road continues to a small stone bridge at Pont yr Afanc (66A) which gives access to Fairy Glen and a second pre-Telford road, described below.

5.6.12 This first road continues south and south west, to a further bridge (the Pont-y- Lledr (804)) and a toll house (68A). The toll house, a rare survival on a road earlier than or perhaps contemporary with Telford's, may be associated with a 'check bar' built on the road between Waterloo Bridge and the '*new road to Penmachno*' which was required by the Provis report of 1838 (1838 Parliamentary Report). This was intended to take tolls from the slate carts which were at that time coming on to the Holyhead road from this minor road, and using it for a short distance and causing much wear without paying tolls.

5.6.13 The house offered the opportunity to compare Telford's distinctive toll house plans with an example from another road and although ruined, it has a multi-angled plan (Plate 24). On the evidence of this structure, Telford's multi-angled toll houses were similar to their predecessors on other roads, and perhaps followed a tradition of building architecturally distinctive toll houses which would be instantly recognisable to travellers. A milestone shown by the current Ordnance Survey map on this road immediately north of the toll house was not located.

5.6.14 A second road, shown on Telford's specifications as already in existence, was bypassed immediately south of the Waterloo Bridge. The major road north from the east of the bridge preserves its line, as does the A470 which leaves the A5 just south of the bridge. This road (72A) descends into Fairy Glen, linked to the road described above by the Pont yr Afanc (66). At a sharp curve to the west the pre-Telford road continues now as a private track and finally a footpath. The northern part of the track was briefly inspected, and appeared to retain no original features.

5.6.15 Telford presumably abandoned this road because of its steep valley descent and sharp curves. His route, having crossed the river on the Waterloo Bridge, climbs above the Conwy through substantial rock cuttings which provided spoil for the necessary embankments on the south side. The embankments could not be fully inspected as trees and other vegetation obscured them from all viewpoints, but are believed to be substantially Telfordian with modern maintenance and patching work.

5.7 SECTION 6 - DINAS TO GLASFRYN (LOTS 82, 75, 4, 26, 27, 66, 35) (PLANLETS 30 - 35)

5.7.1 This section comprises relatively low-lying stretches of Telford road, with a number of small bridges to cross the numerous streams of the region. It also includes the multi-period complex of buildings at Cernioge Mawr. In several lots, the Telford specifications are unaccompanied by a map, which makes it difficult to locate pre-Telford roads with certainty. Several very straight stretches suggest that he was forging an entirely new route, but in some cases he was following the relatively new mail road, notably on the line west of Hendre Isaf. An early road alignment may be preserved in a succession of footpaths on the south bank of the river, rejoining the Telford route at Padog.

5.7.2 Between Dinas and Rhydlanfair there is a gap between lots, but the presence of a Telford milestone and the character of walling show that the road was built or at least improved by him.

5.7.3 At Rhydlanfair there stands the clearest illustration that pre-Telford roads could encompass considerable technical achievement. The bridge across the Conwy, Pont Rhydlanfair (805), is an elegant structure of approximately 15m span with a datestone of 1780. Telford, however, continued on the north bank of the river, raising his road on relatively low embankments which have apparently been reinforced in recent years.

5.7.4 The approach to Padog includes a stretch of much-repaired Telford walling and very large embankments on the south, all built of the thin slates characteristic of the area. Retaining- and parapet walls are currently undergoing substantial repairs, to remedy the erosion and slippage caused by heavy traffic. These repairs will result in the rebuilding of much of the Telford walls.

5.7.5 The single-span stone bridge at Padog (479) replaced an existing bridge downstream, which was said, in the 1824 report, to have been in ruins (1824 Parliamentary Report). It remains largely Telfordian in appearance, but has been reinforced in the twentieth century by the insertion of 'fish plates' (through-rods tying the faces of the bridge) and has been heavily grouted with modern cement mortar which has leached badly.

5.7.6 At Hendre Isaf, just over 1km east of Padog, Telford specified that spoil from nearby rock cuttings was to be used *'partly in filling up hollows, and the rest to be laid on the field side of the lower fence and there regularly sloped so as to make land and strengthen the lower side of the road*' (Lot 26). It is unusual to find such precise instructions for the dumping of spoil. In this relatively level area, the quantities of rock produced from cuttings were perhaps surplus to local requirements for embanking. The area was inspected, and corresponds generally to Telford's description, although no particular dump could be located.

5.7.7 Between Padog and Pentrefoelas the Telford walling is clearly distinguishable from modern concrete set replacements, which were constructed on the lines of the original walls and even the depots. There are relatively low embankments of *c* 3-4m. Road-widening and the creation of lay-bys and splayed junctions have had some impact on the walling.

5.7.8 Pentrefoelas was important as the crossing point with an earlier turnpike route, that ran up the Conwy valley. The Pentrefoelas Arms, however, was not built as part of the Telford road, but served as a coaching inn from 1839, when it received the coaching licence recently surrendered by the posting house at Cernioge Mawr (*Section 5.7.9*)

5.7.9 At Cernioge Mawr (806), a complex of farm buildings and a private house are remnants of a coaching inn which predates the Telford road. An earlier visitor described Cernioge as *'the place to which the milestones have been insistently directing, since Corwen. What, the stranger wonders, is this place.....that it should be thus dignified? Well, here it is, just a farmhouse lying back from the road, with a pond beside it under the trees, a few outbuildings, and an older toll house than the Glasfryn one.....yet this, in the old days of road travel, was a quite famous inn and posting-house*' (Harper 1902, 227-228). The inn is now a private house and the stables and other outbuildings survive in good condition.

5.7.10 On the north side of the road stands a building associated with this complex, which was possibly part of the inn and has changed little since the early twentieth century (Plates 33 and 34). In addition to his mention of '*an older toll house*' Harper notes '*the older toll-gate standing close by, and early deserted*' (*ibid*, 227-228). A ruined structure seen east of the farm, on the north side of the road, may be a remnant of this pre-Telford structure but could not be firmly identified.

5.7.11 Walling from here to Glasfryn includes semicircular depots, many surviving only to two or three courses. The walling has in places been raised by the building of extra courses above the Telford coping stones, in particular immediately west of Cernioge.

5.7.12 Milestones from Pentrefoelas eastwards are usually without plates, and exceptions are noted.

5.8 SECTION 7 GLASFRYN - CORWEN (LOTS 35, 67, 36, 37, 38, 62, 11, 57, 43, 58, 13, 55, 44, 56, 49, 29, 63, 70) (PLANLETS 35 - 44)

5.8.1 This section includes a large number of very short lots, but the reason for this is not clear. Telford frequently gave a single lot number to important structures such as bridges or to demanding stretches of rock-cut or embankment, but the proliferation of short lots west of Corwen, and to its east in Section 8, is so far unexplained.

5.8.2 The very straight stretch from Glasfryn to Cerrigydrudion, though suggestive of a completely new route, was in fact already established and required only minor improvements by Telford.

5.8.3 In parts of this section (for instance south of Cerrigydrudion) Telford specified 'fences' rather than walling. This usually took the form of a low bank with a hedge, and hedges still form much of the roadside boundary in this area. It may be that, as in the case of similarly low-lying ground at Malltraeth Marsh in Anglesey, Telford felt that walls would not stand up to heavy vibrations. Remarkably, three depots west of Glasfryn (501-505), of similar dimensions to stone-built depots, are outlined in hawthorn hedging (Plate 23). Although there is some evidence of decayed stone foundations, it is thought that these depots were never built in stone, which served only as packing to moor the quickset hedges. The implication of these depots is either that the hedging contemporary with the Telford road survives (a most unlikely proposition) or that subsequent hedge-laying has adhered faithfully to the outlines of depots which have long been unused. As with the stone-built depots, it is not clear whether this has been done to take advantage of an existing foundation.

5.8.4 West of the hedge-depots, embankments have been reinforced in recent years and the road widened in places, resulting in the loss of much walling. Where it survives at all, Telford walling is extremely dilapidated, serving only as a footing for hedges.

5.8.5 A gap between lots runs from Pant Dedwydd to Bron y graig. It may be that the existing road needed little improvement in this length. A further gap between lots 37 and 38 encompasses Cerrigydrudion.

5.8.6 At Hendre Arddwyfaen a former road (82) bypassed by Telford survives as a tarmac track south of the river Ceirw.

5.8.7 South of Ty Nant, a curving section of Telford road (158) through a ravine above the Pen y Bont falls is now bypassed by a recent cutting (not shown on current 1:10,000 maps). This was a particularly challenging area for Telford's engineers, since substantial rock cuttings on the north side had to be matched by embankments of over 20m height on the south. The retaining walls which confine these embankments have been repaired in subsequent years, but below the road are essentially Telfordian features. Concrete coping, modern drainpipes and concrete mortar have been used in repairs to the parapet walls, detracting considerably from their appearance in this well-known beauty spot. The northern stone-dyke walls, including depots and a square plinth, identified as a 'tank' on the first edition OS map, are decayed. Tool marks are visible on the rock-cut overhang to the north. This section of road has been Listed grade II.

5.8.8 At the east end of this bypassed stretch, a Telford milestone (088) has been relocated from its former position some metres to the west. It retains a painted plate, and is in very good condition (Plate 20). The stretch of road west, to Maerdy, includes much deteriorating Telford walling, where semicircular depots are often absent or overgrown. In places, pre-cast concrete walling panels have been inserted which are very conspicuous.

5.8.9 A former road, leaving Telford's road at Dinmael, runs south of the Dinmael and Maerdy. At its west end it is visible as an unmarked track, but towards the east end where it rejoins the A5, south of Maesmorfechan, there is now no evidence of it and trees have been planted.

5.8.10 Pont Maerdy is a single-arched bridge and may be Telford's. It is much rebuilt and repointed on the north side; it still has elements of the original facade but an extension to the south side has obscured the original structure there.

5.8.11 A toll house (092) survives at Cymro Gate (SJ 022 439) but has been much altered by rendering and the insertion of modern windows. Beyond it, Telford walling continues only intermittently and in varying condition, although retaining walls of *c*3m height survive well on the north side.

5.8.12 From Druid to Corwen there is very little Telford walling, although in some areas hedging may follow the lines of quickset hedges specified by him.

5.8.13 The bridge over the river Dyfyrdwy (Dee) is a broad, squat seven arched bridge quite unlike other bridges on the route in its form, and was a rebuild by the county authorities of an earlier bridge (Trinder 1998, n.p). Its construction of rubble coursing is typical, but the parapet wall has been rebuilt.

5.8.14 Milestones in this section are usually plateless and many are partly submerged beneath the modern road make up, so that little more than half of the stone is visible.

5.9 SECTION 8 - CORWEN TO LLANGOLLEN (LOTS 40, 71, 45, 72, 14, 30 AND 31) (PLANLETS 44 - 49)

5.9.1 From Corwen the road continues eastward in a series of very short lots, with short gaps immediately east of Druid, and between lots 40 and 71; the terrain does not suggest any reason for this.

5.9.2 Walling east of Corwen survives well, with numerous depots on the south side, until 0.5km west of Llidiart y Parc where it is interrupted on both sides. A short section of old road south of the town exists only as a field boundary, and was disused even by the time of the first edition map. Huge embankments survive west of Owen Glendower's mound, but the equivalent revetting on the south side is of modern concrete.

5.9.3 A short section of pre-Telford road (641) west of Plas y Bonwm, shown on Telford's specifications, was later used as a base for the railway (now dismantled).

5.9.4 East of the mound as far as Glyndyfyrdwy, a very good stretch of Telford wall on the south side includes more than twenty well preserved semi-circular depots. The line of an earlier road is seen in private tracks to Carrog-isaf and a building to its east, but is not visible immediately east of the mound. A bridge at Glyndyfyrdwy (108) has been largely rebuilt.

5.9.5 East of Glyndyfyrdwy an old road shown on Telford's lot maps is visible only in field boundaries, for instance south of Bryn Farm at SJ 1578 4235 and along the stream bank to its east. A further stretch of old road, between SJ 164 423 and 172 422, survives as a farm track, and incorporated extremely steep slopes. Telford's road, running immediately to the south, overcame this by building a very large embankment, which is in good condition, but the Telford wall has been mostly removed to accommodate pavements and lay-bys. The south side of the Telford road, in the same area, survives well, although a bridge at Plas Isaf has been completely obscured by concrete rendering. Numerous semicircular depots survive.

5.9.6 At Y Bwthyn (near Tollgate Wood, on current maps) stand the toll house (112) and weigh-bridge machine house (601) described in Telford's Lot 40. Plans confirm that Telford's Ty Isaf is indeed this house, and not a site *now* called Ty Isaf some distance to the west.

5.9.7 This is one of two surviving toll house/machine house combinations. It is not so well preserved as the other, which stands on a private track at Lon Isa (231) near Llandegai, because at Ty Isaf the road remains a part of the A5. The machine house is used for storage, and has been restored. Consolidation obscures some internal detail, and the area formerly housing the mechanism is thought to be inaccessible. However, the specification for Lot 40 says that the machinery in the two machine houses was identical, and it is assumed that the well preserved house at Lon Isa mirrors the original state of the Ty Isaf house.

5.9.8 East of the toll house, walling on the south is more degraded and from a curve at SJ 182 424 is absent, or very much repaired. The northern or western side of the road still has Telford retaining wall below the road, but parapet walls are interrupted and often entirely rebuilt.

5.9.9 Noteworthy between SJ 190 430 and Berwyn are rock-cut recesses which may have been intended as depots.

5.9.10 Intermittent and badly-maintained or rebuilt walling continues to Llangollen, though some attempts have been made to remove trees growing into the wall.

5.9.11 West of Llangollen, a stretch of essentially intact Telford dyke wall has been threatened by the growth of trees on top of the wall, which are now being cut down.

5.9.12 As expected, no Telford structures were noted in Llangollen itself.

5.10 SECTION 9 - LLANGOLLEN TO CHIRK BRIDGE (LOTS 32, 52, 42) (PLANLETS 49 - 54)

5.10.1 Immediately east of the town intermittent walling resumes, much of it apparent only as a stump of *c*0.3m height. This improves towards Froncysyllte, but is very insecure and in apparent need of consolidation. On the approach to Froncysyllte the old road appears as a narrow private track with high retaining walls.

5.10.2 East of Froncysyllte Telford's vertical stonework coping is replaced by horizontal slabs of concrete. For a few metres, north of the Afon Bradley, the Telford road leaves the A5 and is seen as a hedged field boundary. Thereafter, Telford walling or other structures are seldom seen, as the modern road has been widened, until Chirk.

5.10.3 The final stretch of Telford road in Wales, on the approach to Chirk bridge (1000), exemplifies Telford's approach to the whole road. Here the steeply sloping, hairpin bend of the previous road was replaced with a straight and massively embanked section running on a far gentler gradient to the west end of Chirk bridge. The bridge, was apparently built by Telford himself in 1793; a plaque records that the bridge was ‘erected by T Telford‘ in 1793 and that it was extended and reconstructed in 1924. An arched stone-constructed drain (998) was built through the embankment which survives, albeit rather decayed.

5.10.4 The pre-existing toll house at Chirk, belonging to the turnpike road, was adopted into the Holyhead road.

5.11 GENERAL COMMENTS

5.11.1 When visiting toll houses, the wash-houses or privies shown in some specifications (eg Lot 69) were not seen. They may have been destroyed during later conversions. There was no evidence for kitchens near the Anglesey houses, and the plan does not seem to allow one within the building. Indeed, no peripheral structures associated with the toll houses were seen, except the two machine houses at the weigh-bridges mentioned below.

5.11.2 Disappointingly, drains and culverts associated with the Telford road were seldom located, being often obscured by the road itself and by vegetation around their outlets. Where they were seen, they had often been obscured by later maintenance work and concrete facing, or had been entirely rebuilt.

5.11.3 A hope had been expressed by Dr Trinder that the work of individual contractors might be distinguishable, but this did not prove to be the case although particular attention was paid to junctions between lots where differences might have been expected, and to separate lots built by the same contractors. Junctions between lots were often placed at bridges, toll houses or other sites where a change in technique was in any case necessary, obscuring any evidence of a joint between the work of separate gangs of men. To an extent the distinction between differing builds will have been obscured by repair and consolidation work to the road, but also may reflect the close supervision by Telford's overseers to ensure the adherence to the specifications.

5.11.4 A more noticeable distinction was that created by the use of local stone in the retaining- and dyke- walls, which naturally led to differences of appearance as they progressed through regions of differing geology. For instance, the shallow flat slate stone used in walling around the Padog area is quite different from the squarer sandstones of the Chirk area.

5.11.5 The stone dyke walls mentioned so frequently in Telford's specifications are ubiquitous. A breached wall seen in section during roadworks at Treban conformed to Telford's requirement for through-stone construction, and all Telford walls inspected seemed to conform closely to the measurements and descriptions given in specifications.

5.11.6 Dyke walls are in many places repaired or rebuilt to such an extent that they can no longer be considered Telfordian. In many places, heavy pointing with concrete mortar makes it impossible to conclusively identify Telford wall, and in others modern coping or masonry now forms a major part of the wall. In these circumstances it was difficult to say where Telford walling began and ended.

5.11.7 Where coping has been replaced, Telford's irregular local stonework has often been replaced with mass-produced concrete coping blocks of uniform size and shape. It should be understood, as a general rule, that walling described as Telford's may include a proportion of modern masonry. Towns and villages are generally devoid of Telford walling, which has usually been so disturbed by the insertion of private entrances and wide junctions as to be effectively destroyed.

5.11.8 Depots generally conformed to specifications, but in many cases have lost their shape during maintenance works. Many have been pointed with a thick pink concrete mortar and applied so heavily as to give the impression of rendering, which makes it difficult to judge where repairs have affected the make-up of the depot. Most have tarmac or gravel surfacing, and none were seen with the stone-flagged floor specified by Telford, though it may be present under the modern surface.

5.11.9 Depots fall broadly into three shapes: splayed, rectangular and rounded or semi-circular. Some conform exactly to the splayed plan shown in Telford's specifications, for example the one next to the Lon Isa toll house (231) and machine house. Others are rectangular or rounded in plan, but there is no clear pattern to their grouping although splayed depots seem predominant in the western third of the route. In the light of the numerous decayed or rebuilt depots, it was felt that an attempt to create a rigid typology would be counter-productive, creating the false impression of a repertoire of distinct local types.

5.11.10 It is interesting to note that in areas where modern repairs have almost entirely replaced the Telford wall, the new wall does not truncate Telford's depots to make a straight line, but

recreates them. The present management of the road does not require such frequent depots, and it is possible that depots have been rebuilt to avoid cutting new foundation trenches.

5.11.11 The gates and gateposts required by some specifications were not preserved. Toll houses were usually given cast-iron gates of a distinctive sunburst pattern (Plates 29 and 30). Telford gates are known to survive in situ at only two locations - one at the Stanley Embankment toll house, and two at the Menai Bridge gatehouse; however there is a further example, originally from Gwalchmai, but now at the St Fagan's Museum of Welsh Life. It was hoped that distinctive field gateposts might survive which could be identified as Telford's, but there was no noticeable typology. A few gateposts near Bryngwran, of squat rounded shape and apparently in red granite, are as likely to belong to one estate as to be Telford structures.

5.11.12 Some features have been destroyed. A few milestones shown on current 1:10 000 maps are missing. One toll-house not located, at Llansaintffraid, was demolished before 1902 (Harper 1902, 210). At Pont Cyfyng, a toll-gate associated with the toll house remained in place until 1890 (Harper 1902, 250).

6. ASSESSMENT OF THE SURVIVAL OF TELFORD'S ROAD

6.1 GENERALISED ASSESSMENT OF THE SURVIVAL OF TELFORD'S ROAD

Section No.	% Surviving	Condition	Comments
1	35%	Largely gone	Splayed depots survive, but the Caergeiliog toll house, Stanley embankment and most walling has been substantially altered. Holy Island section almost completely absent.
2	35%	Largely gone	Intermittent survival. The toll house at Castell Eden and embankment at Malltraeth Marsh is damaged: walling often broken or heavily repaired: drains etc obscured.
3	50-55%	Largely intact	Nothing in Bangor, but a good section at Lon Isa is reasonably preser with walling, embanking and structures eg Halfway Bridge and bridg Bethesda.
4	60-65%	Largely intact	Walling and depots generally well-preserved if much repaired. Embankments and retaining walls are good throughout: bridges are fa good.
5	40%	Partially intact	Walling badly maintained, probably beyond repair in most places. Capel Curig toll house is much altered, and the bridges have been repaired. The embankments are good.
6	40%	Partially intact	The walling is much repaired, but often clearly Telfordian. Padog br and embankments are visibly reinforced.
7	40%	Partially intact	Hedge depots survive, but the embankments are sometimes altered. T Nant section is good, but with conspicuous repairs. The walling is m interrupted throughout.
8	35-40%	Partially intact	Walling and depots are well preserved up to Ty Isa toll house, which is less so. East of this, walling and embankments reinforced or absent in many places.
9	40-45%	Partially intact	A good stretch survives at Chirk, but elsewhere the walling is significantly repaired or replaced, and the road has been widened.

6.2 DETAILED ASSESSMENT OF THE ROAD SURVIVAL

To be continued

WHAT PROPORTION OF MILESTONES HAVE BEEN LOST, AND WHERE HAVE THE MAJORITY BEEN LOST FROMM

WHAT PROPORTION OF DEPOTS HAVE BEEN LOST ND WHERE HAVE THE MAJORITY BEEN LOST FROM

HAVE ANY TOLL HOUSES BEEN LOST

lOOK AT ALL THE INDIVIDUAL ITEMS OF ROAD FURNITURE

7. ASSESSMENT OF THE CURRENT CONDITION OF TELFORDIAN FEATURES

7.1 GENERAL OBSERVATIONS

7.1.1 Areas where Telford was building an entirely new road can often be quickly recognised on maps as straight stretches. These are particularly noticeable in Anglesey, where almost the whole line of the road was new.

7.1.2 In general, features associated with the Telford road survive in moderate or poor condition. Toll houses are the exception, generally surviving well, though often extended and modernised. Structures integral to the road such as embankments and retaining walls are of course maintained not as historic or archaeological structures, but as components of a road in use. Inevitably, their management is determined by the requirements of road maintenance schemes. Whilst this is inevitable in the case of a busy and vital route such as the present A5, it clearly affects the archaeological integrity of the earlier road.

7.1.3 Areas where the Telford road has been particularly damaged or completely destroyed include:

- The embankment at Malltraeth Marsh, where a modern dual carriageway has necessitated the broadening of Telford's embankment.

- The stretch north of Capel Curig. Approximately forty depots are so decayed as to be almost unrecognisable, and the wall in which they are set is badly decayed. Reconstruction of the wall in these areas would amount to a modern rebuilding. Care should be taken to avoid the conspicuous concrete pointing seen in other rebuilt depots, which makes them effectively non-Telfordian in structure and appearance.

7.1.4 Areas where the Telford road survives mostly or completely intact include:

- The section immediately west of Llyn Ogwen, possibly the best stretch of the whole route in its demonstration of the relationship between Telford's road, the landscape it runs through, and the roads it replaced. The section is well preserved, and repairs to the walls and depots are generally sympathetic. As one of the earliest sections to be built, and an example of Telford's response to particularly demanding terrain, the section is especially worthy of note. It is also one of the most picturesque sections of the road, heavily used by tourists and a good area to site informative displays about the history and use of the route.

7.2 DETAILED CONDITION OF TELFORD FEATURES

eLABORATE ON MONUMENT TYPES, AND THE EXTENT TO WHICH EACH IS IN GOOD CONDITION

To be continued

8. THE SOCIAL AND ECONOMIC IMPACT OF TELFORD'S ROAD

Barrie Trinder

8.1 INTRODUCTION

8.1.1 Thomas Telford's Holyhead Road, improved or newly-built between 1815 and 1837, exemplified the best practice in road engineering of its period in Europe. In an administrative context it was an attempt by Sir Henry Parnell to break free of the restrictions on investment in road-building which were intrinsic to the turnpike system. The development of the road as the principal route from London to Dublin was financed directly by government funds, and the engineering work was on a scale which most turnpike trusts, dependent on toll income, could not have contemplated. The road is exceptionally well-documented since reports were submitted at approximately yearly intervals, which show the progress of the project in great detail. The road had profound and varied impacts on the communities through which it passed.

8.2 ROUTEWAY STUDIES

8.2.1 Historians and archaeologists have shown an increasing interest in recent years in the study of routeways and their implications for the social and economic history of the communities through which they pass. Pioneering studies appeared in the United States during the 1980s. One of the seminal works was Schlereth's study of US40 (Schlereth 1985) in Indiana, an ordinary highway passing through an unremarkable landscape, which powerfully illustrates some of the most significant forces in the history of the United States. Liebs (1985) analysis of the corridors of growth around American cities provided a model which could be applied to the study of any major urban routeway. The Royal Commission in Wales has published two distinguished studies of this kind, one of the Montgomeryshire canal, which demonstrated amongst other things, the significance of establishing new water power sites in the construction of some canals, and one of the Brecon Forest Tramways, which effectively illustrates the impact of a primitive railway system on an upland economy. More recently Coulls has examined the criteria for designating railways, and by implication other transport systems, as World Heritage Sites. The study of routeways poses many challenges, not least of which is the desirability of taking a multi-period perspective. This current study of the Holyhead Road is concerned principally with one period when it was of international significance, the years between 1815 and 1850 when it was transformed under the direction of Thomas Telford and his successors. Due notice has been taken of the roads which were in existence when Telford commenced his work, but it has not been possible to analyse the changes brought about by the coming of motor transport in the early twentieth century.

8.3 TO IRELAND BEFORE TELFORD

8.3.1 In 1700 it appears that most travellers bound from England to Ireland began their sea passage at Chester, but by the mid-eighteenth century, while there was no formally accepted route, most went by road from Chester along the coast to Holyhead, a journey which involved difficult and dangerous ferry crossings at Conway and Bangor. Jonathan Swift was accustomed to travel through Holyhead by 1727 when he commend that the port was '*an unprovided and comfortless place*'. The antiquarian John Loveday embarked from Holyhead on visits to Ireland in 1732 and 1733. On the first occasion he travelled there from Shrewsbury through Welshpool, Machynlleth and Tan y Bwlch, and on the second through

Llangollen, Ruthin and Conway. Holyhead's growing significance as a port was evidenced by the turnpiking of the road across Anglesey from Bangor Ferry in 1765.

8.3.2 ***Lawrence's Coach Service:*** the coaching route across North Wales, that was later to be improved by Telford, was established by the Shrewsbury hotel-keeper Robert Lawrence. In May 1779, while landlord of the Raven Hotel, he began a thrice weekly coach service from Shrewsbury to Holyhead through Ellesmere, Wrexham, Mold, St Asaph and Conway, conveying only four passengers, with a journey time of 36 hours. The following year this service was supplemented by another through Oswestry, Llangollen, Corwen and Llanrwyst, which meant that there were departures from Shrewsbury every weekday. By 1810, when Thomas Telford was invited to advise the government on the route between London and Dublin, there was little doubt that the principal packet port for travellers to Ireland was Holyhead, where Richard Ayton in 1813 remarked '*there is no trade of any kind in this place but the continued influx of strangers brings money into it and is the chief support of the inhabitants'*.

8.3.3 In November 1780 Lawrence took over the Lion Hotel, Shrewsbury's most prestigious inn. In that year he inaugurated the first through-coach services between London and Holyhead, and afterwards began to develop services to Bristol and Bath, which connected with Holyhead coaches. He tried energetically to improve the routes through North Wales. It was a mark of his success that in September 1782, Earl Temple, the newly appointed Lord Lieutenant of Ireland, travelled to Dublin by way of Shrewsbury, and passed a night at the Lion. Minshull's *Guide to Shrewsbury* in 1803 was able to assert that '*of late years this town has been a principal thoroughfare between London, Birmingham, Bristol and Dublin through the perseverance of Mr Lawrence'*. Lawrence belonged to several consortia of innkeepers which established stage coach and posting services not just from Shrewsbury to Holyhead, but to London, to Bristol and Bath, to Lancashire, and up the Severn Valley to the Mid-Wales resorts of Aberystwyth and Barmouth. When the Lion Hotel was offered for sale in 1817 it was described as '*the great key to all the roads between Holyhead, London, Bath, Cheltenham, Bristol, Liverpool, Manchester, North and South Wales, to and from which places coaches are running daily without intermissions...No house upon any of the great roads stands in higher estimation having a constant influx of the first families in the kingdom'*.

8.3.4 ***Turnpike Trusts:*** the routes used by Lawrence's coaches had all been brought under the control of turnpike trustees in the previous 25 years. The establishment of such trusts was a means of transferring the costs of main roads from those who happened to live alongside them to their users. The first turnpike act, passed in 1663, related to the Great North Road in Hertfordshire. Only four more acts were passed in the remainder of the seventeenth century, but the pace of legislation quickened after 1700; 144 were passed for England and Wales in the first fifty years of the new century, 171 in the 1750s, 170 in the 1760s and 75 in the 1770s. By 1780 the greater part of the main road system had been subjected to turnpike control, and subsequent acts related to entirely new roads, or to minor routes which were turnpiked to prevent their being used by travellers intent on avoiding toll gates. Turnpike trustees were empowered to make charges, fixed in their Acts of Parliament, for use of their roads, and to erect toll gates where money could be collected. They had an obligation to set up mileposts along their routes. They were able to borrow money for improvements on the security of future toll income. Improvements in the journey times of advertised stage coaches, as well as archaeological evidence on some routes, show that much was achieved, but on many roads the limitations of toll income restricted the scope of the improvements which could be carried out.

8.3.5 The predicament of turnpike trustees in an area of scattered population and limited natural wealth like North Wales was summarised by Thomas Pennant who noted that at Dolgelly '*every entrance...is barred by a turnpike in imitation of other places and every approach mended for a short distance by the help of the scanty tolls'*. Turnpike trustees in North Wales nevertheless achieved substantial improvements in the road system in the second half of the eighteenth century. On his journey to from Shrewsbury to Holyhead in 1732 John Loveday found the best portion to be the first eight miles in the direction of Welshpool where '*a causey wide enough for one horse runs...with some Interruption for about 8 miles'*. By 1800 stages coaches could travel, if with uncertain times, from Shrewsbury not just to Holyhead but by several routes to Aberystwyth, Barmouth and Towyn.

