Pembrokeshire Coast National Park Authority

Pembrokeshire Local Development Plan

Land Allocation Implementation Study
Final Report

Hyder Consulting (UK) Limited
2212959
HCL House
Fortran Road
St Mellons Business Park
St Mellons
Cardiff CF3 0EY
United Kingdom
Tel: +44 (0)29 2092 6700
Fax: +44 (0)29 20
www.hyderconsulting.com

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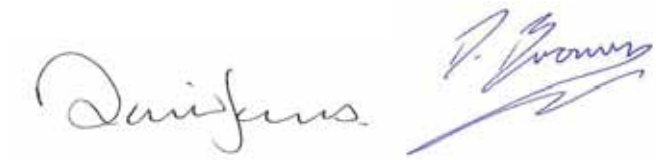
Author	David Jones/David Brown	
Checker	David Jones	
Approver	Janice Hughes	

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This report has been prepared for Pembrokeshire Coast National Park Authority in accordance with the terms and conditions of appointment for Site Deliverability Study dated September 2012. Hyder Consulting (UK) Limited (2212959) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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Acknowledgements

We would like to acknowledge the assistance and support we have received from officers of Pembrokeshire National Park Authority and County Council and the advice and co-operation of Dwr Cymru/Welsh Water and the Environment Agency in particular, for the information they have provided in the preparation of this Study. We are particularly grateful for all their assistance.

Executive Summary

Introduction

1. The Pembrokeshire Coast National Park Authority's Local Development Plan was Adopted in September 2010, becoming the first in Wales under the new system of Local Development Plans introduced under the Planning and Compulsory Purchase Act 2004.

2. Preparation of the Local Development Plan was undertaken in accordance with the procedural requirements set-out in the Town and Country Planning (Local Development Plan) (Wales) Regulations 2005. Amongst other matters, the Regulations emphasise the importance of 'Deliverability' as a key guiding principle for Local Development Plans and for site delivery to be integral to the way plans are produced. This has significant implications not only for the plan preparation process, but for the subsequent implementation of plan policies and proposals.

3. A further requirement of the '2004 Act' is the increased emphasis placed on Plan Monitoring and Review. This includes the requirement for local planning authorities to undertake the preparation of an annual monitoring report (AMR) on its Local Development Plan following adoption, to the Welsh Government. AMRs must identify any policies that are not being implemented and to give reasons, together with any steps that the Authority intends to take to secure the implementation of plan policies and any intention to replace or amend these.

4. Also of relevance to the study, is the housing land availability position for Pembrokeshire Coast National Park Authority, provided within in the latest Joint housing Land Availability Study (JHLAS). The most recent and up to-date Study (November 2012) with a base date of 1st April 2012 shows that the Authority's housing land supply currently stands at 3.5 years. Where the current study shows a land supply below the 5 year requirement, guidance requires that local planning authorities should take steps to increase the supply of housing land.

The Study

5. Hyder Consulting was commissioned by Pembrokeshire Coast National Park Authority in September 2012 to undertake the preparation of a Land Allocation Implementation Study in order to research the costs and requirements, including the potential to release identified constraints to developing allocated sites in the National Park. The following land-use allocations within the Adopted Plan were included within the scope of the study and formed the basis of the study assessments:
    - 16 Housing Sites
    - 5 Mixed-Use Sites
    - 1 Employment Site
6. The study has focussed on the key physical infrastructure improvements required to bring each of the sites forward for development, along with the key land owner issues. Advice has also been provided on the provision of Community Infrastructure Levy (CIL) and Section 106 Agreements as key factors in the deliverability of allocated development sites.

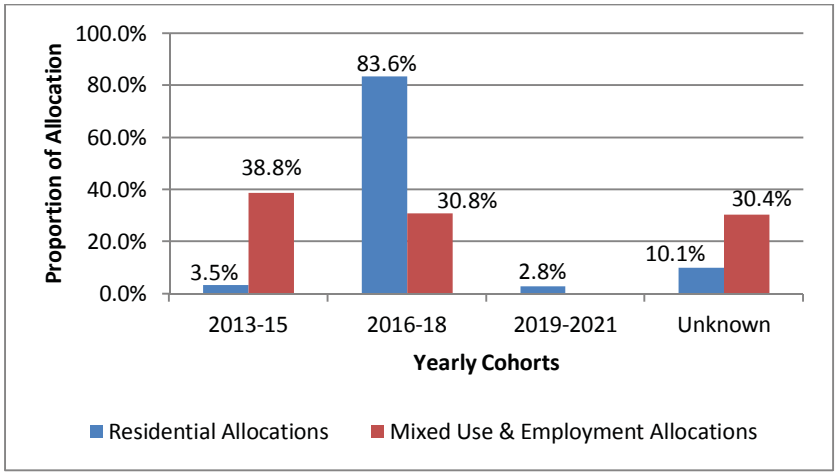
Site Assessments

7. The focus of the site assessment process within the study has been on those sites which are identified as having 'abnormal' costs and/or significant time delays associated with infrastructure provision, such that this may impact on site deliverability within the Plan Period. Through further scrutiny and investigation the extent and nature of any identified site constraints can be properly evaluated.

8. In identifying the costings necessary for overcoming the identified site constraints, the study has provided a broad range of likely costings against which comparisons for all sites can be made. This has enabled the level of impact of site constraints on project delivery to be determined, set-out within individual Site Proformas, attached as an Appendix to the main study report.

9. Having established the likely site delivery timescales, information has been provided on development trajectories for sites coming forward, split into three yearly cohorts to show the anticipated start-dates of each of the proposed development sites during the Plan Period. (**Figure 1** below)

Figure 1 – Deliverability by Cohort and Site Allocation

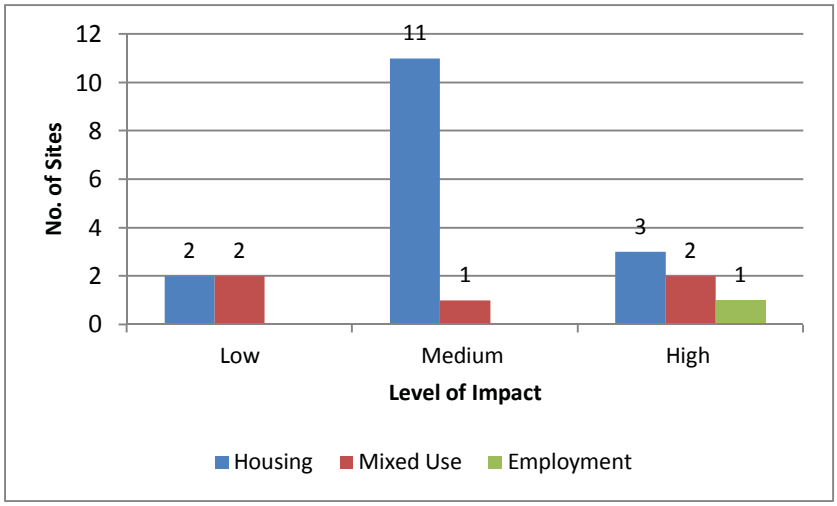


10. As a final stage in the assessment process, a Delivery Action Plan has been included setting-out the key issues identified for each site allocation, along with key action points for addressing the issues raised for each site, split between housing, mixed use and employment allocations. The Action Plan has further divided the identified constraints for each site into those that are considered to have '**HIGH,**' '**MEDIUM**' or '**LOW**' impacts, defined as follows:

- **HIGH** ***'Major' or unresolved site constraints/land ownership issues that currently impact on delivery timescales***
- **MEDIUM** ***'Moderate' site constraints/land ownership issues that may delay delivery within the Plan Period***
- **LOW** ***'Negligible' site constraints/land ownership issues that will not preclude delivery within the Plan Period***

11. The results of this exercise show that of the 22 site allocations assessed as part of the study, a total of 6 sites are shown to have '**HIGH**' Impacts for which 'Major' site constraints have been identified; 13 sites with '**MEDIUM**' Impacts with 'Moderate' site constraints to be addressed and 3 as '**LOW**' impacts with 'Negligible site constraints to be resolved. (**Figure 2** below)

Figure 2 – Level of Impact on Site Deliverability



1 Introduction

1.1 Study Commission

1.1.1 Hyder Consulting was commissioned by Pembrokeshire Coast National Park Authority in September 2012 to undertake the preparation of a Land Allocation Implementation Study in order to research the costs and requirements, including the potential to release identified constraints to developing allocated sites in the National Park.

1.1.2 Specifically, the aim of the study is to:

Identify the requirements to allow sites allocated for residential and employment and mixed use in the Local Development Plan to be developed. On an individual basis this includes:

- Identifying and costing infrastructure requirements;
- Identifying constraints to development and possible solutions to overcome these constraints.

1.1.3 The importance attached to the deliverability of sites allocated within the Local Development Plan (LDP) is established in national policy and is a key driver for this study, recognising that a main principle of the development plan is to act as an effective tool for the delivery of sustainable development.

1.1.4 This reflects the growing recognition within planning of the critical link that exists between the aspirations set-out within development plans and the delivery of individual site allocations in achieving timely and sustainable development during the course of the plan period and to remove the uncertainty that exists around the deliverability of site allocations.

1.1.5 This has particular resonance within the context of the National Park Authority where development must continue to respect and where possible enhance the special qualities of the National Park in achieving its purposes. For this reason opportunities for development within the Park are limited by the environmental capacity of the protected landscape and therefore alternatives to site allocations are seldom available and in any case are likely to be subject to similar constraints.

1.1.6 This position has been fully recognised within the context of the predecessor Local Plan, in the light of the comments made by the Planning Inspector in his Report into the Plan's Examination. In relation to issue of housing development and landscape quality, the Inspector recommended that:

'The correct approach must be to start with environmental considerations, and to examine the extent to which further housing land allocations are compatible with them. Such an approach must almost certainly lead to a total housing land allocation that represents a policy of severe restraint and that does not reflect past completion rates.'

'This must follow from the considerations that National Park designation represents the highest status of protection as far as landscape and scenic beauty are concerned: that the Park is already the most densely populated of all the National Parks; and that it ability to accept further housing must be constrained by its environmental capacity.'

1.1.7 The key challenge is therefore to put in place a thorough and systematic appraisal process that can address the necessary development requirements for allocated development sites within

the LDP and that all identified constraints are fully assessed in order to support the Authority in meeting the identified needs for the Plan Area and to ensure that this can be achieved.

1.2 Study Background

12. The Pembrokeshire Coast National Park Authority's Local Development Plan was Adopted in September 2010. The Plan became the first in Wales to be Adopted under the new system of Local Development Plans introduced under the Planning and Compulsory Purchase Act 2004, superseding the previously Adopted Joint Unitary Development Plan, prepared jointly with Pembrokeshire County Council.

13. Preparation of the Adopted Local Development Plan has therefore been undertaken in accordance with the procedural requirements set-out in the Town and Country Planning (Local Development Plan) (Wales) Regulations 2005. Amongst other matters of relevance to this study, the Regulations emphasise the importance of 'Deliverability' as a key guiding principle for Local Development Plans and for site delivery to be integral to the way plans are produced. This remains a pertinent issue with significant implications not only for the plan preparation process, but for the subsequent implementation of plan policies and proposals.

14. Procedurally, site deliverability is an important part of the Examination into the 'Soundness' of LDPs introduced under the 2005 Regulations. Of the 10 criteria for assessing the test of soundness, 'Test CE2' seeks to ensure that site allocations are realistic and appropriate. This also requires that local planning authorities put in place a robust and credible evidence base in order to ensure that the Local Authority can make available all relevant information which will enable the Inspector to make informed decisions on the outcome of the Local Development Plan. It is on this basis that the PCNPA LDP has been considered to be 'Sound' leading to the Inspector's recommendation that the Plan be Adopted.

15. The allocation of development sites for specific uses (including mixed uses) within the Local Development Plan in accordance with the Regulations has not only been founded on a robust and credible assessment of their suitability and availability, but on the probability that they will be developed within the plan period.

16. At the same time, a key requirement of the '2004 Act' is the increased emphasis placed on Plan Monitoring and Review. This includes the requirement for local planning authorities to undertake the preparation of an annual monitoring report (AMR) on its local development plan following adoption, to the Welsh Government. AMRs must identify any policies that are not being implemented and to give reasons, together with any steps that the Authority intends to take to secure the implementation of plan policies and any intention to replace or amend these. The assessment is required to include the following relevant matters:

    - Whether policies and related targets in LDPs have been met or progress is being made towards meeting them;

    - Where progress has not been made, the reasons for this and what knock on effects it may have;

    - What aspects, if any, of the LDP need adjusting or replacing because they are not working as intended or are not achieving the objectives of the strategy and/or sustainable development objectives; and

    - If policies or proposals need changing, what suggested actions are required to achieve this.

17. Particular focus is placed on the AMR process in specifying the housing land supply (from the current Housing Land Availability Study) and the number of net additional affordable and general market dwellings built in the Authority's area.

18. For the National Park Authority, AMRs have been published for 2011 and 2012. The most recent AMR (October 2012) has, as previously, assessed the effectiveness of plan policies against various plan indicators. Welsh Government Indicator 21 on Housing Land Availability is of relevance to this study and has concluded that the policy performance of the plan should be categorised as one in which the, *'targets set have not been achieved or poor performance, but no concerns over implementation of policy / objectives'.* The commentary provided within the Report analysis notes that:

> *The Authority is required to demonstrate a five year effectively available housing land supply. The 2011 study concludes that the National Park has a 3.8 year land supply. In order to address this shortfall the National Park Authority is carrying out several actions including approvals of planning applications, investigating the issues surrounding delivering sites, meeting with housing associations. The outcomes of these actions will require consideration in future studies and the next Local Development Plan monitoring report.*

19. It is also relevant to note Indicator 23 relating to the amount of development including housing that is permitted on allocated housing sites in the development plan as a percentage of development plan allocations and as a percentage of total development permitted. The analysis states that in order to allow development the opportunity to come forward, the performance of the indicator will be reviewed in 2014.

20. The most recent and up to-date housing land availability position for Pembrokeshire Coast National Park Authority is provided in the latest Joint housing Land Availability Study (JHLAS) with a base date of 1st April 2012, published in November 2012. This shows that the Authority's housing land supply currently stands at 3.5 years.

21. In circumstances where the current study shows a land supply below the 5 year requirement, local planning authorities are required to take steps to increase the supply of housing land. This advice is contained in TAN 1 Joint housing Land Availability Studies (WAG June 2006) and puts forward a number of approaches, including a review of the development plan, releasing land in its ownership, expediting planning applications, or securing the provision of infrastructure for particular sites, which may be prepared to finance in whole or in part.

22. Aligned to the delivery of housing development is the provision of affordable housing within the Plan Area, which it is noted within the current AMR (October 2012) has been affected by the down-turn in the housing market. In its response to Indicator 22 regarding the number of additional affordable and general market dwellings built, the Authority states that it will review its Affordable Housing Strategy Policy, if by the end of 2014/15 the number of affordable homes built or under construction is below 80% of the proportion of the overall target for the Plan Period which should be available by that date.

23. Regulations also set-out the need for periodic reviews of the Adopted Plan at least every four years, the timing and frequency of which is dependent on the findings of the AMR and on local circumstances. So far the monitoring undertaken by the National Park Authority is concerned, this has not pointed to the need for a full review of the Adopted Plan.

24. The commissioning of this study is therefore important, not only in providing an evidence base on the deliverability of those sites allocated within the Adopted Plan, but in the case of housing allocations, which comprise by far the greater number of development sites, the provision of a 5 year housing land supply.

25. A considerable amount of information has already been obtained by the Authority on known site constraints. This report therefore adds further detail by expanding upon the available information in developing an evidence base for the preparation of this study, based on the information and advice provided by a number of stakeholder bodies including Dwr Cymru/Welsh Water, Environment Agency, Countryside Council for Wales and the Local Highways Authority.

1.3 Scope of the Study

1.3.1 The purpose of the Study is concerned with providing a sound and robust assessment of the infrastructure requirements necessary to support the delivery of site allocations within the LDP that will underpin the deliverability of the Plan during the Plan Period (up to 2021).

1.3.2 The Authority's LDP has proposed a Strategy aimed at ensuring that the limited opportunities identified for development within the Plan Area contribute to sustaining local communities through minimising the need to travel. This is to be facilitated by directing development to the main towns, whilst helping to sustain the Park's more rural communities where this is compatible with the National Park purposes.

1.3.3 Given the modest increase in the anticipated levels of growth, aligned to the focus of development on more urban areas and the relatively small spatial scale of change within more rural areas, may assist in reducing the demands placed on infrastructure to support such development and its deliverability. This is a matter explored in more below.

1.3.4 In order to give meaning to the intentions regarding the deliverability of the LDP, the following land-use allocations within the Adopted Plan are included within the scope of this study and form the basis of the study assessments:

- 16 Housing Sites
- 5 Mixed-Use Sites

1.3.5 The predominant land-use allocations therefore relate to housing schemes, providing a total of 584 dwellings anticipated to be delivered across 16 housing sites. However, at the present time only 177 dwellings of that total fall within the 5 year land supply that are considered to be genuinely available for development, where infrastructure is or can be made available immediately or within 5 years. For the remainder, the 5 allocated mixed use sites represent a total of 6.5 hectares of development land, with a further contribution of 169 housing units expected while the employment allocation provides a further 0.93 hectares of development land.

Figure 1.1 below shows the geographic spread of each of the allocated sites within the National Park Authority.

Figure 1.1 – Development Site Allocations

Settlement Inset Maps

Broad Haven

Herbrandston

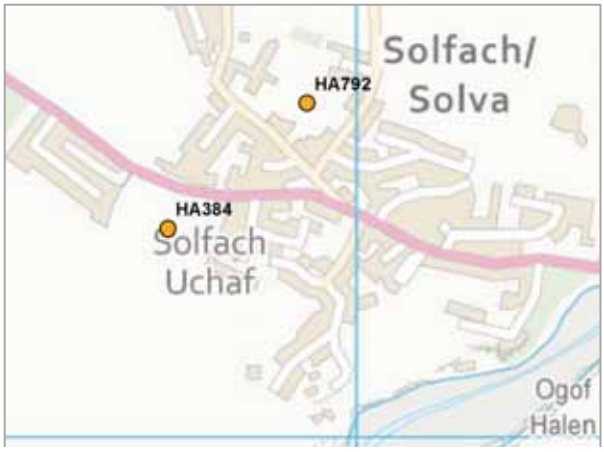
Dale

Jameston

Dinas Cross

Manorbier Station

New Hedges



Solva

St Davids

St Ishmaels

Tenby

1.3.6 Examining each of these land-use allocations requires a detailed understanding of when and how new development is likely to be delivered and how infrastructure needs will support its implementation. The provision of available infrastructure and the constraints to its delivery are therefore critical issues to be addressed through a robust and systematic appraisal of each of the site allocations. The likely impact of the identified constraints on site delivery during the Plan Period and a broad indication of which period allocated sites are likely to come forward for development are also key considerations.

1.3.7 Once completed, the findings of the Study will permit Pembrokeshire National Park Authority to consider aspects of site viability using the guidance set-out in the Development Appraisal Toolkit, prepared for a number of local planning authorities across Wales, including the National Park by Dr Andrew Golland (January 2010). The Toolkit provides a mechanism for assessing the economic implications on a site's development arising from the range of physical infrastructure costs, different types and amounts of planning obligations and in particular the amount and mix of affordable housing.

1.3.8 The key objectives for the Study can therefore be summarised as:

1. To provide an assessment of the infrastructure and other related requirements necessary to support the delivery of allocated development sites within the LDP and to advise on the nature and impact of any identified constraints;

2. To provide clear evidence to demonstrate that allocated development sites are well grounded in terms of the likelihood of their delivery within the Plan Period (and at what stage) through a rigorous site assessment process;

3. To provide a development trajectory for the delivery of land-use allocations within the LDP during the Plan Period based on the assessment of infrastructure constraints identified and the nature and extent of any known landownership issues;

4. To provide clarity to site promoters and others on what is needed to bring sites forward for development and to give all parties the confidence that the identified constraints can be resolved within the Plan Period;

5. To assist infrastructure providers in identifying key infrastructure requirements within the Plan Area and to inform individual business plans in order to provide an integrated approach to investment decisions throughout the Plan Period;

6. To provide a range of project costings to enable the Authority to undertake an appraisal of the viability of each site to come forward for development;

7. To provide an important evidence base to support the preparation of any charging schedule for the Community Infrastructure Levy.

1.4 Study Approach and Structure

1.4.1 The approach to the Study has been both systematic and iterative, starting from a review of the background information provided, the various documents and strategies at a national and local level, the identification of key issues and constraints, through to the detailed site assessment process, leading to recommendations and conclusions on the deliverability of site allocations during the Plan Period of the LDP including key actions to facilitate their development.

1.4.2 The approach adopted has required a collaborative approach to be taken involving close working relationships and the sharing of local knowledge and information with key agencies.

The technical support and co-operation provided by lead partners has been of critical importance throughout the period of the commission.

1.4.3 As part of this process and in order to meet the requirements of the study, we have bought together a study team of experienced practitioners with the necessary technical expertise and skills to cover each of the relevant disciplines. The core study team has comprised the following technical areas:

- Planning
- Transportation
- Infrastructure Engineering
- Developer Funding Contributions

1.4.4 The Study Report is structured as follows:

Section 1: Introduction

An introductory section setting-out the purpose of the study in relation to the implementation of allocated development sites within the LDP, its background, scope and the proposed study structure.

Section 2: Policy Context

A brief outline of the legislative and policy context to the study with reference to Welsh Government guidance and regulation, as well as the local planning policy framework, other local strategies and plans and their relevance to the Study.

Section 3: Site Assessments

A comprehensive exploration of the site assessments, commencing with a brief explanatory note setting-out the definition of infrastructure services referred to within this study and listing the key infrastructure types the subject of further detailed assessment and the relevant delivery bodies. This is followed by an outline on the approach undertaken as part of the study's evidence gathering and an explanation of the assessment process.

The central part of this section focuses initially on the nature of the constraints identified through the earlier site assessment work and their overall impact on site deliverability, as detailed within individual Site Proformas and concluding with a series of development trajectories showing the anticipated delivery timescales for all allocated development sites.

Section 4: Delivery Action Plan

A summary is provided of the key site constraints identified through the earlier site assessments, with a series of action points to be taken forward.

2 Policy Context

2.1 The focus of this study is on site deliverability set within the framework provided by national and local policy guidance. The LDP therefore has a fundamental role in addressing the provision of infrastructure and the phasing of development, both through the Plan's strategy, policy provisions and land-use allocations.

2.2 Both the preparation and implementation of the LDP must pay due regard to national planning guidance and policy prepared by the Welsh Government, as well as that at a regional and local level. The policy framework for this study is provided by the following plans and strategies:

2.1 National Policy Context

People, Places, Futures – The Wales Spatial Plan. Welsh Assembly Government 2008 Update

2.3 A framework for the future spatial development of Wales is provided through the Wales Spatial Plan. Pembrokeshire has been identified as 'The Haven.' The vision of 'The Haven' is to:

'A network of strong communities supported by a robust, sustainable, diverse high value-adding economy underpinned by the Area's unique environment, maritime access and internationally important energy and tourism opportunities'

The key strategic priorities for achieving this vision include:

- *Overcoming the Area's peripherality by improving strategic transport links and economic infrastructure including improved telecommunication links, and maximising the potential of the Area's maritime assets and proximity to Ireland*
- *Developing the Area's three strategic hubs. Critical to this is the renewal of town centres, development of complementary settlement roles within and between hubs, strengthening community, economic and social outreach and spreading benefit and growth to the wider hinterlands and smaller rural communities*
- *Sustaining and strengthening communities by taking focused action to address both rural and urban deprivation and economic inactivity and to ensure housing provision appropriate to all*

2.4 Although the Wales Spatial Plan does not provide a detailed framework for the physical and economic infrastructure development in Pembrokeshire, it does nonetheless provide a number of clear aims and themes for the area that support such development.

2.5 This includes a key theme of 'Promoting a Sustainable Economy' in which,

"A range of good quality affordable sites and premises needs to be available to promote the development of small and medium size businesses, with the appropriate infrastructure, particularly communications and information technology".

2.6 The plan also highlights the importance of facilitating sustainable development by effective forward planning and upfront investment in strategic infrastructure. This includes:

"Ensuring that investments in the Area's sewerage network are sufficient to overcome current inadequacies and are aligned to development proposals."

Planning Policy Wales. Edition 5 Welsh Government. 2012

2.7 National policy recognises that an adequate and effective infrastructure is *'crucial for the economic, social and environmental sustainability of all parts of Wales. It underpins economic competitiveness and opportunities for households and business to achieve more socially and environmentally desirable ways of living and working. At the same time, infrastructure which is poorly designed or badly located can exacerbate problems rather than solving them'.*

2.8 The infrastructure aims of the Welsh Government are:

- *'To protect and improve water resources through increased efficiency and demand management of water, particularly in those areas where additional water resources may not be available;*
- *To ensure that appropriate sewerage facilities are provided to convey, treat and dispose of waste water in accordance with appropriate legislation and suitability principles;*
- *To facilitate the development of an advanced broadband telecommunications infrastructure throughout Wales;*
- *To promote an integrated approach to provision and renewal of environmental and telecommunications infrastructure; and*
- *To ensure that environmental and telecommunications infrastructure is provided in such a way as to enable sustainable development objectives to be met, avoiding adverse impacts'.*

2.9 Planning Policy Wales states that, *'the planning system has an important part to play in ensuring that the infrastructure on which communities and businesses depend is adequate to accommodate proposed development as to minimise risk to human health and the environment and prevent pollution a source'.*

2.10 National policy goes on to say that, *'the capacity of existing infrastructure and the need for additional facilities should be taken into account in the preparation of development plans and the consideration of planning application.'*

Local Development Plan Wales, Welsh Assembly Government 2005

2.11 Paragraph 1.1 sets-out the guiding principle for LDPs to *"act as an effective tool for the delivery of sustainable development,"* and to*, "integrate land use planning decisions with the programmes and activities of others, such as infrastructure service providers."*

2.12 Paragraph 4.3 states that, *"An authority's policies and proposals should be founded on a thorough understanding of the area's needs, opportunities and constraints. This requires authorities to prepare, maintain or have access to an up-to-date information base on sufficient aspects of the economic, environmental and social characteristics of their area to enable the preparation of a 'sound' development plan."*

2.13 Guidance places particular emphasis on whether the LDP is 'sound.' Guidance provides a number of soundness tests, which fall into three categories: Procedural, Consistency, and Coherence and Effectiveness. Of particular interest, the test of *'Coherence and Effectiveness' seeks to ascertain whether, 'the strategy, policies and allocations are realistic and appropriate having considered the relevant alternatives and are founded on a robust and credible evidence base.'*

Planning Policy Wales: Technical Advice Note 1: Joint Housing Land Availability Studies. Welsh Assembly Government June 2006.

Guidance requires that local planning authorities must ensure that sufficient land is genuinely available to provide a 5 year supply of plan for housing. Where the results of the currently published JHLAS show that the housing land supply has fallen below the 5 year requirement, local planning authorities must take steps to increase the supply of housing land. This may include, for example securing the provision of infrastructure for particular sites which prospective developers may be prepared to finance in whole or in part.

2.2 Local Policy Context

Pembrokeshire National Park Management Plan (2009 -2013). Pembrokeshire Coast National Park Authority December 2008

The National Park Management Plan sets-out what is required in order to achieve the National Park purposes, through a series of detailed policies and operational objectives.

The Plan notes the particular tensions that exist in relation to the development constraints resulting from the National Park's limited landscape quality, when coupled with the Park's popularity as a place to live and visit. The Plan also recognises the role that development policies can play in narrowing the affordability gap between house prices and local wages by ensuring that new development includes a significant contribution of affordable housing.

Pembrokeshire Coast National Park Local Development Plan. Adopted September 2010. Pembrokeshire Coast National Park Authority

Policy 45 Affordable Housing (Strategy Policy)

To deliver affordable housing the National Park Authority will, as part of the overall housing provision, inter-alia:

a) Seek to negotiate 50% affordable housing to meet the identified need in developments of 2 or more units in housing developments in all Centres identified in the Plan Area with the following exceptions where a higher percentage will be negotiated: Tenby (60%), Newport (70%), Saundersfoot (60%), Dale (80%), Dinas Cross (100%) and New Hedges (60%).