8.3.6 ***Shrewsbury to Holyhead Turnpike Trusts:*** the establishment of the subsequent Holyhead road in part reflects the dissatisfaction with the six turnpike trusts that managed the primary route between Shrewsbury and Holyhead. The first section of the road from Shrewsbury to Holyhead to be turnpiked was that between Oswestry and Froncysyllte, which were taken over by the trust managing the road from Welshpool to Wrexham in 1756. Two years later the roads from the Welsh Bridge in Shrewsbury, including the route to Oswestry, were turnpiked. In 1763 the boundary between these two trusts was moved from Oswestry to the tenth milestone from Shrewsbury. The road across Anglesey from Porthaethwy (Bangor) Ferry to Holyhead was turnpiked in 1765, and the roads around Llangollen, which included the subsequent Holyhead Road from Froncysyllte as far as Pentrefoelas, in 1777. The Llangollen trust was praised by the *Shrewsbury Chronicle* in 1785 for the improvements which it had carried out to the route between Corwen, Cernioge and Llanwryst, which avoided several considerable hills, but for the most part these turnpike trusts took over existing roads, and their capability of improving them was constrained by the limitations of their potential income. The French writer Charles Dupin, discussing one of Telford's reports on the Holyhead Road in 1825, remarked that '*This road, so essential for maintaining the communication between six or seven million of His Majesty's subjects on one side of the Irish Channel and twelve million on the other, can never be put into a proper state of repair and safety if it is left to local interests to support and manage it'*.

8.3.7 The exception among the turnpike roads was the route between Pentrefoelas and Llandegai, which was turnpiked relatively late, as the result of an Act of Parliament passed in May 1802, opened to some traffic in the autumn of 1804, and to coaches in the summer of 1805. For long stretches this was a completely new road. At its eastern end it branched at Pentrefoelas from the route from Shrewsbury to Holyhead which had been used by Robert Lawrence's coaches used from 1780, through Llanwryst, where the River Conway was crossed, to Conway, and thence over Penmaenmawr and Penmaenbach to Llandegai and Bangor. At the western end the road formed part of the improved landscape which the Pennant family, Lords Penrhyn, were creating in Snowdonia. Construction of parts of the route on the Penrhyn estate had begun before the Act of Parliament was obtained. A route up the western side of the pass of Nant Ffrancon and past Lake Ogwen to Capel Curig was begun in 1791, and Sir Samuel Colt Hoare noted at Capel Curig on 10 July 1799 that, '*A magnificent road is now forming between Llyn Ogwen and Capel Cerrig by Lord Penrhyn who in his public works is a great benefactor and ornament to this country. He is now building an inn of Gothic architecture at Capel Cerrig and making a good road which will lead from thence to the foot of Snowdon.'*

8.3.8 It was widely acknowledged that the establishment of the new turnpike road owed much to Robert Lawrence, and according to the landowner Thomas Kenyon of Pradoe, who had many links with the coaching trade, it was initially financed by a subscription raised in Shrewsbury. Thomas Telford was dismissive of the Capel Curig turnpike, referring in his autobiography to '*feeble efforts made in forming a mail road by Capel-Ceriog*' and to a route '*quite unfit for*

wheel carriages'. Charles Hadfield has shown in *Thomas Telford's Temptation* (1993) that in his accounts of the construction of the Pontcysyllte Aqueduct and the Caledonian Canal Telford was capable of economies with the truth that had the effect of emphasising his own achievements while diminishing those of others. His descriptions of the route of the Holyhead Road before 1815, which include some memorably terse phrases, may well have been composed with the objective of highlighting his own work. It now seems pertinent to take an agnostic attitude to Telford's accounts of the state of the road before he began his programme of improvements.

8.4 THOMAS TELFORD

8.4.1 An understanding of Thomas Telford's role in the Holyhead Road must begin with an assessment of his place in Shropshire society. During the 1790s and the first years of the nineteenth century a group of men and women of exceptional abilities were active in Shrewsbury and its surrounding districts, amongst them, Robert Lawrence, the coaching entrepreneur, Robert Darwin, a doctor, money lender on a large scale, and father of Charles Darwin, William Reynolds, the ablest of the Shropshire ironmasters, Charles Bage, designer of Ditherington Flax Mill, the first iron-framed building, and Archibald Alison, the philosopher and author of '*An Essay on Taste*'. Telford was an accepted if eccentric member of this élite.

8.4.2 He had been born in Eskdale in 1757, worked as a stone mason in Edinburgh from 1780, and moved to London two years later, before becoming superintendent of the construction of the Commissioners' House in Portsmouth Dockyard in 1784. He fell under the patronage of William Pulteney, MP for Shrewsbury, who commissioned him, probably in the closing months of 1786, to restore Shrewsbury Castle. It was doubtless through Pulteney's influence that Telford was appointed Surveyor of Public Works for the County of Salop in 1788. This was not a formal appointment, and while he carried out many projects for the county, he was paid on a project-by-project basis. Pulteney also brought him into contact with the British Fisheries Society which led from 1801 to a long series of government-commissioned projects in the Highlands of Scotland. From 1793 Telford was 'general agent' to the Ellesmere Canal, in which capacity he was responsible for the construction of the great aqueduct at Pontycysyllte, regardless of his precise role in the design of the structure.

8.4.3 There grew up around Telford a group of craftsmen and contractors who came to be associated with most of his principal works, on canals in England, on roads, bridges and harbours in Scotland, on the Holyhead Road, and even on the Gotha Canal in Sweden. Some were fellow Scots. John Simpson was a stone mason from Stenhouse in Midlothian who had arrived in Shrewsbury in 1790 to work on the new church of St Chad. Simpson was involved in many of Telford's projects before his death in 1815, and Telford was one of his executors. Another Scot was John Straphen from Inverkeithing in Fife, who, with John Lawrence, son of Robert Lawrence the coaching entrepreneur, succeeded to John Simpson's building business. Straphen carried out contracts on the Holyhead Road, and was involved in the completion of the columns commemorating Lord Hill and the Marquis of Anglesey, which adorn the road. Perhaps the most influential of Telford's close colleagues was an Englishman, and Salopian, William Hazledine, who established in Shrewsbury in 1795 the foundry where the beams and columns of the first iron-frames were cast. Within a few years he constructed the ironworks at Plas Kynaston, and subsequently operated ironworks and coal mines in the Coalbrookdale coalfield, and came to own much property in Shrewsbury.

8.4.4 Telford's work on the Holyhead Road was largely shaped by his first decade in Shrewsbury. He had powerful friends and patrons in Shropshire, and it was scarcely conceivable when he was asked to advise on the best route between London and Dublin that he would chose one which did not pass through Shropshire. He was also part of a network of craftsmen and potential contractors, many of whom were to contribute substantially to the construction of the Holyhead Road across North Wales.

8.5 THE HOLYHEAD ROAD COMMISSION

8.5.1 A parliamentary committee was directed to enquire into the routes to Holyhead in 1810 and 1811, which resulted in the appointment of Thomas Telford to survey possible routes for the Irish road. Following completion of his survey, the Holyhead Road Commission was established in 1815. In Telford's rather extravagant words, '*Parliament recognised the principle...that the communication between England and Ireland was of sufficient importance to justify the expenditure of public money, in enabling the mails and the Carriages of individuals to travel through Wales without being exposed to be broken in pieces at every step, or to the danger of falling over steep precipices, against which the road was not in the smallest degree protected*'. The Commission's inspiration and chairman was Sir Henry Parnell, MP for Queen's County, a man of great energy who provided the legal, financial and managerial backing which the engineers needed to transform the road.

8.5.2 ***Legislation:*** over the next 15 years further legislation increased the powers of the Commission and granted further large sums for the improvement of the road. The principal legislation was as follows:

- ***1815. 55 Geo III c.152:*** this set up the Holyhead Road Commission with responsibility for the road throughout from London to Holyhead, although it was not until 1819 that serious attention was given to the route east of Shrewsbury.
- ***1819. 59 Geo III c.30:*** this consolidated the six turnpike trusts between Shrewsbury and Bangor and placed the whole of this section of the road under the direct control of the Holyhead Road Commission. The existing trusts continued to administer those sections of their networks which did not form part of the main road to Holyhead.
- **1819. 59 Geo III c.48:** this authorised the Menai and Conway bridges and the new road across Anglesey.
- **1820. 1 Geo IV c.70:** this renewed the powers of the Commissioners named in the 1815 Act as far as the London - Chirk section of the road was concerned.
- **c1824. 4 Geo IV c.78:** this vested the Menai and Conway bridges with the Commission and authorised further expenditure.
- **1828. 7 and 8 Geo IV c.35:** this authorised further expenditure.

8.6 TELFORD'S DESIGN

8.6.1 The impact of the road was considerable, and was based upon the forward thinking, and in some respects revolutionary design proposed by Telford. Telford's objective in his improvement of the road was '*that horses may easily and rapidly trot over the whole road, ascending or descending, with a loaded coach*'. Ideally there were to be no gradients steeper than 1 in 30 although some steeper section remained. The average width of the road was to be

40 ft, and it was never to be narrower than 30 ft, with a minimum of 18 ft of gravelled surface in the centre. Great attention was paid to side- and cross-drains, and footpaths were built in many stretches, ideally on the south side so that the carriageway would benefit to the full from the drying action of the sun. For reasons of visibility and drainage overhanging trees were discouraged, and where possible roadside hedges were replaced by stone walls. Most of the walls were originally of drystone construction, but the majority were mortared during the 1830s to prevent pilfering of the stone. In mountainous country stone parapet walls were built, matched by massive stone retaining walls securing the road from landslips. Recesses, known as *depots,* were built at regular intervals for the storage of road metals.

8.6.2 ***Toll houses:*** Telford insisted that toll houses and bridges should be clearly visible. Toll houses of good quality, it was argued by Sir Henry Parnell, were essential to attract honest toll keepers without whom revenues would quickly diminish. In the atlas accompanying Telford's *Autobiography* and his specifications two patterns of tollhouse are illustrated, a bungalow style used on the mainland (Plate 27) and a house with a central two-storey octagonal tower used on Anglesey (Plate 25). There were some variations of detail in the houses built on the mainland, where some earlier turnpike trust tollhouses remained in use (Plate 24). The Anglesey tollhouses remain, although that at the end of the Stanley Embankment was re-erected in 1973. On the mainland the tollhouse from Shelton outside Shrewsbury was removed to the Blists Hill Open Air Museum at Ironbridge in 1973. Most of the others remain, some well-conserved, others less so. The *Autobiography* also illustrates a standard pattern of wrought-iron gate with a rising sun motif (Plate 29). Such gates were installed at many tollhouses, one from Snowdonia, with slate gate pillars, is preserved at Blists Hill, and another at the St Fagan's, Museum of Welsh Life. A further example survives at Menai Bridge. Research has shown that at some tollhouses gates of a totally different kind, of wood with a lattice pattern of construction, were installed. Popular attitudes to the road were encapsulated in the two roadside columns commemorating heroes of the Battle of Waterloo, Lord Hill's Column at the eastern approach to Shrewsbury, and the Marquis of Anglesey's Column above the Menai Straits.

8.6.3 ***Implementation:*** work on the road began in the autumn of 1815 starting on the more dangerous section of the route and these were completed by 1819. By 1826 the principal engineering works in Wales were completed, which included the road through the pass of Nant Ffrancon, the pass of Glyn Dyfwy, the new road across Anglesey, the Stanley Embankment, Chirk Bank and the Menai Suspension Bridge, which was opened on 30 January 1826.

8.7 PASSENGER SERVICES

8.7.1 Telford designed the Holyhead Road for passenger traffic, to enable horses to haul coaches at trotting pace throughout its length. The nature of public passenger traffic across North Wales was transformed between 1785 and 1815. Telford's improvements to the road brought further improvements in journey times, but changes between 1815 and 1830 were perhaps rather less revolutionary than those of previous decades. The writer of a guide to the City of Chester in 1782 noted that both the Irish and the North Wales posts arrived and departed '*at an uncertain hour*', and it was also acknowledged in Shrewsbury that the timings of coaches serving Wales were uncertain. The first mail coach was established by John Palmer in 1784, and the following year a mail coach service was established between London and Holyhead, taking a 278-mile long route through Chester. Mail coaches were smaller than stage coaches, but from 1791 they began to carry passengers, usually four inside and six outside. The Irish mails were transferred to the Shrewsbury Mail coach which was extended to Holyhead, then

reached Dublin in 38 hours from London (8th September 1808). It is some measure of the impact of Telford's improvements that the journey times of the mail coach were successively reduced, to 32 hours 45 minutes by 1826, to 29 hours 15 minutes by 1830, and to 26 hours 55 minutes for the last two years of the services from 1836 to 1838.

8.7.2 Between the 1780s and the late 1830s there were usually two or three stage coach services a day between Shrewsbury and Holyhead, some running through from London, and mostly operated by Shrewsbury-based entrepreneurs, Robert Lawrence's rivals and successors. There were 21 departures a week from Shrewsbury, including the Royal Mail, in 1821, and 28 in 1828. The last of the Shrewsbury operators, whose stage coaches ran from the Lion Hotel to Holyhead, was Isaac Taylor, whose employees and well-wishers gave him an inscribed silver plate on 27 March 1843, when the principal speaker at the presentation paid tribute to '*coaches that had been conducted in a style seldom equalled and certainly never excelled...the stimulus given to the trade of the town through the exertions of Mr Taylor, who was never beaten, until steam rose up in array against him'.*

8.7.3 ***Post Coaching:*** stage coach services are easily analysed since they were widely advertised, but posting, or private hire coaching, was probably of greater importance. A posting inn offered four-horse or two-horse coaches, each driven by a postilion, or saddle horses. At the Raven and Bell in Shrewsbury in 1802, a four-horse coach cost 2 shillings per mile, a two-horse coach 1 shilling per mile, and a saddle horse 6d per mile, plus the cost of fodder. A writer in 1879 recalled that the Talbot in Shrewsbury in the 1820s had an immense business in posting, providing as many as a dozen sets of four horses, as well as numerous pairs, in a single day. In 1828 it was estimated that 830 pairs of horses were employed in posting trade between Shrewsbury and Oswestry, many of them hauling coaches which would have continued across North Wales to Holyhead.

8.7.4 Although difficult to quantify post coaching, it is impossible, given the lack of detailed accounts from inns, to measure the extent of private traffic. Some landed families travelled in their own coaches, and many people of more modest means would cross North Wales on their own horses, which, like those pulling mail, stage or post coaches, would need overnight accommodation at inns. Even a relatively modest-sized inn like the Britannia in Shrewsbury had access to stables for 150 horses in 1834.

8.7.5 ***Coaching Inns:*** the impact on towns and villages of the inns established to cater for long-distance traffic on the Holyhead Road was profound, and persisted long after travellers to Ireland had taken to the railways. Towns greatly valued the 'thoroughfare' trade generated by the road. In 1818 the Oswestry turnpike trustees agreed not to object to proposals by the Holyhead Road Commission to take over their portion of the road, but only if the Commission agreed to take on a reasonable proportion of the Trust's debts, and only if there was an assurance that the route of the Holyhead Road would continue to go through the town of Oswestry. Citizens of Shrewsbury were determined to frustrate Telford's plans to build a direct road from Ketley to Chirk, which would shorten the coach route to Holyhead by five miles, but avoid Shrewsbury.

8.7.6 The principal stages along the road from Shrewsbury were at Oswestry, where the Wynnstay Arms was the most eminent inn, and at Llangollen, Corwen, Cernioge, Betws, Capel Curig, Bangor Ferry and Mona, although inns at other places might be used by posting and private traffic. Robert Lawrence encouraged the settlement of senior country house servants as landlords along the route, a practice not approved of by the actor Charles Dibdin who considered that the worst hosts included butlers who had married housekeepers, and taken over inns where their former employers had influence.

8.7.7 The most isolated inn on the road was the Prince Llewellyn at Cernioge which by 1817 was the base of W A Provis, resident engineer for the improvement of the road. Contractors were invited to send tenders to him at the inn. Telford regarded the Prince Llewellyn with some affection, referring to it in his autobiography as an '*excellent inn*'.

8.7.8 Lord Penrhyn built an inn at Capel Curig which became the Royal Hotel, and subsequently an outdoor pursuit centre. Sir Richard Colt Hoard visited Capel Curig in July 1810, five years after the new turnpike road had opened to traffic. He was impressed by the changes since his previous visit in 1799 when there was '*no accommodation even for the fisherman or even a pedestrian tourist, but the public zeal of the late Lord Penrhyn has remedied all these inconveniences by establishing a large and commodious inn at Capel Carrig and by rendring the rough places plain. The whole country is now becoming practicable in every direction, and a chaise rolls on with ease and safety where a timid equestrian would not have ventured. The inn and its appendages occupy a large space of ground...*(Hoare 1983). Passengers by the Prince of Wales from the Talbot in Shrewsbury, a new coach service inaugurated when the Holyhead Road Commission was established in 1815, slept the night at the inn at Capel Curig before proceeding to the Hibernian Hotel in Holyhead.

8.7.9 In 1810 Sir Richard Colt Hoare commended the Penrhyn Arms at Bangor Ferry, with its bowling green, coffee room and views of the mountains and the bustling activity of Port Penrhyn. Richard Ayton in 1813 described the hostelry as, '*a comfortable inn, very prettily situated on a grass and well-wooded bank, sloping with a steep descent to the water...the most frequented ferry over the Menai, being in the track of the Great Dublin Road'* (Hoare 1983).

8.7.10 In 1806 Hoare crossed Anglesey to Holyhead, a journey of two stages with change of horses at a good and quiet inn at Gwyndy, but the opening of the new route across the island in 1822 necessitated the provision of a new coaching inn, whose completion at Mona was noted in Telford's report to parliament in 1830.

8.7.11 Some impression of the luxurious nature of the best inns on the road is provided by the sale of the contents of the Talbot Hotel in Shrewsbury in 1838, where the furnishings of forty bedrooms and eleven sitting and drawing rooms included elegant mahogany four-post bedsteads clothed with rich moreen and chintz with superior goose feather beds, Brussels, Venetian and Kidderminster carpets, Spanish mahogany dressing tables and wash tables, Grecian sofas and rich China ornaments.

8.7.12 ***Tourism:*** in an analysis of coaching traffic on the Holyhead Road in 1829 it was acknowledged that there were three principal classes of traveller, people going to or from Ireland on business whose principal concern was speed, Irish people going to the spas at Malvern, Cheltenham and Bath, and tourists visiting North Wales. This last class were to influence the development of the roadside communities long after the first two had disappeared.

8.7.13 The growth of tourist interest in North Wales depended on many factors. The Romantic Movement brought a great change in popular consciousness, making mountains and wild scenery the objects of fascination and wonder rather than depressing areas to be avoided. There were also particular factors at several points along the road, quite apart from the enterprise of Lord Penrhyn and of various hotel keepers. Interest in the Vale of Llangollen was kindled by the settlement at Plas Newydd in 1788 of Lady Eleanor Butler and the Non Miss Ponsonby, the celebrated 'Ladies of Llangollen', and sustained from the mid-nineteenth century by the popular ballad detailing the story of Jenny Jones and Edward Morgan. Much of the fame of Betws-y-Coed in the second half of the nineteenth century was created by the painter David Cox who moved there in 1859. By the beginning of the twentieth century a

writer noted, '*The fine flower of civilisation that now makes holiday at Bettws...the long, long row of hotels and lodging houses has replaced the original whitewashed granite cottages...on the road the waggonettes are plying with their loads to the Fairy Glen or the Swallow Waterfall'*. Nevertheless it was the Holyhead Road, and the hotels originally built for travellers to Ireland between 1800 and 1830 which made possible the growth of resorts like Capel Curig and Betws-y-Coed, which stimulated tourism in established towns like Llangollen, Corwen and Bangor, and which facilitated access to other resorts in Snowdonia which lay off its route.

8.8 FREIGHT TRAFFIC

8.8.1 The only long-distance freight services to use the whole length of the Holyhead Road across North Wales were stage vans, which were advertised infrequently, making it difficult to assess their significance. In 1822 the well-established carrying firm of Crowleys were operating vans from Holyhead to London which would take any kind of goods, and provided free insurance for everything but cash, jewels, glass, plate, bullion and watches. No overall timings given but the 150 miles from Shrewsbury to London were covered in 24 hours, not very much slower than stage coach timings. Otherwise the main freight traffics carried along the road were of local or regional significance. Throughout its length the rebuilding and maintenance of the road created a demand for stone, supplied from numerous quarries. Occasionally Telford's reports reveal surprising activities. It seems that the opening of the Menai Bridge stimulated the import of Irish pigs on the hoof, and in 1826 the commissioners found it necessary to build low walls to protect hedges between the bridge and Bangor from the burrowing snouts of pigs being driven along the road.

8.8.2 There were three areas where freight traffic was particularly heavy. From Chirk Bank westwards to Corwen and beyond great quantities of coal from mines on both sides of the border, limestone and lime were carried along the road, the effects of which troubled Telford's successors through the 1840s. Nevertheless the road was scarcely a major factor in the economy of the North Wales coalfield. The Ellesmere Canal, and later Shrewsbury and Chester Railway, were of much more significance in the conveyance of minerals to distant customers.

8.8.3 On Anglesey the completion of the new line of road provided a new stimulus to the coal mines on Malltraeth Marsh, where a great increase of traffic was reported in 1841, when W A Provis complained in his report to parliament of the effects on the road of overloaded carts.

8.8.4 Between Bangor and Capel Curig the Holyhead Road formed part of one of the most celebrated 'improved' landscapes in Britain, where, from 1782, Lord Penrhyn developed a variety of new economic activities, the most celebrated of which was the quarrying and dressing of roofing slate. Richard Ayton in 1812 described the area as '*this newly civilized district'*. Other features of the region included the establishment of Port Penrhyn, where writing slates were manufactured and placed in wooden frames produced at a water-powered sawmill, a pencil factory, a mill using flints from Hampshire to produce materials for the Herculaneum Pottery in Liverpool, and a celebrated model dairy with Queensware vessels. Penrhyn's kinsman, Thomas Pennant, described his achievements in the late 1790s:

> '*The quarries are now the source of a prodigious commerce. When his lordship first came to the estate not a thousand tons were exported; the country was scarcely passable; the roads not better than very bad horsepaths; the cottages wretched; the farmers so poor that in all they tract they could not produce more than three miserable teams. At present, a noble coach road is made even beyond Nant Ffrancon....; about*

> *103 broad-wheeled carts are in constant employment in carrying the slates down to the port'.* (Pennant 1883)

8.8.5 By 1810 the Penrhyn Railway had been completed, which enabled slate to be conveyed to the coast much more economically than was possible by road, but some road carting continued, and in the course of the nineteenth century the route of the Holyhead Road became the main street of the quarrying settlement of Bethesda.

8.9 DECLINE

8.9.1 The Holyhead Road fulfilled its manifest objectives for only a few years. While the opening of the Menai Bridge on 30 January 1826 marked the completion of the major works in North Wales, minor improvements continued, and large-scale projects continued in England. The report to parliament in 1839, which described the completion of one of the last of these projects, the new road over Montford Bank just west of Shrewsbury, also noted that the opening of railways had attracted away most of the posting traffic, and that only one passenger coach continued to run to Holyhead.

8.9.2 The opening of the Grand Junction Railway in 1837, from Newton-le-Willows to Birmingham, quickly affected traffic on the road. From September of that year the Dublin mails were conveyed from London to Birmingham by road, thence by the railway to Hartford in Cheshire, before being taken through Chester and along the North Wales coast to Holyhead. The following year the opening of the London and Birmingham Railway enabled the mails to go by rail all the way to Hartford. From 1839 they were despatched by sea from Liverpool, obviating the need for any road transport. Eleven years later the railway reached Holyhead, which by the end of the century could be described as '*but a dependency of the London and North Western Railway*'.

8.9.3 The central section of the road across North Wales, from Corwen to Betws-y-Coed, had never generated much local traffic, and the removal of the stage coaches and the catastrophic decline of posting greatly reduced toll income. In 1850 the Commission questioned the propriety of continued financial support from public funds for a route which now conveyed little more than local traffic. The next year the inspecting engineer found grass growing in the road on Anglesey, and the Commission concluded:

> '*We are of the opinion that the road is no longer of such national importance as to justify us in applying to Parliament for a grant of public money for its future maintenance'*

8.9.4 The road passed out of direct parliamentary control, but remained the best of its time in Europe, the most prominent man-made feature of the landscape of North Wales, one which continued to profoundly influence the communities through which it passed and which grew up along its margins.

9. THE IMPACT OF STATUTORY AND NON-STATUTORY DESIGNATIONS
R C Turner

9.1 The stimulus for this study was the issue of the *A5 Trunk Road, Llandegai to Chirk Route Study: Future Management and Improvement Strategy*, published by the Secretary of State for Wales in March 1997. This strategy recognised that the historical status of the road should be highlighted, whilst, because of the importance of the route, its Trunk Road status had to be maintained, though many off-line and on-line improvements were to be dropped or reviewed. It also required the Department to develop a maintenance strategy for the whole route consistent with already published guidance, and that any improvement schemes would continue to be designed in accord with the route strategy.

9.2 The management strategy was based upon the recommendations of the *A5Trunk Road, Llandegai to Chirk Route Study*, prepared by SGS Environmental for the Highways Directorate in 1996. This intensive study included an assessment of the historical and archaeological importance of the road (*ibid*, 34-8), and in its section, Next Steps, they concluded:

> "*Given the historical interest of the route, an important future study for the route would be a systematic route survey and cataloguing of all surviving features associated with the Telford design. This would provide a reference document for use when considering and undertaking future highway improvement projects as well as valuable information relating to any future development of the A5(T) as a heritage route*". (*ibid*, 147).

9.3 In July 1998, the Welsh Office published, *Driving Wales Forward: A Strategic Review of the Welsh Trunk roads Programme (Welsh Office 1998)*. This concluded that the A5 across mainland north Wales should not be developed as a strategic route and not form part of the core network (*ibid* 2.12, 9). The management strategy was recognised as being broadly welcomed and the removal of several off-line improvements from the roads programme was confirmed (*ibid* 6.60-61, p46-7).

9.4 On the mainland west of Llandegai, the line of Telford's Road has already been bypassed by the improved A55. The route of the A5/A55 across Anglesey will be improved over the next few years under a Design, Build, Finance and Operate project undertaken by the consortium UK Highways A55 PLC. Much of Telford's Road will be bypassed by this new road and will lose its status as a trunk road. At that time, with the exception of the Menai Suspension Bridge and the connecting sections of the A5, responsibility for the remainder will pass to the Local Authority.

9.5 The design of major highways in Britain is to the requirements of the *Design Manual for Roads and Bridges, Vols 10 and 11*, published jointly by the Highways Agency, the Welsh Office, the Scottish Office and the Department of the Environment for Northern Ireland. More specific guidance has been issued by the Welsh Office such documents as *Roads in Upland Areas* and *Roads in Lowland Areas*. The management strategy developed for the A5 will have to be in line with this published advice.

9.6 Many of the historic structures belonging to Telford's Holyhead Road are protected as listed buildings under the *Planning (Listed Buildings and Conservation Areas) Act 1990*. A comprehensive resurvey of the historic buildings of Wales is underway on a community by community basis, however, all the communities through which the Holyhead Road passes

have been resurveyed and in most cases, the lists have been published. This study has had access to all these records.

9.7 Full guidance on the legislation and general principles for listed buildings are published in *Welsh Office Circular 61/96 Planning and the Historic Environment: Historic Buildings and Conservation Areas*. Crown bodies such as the Welsh Office Highways Directorate are exempt from listed building and conservation area controls but the Government has undertaken that they will normally operate as if the controls apply (*WO Circular 61/96*, para 129). The Design, Build, Finance and Operate consortium UK Highways A55 PLC and the owners of the toll houses and other structures no longer in the possession of the Highways Directorate are not exempt from these controls.

9.8 As the resurvey of listed buildings has been completed community by community, it may not have treated the surviving structures of Telford's Holyhead Road consistently and the new information gathered during this study may highlight the importance of some structures/buildings overlooked in the resurvey. There may be a case for adding new items to existing lists.

9.9 Archaeological sites considered of national importance may be scheduled as ancient monuments under the *Ancient Monuments and Archaeological Areas Act 1979*. Full guidance on the legislation and general principles for archaeological sites is published in *Welsh Office Circular 60/96: Planning and the Historic Environment: Archaeology*. Sites that represent major engineering achievements of the industrial revolution can be scheduled as ancient monuments. However it is not normal practice to schedule sites which remain in use, so scheduling is most unlikely to be applied to the remains of Telford's Holyhead Road that continue as part of the A5. There may be abandoned stretches containing important engineering structures or typical details designed by Telford, or stretches of well-preserved pre-Telford turnpikes which would meet the scheduling criteria.

9.10 Telford's Holyhead Road traverses landscapes of great natural beauty and historic interest. For 32km it passes through the Snowdonia National Park. Within the park, the Ogwen Valley appears within the *Register of Landscapes of Outstanding Historic Interest in Wales*, published jointly by the Countryside Council for Wales, Cadw and ICOMOS UK in 1998.

9.11 Telford's Holyhead road passes through five unitary authority areas, Ynys Mon, Gwynedd, Conwy, Denbighshire and Wrexham. Each authority has its own policies towards the protection of the historic environment of which Telford's road is an important component.

10. CONCLUSIONS

10.1 *'Agriculture made rapid progress. The use of carts became practicable, and manure was no longer carried to the field on women's backs. Sloth and idleness gradually disappeared before the energy, activity and industry which were called into life by the improved communications...Before Telford went into the Highlands they did not know how to work, having never been accustomed to labour continuously and systematically'*. This is the highly-coloured judgement of Samuel Smiles, writing of Telford's road-building endeavours in the Highlands of Scotland (Smiles 1874, 205). Telford himself, writing of the same project, declared that it could be seen as '*a working academy, from which 800 men have annually gone forth improved workmen,*' and did not scruple to say that '*The moral habits of the great masses of the working classes are changed...it has been the means of advancing the country at least a century*' (*ibid*, 205). Although these cannot be regarded as objective judgements, there is a clear sense that the social and economic effects of a good road go far beyond the ability to travel quickly from one end of it to the other. This fits into the general pattern and notion of nineteenth century progress where the physical improvement of aspects of the environment is linked to the moral improvement of ordinary working people. Exactly the same advancements were proposed as emanating from improvements in housing conditions.

10.2 The old roads, those predating Telford's, have proved remarkably persistent. Although some have fallen out of use for wheeled traffic, nearly all survive in some form. The former turnpike between Llyn Ogwen and Capel Curig is a case in point. Telford's lot map shows it as a current road, the first edition map as a track and the current map as a footpath, with aerial photographs confirming its route. Though the importance of the way declines, its route survives unchanged. It is possible that some of these roads may have much earlier origins.

10.3 The Holyhead road often followed the line of earlier roads. Sometimes they required only minor work, or were re-used as a foundation for embankments. Where Telford diverged from an existing road, it was because it presented insurmountably steep gradients or sharp curves, or lay too low and was prone to flooding. Structural features associated with the new road, such as toll houses and large retaining walls, were usually extensions or adaptations of earlier designs, rather than entirely original creations. An exception to this is the distinctive milestone design, which Telford produced himself after consideration of milestones on other roads.

10.4 Radical solutions were produced where necessary, for instance the Menai Bridge, but in some respects the technology and structural detail of the Holyhead road were similar to those of the turnpike roads which sometimes predated it by as little as ten years. Like Telford's road, the turnpikes were often considerably embanked or cut down from the natural ground level, and they too made use of depots to hold road-building materials: one survives on the line of the 1804 turnpike at Capel Curig, by the Pont-y-Capel. The turnpikes used stone bridges, often similar in design to Telford's ten- or fifteen-foot span arches, and sometimes very impressive, such as Pont Rhydlanfair. Telford's toll houses too may be a reinterpretation of a multi-angled plan common to those on the earlier roads. They were designed and built to a high standard because he believed that providing good accommodation would attract honest toll-keepers.

10.5 In 1774 Dr Johnson described the road at Penmaenmawr (not on the Holyhead road) as '*a way, lately made very easy and very safe'*. It was cut smooth and enclosed between parallel walls' (Harper 1902, 204) which seems to have resembled a Telford road with standard stone-dyke walls. Passable roads were, then, clearly within the grasp of existing technology, and

Telford may have protested too much when he described '*steep precipices, against which the road was not in the smallest degree protected*' (Trinder 1997, 2). Certainly some stretches of the Holyhead route had been much improved before Telford's arrival, and the distance between Pentrefoelas and Capel Curig was covered by a new turnpike opened in 1804 (Trinder 1997,1).

10.6 However, Telford had financial and political support which was unavailable to earlier road-builders, and it was this, in combination with his undoubted skills as an engineer, that allowed him to dramatically exceed previous standards. The central organisation and resources available to him through the Parliamentary Commission allowed him to tackle the same obstacles as his predecessors on a massively improved footing, and on a much greater scale. Thus, though his retaining walls were similar in form to those on surviving stretches of toll road, Telford's rigorously applied standards of construction and supervision allowed them to reach much greater heights and bear much greater loads. He insisted on solid stone-built masonry throughout, feeling that '*a solid filling of rubble conceals itself, and may be little better than a heap of rubbish confined by side walls*' (Smiles, 270).

10.7 Telford was also able to attack the problem of steep gradients which naturally bedevilled any road running through Snowdonia, with a programme of vast embankments and revetments such as those at the west end of Llyn Ogwen. This was the Nant Ffrancon section, where the existing road was Telford's first priority. A three-mile long cutting was driven through the mountains, and an embankment built on top of the earlier road. The turnpike trusts, as speculative commercial organisations, had not had the resources to raise such vast embankments in the valleys, or to make equivalent cuttings from high ground in adjoining mountain passes.

10.8 The organisation of the road-building is traceable in documentary and archaeological evidence. We know from specifications that Telford used spoil from cuttings to build up neighbouring embankments. Field evidence confirms that depots, where this material was stored, are more common in areas of steep gradients, so that spoil could be brought forward from one area to be stored for future use in another.

10.9 Telford's strict specifications were apparently observed throughout the road, reinforced by strict supervision and by contracts which made full payment dependent on rapid and satisfactory completion. As surface features such as walling conformed closely to the specifications, it is assumed that the same consistency applied to the subsurface structure of the road. Telford’s own designs were used for toll houses, walls and even milestones, whose form, script and material were all chosen by him after careful comparison with the markers used on other roads.

10.10 Where the modern A5 or other roads have bypassed Telford's road, several sections have survived as lay-bys or now isolated stretches. Within these stretches, the best archaeological evidence for Telford's methods survive. The most important is the embankment at Glyndyffrys at Ty-nant (Site 158), now bypassed by the Glyn Bends improvement. The status of the bypassed section at Ty-nant has recently been recognised by listing, a rare statutory acknowledgement of the road’s importance and an encouraging sign that its archaeological significance is being recognised. By contrast the ongoing improvement and regular maintenance of the main A5 route will continue to threaten what survives of the original road structures.

10.11 The height of the Telford road surface in relation to the present road is best expressed by looking at the milestones. When first erected, the stones stood to a height of almost 1.5m above the ground, being deeply embedded below it. Now, many of the stones have been so

affected by 180 years of road make-up and maintenance, that barely 0.4m is visible, and modern pavements sometimes reach as high as the base of the recess for the mile-plate. Since roads are generally repaired by raising their surface rather than stripping it, it is assumed that the strata of the Telford road could survive in many places along the route, up to 1m beneath the present surface, and be reasonably well-preserved. However, road building methods of scouring provious surfaces for keying make it unlikely that the Telford surface would survive throughout.

11. RECOMMENDATIONS

11.1 LISTING AND SCHEDULING

11.1.1 The recent resurvey of listed buildings within Wales has been undertaken individual communities. The 83 miles of Telford's road passes through several communities, and some inconsistencies in listing the structures of Telford's road are inevitable, but as a rule Telfordian toll houses, bridges and milestones are listed. It is clear that there has been a drive in recent years to acknowledge the importance of the road by means of statutory protection and archaeological research, of which this report is a part. Research undertaken during this study has highlighted the importance of apparently prosaic features such as the depots and retaining walls, and recommendations are made here for areas which might be given statutory protection.

11.1.2 In some cases scheduling, which affords a higher degree of protection than listing and is not restricted to architectural features, may be appropriate. Scheduling can only be applied to nationally important archaeological sites, and since it prohibits a change of use or internal alteration, is not normally applied to buildings currently in use. For the same reason it will probably not be applied to sections of the road still in use, since routine repairs would be subject to Scheduled Monument Consent applications which would clearly be unsatisfactory. It is suggested, however, that the bypassed Glyndyffrys section and associated embankment should be subject to protection by scheduling. There is a case for scheduling the best preserved sections of Telford's road and stretches of turnpike which immediately preceded it, where they are now out of use.

11.1.3 The research undertaken during this study has highlighted the importance of engineering and other structures, which should now be considered for listing. Obvious omissions from current listing are:

- ***Gates at the Stanley toll house and at the Menai Bridge***: these are believed to be contemporary with the road. They are rare and important relics of Telford's standard road furniture. The listings should be adapted to include the gates.

- ***Structures at Lon Isa:*** The toll house is listed, but the machine house and depots opposite it are not. These form a particularly rare and well-preserved collection of monuments and should certainly be protected under one Listing to emphasise their group value: we would recommend that the machine house might even be considered for Scheduling, which would prevent adaptive re-use. This should be considered with some urgency.

- ***Ty Isaf machine house:*** At Ty Isaf the Listed toll house has recently been substantially (if sensitively) extended, and the weigh-bridge machine house does not survive as completely as its Lon Isa counterpart. Nonetheless these are rare survivals. As at Lon Isa, the toll house and machine house should be protected as a single entity to preserve the important association between them, and with the Holyhead road.

11.1.4 The Welsh Office Highways Directorate has crown exemption from the need to seek listed building consent. However, the management strategy announced for the road from Llandegai to Chirk has committed the Highways Directorate to developing methods of better preserving and conserving these structures. The private consortium recently appointed to construct the new A55 across Anglesey should be appraised of their responsibilities to maintain structures on the original route. The archaeological importance of routine features such as dyke walls

should be emphasised. Maintenance under the present regime has not always been sympathetic to the requirements of historic structures such as walls and depots, and conspicuous modern intervention in these typical features has badly affected the appearance of Telford's road in some areas. A responsible approach to the archaeology as a valuable component of the road should be encouraged.

11.2 MANAGEMENT RECOMMENDATIONS

11.2.1 Undertake an in-depth study of Section 4, particularly looking at earlier roads of all periods and their relationship to the Telford route, with reference to his specifications (which he seems to deviate from here).

11.2.2 Undertake a survey of buildings at Cernioge Mawr, which include the remains of a toll house, toll gate and inn contemporary with the turnpike road, remains associated with the Telford road, and agricultural components.

11.2.3 Buildings survey and full recording, if none has been undertaken, of the decayed toll house (68A) on the pre-Telford road near Betws-y-Coed.

11.2.4 As has been indicated above, a number of important Telford structures have suffered from unsympathetic alteration or maintenance in the twentieth century. Whilst it is acknowledged that the concerns of road safety and budgetary limits constrain working practice, it is strongly recommended that archaeological opinion be sought before undertaking major interventions to Telford structures. A particular example is the Pont Pen-y-Benglog, in one of the most attractive locations on the route and a point of the Telford road often visited by tourists. The east face remains essentially Telfordian, and is constructed of local stone in a structure which combines technological achievement with elegance, the west side was faced in 1928 with concrete, which obscures the historic structure and detracts from the appearance of the road and its environment. Future maintenance should look to restore the Telford facade.

11.2.5 The use on bridges of conspicuous tie-plates and modern grouting which leaches badly, the over-zealous application of concrete mortar, and the use of pre-fabricated concrete coping blocks or pre-cast panelling are notable examples of roadworks which have damaged the continuity and integrity of Telfordian remains. If the road is to be advertised as a 'historic route' it is important to maintain its historic character. One option is that the road is defined as a linear 'historic landscape', and would entail the maintaining of the historic character of the road.

11.2.6 A number of recommendations are therefore offered for the ongoing maintenance of the Telford infrastructure. In particular, we recommend that the practice of replacing decayed coping stones with uniform concrete blocks is discontinued, as this gives even well-preserved sections of walling the appearance of modern structures. Local stone would be preferable, and would be consistent with the Telford fabric. Unsympathetic past interventions should be replaced, in time, with more appropriate and visually sympathetic materials.

11.2.7 Similarly, the precast concrete panels which have been used in many places are felt to be incongruous and inappropriate for repairs to surviving Telford walling. It is understood that they provide a quick and safe method of repairing decayed walls, but from an archaeological or aesthetic perspective they are not satisfactory.

11.2.8 An appropriate mortar or grouting material for bridges and other historic features should be chosen, to avoid the conspicuous leaching which has affected a number of the Telford bridges.

11.2.7 It is feared that adequate maintenance of historic structures on sections bypassed by the modern road, may not be a realistic or attractive proposition. After only a few years' disuse, the closed sections of the road are becoming grassed over and the Highways department can surely not sustain their conservation indefinitely. It is a matter of concern that the road's archaeology may be seen by a private contractor as incompatible with its operation as a current route. Guidelines should be prepared, to clearly express the obligations of those maintaining the road, and to offer guidance on the repair of historic structures.

12. BIBLIOGRAPHY

12.1 PUBLISHED SOURCES

Albert, W, 1972 *The Turnpike Road System in England 1663-1840*, Cambridge

Anon, 1992 *Pentrefoelas: Living History*, Clwyd

Ayton, R, 1914 *A Voyage round Great Britain in the summer of 1813*, London.

Bracegirdle, B and Miles, PH 1973 *Thomas Telford*, Newton Abbott

Carus, C G, 1846 *The King of Saxony's Journey through England and Scotland in the year 1844*, London.

Cossons, N, and Trinder, B, 1979 *The Iron Bridge: Symbol of the Industrial Revolution*, Bradford on Avon

Coulls, A, 1998 *Railways as World Heritage Sites*, York

Dodd, A H, 1925 The roads of North Wales, *Archaeologia Cambrensis*, **80**, 121-148

Dupin, C, 1825 *The Commercial Power of Great Britain*, London.

Fenton, R, 1917 *Tours in Wales 1804-1813*, ed. J Fisher, London.

Gibb, A, 1935 *The Story of Telford: the Rise of Civil Engineering*, London

Hadfield, C, 1993 *Thomas Telford's Temptation*, Cleobury Mortimer

Harper, C G, 1902 *The Holyhead Road: the Mail-Coach Road to Dublin*, **2** (2nd ed), London

Hoare, R C, 1983 *The Journeys of Sir Richard Colt Hoare through Wales and England 1793-1810*, ed. M W Thompson, Gloucester

Hughes, M, 1964 Telford, Parnell and the Great Irish Road, *Journal of Transport History*, **6**

Hughes, S, 1989, *The Industrial Archaeology of the Montgomeryshire Canal*, Aberystwyth

Hughes, S, 1991 *The Brecon Forest Tramroads,* Aberystwyth

Liebs, C, 1985 *From Main Street to Miracle Mile,*

Markham, S, 1984, *John Loveday of Caversham, 1711-1789: The life and Tours of an Eighteenth-Century Onlooker*, Salisbury

Marsh, P, 1984 Downhill Journey: Stage Coaching in Shrewsbury 1833-1861, in Trinder, B, ed, *Victorian Shrewsbury*, Shrewsbury

Millward, R, and Robinson, A, 1978 *Landscapes of North Wales*, London

Owen, H, and Blakeway, J B, 1825 *A History of Shrewsbury*, London

Parnell, H, 1838 *A Treatise on Roads*, London

Penfold, A (Ed), 1980 *Thomas Telford: Engineer:* London

Pennant, T, 1883 *Tours in Wales 1778-1810*, ed J Rhys, London.

Rolt, L T C, 1958 *Thomas Telford*, London

Rutland Local History Society, 1982 *Turnpikes and Royal Mail of Rutland: The Highways, Turnpike Trusts, the Great Coaches and Carriers, the Early Postal Services*, Stamford

Schlereth, T J, 1985 *US40: A Roadscape of the American Experience*, Indianapolis

Smiles, S, 1874 *Lives of the Engineers, 3: Metcalfe and Telford*, London

Telford, T, 1838 *The Life of Thomas Telford*, *Civil Engineer*, ed J Rickman, London

Trinder, B, 1980 'The Holyhead Road: an engineering project in its social context', in Penfold, A, *Thomas Telford: Engineer,* London

Trinder, B, 1982 *The Making of the Industrial Landscape*, London: Dent (Third edition, London, 1997)

Trinder, B, 1996 *The Industrial Archaeology of Shropshire*, Chichester

Webb, S and B, 1913 *The Story of the King's Highway*, London (Reprinted Cass, 1973).

Welsh Office 1998 *Driving Wales forward: a strategic review of the Welsh Trunk Roads Programme'*, Cardiff

12.2 UNPUBLISHED SOURCES

Trinder B, 1997 *Notes for a Tour of the Holyhead Road*, unpubl (*Appendix 3*)

Trinder B, 1998 *The Holyhead Road: notes, principally from Parliamentary Reports, prepared for Cadw*, unpubl (*Appendix 4*)

Telford, T et al 1815- 18XXXX Specifications for the Holyhead and Anglesey Roads

APPENDIX 1
PROJECT BRIEF

APPENDIX 2
PROJECT DESIGN

Lancaster University Archaeological Unit

August 1998

THOMAS TELFORD'S HOLYHEAD ROAD - A5 TRUNK ROAD

ARCHAEOLOGICAL STUDY

Proposals

The following project design is offered in response to a request from Mr Adrian Hobson, Procurement Manager for CADW Welsh Historic Monuments, for an archaeological study of Thomas Telford's Holyhead Road: A5 Trunk Road

1. INTRODUCTION

1.1 Lancaster University Archaeological Unit (LUAU) have been invited to tender for Phase 1 of the archaeological works associated with a study of Thomas Telford's Holyhead Road: A5 Trunk Road. The project has been initiated by CADW: Welsh Historic Monuments (hereafter CADW) and the Welsh Office Highways Division. To inform the future management of the road and to ensure the preservation of the surviving key features of Telford's design, CADW and the Highways Division are proposing to commission a detailed study of the 83 mile long existing route of the A5 in Wales. The study will be divided into three phases and the following document represents a project design to undertake the tasks outline for Phase 1 as defined in the brief supplied by Mr R C Turner of CADW.

1.2 BACKGROUND

1.2.1 Thomas Telford was at the forefront of civil engineering in the late eighteenth and early nineteenth centuries. He was a famous canal and road builder, but was particularly remembered for the bridges he constructed, and his most significant achievement was the construction of the suspension bridge over the Menai Straits. In 1815, when the Holyhead Road Commission was set up, Telford was asked to the survey the route and engineer a new efficient road from earlier routes which were administered by 23 turnpike trusts. His road involved an impressive departure from the earlier turn pike, the principal route of which extended up the Conwy valley to Conwy and thence to Bangor via the coast. His new road was constructed through the heart of Snowdonia, extending from Betws-y-Coed via Capel Curig and Llyn Ogwen and down the Nant Ffrancon valley to Bangor. The route maximised the available topography such that no section was ever steeper than 1:22.

1.2.2 The most significant elements of this engineering programme were, however, the bridges designed by Telford along the route, which include the arched iron bridge at Betws-y-Coed, and of course the suspension bridge over the Menai Straits. The act to build the Menai Bridge was passed in 1819. His design involved the construction of a 579' main span which was nearly twice as large as any suspension bridge built prior to that date; each of the bridge piers were constructed to a height of 153'. The bridge and road was completed in 1826. The design of the bridge was particularly innovative and its success paved the way for the construction of suspension bridges throughout Britain.

1.3 LANCASTER UNIVERSITY ARCHAEOLOGICAL UNIT

1.3.1 LUAU has considerable experience of the assessment, excavation and survey of sites of all periods, having undertaken a great number of small and large scale projects during the past 17 years. Surveys, assessments and evaluations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. LUAU has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. LUAU and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct.

1.3.2 LUAU has particular experience of large-scale linear projects through its work on the North West Ethylene Pipeline Project which stretched from Ellesmere Port to the Scottish border. This involved an extensive programme of assessment, field survey, evaluation, mitigation excavation and watching brief to preserve by management or record the archaeological resource impacted by the pipeline construction. LUAU has also been involved in the major recording programmes as part of the A66, M6, M62 and A1(M) road widening schemes, as well as a number of smaller road schemes. LUAU is currently providing the archaeological consultancy for the Countryside Commission during the development of the Hadrians Wall Path National Trail along the line of Hadrian's Wall. This initially involved the assimilation of all available archaeological evidence for the line of the Wall, which was presented within CAD and hard copy formats to enable the sensitive creation of a National Trail within the World Heritage Site and particularly to guide the detailed positioning of the route and associated infrastructure to avoid archaeologically sensitive area. The CAD graphic techniques proposed for this A5 recording programme are based on those successfully applied to the Hadrian's Wall project.

1.3.3 LUAU has been extensively involved in the assessment of national industries for the English Heritage Monuments Protection Programme (MPP). This work requires specialist knowledge of the technological development of an industry and includes the rapid field assessment of all sites of potential national importance. The programme is designed to highlight the most important sites and to recommend management strategies to ensure the most appropriate levels of protection. Through its involvement in MPP and numerous other industrial assessments LUAU has gained a national reputation for its knowledge and expertise. To date LUAU has undertaken assessments of the following industries:

Iron and Steel Steps 2 and 3

Gas/Oil Step 1

Coal and Lead Step 6

Hydroelectricity Steps 2 and 3

Copper, minor metals and Zinc Step 3

Stone Steps 1, 2 and 3

Lime and Cement Steps 1, 2 and 3

2. OBJECTIVES

2.1 To enhance the management strategy for the maintenance of the route. To enable the management of those parts of the road that are 'detrunked' and to ensure the preservation of the key surviving elements of the road by means of providing detailed information to CADW and the Highways Division. It will be divided into three phases: Phase 1 will identify, describe and record all surviving features of Telford's road. Phase 2 will develop a set of criteria for listing or scheduling features or stretches of the road. Phase 3 will involve the development of the interpretation of the route to enhance the public understanding.

3. METHODS STATEMENT

3.1 The following programme, which equates to Phase 1 of the study, has been designed to identify, describe and record all the features surviving from Telford's period of construction. This information will be stored on a computer database supported by map and photographic records. Information will be drawn from Telford's original specifications, first Edition and later Ordnance Survey maps and a comprehensive field survey. This will enable the rate of loss of Telford's original features to be determined, and allow the rarity and completeness of what survives to be appraised. The Phase 1 work will be divided into three tasks: task 1, archival study; task 2 fieldwork, and task 3, reporting. The work will be undertaken in accordance with the project brief prepared by R C Turner of CADW.

3.2 TASK 1: ARCHIVAL STUDY

3.2.1 LUAU will be supplied by CADW with background historical information and a reading list relating to the history and historical importance of Telford's Holyhead Road. This information will provide the context for the programme of desk-based and field survey work and will be assimilated in the summary historical section of the report.

3.2.2 ***Topographic Base:*** it is not economically feasible to provide a 1:10,000 digital topographic background, because of the copyright costs involved in scanning modern OS maps or buying in tiles of OS scanned data. It is therefore proposed to use hard copy base maps from OS 1:10,000 maps. Using CADW's map library in Cardiff, LUAU will prepare a series of A3 photocopies of map extracts at 1:10,000 showing the route from Holyhead to the Welsh/English border; these will ultimately be made into a booklet. A second series will be prepared of the first Edition OS maps at scale 6 inches to 1 mile, copies of which are also held at CADW's offices and this will be incorporated into a second booklet. Each 1;10,000 base map will slightly overlap with the adjacent copy, although a rectangular outline will be annotated to show the unique extent of each map. The base maps will be sequentially numbered from west to east. There is limited coverage at scale 25 inches to 1 mile of the first Edition OS maps of larger settlements such as Holyhead, Menai Bridge, Bangor, Bethesda, Llangollen etc. A3 copies of these maps will also be made to form a supplement to the second booklet.

3.2.3 ***Telford's Specifications:*** CADW is having copies made of Telford's original specifications for the building of the road held in the Public Record Office. These will be made available to LUAU, who will re-order the 104 lots into consecutive order from Holyhead to the Welsh/English border. The specifications include an outline map which identifies the road layout in existence prior to Telford's road and includes designs for all the significant bridges and other structures. The desk-based recording will examine and record all features that are related to Telfords Road or to the earlier turnpike roads that are shown within these specifications.

3.2.4 ***Listed Buildings:*** CADW has recently resurveyed the list of historic buildings for over half of the communities through which the A5 runs. At CADW's offices, LUAU will assemble a copy of all the listing descriptions of the historic buildings relevant to the A5 route corridor, and order them from Holyhead to the Welsh/English border. During the course of Phase 1 of the project, LUAU will keep in regular contact with CADW's Historic

Buildings Administration to ensure that copies of relevant new listings, for communities through which the A5 runs, are incorporated into the project archive. The listed building descriptions will be presented as either a file of photocopied records which will form an appendix to the paper record.

3.2.5 ***Records of Modern Repair and Replacement:*** LUAU will examine the extensive records of the modern repair and replacement of Telford's Holyhead road held by the Welsh Office Highways Directorate at their offices in Colwyn Bay and Cardiff.

3.2.6 ***CAD Capture and Manipulation:*** in the light of the experience of the LUAU desk-based study of the Hadrians Wall for the Countryside Commission (*Section 1.3.2*), which at 73 miles in length is comparable to the proposed study route, it is proposed to apply a similar CAD methodology for the present study. The advantages of the technique are that as well as providing a good quality hard copy output, it allows considerable flexibility for enhancement both in the present Phase 1 but also in the course of Phases 2 and 3. The source data can be incorporated within 'layers' within the CAD system which allows for the selective presentation of the data. It will enable presentation of the data from the whole route as well as overlays for the individual map areas (Section 3.1.2). It can also provide the most economical and accurate way of incorporating historical data from maps which are at a different scale to the primary 1:10,000 base.

3.2.7 It is proposed that all the pertinent information from Telford's specifications, sites and route line from the first Edition OS maps, and listed buildings for the whole route will be digitised into a CAD system (*See Sections 3.8 and 3.9*). The study is intended to examine features specifically relating to Telford's road or the earlier sections of turn-pikes and will therefore exclude other unrelated or earlier features shown on the mapping. It is proposed that the study will examine only listed buildings that are within 50m of the centre of the road.

3.2.8 The process of digitising data from each source will automatically incorporate the digital data into a compatible scale and therefore all source data will be directly comparable. The CAD system will also show the extent of the maplet, the line of the A5 and the extent of each individual 'lot' from Telford's specifications. It is proposed that the archaeological resource within the extent of the individual maps generated in *Section 3.1.2* will be plotted up at 1:10,000 onto transparent film. These would then be overlain onto the map base and photocopied to provide a hardcopy map of the archaeological data combined with the topographic base.

3.2.9 If required it is possible to generate a further transparent film overlay of selective detail, such as the first Edition OS line of the A5, which can be bound into the final map booklets to provide an alternative perspective on the archaeological resource for each individual map.

3.2.10 ***Scanning Options***: if required it is possible to scan first Edition OS maps to provide a topographic base for the survey data. OS first Edition map data is outside the normal 50 year copyright period, and therefore can be copied without incurring copyright costs. This scanning can be undertaken very economically (typically *c*£ 10 per map), but is provided as rasta data as oppose to the normal 'vector' data that is created within a CAD system. As such it can not be edited and manipulated in the same way as vector data but can be scaled and inserted as a backdrop within a CAD system. If this option is followed, the line of the current A5 will need to be digitised from the 1:10,000 OS map to provide a comparison between the original line of the road and the present line. The costs of this option are defined within Section 7.

3.2.11 ***Database:*** The descriptive data from the site survey will be incorporated into a Microsoft Access computerised database. The format of the database will be designed in collaboration with the Sites and Monuments Records of both Clwyd-Powys and Gwynedd, as well as CADW to ensure appropriate compatibility. It will also ensure compatibility with the systems used by Welsh Office Highways Directorate, the Telford Collection and Ironbridge Gorge Museum Trust library and the NMR. Each site entry will have a project number and this will be cross referenced with the Primary Record Numbers from the respective SMR's as well as the Listed building numbers. LUAU will negotiate with the two SMRs over the assignment of Primary Record Numbers.

3.2.12 The data will be in a format that would enable it to be translated into a Geographical Information System (GIS) at a subsequent date if required. This would enable a direct interrelation between the graphical data and that of the database, thereby enhancing the manipulation and use of the raw data. However, no costs are offered at this stage for translating into a GIS.

3.2.13 ***Site Record Forms:*** before commencement of Task 2, LUAU will submit copies of the recording forms and describe the format and structure of the computerised database to Mr Turner and Dr Trinder for their approval. The forms will be designed to provide a direct compatibility with the database to facilitate the input of the data into it. It is envisaged that at least two forms will be required; one will deal with stretches of the road where only repetitive structures occur (eg boundary and retaining walls, pavements, drains etc) and stretches where no original features survive, and the other will deal with individual structures, such as bridges, toll houses,

mileposts, major embankments and allied buildings. These forms will provide for cross-referencing with sites identified initially by Task 1 (the desk-based study) so as to ensure that the field survey augments the earlier descriptive entries. Considerable emphasis will be provided on the forms to define and clarify the condition and survival of individual features. The forms will provide for the definition of the archaeological significance of the monuments based on Monuments Protection Programme (MPP) criteria.

3.2.14 ***Preliminary Survey:*** towards the end of Task 1, LUAU, Mr R C Turner of CADW, and the project's consultant historian, Dr Barrie Trinder, will undertake a two day preliminary survey of the 83 mile route from Holyhead to the Welsh/English border to allow familiarisation of the full range of structures, for Dr Trinder to explain the historical background, and to agree the detailed format of the recording forms and database to be used in Task 2 (see below).

3.3 TASK 2: FIELDWORK

3.3.1 On completion of Task 1, the whole of the route of the A5 will be walked at least once in both directions, in order to identify, map and record, in a systematic way, the survival of all original features from Telford's road and any residual elements of the earlier turnpike roads. The documented surviving stretches of earlier turnpike roads bypassed by Telford will also be walked and assessed to provide an independent record their surviving features. In addition, an attempt will be made, within reasonable health and safety constraints, to view and record the exterior and underside of all the surviving original bridges and other engineering structures along the route.

3.3.2 It is not proposed to undertake blind reconnaissance away from the road edge; however, sites that are documented as extending out from the road will be fully recorded, access permitting. As this would involve going onto private land LUAU will identify themselves to the owners in order seek their consent before commencing any recording. It is understood that LUAU will be provided with a letter from CADW and then Welsh Office Highways Directorate identifying them as appointed agents for the project. Subject to approval of the land owners a close examination of any structures, such as toll houses, will be undertaken and any residual elements will be recorded, which will include ancillary features such as lamp standards or extant elements of weigh stations.

3.3.3 LUAU will consult in advance the relevant Streetworks Managers of Anglesey, Gwynedd and Conwy, Denbighshire and Wrexham, when they intend to undertake field survey in their respective areas.

3.3.4 ***Recording Forms:*** the descriptive recording will be undertaken using the agreed recording forms and in light of the archival research already undertaken. It is proposed to employ two survey personnel to undertake the field study working on different sections of the route at the same time; this will ensure that the recording programme is kept within the required timetable. However, a system of describing the survival and condition of each type of structure will be agreed in advance and applied systematically, so that the record keeping will be undertaken in a consistent manner, despite the use of the two survey personnel. All the fieldwork records will be collated from Holyhead to the Welsh/English border and will be cross-referenced to Telford's original lot numbers and specifications. Each record will consist of a completed record form for entry into the computerised database.

3.3.5 At regular intervals the record forms will be sent back to LUAU offices for input into the Access database, which will be undertaken alongside the data-capture process to ensure a rapid completion of the project. The site entries will incorporate the site descriptions from the field survey but will also incorporate descriptions from the original Telfords Specifications where appropriate. On completion of the whole Phase 1 programme, the sites will be renumbered to provide for a continuous sequence of project numbers from the Holyhead end of the route to the English/Welsh border.