Where it can be proven that a proposal is unable to deliver (ie the proposal would not be financially viable) in terms of the policy requirements of the Plan (ie for affordable housing provision, sustainable design standards expected and community infrastructure provision) priority will be given to the delivery of affordable housing in any further negotiations, provided that it can be demonstrated that the proposal would not unduly overburden existing community infrastructure provision.

Community Plan for Pembrokeshire (2010 – 2025). Community Planning and Leadership Partnership

2.14 The Community Plan for Pembrokeshire was prepared by the Community Planning and Leadership Partnership on behalf of the Pembrokeshire Local Service Board. The Plan identifies a number of key themes and objectives that are specific to the County of Pembrokeshire:

- *Well-Being*
- *Environment*
- *Economy*

- *Community*
- *Housing*
- *Learning*
- *Access*
- *Safety*

2.15 The Plan acknowledges the importance of partnership working to delivering its vision and in addressing the themes and objectives within the Plan, including the key areas of improving town centres, supporting the development of vibrant and sustainable communities and increasing the supply of appropriate housing. The links between the Plan and other planning documents, including the LDP are acknowledged, which are important in helping to deliver its aims and objectives.

Pembrokeshire Advance – Sir Benfro Ymlaen Rural Development Plan 2007 - 2013

2.16 The strategy sets-out how the Rural Development Plan for Wales will be implemented in Pembrokeshire. The Local Development Strategy establishes a number of aims, strategic objectives and strategic priorities:

Aim	Strategic Objective	Strategic Priorities
***A1** – Develop Pembrokeshire's Economy based on Local Need*	***O1** – Provide the necessary physical infrastructure to help businesses succeed*	***P1** – Develop allocated employment land to provide business premises* ***P2** – Improve the quality of existing industrial sites and premises* ***P3** – Develop strategically important communication infrastructure, including roads, ICT, rail, air and seaports* ***P4** – Provide targeted business support to businesses with potential for growth*
***A2** – Develop Vibrant Communities*	***O9** Develop sustainable service provision in rural areas*	***P28** – Develop electronic delivery or services to rural areas*
***A3** – Promoting a Clean, Healthy and Valued Environment*	***O13** – Develop Pembrokeshire's Environmental Infrastructure*	***P38** – Provide adequate water, sewerage and drainage*

3 Site Assessments

3.1 Infrastructure Provision

3.1.1 In the absence of any published guidance for undertaking assessments of infrastructure provision in support of site delivery, it has been necessary to rely on our own knowledge and expertise within this field that is reflective of local circumstances. The approach adopted has followed agreement with Pembrokeshire NPA and is consistent with that adopted in the preparation of Hyder's Site Deliverability Study for Pembrokeshire County Council in support of its LDP (February 2012). This is considered helpful as the delivery of services, in the case of highways for example is undertaken at a County level, whilst this may also assist as part of any future joint working initiatives in relation to the preparation of a Community Infrastructure Levy.

3.1.2 From the review of work undertaken and from past experience, it is evident that key to this is in ensuring that the infrastructure needs are fully captured and that the range of providers responsible for funding and delivering the infrastructure are identified. To take account of this the study has therefore focussed on those 'fundamental' infrastructure types that are required to be provided up-front to support a site's development.

3.1.3 This is an important distinction as other types of infrastructure such as hospitals, GPs and dentists, libraries, community and leisure facilities, playing fields, outdoor sports, open spaces, parks, allotments and playgrounds are not seen as critical in bringing forward an individual site's development, though they may be required to support or mitigate the impact of new development. Equally, in most cases these have a more strategic role to play in serving the wider community's needs.

3.1.4 Although not strictly falling within the category of infrastructure provision, information on land ownership and other legal issues have been identified as a key consideration, based on a wider view of potential constraints and the impact that this may have and how this may fundamentally affect site deliverability.

3.1.5 Whilst site valuation as a determinant of the viability of the development has been excluded from the site assessment process (in not forming part of the study brief) advice is provided on the provision of Community Infrastructure Levy (CIL) and Section 106 Agreements as key factors in the deliverability of allocated development sites.

3.1.6 Excluded from the assessment process are more detailed site considerations relating to the built and natural environment that may impose restrictions on a site's development in terms of ecology, landscape, land contamination, archaeology and historic interest that would be the subject of more detailed site investigation at the planning application stage. None of these issues have been identified as potential constraints to site development at this stage and therefore have not been considered further as part of the site assessment process.

3.2 Evidence Gathering

3.2.1 The individual site assessments have been based on the availability of data and information at the time of the Study Report through the various statutory undertakers and technical advisors as highlighted in **Table 3-1** below. This sets-out each infrastructure assessed, the lead agency involved and the key issues to be addressed. The framework in place has been important in ensuring that a sound and inclusive approach has been taken in assessing the broad level of infrastructure requirements, the identified constraints and to reach informed decisions on the likelihood of the allocated sites being delivered within the Plan Period and at what stage.

Table 3-1 Infrastructure Service Provision

Infrastructure Type	Key Issues	Delivery / Responsible Body	Tasks
Waste Water Treatment Works (WWTW)	The capacity of the local WWTW to accommodate new development	Dwr Cymru/Welsh Water	Baseline review and site assessment work undertaken on each site
Sewerage/Water Supply	Constraints associated with the local sewerage system and water supply	Dwr Cymru/Welsh Water	Baseline review and site assessment work undertaken on each site
Surface Water (Flooding)	Flood risk issues associated with fluvial/tidal flooding and the potential effects on water quality from existing water courses on site	Environment Agency	Baseline review and site assessment work undertaken on each site
Access	Access constraints either to serve or to be provided within development sites	Pembrokeshire County Council	Baseline review and site assessment work undertaken on each site
Utilities	A range of utility services including gas, electricity and telecoms provision	Wales & West Utilities Western Power Distribution British Telecom (Openreach)	Gas supply to be assessed for all sites. Assessment of Electricity and Broadband provision undertaken at a Plan Area and settlement level.
Land Ownership	Land ownership and legal issues affecting the delivery of sites	Various public and private interests	Letters sent to all known site owners and agents
CIL/Section 106 Agreements	The opportunity to secure funding through developer contributions	Pembrokeshire NPA (Pembrokeshire CC)	Advice on whether infrastructure requirements can be procured through the planning process

3.2.2 Meetings and discussions have taken place with statutory bodies including Dwr Cymru/Welsh Water, the Environment Agency, Pembrokeshire National Park Authority Planning Department and Pembrokeshire County Council Highways and Estates Departments to collect background information about each of the sites. This has yielded a wealth of useful information to inform an understanding of the infrastructure requirements for each site as the basis for further analysis on their deliverability within the Plan Period.

3.2.3 Deliverability within the context of this study refers to their being a reasonable prospect that the allocated development site will be delivered on the site during the Plan Period, informed by the evidence base available and the assessment work undertaken. However, it takes no account of the time taken for developers to build-out schemes, particularly in the case of housing developments, which comprise the majority of development site allocations within the Plan.

3.2.4 The nature of each constraint on a site is necessarily different. As such the combination of any constraints affecting the provision of infrastructure services are considered individually in a

consistent manner in order to arrive at an informed view on the likelihood of the site coming forward for development and on the length of time it will take.

3.2.5 Clearly, for a study of this nature the assessment process is based largely on a desk based review of the available information sufficient to provide a robust evidence base on which to make local judgements, based on typical experiences of similar schemes and on the issues to be addressed. For this reason, the main focus of the study has been on adopting a consistent and comparative approach when assessing how long and at what cost known constraints are likely to be resolved and on when a given site is likely to come forward for development.

3.2.6 The assessment of infrastructure needs and the nature and impact of any identified site constraint is therefore founded on a benchmarking approach in the assessment process when considered against adopted standards and guidelines. This has enabled a consistent approach to be taken in assessing the relative importance of the identified constraints and the measures taken for these to be adequately addressed to enable site delivery. Conclusions can then be reached on whether these issues are likely to be resolved and the sites delivered within the Plan Period (and at which stage) based on the best information available.

3.2.7 However, key to this is for the site assessment work to be based on a credible and robust evidence base in order that the more qualitative based judgements on the likelihood of sites coming forward for development within the Plan Period can be made, based on the experience and knowledge provided by the technical experts in the field.

3.2.8 Whilst it is expected through the plan preparation process all allocated sites within the LDP are suitable for development and are capable of being delivered at some point, the issue at stake is which sites are subject to more significant infrastructure/land ownership constraints that may place greater restrictions on them coming forward during the Plan Period. This is not to say that the constraints cannot be overcome to prevent the site come forward for development, rather that the prospects of that happening compared to other proposed development sites may be more limited and therefore present a greater risk of not contributing to meeting the Plan's identified needs for the Plan Period and which, as a consequence will require further examination in finding potential solutions to over-coming the identified constraints.

3.3 Assessment Process

3.3.1 The basic premise is that the range of infrastructure necessary to bring sites forward for development represents a 'constraint' to development to a lesser or greater extent in terms of cost and/or time. In most cases these represent the normal development costs and/or time delays associated with bringing sites forward for development, with an acceptance by site promoters and landowners that these are to be built-in to the overall site development costs.

3.3.2 Where such development constraints exist, these are not seen as impacting on site delivery within the Plan Period and need not be considered further as raising an issue for the LDP in terms of their deliverability. Where no identified impediments to site delivery are identified, development of the site can proceed unhindered, unless the landowners/developers intentions dictate otherwise.

3.3.3 The focus therefore of the site assessment process (and of this study) is on those sites which are identified as having 'abnormal' costs and/or significant time delays associated with infrastructure provision, such that this may impact on site deliverability within the Plan Period and which will be the subject of further scrutiny and investigation.

3.3.4 In identifying the costings necessary in overcoming site constraints, it is not considered practicable for a study of this nature to provide detailed costs, but rather for a broad range of

likely costings to be provided against which comparisons for all sites can be made. It is only at this point is it possible to determine the level of impact of site constraints on project delivery, recognising that in some cases high project costs do not necessarily equate to high levels of impact (and vice versa).

3.3.5 Following this, it is possible to present the information on site delivery as a series of development trajectories, split into three yearly cohorts covering the remainder of the Plan Period up to 2021 to show the anticipated start-dates of each of the proposed development sites, informed by the earlier site analysis. For sites where the likely delivery timescales remain unknown by virtue of unresolved site constraint issues, these are also presented within the development trajectories.

3.3.6 As a final stage in the process, an Action Plan for site delivery is included, setting out a series of recommendations to enable sites to be delivered within the Plan Period.

3.3.7 The approach adopted for the site assessments has been in line with the above requirements and has been undertaken through a four stage process, as follows:

Stage 1 - Site Constraints

Stage 2 – Site Deliverability

Sage 3 – Development Trajectories

Stage 4 – Delivery Action Plan

3.3.8 A summary of the site assessments showing the level of impact of identified site constraints for each site allocation within the LDP is set-out within the individual Site Proformas in **Appendix A**. This includes a brief explanatory note for each identified constraint and is accompanied by site constraints maps in **Appendix B**. More detailed technical information to support each site assessment is provided in **Appendix C**. This has formed the basis of development trajectories for each land-use type proposed within the Plan Period.

3.4 Site Constraints

3.4.1 This stage in the assessment process focuses on the nature and extent of the individual site constraints, based on the detailed site information gathered from each of the service providers, the advice of the technical advisors and the responses received from landowners. The section below provides a brief overview of the issues raised as part of the assessment process, the key considerations and draws some initial conclusions on the outcome of the process of identifying site constraints.

WWTW/Sewerage/Water Supply

3.4.2 Welsh Water/Dwr Cymru is the statutory sewerage and water undertaker covering Pembrokeshire. It is recognised that within certain areas of the Plan Area insufficient capacity exists to accommodate future growth without improvements to the local Waste Water Treatment Works, sewerage system or water supply provision. The current AMP5 Programme (2010-2015) is making significant investment in improvements to the wastewater treatment facilities in order to meet stricter environmental quality standards and in facilitating development within these areas.

3.4.3 For some communities however, improvements to overcome problems such as WWTW capacity, lack of public sewers, issues regarding surcharging or where limited water supply

capacity exists may need to be taken forward through the AMP6 Programme (2016-2021), confirmation of which is expected in December 2014. Assuming that funding for these works is secured, development as a consequence within many these communities can be phased to start after 2016. For those major infrastructure works such as improvements to WWTWs or to sections of the public sewerage system, even allowing for an immediate start post 2016, a 2 year lead in-time will need to be allowed for from commencement through to completion and therefore any development sites affected by such improvement schemes are not expected to be delivered until 2018 at the earliest.

3.4.4 The opportunity does exist for developers to make financial contributions towards any necessary improvements in advance of any planned regulatory investment by Welsh Water/ Dwr Cymru, via Section 106 Agreements in order to bring development sites forward, which might otherwise be refused. Welsh Water/Dwr Cymru, as statutory water and sewerage undertaker has a duty under Sections 41- 44 (water) and 98 – 101 (sewerage) of the Water Improvement Act 1991 to comply with a requisition notice served for the provision of a new water main or sewer and/or associated works by site developers for domestic purposes. On completion of any requisitioned works, the asset provided will rest with the water and sewerage undertaker who will be responsible for its future operation and maintenance.

3.4.5 The cost of the requisitioned scheme to the developer can be offset by the income generated from the development over a period of 12 years. Should the income received be greater than the cost of the scheme, there will be a nil contribution from the developer. Conversely, should the income received fall short of the scheme cost, a developers' contribution will be required. Where contributions are to be made by developers, these can be made either as a discounted, up-front payment or can be spread over the 12 year period.

Surface Water (Flooding)

3.4.6 The information provided on potential surface water issues affecting each of the allocated sites, along with more detailed site specific information on flooding and ecological issues has formed the basis of the assessment within this study. This has not highlighted any significant issues that will affect site delivery within the Plan Period.

3.4.7 Discussions have been held with the Environmental Agency Wales (EAW) regarding surface water run-off and foul drainage at each of the allocated sites. In addition to the specific details provided for each of the sites contained within the individual Site Proformas, the following general notes on more general site development issues are also provided.

3.4.8 Whilst not regarded as a major constraint to site development, in order to fulfil the requirements of Technical Advice Note 15 (TAN15), the Environment Agency advises that surface water run-off as part of new developments should be dealt with by way of a Sustainable Drainage System (SUDS), to attenuate flows and prevent increased risk of flooding in the catchment.

3.4.9 Where SUDS cannot be implemented (with good reason) any conventional drainage system which is installed should also provide attenuation to reduce peak rates of run-off. Where conventional systems are installed they should demonstrate an improvement on the status quo prior to discharge to a watercourse.

Access

3.4.10 The assessment of access and highway constraints to site delivery has followed discussions held between Hyder's Transport Consultant and Pembrokeshire County Council's Highways Department. The assessment process has identified likely infrastructure improvements required to address various constraints that exist to bring sites forward for development. None of the sites assessed have raised wider trunk road issues through the additional traffic generation arising from the development of sites, although it will be necessary, as part of any future planning application for the wider sustainable transport and infrastructure aspects to be considered for each development site.

3.4.11 A small number of development sites have raised major highway constraints to site delivery. Of particular note are the proposed road improvements to Glasfryn Road, St David's that is included as a proposal within the PCNPA Adopted Plan. Although the scheme is not programmed for implementation within the Regional Transport Plan, the County Council, as Highway's Authority is keen to see the scheme implemented, recognising the strategic importance of the road, as well as facilitating access to 3 allocated sites located along its route.

3.4.12 In order to progress matters, the Highway's Authority is currently seeking funding to undertake a feasibility study, prior to applying for funds to implement the highway improvements. In relation to the delivery of the development sites located along Glasfryn Road, consideration has been given within the Study on the extent to which the highway improvements are required in the interim to enable development of the sites to be taken forward.

Utilities

3.4.13 Discussions have taken place with the utility providers regarding the provision of Gas, Electricity and Broadband within the Plan Area. A summary of the findings is provided below.

Wales & West Utilities (Gas)

3.4.14 Enquiries made with Wales and West Utilities in relation to the provision of gas supplies to serve each of the allocated sites included within the study and have identified the location of both the low and intermediate pressure network. Generally, connections to the intermediate pressure (IP) network are a lot more costly than connections to the low pressure (LP) network.

3.4.15 At the same time, where enquiries returned have shown no current infrastructure within the area surrounding the site allocation, a high cost of connection is assumed, following the advice of Wales and West Utilities that this will ultimately prohibit development. Gas connection costs on these sites (**Table 3.2** below) have therefore not been considered further.

3.4.16 A summary of current gas supply to serve each site allocation is shown in **Table 3.2** below with further details provided in the Site Proformas (**Appendix A**) and maps of the gas network (**Appendix B**).

Table 3.2 – Gas Supply

Housing Allocation		
Site Name	**Ref.**	**Gas Supply**
West of Glasfryn Road, St Davids	HA737	Low pressure supply in Glasfryn Road
South Driftwood Close, Broad Haven	HA734	No supply locally
Rectory Car Park, Tenby	HA724	Low pressure supply in South Cliff Street
Butts Field Car Park, Tenby	HA752	Low pressure supply in the south of the site

Reservoir Site, Tenby	HA760	Intermediate pressure supply in Slippery Back, approx. 70m to west
West of Narberth Road, Tenby	HA727	Low pressure supply to property in south east of the site
Castle Way, Dale	HA382	No supply locally
East Herbrandston Hall, Herbrandston	HA732	No supply locally
North of Landway Farm, Jameston	HA436	No supply locally
Green Grove, Jameston	HA821	No supply locally
Opposite Bush Terrace, Jameston	HA730	No supply locally
Field Opp Manorbier VC School, Manorbier Station	HA848	No supply locally
Rear of Cross Park, New Hedges	HA813	Low pressure supply in adjacent street (B4316)
Adjacent to Bro Dawel, Solva	HA384	No supply locally
Bank House, Whitchurch Lane, Solva	HA792	No supply locally
Opp Bay View Terrace, Dinas Cross	HA387	Low pressure supply in A487 adjacent to site
Mixed Use		
Between Glasfryn Rd & Millard Park, St Davids	MA746	Low pressure supply to south along A487
North East of Marine Road, Broad Haven	MA776	No supply locally
White Lion St / Deer Park, Tenby	MA707	Low pressure supply in adjacent streets
Land part of Buttylands, Manorbier Station	MA895	No supply locally
Land Adj. to the School, St Ishmaels	MA733	No supply locally
Employment		
South of Assemblies	EA748	Low pressure supply in Glasfryn Road and lane to south of the site

3.4.17 Subsequent discussions have been held with Wales and West Utilities regarding connections to sites where the local network lies within close proximity (e.g. within the immediate site surroundings). Wales and West advise that it charges for new connections and service alterations in accordance with the provisions of the Gas Act and its Gas Transportation License. The Company therefore aims to recover those costs that it reasonably expects to incur when it provides connection services. Such charges will reflect the cost of labour, materials, and any other expenses required to carry out the work (e.g. traffic management).

3.4.18 Should Wales and West carry out work which is additional to that required to meet the requirements of the customer (e.g. reinforcement works) these costs will normally be met by Wales and West and will not be charged to the customer.

3.4.19 Cost estimates were provided by Wales and West for those sites identified as having a nearby gas connection. These are set-out within the Site Proformas in **Appendix A** though are caveated, as follows:

- The absence of gas demands and therefore unable to check the impact of developments on the existing network.

- In the absence of gas loads, an assumed gas pipe diameter of 125mm.
- No service costs included.

Western Power Distribution (Electricity)

3.4.20 Discussions held with Western Power Distribution (WPD) as the local electricity network operator have identified any capacity issues with the network in the Pembrokeshire area along with more detailed discussions in relation to the site specific issues which form the focus of this study.

3.4.21 Consultation with WPD has revealed that the total residential element of all the allocated sites (totalling 596 units) will not have a significant effect on the WPD Network in West Wales based on the assumption that the residential connections will amount to approximately 1.5 MW spread across the Pembrokeshire National Park Area and that these will not all be 'electric.' The calculation is based on dwellings which are not 'all electric' and is considered appropriate given the gas supply options to some of the sites, the rural nature of the allocations and the drive from developers to utilise other energy sources in their developments.

3.4.22 In terms of the commercial / mixed use site allocations, the impact on the network is considered by WPD to be more difficult to predict as the individual loadings are unknown. This relates to the following sites:

- 2 sites with education provision (MA895 & MA733)
- 1 with a retail element (MA707)
- 1 with workshops and community facilities (MA776)
- 1 with B1 / B8 uses (MA746)

3.4.23 WPD advise that where new connections are required to be made, the Company is obliged to make these available for the end user. For new connections within the main settlement areas of the County's Plan Area connections can be provided and therefore do not constitute a constraint to site development in terms of costs or time. Within more rural areas achieving a connection could be more difficult and although such connections are achievable, they may represent a higher than normal cost.

3.4.24 In assessing electricity connections it is considered that in the majority of cases a connection will be possible without incurring any 'abnormal' costs to the developer. The actual cost for bringing more remote sites forward for development will be dependent on site location and the load requirements of the proposed development.

3.4.25 When a site comes forward for development WPD will consider the requirements for a new connection in greater detail. Prior to this developers may wish to undertake a feasibility study to establish the viability of a connection to the distribution network. This work would include preliminary network analysis and provide the developer with an indicative connection assessment which will include the results of the network analysis as well as an outline of the engineering scheme to allow the connection. WDP charge for such an assessment, the cost of which is dependent on the loading of the proposed development. These charges are outlined below.

Table 3.3 – WDP Feasibility Charges

Category – Demand	Minimum Charge	Additional Charge per hour
Connection greater than 250kVA and up to 1MVA at LV	£365	£57
Connection greater than 250kVA and up to 1MVA at HV	£365	£57
Connection greater than 1MVA and up to 3MVA at HV	£464	£62
Connection greater than 3MVA and up to 10MVA t HV	£1,159	£72
Connection greater than 3MVA and up to 10MVA at EHV	£1,739	£72
Connection greater than 10MVA and up to 50MVA	£1,739	£72
Connection greater than 50MVA	£2,318	£72

N.B. The additional charges outlined will only be applicable where the applicant amends their connection requirements which necessitates further analysis or assessment.

3.4.26 Although not representing a major constraint on a site's development, they will impose a cost and time consideration for developers.

BT (Broadband)

Current Situation in Wale

3.4.27 Currently there are two major access networks for fixed-line broadband in Wales, covering Pembrokeshire. These include:

- BT's copper telephone network
- Virgin Media's cable network

3.4.28 Services are also provided through satellite and wireless technologies (both fixed and mobile).

3.4.29 All premises in Wales are connected to a broadband-enabled exchange and BT estimates that 99.6% of premises connected to its copper network are able in theory to obtain broadband speeds of at least 512 kbps. However, for a number of reasons (e.g. network quality, shared lines and distance from the exchange), not all households in Wales are able to receive such a service.

3.4.30 Pembrokeshire has a total of 36 BT enabled exchanges; however, the area has been ranked by Ofcom as one of the worst places in the UK for internet speeds. Ofcom report that average broadband speed in Pembrokeshire is just 4.8Mb per second, which is 2.7Mb per second slower than the national average of 7.5Mb per second, and 19.2Mb below 'super fast' levels.

3.4.31 For Virgin Media, only 24% of premises – concentrated primarily in the major cities of Cardiff, Newport and Swansea – are served by Virgin Media's cable network. The Virgin cable network does not currently serve Pembrokeshire.

Broadband Support Scheme

3.4.32 The Welsh Government is currently taking steps to ensure that basic broadband is available to all through their Broadband Support Scheme (BSS). The scheme provides a mechanism to eradicate broadband 'notspots' by providing direct grant support for anyone affected by limited

broadband access. Assistance of up to £1,000 is available to cover eligible set-up costs, but it does not fund monthly subscription charges.

3.4.33 BSS is available to any individual, business or Third Sector organisation located in a 'notspot'. It is technology and provider neutral, which means that eligible recipients have the freedom to choose the most appropriate technical solution for their location and their own Internet Service Provider (ISP), provided this offers value for money.

3.4.34 The scheme also encourages solutions that benefit entire communities, by allowing eligible applicants to pool their individual grants to purchase a community solution. The first community solution funded through the scheme was launched at Treleddyd Fawr, St Davids on 1 March 2011.

3.4.35 Having initially prioritised individuals with no broadband access at all (defined at sub-512Kbps connectivity), the Welsh Government has now extended eligibility for the scheme to encompass 'slowspots' (defined at sub-2Mbps connectivity).

Fibre Broadband Project

3.4.36 On July 19th 2012 the Welsh Government and BT announced an ambitious project which is the largest partnership of its kind in the UK. The project will deliver fibre broadband to parts of the country not covered by existing commercial plans. The project will build on BT's existing investment with the aim being that 96 per cent of Welsh homes and businesses will have access to world class broadband speeds of up to 80Mbps by the end of 2015.

3.4.37 The project is set to boost the Welsh economy with fibre broadband providing speeds that are approximately 15 times faster than those available in Wales today. It will be of particular benefit to those homes which currently receive speeds of less than 2Mbps (currently around 20% of Welsh homes, Ofcom). It is estimated that this will fall to around 2 per cent when the roll-out is complete.

New Connections

3.4.38 Discussions held with BT have revealed that where new broadband connections to a site are required, these do not normally incur a connection cost, provided the infrastructure exists in which to connect into.

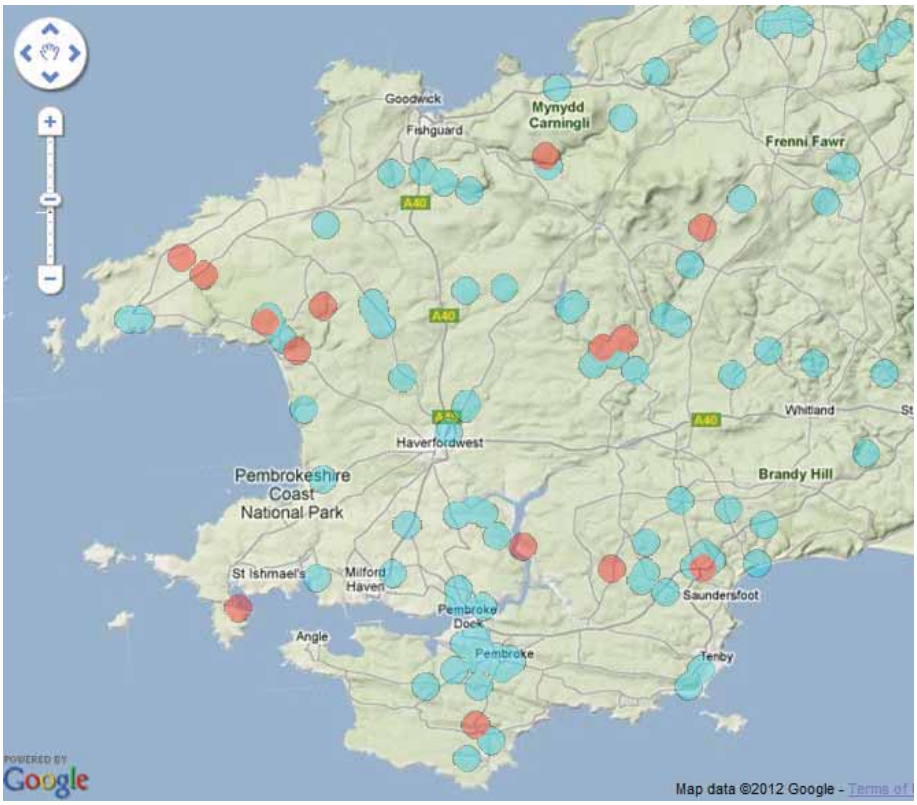
3.4.39 In order to assess broadband coverage within the vicinity of allocated sites within the Study, data was drawn from www.broadband-notspot.org.uk. Which highlighted those areas defined as either comprising 'slow spots' or 'not spots' as follows:

Slow Spot (Blue) – an area in which a broadband service is limited to a speed below 2 Mbps (downstream).

Not Spot (Red) – an area in which broadband services is not available (at all, or at a reasonable cost).

3.4.40 Coverage at a settlement level throughout Pembrokeshire is shown in **Figure 3.1** below (including the National Park). The Figure highlights areas of 'low' and 'not' spot. Translating this to the individual sites is set-out within the Site Proforma's in **Appendix A** although this has not raised any major constraints to site delivery within the Plan Period in terms of cost or time.

Figure 3.1 – Broadband Coverage



Source: www.broadband-notspot.org.uk

3.4.41 **Table 3.4** below shows the current broadband network coverage for each of the allocated sites within the study.

Table 3.4 – Not / Slow Spots

Housing Allocations		
Site Name	**Ref.**	**Broadband**
West of Glasfryn Road, St Davids	HA737	No connectivity issues identified
South Driftwood Close, Broad Haven	HA734	No connectivity issues identified
Rectory Car Park, Tenby	HA724	No connectivity issues identified
Butts Field Car Park, Tenby	HA752	No connectivity issues identified
Reservoir Site, Tenby	HA760	No connectivity issues identified
West of Narberth Road, Tenby	HA727	No connectivity issues identified
Castle Way, Dale	HA382	Although not within, site lies to the north of a Broadband 'Not Spot'
East Herbrandston Hall, Herbrandston	HA732	Site lies within a Broadband 'Slow Spot'
North of Landway Farm, Jameston	HA436	No connectivity issues identified
Green Grove, Jameston	HA821	No connectivity issues identified
Opposite Bush Terrace, Jameston	HA730	No connectivity issues identified
Field Opp Manorbier VC School, Manorbier Station	HA848	No connectivity issues identified

Rear of Cross Park, New Hedges	HA813	No connectivity issues identified
Adjacent to Bro Dawel, Solva	HA384	No connectivity issues identified
Bank House, Whitchurch Lane, Solva	HA792	No connectivity issues identified
Opp Bay View Terrace, Dinas Cross	HA387	No connectivity issues identified
Mixed Use		
Between Glasfryn Rd & Millard Park, St Davids	MA746	Site lies adjacent to a Broadband 'Slow Spot'
North East of Marine Road, Broad Haven	MA776	No connectivity issues identified
White Lion St / Deer Park, Tenby	MA707	No connectivity issues identified
Land part of Buttylands, Manorbier Station	MA895	No connectivity issues identified
Land Adj. to the School, St Ishmaels	MA733	No connectivity issues identified
Employment		
South of Assemblies	EA748	No connectivity issues identified

Land Ownership

3.4.42 In addition to the range of physical infrastructure constraints identified earlier, landownership and legal issues are equally important in determining the future timing and/or cost of site delivery. Information on landowner interests was made available in the first instance by the National Park Authority's Planning Department which has enabled early contact to be made with each of the landowners or their land agents to establish, firstly legal interests in the site and secondly future intentions for taking the sites forward for development.

3.4.43 It has been possible to contact all but four of the landowners or their land agents. This has enabled important information to be provided in understanding the issues constraining the development of individual sites and for an assessment to be made on the likely impact of these to a site's delivery, as set-out in **Table 3-6** below.

3.4.44 Information on land owner intentions has shown, that with the exception of one site allocation, there are no over-riding legal or land ownership restrictions to site delivery, although others are shown to act as a constraint, to a lesser degree and hence a delay to site deliverability.

3.5 Developer Contributions

3.5.1 An additional constraint to the delivery of allocated development sites is the potential use of planning obligations and the Community Infrastructure Levy, both of which are secured by the Local Planning Authority on development sites through the planning application process.

3.5.2 Unless well founded and managed by the local planning authority, developer contributions can put the viability of a proposed development at risk. Within the context of this study, the imposition of planning obligations and any CIL requirements can act as an economic constraint to development in the absence of a clear policy framework for implementing the system of developer contributions.

3.5.3 Traditionally, developer contributions in the form of planning obligations have been sought either through Section 106 Agreements or Unilateral Undertakings, as set-out under the Planning and Compensation Act 199.

3.5.4 The Planning Act 2008 has introduced the Community Infrastructure Levy in England and Wales, its purpose being to fund the infrastructure required to implement development plan proposals. The introduction of CIL is discretionary, for local planning authorities to decide whether, or not, to introduce. Authorities that wish to charge a levy need to develop and adopt a CIL charging schedule.

3.5.5 The Levy therefore acts an important tool in helping to pay for the infrastructure required to support new development. Importantly however, the Levy cannot be used to remedy pre-existing deficiencies unless the new development makes the deficiency more severe. The Regulations make clear that CIL is not to be used for general local authority expenditure (or to meet existing deficiencies), but is intended primarily to provide for new or improved infrastructure to meet projected growth set-out in development plans.

3.5.6 Authorities can decide on what infrastructure to spend the Levy on, though the rates to be charged must be based on evidence of the infrastructure needed. The charging authority can identify indicative infrastructure projects and the gap in the funding of these projects to calculate the aggregate funding gap the levy is intended to address.

3.5.7 Despite the introduction of the CIL in Wales and its potential for supporting large infrastructure projects in particular, planning obligations will still have a role to play in terms of site specific infrastructure that mitigates the specific impacts of a development.

3.5.8 Planning obligations can therefore still legitimately be used for site specific mitigation measures, though the regulations have introduced a number of reforms to scale back the use of planning obligations. Firstly, all planning obligations for development capable of being charged the Levy must meet the three statutory tests:

1. necessary to make the development acceptable in planning terms;

2. directly related to the development; and

3. fairly and reasonably related in scale and kind to the development.

3.5.9 Since April 2010 it has been unlawful for a planning obligation to be taken into account when determining a planning application for development capable of being charged the Levy if the obligation does not meet all of these tests.

3.5.10 Secondly, authorities cannot double charge developers for the same item of infrastructure through the levy and planning obligations. The authority should set out what items it intends to fund through the levy on its website otherwise it will not be able to fund any infrastructure through Section 106 Agreements once the levy is adopted.

3.5.11 Thirdly, on the local adoption of the levy or the 6 April 2014 (whichever is the sooner), contributions obtained through planning obligations can only be pooled from up to 5 development projects, or types of contributions (e.g. education) since April 2010, for infrastructure capable of being funded through the levy. For items that are not capable of being funded by the levy, there are no restrictions on the number of obligations that may be pooled.

3.5.12 Changes to the CIL Regulations, which came into force in November 2012 deal with the issue of Section 73 applications, and makes amendments to ensure that CIL is not payable where the floorspace proposed in these revised applications does not change. This is to avoid potential double counting in the interim period pre and post the introduction of CIL and is only applicable where the floorspace has increased.

3.5.13 Other than highlighting the potential impacts of planning obligations and CIL on site deliverability this section advises on the processes involved and the operation of and both regimes, as well as providing an assessment of their relative merits.

3.5.14 The pros and cons of both the scaled back Section 106 regime and the new CIL regime is set-out in **Table 3-5** below:

Table 3-5 Section106 Agreements/CIL

Scaled-Back s.106 Agreements	Community Infrastructure Levy
Pros: • Provides greater scope for negotiating on s.106 items on a site-by-site basis • Allows local authority to prioritise certain s.106 items such as affordable housing	**Pros:** • Allows the pooling of contributions • Is suited to the delivery of large infrastructure items • Creates certainty to the development market in terms of payments
Cons: • Pooling of contributions is to be restricted to just five schemes • Scrutiny of s.106 agreements will increase to ensure that items not directly related to the scheme are excluded and not taken into account in determining applications • Potentially less monies for wider	**Cons:** • It is non-negotiable, although exemptions can be allowed • It places greater emphasis on affordable housing as the target for negotiations at planning application stage • There are some teething issues with definitions e.g. the issue of empty

infrastructure projects will be accrued • Contributions have to be spent on the items identified	buildings • It places the burden of delivery on the local authority and its partners, as well as on-going monitoring and management of infrastructure projects

Key Issues

3.5.15 In terms of delivery mechanisms, it is important to remember that once CIL is introduced, the levy is non-negotiable under the terms of the regulations, although local planning authorities can make certain schemes exempt where they are delivering substantial on-site infrastructure e.g. urban extensions. Therefore, the Levy needs to be set at a level that makes development viable for sites across a local authority area, and can be varied, as demonstrated by the English Borough of Havant, where the Levy for residential development is £100 per sq,m. in Emsworth and Hayling Island and £80 per sq.m. for the rest of the Borough. This variation in levy acknowledges the stronger residential market in the Emsworth and Hayling Island area.

3.5.16 CIL places the burden of infrastructure improvements with the local planning authority and its partners, which has the potential to increase risk for the planning authority in terms of financial costs over time, in terms of project management resources and inflation, and delivery risks with co-ordinating the payments over time from developments that may not come forward. This may result in insufficient funds to pay for a major item of infrastructure.

3.5.17 Because the Levy is non-negotiable, the key item that developers are likely to focus on is the level of affordable housing in their negotiations with the local planning authority, as this is set to remain within the scaled-down Section 106 Agreement. Therefore, there is a danger that the introduction of CIL could have a detrimental impact on the delivery of affordable housing, especially where the levy is set at a high rate that reduces land values. The delivery of affordable housing is a critical issue for the National Park Authority and hence why the proportions of affordable housing being sought are significantly high at circa 50+%. Therefore, the introduction of CIL could undermine this objective, whereas the existing Section 106 regime would provide more flexibility to negotiate the levels of contributions as well as the level of affordable housing.

3.5.18 However, it should also be noted that due to the scaling back of Section 106 agreements, there will be a restriction on up to five developments contributing to infrastructure which could be funded from CIL. This may restrict the pooling of contributions for say a school extension or a key transport improvement. The National Park Authority will need to work with the County Council to highlight where there may be issues with pooling contributions and to assess whether to move to a CIL regime to maximise all of the potential payments. Where pooling of contributions is not considered to be a critical issue, both the National Park Authority and the County Council may consider that the existing Section 106 regime works best in terms of providing flexibility in negotiations without imposing the non-negotiable CIL levy, which may be detrimental to the delivery of affordable housing.

3.5.19 It is also important to recognise that under the scaled back Section 106 regime, only mitigation measures directly applicable to the development in question can be negotiated. For example, where there is evidence of spare capacity within existing schools and a scheme would not lead to a full or over-capacity position then a contribution for education would not be needed and could not be enforced. In addition, it may be difficult for the National Park Authority to capture developer contributions for wider transport schemes identified within the Regional Transport

Plan within the scaled back Section 106 regime, as the individual scheme may be able to demonstrate its relatively low cumulative impact on the local highways network.

3.5.20 Another key issue for developer with previously developed sites is the issue of empty buildings and the impact on the CIL. Under the regulations, the levy is charged on the net additional increase in floorspace, taking into account the existing built floorspace on the site. However, this is only applicable where the building(s) remain in occupation (in part at least) for at least 6 months in the 12 months preceding the grant of planning permission. Otherwise, the full CIL levy is incurred on the new floorspace proposed. This implies that developers will need to ensure that part of the building remain occupied, even where this is a token gesture of say one person in one part of the building. This issue may not be particularly relevant for the current list of sites within the National Park, as the majority of sites are Greenfield or clear of buildings e.g. car parks.

3.5.21 For directly related infrastructure, such as for example services connections and upgrades, access improvements etc, this can be captured through arrangements with utility providers or in limited cases through planning conditions or Section106 agreements as necessary.

3.5.22 Where CIL is chosen as the preference to collect developer contributions, both the National Park Authority and the County Council have a limited timeframe to draft the charging schedule and invite an Inspector to examine and adopt the schedule ideally before April 2014.

3.6 Site Deliverability

3.6.1 This study has focussed on the key physical infrastructure improvements required to bring sites forward for development, along with the key land owner issues. As previously referred to, it is expected that individual developers would normally fund any works associated with planned site development costs or to mitigate the direct impacts of development eg cycling provision etc. However, for those 'abnormal' site development costs of the sort identified through this study which involve higher than expected infrastructure costs, these can be shown to represent a constraint on development to a greater or lesser degree.

3.6.2 **Table 3-6** below presents an overview of the individual site assessments, showing the nature and extent of the individual site constraints and drawing conclusions on the overall level of impact on site delivery.

3.6.3 The site assessment is based on a straightforward approach of assessing the impact on site delivery for each identified constraint, using a 'traffic-light' system, as shown below. The 'deliverability indicators' highlight the relative significance of the constraints associated with the provision of infrastructure and in addressing land ownership/legal issues, which collectively will determine the overall level of impact to the site's delivery.

	LOW - 'Negligible' site constraints/land ownership issues that will not preclude delivery within the Plan Period
	MEDIUM - 'Moderate' site constraints/land ownership issues that may delay delivery within the Plan Period
	HIGH - 'Major' or unresolved site constraints/land ownership issues that currently impact on delivery timescales
	Information not available

3.6.4 This provides a high level view of the site assessment process and will enable comparisons to be made between each of the development sites and the level of infrastructure constraints to be addressed.

Table 3-6 Site Assessments

Site Name	Allocation Reference	WWTW	Sewerage	Water Supply	Surface Water	Access	Gas	Electricity	Broadband	Land Ownership	Level of Impact
HOUSING											
West of Glasfryn Road, St Davids	HA737										
South Driftwood Close, Broad Haven	HA734										
Rectory Car Park, Tenby	HA724										
Butts Field Car Park, Tenby	HA752										
Reservoir Site, Tenby	HA760										
West of Narbeth Road, Tenby	HA727										
Castle Way, Dale	HA382										
East Herbrandston Hall, Herbrandston	HA732										
North of Landway Farm, Jameston	HA436										
Green Grove, Jameston	HA821										
Opposite Bush Terrace, Jameston	HA730										
Field Opp Manorbier VC School, Manorbier Station	HA848										
Rear of Cross Park, New Hedges	HA813										
Adjacent to Bro Dawel, Solva	HA384										
Bank House, Whitchurch Lane, Solva	HA792										

Site Name	Allocation Reference	WWTW	Sewerage	Water Supply	Surface Water	Access	Gas	Electricity	Broadband	Land Ownership	Level of Impact
Opp Bay View Terrace, Dinas Cross	HA387										
Between Glasfryn Rd & Millard Park, St Davids	MA746										
North East of Marine Road, Broad Haven	MA776										
White Lion St / Deer Park, Tenby	MA707										
Land part of Buttylands, Manorbier Station	MA895										
Land Adj. to the School, St Ishmaels	MA733										
South of Assemblies	EA748										

3.7 Development Trajectories

3.7.1 This section of the report presents an analysis of site delivery during the Plan Period for each land use type allocated within the Plan. This summarises the development trajectories allocated within each of the sites, based on the evidence gathered on the identified constraints affecting individual sites. This has enabled deliverability to be split into three, 2 yearly cohorts covering the plan period as follows:

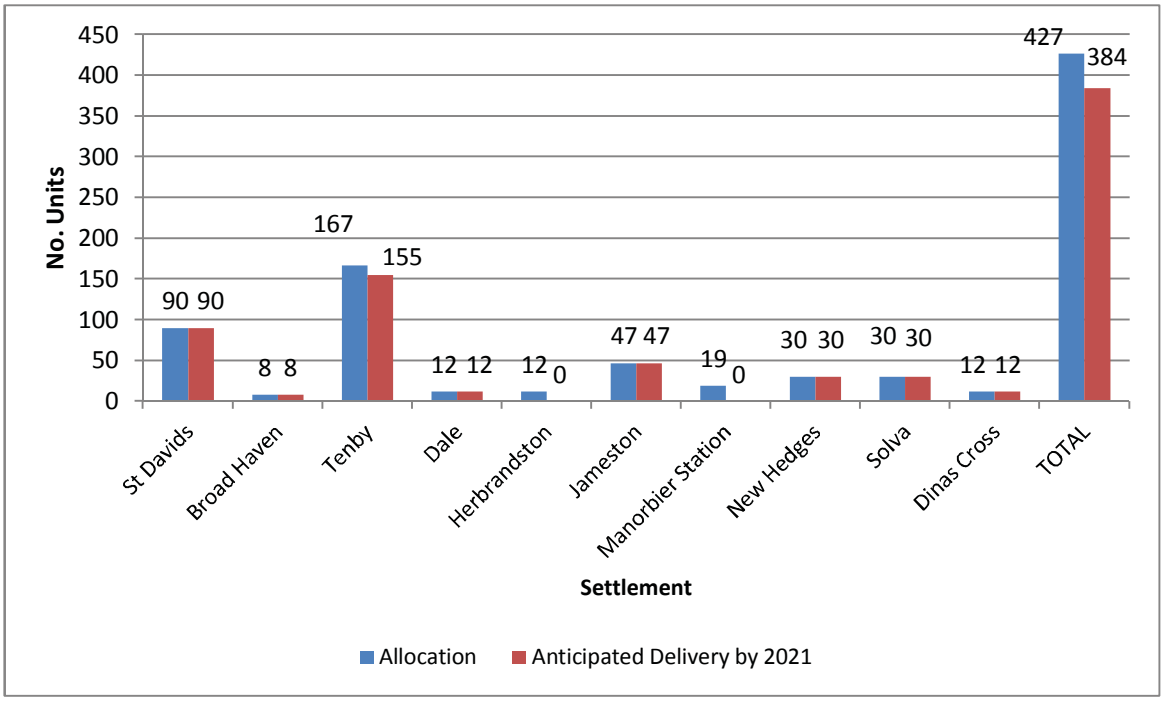
- 2013-2015
- 2016-2018
- 2019-2021

3.7.2 The trajectories also identify a fourth category of deliverability which is defined as ‘unknown’. This category has been applied to sites where the timescales remain undetermined by virtue of unresolved site constraint issues or a requirement for further detail to establish the feasibility of sites being delivered and the likely timescales.

3.7.3 The identification of sites within the cohorts shown represents the anticipated start dates on-site and makes no reference to potential build-out periods.

3.7.4 **Figure 3.2** shows the overall anticipated housing development by settlement for the sites which have formed the focus of this study and the anticipated delivery timescales within the Plan Period based on the site assessments undertaken.

Figure 3.2 – Housing Projections by Settlement



3.7.5 The data shows that of the 427 units identified through site allocations, 384 units can be shown to be delivered within the Plan Period with the remaining 43 units currently shown as 'unknown' due to identified site constraints that need to be resolved.

3.7.6 **Table 3.7** explores further the proportion of residential units expected to be delivered within each Plan Period cohort.

Table 3.7 – Anticipated Delivery Timescales

	2013-2015	2016-2018	2019-2021	Unknown
No. Dwellings	15	357	12	43
Proportion	3.5%	83.6%	2.8%	10.1%

3.7.7 The above figures show an anticipated concentration of site delivery within the middle cohort of the Plan Period (83.6%) and confirms that delivery of 10% of the site allocations remain as 'unknown' by virtue of identified site constraints.

Mixed Use and Employment

3.7.8 The data presented regarding anticipated delivery timescales shows a concentration of sites within the middle cohort and a number of sites where deliverability is unknown due to site constraints. This is summarised in **Table 3.8** below.

Table 3.8 – Anticipated Delivery Timescales – Mixed Use & Employment

	2013-2015	2016-2018	2019-2021	Unknown
Residential Units	102	47	0	20
Proportion	60%	27.8%	0%	11.8%
Land Area (Ha)	2.88	2.29	0	2.26
Proportion	38.7%	30.8%	0%	30.4%

3.7.9 The data shows that delivery timescales for a large proportion of the mixed use and employment allocations remains currently 'unknown' due to a number of site constraints that remained to be resolved.

4 Delivery Action Plan

4.1.1 This section of the Study presents a summary of the key issues identified for each site allocation, based on the earlier site assessments and detailed within the individual Site Profromas in **Appendix A.** It also provides key action points for addressing the issues raised within each site split between housing, mixed use and employment allocations. These have been further divided into sites for which the identified constraints are considered to have 'High,' 'Medium' or 'Low' impacts, in line with the Site Assessment Matrix in **Table 3-6**.

4.1.2 Of greater significance to the Study and hence their priority within the schedule set-out below are those sites described as having 'High' impacts. Clearly these have raised concerns regarding the deliverability of the site allocations within the Plan Period, though the range of issues raised will require a number of different solutions that if pursued can address most, if not all of the concerns raised. For a few sites the costings provided to address the constraints identified do however raise major concerns around the deliverability of these sites.

4.1.3 For those 'Medium' and 'Low' impact sites, the constraints identified and the actions identified to address them are seen as less critical. In most cases resolution of the constraints will assist in facilitating the site's development and potentially lead to earlier delivery timescales.

4.2 Housing Allocations

High Impact

HA760 – Reservoir Site, Tenby
Site Issues • The requirements for costly off-site provision of water supply and sewerage through DCWW Requisition • Provision of a new access road to serve site is prohibitively expensive for the density of development proposed.
Actions • PCNPA to facilitate discussions between landowners of HA760 and HA752 to consider joint provision of off-site provision of water supply and sewerage to serve both development sites, in order to establish a clearer picture of the overall site development costs for this site

HA732 – East Herbrandston Hall, Herbrandston
Site Issues • The presence of both a public sewer traversing the central part of the site in addition to a water supply pipe on the site's periphery, along with the protection zones required for surface water features within the site effectively reduces the site density and potential deliverability of the site • Landowner intentions unknown
Actions • PCNPA to establish contact with landowner to make available study findings • Investigations to be undertaken with DCWW to establish feasibility of public sewer diversion within site

HA848 – Field Opposite Manorbier VC School, Manorbier Station
Site Issues • Extensive and costly off-site sewer provision required via DCWW Requisition. Could consider private sewerage arrangement as a potentially viable alternative
Actions • Establish feasibility of alternative private sewerage arrangement with DCWW

Medium Impact

HA737 – West of Glasfryn Road, St Davids
Site Issues • Landowner reluctance to develop site due to affordable housing contributions • Potential funding contributions towards highway improvements along Glasfryn Road to provide site access
Actions • A Scrutiny Committee has been considering the delivery of affordable housing in the National Park with a final report anticipated in June 2013 • Pembrokeshire Highways Authority to formally consider provision of site access to serve the development site directly off the A487

HA724 – Rectory Car Park, Tenby
Site Issues • Future development may be resisted by land owner seeking to retain current use of site as car park • Easement or diversion required of water main running through site
Actions • Discussions to take place between PCNPA and The Representative Body of the Church in Wales to progress future development of the site

HA752 – Butts Field Car Park, Tenby
Site Issues • Reluctance of Pembrokeshire CC to take site forward for development, partly due to loss of existing car parking spaces in Tenby
Actions • PCNPA and Pembrokeshire CC to enter into discussions to seek to resolve potential barrier to site development

HA727 – West of Narberth Road, Tenby
Site Issues • Developer intention to purchase PCC owned site as a longer term investment rather than immediate development
Actions • PCNPA to make available study findings in promoting site development

HA382 – Castle Way, Dale
Site Issues • Landowner intentions not to develop the site unless requirement for affordable housing provision is reduced
Actions • A Scrutiny Committee has been considering the delivery of affordable housing in the National Park with a final report anticipated in June 2013

HA821 – Green Grove, Jameston
Site Issues • Requirement for off-site provision of costly water supply and sewerage improvements is a potential barrier to site delivery based on the proposed housing density
Actions • Enter into discussions with DCWW regarding the feasibility of potential alternatives

HA730 – Opposite Bush Terrace, Jameston
Site Issues • Landowner intention to delay delivery of site until sale of HA436 (in same ownership) and concerns with DCWW requirement for developer to upgrade nearby pumping station and sewage system.
Actions • Make available the study findings to landowner to provide clarification on the nature and extent of site constraints

HA813 – Rear of Cross Park, New Hedges
Site Issues • Landowner concerns regarding the impact of affordable housing requirement and consequent delay in the site's development
Actions • A Scrutiny Committee has been considering the delivery of affordable housing in the National Park with a final report anticipated in June 2013 • Make available the study findings in support of site promotion

HA384 – Adjacent to Bro Dawel, Solva
Site Issues • Timetable for the Solva WWTW upgrading works will delay the site coming forward for development (March 2015)
Actions • Study findings to be shared with Pembrokeshire CC to inform future planning for site's development

HA792 – Bank House, Whitchurch Lane, Solva
Site Issues • Timetable for the Solva WWTW upgrading works will delay the site coming forward for development (March 2015) • Concerns regarding affordable housing requirement of 60% and impact on site development
Actions • Study findings to be shared with Pembrokeshire CC to inform future planning for site's development • A Scrutiny Committee has been considering the delivery of affordable housing in the National Park with a final report anticipated in June 2013

HA387 – Opposite Bay View Terrace, Dinas Cross
Site Issues • Land owner interests and future intentions unknown
Actions • Pembrokeshire CC to contact landowner and make available study findings to support site's future development

Low Impact

HA436 – North of Landway Farm, Jameston
Site Issues • Extant planning permission, though site remains unsold
Actions • Make available the study findings to land owner to support site marketing

HA734 – South Driftwood Close, Broad Haven
Site Issues • Land owner liaison concerning the timing of DCWW improvement works
Actions • PCNPA discussions with land owner concerning study findings in relation to site issues

4.3 Mixed Use Allocations

High Impact

MA746 – Between Glasfryn Road & Millard Park, St Davids
Site Issues • Significant costs to be met by the developer in the provision of sewerage infrastructure to service the site • Major highway improvements along Glasfryn Road from the proposed site access to the junction with the A487. • Reluctance of landowner to develop site based on current land use allocation
Actions • Landowner to consider undertaking sewerage infrastructure improvements in conjunction with the development of sites HA737 and MA764, both within the same ownership • Pembrokeshire Highways Authority to seek funding support for implementation of Glasfryn Road highway improvement scheme during the current Plan Period • PCNPA to enter into discussions with landowner regarding future intentions regarding site development

MA895 – Land part of Buttylands, Monorbier Station
Site Issues • Extensive offsite sewer provision required • Site not immediately available for development as relocation of existing user required by site owner
Actions • Developer to consider alternative private sewerage arrangement with DCWW to overcome major constraint to site's development

Medium Impact

MA776 – North East of Marine Road, Broad Haven
Site Issues • Landowner currently exploring development of the site, though identified constraints in relation to site stability and sewerage capacity
Actions • PCNPA to make available study findings to support site development

Low Impact

MA707 – White Lion St / Deer Park, Tenby
Site Issues • None – site currently under construction
Actions • None – site currently under construction

MA733 – Land Adjacent to the School, St Ishmaels
Site Issues • Upgrading of St Ishmaels WWTW required to accommodate foul flows from site but not in current DCWW funding Programme 2010–2015 (AMP 5) • Easement or possible diversion required of sewer pipe that traverses central part of the site
Actions • PCNPA discussions with DCWW to include sewerage improvement works within DCWW AMP 6 Programme • Landowner to undertake site assessment to resolving potential constraint to development of existing sewer pipe running through site

4.4 Employment Allocations

High Impact

EA748 – South of Assemblies
Site Issues • Potentially costly highway improvements to serve development site • Possible upgrading of Water Pumping Station • Land owners reluctance to develop the site as currently allocated within the Adopted LDP
Actions • Developer to explore with Pembrokeshire Highways Authority the opportunity of accessing site through existing employment site immediately to the north • Pembrokeshire Highways Authority to seek funding support for implementation of Glasfryn Road highway improvement scheme during the current Plan Period • PCNPA to enter into discussions with landowner regarding future intentions for the site's development • Discussions with DCWW once confirmation of future land uses known

Appendix A

Site Proformas

Site Proformas: Explanatory Note

The Site Proformas within this Appendix set-out the relevant details and the assessment process undertaken for each site allocation included within the study.

The individual site templates have been used to provide a comprehensive record of information received from the various technical disciplines and landowner interests to show clearly how this has been refined to produce a site delivery timetable, wherever possible. The Proformas have been set-out as follows:

Constraints: A list of site constraints, including land ownership.

Site Issues: A brief commentary is provided on the nature and extent of any identified issues affecting individual sites. Where no issues are present these are clearly shown.

Mechanisms to Address: Where site issues are identified, details are provided on the measures necessary to resolve the issues.

Costs to Overcome: A broad range of costings is provided to give an indication on the likely order of costs to resolve the identified site constraints. For those sites with no abnormal costs identified, these have been indicated as such. For costings over £100k a £50k banding has been provided around the estimated costings to provide greater definition on the likely costs involved.

The costings provided have been split into the following cost parameters:

LOW: £5k - £50k

MEDIUM: £50k - £100k

HIGH: > £100k

The extent to which the costs to overcome the impacts to site delivery will depend on a number of factors. For those sites that are identified as having a LOW cost, the costs to overcome the particular site issue are not considered to represent a constraint to development. For those sites where the costs are shown as either MEDIUM or HIGH, much will depend on the circumstances in each case and may not necessarily lead to an equivalent impact to the site's deliverability.