3.3.6 ***Site Location:*** the majority of the sites will already be located from current or earlier map evidence, but if there is any doubt as to the locational accuracy of any earlier mapping or they are previously unrecorded sites, they will be independently surveyed in. The sites will for the most part be located by taped or paced distance measurement with respect to field boundaries and will be drawn onto current 1:10,000 or 1:2,500 maps as appropriate. In areas which are remote from field boundaries, particularly in the centre of Snowdonia, Global Positioning System (GPS) equipment will be used to fix the position of the sites. Differential GPS instrumentation uses electronic distance measurement along radio frequencies to satellites to enable a positional fix in latitude and longitude which can be converted mathematically to Ordnance Survey National Grid. The use of differential GPS techniques has proved to be an essential and extremely cost effective means of locating monuments, and can achieve accuracies of better than +- 1m. The GPS data will be directly

translated into the CAD system and superimposed on the data files compiled during Task 1. The sites recorded on OS mapping will be digitised into the same files from the field maps.

3.3.7 ***Photographic Recording:*** a full oblique photographic record will be generated of the archaeological sites, using both conventional black and white photography and also a digital camera. The black and white photography will be undertaken using a 35mm SLR camera and will provide the primary archive. These photographs will be archival quality black and white prints with negatives stored in acid-free tissue. The secondary archive will be generated using a digital camera and the images will be stored within a JPG format on CDs. The quality of the digital photograph will not be quite as high resolution as the black and white photography, but will be easier to manipulate and interact with the database. The digital images can be copied at no loss of quality to form the five secondary archives.

3.3.8 A photographic catalogue will be created and incorporated in the archive. All images, irrespective of the format, will be cross referenced to the database entries. As an option it is possible to provide a direct link between the Access97 database entries and the digital photographic images such that an image of the site is presented on screen alongside the textual description. However, this facility may not necessarily be available on Foxpro database systems and therefore it is not presented as a costed option at this stage, but can be costed if required.

3.3.9 For those parts of the road treated as stretches, photography will be limited to each depot and typical details of the boundary walls, pavements and drains. For those structures which have individual record forms then one or more photographs in both the digital and black and white formats will be generated. Where health and safety procedures permit, a full photographic record will be generated of the underside of the original road bridges.

3.4 TASK 3: REPORTING

3.4.1 ***Archive:*** the primary archive of the project will be an indexed collation of all the paper records gathered during the work, the completed booklets of maps, a paper copy of each record form, the catalogued and cross-referenced black and white photographic archive, a copy of the computerised database and a copy of the CAD files in DXF or DWG format as required. The primary archive will be deposited with the National Monuments Record held by the Royal Commission on the Ancient and Historical Monuments (Wales) in Aberystwyth.

3.4.2 The secondary archive will consist of a copy of the database in appropriate formats, the CAD files, the colour photographic digital images and the A3 format historic and modern map booklets. Five copies will be produced, one each for CADW, Welsh Office Highways Directorate, the Sites and Monuments Records held by the Gwynedd and Clwyd-Powys Archaeological Trusts, the Telford Collection, Ironbridge Gorge Museum Trust library.

3.4.3 ***Report:*** eight copies of a final report will be produced. The format and contents of the final report will be agreed in advance with Mr R C Turner of CADW and its submission will follow the issue of a draft report and a presentation of the project's work to the representatives of Welsh Office Highways Directorate, Mr Turner and Dr Trinder.

3.4.4 As defined in the project brief the report will contain:

i a methodology statement and an outline of the project brief and design

ii a summary history of Telford's Holyhead Road;

iii a report on the desk-based study and fieldwork undertaken;

iv an assessment of the survival of Telford's Holyhead Road and its components at three different periods: from the first Edition OS maps, the current OS map base, and the present condition as identified from fieldwork;

v an assessment of the present condition of the different classes of structure which make up the original road:- boundary and revetment walls, depots, drains, milestones, bridges, embankments and toll houses, together with their ancillary features;

vi a brief assessment of the impact of the building of Telford's Holyhead Road on the economic and settlement patterns of the area.

vii a consideration of the use of existing statutory and non-statutory designations in protecting the fabric of Telford's Holyhead Road. These will include listing, scheduling (if appropriate), Welsh Office Highways strategy for the A5 Llandegai-Chirk, National Park boundaries and policies, local plan policies, conservation areas and the recently published Register of Historic Landscapes in Wales;

viii recommendations for the development of Phase 2 of the project.

3.4.5 Four copies of the final report, excluding the recommendations, will be distributed with the archives to be delivered to the outside organisations. Three copies of the final report, including the recommendations, will be distributed to the Highways Directorate and one to CADW.

4. GENERAL CONDITIONS

4.1 HEALTH AND SAFETY

4.1.1 LUAU considers health and safety to be of paramount importance on all their projects. LUAU have considerable experience in applying modern health and safety practices in large and small-scale archaeological projects, including the needs of working adjacent to highways. The LUAU Health and Safety Statement conforms to all the provisions of the SCAUM (Standing Conference of Unit Managers) Health and Safety manual. A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties. The Unit Safety Policy Statement will be provided to the client, if required.

4.1.2 As the A5 remains a busy trunk road, LUAU will take care to ensure the safety of their fieldworkers and other road users at all times. All LUAU field staff will wear an appropriate reflective jacket at all times, and any vehicle used on the project will be parked safely off the highway at all times.

4.2 CONFIDENTIALITY

4.2.1 The report is designed as a document for the specific use of CADW, for the particular purpose as defined in this project design, and should be treated as such. Any requirement to revise or reorder the material for submission or presentation to third parties or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

4.3 PROJECT MONITORING

4.3.1 Any proposed changes to this project design will be agreed with CADW. Following the issue of the contract, LUAU will prepare a management plan and timetable of works to be submitted to Mr R C Turner of CADW, the project monitor.

4.3.2 Prior to the implementation of Task 2 LUAU will submit copies of the proposed recording forms and an outline of the format and structure of the database to Mr R C Turner, CADW and Dr B Trinder for approval, which will be undertaken at the same time as the preliminary survey.

4.3.3 On the completion of the fieldwork a progress report will be submitted. Within two weeks of the completion of the fieldwork, the format and contents of the final report will be agreed with Mr RC Turner.

4.3.4 A draft report will be circulated at least 10 days in advance of the presentation of the project's result to representatives of the Welsh Office Highways Directorate, CADW and Dr Trinder. The date of this presentation will be agreed between LUAU and CADW when the format and contents of the final report have been approved.

4.3.5 The deposition of the archives and the submission of the final report will be made within 20 working days of the date of the presentation.

4.4 INSURANCE

4.4.1 The insurance in respect of claims for personal injury to or the death of any person under a contract of service with the unit and arising out of an in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of LUAU, in respect of personal injury or damage to property by negligence of LUAU or any of its employees, there applies the insurance cover of £ 1m for any one occurrence or series of occurrences arising out of one event.

4.5 CONTINGENCIES

4.5.1 It is anticipated that the fieldwork will be undertaken in October/November and there is the possibility that very poor unseasonal weather will be experienced during that period, which would have an adverse impact upon the programme. A contingency is therefore defined (Section 7) in the eventuality of a period of bad weather. The application of contingency funding would be subject to agreement between R C Turner (CADW) and LUAU.

5. WORK TIMETABLE

The phases of work will comprise:

4.1 ***Task 1 - Archival Study***

4 weeks

4.2 ***Task 2 - Fieldwork***

3 weeks

4.3 ***Task 3 - Report***

2.5 weeks

4.4 LUAU can execute projects at very short notice once a written agreement has been signed with the client. Assuming that the project is awarded in advance of the proposed first September date it will be possible to complete the programme before 31st January 1999.

5. OUTLINE RESOURCES

5.1 ***Task 1 - Archival Study***

6 days Project Manager

2.5 days Project Officer (Background Research and project coordination)

15 days Project Supervisor (Data Collection)

18 days Project Assistant (Data Manipulation)

5.2 ***Task 2 - Field Survey***

2 days Project Manager

2 days Project Officer (Project Co-ordination)

9 days Project Supervisor (Field Walker - west end of route)

9 days Project Supervisor (Field Walker - east end of route)

15 days Project Assistant (Data input and drawing enhancement)

5.3 ***Task 3 - Report***

3 days Project Manager

5 days Project Officer (Report Generation)

3.5 days Project Supervisor (Report Generation)

4 days Illustrator

4.5 days Project Assistant

6. PROJECT STAFF

6.1 MANAGEMENT

6.1.1 The project will be under the project management of **Jamie Quartermaine, BA Surv Dip MIFA** (LUAU Project Manager) to whom all correspondence should be addressed. Jamie has considerable experience of working on similar projects to that proposed (see attached CV), particularly a desk-based study collating all archaeological evidence along the line of Hadrian's Wall for the Countryside Commission in advance of the development of a National Trail along the Wall. He has managed a survey in advance of the laying of a major ethylene pipeline between the Scottish Border and the Mersey for Shell UK Ltd, and also has considerable experience of working on both road schemes (eg A1 (North Yorks) and A66 (Cumbria)) and also industrial period sites. He has undertaken surveys of Lead Mining complexes in Thirlmere in Cumbria, and Rimmington, Lancashire; a glass production complex at the Hotties in St Helens; Lime working landscapes in Much Wenlock, Shropshire and Langcliffe North Yorkshire; and survey and assessment of eight major stone quarries in Rossendale, Lancashire.

6.1.2 The project will be under the overall line management of **Richard Newman BA, PhD, DSA, MIFA** (Unit Director). Richard used to work at Glamorgan and Gwent Archaeological Trust and Wessex Archaeological Trust and is now Director of LUAU. He has fourteen years of professional expertise in the management and implementation of a wide variety of conservation based projects, acting as consultant to English Heritage and the Countryside Commission. He has considerable experience of Landscape archaeological assessments and is manager of the LUAU Industrial Monuments Protection Programme (MPP) projects that are presently being undertaken for English Heritage.

APPENDIX 3
NOTES FOR A TOUR OF THE HOLYHEAD ROAD
TRINDER, B, 1998

APPENDIX 4

THE HOLYHEAD ROAD: NOTES, PRINCIPALLY FROM PARLIAMENTARY REPORTS, PREPARED FOR CADW

TRINDER, B, 1998

Notes for a Tour of the Holyhead Road

Background

Thomas Telford's Holyhead Road, improved or newly-built between 1815 and 1837, is perhaps the best example of road engineering of its period in Europe. As Hughes showed in 1964, in an administrative context it was an attempt by Sir Henry Parnell to break free of the restrictions on investment in road-building which were intrinsic to the turnpike system. The development of the road as the principal route from London to Dublin was financed directly by government funds, and the engineering work was on a scale which most turnpike trusts, dependent on toll income, could not contemplate. The road is exceptionally well documented since reports were submitted at approximately yearly intervals, which show the progress of the project in great detail.

A tour of the Holyhead Road west of Shrewsbury led by Neil Cossons and Barrie Trinder was the first field trip of the first International Conference on the Conservation of the Industrial Heritage (now the TICCIH organisation) held at Attingham Park, Shrewsbury, and organised by the Ironbridge Gorge Museum in May 1973. Extensive fieldwork and documentary research was undertaken in preparation for the tour, which was repeated through the 1970s for a variety of groups and organisations. During the 1980s new road schemes between Telford and Llangollen have made impracticable study tours by coach of that section but the road through the Welsh mountains is relatively little altered, and it is still possible to appreciate Telford's achievement.

We shall look at the road in 1997, as was the fashion in 1973, as the creation of the engineers who improved it between 1815 and 1837. The challenge for the future must be to develop a multi-period interpretation of the route, following the pattern pioneered in the United States by Schlereth and Liebs, and, in their studies of the Montgomeryshire Canal and the Brecon Forest Tramroads, by the Royal Commission in Wales. More detailed studies could reveal the relationship between Telford's road and earlier roads, including the turnpike of 1804 and Roman routes through the mountains, the forces, including the influences of particular landowners, that shaped the route of the road, and the changes which have affected it since the coming of the motor car.

The road before Telford

In the mid-eighteenth century travellers from south England nd and the Midlands bound for Ireland usually went to Chester and along the coast of North Wales, a journey which involved difficult and dangerous ferry crossings at Conway and Bangor. The route that was later to be improved by Telford was established by the Shrewsbury hotel-keeper Robert Lawrence. In May 1779 while at the Raven Hotel he began a thrice weekly coach service from Shrewsbury to Holyhead through Ellesmere, Wrexham, Mold, St Asaph and Conway, with a journey time of 36 hours. The following year this service was supplemented by another through Oswestry, Llangollen, Corwen and Llanrwyst, which meant that there were departures from Shrewsbury every weekday.

In November 1780 Lawrence took over the Lion Hotel, Shrewsbury's most prestigious inn, which had recently been constructed for John Ashby, an eminent solicitor, agent to some leading landed families, and 'guardian of many secrets'. Ashby incorporated within the building the present ballroom, which was intended as an assembly room for county society. Lawrence developed coach services to London, Bristol and Bath, which connected with Holyhead services. He tried energetically to improve the routes through North Wales, encouraging the clearance of roads during the winter months, and arranging the settlement of retired servants from great houses as innkeepers at newly-established hostelries. It was a mark of his success that in September 1782, Earl Temple, the newly appointed Lord Lieutenant of Ireland, travelled to Dublin by way of Shrewsbury, and passed a night at the Lion. Lawrence, with Lord Penrhyn, was one of the promoters of a new turnpike road between Pentrefoelas and Capel Curig which was opened in the autumn of 1804, and first used by coaches in the summer of the following year. Nevertheless the route across North Wales was of poor quality, even by the standards of the time, and some sections were positively dangerous to travellers.

The Holyhead Road Commission

The Act of Union which united the parliaments of England and Ireland in 1800 increased the numbers of eminent people travelling between London and Dublin, and, in Telford's words, 'produced constant irritation and complaints respecting the road through North Wales and gave rise to warm discussions in Parliament'. In 1801 Joseph Huddart and John Rennie investigated the routes between London and Dublin and recommended that via Holyhead and Howth and the most suitable for improvement, but their report was ignored. A further parliamentary committee was directed to enquire into the routes to Holyhead in 1810 and 1811, and it was this committee which first brought Thomas Telford, whom it already regarded as 'an engineer of great eminence', into contact with the project. Telford was already well acquainted with sections of the road, having been County Surveyor in Shropshire since 1788. In May 1810 he was ordered to begin a survey of the road 'without regard to special interests'. His reports give a melancholy picture of the state of the road. Between 1 January and 27 March 1810, a period of 85 days, the mail coach from Shrewsbury to Holyhead was between one and five hours late on 71, and that in the reverse direction on 75 occasions. Between April and December 1809 the coach suffered six major accidents through overturning, or through failures of shackles or springs caused by the uneven condition of the road service.

In the 1970s it still seemed reasonable to take all these facts at face value, but as a result of Charles Hadfield's revelations of Telford's obsession that he should appear in the best possible light in the historical record, it now seems pertinent to take an agnostic attitude to his accounts of the state of the road before the Commission's improvements. Under Telford's direction the road became the best in Europe, but was the 1804 turnpike really as bad as he suggests in contemporary reports and in his *Autobiography*?

Parliament established the Holyhead Road Commission in 1815. In Telford's words, 'Parliament recognised the principle...that the communication between England and Ireland was of sufficient importance to justify the expenditure of public money, in enabling the mails and the Carriages of individuals to travel through Wales without being exposed to be broken in pieces at every step, or to the danger of falling over steep precipices, against which the road was not in the smallest degree protected'. The Commission's inspiration and chairman was Sir Henry Parnell, MP for Queen's County, a man of great energy who provided the legal, financial and managerial backing which the engineers needed to transform the road. Over the next 15 years further legislation increased the powers of the Commission and granted further large sums for the improvement of the road. The principal legislation was as follows:

1815. 55 Geo III c.152.
Set up the Holyhead Road Commission with responsibility for the road throughout from London to Holyhead, although it was not until 1819 that serious attention was given to the route east of Shrewsbury.

1819. 59 Geo III c.30.
Consolidated the six turnpike trusts between Shrewsbury and Bangor and placed the whole of this section of the road under the direct control of the Holyhead Road Commission. The existing trusts continued to administer those sections of their networks which did not form part of the main road to Holyhead.

1819. 59 Geo III c.48.
Authorised the Menai and Conway bridges and the new road across Anglesey.

1820. 1 Geo IV c.70.
Renewed the powers of the Commissioners named in the 1815 Act as far as the London - Chirk section of the road was concerned.

1824. 4 Geo IV c.78.
Vested the Menai and Conway bridges with the Commission and authorised further expenditure.

1828. 7 & 8 Geo IV c.35.
Authorised further expenditure.

In 1815 work began on what Telford considered the worst portions of the road in Wales, including some stretches over which we shall travel on 27 September. By 1819 he reported that 'many of the most dangerous portions were rendered commodious and safe'. In order to conserve the benefits thus gained, the Act of

Parliament of 1819 removed control of the road between Shrewsbury and Holyhead from the turnpike trustees and vested it in a body of Commissioners named in the Act. Curiously, after 1819 work west of Shrewsbury was carried on both under the act of 1815 and that of 1819, and separate reports were presented to parliament.

By 1825 Telford was able to write of 'the present perfect state of the road' from Shrewsbury to Holyhead, and could claim that 'from Chirk to Holyhead, a distance of 83 miles, the whole road is perfectly hard, smooth and clean'. The two great suspension bridges at Menai and Conway were both completed in 1826, and from that time onwards the work on the Welsh portion of the road was confined to relatively minor improvements.

Although the Act of 1815 permitted work on the English section, it was not until 1819 that serious work began east of Shrewsbury, although some major improvements were carried out before that date by the more enlightened turnpike trusts. There was some hesitation to invest during the 1820s while Telford was proposing a new and direct route from Wellington to Chirk, avoiding Shrewsbury. As an alternative two proposals were put forward for boulevards through the centre of Shrewsbury linking the English and Welsh bridges with the two coaching inns, but by the end of the decade these dramatic schemes were dropped, and the existing line of road was improved on a considerable scale, particularly notable sections being the cutting at The Mount by which the road ascends from the Welsh Bridge, past the home of the Darwin family, and the realignments at Overley Hill west of Wellington, and Montford Bank between Shrewsbury and Montford Bridge.

Considerable sums of government money continued to be invested in the Holyhead Road after the opening of the Liverpool & Manchester Railway in 1830, but the development of the main line railway network dictated that Telford's masterpiece flourished for only a short period. In 1839 the Commission reported that the opening of the through routes from London to Liverpool had reduced posting traffic, the most profitable source of revenue, and that stage coaches had ceased to run to Holyhead. Traffic continued to decline, particularly after the opening of the Chester & Holyhead Railway in 1850, in which year the Commission questioned the propriety of continued financial support for a route which now conveyed little more than local traffic. The next year the inspecting engineer found grass growing in the road on Anglesey, and the Commission concluded:

'We are of the opinion that the road is no longer of such national importance as to justify us in applying to Parliament for a grant of public money for its future maintenance'.

The route of the Holyhead Road

The designated route followed (approximately) the Roman Watling Street out of London as far as Weedon in Northamptonshire. It then followed the one-time A45 (now much altered) through Daventry to Coventry and Birmingham, from which it followed the A41 (also much altered) past the Soho Manufactory, through what was to become the centre of West Bromwich, Wednesbury, Bilston and Wolverhampton. On the western outskirts of Wolverhampton it followed what is still the A464 through Shifnal (a section relatively little altered), and then through the Coalbrookdale Coalfield. It re-joined Watling Street at Oakengates, but the section through the coalfield was almost totally re-aligned, and has been much altered during the creation of the new town of Telford. The Holyhead Road skirted the outskirts of Wellington, and at the point where the Roman road entered the city of Uriconium, it followed the turnpike of 1725 across the Tern and Severn bridges at Atcham into Shrewsbury. On this 'English' section of the road the Holyhead Road Commission worked with the existing turnpike trusts. Some were regarded as efficient and co-operative; others were not.

West of Shrewsbury there were seven separate turnpike trusts controlling the road before the Act of 1819 vested their powers with the Holyhead Road Commission. One administered the road across Anglesey, which was totally re-aligned by the Commission, the new route being opened in the summer of 1822. The boundary points of the other trusts were the Welsh Bridge in Shrewsbury, the tenth milepost on the road to Oswestry, Terfynant (near Llangollen), Cerrigydruidon, Pentrefoelas, Llandegai and Bangor Ferry. Telford divided into three districtus for managerial purposes: Shrewsbury - Chirk, Chirck - Cernioge and Cernioge - Bangor Ferry.

The appearance of the road

Telford's objective in his improvement of the road was 'that horses may easily and rapidly trot over the whole road, ascending or descending, with a loaded coach'. Ideally there were to be no gradients steeper than 1 in 30 although some steeper section remained. The average width of the road was to be 40 ft, and it was never to be narrower than 30 ft, with a minimum of 18 ft of gravelled surface in the centre. Great attention was paid to side-

and cross-drains, and footpaths were built in many stretches, ideally on the south side so that the carriageway would benefit to the full from the drying action of the sun. For reasons of visibility and drainage overhanging trees were discouraged, and where possible roadside hedges were replaced by stone walls. Most of the walls were originally of drystone construction, but the majority were mortared during the 1830s to prevent pilfering of the stone.

In mountainous country stone parapet walls were built, matched by massive stone retaining wals securing the road from landslips.

Recesses, known as *depots*, were built at regular intervals for the storage of road metals.

Telford insisted that toll houses and bridges should be clearly visible. Toll houses of good quality, it was argued by Sir Henry Parnell, were essential to attract honest toll keepers without whom revenues would quickly diminish. In the atlas accompanying Telford's *Autobiography* two patterns of tollhouse are illustrated, a bungalow style used on the mainland and a house with a central two-storey octagonal tower used on Anglesey. There were some variations of detail in the houses built on the mainland, where some earlier turnpike trust tollhouses remained in use. The Anglesey tollhouses remain, although that at the end of the Stanley Embankment was re-erected in 1973. On the mainland the tollhouse from Shelton outside Shrewsbury was removed to the Blists Hill Open Air Museum at Ironbridge in 1973. Most of the others remain, some well-conserved, others less so. The *Autobiography* also illustrates a standard pattern of wrought-iron gate with a rising sun motif. Such gates were installed at many tollhouses. One from Snowdonia, with slate gate pillars, is preserved at Blists Hill, and another at the Welsh Folk Museum, St Fagans. A further example survives at Menai Bridge. Research has shown that at some tollhouses gates of a totally different kind, of wood with a lattice pattern of construction, were installed.

In 1826-28 the whole length of road from Shrewsbury to Holyhead was re-measured, and 'new milestones of a proper description set up which gave the whole a finished appearance. The stones were quarried at Red Wharf Bay on the north coast of Anglesey and then cut and delivered to Menai Bridge at a cost of two guineas each. The cutting was probably done by the masons responsible for the stonework of the suspension bridge. Erection expenses and the insertion of cast-iron plates raised the total cost to about £5 each. Most of the mileposts remain.

The Holyhead Road was not simply a neat and tidy means of transport. It included a daring and innovative structure, the Menai Bridge, a decorative form of Telford's standard iron arch bridge, the Waterloo Bridge, several fine stone arched bridges, the dramatic sections of road through Capel Curig and the passes of Glyn-diffwys and Nant Ffrancon, and the spectacular Stanley Embankment. Popular attitudes to the road were encapsulated in the two roadside columns commemorating heroes of the Battle of Waterloo, Lord Hill's Column at the eastern approach to Shrewsbury, and the Marquis of Anglesey's Column above the Menai Straits.

Bibliography

Albert, W, 1972, *The Turnpike Road System in England 1663-1840*, Cambridge: Cambridge University Press.

Cossons, N, & Trinder, B, 1979, *The Iron Bridge: Symbol of the Industrial Revolution*, Bradford on Avon: Moonraker.

Hadfield, C, 1993, *Thomas Telford's Temptation*, Cleobury Mortimer: Baldwin.

Hoare, R C, 1983, *The Journeys of Sir Richard Colt Hoare through Wales and England 1793-1810*, ed. M W Thompson, Gloucester: Alan Sutton.

Hughes, M, 1964, 'Telford, Parnell and the Great Irish Road', *Journal of Transport History*, VI.

Milward, R, & Robinson, A, 1978, *Landscapes of North Wales*, London: Hodder & Stoughton.

Parnell, Sir H, 1838, *A Treatise on Roads*, London: Longman.

Trinder, B, 1980, 'The Holyhead Road: an engineering project in its social context', Penfold, A, *Thomas Telford: Engineer:* London: Thomas Telford.

Trinder, B, 1996, *The Industrial Archaeology of Shropshire*, Chichester: Phillimore.

Telford, T, 1838, *The Life of Thomas Telford*, ed J Rickman, London: J & L G Hansard.

Itinerary: Saturday 27 September

We join the Holyhead Road immediately east of the Waterloo Bridge at Bettwys-y-Coed, and will follow it for just over 20 miles to the outskirts of Bangor. This section, with rises to a summit of 993 ft above sea level along the shores of Lake Ogwen, with no gradient steeper than 1 in 22, was one of Telford's principal achievements.

In the early 1970s most of Telford's mileposts on this stretch were still in place. The only ones missing were (distances from Holyhead) 39, 35 and 25.

The route to the east, for about eight miles as far as Pentrefoelas was used from 1804 as part of the new turnpike road. Previously, Holyhead-bound coaches had travelled from Pentrefoelas to Llanwryst, where they crossed the river on the seventeenth century bridge before proceeding up the west bank to Conway. Telford completely rebuilt the section east of Bettwys-y-Coed. The four miles east of the river crossing avoiding the 1 in 6 gradient of Dinas Hill was one of his first priorities, and the new route was completed in 1817, at a cost considerably in excess of the estimate (a rare occurrence on the Holyhead Road).

The Waterloo Bridge over the Conway was part of the improvement scheme. In spite of the inscription it was not erected in the year the battle of Waterloo was fought, since the castings had not left William Hazledine's foundry at Plas Kynaston near Wrexham in July 1816. The basic form of the bridge is identical with that of several other iron structures designed by Telford after 1812, and used, for example, at Mythe, Holt Fleet and Bonar Bridge, but it is to some extent obscured by the exuberant ornamentation of rose, shamrock, leek and thistle, appropriate to a road between the English and Irish capitals, running through Wales and designed by a Scot. The ribs were encased in concrete in 1929.

Milepost 45 remains on the north side of the road beyond the service area, and gives the distance, eastwards, to Cernioge, the isolated staging point on the watershed between the Conway and the Dee.

The road immediately west of Bettwys-y-Coed was one of the last Welsh sections to be improved. The work was carried out under Telford's direction in 1826.

At Ty-hyll, beyond milepost 44, the 1804 turnpike route diverges to the south. The new alignment as far as Pont Cyfyng was completed by 1824.

The difficult section from Pont Cyfyng to Capel Curig had been commenced by 1819 but was not completed until 1825. The tollhouse in Capel Curig remains (just beyond the Youth Hostel) but it has been much altered. The development of Capel Curig as a place of thoroughfare and resort (to use the contemporary terms) was due to Lord Penrhyn. It was described in 1810 by Sir Richard Colt Hoare:

4 July 1810
Capel Cerrig - when last visited 'no accommodation even for the fisherman or even a pedestrian-tourist, but the public zeal of the late Lord Penrhyn has remedied all these inconveniences by establishing a large and commodious inn at Capel Cerrig and by rendering the rough places plain. The whole country is now becoming practicable in every direction, and a chaise rolls on with ease and safety where a timid equestrian would not have ventured. The inn and its appendages occupy a large space of ground and its different sides afford a singular contrast. On one side you will see numerous carriages hastening to or from the dear country and all the posting bustle or Hounslow or Salthill; on the other side all is retirement and wild solitude...

The route of the 1804 turnpike diverges to the left at the crossroads next to the Post Office. Telford's route from Capel Curig to Lake Ogwen was being built in 1819 and was completed by 1824. Telford sited it on the north side of the valley in order to gain maximum exposure to the sun. The old road had gradients as steep as one in nine, traversed several very boggy places, had not protecting parapet above several precipitous drops, and in places was only 12 feet wide. Nevertheless it had been reckoned a good road when turnpiked in 1804. The old road, now merely a footpath, joins Telford's line at the eastern end of Lake ogwen.

The level section along the shore of the lake was laid out under Telford's direction by 1819. It was completely rebuilt in the early 1970s. Beyond the lake the road crosses the chasm through which the water pours into the valley by a stone-arched bridge, 30 ft in span, erected between 1815 and 1817

The section beyond milepost 34 through the pass of nant Francon is one of the most spectacular on the Holyhead Road. It was one of Telford's first priorities, and was completed, as far as Ty Gwyn, by 1817. Telford noted with disgust that before improvement, passengers in coaches had to walk up the hill, and amused themselves by throwing coping stones from the parapet into the valley below. He regarded this stretch as '*the most dreadful horsepath in Wales, a section n which coaches are frequently overturned*'. After his improvements he described it as '*an arduous and very expensive work...which may be expected, with reasonable attention, to endure for ages*'.

The next stretch of about three miles from just north of Tyn-y-maes, including a bridge just outside Bethesda, was a completely new line designed by Telford and completed by 1824. There was an inn at Tyn-y-maes where some stage coaches changed horses. A tollhouse remains at the approach to Bethesda.

The three mile stretch through Bethesda to Lon-isaf was being improved during the summer of 1819. The present B4368 marks the start of the old route which rejoins Telford's line at Lon-isaf tollhouse. The stretch includes the 40 ft-span halfway Bridge over the Afon y Llan.

The Holyhead Road became the main street of Bethesda, a quarrying community which grew up around the Penrhyn slate quarries. Although the main outlets from the quarries to the coast were by rail, the Holyhead Road reports show that even in the 1840s considerable quantities of slate were being conveyed by road.

The Holyhead Road in this area has been considerably affected by the recent construction of the A55 by-passing Bangor. Telford regarded the streets of Bangor as an obstacle. Curbs were laid in 1835, but the following year it was reported that the road through the town was 'narrow, crooked and destitute of lights'. Oil lamps were erected in the streets during the winter of 1837-38. West of Bangor is the most spectacular feature of the Holyhead Road, the Menai Suspension Bridge, which we shall examine in detail on Sunday's visit.

Penrhyn Castle at Llandegai, seat of the Pennant family, Lords Penrhyn, was the centre from which the entire landscape of the region was transformed between 1780 and 1820. Lord Penrhyn was responsible not just for the construction of the turnpike road of 1804, and for the development of the quarry, its railway and its port, but for the establishment of a manufactory of writing slates at Port Penrhyn, a model dairy and a mill which produced materials for the Herculaneum Pottery in Liverpool.