Level of Impact: From the analysis of costings provided, the level of impact to site delivery is defined as follows:

LOW: 'Negligible' site constraints

MEDIUM: 'Moderate' site constraints

HIGH: 'Major' site constraints

For those sites that are shown as having a LOW impact, site delivery can be expected to commence immediately. Where a MEDIUM impact is identified, delays can be expected to site delivery which will defer site development to subsequent stages of the Plan Period. For HIGH impacts delivery timescales cannot be identified without further feasibility work or will require resolution of the identified constraints prior to development commencing.

Conclusion: Taking into account all the outputs arising from the site assessment process across each of the identified constraints, an informed view can be reached on the cumulative effect of all the known constraints to site delivery.

Delivery Timetable. The final section of the Site Proformas includes a projected timetable on when site delivery can be expected, based on 2 yearly cohorts commencing in 2013, as follows:

- 2013 – 2015
- 2016 - 2018
- 2019 – 2021
- Unknown

In the case of sites shown as being 'Unknown' a delivery timescale cannot be identified at the present time.

Housing

Site Name: West of Glasfryn Road
Location: St Davids
Reference: HA737
No. of Units: 90

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the St Davids Waste Water Treatment Works which can accommodate the foul flows from this site.		Low	Agreement to access the site from the A487 will remove prohibitively expensive highway improvements. Based on estimates of off-site sewerage provision and density of development represents no cost to developer. Landowner reluctance to develop in the light of perceived highway costs and unwillingness to contribute to affordable housing as part of any planning gain is likely to delay site delivery. Scale of development and low highway costs removes potential physical constraints to site delivery	2016 - 2018
	Sewerage	DC/WW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 700 metres away in the A487 and this will require offsite sewers to be laid.	Offsite sewers required over a length of approximately 700m. Sewer requisition to DCWW. No requisition costs to developer. EA will require a foul drainage assessment to be carried out on line with Welsh Office Circular 10/99	N/A	Low		
	Water Supply	DC/WW Glasfryn Service Reservoir and Water Pumping Station (WPS) are located in close proximity to the south of this site. Although not normal practice, DC/WW can provide a water supply off its pumped water main to service this site.	An assessment is required to establish whether the existing pumps would need to be upsized. Should any improvements be required, these could be done under the water requisition provisions of WIA91.	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	Access to serve the site to be provided off Glasfryn Lane or the A487.	Highways Authority has confirmed that access to serve the site can be provided directly off the A487.		Low		
	Utilities – Gas	Gas – Nearest connection to low pressure gas main on Glasfryn Road	Connection to adjacent main.	Medium	Medium		
	Utilities – Electricity	No issues for likely residential loading.	Connection to the network as usual.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	None	N/A	Low		
Land Ownership	Land Ownership	Owner interests confirmed – desire to progress the site for development. No third party interests identified. Concerns raised over costs to be incurred for highway improvements and level of contributions to be made to affordable housing which may make scheme unviable.	Resolution of highways and affordable housing issues with National Park Authority and County Council.	N/A	Medium		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: South of Driftwood Close
Location: Broad Haven
Reference: HA734
No. of Units: 8

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the Walton West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	There are no identified constraints to the site's development. Sewer requisition required to be provided by site developer at minimal cost. Assumption that development would proceed with easement in place around DCWW water pipe running through site	2013 - 2015
	Sewerage	DC/WW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 130 metres away. Offsite sewer provision will be required.	Offsite sewers required over a length of approximately 130m. Sewer requisition to DCWW. EA advise that consultation may be required with CCW due to proximity to the Pembrokeshire SAC.	Low	Low		
	Water Supply	A water supply can be provided to this allocation. However, the nearest water main is approx. 100m away Driftwood Close / Walton Road area and this will require offsite water mains to be laid.	Due to proximity of the water main there is a requirement for offsite water mains though the cost of provision is negligible based on requisition through DCWW	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Access	None	N/A	N/A	Low		
	Utilities - Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection into the local supply network.	N/A	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Land Owner confirmed desire to submit outline planning application in first half of 2013. Issues raised surrounding timing of DCWW improvements.	None – other than advisory.	N/A	Low		
Developer Contributions	Section 106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Rectory Car Park
Location: Tenby
Reference: HA724
No. of Units: 50

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	No over-riding physical constraints to site delivery. Land ownership issues may present a prohibitive barrier to the future development of the site, though at best will delay site delivery until any issues can be resolved	2016 - 2018
	Sewerage	The nearest foul sewer is approximately 100 metres away in South Cliff Street. DC/WW is aware of flooding incidents in this area but these are on a separate leg of sewer which will not affect this proposal.	Offsite sewers required over a length of approximately 100m. Sewer requisition to DC/WW. EA advise that site located in close proximity to Carmarthen Bay and Estuaries SAC and Tenby Cliffs and St Catherine's Island SSSI which may require consultation with CCW.		Low		
	Water Supply	DCWW 6 inch diameter water main traverses the central part of the site which can provide a water supply. The presence of this water main may restrict the	Developer to provide 3 metre wide easement or divert water main if this impacts on ability to develop site.	N/A	Medium		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		density promoted and protection measures will be required either in the form of an easement or possible diversion.					
	Surface Water (Flooding)	Site located on major aquifer	Appropriate pollution prevention measures to ensure protection of water features on-site.	N/A	Low		
	Access	No issues raised	N/A	N/A	Low		
	Utilities - Gas	Low pressure gas main runs to end of South Cliff Street and to south east corner	Connection into nearby supply.	N/A	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	N/A	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Land Ownership	Land Ownership	The Representative Body of the Church in Wales has confirmed ownership of the site. Further consultation to be undertaken internally though initial advice is that future development may be resisted in terms of current use of site as car park	PCNPA early discussions with landowner to address current concerns regarding site development	-	Medium		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Butts Field Car Park
Location: Tenby
Reference: HA752
No. of Units: 80

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	The requirements for off-site water supply and sewerage provision can be met by DCWW Requisition at minimal cost to developer. Reluctance of Pembrokeshire CC to take site forward for development is a barrier to development which may delay site delivery	2016- 2018
	Sewerage	The nearest sewer is approximately 170 metres away by the Hospital, Gas Lane. This is also the head of the sewer.	A hydraulic modelling assessment will be required to establish where this site can connect to the public sewer. DCWW suggest this includes the Reservoir Site.		Low		
	Water Supply	The nearest water main is closely located in The Croft and this may be inadequate to provide a water supply for a development of this density. Off-site provision will be required.	Requirement for offsite water main. Modelling assessment required to include Reservoir Site. EA advise that site located in close proximity to Carmarthen Bay and Estuaries SAC and Tenby Cliffs and St Catherine's Island SSSI which may require consultation with CCW.	N/A	Low		
	Surface Water (Flooding)	Site located on major	Appropriate pollution	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		aquifer	prevention measures to ensure protection of water features on-site.				
	Access	No issues identified	N/A	N/A	Low		
	Utilities - Gas	Gas – Low pressure gas main runs to the south of the site along entrance road. To the north, nearest connection is along The Croft approx. 50m from the site.	Connection to adjacent low pressure supply.	Medium	Low		
	Utilities – Electricity	Electricity - no issues for likely residential loading.	Connection to local network.	Medium	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Site ownership confirmed by Pembrokeshire CC. Intention to develop in the longer term driven largely by market conditions. Issues to be resolved concerning importance of the car park for locals and visitors and the income generated.	Resolution of car parking issues	N/A	Medium		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Reservoir Site
Location: Tenby
Reference: HA760
No. of Units: 12

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	The requirement s for off-site provision of water supply and sewerage through DCWW Requisition is a prohibitive cost, unless joint provision can be considered with the development of HA752. In addition, provision of a new access road to serve the site, is prohibitively expensive for the density of development proposed.	Unknown
	Sewerage	The nearest sewer is approximately 450 metres away by the Hospital, Gas Lane. This is also the head of the sewer.	A hydraulic modelling assessment will be required to establish where this site can connect to the public sewer. DCWW suggest this includes Butts Field Car Park Site. EA advise on the need for a foul drainage assessment in line with Welsh Office Circular 10/99	High	High		
	Water Supply	The nearest water main is located in The Croft, approximately 300 metres away. Whilst this water main would be adequate for 12 units from this site, it may be prudent to provide one new service to cater for	Off-site provision will be required. Modelling assessment to include Butts Field Car Park Site.	High	High		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		this site and the adjoining Butts Field Car Park site of 80 units.					
	Surface Water (Flooding)	Water feature in South West corner of the site.	3 metre wide buffer around water feature to be kept free from development.	N/A	Low		
	Access	Access is proposed from the end of North Beach car park. This would be a new access road.	This would require the allocation of space within the car park for a designated access road. A new access road would then need to be constructed from the northern end of the car park to the proposed site. There is a significant level difference from the car park to the proposed site and the access road would run along and through a wooded valley	High (£160,000 - £210,000)	High		
	Stats	There is no evidence of stats in the vicinity	Developers would need to follow the usual process for locating stats apparatus and diverting/protecting as required.	Low	Low		
	Utilities - Gas	Intermediate pressure main approx. 60m from the site. Nearest low pressure main runs along The Crofts some 160m	Connection to nearest main.	Low	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		from eastern edge.					
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	No registration details.	-	-	-		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: West of Narberth Road
Location: Tenby
Reference: HA727
No. of Units: 25

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome High, Medium, Low	Level of Impact High, Medium, Low	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	No physical constraints to the site's development, although the landowners intention not to take forward development of the site immediately will delay delivery timescales	2016 - 2018
	Sewerage	The nearest sewer is approximately 200 metres in the housing estate roads and this can accommodate the foul flows from this site.	Offsite sewers required over a length of approximately 200m. Sewer requisition to DCWW.	High	Low		
	Water Supply	DCWW water main in the public highway adjoining the site to the east can provide water supply to this site.	None - site can be serviced	N/A	Low		
	Surface Water (Flooding)	Ordinary watercourse on the western boundary of the site.	3 metre wide buffer around water feature to be kept free from development.	N/A	Low		
	Access	Access to this site is proposed directly off the A478 between the property boundary and the existing safety fence on the western side of	The access road would need to be constructed so as to provide a short relatively flat area adjoining the A478 so that exiting vehicles don't have to hill	High (£50,000 - £100,000)	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome High, Medium, Low	Level of Impact High, Medium, Low	Conclusion	Delivery Timetable
		the A478. Visibility from this point would meet standards to the north, but is restricted to approximately 80m to the south due to the vegetation at the back of footway. There is an existing farm gate at this point and a reasonably significant level difference from the A478 down into the field	start. Vegetation at the back of the footway on the south side could be trimmed back/removed to improve visibility. Assume construction of a 50m access road to provide a relatively flat standing area at the junction and then get down to existing ground levels within the site				
	Stats	There is some street lighting but no other evidence of stats in the vicinity	Developers would need to follow the usual process for locating stats apparatus and diverting/protecting as required.	Low	Low		
	Utilities - Gas	Low pressure main runs along A478 to the property in the south east corner of the site.	Connection into low pressure main.	Medium	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome High, Medium, Low	Level of Impact High, Medium, Low	Conclusion	Delivery Timetable
Land Ownership	Land Ownership	Pembrokeshire CC has confirmed ownership of site and that they are currently in the process of selling the site to a private developer. PCC considers that the developer is purchasing the site as a longer term investment rather than immediate development	Discussions with new owners about bringing the site forward.	N/A	Medium		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Castle Way
Location: Dale
Reference: HA382
No. of Units: 12

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at DCWW Dale Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	Site constrains, including access provision to serve the site not seen as an impediment to site delivery. Landowner intentions not to develop the site unless requirement for affordable housing provision reduced presents obstacle to site delivery	2019 - 2021
	Sewerage	DCWW local sewer in Castleway can accommodate the foul flows from this site. Located in proximity to the Pembrokeshire Marine SAC and Milford Haven Waterway SSSI	None – Sewer located in adjacent roadway. Consultation may be required with CCW in view of proximity of the site to the SAC and SSSI	N/A	Low		
	Water Supply	DCWW water main in Castleway, adjoining the site, can provide water supply to this site.	None – Water main located in adjacent roadway.	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	The site runs adjacent to the B4327 within Dale. The B4327 here is a one way system running from west to east. There is a level difference between	Access to the site would either be via a direct access to the B4327running in a cutting up to an access road that would run along the rear of	Medium (£50,000 - £100,000)	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		the road front and the site of approximately 2m separated by a hedgebank / retained hedgerow.	properties. Alternatively access could be provided in the form of parking bays created along the B4327 as is provided further west.				
	Stats	There is evidence of a number of stats in the vicinity. There are manhole covers for water, BT and local drainage manholes. There are overhead telegraph poles and cables located within the boundary wall / hedgebank of the site alongside the B4327. There are overhead electricity cables running along the back of the plot.	Developers would need to follow usual process for locating stats apparatus and diverting / protecting as required.	Low	Low		
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	N/A	Low		
	Utilities - Broadband	No specific connectivity issues although site sits	None required, although If broadband issues identified	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		to the north of a Broadband 'Not Spot'.	seek assistance through Broadband Support Scheme.				
Land Ownership	Land Ownership	Land ownership of site confirmed. Site previously not progressed due to requirement for 100% affordable housing on the site. No intention to develop site in foreseeable future, unless present affordable housing requirement reduced.	Developer discussions with PCNPA. PCNPA consideration of revised affordable housing requirements	N/A	Medium		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: East of Herbrandston Hall
Location: Herbrandston
Reference: HA732
No. of Units: 12

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues	Foul flows will be treated at the Herbranston Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	The presence of both a water main and public sewer through the site effectively appears to reduce the density that can be provided. The presence of surface water features and their protection will also restrict the total amount of land that can be developed. Examination of the routes of the public sewer and water main, allied to the location of water features, raises major concerns around the deliverability of the site. It has not been possible to confirm land owner interests or future intentions for the site.	Unknown
	Sewerage	DCWW 6 inch diameter sewer traverses this site and this can accommodate the foul flows from this site. The presence of this sewer may restrict the density promoted and protection measures are required either in the form of an easement width or possible diversion.	No capacity issues. Easement of 3m either side of sewer required or diversion should this restrict planned densities.	None for easement High for diversion	High		
	Water Supply	DCWW 3 inch diameter water main traverses this site and this can provide a water supply to this site. The presence of this water main may restrict the density promoted and protection measures are required either in the	No supply issues. Easement of 3m either side of the water main required or diversion should an easement restrict planned densities.	None for easement High for diversion	High		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		form of an easement width or possible diversion.					
	Surface Water (Flooding)	There is an ordinary watercourse on the site's Eastern boundary which sinks and then appears to the North West of the site. There is also a pond adjacent to the site's Eastern boundary.	3 metre wide buffer around the water features to be kept free from development, both for protection and to allow access for maintenance purposes.	N/A	Low		
	Access	No issues identified.	N/A	N/A	Low		
	Utilities - Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	Low	Low		
	Utilities - Broadband	Site lies within an identified broadband 'slow spot'.	No connection issues, although if found can pursue support through Broadband Support Scheme. Infrastructure should exist post 2015.	N/A	Low		
Land Ownership	Land Ownership	No Response received	-	-	-		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: North of Landway Farm
Location: Jameston
Reference: HA436
No. of Units: 7

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	Extant planning permission in place for site and landowner intention to sell site.	2013 - 2015
	Sewerage	DCWW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 140 metres away in Cob Lane.	Offsite sewers required over a length of approximately 140m. Sewer requisition to DCWW.	Medium	Low		
	Water Supply	A water main has already been laid to this site.	No connectivity issues.	N/A	Low		
	Surface Water (Flooding)	Located on a major aquifer and within Source Protection Zone 1. This lies within a catchment area of sources of potable water containing high quality water supplies suitable for human consumption.	EA will carefully monitor the site which is at the highest risk from polluting activities. Restrictions placed on any discharges etc. If there is no sewer serving the site, new provision will need to be considered carefully. Cesspits will not be	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
			permitted.				
	Access	No issues identified	N/A	N/A	Low		
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Owner has extant planning permission for 7 units on the site. Currently in the process of selling site for development.	N/A	N/A	Low		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Green Grove
Location: Jameston
Reference: HA821
No. of Units: 5

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	Requirement for off-site provision of water supply and sewerage is a potential barrier to site delivery based on the proposed housing density	2015 - 2017
	Sewerage	DCWW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 130 metres away in Cob Lane.	Offsite sewers required over a length of approximately 130m. Sewer requisition to DCWW.	Medium	Medium		
	Water Supply	DCWW water main in the A4139, approximately 100 metres away, can provide water supply to this site.	Offsite water mains are required over approximately 100m. Requisition to DCWW.	Medium	Medium		
	Surface Water (Flooding)	Located on a major aquifer and within Source Protection Zone 1. This lies within a catchment area of sources of potable water containing high quality water	EA will carefully monitor the site which is at the highest risk from polluting activities. Restrictions placed on any discharges etc. If there is no sewer serving the site, new	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		supplies suitable for human consumption.	provision will need to be considered carefully. Cesspits will not be permitted.				
	Access	No issues identified.	N/A	N/A	Low		
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Owner identified issues in relation to DCWW infrastructure with a need to upgrade nearby pumping station and sewerage system. Otherwise intention to take site forward for residential.	Resolve sewerage and water supply issues with DCWW	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Opposite Bush Terrace
Location: Jameston
Reference: HA730
No. of Units: 35

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	No major constraints to site delivery. High coats of sewerage provision offset by DCWW requisition notice. Delivery timetable affected by developer intentions to develop site.	2016 - 2018
	Sewerage	DCWW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 250 metres away to the south of the site.	Offsite sewers required over a length of approximately 250m. Sewer requisition to DCWW.	High	Low		
	Water Supply	DCWW water main in the A4139, adjacent to the site, can provide water supply to this site.	No connectivity issues – water main adjacent to site.	N/A	Low		
	Surface Water (Flooding)	Located on a major aquifer and within Source Protection Zone 1. This lies within a catchment area of sources of potable water containing high quality water supplies suitable for	EA will carefully monitor the site which is at the highest risk from polluting activities. Restrictions placed on any discharges etc. If there is no sewer serving the site, new provision will need to be	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		human consumption.	considered carefully. Use of e Cesspits will not be permitted.				
	Access	No issues identified.	N/A	N/A	Low		
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	N/A	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Landowner concerns with DCWW requirement to upgrade nearby pumping station and sewage system. Currently waiting on sale of consented housing site HA436 prior to progressing work on this site.	N/A	N/A	Medium		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Field Opposite Manorbier VC School
Location: Manorbier Station
Reference: HA848
No. of Units: 19

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	If a connection is made to the public sewer, then foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	Connection needed to sewer or installation of a private WWTW.	None if public WWTW. High if private WWTW.	Low	Site is deliverable but could require extensive and costly off-site sewer provision via DCWW requisition. Alternatively, developer could consider private sewerage arrangement i.e. septic tanks, package plants etc which fall under the remit of the Environment Agency. Until further feasibility work undertaken on potential solutions to sewerage provision, as an alternative to sewer requisition, delivery timetable unknown	Unknown
	Sewerage	There are no public sewers in the vicinity of this proposed development. DCWW nearest sewer is approximately 800 metres away and if a connection is to be made to this sewer then extensive offsite sewer provision is required.	Extensive offsite sewers required over a length of approximately 800m. Sewer requisition to DCWW.	High	High		
	Water Supply	DCWW water main in the adjacent highway can provide water supply to this site.	No issues – water main in adjacent highway.	N/A	Low		
	Surface Water (Flooding)	Located on a major aquifer and within Source	EA will carefully monitor the site which is at the	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		Protection Zone 1. This lies within a catchment area of sources of potable water containing high quality water supplies suitable for human consumption.	highest risk from polluting activities. Restrictions placed on any discharges etc. If there is no sewer serving the site, new provision will need to be considered carefully. Cesspits will not be permitted.				
	Access	No issues identified	N/A	N/A	Low		
	Utilities - Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	N/A	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Ownership confirmed. Discussions underway with PNPA. Intention to develop site	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Rear of Cross Park
Location: New Hedges
Reference: HA813
No. of Units: 30

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	No infrastructure constraints to site delivery. Developer concerns regarding the impact of affordable housing requirement on the sale of the site may delay the site's development	2016 - 2018
	Sewerage	DCWW local sewer in the public highway can accommodate the foul flows from this site. EA advise that any foul drainage should be directed to the Tenby main sewer.	No capacity issues. Sewer in adjacent roadway.	N/A	Low		
	Water Supply	DCWW water main in the adjacent highway can provide water supply to this site.	No issues. Water main in adjacent roadway.	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	No issues identified	N/A	N/A	Low		
	Utilities - Gas	Low pressure gas main approx. 30m from site entrance along A48/B4316. Existing connection between this	Connection into nearby main.	Low	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		and Cross Park.					
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Land ownership confirmed. Site currently being progressed with intention to submit outline planning application later this year and to sell the site However, concerns raised regarding affordable housing requirement of 60%. which may prevent site being taken forward	PCNPA consideration of affordable housing requirement.	N/A	Medium		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Adjacent to Bro Dawel
Location: Solva
Reference: HA384
No. of Units: 18

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	The Solva WWTW is currently operating at capacity. DCWW scheme to upgrade WWTW by 31st March 2015. Site access problems and the need to acquire land necessary for a new access road may delay start of works.	Upgrade during planned AMP5 Programme.	High	Low	No infrastructure constraints to site delivery. The timetable in place for WWTW upgrading works will delay the site coming forward for development until this work is completed	2016 - 2018
	Sewerage	DCWW local sewer in the public highway can accommodate foul flows from this site. EA advise that any foul drainage should be directed to the Solva main sewer	No improvements required	N/A	Low		
	Water Supply	DCWW water main in the adjacent highway can provide water supply to this site.	No improvements required	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	No issues identified	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Utilities - Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	N/A	Low		
	Utilities - Broadband	No Connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Pembrokeshire CC has confirmed site ownership. Following sewerage upgrades PCC seeking to dispose of the site for development.	N/A	N/A	Medium		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Bank House, Whitchurch Lane
Location: Solva
Reference: HA792
No. of Units: 12

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	The Solva WWTW is currently operating at capacity. DCWW scheme to upgrade WWTW by 31st March 2015. Site access problems and the need to acquire land necessary for a new access road may delay start of works.	Upgrade during planned AMP5 scheme.	High	Low	No infrastructure constraints to site delivery. The timetable in place for WWTW upgrading works will delay the site coming forward for development until this work is completed. Land owner intentions and concerns raised that may delay site delivery and potentially reduce site density	2016 - 2018
	Sewerage	DCWW local sewer in the public highway can accommodate the foul flows from this site. EA advise that any foul drainage should directed to the Solva main sewer	No capacity issues – sewer in adjacent road.	N/A	Low		
	Water Supply	DCWW water main in the adjacent highway can provide water supply to this site.	No issues – water main in adjacent road.	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	No issues identified	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Utilities - Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	No issues for likely residential loading.	Connection to local network.	N/A	Low		
	Utilities - Broadband	No connectivity issues identified	N/A	N/A	Low		
Land Ownership	Land Ownership	Land ownership of site confirmed. Intention is to take the site forward for development in the short to medium term. The Solva WWTW is currently operating at capacity. DCWW scheme to upgrade WWTW by 31st March 2015.	Discussion / negotiation with land owner to seek an agreeable development for the site.	N/A	Medium		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Opposite Bay View Terrace
Location: Dinas Cross
Reference: HA387
No. of Units: 12

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Dinas Cross Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	No infrastructure constraints to site identified. Land owner interests and future intentions unknown	2016 - 2018
	Sewerage	DCWW local sewer in the public highway can accommodate the foul flows from this site.	No improvement works required.	N/A	Low		
	Water Supply	DCWW water main in the adjacent highway can provide water supply to this site.	No improvement works required.	N/A	Low		
	Surface Water (Flooding)	An ordinary watercourse exists on the northern boundary of the site.	3 metre wide buffer around the water features to be kept free from development, both for protection and to allow access for maintenance purposes.	N/A	Low		
	Access	No issues identified	N/A	N/A	Low		
	Utilities - Gas	Low pressure main located to the south of the site along the A487.	Connection to adjacent gas main.		Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Utilities – Electricity	No issues for likely residential loading.	Connection to the local network.	Low	Low		
	Utilities - Broadband	No connectivity issues identified.	N/A	-	Low		
Land Ownership	Land Ownership	No response received	-	-	-		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Mixed Use

Site Name: Between Glasfryn Road and Millard Park
Location: St Davids
Reference: MA746
Development Mix: 5 no. Live / Work Units

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the St Davids Waste Water Treatment Works which can accommodate the foul flows from this site	N/A	Low	No over-riding physical constraints to site delivery, although significant costs to be met in the provision of sewerage infrastructure to service the site and highway improvements necessary along Glasfryn Road from the point of the proposed site access to the junction with the A487. Reluctance of developer to take site forward for development in view of its current allocation for mixed use development.	Unknown
	Sewerage	DCWW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 200 metres away in the A487 and this will require offsite sewers to be laid.	Offsite sewers required over a length of approximately 200m. Sewer requisition to DCWW. EA advise that a foul drainage assessment should be carried out in line with Welsh Office Circular 10/99	Medium	High		
	Water Supply	DCWW water main in Glasfryn Road, adjacent to the site can provide water supply to this site.	None – Water main adjacent to the site.	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Access	Existing Glasfryn Road is a single lane track with passing bays. Average width approx 3m, down to min 2.6m. There is a known well used pedestrian route from Glasfryn Lane onto Glasfryn Road heading south to join the A487 and access St David's Secondary School, so pedestrian provision is required	Glasfryn Road should be widened to match that at the northern end (6m carriageway and 2m footway). The widening should be to the west to avoid land purchase on the east side and retain the existing Pembrokeshire hedgebank on the eastern side	High (£190,000 - £240,000)	High		
	Utilities – Gas	Low pressure gas main in A487 to the south.	Connection to nearby supply.	Low	Low		
	Utilities – Electricity	WPD require further information on potential site loadings to determine capacity of supply	Further assessments of site capacity in consultation with WPD	-	-		
	Broadband	Site lies adjacent to a Broadband 'Slow Spot'.	Should issues emerge, seek investment through the Broadband Support Scheme.	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Land Ownership	Land Ownership	Land ownership of site confirmed. Preference to develop site for housing only. Development of the site is not therefore seen as a priority at the present time.	Discussions with landowner to resolve site development issues	-	High		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: North East of Marine Road
Location: Broad Haven
Reference: MA776
Development Mix: 35 Residential Units, Community Facility & Workshops

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Walton West Waste Water Treatment Works which can accommodate the foul flows from this site	N/A	Low	No over-riding constraints to site deliverability. The high costs estimated for highway improvements may not have significant impact on the site's development in view of the proposed housing density, but may well result in delays.	2016 - 2018
	Sewerage	The nearest foul sewer is approximately 160 metres away to the north which drains into the Broad Haven South Sewage Pumping Station.	An assessment of the South Sewage Pumping Station will be required to establish whether improvements are required. Offsite sewers required over a length of approximately 160m. Sewer requisition to DCWW. A foul drainage assessment should be carried out in line with Welsh Office Circular 10/99.	High	Low		
	Water Supply	DCWW water main to the north of the site, adjoining the site boundary can provide water supply to this site.	None – water main to the north of the site	N/A	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Access	Access to MA776 is proposed directly off the B4341 in the vicinity of the 90 degree bend. This is just outside the 30mph zone in Broad Haven and is currently de-restricted. The carriageway is approximately 5m wide. Visibility round the 90 degree is poor. The existing gradient is approximately 6%.	Given the poor visibility at the 90 degree bend it would not be possible to introduce a junction at this point. Due to the rural nature of the location it is believed that a mini roundabout or roundabout solution would be inappropriate, therefore it would be necessary to re-align the B4341 with a larger radius curve and introduce a standard T-junction on the outside of the bend. Due to the shorter length of this re-aligned section the gradient would increase to approximately 8%. It is recommended that either the 30mph zone be extended to include the new junction or a new 40mph zone be introduced to cover it	High (£200,000 - £250,000)	Medium		
	Stats	There is no evidence of underground stats in the vicinity. There are telegraph poles and overhead cables from the 90 degree bend to the north located in the western verge/hedgebank	Developers would need to follow the usual process for locating stats apparatus and diverting/protecting as required.	Low	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	WPD require further information on potential site loadings to determine capacity of supply	Further assessments of site capacity in consultation with WPD	-	-		
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Landowner currently exploring the development of the site, but has identified two abnormal costs associated with insufficient drainage capacity at the Broad Haven STW and land stabilisation issues due to past mining activity.	Consultation with the PCNPA Land Stability – former Coal Workings Guidance suggests the site may lie within a coal mining Development Referral Area as an area containing potential hazards arising from coal mining. Consultation with the Coal Authority required. Discussions with DCWW to seek clarity on sewerage issues.	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: White Lion Street / Deer Park
Location: Tenby
Reference: MA707
Development Mix: 74 Residential Units and Retail

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	No sewerage capacity issues.	Foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	N/A	Low	Site has the benefit of planning permission for 62 dwellings and is currently under construction as part of a phased development.	2013 - 2015
	Sewerage	DCWW local sewer in White Lion Street can accommodate the foul flows from this site.	No improvements needed	N/A	Low		
	Water Supply	DCWW water main in White Lion Street can provide water supply to this site.	No improvements needed	N/A	Low		
	Surface Water (Flooding)	Located on a major aquifer.	Appropriate pollution prevention measures incorporated as necessary	N/A	Low		
	Access	No issues identified.	N/A	N/A	Low		
	Utilities - Gas	Low pressure main in adjacent street (White Lion St).	Connection into adjacent main.	N/A	Low		
	Utilities – Electricity	WPD require further information on potential site loadings to determine capacity of	Further assessments of site capacity undertaken as necessary in consultation with WPD	-	-		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		supply					
	Utilities - Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	No response from landowner contact, though development of site currently underway	N/A	N/A	Low		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	N/A				

Site Name: Land part of Buttylands
Location: Manorbier Station
Reference: MA895
Development Mix: 15 Residential Units and Education

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	If a connection is made to the public sewer, then foul flows will be treated at the Tenby West Waste Water Treatment Works which can accommodate the foul flows from this site.	Depending on proposed waste treatment option.	None if public WWTW. High if private WWTW	Low	Site is deliverable but could require extensive and costly off-site sewer provision via DCWW requisition. Alternatively, developer could consider private sewerage arrangement i.e. septic tanks, package plants etc which fall under the remit of the Environment Agency. Until further feasibility work undertaken on potential solutions to sewerage provision, as an alternative to sewer requisition, delivery timetable unknown. Site not immediately available for development and relocation of existing user required.	Unknown
	Sewerage	There are no public sewers in the vicinity of this proposed development site. DCWW nearest sewer is approximately 1000 metres away.	Sewer connection will require extensive offsite sewer provision.	High	High		
	Water Supply	DCWW water mains located to the east of and west of the site can provide a water supply to the site.	None – water mains in close proximity	N/A	Low		
	Surface Water (Flooding)	Located on a major aquifer and within Source Protection Zone 1. This lies within a catchment area of	EA will carefully monitor the site which is at the highest risk from polluting activities. Restrictions placed on any discharges	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		sources of potable water containing high quality water supplies suitable for human consumption	etc. If there is no sewer serving the site, new provision will need to be considered carefully. Cesspits will not be permitted.				
	Access	No issues identified.	N/A	N/A	Low		
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	WPD require further information on potential site loadings to determine capacity of supply	Further assessments of site capacity in consultation with WPD	-	-		
	Broadband	No connectivity issues identified.	N/A	N/A	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Land Ownership	Land Ownership	Pre-application enquiry to PCNPA recently received. Landowner currently operating a touring caravan park from the site and needs to find alternative provision prior to taking forward site development. Difficulty in finding alternative caravan site.	Work with landowner and PCC to explore alternative sites for the current touring caravan business.	N/A	Medium		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Site Name: Land Adjacent to the School
Location: St Ishmaels
Reference: MA733
Development Mix: 40 Residential Units and Education

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	Foul flows will be treated at the St Ishmaels Waste Water Treatment Works.	DCWW has confirmed that foul-only flows accepted from the number of allocated units on the site.	N/A	Low	The route of a sewerage pipe traversing the central part of the development site may impact on housing density unless diversion in place. Current land ownership dispute at the present time though resolution of issues is not expected to delay site delivery.	2013- 2015
	Sewerage	DCWW 6 inch diameter sewer traverses this site and this can accommodate the foul flows from this site. The presence of this sewer may restrict the density promoted and protection measures are required either in the form of an easement width or possible diversion.	Easement or diversion required to sewer pipe	Medium	Low		
	Water Supply	The nearest water main of sufficient pressure is located in Trewarren Road which is approximately 150 metres away. Offsite water main will be required.	Offsite water main required to provide water supply for site.	Medium	Low		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	No issues identified	N/A	N/A	Low		
	Utilities – Gas	No local gas supply in the vicinity of the site. Major barriers to delivery due to connection distances and possible low pressures	None proposed in view of prohibitive cost of gas supply that is not necessary for site delivery	High	Low		
	Utilities – Electricity	WPD require further information on potential site loadings to determine capacity of supply	Further assessments of site capacity in consultation with WPD	-	-		
	Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Land ownership dispute has prevented submission of a planning application.	Land ownership issues hopefully to be resolved shortly and planning application to be submitted in the coming months.	N/A	Low		
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Employment

Site Name: South of Assemblies
Location: St Davids
Reference: EA748
Development Mix: B1 and B8 Employment Uses

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Infrastructure	WWTW	Foul flows will be treated at the St Davids Waste Water Treatment Works. The WWTW can accommodate the domestic foul flows but any proposal to discharge trade effluent will require the Consent (Section 118 Water Industry Act 1991) of Dwr Cymru Welsh Water.	Site can be delivered from a 'domestic demand' perspective but further information is required in terms of the demands for this employment allocation. Should the WPS pumps need to be upgraded then this could be done under the water requisition provisions of the Water Industry Act 1991 (WIA91)	-	-	There are a number of uncertainties and unknowns that are currently preventing the site being taken forward for development . Principal amongst these are the potential highways costs, although the potential upgrading of WPS pumps and the land owners reluctance to develop the site as currently allocated within the Adopted LDP	Unknown
	Sewerage (DCWW)	DCWW local sewerage network can accommodate the foul flows from this site. However, the nearest foul sewer is approximately 500 metres away in the A487 and this will	Offsite sewer. (sewer requisition) A foul drainage assessment should be carried out in line with Welsh Officer Circular 10/99	Medium	High		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		require offsite sewers to be laid.					
	Water Supply (DCWW)	DCWW Glasfryn Service Reservoir and Water Pumping Station (WPS) are located in close proximity to the south of this site. Although not normal practice, DCWW can provide a water supply off our pumped water main to service this site. DCWW envisage the water demands to be low for the B1 & B8 Use Classes but confirmation of this would be required. An assessment is required to establish whether the existing pumps would need to be upsized.	Assessment of Water Pumping Station required as part of a Water Requisition	Medium	Low		
	Surface Water (Flooding)	None	N/A	N/A	Low		
	Access	Existing Glasfryn Road is a single lane track with passing bays. Average width approx 3m, down to min 2.6m. There is a known well used pedestrian route	The road should be widened to match that at the northern end (6m carriageway and 2m footway). The widening should be to the west to avoid land purchase on the east side and retain the	Via adjoining site – Low New site access – High (£215,000 - 265,000)	High		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
		from Glasfryn Lane onto Glasfryn Road heading south to join the A48 and access the St David's Secondary School, so pedestrian provision is required.	existing Pembrokeshire hedgebank on the eastern side. Alternatively, depending on proposed land-use, access could be provided through existing employment site located immediately to the north, though this would need to be subject to further investigation.				
	Utilities – Gas	Low pressure supply in Glasfryn Road	Connection to adjacent supply.	N/A	Low		
	Utilities – Electricity	WPD require further information on potential site loadings to determine capacity of supply	Further assessments of site capacity in consultation with WPD	-	-		
	Broadband	No connectivity issues identified.	N/A	N/A	Low		
Land Ownership	Land Ownership	Land owner not supportive of current site allocation and would wish to see the site developed for housing. Not actively marketing the site for development.	PCNPA discussion with landowner to seek to progress site development	N/A	High		

	Constraints	Site Issues	Mechanisms to Address	Costs to Overcome *High, Medium, Low*	Level of Impact *High, Medium, Low*	Conclusion	Delivery Timetable
Developer Contributions	S106 / CIL	The physical infrastructure requirements are site-related issues and are usually met by the developer in association with the utility providers.	Contributions for wider infrastructure may be sought for items such as education or transport etc. through a s.106 agreement, although these contributions need to meet the three key tests, otherwise no payments can be enforced.				

Appendix B

Site Constraint Maps

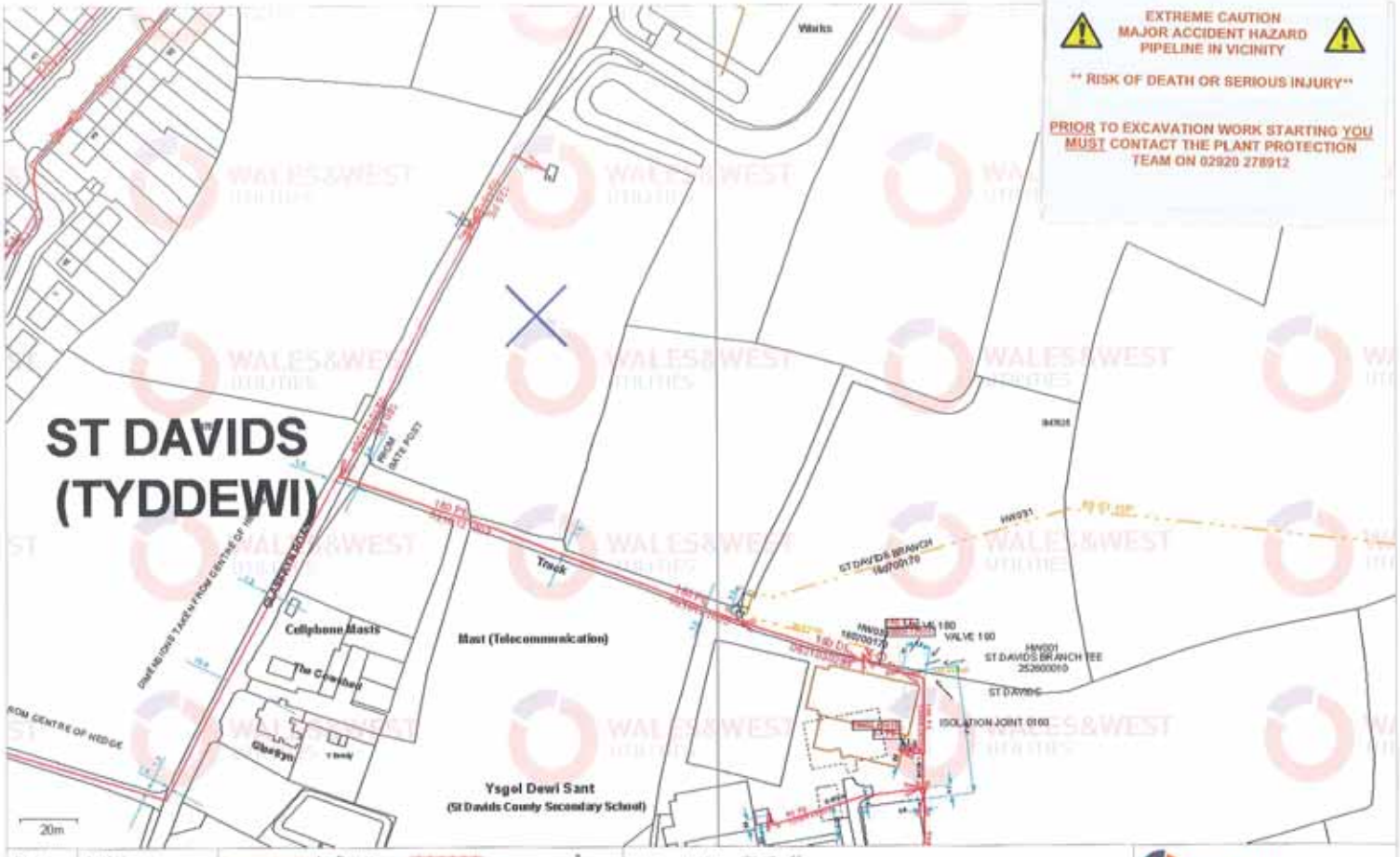
St Davids

EA748 – South of Assemblies

HA737 – West of Glasfryn Road, St Davids

MA746 – Between Glasfryn Road & Millard Park


Waun Fawr
Waun Fawr
Football Ground
Rugby Ground
Cemetery
Quarry
Quarry
Close Wall
Close Wall
Bishops Palace
Cerwyn
Chapter's Orchard
ST DAVIDS
(TYDDEWI)
Reservoirs
Playing Field
HA737
EA748
HA
746
Dŵr Cymru
Welsh Water
— Enter drawing title here —
N
W
E
S
LEGEND (Representative of most common features)
Sluice Valve
Air Valve SINGLE
Tap
Pressure Reducing Valve
Meter
Bulk Meter
Fire Hydrant
Cap
Non Dwr Cymru
Existing Distribution Main
Gravity Sewer
Rising Main
Outfall
Pumping Station
Lamphole
Combined Sewer Overflow
Special Purpose Chamber
Treatment Works
Private Sewer Transfer
Lateral Drain
Inspection Chamber
Notes:
— Type notes here —
— Remembering to manually add line breaks —
ST- DAVIDS
EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.
Map Ref:
???????
Map scale:
1:5,000
Printed by:
Printed on:


EXTREME CAUTION
MAJOR ACCIDENT HAZARD
PIPELINE IN VICINITY
** RISK OF DEATH OR SERIOUS INJURY**
PRIOR TO EXCAVATION WORK STARTING YOU MUST CONTACT THE PLANT PROTECTION TEAM ON 02920 278912
ST DAVIDS (TYDDEWI)
Works
Track
Cellphone Masts
Mast (Telecommunication)
The Cowshed
Glasgyn
Ysgol Dewi Sant
(St Davids County Secondary School)
ST DAVIDS BRANCH
HW001
ST DAVIDS BRANCH TEE
252600010
VALVE 160
ISOLATION JOINT 0160
ST DAVIDS
20m
Scale 1 : 1250
User ID tc
Date 24/10/2012
Grid Ref : Easting: 175994
Northing: 225570
Internal Use Only
Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned
TITLE : Not Set
WALES&WEST UTILITIES
Wales & West Utilities Ltd., Wales & West House, Spooner Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ

Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 175887 Northing: 225752

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

Valve | Depth of Cover | System | Diameter Change | Material change

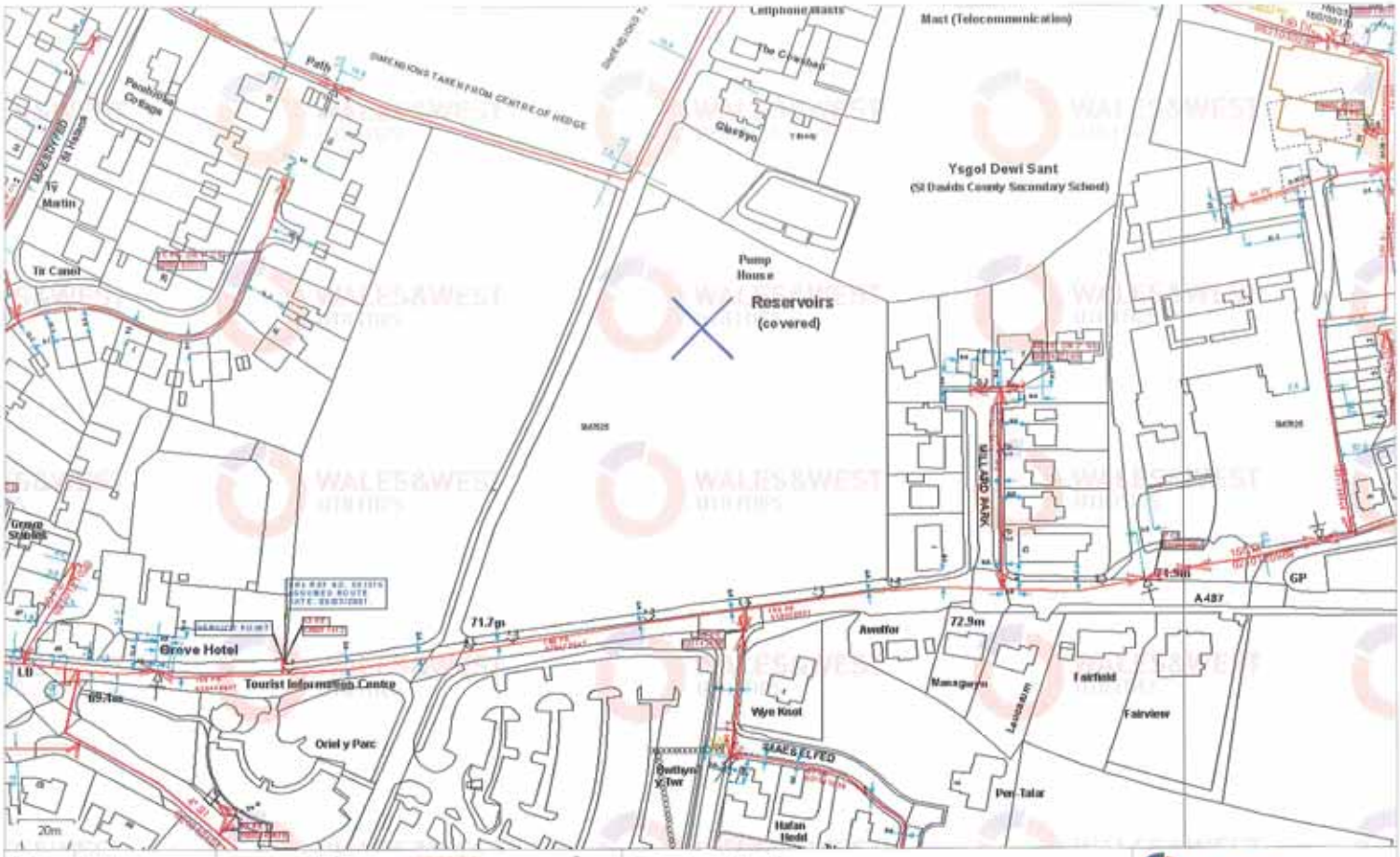
Application version: 1.0.119

TITLE : Not Set MA 7357

This plan shows those pipes owned by Wales & West Utilities (WWU) in its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. may not be shown but their presence should be anticipated. No warranties are therefore given in respect of it. WWU its employees and contractors do not accept any liability for any inaccuracy or incompleteness in it.
You must use safe digging practices, in accordance with HSG47, to establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you or near gas apparatus. The information shown on this plan should not used beyond 28 days from the date of issue of this plan as it is subject to updating.
The plan also provides indications of gas pipes owned by other GTs, or otherwise privately owned, which may be present in this area. This information is not information of WWU and WWU is unable to verify this information or to confirm whether it is accurate or complete. It is supplied voluntarily to assist the user in determining whether to make contact with other GTs or others. The user must obtain such information from the other GT or person concerned. WWU, its employees and contractors do not accept any liability for this information or any inaccuracy or incompleteness in it.

WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spooner Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ



Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 175828 Northing: 225350

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

Valve, Depth of Cover, Syphon, Diameter Change, Material change

Application version: 1.0.110

TITLE : Not Set MA 7146

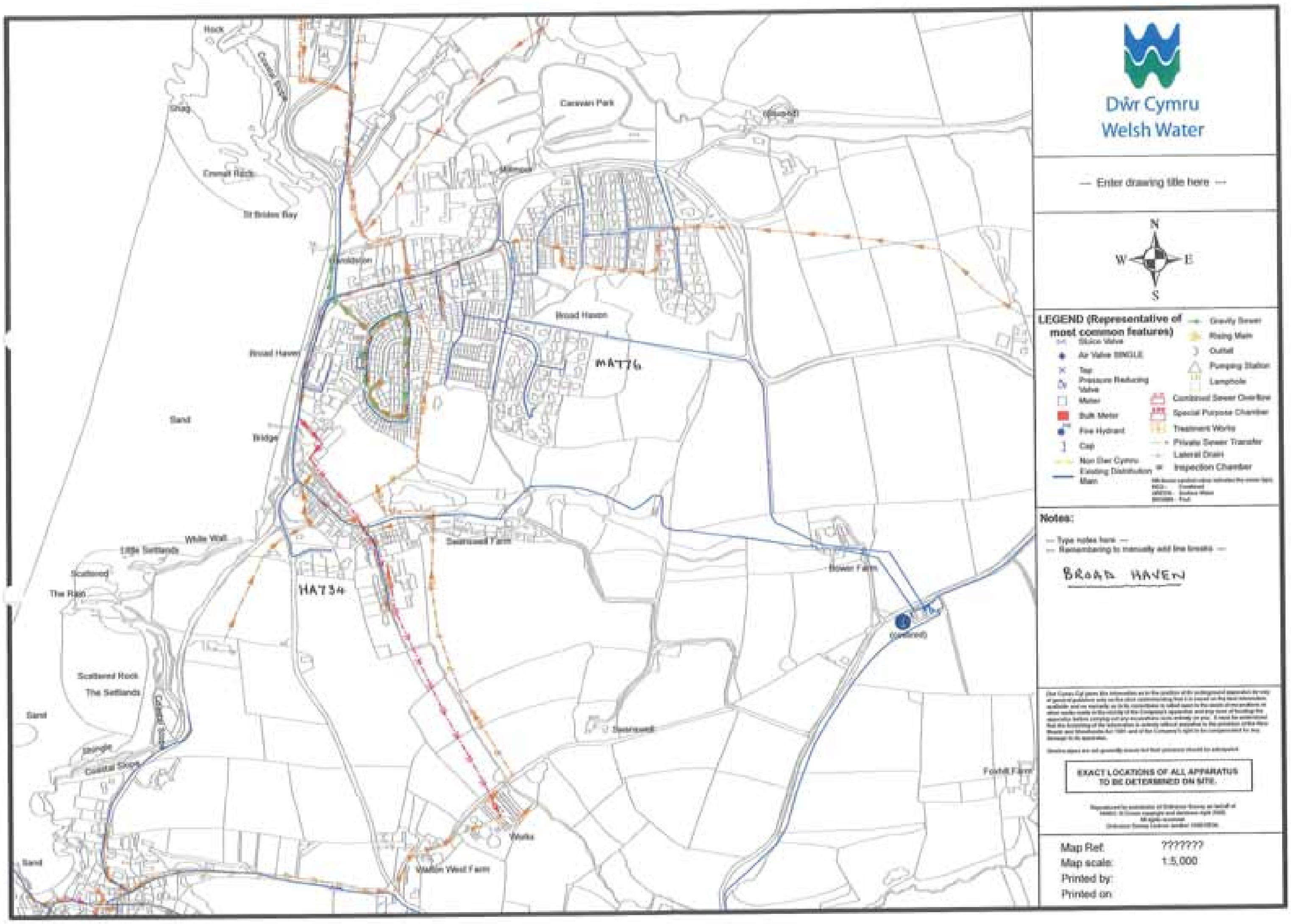
WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spooner Close, Coldc Springs, Coedkernew, Newport, NP10 8FZ

Broad Haven

HA734 – South Driftwood Close, Broad Haven

MA776 – North East of Marine Road


Rock
Coastal Slope
Shag
Caravan Park
Emmet Rock
St Brides Bay
Haroldston
Broad Haven
Broad Haven
MA776
Sand
Bridge
White Wall
Little Settlands
Scattered
The Rain
HA734
Settlands Farm
Bower Farm
Scattered Rock
The Settlands
Sand
Shingle
Coastal Slope
Swanswell
Foxhill Farm
Works
Walton West Farm
Sand
Dŵr Cymru
Welsh Water
— Enter drawing title here —
N
W
E
S
LEGEND (Representative of most common features)
Sluice Valve
Air Valve SINGLE
Tap
Pressure Reducing Valve
Meter
Bulk Meter
Fire Hydrant
Cap
Non Dwr Cymru
Existing Distribution Main
Gravity Sewer
Rising Main
Outfall
Pumping Station
Lamphole
Combined Sewer Overflow
Special Purpose Chamber
Treatment Works
Private Sewer Transfer
Lateral Drain
Inspection Chamber
Notes:
— Type notes here —
— Remembering to manually add line breaks —
BROAD HAVEN
EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.
Map Ref: ???????
Map scale: 1:5,000
Printed by:
Printed on:

Tenby

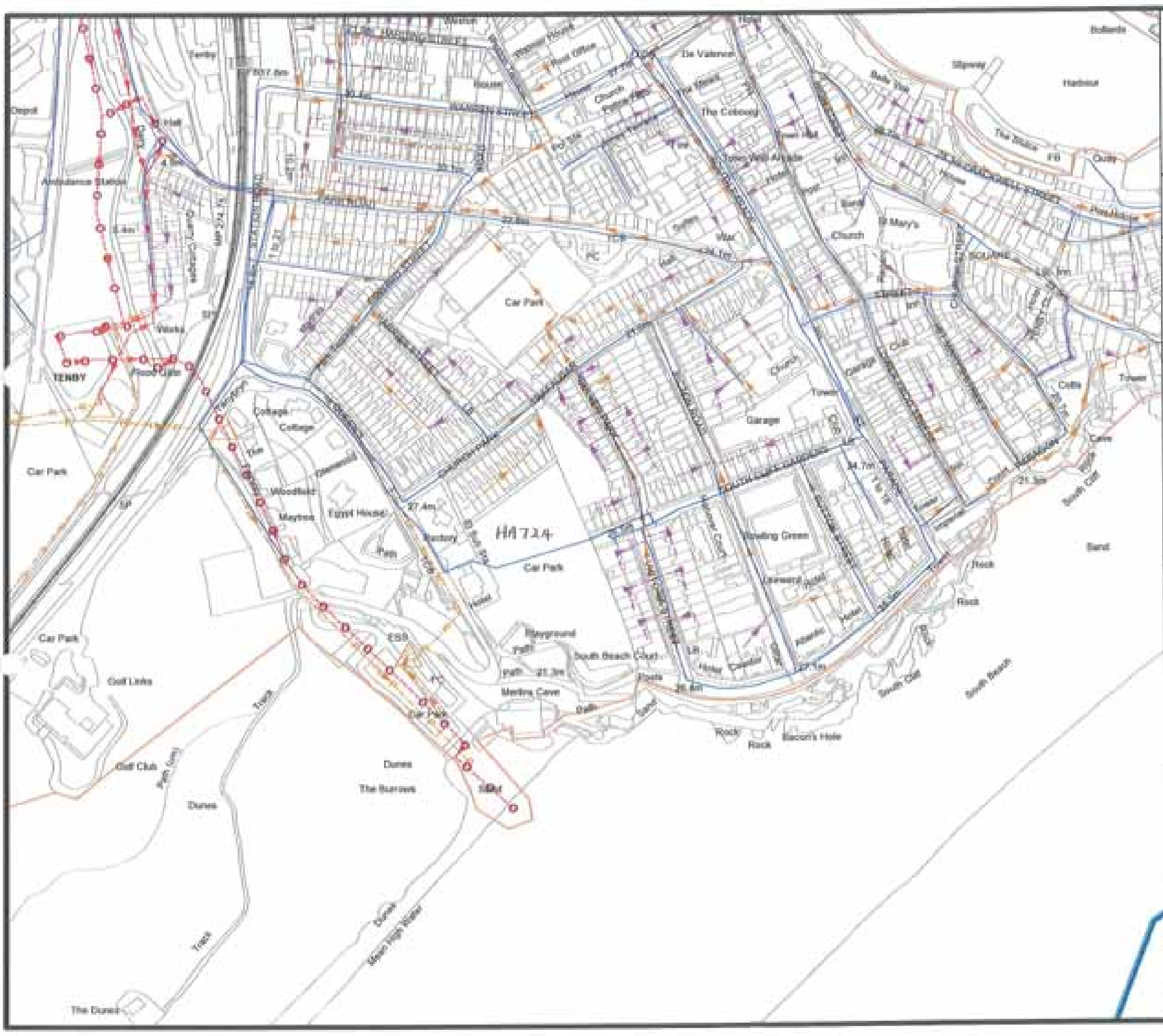
HA724 – Rectory Car Park, Tenby

HA752 – Butts Field Car Park

HA760 – Reservoir Site

HA727 – West of Narberth Road

MA707 – White Lion Street / Deer Park



Dŵr Cymru Welsh Water

— Enter drawing title here —

N W E S

LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- Bulk Meter
- Fire Hydrant
- Cap
- Non Dwr Cymru Existing Distribution Main
- Gravity Sewer
- Rising Main
- Outfall
- Pumping Station
- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