The section of road from Llandegai to Conway was one of the peripheral routes adjoining the Holyhead Road, which Parnell hoped to incorporate within a new pattern of nationally-financed major roads. A considerable amount of improvement was carried out under Telford's direction in the mid-1820s. The route has been much altered in the twentieth century, even before the recent re-routing of the A55, and much of Telford's work over Penmaen Bach and Penmaen Mawr was obscured in the 1930s. The outstanding monument on this section of the road is the Conway suspension bridge, which retains its original ironwork.

Bibliography

Albert, W, 1972, *The Turnpike Road System in England 1663-1840*, Cambridge: Cambridge University Press.

Cossons, N, & Trinder, B, 1979, *The Iron Bridge: Symbol of the Industrial Revolution*, Bradford on Avon: Moonraker.

Hadfield, C, 1993, *Thomas Telford's Temptation*, Cleobury Mortimer: Baldwin.

Hoare, R C, 1983, *The Journeys of Sir Richard Colt Hoare through Wales and England 1793-1810*, ed. M W Thompson, Gloucester: Alan Sutton.

Hughes, M, 1964, 'Telford, Parnell and the Great Irish Road', *Journal of Transport History*, VI.

Milward, R, & Robinson, A, 1978, *Landscapes of North Wales*, London: Hodder & Stoughton.

Parnell, Sir H, 1838, *A Treatise on Roads*, London: Longman.

Trinder, B, 1980, 'The Holyhead Road: an engineering project in its social context', Penfold, A, *Thomas Telford: Engineer:* London: Thomas Telford.

Trinder, B, 1996, *The Industrial Archaeology of Shropshire*, Chichester: Phillimore.

Telford, T, 1838, *The Life of Thomas Telford*, ed J Rickman, London: J & L G Hansard.

The Holyhead Road

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Check list of Reports

1810 IV. Reports from Committee on Holyhead Road,
1811 Report
1815 Report
1817 First Report of the Select Committee on the Roads from Holyhead to London, 3 June 1817.
1817 Third Report, on slow rate of parcels carriage, 23 June 1817
1817 Fourth Report, on bridge and navigation, 3 July 1817
1817 Fifth Report, 7 July 1817.
1819 First Report of the Select Committee on the Road from Holyhead to London, 2 March 1819.
1819 Sixth Report, June 1819.
1819 Appendix to Sixth Report, June 1819.
1819 Report on the English part of the Holyhead Road
1820 Report
1822 Report 25 February 1822
1822 Report on inspection in March 1822, 2 April 1822.
1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
1824 Provis Report: summarised in SJ 12 May 1824.
1824 Telford: in SJ 30 June 1824.
1825: Second Report of Commissioners under 4 Geo IV c 74, Apprendix, Telford's Report, 8 Feb 1825.
1826: Third Report of Commissioners, Telford's report dated 16 Feb 1826.
1826 Provis: Annual Report of Commissioners under 59 Geo II cc 30/48, 17 March 1826.
1827: Fourth Report of Commissioners: 2 March 1827
1828: Fifth Report of Commissioners: 15 May 1828. BPP 1828 IX.
1828 Provis: Annual Report of Commissioners under 59 Geo III, 26 Feb 1828. BPP 1828 IX.
1829: Sixth Report of Commissioners under 4 Geo IV c 74 and 7/8 Geo IV c 35, Telford. BPP 1829 V.
1829 Provis: Annual Report of Commissioners under 59 Geo III, 25 March 1829. BPP 1829 V.
1830: Seventh Report of Commissioners under 4 Geo IV c 74 & 3/8 Geo IV c 35. BPP 1830 XV.
1830 Ketley - Chirk, Telford 24 March 1830.
1830 Select: Report of the Select Committee on the Holyhead & Liverpool Roads, 20 May 1830. BPP 1830 X.
1830 Provis: Report of Commissioners under 59 Geo III c 30/45, 22 March 1830.
1831 Provis: Report of Commissioners under 59 Geo III, 23 March 1831. BPP 1830-31 IV.
1831: Eighth Report of Commissioners under 4 Geo IV, with Telford's Report, 28 Sep 1831, BPP 1831 XII.
1832: Ninth Report of Commissioners under 4 Geo IV, 6 July 1832. BPP 1833-32 XXIII.
1832 Provis: Report of Commissioners under 59 Geo III, 23 March 1832. BPP 1831-32 XXIII.
1833: Tenth Report of Commissioners under 4 Geo IV, 28 August 1833. BPP 1833 XVII.
1833 Provis: Report of Commissioners under 59 Geo III, BPP 1833 XVII.
1834: Eleventh Report of Commissioners under 4 Geo IV. BPP 1834 XL.
1835: Twelfth Report of Commissioners under 4 Geo IV. BPP 1835 XXXVI.
1835 Provis: Report of Commissioners under 59 Geo III, BPP 1835 XXXVI.
1836: Thirteenth Report of Commissioners under 4 Geo IV. BPP 1836 XXXVI.
1836 Provis: Report of Commissioners under 59 Geo III, BPP 1836 XXXVI.
1837: Fourteenth Report of Commissioners under 4 Geo IV, 15 July 1837. BPP 1837 XXXIII.
1837 Provis: Report of Commissioners under 59 Geo III, 5 April 1837. BPP 1837 XXXIII.
1838: Fifteenth Report of Commissioners under 4 Geo IV, 14 August 1838, BPP 1837-38 XXXV.
1838 Provis: Report of Commissioners under 59 Geo III, 1 May 1838, BPP 1837-38 XXXV.
1839: Sixteenth Report of Commissioners under 4 Geo IV, 5 August 1839, BPP 1839 XXIX.
1839 Provis: Report of Commissioners under 59 Geo III, 10 March 1839, BPP 1839 XXIX.
1840: Seventeenth Report of Commissioners under 4 Geo IV, 5 August 1840. BPP 1840 XXVIII.
1840 Provis: Report of Commissioners under 59 Geo III, 18 March 1840. BPP 1840 XXVIII.
1841: Eighteenth Report of Commissioners under 4 Geo IV. BPP 1841 XII.
1842: Nineteenth Report of Commissioners under 4 Geo IV, 12 August 1842. BPP 1842 XXV
1843: Twentieth Report of Commissioners under 4 Geo IV, 24 August 1843. BPP 1843 XXIX.
1844: Twenty first Report of Commissioners under 4 Geo IV. BPP 1844 XXXI.
1844 Rennie: Report of Sir j Rennie & Mr T Page on harbours at Holyhead and P DinLlaen, 1 August 1844.
1845: Twenty second Report of Commissioners under 4 Geo IV. BPP 1845 XXVII.
1846: Twenty third Report of Commissioners under 4 Geo IV. BPP 1846 XXIV.
1849: Twenty sixth Report of Commissioners under 4 Geo IV. BPP 1849 XXVII.
1850: Twenty seventh Report of Commissioners under 4 Geo IV. BPP 1850 XXX.
1851: Twenty eighth Report of Commissioners under 4 Geo IV. BPP 1851 XXIX.

Anglesey
1810 IV.
Maps shows new road and harbour at Holyhead, from *Eagle & Child*, just east of church yard by Black Rock and lighthouse to proposed new pier.

1811 Report.
Complaints that proposed new road in Anglesey avoids inns &c.

1811 Report, Appendix 2.
Shows road in Holyhead starts at Eagle Inn.

1819 Report.
People in Llangefni object to being left off the line of the proposed new road. So does the proprietor of an inn at Gwyndu which was built specially for the road - he deserves compensation.
Reconstructing the present road across Anglesey would be such a total charge that a brand new road is no more expensive. Estimated cost of Anglesey road including Stanley Embankment is £52,000.
Maps show old coal pits where new road crosses Malldreath Marsh and location of Bangor Ferry.

1822 Report on inspection in March 1822, 2 April 1822.
Steam packets *Royal Sovereign* and *Meteor* built on Thames began to work Holyhead - Howth crossings in course of last year.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
New 18-mile road in Anglesey completed Spring 1822, since when the 1300 yards, 16 ft high Stanley Embankment has been completed.

New graving dock on E side of entrance to Holyhead harbour under construction.
Have seen 100 vessels in harbour.

1824 Provis Report:
Embankment cross Stanley Sands completed last summer, saves two miles.
New tollhouse and gates at west end.
Branch road to Bodedern and new toll house at Gwalchmai completed.

1825 Report:
Pieces completed since last report
Coping of parapet on walls of Stanley Embankment

1826 Provis
Milestones erected across Anglesey

1828 Provis:
Rev John Griffith of Cym-y-nod re-opened an old parish road behind the Cal-Geiliog tollhouse. Solicitors had it closed again.

1829 Report:
New stone walls on embankment at Maldreath Marsh completed.

1829 Provis:
New fence walls on Maldreath Marsh.

1831 Provis:
Willows planted on Maltreath marsh damaged by cattle. Cross walls between the road fences and the side ditches to prevent access to them.

1830 Select:
An entirely new inn has been built in the middle of the Island of Anglesey upon the new line of road.

Stanley Embankment - 1144 yards, 156271 cubic yards earth and 25754 cubic yards rubble stones. Has been completed 7 years and is now in a perfect state.

Holyhead harbour put under commissioners 1823. Graving dock completed with Boulton & Watt engine.

1830 Report:
South pier at Holyhead harbour nearly finished.

1832 Report:
Mona Inn mentioned as landmark on Anglesey section of road.

1832 Provis:
Ellis Williams, Inspector on Anglesey, dismissed for forging receipts and imprisoned for 12 months.

1833 Provis:
Branch roads to Llangefni and Bodedern on Anglesey in good repair.

1835 Report:
Part of stone facing on eastern slope of Stanley Embankment paved since last report.

1836 Provis:
Paving of Stanley Embankment continues.

1839 Provis:
Quicks planted on roadsides over Maltreath Marsh - vibration from coaches cripples fence walls.

Check bars needed to prevent vehicles using parish roads to avoid Nant and Llanfair gates.

1841 Report:
On Anglesey a great increase of traffic within the past year from collieries at Maltreath Marsh. Carts overloaded with 2 tons of coal on one pair of wheels.

1844 Report:
More sinkage of road on Anglesey near Berw collieries.

1851 Report:
On Anglesey grass is encroaching on the road.

Menai Bridge

1810 IV
Facing p 43
Picture of Rennie's proposed bridge over Menai - one iron arch of c 450 ft span between circular castellated piers, with 6-arch viaduct on Caerns side and 10 arches + embankment on Anglesey side. 150 ft above spring tide. Cost £268,500.
Another design with two arches either side of central cast iron arch, but more expensive. Rennie prefers former.
P 44
Proposal of another site for bridge with three cast iron spans, 1 of 350 ft, 2 of 200 ft. Rennie writes 'cast iron arches made according to my design of 1791 which I communicated to Dr Hutton in 1795'.

1825 Report:
Pieces completed since last report
Approach roads to Menai Bridge

SC 3 Feb 1826
Good account of opening

1826 Report:
Work completed since last report:
Menai Bridge opened 30 January.

1827 Report:
Menai Bridge '*has now been travelled upon for more than twelve months without obstacle or interruption and the public have acquired a perfect confidence in its stability*'.

1830 Select:
John Provis resident engineer in North Wales has charge of suspension bridge. Once the top of the mast of a brig touched the bridge and the device for raising the flag knocked off.

1837 Report:
Menai Bridge to be painted - this is the third since it was coated. Also Conway.

1839 Report:
Severe gales caused damage to Menai Bridge on 6 January last - £9700 voted by House of Commons for repairs. Flooring of the bridge being strengthened.

On 6 January lare parts of the Menai Bridge carriageway hung on one side only. Bridge closed to traffic. Fortunately spare suspension rods were in store. Opened after five days. Old ferries had been used meanwhile. Entirely new platform being built under W J Provis, brother of John Provis.

1840 Report:
Whole of gale damage to Menai Bridge now repaired at less than estimate of £9700, superintended by W J Provis.

1841 Report:
On Caernarvonshire side of bridge a birch plated in 1826 is now 42 ft high.

1845 Report:
Surface raised in Anglesey where coal has been worked from under the road at Berw collieries.

Menai Bridge - Llandegai

1817 Report.
Improvements already made:
Bangor Ferry - Bangor, 90 ft lower than old road.

1819 6th Report: improvements already completed:-
New road at 1 in 36 from Bangor Ferry to Bangor, 1 mile 1188 yards. Contractor: Straphen & Stanton.
New section, 1435 yards from near Bangor to Llandegai, and new junction with road to Chester.

1819 6th Report: improvements under contract, in progress but not in a great state of forwardness:-
From opposite Port Penrhyn across the deep dingle to the Llandegai improvement, 1249 yards, includin bridge and high embankment.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
Formerly:
Bangor streets ill-paved and no care whatever taken of them.

Improvements under 55 Geo III c 152:
Bangor streets improved.
New road to the ferry.

1824 Provis Report:
Street pavement in Bangor neglected by parish, repaired.
Clayey sides of each ascent from River Cegin removed and replaced by broken stones.

1825 Report:
Pieces completed since last report

1826 Report:
Work completed since last report:
Eastern approaches to Menai Bridge.

1826 Provis
New road from east end of Menai Bridge to opposite the Bangor Ferry Inn opened at same time as Bridge.
From opposite the Ferry Inn to Bangor low walls built by Commissioners at base of hedges and protect hedges from droves of pigs.

1828 Report;
Bangor streets improved but still deficient.

1830 Provis:
Subscription being raised in Bangor for lighting the streets.
Fences between Bangor and Llandegai need protection from droves of pigs.

1831 Provis:
House fronts in Bangor have been set back - a considerable improvement.

241 yards of fence wall built between Bangor and Llandegai at expense of Mr Pennant.

1834 Report:
Streets of Bangor now have curbs.

1835 Report:
Road through Bangor is narrow, crooked and destitute of lights.
Low stone walls at base of hedges built in last year from Bangor to Llandegai.

1836 Provis:
No improvement in Bangor.
Tollgate west of Penrhyn Arms administered by Caernarvon trustees must be removed in May next.

1837 Report:
Tollgate near west end of Bangor belonging to the Trust of Caernarvon road, so long complained of, was removed in May last.

1838 Provis:
Oil lamps now light Bangor streets.

1839 Provis:
Tollgate in Bangor town has been removed.

1844: Rennie & Page:

Reports respecting harbours of Holyhead and Port DinLlaen, house of Commons 9 August 1844
page; shows claims of PDL taken seriously. Plans for proposed breakwater, evidence of number of ships which already use it as a harbour of refuge; although there are no shops or other facilities.
PDL could be served by two railways - the Birmingham and the extension across North Wales of the Great Western route to Worcester.
It would not be possible for railway trains to cross the Menai Suspension Bridge.
Time for journeys from PDL to Kingstown may be less than from Holyhead, although the distance is greater: - trials needed.
Rennie: also argues that huge expense of improving Holyhead will not be justified.

1845 Report:
Increased slate cartage from Coetmor to Bangor.

1846 Report
Coetmor slate traffic beginning to cause wear, and around Bangor much damage caused by carriage of heavy materials for Chester & Holyhead Railway.

1849 Report:
Much damage from cartage of heavy stone for railways around Bangor and on Anglesey.

Llandegai - Capel Curig

1815 Report.
Coach passengers normall walk up hill to Lake Ogwin and amuse themselves by pushing stones of parapet wall down the hill.

1817 Report.
Improvements already made:
Ty-Gwyn - Lake Ogwen, instead of the very dangerous old road.
At waterfall at the Llugwy where a very dangerous precipice is avoided.
30 ft bridge over top of chasm in which Ogwen flows at the top of the valley.

1819 Report speaks of 'present road' and 'the new road' between Ogwen and Capel Curig.
'Present road' on south side of valley is morrassy, hilly ground, up to 1 in 9, as narrow as 12 ft, no protection against falling into bogs. 'New road' on north side has good exposure to sun.

Tyn-maes - Ogwen Bank, very narrow with pieces of rock across it, on which mail coach has lately been overturned.

1819 6th Report: improvements already completed:-
Ty-Gwyn, across River Ogwen to west end of Lake Ogwen, 1 miles 1094 yards, contractors Straphen & Stanton, *'an arduous and very expensive work...which may be expected with reasonable attention to endure for ages'.*
Gradient does not exceed 1 in 22.

1 mile along south shore of Lake Ogwen, contractor J Roberts.

1819 6th Report: improvements under contract, in progress and in a great state of forwardness:-

From present road at Llonissa (1 miles S of Llandegai), a new line crosses the River Ogwen and passes along the north side in a more direct course, upon drier ground, more exposed to the sun, to meet the present road near Ogwen Bank, 3 miles 189 yards, including one arch of 60 ft, one of 40 ft, one of 10 ft. Old line runs between railroad and the gulph (sic) of the Ogwen, and afterwards by a circuitous hilly route.

From east end of Lake Ogwen along the north wide of the valley to Capel Curig, 4 miles 314 yards.

1822 Report 25 February 1822: works completed:-
Considerable distance along the rugged base of Ogwen Bank.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
Improvements under 55 Geo III c 152:
New road making from Capel Cerig to Llyn Ogwen
New road making from Llyn Ogwen to Tygwyn.
Tygwyn - Tyn-y-Maes new fences making.
From north of Tyn-y-Maes completely new road 3 miles down valley of Ogwen which it crosses by a new bridge.
Half mile SE of Llandegai, W of Penrhyn Arms, complete new road with 40 ft embankment over Cegin.
New tollhouse at Hendre-issa

Improvements by Commissioners:
Two sets wrought iron toll gates and one weighing machine installed.

1824 Provis Report:
Protective work on bridge over Llugwy at Hendre-Rhyd-Gethen (SH 678605)

1825 Report:
Pieces completed since last report:
Road at Tyn-y-maes
Tollgate - Llandegai

1828 Provis:
New toll house needed at Tyn-y-lon in place of one which is ruinous.

1829 Provis:
Have started cottage for foreman at west end of Lake Ogwen.

1830 Provis:
Cottage for foreman at Lake Ogwen is completed.

1831 Provis:
Turf mounds at roadside between Ogwen and Capel Curig decaying and should be replaced by stone walls.

1836 Provis:
Llandegai - Capel Curig fence walls pinned and pointed - formerly without mortar. New contract to do this on to Pentrefoelas is completed as far as Bettws.

1843 Report:
New cast iron platforms for weighing machines at Ty-issa and Lon-issa.

1844 Report:
Cernioge - Bangor traffic is light except for slate from Coemor to Bangor.
Landslip between Ogwen and Tin-y-maes on October 8 last quickly cleared.

Capel Curig - Cernioge

1817 Report.
Improvements already made:
From Bettws-y-Coed across the Conway, along the face of Dinas Hill to Rhydllanfair, in place of the most dangerous section along the whole line.
From Rhydllanfair to near Glen Conway avoiding several very steep hills.

1819 Report
Along rocky precipices of Dinas Hill was one of the few sections where costs exceeded estimates.

Next improvement at Cernioge, 4½ miles down valley to include Pont-y-Padoc Bridge.

1819 Appendix
From Bettws-y-Coed a new road has been completed along the rocky and precipitous face of Dinas Hill and across a succession of rugged dingles to Rhydllanfair, 3 miles, 1166 yards. Includes new bridge across Conway.

1819 6th Report: improvements already completed:-
After passing Capel Curig there is an improvement adjacent to the great waterfall of the Llugwy and from thence to near Bettws-y-Coed, 1 mile 1133 yards, contractor; Straphen & Stanton.

Bettws-y-Coed - Rhydllanfair, 3 miles 1166 yards, steepest gradient 1 in 22, contractor Straphen & Stanton.

Llynnon Bridge, iron, by William Hazledine.

Rhydllanfair - Glan Conway, 946 yards, contractor Straphen & Stanton.

1819 6th Report: improvements under contract, in progress and in a great state of forwardness:-
After the toll bar near Capel Curig improvement commences near the upper bridge over the Llugwy, passes down the north side of that river and crosses it to join the west end of the great waterfall variation, 1 miles 1400 yards, one two-arch bridge each of 35 ft span.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
Formerly:
Pont-y-Padog was in ruins
1 in 6 descent of Dinas Hill
Old road W of Bettws-y-Coed crossed river at pont Cyfyng
Whole road from Capel Curig to Cernioge notorious for upsets of coaches and broken springs.

Improvements under 55 Geo III c 152:
5 miles of complete new road from Cernioge to beyond Pont-p-Padog no steeper than 1 in 26.
Rhydllanfair - Bettws-y-Coed 4 miles entirely new road avoiding Dinas Hill.
Old road from Llugwy waterfall to PontyCyfyn - 2 miles abandoned and new route built.
New road making from PontyCyfyn to Capel Cerig.

Improvements by Commissioners:
Descent into Hendre-rhys-gethen near Bettws-y-Coed eased.
Pont-y-Padog - Capel Cerig low sides raised.

1824 Provis Report:
Short piece of new road completed near Bettws-y-Coed
E of Bettws-y-Coed county bridges have become dangerous.

1825 Report:
Pieces completed since last report:
Pont-y-Cyfyn - Capel Curig

1826 Report:
Work completed since last report:
Short piece west of Bettws-y-Coed and also rebuilding of walls at Maesmawr.

1826 Provis
Breast walls and parapets built from half a miles west of Rhydllanfair and rebuilding the small bridge opposite Rhydllanfair is in progress.

1827 Report
Piece of road at Rhydllanfair completed since last year.

1828 Provis:
New toll houses needed at Bettws-y-Coed and Cernioge in place of ruinous ones.

1829 Provis:
New tollhouses at Capel Curig and Bettws with wrought iron gates.

1830 Select:
Bettws Bridge '*having the national emblems, the rose, thistle shamrock and leek in the angles, it becomes a public and lasting testimonial of the action which so splendidly terminated the war'*.

1830 Provis:
Last July slip from Benglog (sic) Mountain (not located, may not be in this section) blocked road. Temporary roadway made over top of debris - wholly cleared within a fortnight.

1833 Provis:
On bogs between Hendreissa and Cernioge ground has consolidated and drystone fence walls can be taken down and rebuilt with mortar.

1836 Provis:
Llandegai - Capel Curig fence walls pinned and pointed - formerly without mortar. New contract to do this on to Pentrefoelas is completed as far as Bettws.

1838 Provis:
New check bar needed between the iron bridge over the Conway and the new road to Penmachno which brings a great number of slate carts on to the Holyhead Road - they use it for 3.75 miles, do considerable injury to it, but pay no tolls.

1841 Report:
West of Cernioge road is in excellent condition.

1845 Report:
Cernioge - Menai bridge in excellent order.

Cernioge - Corwen

1817 Report.
Improvements already made:
At Cerig-y-Druidon, a road nearly level avoiding the old one over the hill through the village.

1817 Report:
Last autumn the mail overturned in Glyn Duffws turning at at acute angle, fell against the parapel, knocked considerable quantity of coping from the top, broke coachman's leg, guard saved by throwing himself on the other side of the coach, luggage went into the abyss about 100 ft below, had there been any roof passengers they would have perished.

1819 Report.
At south end of new road at Cerrig-y-Druidon present line falls into a soft bog, liable to flood &c.

1819 Appendix
At Cerrig-y-Druidon an angle has been cut off and a hill avoided - 780 yard sections fenced by stone walls.

Extensive improvement from the west end of Glyn Dyffrwy, through that confined rocky pass, breast works of stone and lime masonry, upwards of 40 ft in height and protected by parapet. From east end of pass new uniform descent to a new bridge of 60 ft span, avoids hills on old road, fenced by stone walls.

1819 6th Report: improvements already completed:-
Cerrig-y-Druidion: 780 yards, contractor Straphen & Stanton

New road avoiding Gairw bridges, with stone walls, 1 mile 592 yards, contractor J Roberts.

West end of Glyn Dyffrws and through that confined rocky pass, breastwork up to 40 ft in height, including new 60 ft span bridge, 2 miles 731 yards, contractor Straphen & Stanton.

1822 Report 25 February 1822: works in hand:-
Sundry variations &c to remove hills and hollows between Cernioge and Cerrig-y-Druidon.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
West of Corwen along straight piece to the Druid Inn sides so low that a coach could not travel on them.
1 in 7 and bend at Druid Inn.
Section west of River Geirw to Cerrig-y-Druidon across bog, safe section so narrow that coaches could not pass.

New under 55 Geo III:
Druid Inn bend cut and gradient eased to 1 in 30.
W of Druid Inn another new piece and remaining portions in progress up to Glyn Dyffws.
5 miles W of Corwen new road made through the romantic pass of Glyn Dyffws by which the hills at Maesmawr have been avoided.
New road in progress from Glyn Dyffws past Tynant to near Disgarth-issa. At Disgarth-issa new road reduces gradient to 1 in 30.
Road avoiding Geirw bridges is complete, section east of it is in progress.
New piece SE of Cerrig-y-Druidon.
New piece avoids hill at Cerrig-y-Druidon
New piece NW of Cerrig-y-Druidon
Clwst-y-Blaidol hill cut off.

Improvements by Commissioners:
Quarter of a mile of new road between Corwen and Corwen Bridge
Low sides raised from Rug Bridge to Druid Inn
175 yards new road at Hendre-r-ddwyffaen.
Low sides of bog SW of Cerrig-y-Druidon raised
3/4 mile new road from Cerrig-y-Druidon to Cl-y-Blaidol.

1824 Provis Report:
Bend near Druid Inn W of Rug Bridge has been straightened.
Corwen Bridge rebuilt by county.

1825 Report:
Pieces completed since last report:
Past Druid Inn
From Glyn Differs (sic) past Tynant to Disgarth-issa to road avoiding Geirw bridges
Approach to Cernioge Inn

1826 Report:
Work completed since last report:
Rebuilding walls between the two bridges over the River Geirw

1827 Report
Piece of road at Rug completed since last year.

1828 Report:
Road in pass of Glyn Duffrws west of Corwen '*forms a striking feature*', and remains in a perfect state.

1829 Report:
Short piece at west end of Corwen Bridge completed in past year.

1829 Provis:
New tollhouse at Cernioge ¼ mile east of the old gate.

1836 Provis:
Llandegai - Capel Curig fence walls pinned and pointed - formerly without mortar. New contract to do this on to Pentrefoelas is completed as far as Bettws.

Corwen - Chirk Bridge

1819 Report.
Urges new line through Llangollen west of church at back of inn.

New improvement on Rhysgog Hill, after which 3 miles 1 furlong to Owen Glendower's Hill a very crooked and narrow stretch.

1819 Appendix
Beyond Corwen road now goes around Owen Glendower's Hill instead of crossing over it, 984 yard section, stone retaining wall on south side.

60 ft height saved on Rhysgog Hill, widened and protected from precipices, 2 miles 379 yards.

1819 6th Report: improvements already completed:-

Road around north of Owen Glendower Hill, 984 yards, contractor: Gill & Co.

Rhysgog Hill, 60 ft of height avoided, stone walls, length 2 miles 379 yards, contractor: T Evans.

1822 Report 25 February 1822: works completed: -
Sundry improvements and variations between Owen Glendower's Hill and Rhysgog Hill.

Variations on the south side of Llangollen Church by which the crooked and inconveniently narrow streets of that village are avoided.

1822 Report 25 February 1822: works in hand:-

Pontcsyllte - Chirck Castle Gardens, cutting angle at Whitehurst Gate.

Widening from Chirk Castle Gardens and Chirk village and making the very considerable embankment from the village to Chirk Bridge.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
Formerly 1 in 9 rise from Chirk Bridge to village
Acute bend at Whitehurst tollgate
West of Biddulph's lime kilns only 18 inch earthen bank gave protection from 100 yard fall into the Dee.

New under 55 Geo III:
New road from Chirk Bank to village
New road from top of the first descent beyond Chirk village to Biddulph's Lime Kilns, avoiding two valleys and hills.
New road is making to cut off the hill opposite the Pontcysyllte Aqueduct.
Next two miles widened and protected with stone walls.
New road in a straight line at back of Llangollen Church avoiding narrow town streets.
New road from Woollen manufactory at Rhysgog Hill.
New road to join that over Rhysgog Hill with that over Owen Glendower Hill.
New road avoids summit of Owen Glendower Hill.
Half mile avoids bends east of Plas yn Bonim.

New tollhouse at Ty-issa between Llangollen and Corwen.

Improvements by Commissioners:
Two miles of low sides E of Pontcysyllte raised.
Protecting wall along Dee 3/4 mile W of Llangollen.
Stone walls instead of hedges on Rev Bean's land at Carog.
Half a mile of new road and fence along the Dee between Bonim and Corwen.
Weighing machine installed at Ty-issa.

1824 Provis Report:
Stone walls have replaced hedges on estate of Rev Edward Beans.
New road avoiding hill E of Llangollen being built.
Opposite Pontcysyllte variation avoiding hill being built.
Trees being planted on lower part of each slope of Chirk Embankment.

1825 Report:
Branch road to the Chester Road at Irishman's Bridge completed since last report is opened, by which the hill is cut off opposite the Pontcysyllte great aqueduct, and a new piece is commenced by which the steep hill east of Llangollen will be wholly avoided.
From Owen Glendower's Hill a new piece in hand to complte the line to Corwen and a short piece east of Corwen Bridge has been finished.

1826 Report:
Work completed since last report:
West end of Glendower Hill
Hill east of Llangollen
Tollhouse west of Chirk

1826 Provis
Commissioners improving road through Corwen town and a new road west of Owen Glendower Hill is just opened.
Sid of the hill 2½ miles west of Llangollen keeps slipping down.
New road at east end of Llangollen finished by Commissioners under 4 Geor IV act, is in use except for short distance at west end.
At Chirk end the road is very dirty when farmers cannot work on field sand use carts for carrying coal.

1828 Report:
Chirck Village to the Gardens direction of road is preserved - footpath on proper side.
Chirk Gardens through Llangollen and over Rhysgog Hill to the toll gate, 11 miles, is new and perfect.
Owen Glendower improvement among the first performed about 20 years ago.

1828 Provis:
New toll house needed at Black Park near Chirk
Coal carts damage road near Chirk.

1829 Provis:
Road being forced out of shape by slippage on Rhysgog Hill.

1830 Provis:
Quckfence on lower side of the road near Owen Glendower's Hill much eaten by rabbits.
Very heavy wear from coal carts between Black Park and Chirk Bank..

1831 Provis:
New toll house and bar at Black Park on site of the old one, erected by Commissioners under 4 Geo IV c 74.
3 new tollhouses built, one enlarged, 3 others repaired and 6 new gates erected in this district by Commissioners under 4 Geo IV c 74.

1832 Report:
New breast walls needed on downward side of road near Ty-issa.

1832 Provis:
Near Llangollen wall built to protect road from action of the Dee.

New weighing machine installed at Ty-issa.

1833 Report:
Much coal and lime carriage up Dee Valley west of Llangollen. After crossing Rhysgog hill there is a space near the tollhouse (i.e. Ty-issa) where a wall to protect the precipice is needed.

1834 Report:
Chirk - Corwen in perfect state and on to Bangor.
Toll bar near top of Rhysgog Hill.

1836 Provis:
Ty-issa toll gate mentioned in text but no in 1835 list.
Curbs installed in Corwen.

1836 Provis:
Whitehurst gate replaced by New Whitehurst gate.

1839 Report:
Walls being repaired and pointed from Chirk Bridge to milepost 72. Will complete pointing for the whole route.

1841 Report:
Chirk - Vron Lime Works still far from satisfactory, though better than it was. Higher tolls are necessary.
Between Vron and Llangollen traffic is much lighter and the road is therefore in better condition.
Much stone laid this year from Llangollen - Corwen.
For 2.5 miles west from Corwen coal traffic is considerably but traffic is lighter beyond.

1843 Report:
New cast iron platforms for weighing machines at Ty-issa and Lon-issa.

1844 Report:
Act only allows one toll between Llangollen and Corwen - not enough for maintenance. Much of this section suffers from being shielded from the sun by the mountains to the south.

1845 Report:
Chirk - Vron worn by coal and lime cartage.
Llangollen - Corwen better than for some years. Heavy traffic wears down the soft stone but no harder stone is available.

1849 Report:
From Chirk Bridge to Whitehurst many heavy materials conveyed for Shrewsbury & Chester Railway.

1850 Report:
Improvement near Chirk now that traffic for the Shrewsbury & Chester Railway has ceased.

Large quantity of coal still carried between Llangollen and Corwen.

Managerial and technical policy

1810 IV. 2nd Report.
From 1 Jan to 27 March last, 85 days, mail 1-5 hours late on 71 occasions from Shrewsbury - Holyhead, and on 75 days from Holyhead - Shrewsbury.
Accidents to Mail Coach:
17 Apl 1809 overturned near Corwen
22 June 1809 shackle broke between Holyhead and Corwen
14 Sep 1809 shackle broke between Oswestry and Llangollen
30 Sep 1809 two shackles broke between Corwen and Cernioge
7 Dec 1809 hind spring broke between Capel Cerig and Rhydllanfair
14 Dec 1809 shackle broke between Rhydllanfair and Capel Cerig.

1815 Report
Argues that Shrewsbury - Holyhead section is actually getting worse under turnpike commissioners.

1817 Report.
Recommendations of 1810 and 1811 brought no results but after Committee of 1815 set forth extreme danger to which everyone who travelled the road was exposed, £20,000 voted, and Act passed to appoint Commissioners.
Lists improvements already made.
At least 45 minutes already saved.

1817 5th Report
W A Provis: opening of Dee Valley, 3 miles east of Llangollen taken as fixed point in determining route.

1819 Report
'Parliament...recognised the principle..that the communication between England and Ireland was of sufficient importance to justify the expenditure of public money in enabling the Mails and the Carriages of individuals to travel through Wales without being exposed to be broken in pieces at every step, or to the danger of falling over steep precipices against which the road was not in the smallest degree protected'.

6th Report 1819
Aim to allow mail coach to run at overall average speed of 8 mph including stoppages.
1½ inches should be greatest dimension of stones used in top dressing.
1819 act 59 Geo III c 48, authorised Commissioners to build Menai Bridge and road across Anglesey, and another, 59 Geo III c 30, vests Shrewsbury Bangor Ferry section with 15 Commissioners instead of turnpike trusts.
I Geo IV c 70 renews power of Commissioners of 1815 (55 Geo III c 152) concerning London - Chirk section.

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
Shrewsbury - Holyhead until the last five years was one of the worst roads in the kingdom - 7 turnpike trusts and limited revenues, no qualified surveyors. 59 Geo III c 30 consolidated 6 trusts from Shrewsbury to Bangor into one and vested them in 15 commissioners. Passed in May 1819 with effect from 1 August 1819.
Divided into three districts:

- Shrewsbury - Chirk Bridge
- Chirk Bridge - Cernioge
- Cernioge - Bangor Ferry

1824: first Report of the Commissioners under 4 Geo IV c 74, Appendix B, Report of Mr Telford, 6 May 1824:
Principle that horses may easily and rapidly trot over the whole road, either ascending or descending, with a loaded coach.
Steepest portion remaining is 1 in 17 W of Bettws-y-Coed.

1824 Provis report:
Whole of 1823 a severe season for roads.
Much frost early in year, summer and autumn very wet.
Putting on stones and scraping off dirt constant employment on old part of road.

1825 Report:
Shifnal Trust: Labourers on this road very aged and inform, from parish workhouse, 'quite at variance with the just application of the Road funds'
Shrewsbury - Holyhead: *'present perfect state of this road'*..shows benefit of consolidation of turnpike trusts.
Shrewsbury - London ought to be so treated.
'From Chirk to Holyhead, a distance of 83 miles, the whole road is perfectly hard, smooth and clean, notwithstanding the very unfavourable weather for roads that is just over'.

1826 Report:
Protecting walls should be pointed with dry mortar and should be provided where only hedges or earth mounds protect the road in precipitous places.

'This great length of road in North Wales continues to be maintained by the Commissioners in a perfect state. The merits of the substantial plan on which it has been constructed become every year more apparent'.

1827 Report:
All road in good state except for the first 20 miles and Towcester - Daventry

Since last year much fencing replaced with stone walls.

'From Chirk along the Parliamentary Road to Holyhead the surface of the Road is uniformly hard and smooth, constant attention being bestowed in maintaining it in perfect order'.

1828 Report:
Footpath should be on south occupying shaded part, allowing to the driving way the sun and the winds.

1830 Select:
Between Holyhead and Chirk Bridge is a distance of 83 miles 1320 yards. The whole may be fairly considered a new road, as the short pieces of the old road retained wre entirely remade. The whole of the roadway is constructed with a substantial rubble stone pavement, carefully hand-set, and covered with a 6 inch coating of properly broken stone. There are in all cases where found necessary breast and retaining walls of stone, with numerous side and cross drains, all constructed in a most perfect manner. The whole is prtected with stone walls; those upon precipices built with lime mortar, mot of the others pointed with it. There are several considerable bridges, also numerous cuttings and embankments in that mountainous country. One in particular at the village of Chirk is 50 ft in height. Four miles of branch roads have been made. The tollhouses and gates are on a new construction as are the milestones, and sufficient recessed depots for stones have been made in every part of the road. An entirely new inn has been built in the middle of the Island of Anglesey upon the new line of road.

1830 Report:
Much work on tollhouses and gates in North Wales and pointing walls - grant received last year.

1831 Report:
Chirk - Holyhead has been carefully examined and is in very perfect state. Telford praises John Provis *'whose regularity and perseverance keep everything in order'.*
Fence walls of necessity being pointed.
In 1815 the Mail took 41 hours 12 minutes to get from London to Holyead. Now does the journey in 28 hours 6 minutes

1833 Provis:
On bogs between Hendreissa and Cernioge ground has consolidated and drystone fence walls can be taken down and rebuilt with mortar.

1835 Provis:
Coaches using road between Shrewsbury and Holyhead:
Wonder, Nimrod, Hawk, Tourist, Stay, Accommodation, Chester.

1836 Provis:
Llandegai - Capel Curig fence walls pinned and pointed - formerly without mortar. New contract to do this on to Pentrefoelas is completed as far as Bettws.

1837 Provis:
Acts of 5/6 William IV c 21 imposing fines for removal of stones from walls without permission of surveyor has done much for their protection. Printed notices circulated &c.

1839 Provis:
Commuted tolls from coach operators:
Wonder £682 19 02
Nettle £52
Royal Oak £52
Accommodation £72 16 00

1839 Report:
Walls being repaired and pointed from Chirk Bridge to milepost 72. Will complete pointing for the whole route.

1842 Report:
3/4 Vic c 104 transferred to Commissioners of Her Majesty's Woods &c powers vested in Commissioners for road from Shrewsbury to Bangor Ferry &c, and 3/4 William IV c 43 did the same for London - Holyhead and the two bridges.

1843 Report:
Recites legislation:
4 Geo IV c 74; 7/8 Geo IV c 35; 3/4 Wm IV c 43; 6/7 Wm IV c 35; 3/4 Vic c 104.

1844 Report:
Last winter very wet.

1850 Report:
Chief Commissioner has questioned propriety of continued grant for Shrewsbury - Holyhead road since the railway is now complete.

1851 Report:
(28th)
'*We are of the opinion that the road is no longer of such national importance as to justify us in applying to Parliament for a grant of public money for its future maintenance*'.
Grass is encroaching on the road in Anglesey.

Personnel

1811 Report
Telford 'an engineer of great eminence' instructed to report on Shrewsbury - Holyhead Road.
To be shortened from 109 to 105 miles, no gradient above 1 in 30, 40 ft average width and never narrower than 30 ft. 18 ft in centre to be gravelled.
Telford ordered to begin survey without regard to special interests from 4 May 1810.

1829 Report:
Repair contract 26 August 1828 let to William Hughes of West Felton and Henry Cartwright of Whittington.

1830 Select:
John McNeil resident engineer under Telford for London - Shrewsbury section.
John Provis, resident engineer in North Wales, has charge of the suspension bridge.

£6291 05 00 paid to Telford from 1815 to present + £2057 02 06 expenses, excluding surveys undertaken separately

1830 Report:
Dynamometer being used by McNeill to measure pull needed by horses on roads of different surfaces. Figures for every section of road from London to Shrewsbury.

1831 Report:
Chirk - Holyhead has been carefully examined and is in very perfect state. Telford praises John Provis '*whose regularity and perseverance keep everything in order*'.

1832 Provis:
Ellis Williams, Inspector on Anglesey, dismissed for forging receipts and imprisoned for 12 months.

1834 Report:
Written by MacNeill and Provision with section on Howth by James Souter.
Death of Telford, '*who had so satisfactorily conducted all the extensive works which have been since (1815) executed*'.

1839 Report and 1839 Provis:
Report of Commissioners under 59 Geo III c 30/c 48 is written by John Provis. Report of Commissioners under 4 Geo IV c74, 7/8 Geo IV 35, 3/4 William IV c 43 and 6/7 William IV c 35 written by John MacNeill for London - Shrewsbury and John Provis for Shrewsbury - Holyhead.

1841 Report:
John MacNeill and John Provis still engineers, east and west of Shrewsbury.

1844 Report (possibly) and 1845 Report certainly:
Report on the whole road is written by John Provis.

Tollhouses

SC 9 July 1813
Tollgates on Capel Cerig Turnpike Road
Dinas £263
Tyn-y-lon £263
Bettws £300
Hendreissa £220

1810 IV 2nd Report
List of Trusts and Tollhouses
Holyhead - Bangor Ferry. 25 miles. Holyhead, Llanynghenedle, Llangefni, Braint
Llandegai - Pentre Voilas (Foelas) 30 miles, Hendon issa, Bettws, Dinas
Pentre Voilas - Cerig-y-Druidon, 5 miles, no gates on mail road.
Cerig-y-Druidon - Terfynant, 17 miles, Druid Inn, Llydiart y Gell, Llydiart y Park.
Terfynant - 10th milestone between Oswestry & Shrewsbury, 23 miles, Llangollen, Whitchurch (sic - i.e. Whitehurst), Llwyn, Gallows Tree, Queen's Head.
10th milestone - Shrewsbury, 10 miles, Montford Bridge, Mount.

ESJ 10 3 1824
Gates to let on Holyhead Road (Tolls quoted for last year less expenses of collection)
Lonissa Gate & Weighing Machine £219
Tyn Tyr Gate £183
Tyn-y-Lon Gate £83
Bettws Gate £264
Hendr-issa Gate £180
Cernioge Gate (last 8 months only) £189
Druid Gate £304
Corwen Gate and Aravan Road Gate and Weighing Machine £495
Let at Cernioge Inn near Cerrig-y-Druidon.

Llangollen Gate £141
Whitehurst Gate, Black Park Toll Bar and Chirk Gate and Weighing Machine (8 months only) £192
Llwyn Gate £253
Queen's Head Gate and Gallows Tree Bank Gate (8 months only) £333
Shelton Gate, Montford Bridge Gate and Wolf's Head Gate £510
Let at Cross Keys, Oswestry.
Clerk: J Wyatt, Lime Grove.

1835 Provis:
Lists gates between Shrewsbury and Holyhead:
Stanley £135
Gwalchmai £127
Nant £164
Llanfair £1616
Lonissa £158
Tyn-twr £175
Bettws-y-Coed £198
Hendreissa £127
Cernioge £188
Druid £304
Corwen £548
Llangollen £158
Whitehursts £269
Llwyn £301
Queen's Head £307
Wolf's Head £274
Shelton £479

1839 Provis:
Lists gates between Shrewsbury and Holyhead:
Stanley £218 15 00
Gwalchmai £131 10 00
Nant £201 05 00
Llanfair £166 08 04
Lonisa £184 14 11
Tyn-twr £176 18 04
Bettws £174 00 00
Hendreisa £136 05 00
Cernioge £160 08 04
Druid £251 08 04
Corwen £602 08 04
Llangollen £159 00 00
Whitehurst £449 10 00
Llwyn £594 01 08
Queen's Head £407 10 00
Wolf's Head £293 04 11
Shelton £557 04 07

ESJ 26 3 1845
Gates to let on Holyhead Road
Stanley and Cae Geiliog £149
Nant £284
Llanfair £238

Lon-isa Gate and Weighing Machine £293
Ty'n-twr (June - February only) £73
Ty'n-y-Lon £138
Cernioge £120
Druid £228
Corwen Gate and Ty-Isa Gate and Weighing Machine £548

Llangollen £113
New Whitehursts, Black Park, Belmont £300
Llwyn £503
Queen's Head and Gallows Tree Bank £334
Wolf's Head (June - February only) £212

Menai Bridge £995
Conway Bridge £405

1826 Report:
Work remaining to be completed:
Seven new tollhouses

1827 Report
4 new tollhouses and gates set up. 3 more to be erected.

1829 Report:
Three new toll houses in North Wales completed.

1829 Provis:
Since the last report the Commissioners under 4 Geo IV c 74 have built new tollhouses at Capel Curig and Bettws-y-Coed, both with wrought iron gates. Also at Cernioge about ¼ mile east of the old gate.

1830 Select;
Commission has built 15 tollhouses - generally of 4 rooms.

Tollhouse contracts:

Date of contract	Site	Contractor	Cost
22 Sep 1821	Llanfair	William Parry	£328
22 Sep 1821	Ty-issa	George Deas	£400
25 Mar 1822	Stanley	Robert Prichard	£346
25 Mar 1822	Gwalchmai	Robert Prichard	£346
25 Mar 1822	Nant	William Parry	£328
17 June 1824	Junction of Wrexham Road at Chirk Gardens	Thomas Evans	£297
9 Aug 1826	Corwen	Thomas Evans	£244
9 Aug 1826	Llangollen	Thomas Evans	£239
31 Aug 1826	Pen-r-mynydd	George Deas	£260
31 Aug 1826	Tre-evan	George Deas	£345
2 Aug 1827	Conway marsh	Gill & Hodges	£262
22 July 1829	Tyn-y-lon (1)	George Deas	£272
22 July 1829	Tyn-y-lon (2)	George Deas	£248
16 Sep 1829	Bettws-y-Coed	George Deas	£270
31 July 1829	Pen Maen Mawr	Gill & Hodges	£242

In your experience with respect to roads, do you find that the providing of a comfortable house contributes to the well letting of tolls?
Telford: There can be no doubt of it, and that was one of my principal motives for recommending comfortable houses; by making the people comfortable you can get respectable persons to take the tolls.

1830 Report:
Much work on tollhouses and gates in North Wales and pointing walls. Grant received last year.

1830 Provis:
List of gate - same as for 1839

Traffic through one of the Commissioners' gates:

	Year ending 1 Feb 1826	Year ending 1 Feb 1830
Carriage & four	263	150
Carriage & pair	897	848
Chaise & pair	406	153
Gig & pair	22	7
Gig & one horse	402	617
Saddle horses	2430	2458
Cart horses	1525	2019
Cattle	5477	4929
Sheep & pigs	3885	4944

1831 Report:
During 1830 four new tollhouses built, 4 old ones repaired and added to, and seven gates put up.

1831 Provis:
3 new tollhouses built, one enlarged, 3 others repaired and 6 new gates erected in Chirk - Cernioge district by Commissioners under 4 Geo IV c 74.

1832 Report:
Between Shrewsbury and Chirk three new toll houses have been built and four repaired and added to, five new gates made and an old gate and bar repaired.

1843 Report:
New cast iron platforms for weighing machines at Ty-issa and Lon-issa.

Vale, E, article on Telford turnpike gates in *Country Quest*, November 1967.
Identifies six surviving gates:

- 2 miles W of Corwen on A5, at entrance to Rug sawmill, on left going west (no longer there)
- On Caernarvonshire side of Menai Bridge on left of A5, leads into a wooded enclosure (remains)
- Near Llanrwst, entrance to Caer Milur.
- On side road from Llanrwst to Rhyl, on right heading for Rhyl, entrance to road from Glan r'Afon farm in parish of Llangernyw.
- At farm on side road leading west out of Cerrig-y-Druidon
- At saw mill 3 miles W of Llangollen near tollhouse.

Tolls

1829 Provis:
New 8d per horse levy on vehicles with wheels of less than 3 inches on bottom.

1839 Provis:
Calls for higher tolls between Bangor and Cernioge, and for coal carts between Corwen and Llangollen.

Finance

1830 Select:
Enquiry into monies disbursed on Holyhead Road
Commissioners under 55 Geo III c 152 have received £759,718 06 11 of which £338,518 14 0l was granted by Parliament for roads in North Wales without condition for repayment; £394,114 06 06 granted by Parliament of Exchequer Bill Loan Commissioners as loan for Menai and Conway bridges, new road on Anglesey and London - Shrewsbury section, of which £103633 02 02 has been repaid.

Committee finds great advantages to the public which justify the high costs. Failures of contractors show prices are not too high.

£6291 05 00 paid to Telford from 1815 to present + £2057 02 06 expenses, excluding surveys undertaken separately.

1831 Report:
55 Geo III c 152 granted £22000 for London - Holyhead.
59 Geo III c 30 appointed 15 Commissioners to take over from local trust, but road continued to be subject to inspection and examination of the Board of 1815, who have now supervised expenditure of £150,695 01 04.
1819 put Menai and Bridge under the Commissioners, subject to our inspection and examination
1 / 2 Geo IV 1821 did the same for Conway.
1 Geo IV c 70 enabled raising of loans for Shrewsbury - London section from government sources - this section expected to pay good return on tols and loand of £44000 and £82700 advanced. Summerhouse Hill, Cosford Brook, Priorslee, Shifnal, Knowle Bank, Ketley Hill all paid for from this source.
Cost of Menai and Conway was £332,528 09 05.
7/8 Geo IV c 35, 1827, enabled our engineer Mr Telford to make suggestions for improving the London - Liverpool road.

1839 Report:
Loans on security of tolls now repaid with interest:
£44,000 all repaid
£83,700 - £27,000 repaid
£50,000 - £1330 repaid.

Milestones

1826 Report:
Sum of money voted for milestones in last session. They are mostly provided and some in Anglesey are erected.

1826 Provis
Milestones erected across Anglesey and in progress from Menai Bridge to Cernioge.

1827 Report:
Road from Holyhead to Shrewsbury remeasured and new milestones of a proper description set up which give the whole a finished appearance and have determined the exact distances

1828 Report:
New milestones put up all the way from Shrewsbury to Holyhead. Size enables distances and towns to be legible. Stones brought from Red Wharf Bay on north coast of Anglesey, quarried, cut and delivered at Menai Bridge for 2 guineas a stone, but costs of plates and erection raised total cost to about £5.

1830 Select:
Telford closely questioned on milestones which are 'quite plain':
Cost £2 each delivered to Menai Bridge + iron plates + erection costs
23 cwt each, height 4 ft 6 in, of which 2 ft X 1 ft appears above ground.
A fine and very hard limestone, a species of marble.
Cost 10½d or 1s a mile.
'I never saw a proper milestone that I could copy. I looked for three years all over England trying to find out one as a pattern, and after all I could not find one that looked like a decent milestone'.
Most existing milestones on Holyhead Road were illegible and useless.
Some stones delivered to the St Albans Trust

Survival of mileposts in 1970s:
Distances from Holyhead quoted.
LHS (left hand side from Shrewsbury) or RHS (right hand side) indicate that the milepost survived, with its plaque unless otherwise indicated.

84 LHS before Chirk Bridge
83 LHS beyond Chirk village
82 LHS
81 LHS
80 LHS
79 LHS
78 LHS
78 RHS
77 RHS immediately beyond toll house, no plate
76 RHS by factory, no plate
75 RHS beyond bridge
74 RHS
73 LHW in lay by immediately beyond tollhouse
72 RHS
71 missing in 1973
70 RHS by milk stand
69 missing in 1973
68 RHS
67 RHS
66 RHS no plate
65 missing in 1973
64 RHS at Druid, no plate
63 missing in 1973
62 RHS
61 RHS
60 RHS
59 RHS
58 RHS
57 RHS opposite garage
56 RHS
55 RHS
54 RHS
53 RHS
52 RHS
51 RHS, no plate
50 RHS
49 RHS
48 RHS
47 RHS
46 RHS
45 RHS beyond service area
44 RHS
43 RHS
42 RHS before bridge
41 RHS
40 RHS
39 missing in 1973
38 LHS
37 LHS
36 LHS
35 missing in 1973
34 RHS
33 RHS

32 RHS
31 RHS
30 LHS
29 LHS
28 LHS
27 LHS
26 LHS
25 would have been in streets of Bangor, not seen in 1973
24 LHS beyond traffic lights at Bangor station
23 LHS on approach to Menai Bridge
22 RHS by lay by on Anglesey side of bridge
21 RHS
20 RHS by Llanfair PG station
19 RHS
18 RHS
17 RHS
16 RHS
15 RHS
14 RHS
13 RHS
12 RHS
11 RHS
10 RHS
9 RHS
8 RHS
7 RHS
6 RHS
5 RHS
4 RHS
3 RHS near tollhouse at end of Stanley Embankment
2 missing on site of Aluminium smelter
1 would be within Smelter site or in streets of Holyhead, not seen in 1973

Impact of Railways

1839 Provis:
Since the opening of railways between London and Liverpool, the posting which is the most profitable source of revenue has been materially reduced. The only stage coach which now runs from Holyhead has been recently withdrawn from the road and the repeal of the acts granting statute labour and compositions on turnpike roads has caused a loss of income of more than £400 pa.

1839 Report:
Opening of the Birmingham Railroad has materially lessened tolls between Shrewsbury and London.

Opening of the railway from Birmingham to Liverpool in 1837 brought increase of traffic on road which diminished on the opening of the London & Birmingham Railway in 1838.
Railways have not inured the road trade but have reduced the value or wholly destroyed the property vested by innkeepers, coach proprietors &c in providing for traffic on the road.

Proposals to construct an iron plateway along the road from Birmingham to London or just on the steepest hills. Whole route would cost £271,000. Would enable coach with 16 passengers to go at 10 mph with 2 horses.

Since the opening of the railway from London to Liverpool, the Irish traffic on the Menai Bridge - Cernioge section has much fallen off. Tolls must be raised to cover costs. Coach to Holyhead is withdrawn, and posting traffic much less. Large parts of the road are now sustained only by local traffic, thus need to increase tolls on carthorses &c.

1840 Report:
Cernioge - Menai - withdrawal of stagecoach severely felt, especially as the former trust left a heavy mortgage debt. Mail, which contributes nothing in tolls, has complete monopoly of the coach passengers of this district, Anglesey, and most of the Shrewsbury - Cernioge section. Now Post Office permits it to carry more passengers all hope of a revival of the stage is gone.

1840 Provis:
Warns that loss of traffic to railways means tolls must be increased or income will be insufficient to keep road in repair.

1843 Report:
MacNeill: although funds for repair and maintenance have been much reduced since the opening of the London & Birmingham Railway, the general appearance of the road has, if anything, improved and it remains equally good for travelling.

1830 Select: BPP 1830 X: Principal Contracts: after January 1822 contracts under £1000 in Wales not listed

Date of Contract	Contractor	Site	Cost
18 Nov 1815	Straphen & Staunton	Ty-Gwyn - Lake Ogwen	£3281
18 Nov 1815	Straphen & Staunton	Near River Llugwy	£1134
18 Nov 1815	Straphen & Staunton	Near Bettws-y-Coed	£5035
18 Nov 1815	Straphen & Staunton	Glan Conway	£729
2 April 1816	Straphen & Staunton	Llynnin Bridge	£1727
2 April 1816	William Hazledine	Iron Bridge over Conway	£2577
30 July 1816	Straphen & Staunton	Cerrig-y-Druidon	£536
28 August 1816	Straphen & Staunton	Bangor Ferry - City	£2689
22 June 1817	Straphen & Staunton	Gyn Dytffws	£1662
31 July 1817	Thomas Roberts	Capel Curig - Lake Ogwen	£3062
31 July 1817	Thomas Roberts	Near Corwen	£3863
31 July 1817	Thomas Roberts	Near Cernioge	£814
31 July 1817	Thomas Roberts	At Ty-Gwyn	£1291
11 Aug 1817	Gill, Hodges & Co	Owen Glyndwr's Hill	£836
1 Oct 1817	Straphen & Staunton	Glyn Dyffrwys - Maes mawr Facken	£4355
1 Nov 1817	John Jones	Near Llandegai	£595
5 Jan 1818	Straphen & Staunton	Near Rhyallt	£2050
24 May 1818	Thomas Evans	Upper part of Rhysgog Hill	£1812
24 May 1818	Thomas Evans	West of Rhysgog Hill	£615
16 Aug 1818	Straphen & Hall	Llon-issa	£1720
16 Aug 1818	Thomas Evans	Tyn-twr	£1669
16 Aug 1818	Thomas Evans	Pont-y-cefn	£2957
8 Nov 1818	Gill, Hodges & Co	Pandy - Coetmore - Tyn-twr	£2256
1 Aug 1819	Gill, Hodges & Co	Near Bangor	£3577
1 Sep 1819	Thomas Evans	Hendre-issa	£2808
1 Sep 1819	Thomas Evans	Pentre Voylas	£4311
1 Sep 1819	Gill, Hodges & Co	Pen-issa-r-nant	£1732
1 Dec 1819	Gill, Hodges & Co	Caer Geiliog, Anglesey	£4134
1 Dec 1819	Gill, Hodges & Co	Llan Buclan, Anglesey	£5470
1 Aug 1820	William Roberts	Cae Moor, Anglesey	£3000

1 Oct 1820	George Deas	Hendre-issa	£255
10 Oct 1820	Gill, Hodges & Co	Gwalchmai, Anglesey	£4166
10 Oct 1820	Gill, Hodges & Co	Maldreath Marsh, Anglesey	£7006
10 Oct 1820	Gill, Hodges & Co	Llandisilio, Anglesey	£6722
13 Oct 1820	George Deas	Bettws-y-Coed	£660
13 Feb 1821	Gill, Hodges & Co	Ta-varn-y-Coed, North Wales	£1881
13 Feb 1821	Gill, Hodges & Co	Afon-no, North Wales	£2201
1 Mar 1821	George Dean	Ty-issa	£400
28 Mar 1821	Robert Jones	Ketley Hill	£1215
28 Mar 1821	Robert Jones	Priorslee	£2090
8 May 1821	Thomas Evans	Llangollen	£365
10 May 1821	George Deas	Cernioge-bach, North Wales	£1119
10 May 1821	George Deas	Clws-ty-blaibb, North Wales	£594
10 May 1821	George Deas	Cerrig-y-druidon	£258
10 May 1821	George Deas	Cerrig-y-druidon	£215
21 June 1821	William Hazledine	Menai Bridge	£53050
23 June 1821	Thomas Evans	Near Biddulph's Lime Kilns, Chirk	£2523
27 Aug 1821	Gill, Hodges & Co	Chirk	£3957
22 Sep 1821	William Parry	Llanfair, Anglesey	£328
20 Oct 1821	Gill, Hodges & Co	Llan-yn Gheneddle, Anglesey	£738
1 Mar 1822	Gill, Hodges & Co	Pen Rhos Bradmen, Anglesey	£3000
25 Mar 1822	William Parry	Nant, Anglesey	£328
25 Mar 1822	Gill, Hodges & Co	Stanley Embankment	£20834
25 Apl 1822	Gill, Hodges & Co	Glan Kwrfa, Anglesey	£1293
25 June 1822	Thomas Evans	Rhysgog Hill	£1017
26 June 1822	Thomas Bayliss	Cosford Brook	£1125
10 August 1822	Thomas Bayliss	Summerhouse Hill	£1030
19 Sep 1822	John Wilson	Llanfair PG	£1496
14 July 1823	Thomas Evans	Near Llangollen	£1150
14 July 1823	Thomas Evans	Chirk Bridge - Gobowen	£4100
24 Aug 1823	Gill, Hodges & Co	Brymtych, North Wales	£1100
21 Oct 1823	Thomas Evans	Near Llangollen	£1261
15 Jan 1824	Gill, Hodges & Co	At Talybont, North Wales	£1206

1 Apl 1824	William Hazledine	Conway Bridge	£9345
16 Aug 1824	Thomas Evans	Near Llangollen	£1700
2 July 1825	Gill, Hodges & Co	Building and painting walls, sundry parts of North Wales	£790
2 July 1825	Thomas Evans	West end of Llangollen	£900
3 Nov 1825	Thomas Bayliss	Summerhouse Hill	£2250
5 Jan 1826	Thomas Bayliss	Llewellyn, Shifnal	£1900
25 Jan 1826	George Deas	Rhydllanfair Bridge, North Wales	£674
3 Feb 1826	Gill, Hodges & Co	Rug	£820
16 Aug 1827	Gill, Hodges & Co	Approach to Menai Bridge, Anglesey	£202
16 Aug 1827	Gill, Hodges & Co	Pinning and pointing walls, Anglesey	£467
12 Sep 1828	Gill, Hodges & Co	Cwm-y-nod Marsh, Anglesey	£1844
22 Oct 1828	Thomas Bayliss*	Shifnal	£1037
22 Oct 1828	Thomas Bayliss*	Knowle Bank	£1000
22 May 1829	Gill, Hodges & Co	Maldreath Marsh, Anglesey	£1000
31 Aug 1829	William Hughes	Chirk - Gobowen	£767
27 Oct 1829	George Edgecomb	Building and altering tollhouses, North Wales	£748

* both finished by Commissioners at total cost of £3110.