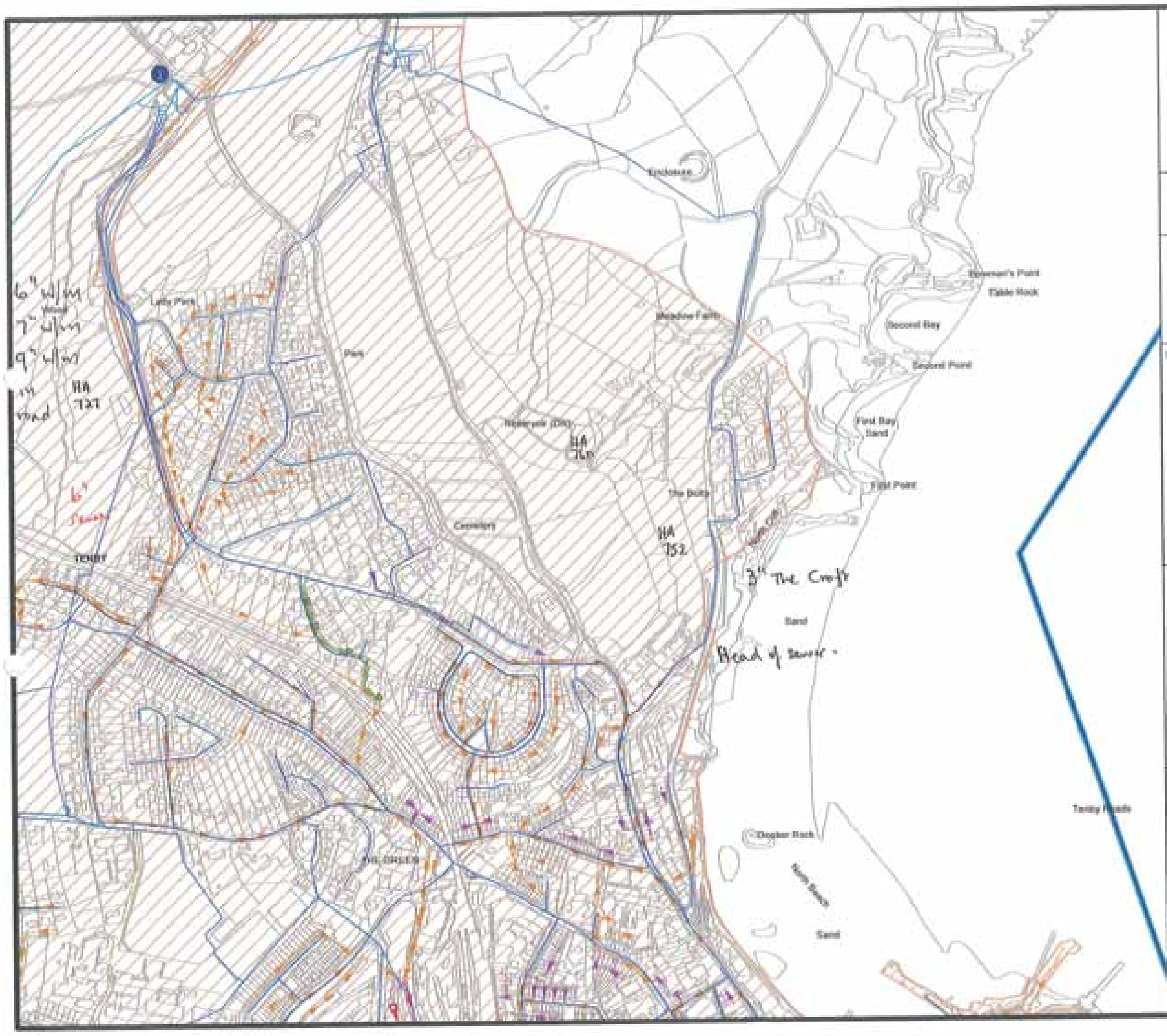
Notes:

— Type notes here —
— Remembering to manually add line breaks —

TENBY

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref:	???????
Map scale:	1:2,500
Printed by:	
Printed on:	



Dŵr Cymru
Welsh Water

— Enter drawing title here —

N
W E
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LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- Bulk Meter
- Fire Hydrant
- Cap
- Non Dwr Cymru
- Existing Distribution Main
- Gravity Sewer
- Rising Main
- Outfall
- Pumping Station
- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

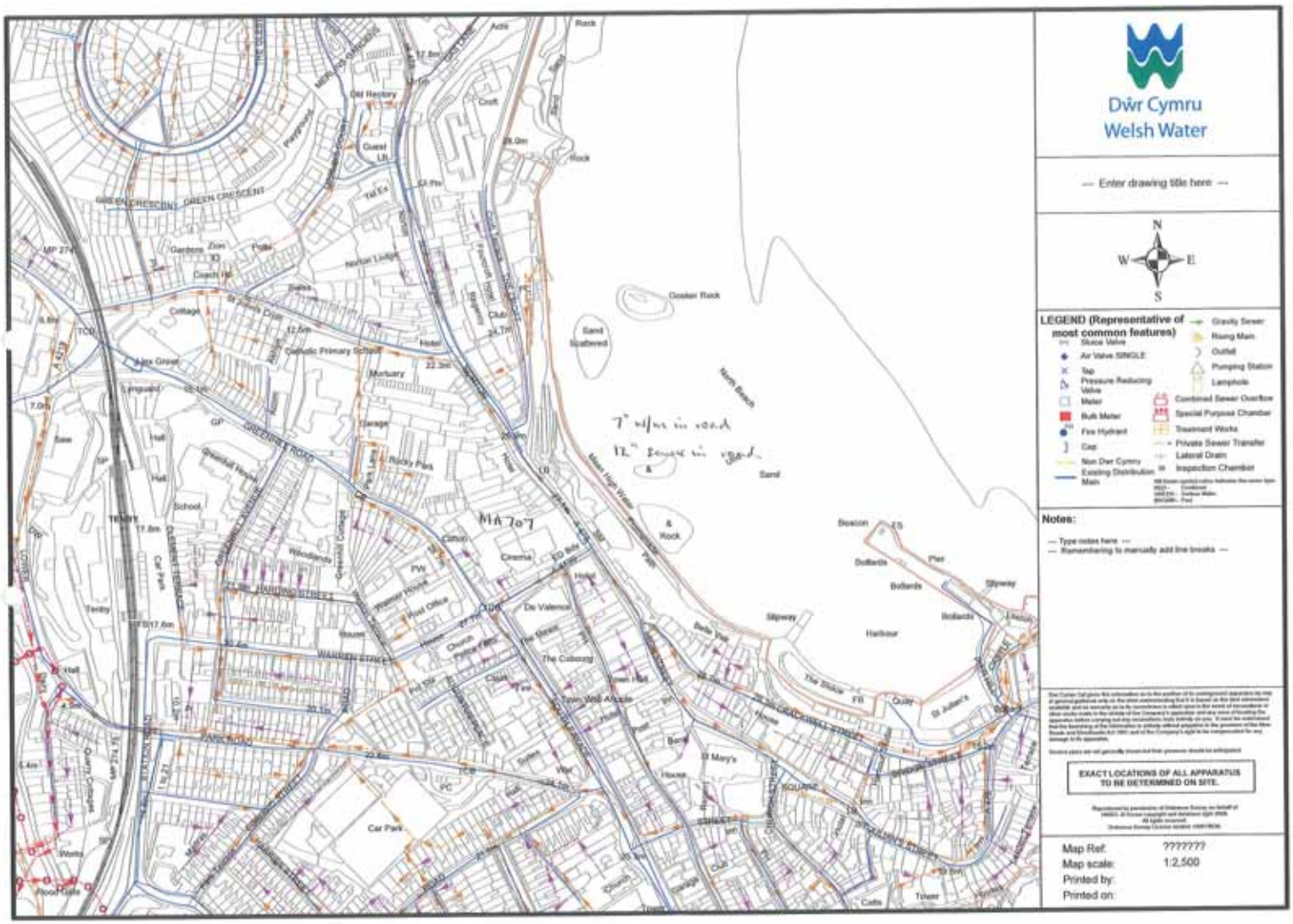
Notes:

— Type notes here —
— Remembering to manually add line breaks —

TENBY

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref: ???????
Map scale: 1:5,000
Printed by:
Printed on:


Dŵr Cymru
Welsh Water
— Enter drawing title here —
N
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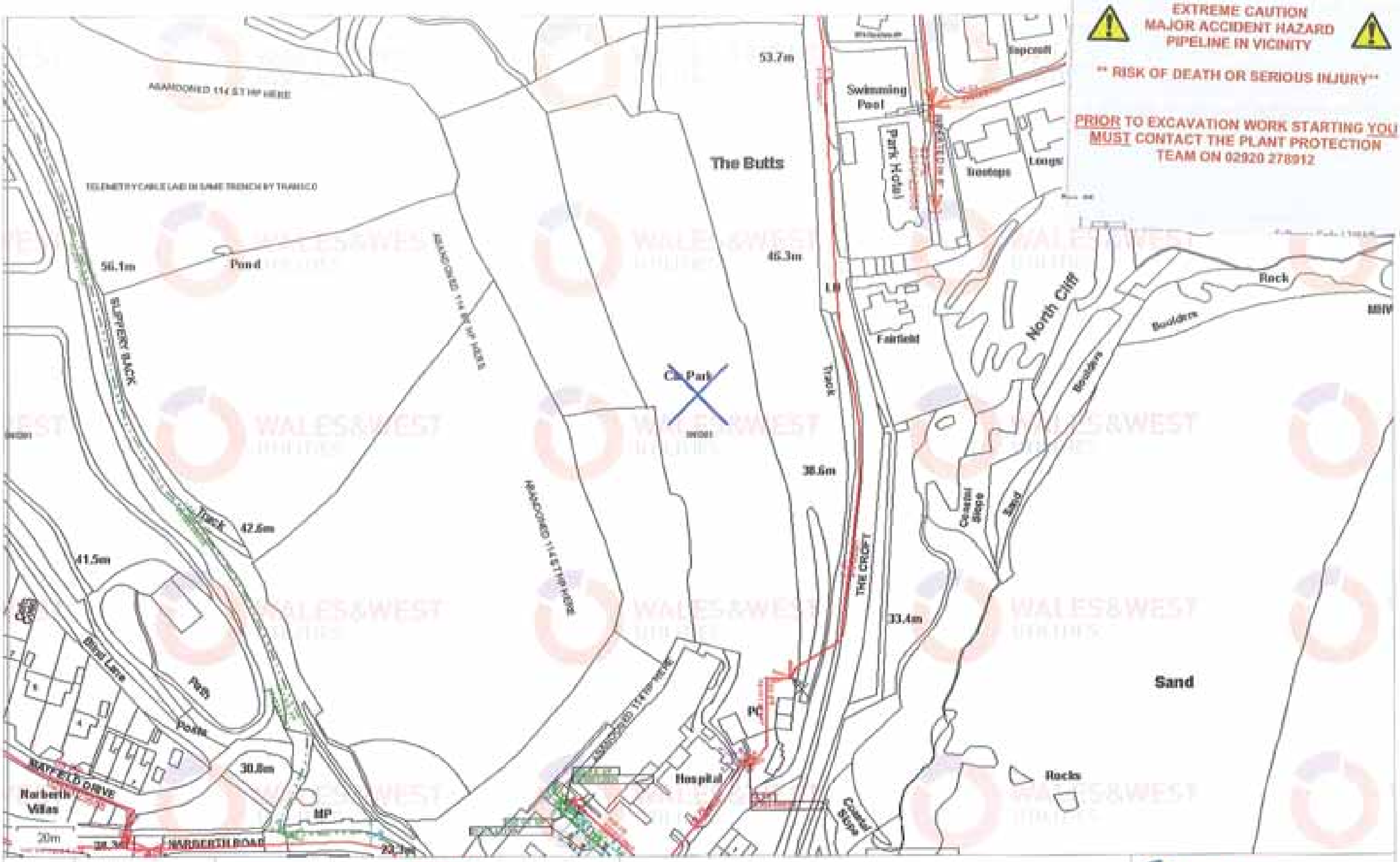
S
LEGEND (Representative of most common features)
Sluice Valve
Air Valve SINGLE
Tap
Pressure Reducing Valve
Meter
Bulk Meter
Fire Hydrant
Cap
Non Dwr Cymru Existing Distribution Main
Gravity Sewer
Rising Main
Outfall
Pumping Station
Lamphole
Combined Sewer Overflow
Special Purpose Chamber
Treatment Works
Private Sewer Transfer
Lateral Drain
Inspection Chamber
Notes:
— Type notes here —
— Remembering to manually add line breaks —
EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.
Map Ref: ???????
Map scale: 1:2,500
Printed by:
Printed on:

EXTREME CAUTION
MAJOR ACCIDENT HAZARD
PIPELINE IN VICINITY

**** RISK OF DEATH OR SERIOUS INJURY****

PRIOR TO EXCAVATION WORK STARTING YOU MUST CONTACT THE PLANT PROTECTION TEAM ON 02920 278912



Scale	1 : 1250	
User ID	lc	
Date	24/10/2012	
Grid Ref :	Easting:	213247
	Northing:	201215

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

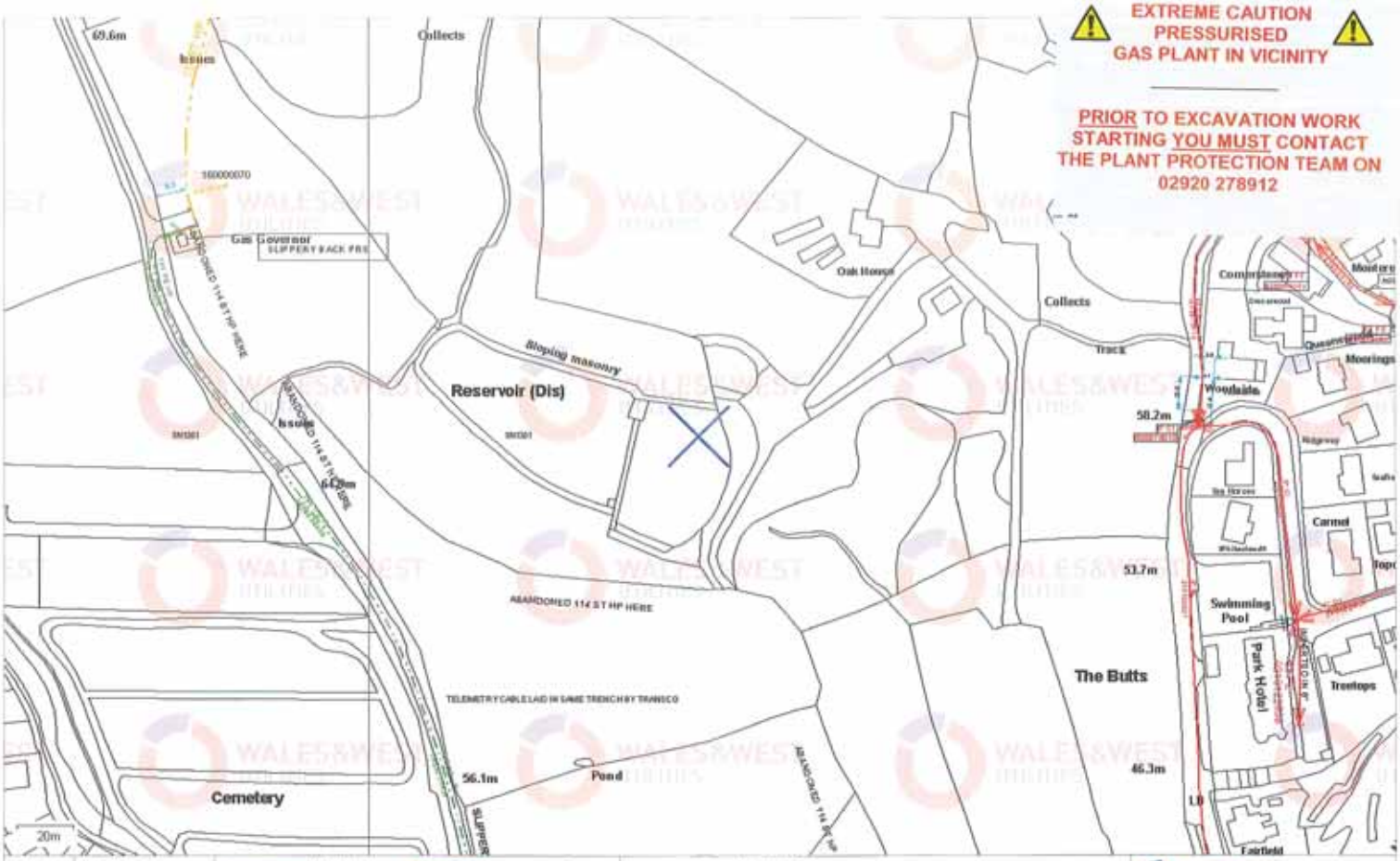
Valve — Depth of Cover — Syphon — Diameter Change — Material change

Application version: 1.0.113

TITLE : Not Set VA 7 52

WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spooner Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ


EXTREME CAUTION
PRESSURISED
GAS PLANT IN VICINITY
PRIOR TO EXCAVATION WORK
STARTING YOU MUST CONTACT
THE PLANT PROTECTION TEAM ON
02920 278912
69.6m
Issues
Collects
160000070
Gas Governor
SLIPPERY BACK PRS
ABANDONED 114 ST HP HERE
Sloping masonry
Reservoir (Dis)
Oak House
Collects
Track
Commissioner
Moorings
Woodlaide
58.2m
Ridgeway
Carmel
53.7m
Swimming Pool
Park Hotel
The Butts
Treetops
Fairfield
46.3m
ABANDONED 114 ST HP HERE
TELEMETRY CABLE LAID IN SAME TRENCH BY TRANSCO
56.1m
Pond
Cemetery
20m
Scale 1 : 1250
User ID tc
Date 24/10/2012
Grid Ref : Easting: 213118
Northing: 201388
Internal Use Only
Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned
Some examples of plant items
Valve
Depth of Cover
System
Diameter Change
Material change
Application version: 1.0.110
TITLE : Not Set HA 760
WALES&WEST UTILITIES
Wales & West Utilities Ltd., Wales & West House, Spooner Close, Coldra Springs, Coedkernew, Newport, NP10 8FZ

Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 212434
	Northing: 201470

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

Valve | Depth of Cover | System | Diameter Change | Material change

Application version: 1.0.110

TITLE : Not Set

The plan shows those pipes owned by Wales & West Utilities (WWU) in its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. may not be shown but their presence should be anticipated. No warranties are therefore given in respect of it. WWU its employees and contractors do not accept any liability for any inaccuracy or incompleteness in it.
You must use safe digging practices, in accordance with HSG47, to establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you or near gas apparatus. The information shown on this plan should not be used beyond 28 days from the date of issue of this plan as it is subject to updating.
This plan also provides indications of gas pipes owned by other GTs, or otherwise privately owned, which may be present in this area. This information is not information of WWU and WWU is unable to verify this information or to caution whether it is accurate or complete. It is supplied voluntarily to assist the user in determining whether to make contact with other GTs or others. The user must obtain such information from the other GT or person concerned. WWU, its employees and contractors do not accept any liability for this information or any inaccuracy or incompleteness in

WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spurrier Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ

Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 213236 Northing: 200632

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

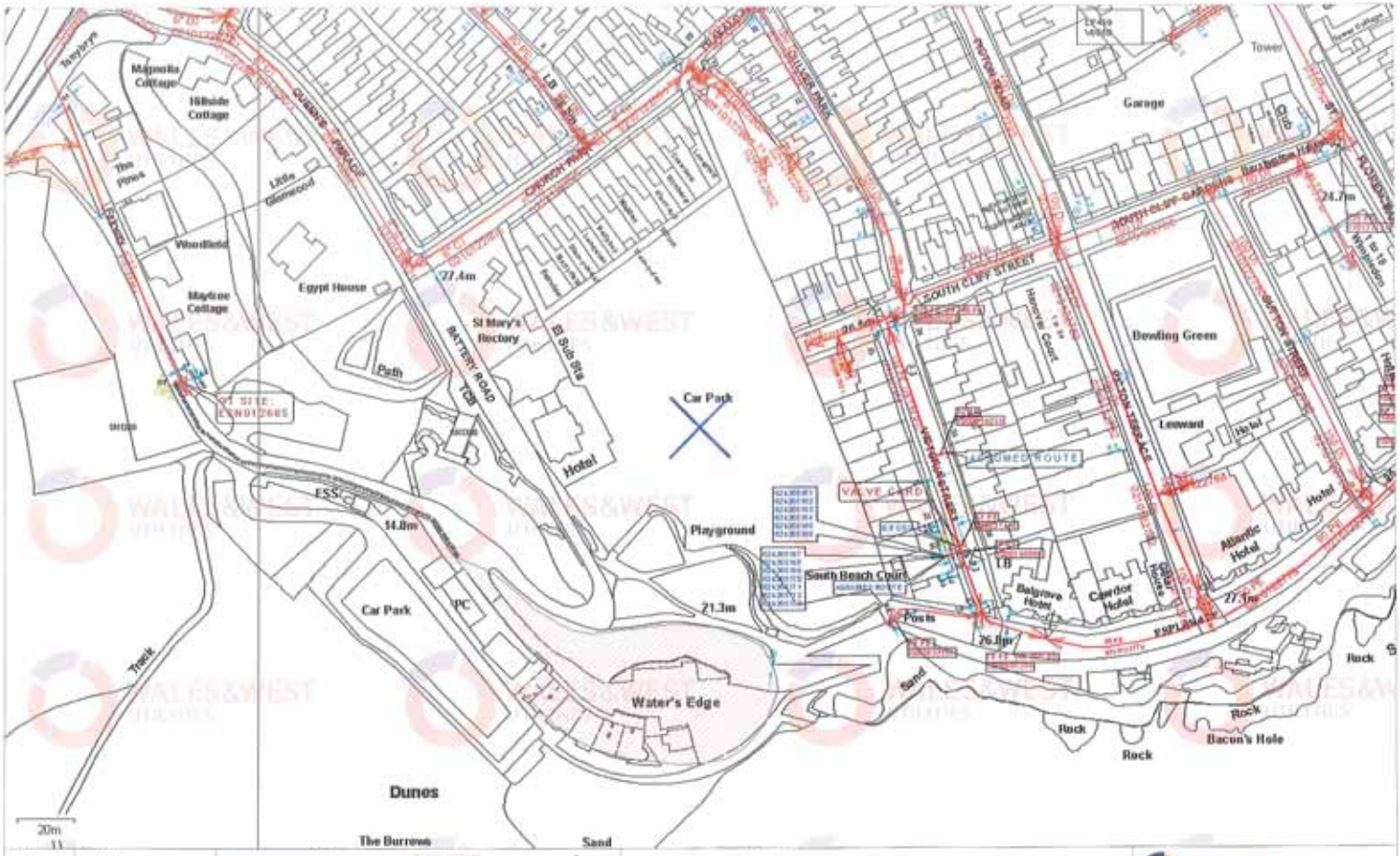
Valve — Depth of Cover — Syphon — Diameter Change — Material change

Application version: 1.2.115

TITLE : Not Set HA 707

WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spooner Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ



Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 213158 Northing: 200196

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant below

Valve | Depth of Cover | Syphon | Diameter Change | Material change

Application version: 1.6.113

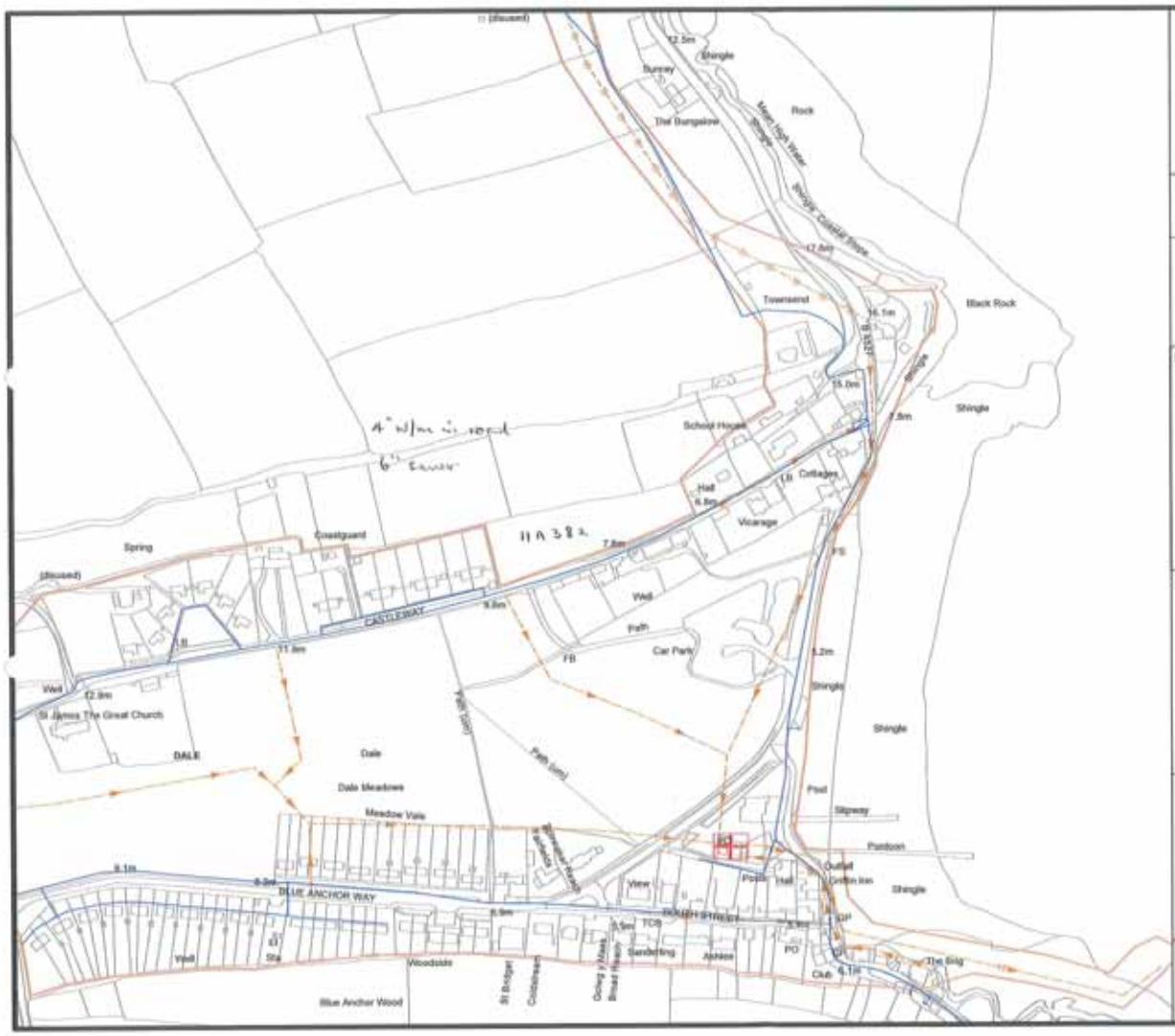
TITLE : Not Set

WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spurrier Close, Cadic Springs, Coedkernew, Newport, NP10 8FZ

Dale

HA382 – Castle Way, Dale



Dŵr Cymru
Welsh Water

— Enter drawing title here —

N
W E
S

LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- Bulk Meter
- Fire Hydrant
- Cap
- Non Dwr Cymru (Existing Distribution) Main
- Gravity Sewer
- Rising Main
- Outfall
- Pumping Station
- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

Notes:

— Type notes here —
— Remembering to manually add line breaks —

DALE

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref:	???????
Map scale:	1:2,500
Printed by:	
Printed on:	

Herbrandston

HA732 – East Herbrandston Hall

Dŵr Cymru
Welsh Water

— Enter drawing title here —

N
W E
S

LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- Bulk Meter
- Fire Hydrant
- Cap
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- Rising Main
- Outfall
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- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

Notes:

— Type notes here —
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HERBRANSTON