ILLUSTRATIONS

Fig 1 Location Map (Holyhead - Betws-y-Coed)
Fig 2 Location Map (Betws-y-Coed - Chirk)
Fig 3 Telford Lots distribution map (Holyhead - Betws-y-Coed)
Fig 4 Telford Lots distribution map (Betws-y-Coed - Chirk)

PLATES

Plate 1 Example of Telford's specification maps for Lot 5 (Llanfair PG to Menai Straits)
Plate 2 Example of walling from Nant Ffrancon (Site 245)
Plate 3 Telford specification for Stanley Embankment
Plate 4 Stanley Embankment (Site 03)
Plate 5 Telford's Road and embankment specification
Plate 6 Embankment at Nant Ffrancon and the adjacent earlier turnpike (Site 802)
Plate 7 Telford's specification for a Bridge to the south of Llyn Ogwen
Plate 8 Treban Bridge (Site 059)
Plate 9 Telford's specification for a bridge over the river Ogwen
Plate 10 Halfway Bridge (Site 233)
Plate 11 Pont-y-Benglog bridge in Nant Ffrancon valley (Site 307) from the south-west side
Plate 12 Engraving of the Pont-y-Benglog bridge (Harper 1902)
Plate 13 Pont-y-Benglog bridge in Nant Ffrancon valley (Site 307) from the north-eastern side
Plate 14 Menai Bridge from the west
Plate 15 Telford's specification for the Bridge at Llyngwy
Plate 16 Double arched bridge at Llyngwy (Site 395)
Plate 17 Waterloo Bridge, Betws-y-Coed (Site 379)
Plate 18 Engraving of Waterloo Bridge (Site 379)(Harper 1902)
Plate 19 Telford's specification for a typical milestone
Plate 20 Milestone 61 (Site 088)
Plate 21 Example of a stone walled depot (Site 229)
Plate 22 Example of slate edged depot from Llugwy valley (Site 717)
Plate 23 Example of hedged depot (Site 330)
Plate 24 Early turnpike tollhouse near Betws-y-Coed (Site 68)
Plate 25 Telford's specification for Llanfair PG tollhouse
Plate 26 Llanfair PG tollhouse (Site 197)
Plate 27 Telford's specification for typical tollhouse on the mainland
Plate 28 Ty Isaf tollhouse (Site 112)
Plate 29 Telford's specification for the typical toll gate
Plate 30 Toll gate at Stanley Embankment tollhouse
Plate 31 Weigh bridge at Ty Isaf toll house
Plate 32 Mona coaching inn (Site 801)
Plate 33 Cernioge coaching inn (Site 806)
Plate 34 Engraving of Cernioge coaching inn (Harper 1902)

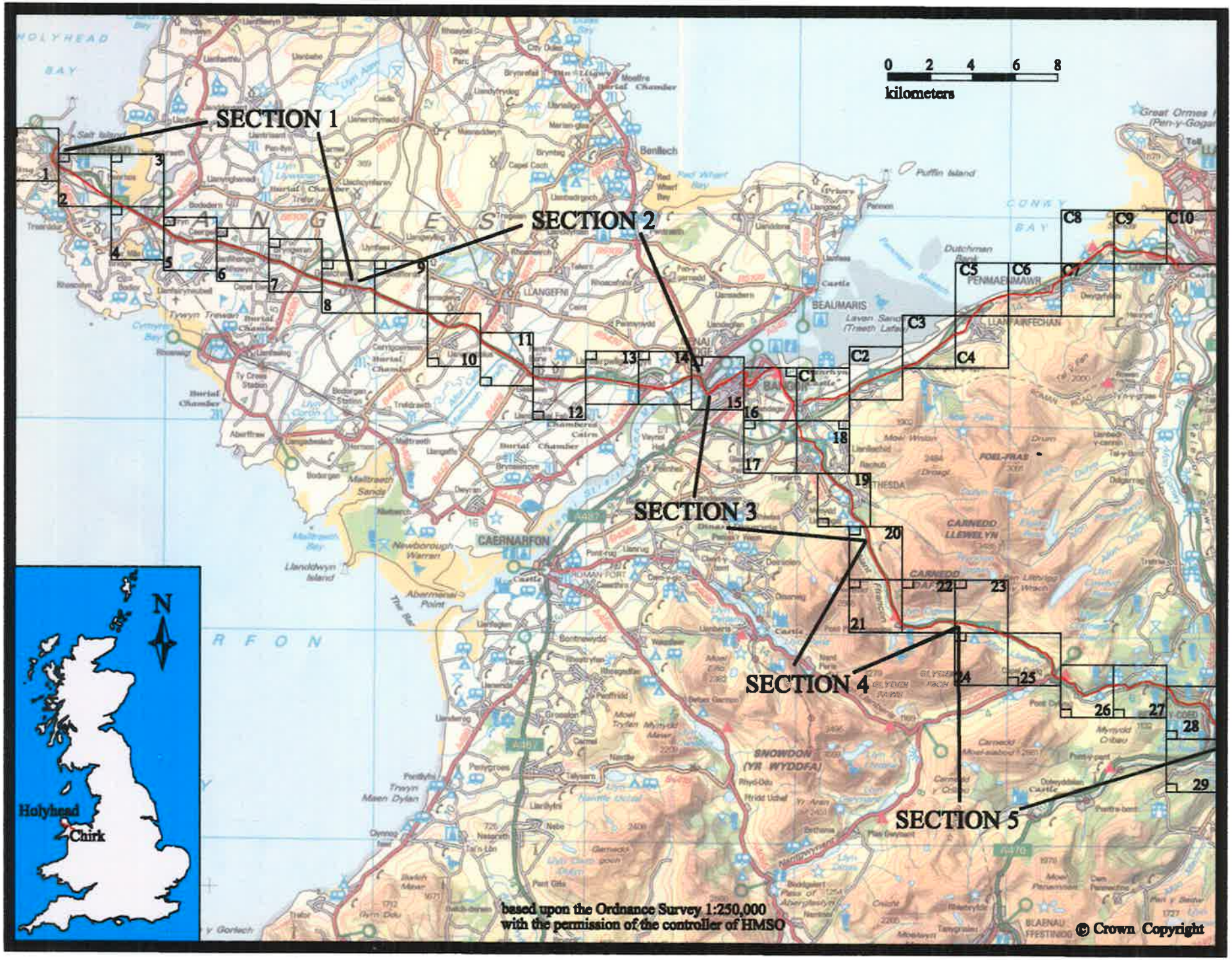

Figure 1 : Location Map (Holyhead - Betws-y-coed)

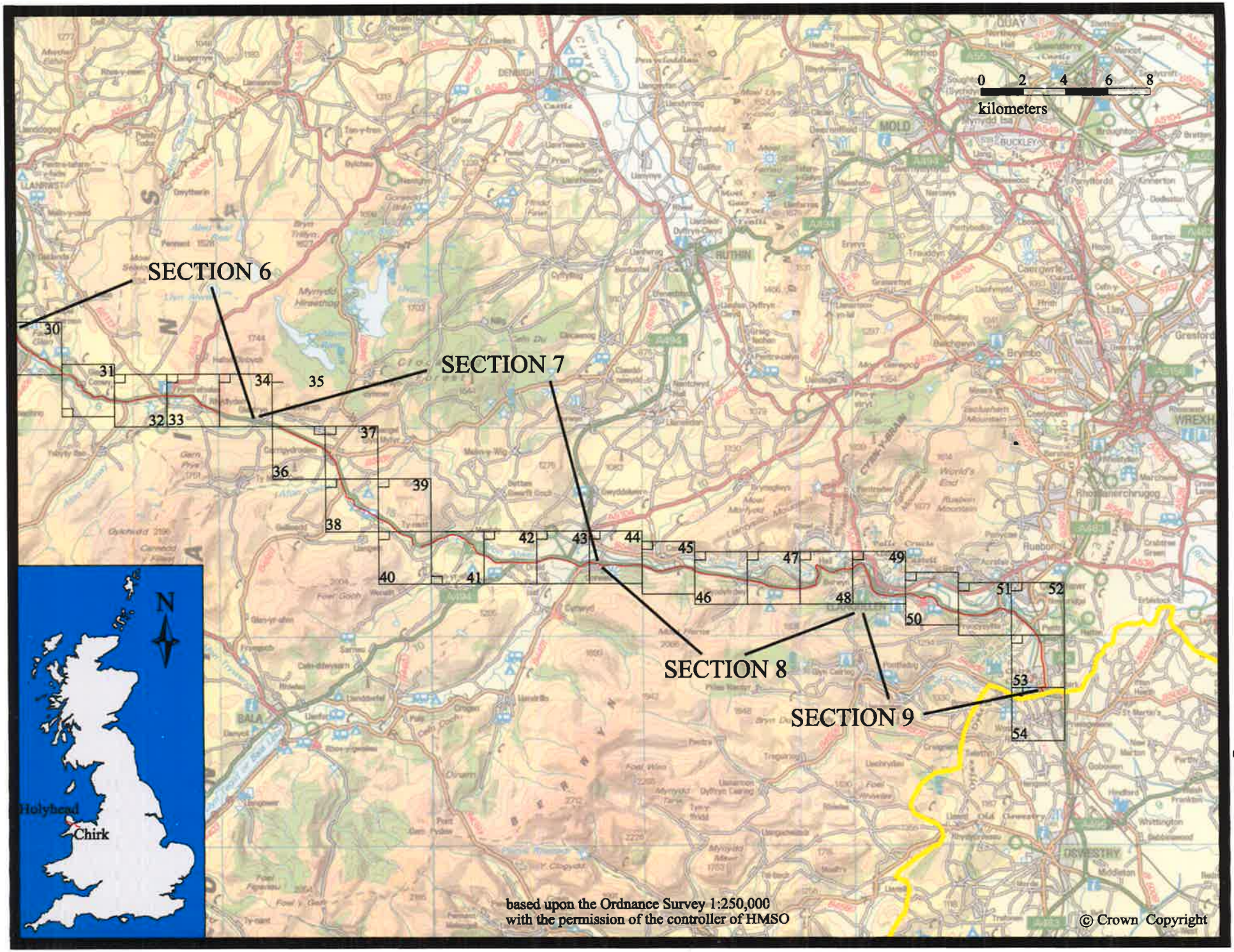

Figure 2 : Location Map (Betws-y-coed - Chirk)

Figure 3: Telford's Lot Numbers (Holyhead - Betws-y-coed)

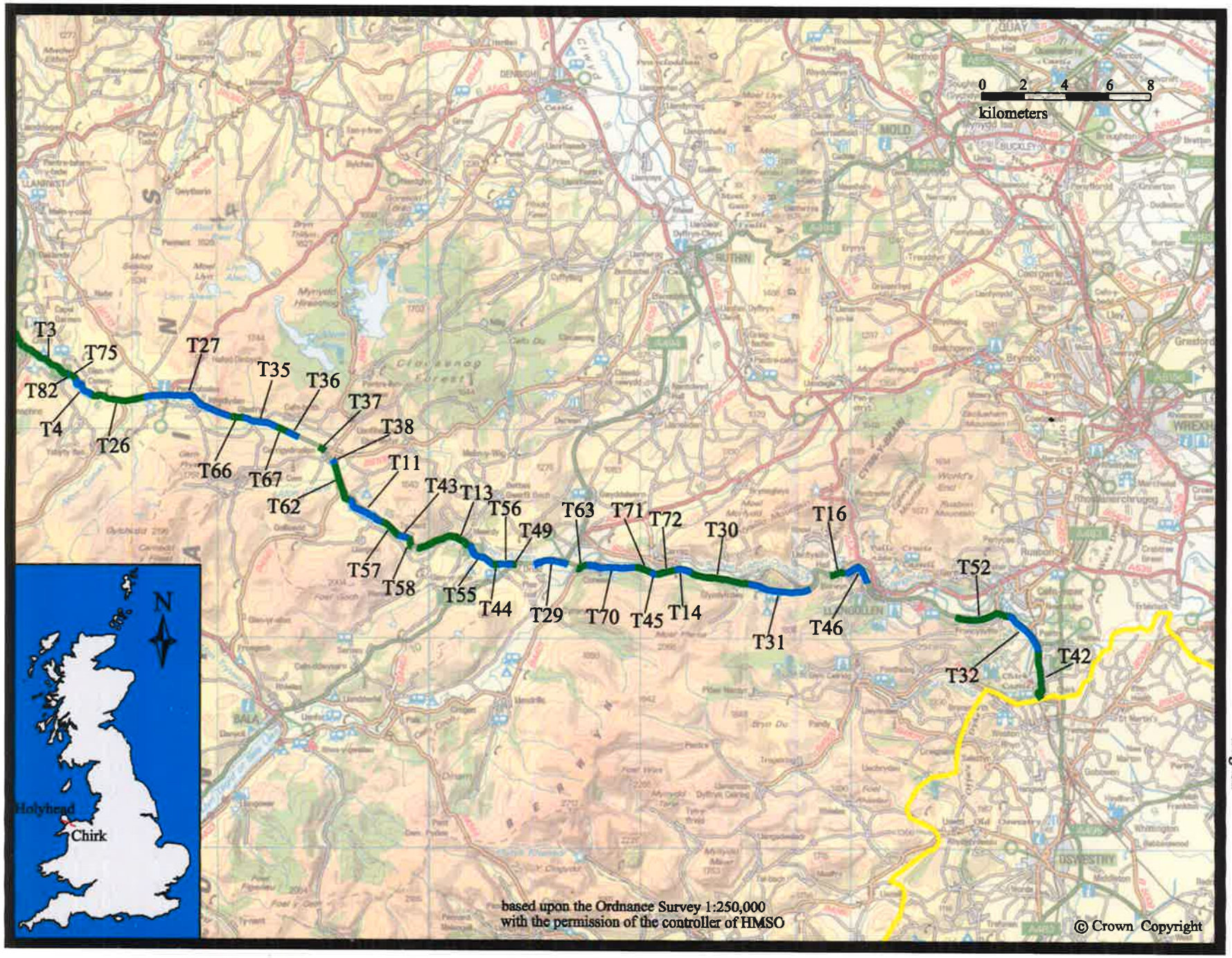

Figure 4: Telford's Lot Numbers (Betws-y-coed - Chirk)

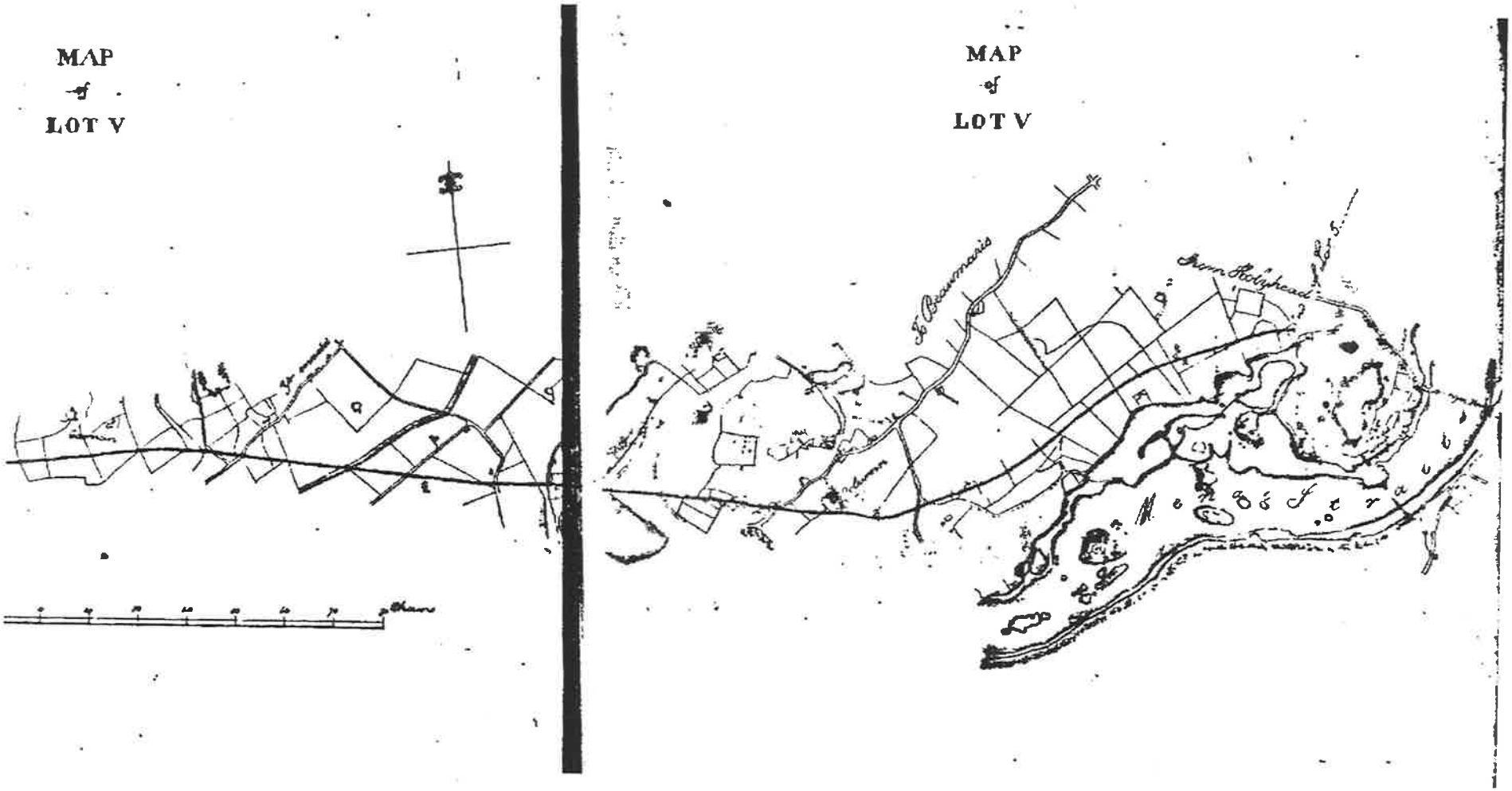

Plate 1 Example of Telford's specification maps for Lot 5 (Llafair PG to Menai Straits)

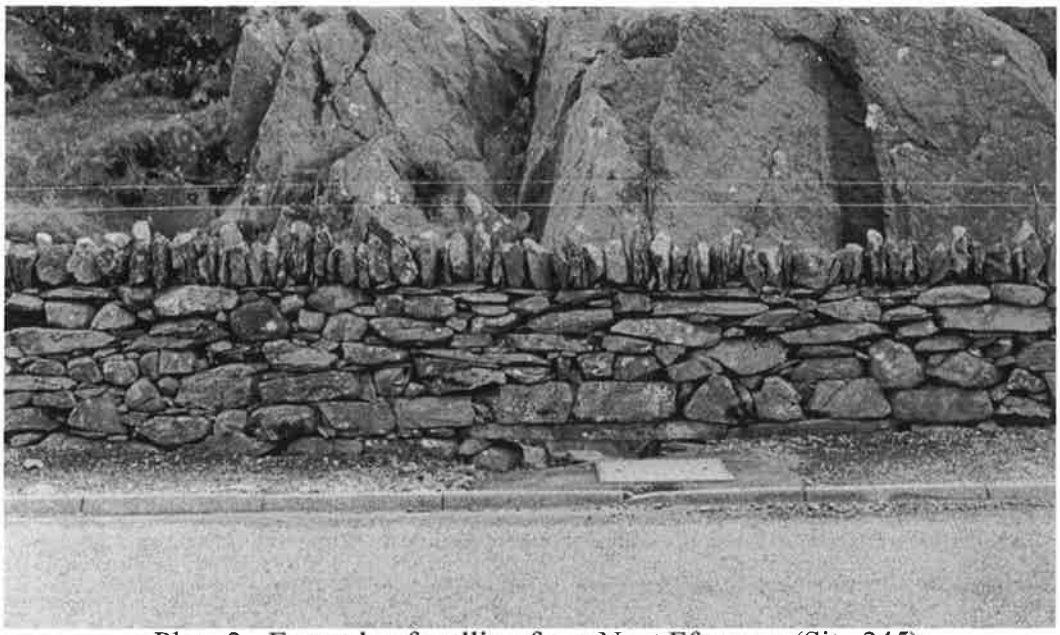

Plate 2 Example of walling from Nant Ffrancon (Site 245)

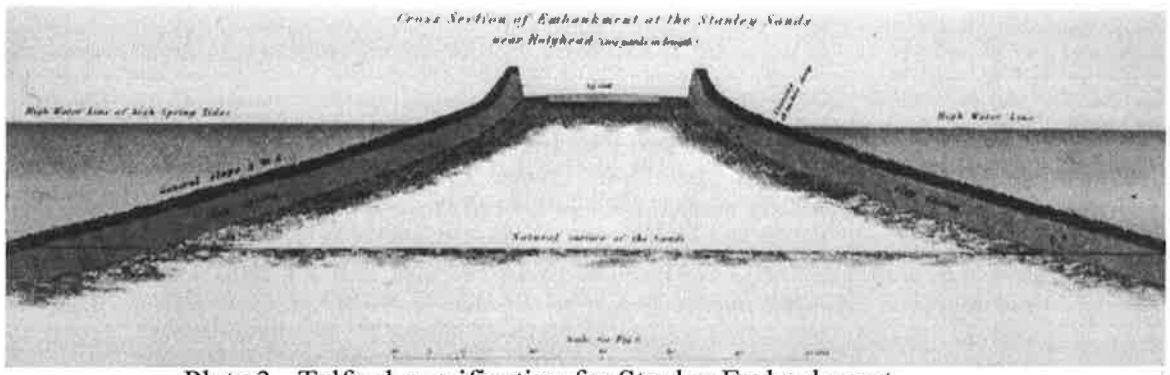

Plate 3 Telford specification for Stanley Embankment

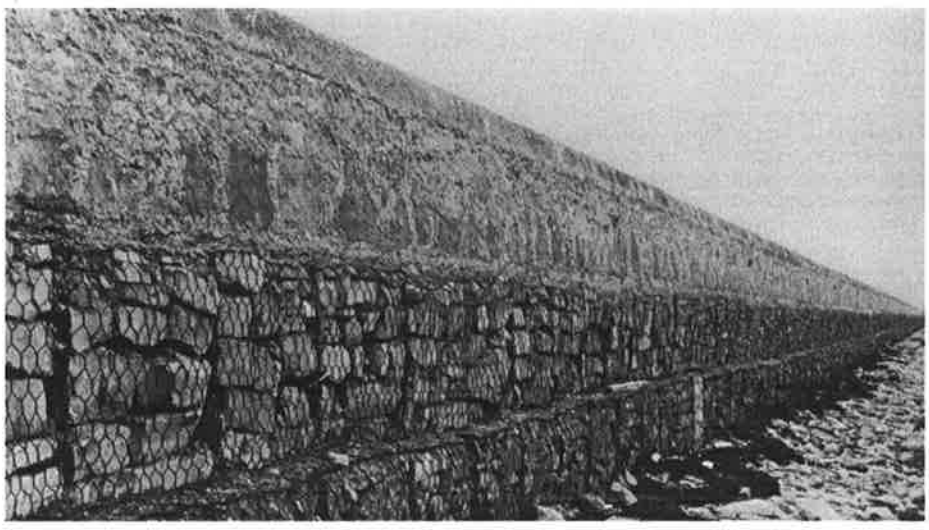

Plate 4 Stanley Embankment (Site 03) (*Stanemb.jpg*)

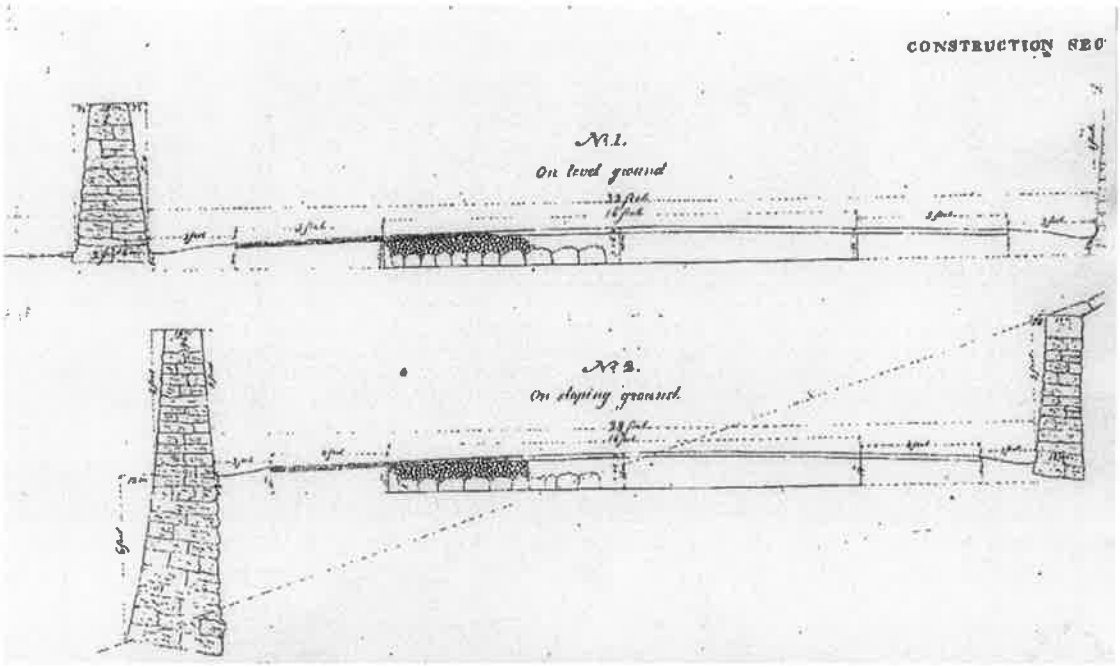

Plate 5 Typical Telford's Road and embankment specification

Plate 6 Embankment at Nant Ffrancon and the adjacent earlier turnpike (Site 802)

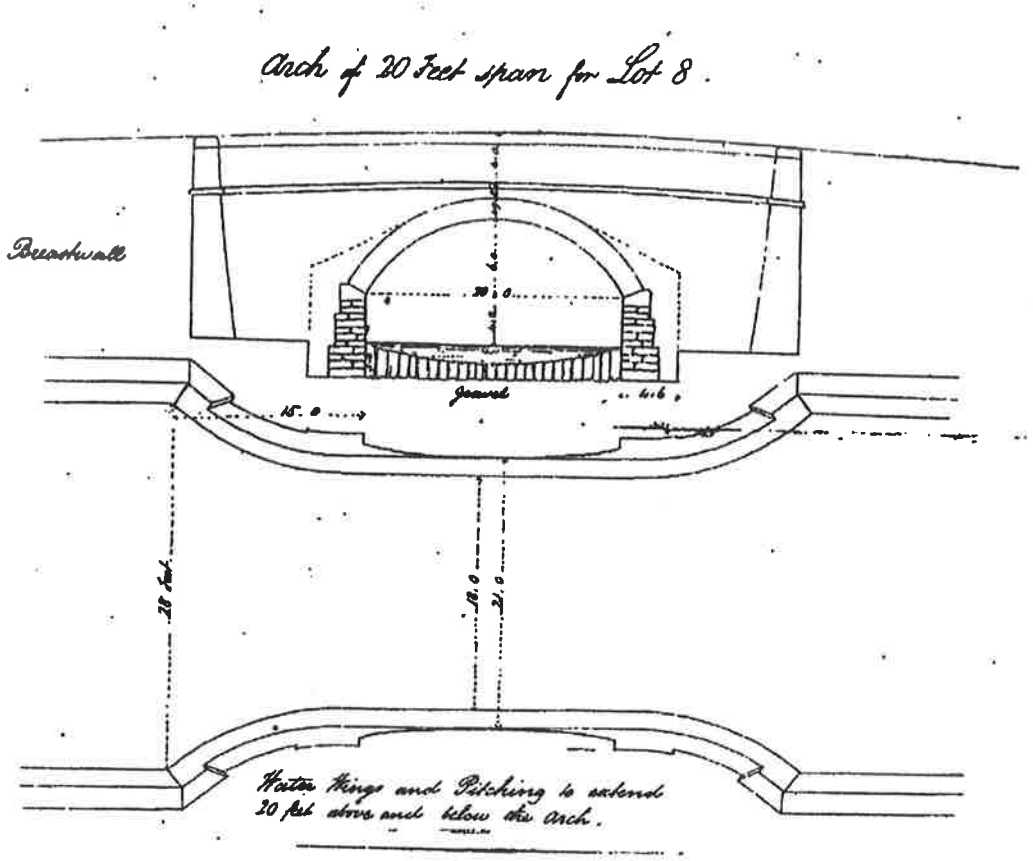

Plate 7 Telford's specification for a Bridge to the south of Llyn Ogwen

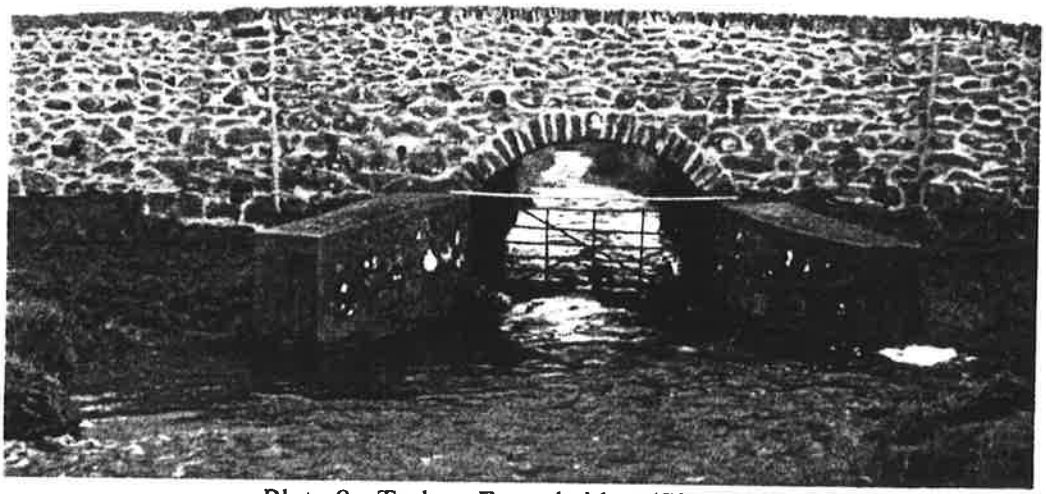

Plate 8 Treban Farm bridge (Site 059)