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

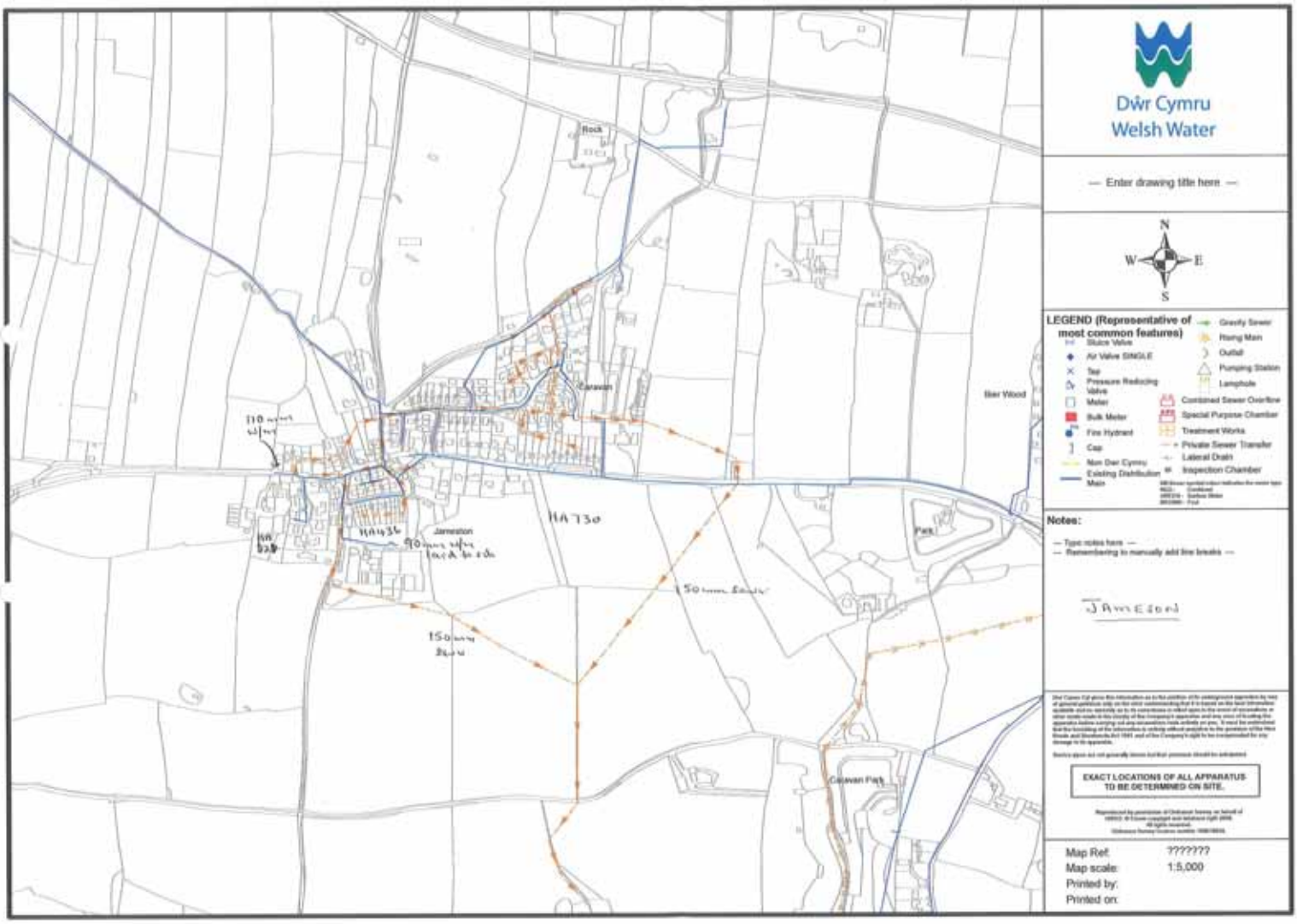
Map Ref: ???????
Map scale: 1:1,250
Printed by:
Printed on:

Jameston

HA436 – North of Landway Farm

HA821 – Green Grove

HA730 – Opposite Bush Terrace



Dŵr Cymru
Welsh Water

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N
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LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tee
- Pressure Reducing Valve
- Meter
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Notes:

— Type notes here —
— Remembering to manually add line breaks —

Jameston

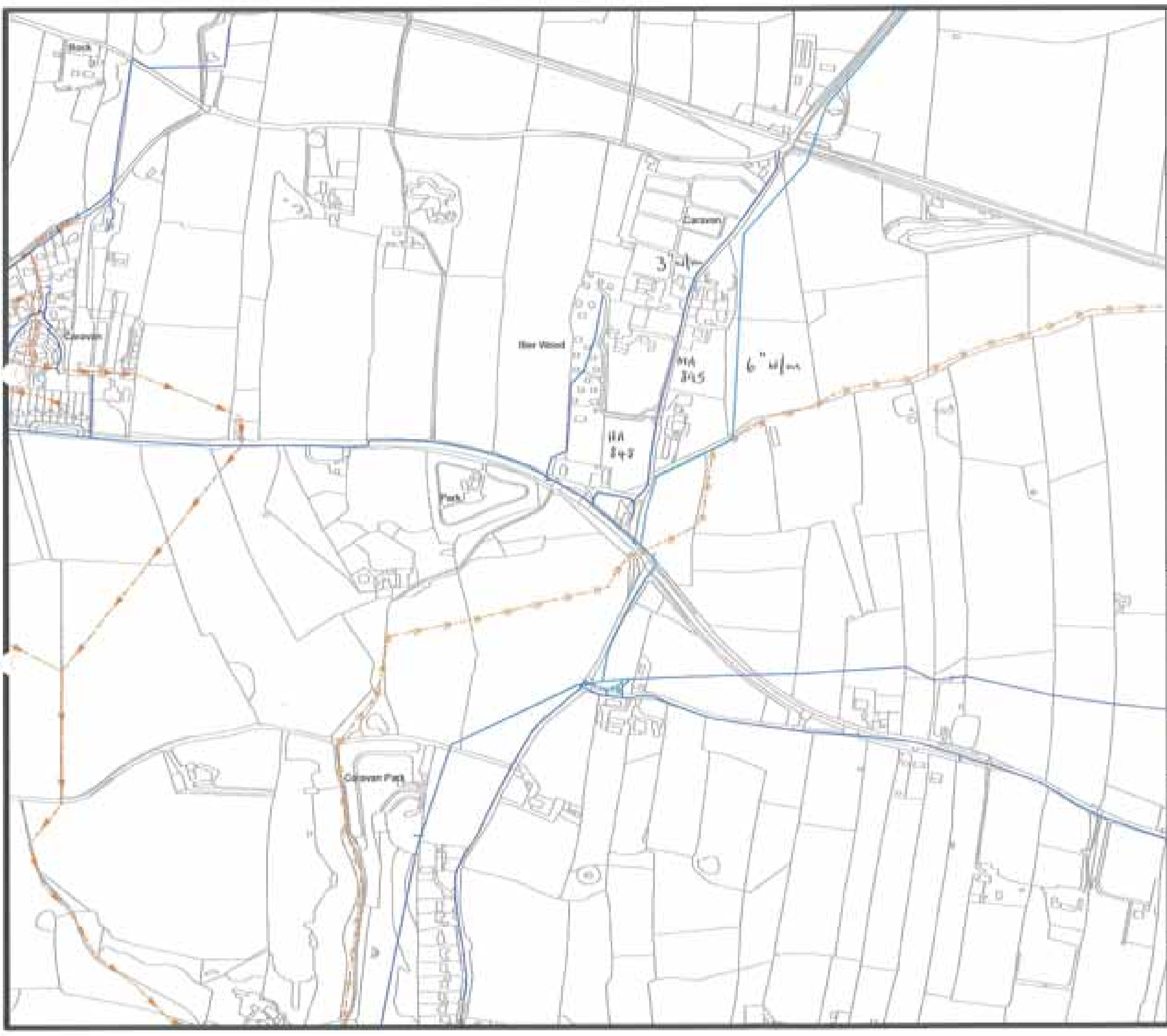
EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref:	???????
Map scale:	1:5,000
Printed by:	
Printed on:	

Manorbier Station

HA848 – Field Opposite Manorbier VC School

MA895 – Land Park of Buttylands



Dŵr Cymru
Welsh Water

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N
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LEGEND (Representative of most common features)

- Sluice Valve
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- Tap
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- Meter
- Bulk Meter
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- Special Purpose Chamber
- Treatment Works
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- Lateral Drain
- Inspection Chamber

Notes:

— Type notes here —
— Remembering to manually add line breaks —

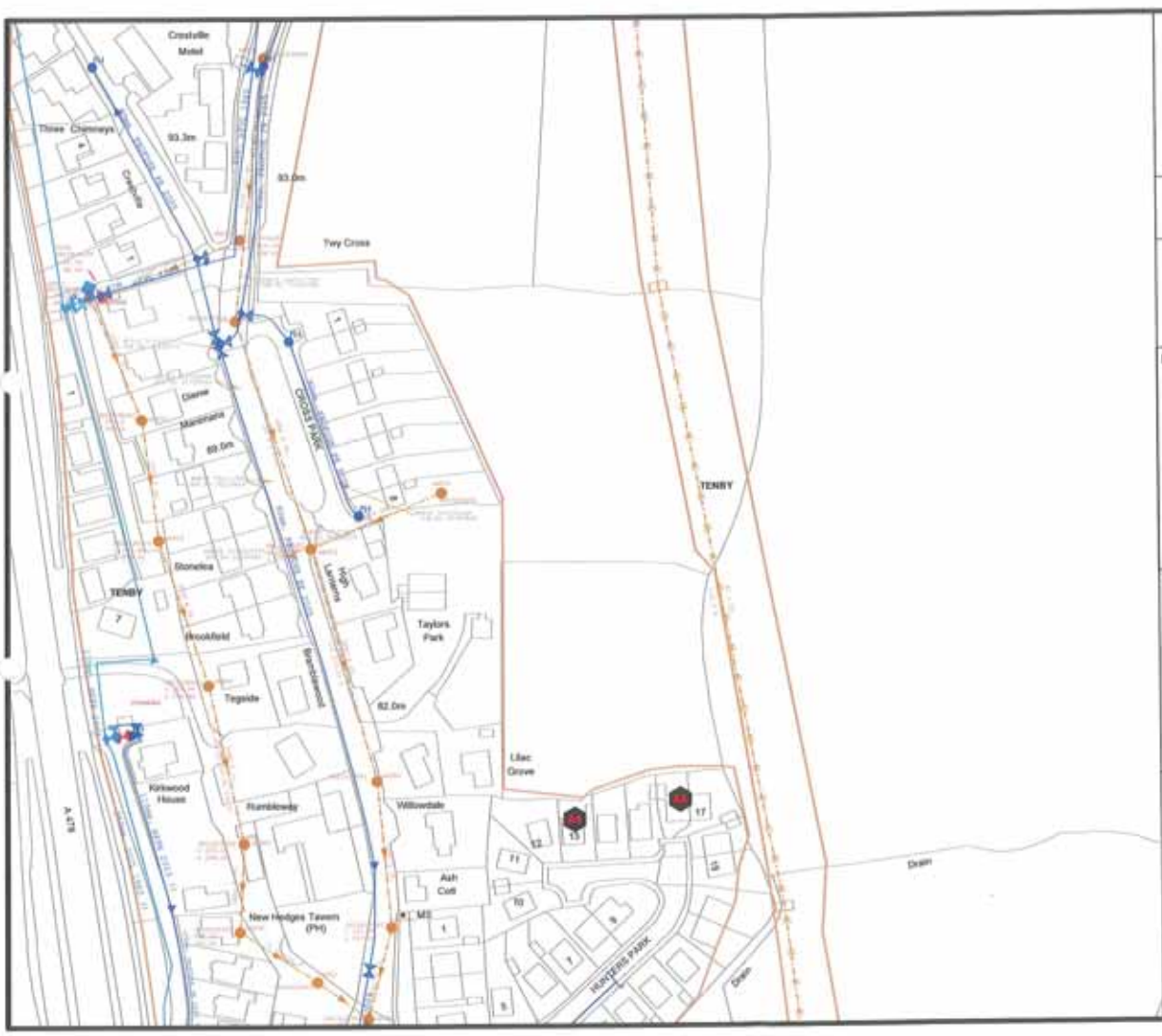
MANORBIER JUNCTION

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref: ???????
Map scale: 1:5,000
Printed by:
Printed on:

New Hedges

HA813 – Rear of Cross Park,



Dŵr Cymru
Welsh Water

--- Enter drawing title here ---

N
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LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
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- Fire Hydrant
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- Outfall
- Pumping Station
- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

Notes:

--- Type notes here ---
--- Remembering to manually add line breaks ---

NEW HEDGES

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref: ???????
Map scale: 1:1,250
Printed by:
Printed on:

Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 212999
	Northing: 203160

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

Valve | Depth of Cover | System | Diameter Change | Material change

Application version: 1.0.113

TITLE : Not Set HA 513

The plan shows those pipes owned by Wales & West Utilities (WWU) or its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. may not be shown but their presence should be anticipated. No warranties are therefore given in respect of it. WWU, its employees and contractors do not accept any liability for any inaccuracy or incompleteness in it.
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The plan also provides indications of gas pipes owned by other GTs, or otherwise privately owned, which may be present in this area. This information is not information of WWU and WWU is unable to verify this information or to confirm whether it is accurate or complete. It is supplied voluntarily to assist the user in determining whether to make contact with other GTs or others. The user must obtain such information from the other GT or person concerned. WWU, its employees and contractors do not accept any liability for this information or any inaccuracy or incompleteness in

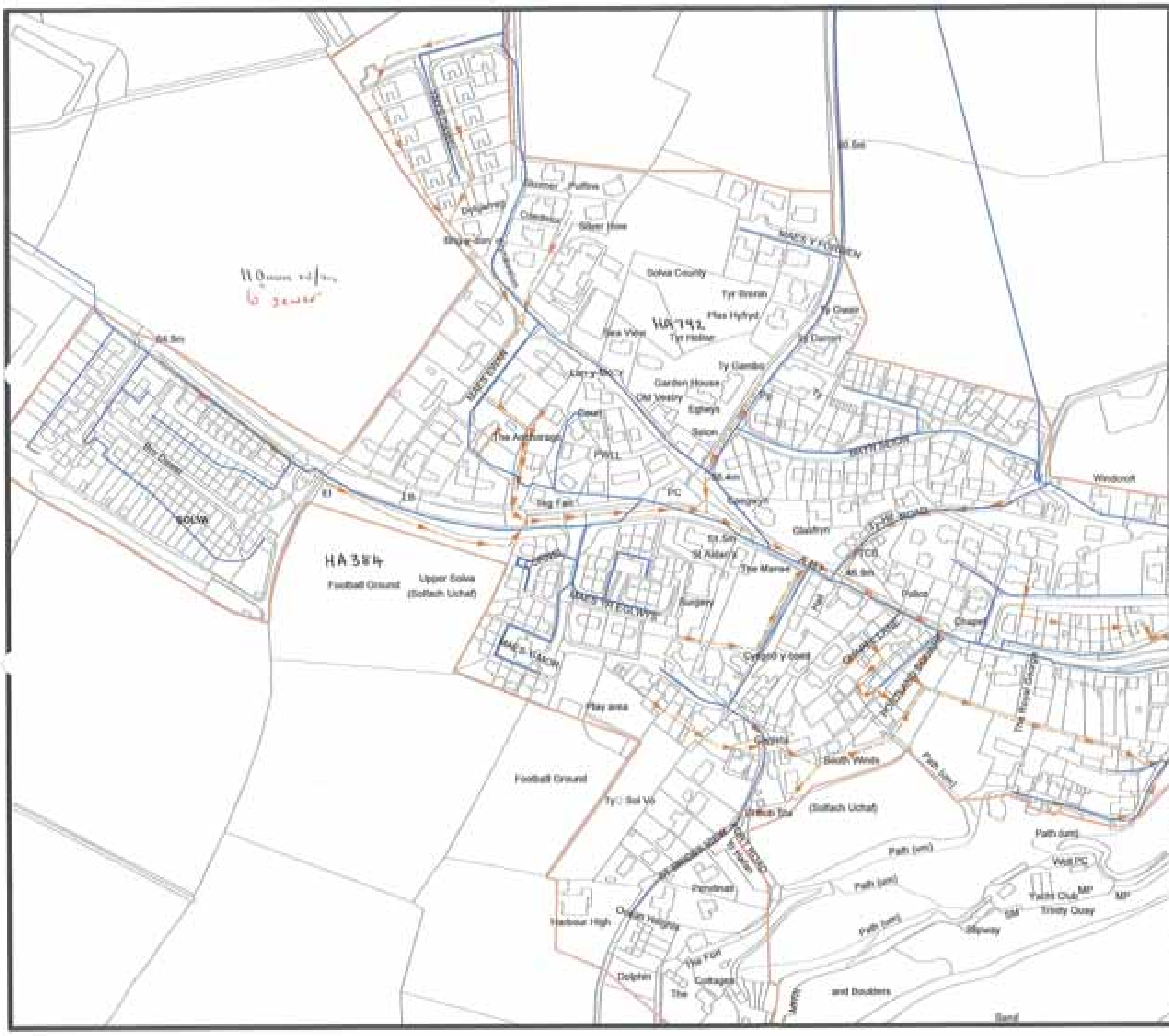
WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spooner Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ

Solva

HA384 – Adjacent to Bro Dawel

HA792 – Bank House, Whitchurch Lane



Dŵr Cymru
Welsh Water

— Enter drawing title here —

LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
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- Gravity Sewer
- Rising Main
- Outfall
- Pumping Station
- Lamphole
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- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

Notes:

— Type notes here —
— Remembering to manually add line breaks —

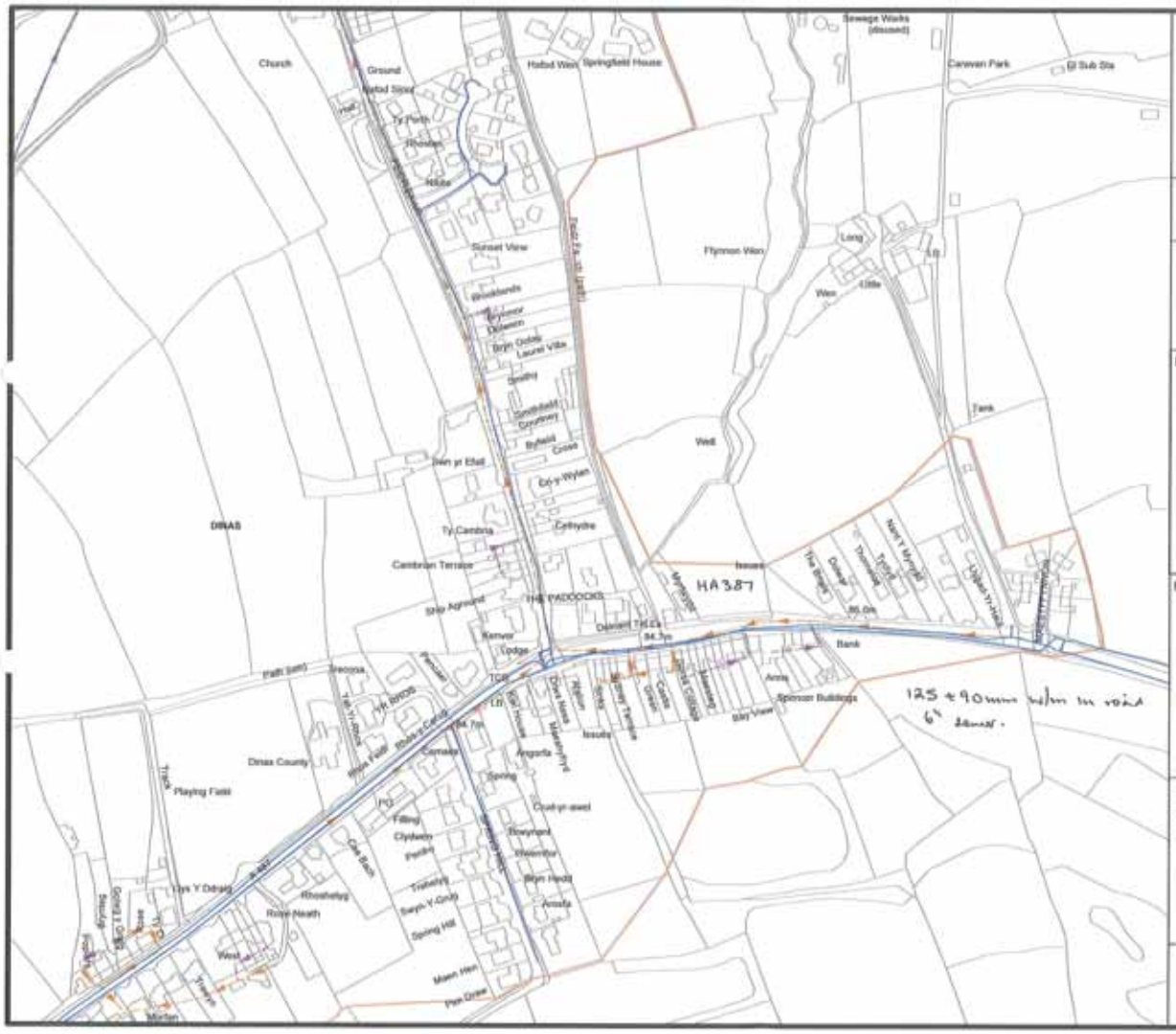
SOLVA

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref: ???????
Map scale: 1:2,500
Printed by:
Printed on:

Dinas Cross

HA387 – Opposite Bay View Terrace



Dŵr Cymru
Welsh Water

— Enter drawing title here —

N
W E
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LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
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- Bulk Meter
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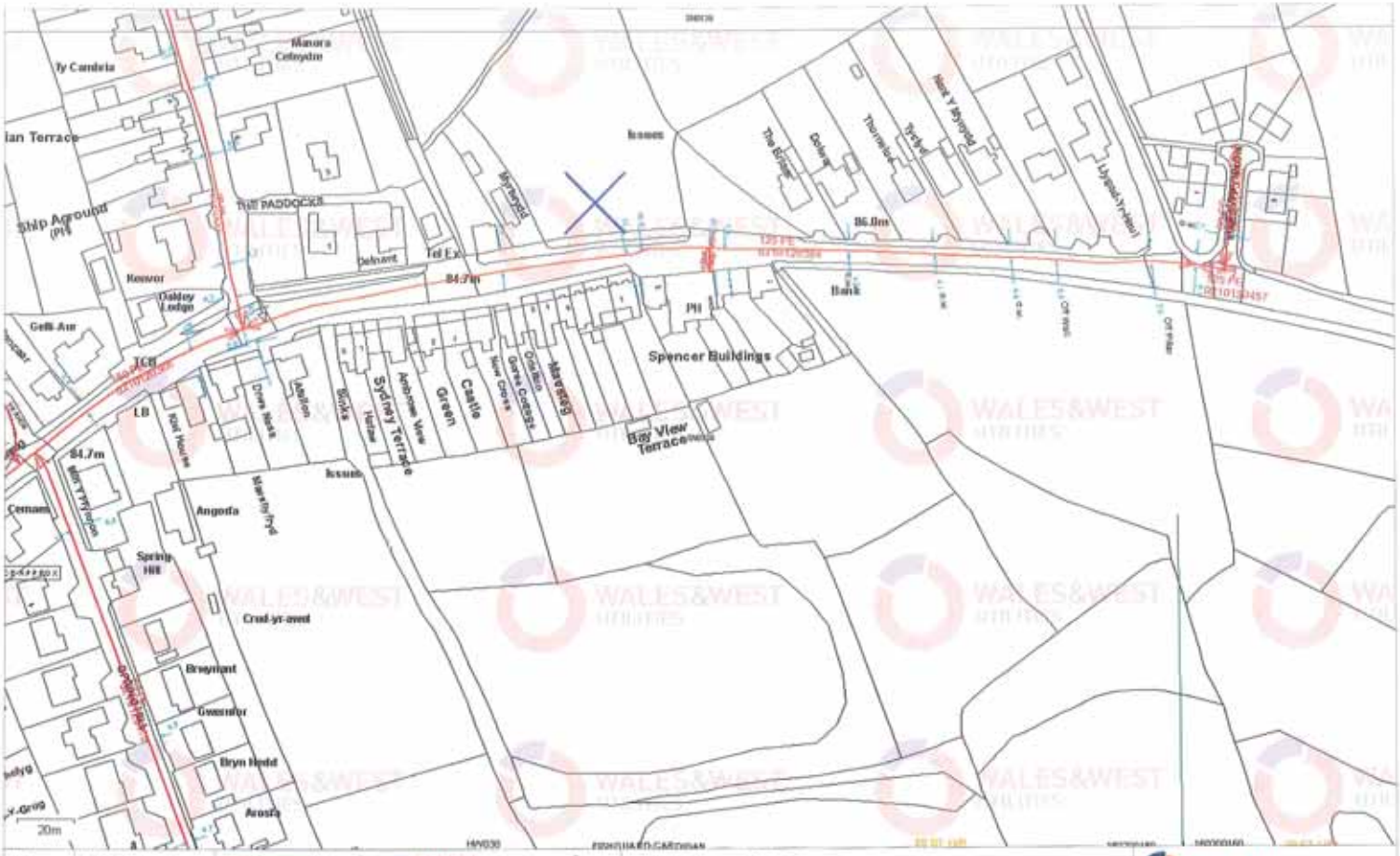
Notes:

— Type notes here —
— Remembering to manually add line breaks —

Dinas cross

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref:	????????
Map scale:	1:2,500
Printed by:	
Printed on:	



Scale	1 : 1250
User ID	tc
Date	24/10/2012
Grid Ref :	Easting: 201980 Northing: 238868

Internal Use Only

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

Some examples of plant items

Valve | Depth of Cover | Syphon | Diameter Change | Material change

Application version: 1.0.110

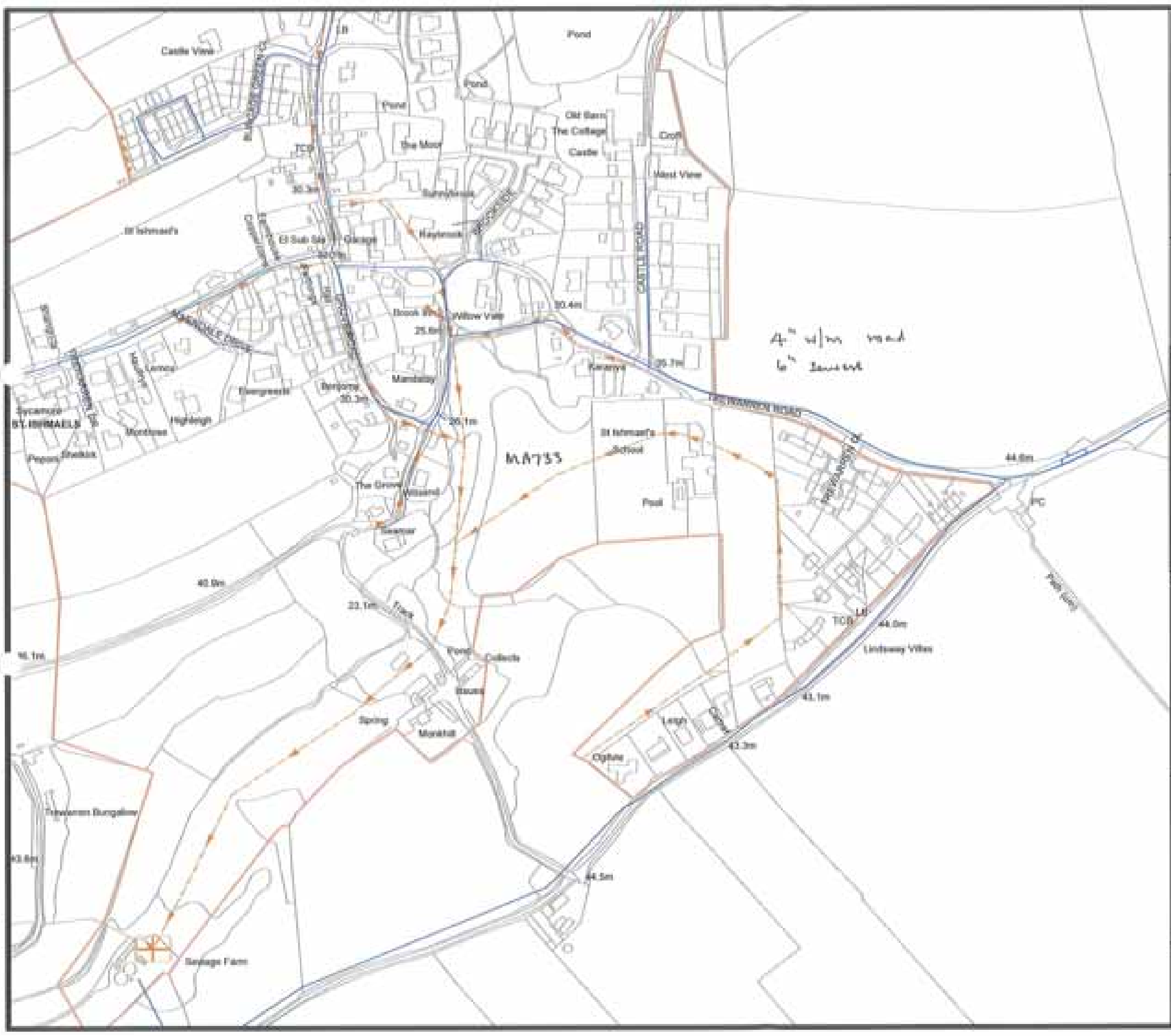
TITLE : Not Set HA 38-1

WALES&WEST UTILITIES

Wales & West Utilities Ltd., Wales & West House, Spurrier Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ

St Ishmaels

MA733 – Land Adjacent to the School



Dŵr Cymru
Welsh Water

— Enter drawing title here —

N
W E
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LEGEND (Representative of most common features)

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
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- Lateral Drain
- Inspection Chamber

Notes:

— Type notes here —
— Remembering to manually add line breaks —

ST. ISHMAELS

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

Map Ref:	???????
Map scale:	1:2,500
Printed by:	
Printed on:	

Appendix C

Supporting Information

St David's — EA748 & MA746 Glasfryn Road

Series	Quantity		2008 Rate	Amount	Series Totals	Assumptions
Series 100: Preliminaries						
Prelims	30%		316,997.44	95,099.23	**95,099.23**	Assumed 30% of construction cost
Series 200: Site Clearance						
General site clearance area	0.25	Ha	1,028.34	257.09		Widened by approx 5m over full length. (5x500=2500m^2 = 0.25Ha)
Break out of existing carriageway for reconstruction of the pavement	750	m2	9.08	6,810.00	**7,067.09**	Average carriageway width approx 3m. Assumed footway construction on top of existing paved area, so need to break out the remainder for full re-construction. Assumed required over 1.5m width for the length of scheme 500m (1.5 x 500 = 750m2)
Series 500: Drainage						
Precast concrete gully	15	nr	214.44	3,216.60		35m spacings (500/35=14.3 say 15)
Precast concrete chamber 1200 diameter x 2000 depth to invert	5	nr	1,475.95	7,379.75		at100m spacings
Gully connectors vitified clay pipes 150mm diamter laid to 2m depth	22.5	m	41.00	922.50		Assumed 1.5m per gully
Vitrified clay pipe carrier drain 300mm diameter laid to 2m depth	500	m	101.18	50,590.00	**62,108.85**	
Series 600: Earthworks						
Excavation of pavement construction box	1125	m3	2.68	3,015.00		Assumed excavated to 500mm depth over 4.5m width of road (the other 1.5m is assumed removal of existing carriageway in site clearance
Disposal of excavated material off site	1125	m3	25.00	28,125.00		Assumed material will be disposed off site and appropriate fill material imported
Topsoiling 150 mm thick	1250	m2	4.17	5,212.50		2.5m verge over full length
					36,352.50	
Series 700: Pavements						
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	3000	m2	36.94	110,820.00		
Granular Type 1 sub-base	600	m3	29.44	17,664.00	**128,484.00**	Assumed 200mm sub base required
Series 1100: Kerbs						
Bituminous footway 60mm thick comprising 40mm base course and 20mm wearing course	1000	m2	16.83	16,830.00		2m wide footway over length of scheme (2x500=1000m2)
Precast cocrete half battered kerbs125x255mm	1000	m	9.10	9,100.00	**25,930.00**	Kerbed both sides along full length. Overall rate assumed to cater for dropped kerbs where required
Series 1200: Traffic Signs and Road Markings						
Signs	1	sum	1,000.00	1,000.00		
Road Markings						
Minimum visit charge	1	sum	700.00	700.00		
Centre Line 100mm	500	m	0.71	355.00	**2,055.00**	
Series 3000 Landscaping and Ecology						
Landscaping	1	Sum	5,000.00	5,000.00		
Translocation of Pembrokeshire Hedgrerow	500	m	100.00	50,000.00	**55,000.00**	Assumed full length of scheme
			TOTAL =	**412,096.67**	**412,096.67**	

Series 100: Preliminaries	95,099.23
Series 200: Site Clearance	7,067.09
Series 500: Drainage	62,108.85
Series 600: Earthworks	36,352.50
Series 700: Pavements	128,484.00
Series 1100: Kerbs	25,930.00
Series 1200: Traffic Signs and Road Markings	2,055.00
Series 3000: Landscaping	55,000.00
WORKS COST	412,096.67
Indexation to current prices	481,943.56
Fee (5%)	24,097.18
Sub total	436,193.84
Risk & Optimism Bias (45%)	196,287.23
GRAND TOTAL	**632,481.07**

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Broad Haven MA776 Marine Road

Diversion of the B4341 Approx 200m

Series	Quantity		2008 Rate	Amount	Series Totals	Assumptions
Series 100: Preliminaries						
Prelims	30%		76,816.97	23,045.09	**23,045.09**	Assumed 30% of construction cost
Series 200: Site Clearance						
General site clearance area	0.26	Ha	1,028.34	267.37	**267.37**	Approx 200m x 6m c/w + 2.5m verges (200*13=2600m2)
Series 500: Drainage						
						Assumed over the edge drainage as existing
Series 600: Earthworks						
Excavation of topsoil strip	480	m3	2.68	1,286.40		Assumed 300mm deep over width of road + 1m either side
Excavation of pavement construction box	320	m3	2.68	857.60		Assumed excavated to 500mm depth over width of road +1m either side allowing for removal of topsoil above
Disposal of excavated material off site		m3	25.00	-		Assumed all material will be used to create new hedgebanks
Topsoiling 150 mm thick	1000	m2	4.17	4,170.00		2.5m verge both sides over full length
					6,314.00	
Series 700: Pavements						
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	1200	m2	36.94	44,328.00		
Granular Type 1 sub-base	240	m3	29.44	7,065.60	**51,393.60**	Assumed 200mm sub base required
Series 1100: Kerbs						
						Assumed no kerbs or footways as over the edge drainage
Series 1200: Traffic Signs and Road Markings						
Signs	1	sum	5,000.00	5,000.00		
Road Markings						
Minimum visit charge	1	sum	700.00	700.00		
Centre Line 100mm	200	m	0.71	142.00	**5,842.00**	
Series 3000 Landscaping and Ecology						
Landscaping	1	Sum	5,000.00	5,000.00		
Creation of Pembrokeshire Hedgerow	400	m	20.00	8,000.00	**13,000.00**	Assumed both sides for full length of scheme
			TOTAL =	**99,862.06**	99,862.06	

Series 100: Preliminaries	23,045.09
Series 200: Site Clearance	267.37
Series 500: Drainage	-
Series 600: Earthworks	6,314.00
Series 700: Pavements	51,393.60
Series 1100: Kerbs	-
Series 1200: Traffic Signs and Road Markings	5,842.00
Series 3000: Landscaping	13,000.00
WORKS COST	99,862.06
Indexation to current prices	116,787.83
Fee (5%)	5,839.39
Sub total	105,701.45
Risk & Optimism Bias (45%)	47,565.65
GRAND TOTAL	**153,267.10**

Series 100: Preliminaries	33,628.21
Series 200: Site Clearance	366.09
Series 500: Drainage	-
Series 600: Earthworks	8,601.20
Series 700: Pavements	82,229.76
Series 1100: Kerbs	-
Series 1200: Traffic Signs and Road Markings	7,897.00
Series 3000: Landscaping	17,800.00
WORKS COST	150,522.26
Indexation to current prices	176,034.51
Fee (5%)	8,801.73
Sub total	159,323.99
Risk & Optimism Bias (45%)	71,695.80
GRAND TOTAL	**231,019.78**

Broad Haven MA776 Marine Road

New Link Road to Proposed Development Site Approx 120m

Series	Quantity		2008 Rate	Amount	Series Totals	Assumptions
Series 100: Preliminaries						
Prelims	30%		35,277.08	10,583.12	**10,583.12**	Assumed 30% of construction cost
Series 200: Site Clearance						
General site clearance area	0.096	Ha	1,028.34	98.72	**98.72**	Approx 120m x 6m c/w + 1m verges (120*8=960m2)
Series 500: Drainage						
Series 600: Earthworks						
Excavation of topsoil strip	288	m3	2.68	771.84		Assumed 300mm deep over width of road + 1m either side
Excavation of pavement construction box	192	m3	2.68	514.56		Assumed excavated to 500mm depth over width of road +1m either side allowing for removal of topsoil above
Disposal of excavated material off site	0	m3	25.00	-		Assumed all material will be used to create new hedgebanks
Topsoiling 150 mm thick	240	m2	4.17	1,000.80		1m verge both sides over full length
					2,287.20	
Series 700: Pavements						
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	720	m2	36.94	26,596.80		
Granular Type 1 sub-base	144	m3	29.44	4,239.36	**30,836.16**	Assumed 200mm sub base required
Series 1100: Kerbs						
Series 1200: Traffic Signs and Road Markings						
Signs	1	sum	1,000.00	1,000.00		
Road Markings						
Minimum visit charge	1	sum	700.00	700.00		
Centre Line 100mm	500	m	0.71	355.00	**2,055.00**	
Series 3000 Landscaping and Ecology						
Landscaping	0	Sum	5,000.00	-		Assumed allowed for in main works
Creation of Pembrokeshire Hedgrerow	240	m	20.00	4,800.00	**4,800.00**	Assumed both sides for full length of scheme
			TOTAL =	**50,660.20**	50,660.20	

Series 100: Preliminaries	10,583.12
Series 200: Site Clearance	98.72
Series 500: Drainage	-
Series 600: Earthworks	2,287.20
Series 700: Pavements	30,836.16
Series 1100: Kerbs	-
Series 1200: Traffic Signs and Road Markings	2,055.00
Series 3000: Landscaping	4,800.00
WORKS COST	50,660.20
Indexation to current prices	59,246.68
Fee (5%)	2,962.33
Sub total	53,622.54
Risk & Optimism Bias (45%)	24,130.14
GRAND TOTAL	**77,752.68**

Dale	HA382						
Series	**Quantity**		**2008 Rate**	**Amount**	**Series Totals**		**Assumptions**
Series 100: Preliminaries							
Prelims	20%		26,853.38	5,370.68	**5,370.68**		Assumed 20% of construction cost
Series 200: Site Clearance							
General site clearance area	0.045	Ha	1,028.34	46.28			Widened by approx 3m over full length. (3x150=450m^2 = 0.045Ha)
Break out of existing carriageway for reconstruction of the pavement	0	m2	9.08	-	**46.28**		
Series 500: Drainage							
Precast concrete gully		nr	214.44	-			35m spacings (500/35=14.3 say 15)
Precast concrete chamber 1200 diameter x 2000 depth to invert		nr	1,475.95	-			at100m spacings
Gully connectors vitified clay pipes 150mm diamter laid to 2m depth		m	41.00	-			Assumed 1.5m per gully
Vitrified clay pipe carrier drain 300mm diameter laid to 2m depth		m	101.18	-	**-**		
Series 600: Earthworks							
Excavation of pavement construction box	225	m3	2.68	603.00			Assumed excavated to 500mm depth over 3m width of road
Disposal of excavated material off site	225	m3	25.00	5,625.00			Assumed material will be disposed off site and appropriate fill material imported
Topsoiling 150 mm thick		m2	4.17	-			
					6,228.00		
Series 700: Pavements							
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	450	m2	36.94	16,623.00			
Granular Type 1 sub-base	90	m3	29.44	2,649.60	**19,272.60**		Assumed 200mm sub base required
Series 1100: Kerbs							
Bituminous footway 60mm thick comprising 40mm base course and 20mm wearing course		m2	16.83	-			
Precast cocrete half battered kerbs125x255mm		m	9.10	-	**-**		
Series 1200: Traffic Signs and Road Markings							
Signs	1	sum	500.00	500.00			
Road Markings							
Minimum visit charge	1	sum	700.00	700.00			
Centre Line 100mm	150	m	0.71	106.50	**1,306.50**		
Series 3000 Landscaping and Ecology							
Landscaping	0	Sum	5,000.00	-			
Translocation of Pembrokeshire Hedgrerow	0	m	100.00	-	**-**		Assumed full length of scheme
			TOTAL =	**32,224.05**	32,224.05		

Series 100: Preliminaries	5,370.68
Series 200: Site Clearance	46.28
Series 500: Drainage	-
Series 600: Earthworks	6,228.00
Series 700: Pavements	19,272.60
Series 1100: Kerbs	-
Series 1200: Traffic Signs and Road Markings	1,306.50
Series 3000: Landscaping	-
WORKS COST	32,224.05
Indexation to current prices	37,685.75
Fee (5%)	1,884.29
Sub total	34,108.34
Risk & Optimism Bias (45%)	15,348.75
GRAND TOTAL	**49,457.09**

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Tenby	HA377 Brynhir					
New 250m long Access Track along Sperricomb Lane						
Series	**Quantity**		**2008 Rate**	**Amount**	**Series Totals**	**Assumptions**
Series 100: Preliminaries						
Prelims	30%		149,312.47	44,793.74	**44,793.74**	Assumed 30% of construction cost
Series 200: Site Clearance						
General site clearance area	0.15	Ha	5,000.00	750.00		Widened by approx 6m over full length. (6x250=1500m^2 = 0.15Ha)
Break out of existing carriageway for reconstruction of the pavement	0	m2	9.08	-	**750.00**	
Series 300: Fencing						
Post and 4 rail fence 1400mm high	250	m	20.94	5,235.00		Assumed required along the length of the widened side
Concrete Foundations	56	nr	8.35	467.60	**5,702.60**	Assume 40% in concrete foundations (Posts at 1.8m spacings =250/1.8*0.4 = 56
Series 500: Drainage						
Precast concrete gully	8	nr	214.44	1,715.52		35m spacings (250/35=7.14 say 8)
Precast concrete chamber 1200 diameter x 2000 depth to invert	3	nr	1,475.95	4,427.85		at100m spacings
Gully connectors vitified clay pipes 150mm diamter laid to 2m depth	12	m	41.00	492.00		Assumed 1.5m per gully
Vitrified clay pipe carrier drain 300mm diameter laid to 2m depth	250	m	101.18	25,295.00	**31,930.37**	
Series 600: Earthworks						
Excavation of pavement construction box	750	m3	2.68	2,010.00		Assumed excavated to 500mm depth over 6m width of road
Disposal of excavated material off site	750	m3	25.00	18,750.00		Assumed material will be disposed off site and appropriate fill material imported
Topsoiling 150 mm thick	500	m2	4.17	2,085.00		1m verge over full length
					22,845.00	
Series 700: Pavements						
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	1500	m2	36.94	55,410.00		
Granular Type 1 sub-base	300	m3	29.44	8,832.00	**64,242.00**	Assumed 200mm sub base required
Series 1100: Kerbs						
Bituminous footway 60mm thick comprising 40mm base course and 20mm wearing course	500	m2	16.83	8,415.00		2m wide footway over length of scheme (2x250=500m2)
Precast cocrete half battered kerbs125x255mm	500	m	9.10	4,550.00	**12,965.00**	Kerbed both sides along full length. Overall rate assumed to cater for dropped kerbs where required
Series 1200: Traffic Signs and Road Markings						
Signs	1	sum	5,000.00	5,000.00		
Road Markings						
Minimum visit charge	1	sum	700.00	700.00		
Centre Line 100mm	250	m	0.71	177.50	**5,877.50**	
Series 3000 Landscaping and Ecology						
Landscaping	1	Sum	5,000.00	5,000.00		
Translocation of Pembrokeshire Hedgrerow	0	m	100.00	-	**5,000.00**	Assumed full length of scheme
			TOTAL =	**194,106.21**	**194,106.21**	

Series 100: Preliminaries	44,793.74	
Series 200: Site Clearance	750.00	
Series 300: Fencing	5,702.60	
Series 500: Drainage	31,930.37	
Series 600: Earthworks	22,845.00	
Series 700: Pavements	64,242.00	
Series 1100: Kerbs	12,965.00	
Series 1200: Traffic Signs and Road Markings	5,877.50	
Series 3000: Landscaping	5,000.00	
WORKS COST	194,106.21	
Indexation to current prices	227,005.57	CPI indices Q1 2008 106.2 Oct 2012 124.2
Fee (5%)	11,350.28	
Sub total	205,456.49	
Risk & Optimism Bias (45%)	92,455.42	
GRAND TOTAL	**297,911.91**	
Series 100: Preliminaries	76,599.80	
Series 200: Site Clearance	194,106.21	
Series 300: Fencing	12,544.05	
Series 500: Drainage	31,930.37	
Series 600: Earthworks	50,884.50	
Series 700: Pavements	97,246.20	
Series 1100: Kerbs	12,965.00	
Series 1200: Traffic Signs and Road Markings	12,057.50	
Series 3000: Landscaping	10,000.00	
WORKS COST	305,427.42	
Indexation to current prices	357,194.78	
Fee (5%)	17,859.74	
Sub total	375,054.52	
Risk & Optimism Bias (45%)	145,478.27	
GRAND TOTAL	**468,766.38**	

Tenby HA377 Brynhir

Extension of 3lane section on A478 (Approx 300m)

Series	Quantity		2008 Rate	Amount	Series Totals		Assumptions
Series 100: Preliminaries							
Prelims	40%		79,515.15	31,806.06	**31,806.06**		Assumed 40% of construction cost due to increased TM requirements
Series 200: Site Clearance							
General site clearance area	0.09	Ha	5,000.00	450.00			Widened by approx 3m over full length. (3x300=900m^2 = 0.0.09Ha)
Break out of existing carriageway for reconstruction of the pavement	0	m2	9.08	-	**450.00**		
Series 300: Fencing							
Post and 4 rail fence 1400mm high	300	m	20.94	6,282.00			New fencing required along new boundary
Concrete Foundations	67	nr	8.35	559.45	**6,841.45**		Assume 40% in concrete foundations (Posts at 1.8m spacings =300/1.8*0.4 = 67
Series 500: Drainage							
Precast concrete gully	0	nr	214.44	-			Existing is over the edge drainage
Precast concrete chamber 1200 diameter x 2000 depth to invert	0	nr	1,475.95	-			
Gully connectors vitified clay pipes 150mm diamter laid to 2m depth	0	m	41.00	-			
Vitrified clay pipe carrier drain 300mm diameter laid to 2m depth	0	m	101.18	-	-		
Series 600: Earthworks							
Excavation of pavement construction box	900	m3	2.68	2,412.00			Assumed excavated to 500mm depth over 3m width of road
Disposal of excavated material off site	900	m3	25.00	22,500.00			Assumed material will be disposed off site and appropriate fill material imported
Topsoiling 150 mm thick	750	m2	4.17	3,127.50			2.5m verge over full length
					28,039.50		
Series 700: Pavements							
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	750	m2	36.94	27,705.00			
Granular Type 1 sub-base	180	m3	29.44	5,299.20	**33,004.20**		Assumed 200mm sub base required
Series 1100: Kerbs							
Bituminous footway 60mm thick comprising 40mm base course and 20mm wearing course		m2	16.83	-			
Precast cocrete half battered kerbs125x255mm	0	m	9.10	-	-		
Series 1200: Traffic Signs and Road Markings							
Signs	1	sum	5,000.00	5,000.00			
Road Markings							
Minimum visit charge	1	sum	700.00	700.00			
Centre Line 100mm	300	m	0.71	213.00			
Edge Lines 150mm	300	m	0.89	267.00	**6,180.00**		Only required along widened side
Series 3000 Landscaping and Ecology							
Landscaping	1	Sum	5,000.00	5,000.00			
Translocation of Pembrokeshire Hedgerow	0	m	100.00	-	**5,000.00**		Assumed full length of scheme
			TOTAL =	**111,321.21**	111,321.21		

Series 100: Preliminaries	31,806.06
Series 200: Site Clearance	450.00
Series 300: Fencing	6,841.45
Series 500: Drainage	-
Series 600: Earthworks	28,039.50
Series 700: Pavements	33,004.20
Series 1100: Kerbs	-
Series 1200: Traffic Signs and Road Markings	6,180.00
Series 3000: Landscaping	5,000.00
WORKS COST	111,321.21
Indexation to current prices	130,189.21
Fee (5%)	6,509.46
Sub total	117,830.67
Risk and Optimism (45%)	53,023.80
GRAND TOTAL	**170,854.47**

Tenby	**HA760**						
Series	**Quantity**		**2008 Rate**	**Amount**	**Series Totals**		**Assumptions**
Series 100: Preliminaries							
Prelims	30%		95,371.77	28,611.53	**28,611.53**		Assumed 30% of construction cost
Series 200: Site Clearance							
General site clearance area		Ha	1,028.34	-			
Site clearance of heavy density wooded areas	0.2	Ha	3,300.00	660.00	**660.00**		Assumed access road 6m wide plus 1m verges. Due to earthworks assumed footprint 20m wide over length (approx 100m)
Series 300: Fencing							
Post and 4 rail fence 1400mm high	200	m	20.94	4,188.00			Both sides of new access road
Concrete Foundations	45	nr	8.35	375.75	**4,563.75**		Assumed 40% of posts. Posts @1.8m spacing
Series 500: Drainage							
Precast concrete gully	3	nr	214.44	643.32			35m spacings (100/35=2.85 say 3)
Precast concrete chamber 1200 diameter x 2000 depth to invert	2	nr	1,475.95	2,951.90			at100m spacings
Gully connectors vitified clay pipes 150mm diamter laid to 2m depth	4.5	m	41.00	184.50			Assumed 1.5m per gully
Vitrified clay pipe carrier drain 300mm diameter laid to 2m depth	100	m	101.18	10,118.00	**13,897.72**		
Series 600: Earthworks							
Excavation of pavement construction box	150	m3	2.68	402.00			Assumed excavated to 500mm depth over 6m width for half length of road
Disposal of excavated material off site	150	m3	25.00	3,750.00			Assumed material will be disposed off site and appropriate fill material imported
Topsoiling 150 mm thick	1250	m2	4.17	5,212.50			1m verge over full length both sides
Imported acceptable material	2100	m3	11.71	24,591.00			Assume average embankment 3m with 20m footprint over half length
Deposition of acceptable material	2100	m3	1.87	3,927.00			
Compaction of acceptable material in embankments and other areas of fill	2100	m3	0.34	714.00	**38,596.50**		
Series 700: Pavements							
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	600	m2	36.94	22,164.00			
Granular Type 1 sub-base	120	m3	29.44	3,532.80	**25,696.80**		Assumed 200mm sub base required
Series 1100: Kerbs							
Bituminous footway 60mm thick comprising 40mm base course and 20mm wearing course	200	m2	16.83	3,366.00			2m wide footway over length of scheme (2x100=200m2)
Precast cocrete half battered kerbs125x255mm	200	m	9.10	1,820.00	**5,186.00**		Kerbed both sides along full length. Overall rate assumed to cater for dropped kerbs where required
Series 1200: Traffic Signs and Road Markings							
Signs	1	sum	1,000.00	1,000.00			
Road Markings							
Minimum visit charge	1	sum	700.00	700.00			
Centre Line 100mm	100	m	0.71	71.00	**1,771.00**		
Series 3000 Landscaping and Ecology							
Landscaping	1	Sum	5,000.00	5,000.00			
Translocation of Pembrokeshire Hedgrerow	0	m	100.00	-	**5,000.00**		Assumed full length of scheme
			TOTAL =	**123,983.30**	123,983.30		

Series 100: Preliminaries	28,611.53
Series 200: Site Clearance	660.00
Series 500: Drainage	13,897.72
Series 600: Earthworks	38,596.50
Series 700: Pavements	25,696.80
Series 1100: Kerbs	5,186.00
Series 1200: Traffic Signs and Road Markings	1,771.00
Series 3000: Landscaping	5,000.00
WORKS COST	119,419.55
Indexation to current prices	139,660.15
Fee (5%)	6,983.01
Sub total	126,402.56
Risk & Optimism Bias (5%)	56,881.16
GRAND TOTAL	**183,283.71**

Tenby HA727

Series	Quantity		2008 Rate	Amount	Series Totals	Assumptions
Series 100: Preliminaries						
Prelims	30%		48,038.10	14,411.43	**14,411.43**	Assumed 30% of construction cost
Series 200: Site Clearance						
General site clearance area	0.08	Ha	1,028.34	82.27		6m access road. 1m verges. Average embankment 2m
Break out of existing carriageway for reconstruction of the pavement	0	m2	9.08	-	**82.27**	
Series 300: Fencing						
Post and 4 rail fence 1400mm high	100	m	20.94	2,094.00		Both sides of access road
Concrete Foundations	23	nr	8.35	192.05	**2,286.05**	Assumed 40% of posts. Posts @1.8m spacings
Series 500: Drainage						
Precast concrete gully	2	nr	214.44	428.88		35m spacings (500/35=14.3 say 15)
Precast concrete chamber 1200 diameter x 2000 depth to invert	2	nr	1,475.95	2,951.90		at100m spacings
Gully connectors vitified clay pipes 150mm diamter laid to 2m depth	3	m	41.00	123.00		Assumed 1.5m per gully
Vitrified clay pipe carrier drain 300mm diameter laid to 2m depth	50	m	101.18	5,059.00	**8,562.78**	
Series 600: Earthworks						
Excavation of pavement construction box	30	m3	2.68	80.40		Assumed excavated to 500mm depth over 6m width of road for 10m tie in
Disposal of excavated material off site	30	m3	25.00	750.00		Assumed material will be disposed off site and appropriate fill material imported
Topsoiling 150 mm thick	100	m2	4.17	417.00		1m verges over full length both sides
Imported acceptable material	960	m3	11.71	11,241.60		Assuming average 2m embankment over 40m
Deposition of acceptable material	960	m3	1.87	1,795.20		
Compaction of acceptable material in embankments and other areas of fill	960	m3	0.34	326.40	**14,610.60**	
Series 700: Pavements						
Flexible pavement construction comprising roadbase, basecourse and wearing course (min depth 300 mm thick)	300	m2	36.94	11,082.00		
Granular Type 1 sub-base	60	m3	29.44	1,766.40	**12,848.40**	Assumed 200mm sub base required
Series 1100: Kerbs						
Bituminous footway 60mm thick comprising 40mm base course and 20mm wearing course	100	m2	16.83	1,683.00		2m wide footway over length of scheme (2x50=100m2)
Precast cocrete half battered kerbs125x255mm	100	m	9.10	910.00	**2,593.00**	Kerbed both sides along full length. Overall rate assumed to cater for dropped kerbs where required
Series 1200: Traffic Signs and Road Markings						
Signs	1	sum	1,000.00	1,000.00		
Road Markings						
Minimum visit charge	1	sum	700.00	700.00		
Centre Line 100mm	500	m	0.71	355.00	**2,055.00**	
Series 3000 Landscaping and Ecology						
Landscaping	1	Sum	5,000.00	5,000.00		
Translocation of Pembrokeshire Hedgrerow	0	m	100.00	-	**5,000.00**	Assumed full length of scheme
			TOTAL =	**62,449.53**	62,449.53	

Series 100: Preliminaries	14,411.43
Series 200: Site Clearance	82.27
Series 500: Drainage	8,562.78
Series 600: Earthworks	14,610.60
Series 700: Pavements	12,848.40
Series 1100: Kerbs	2,593.00
Series 1200: Traffic Signs and Road Markings	2,055.00
Series 3000: Landscaping	5,000.00
WORKS COST	60,163.48
Indexation to current prices	70,360.68
Fee (5%)	3,518.03
Sub total	63,681.51
Risk & Optimism Bias (45%)	28,656.68
GRAND TOTAL	**92,338.19**

Appendix D

References

References

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