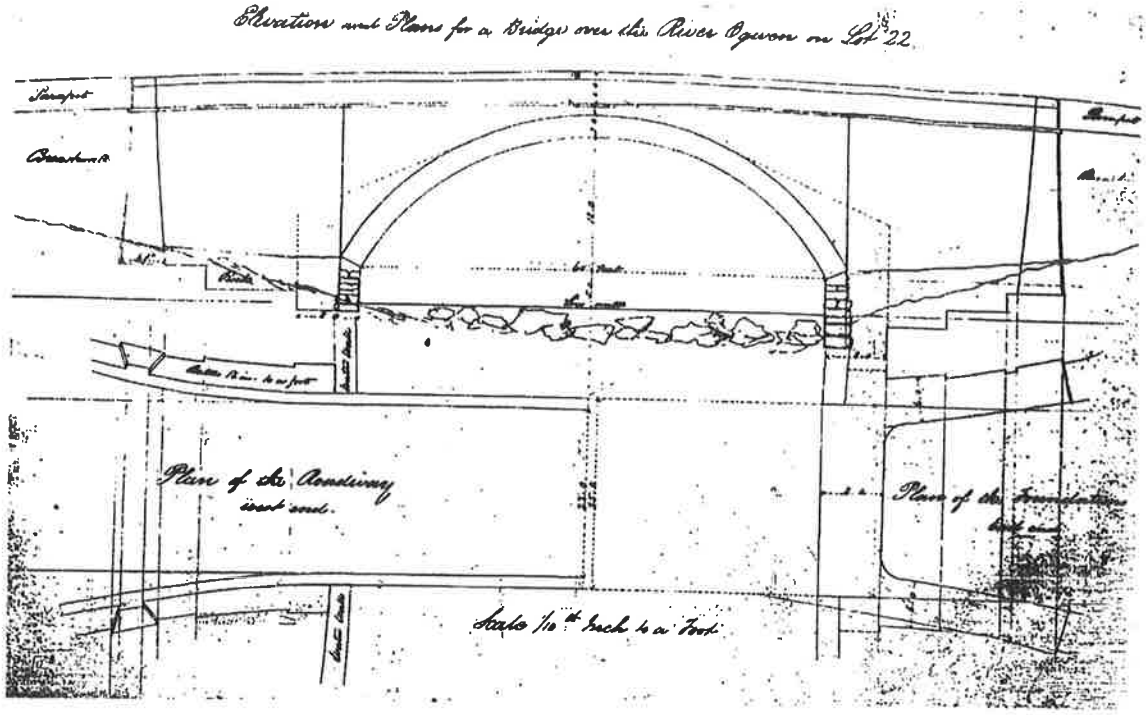

Plate 9 Telford's specification for a bridge over the River Ogwen *(Lot 22)*

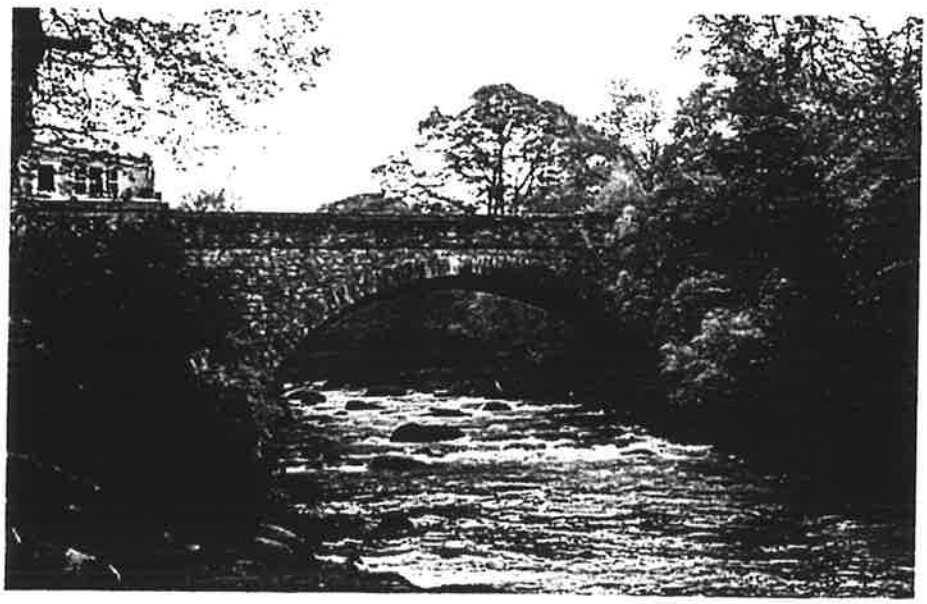

Plate 10 Halfway Bridge (Site 233)

Plate 11 Pont y Benglog bridge in Nant Ffrancon valley (Site 307) from the south-west side

Plate 12 Engraving of the Pont y Benglog bridge (Harper 1902)

Plate 13 Pont y Benglog bridge in Nant Ffrancon valley (Site 307) from the north-eastern side

Plate 14 Menai Bridge from the west

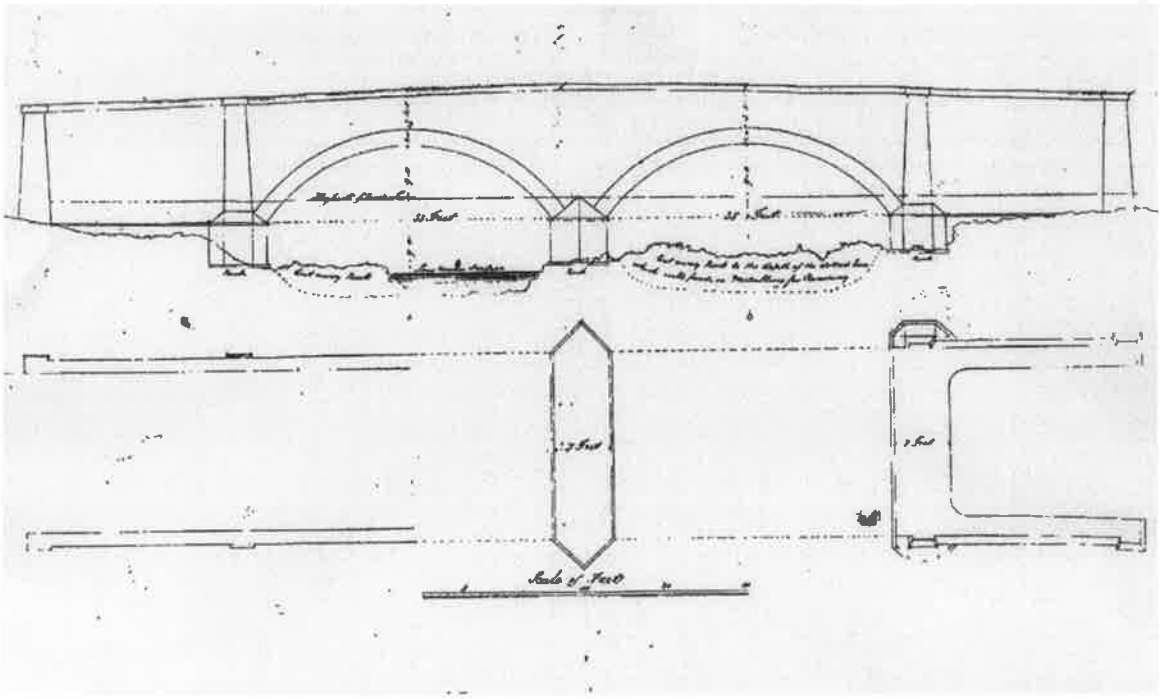

Plate 15 Telford's specification for the Bridge at Llyngwy

Plate 16 Double arched bridge at Llyngwy (Site 395)

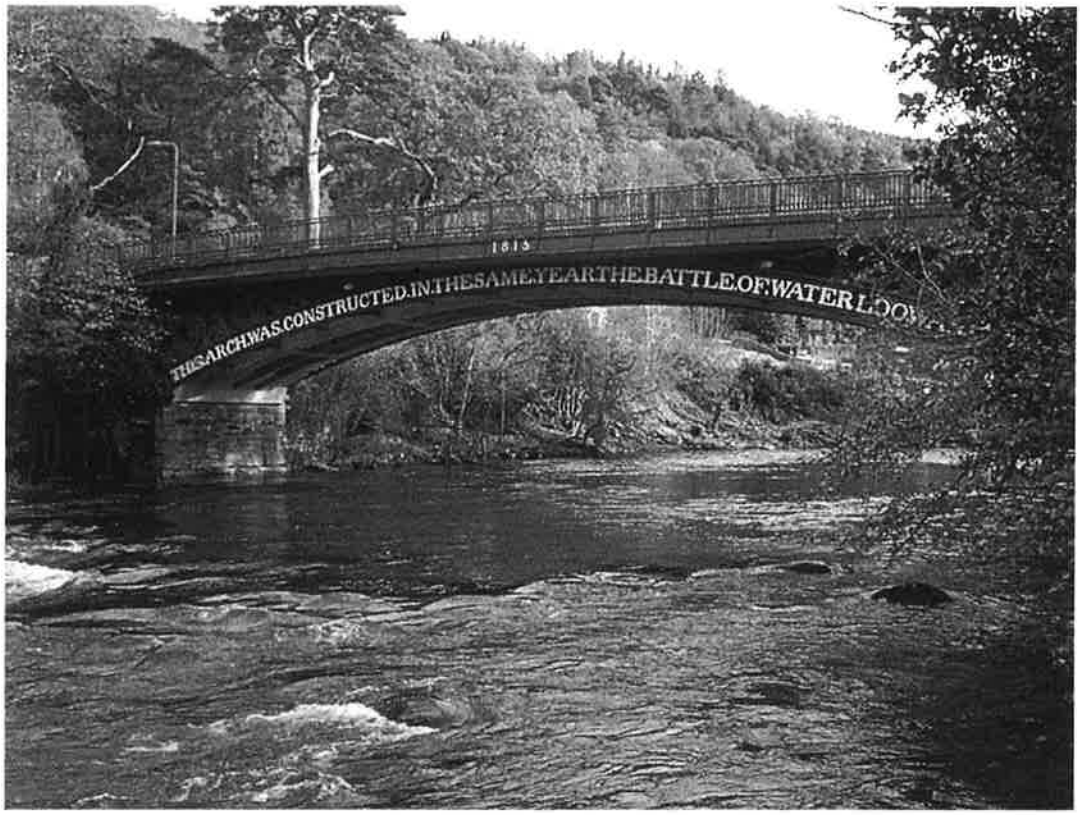

Plate 17 Waterloo Bridge, Betws-y-coed (Site 379)*(BR379)*

THE WATERLOO BRIDGE.

Plate 18 Engraving of Waterloo Bridge (Site 379)(Harper 1902)

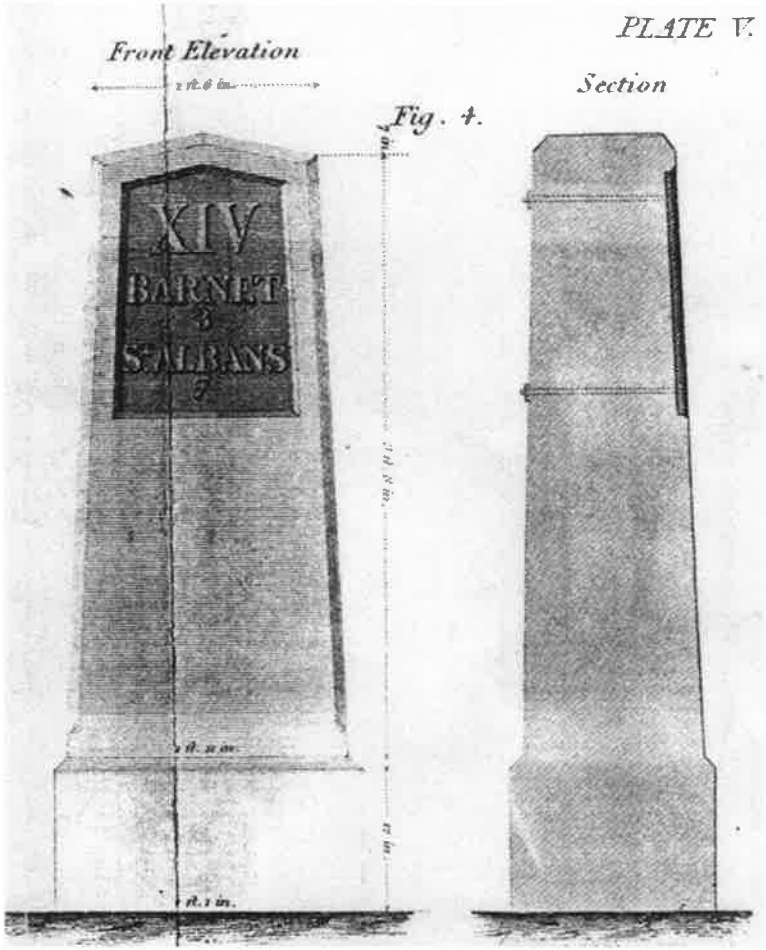

Plate 19 Telford's specification for a typical milestone

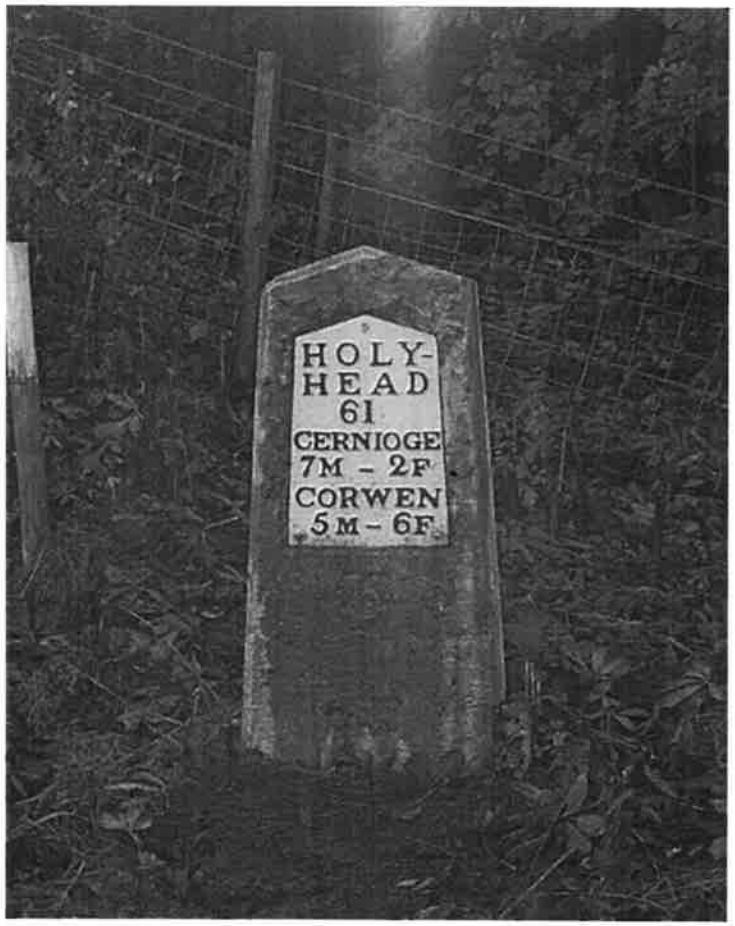

Plate 20 Milestone 61 (Site 088)

Plate 21 Example of a stone walled depot (Site 229)

Plate 22 Example of a slate edged depot from Llugwy valley (Site 717)

Plate 23 Example of hedged depot (Site 330)

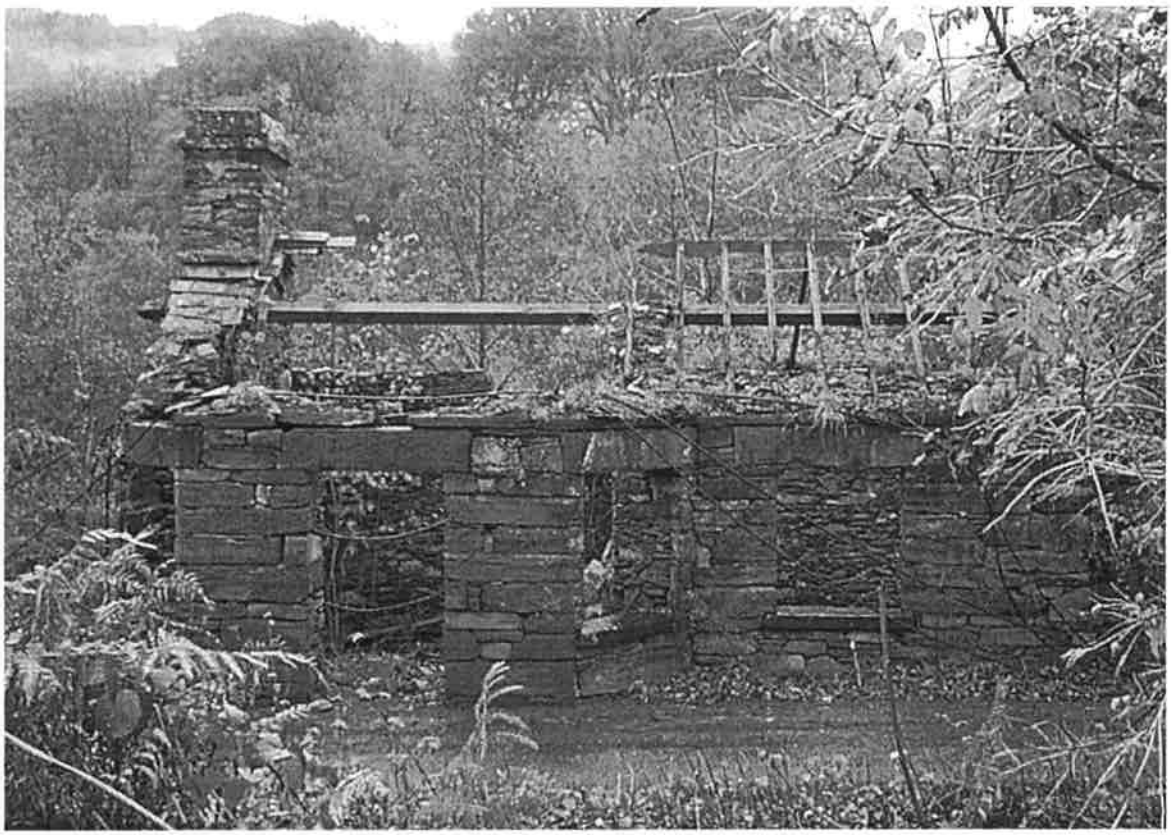

Plate 24 Early turnpike tollhouse near Betws y Coed (Site 68)

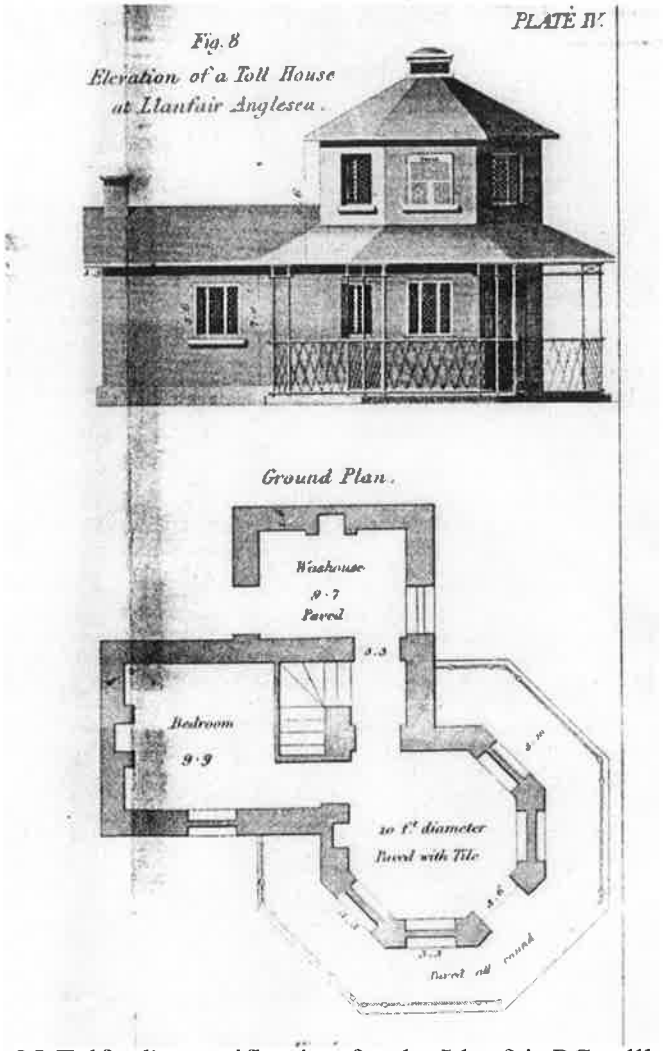

Plate 25 Telford's specification for the Llanfair PG tollhouse

Plate 26 Llanfair PG tollhouse (Site 197)

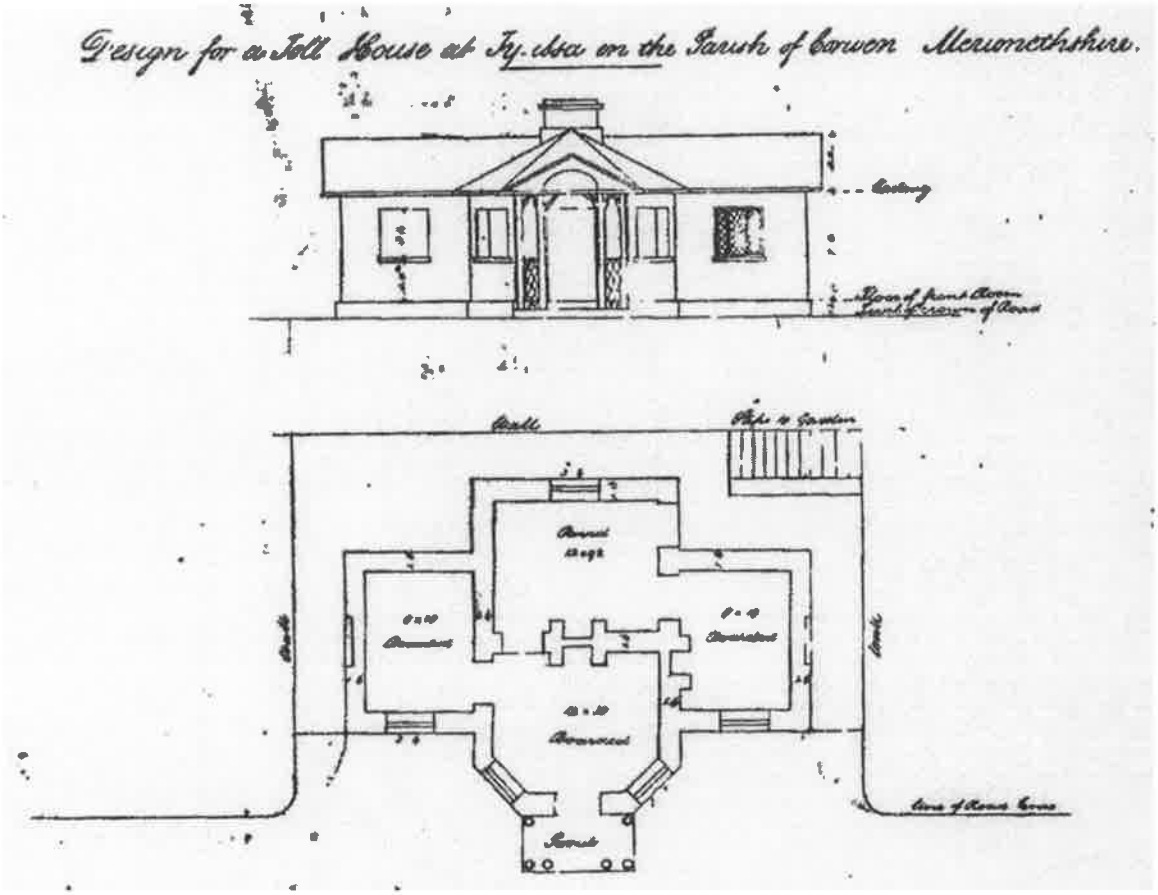

Plate 27 Telford's specification for the Ty Isaf tollhouse near Corwen

Plate 28 Y Bwthyn tollhouse (Ty Isaf) (Site 112)

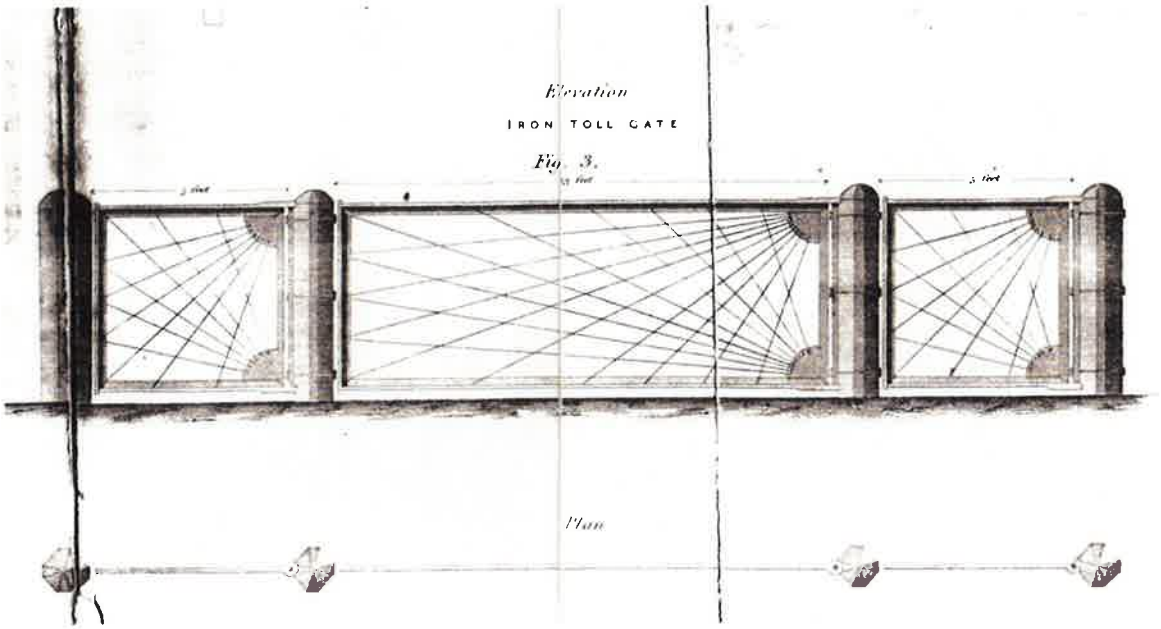

Plate 29 Telford's specification for the typical toll gate

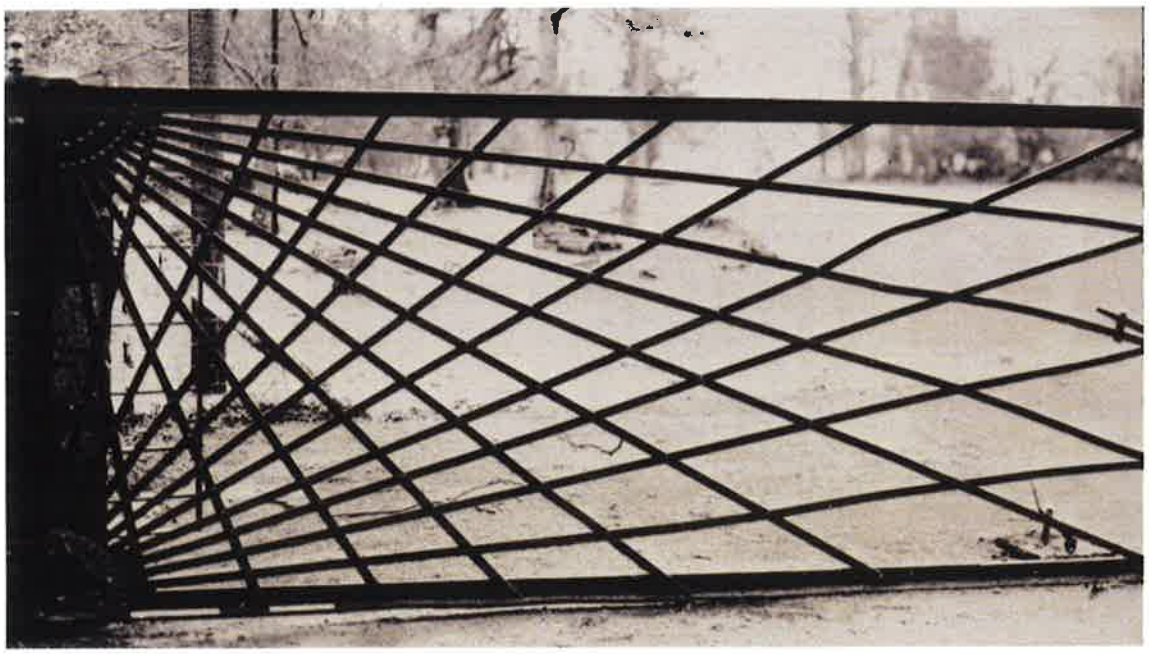

Plate 30 Toll gate at Stanley Embankment tollhouse

Plate 31 Weigh bridge at Y Bwthyn toll house (Site 601)

Plate 32 Mona coach house (Site 801)

Plate 33 Cernioge coach house (Site 806)

Plate 34 Engraving of Cernioge coach house (Harper 1902)