

The background image shows a rural farm scene. In the center, there is a tall, cylindrical concrete water tower. To its right is a dark wooden barn. In the foreground, a wooden gate with a lattice pattern is closed, leading to a fenced-in area. To the right of the gate is a green metal utility cabinet. The sky is overcast, and the trees are mostly bare, suggesting a cooler season.

# Crwys Farm, Three Crosses Green Infrastructure Statement

June 2024



This **Green Infrastructure Statement** has been prepared by:



Based on the development proposals designed by Hammond Architectural Limited:



with ecology input by:



with arboriculture input by:



On behalf of:



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# 01 Introduction

## Scope

Tir Collective is instructed by Westacres to prepare this **Green Infrastructure Statement** which relates to a proposed residential development at Crwys Farm, Three Crosses, Swansea. The site is located on the north-eastern edge of the village and comprises a series of paddocks within a field.

## The Site

The southern, western and northern boundary of the site is defined by the rear gardens of the properties that line Dunvant Road and Gowerton Road. It includes a mix of gappy hedgerows, scattered trees and fencing. Adjacent to the southern site boundary is a concrete water tower that is surrounded by some trees and scrub vegetation. The east boundary of the site is defined by a post and wire fence, consistent with the internal paddock boundaries. The most western part of the site contains several small structures associated with a small holding.

## Site Context

The site is situated on part of the top of a small, rounded hill with the highest part in the north of the site at 144m AOD. The site slopes down to the south with the lowest point in the southwest at 139m AOD. Beyond the site, the landform continues to slope down from the small, rounded hill with some small narrow valleys located beyond 0.5km of the site to the northwest, east and southwest, see **Figure 1**.

The wider study area comprises a range of land uses beyond Three Crosses village. To the north and northwest there is a golf course, to the south there is heathland with broadleaved woodland to the north, and farmland bounded by hedgerows and trees.

The character of the site is reflective of Three Crosses village and its context alongside residential rear gardens. The site's integrity contrasts with the adjacent intact rolling farmland due to the site's gappy hedgerows, being subdivided into a series of paddocks by post and wire fencing, containing several structures, and a small part being located in a former garden. The adjacent water tower is a notable feature and a visual detractor in nearby views.

Although the site is situated on top of a small, rounded hill, it is relatively well contained due to its location alongside existing development that restricts distant views out to the west, north and south.

The site is not located within a nationally or locally designated landscape. The nearest statutory designated landscape is the **Gower AONB**, which is located approximately 630m to the southwest of the site boundary at its nearest point. The site is not located in a Special Landscape Area (SLA), but adjacent to the east boundary of the site is **SLA 3: North East Gower and Crockett Valley**. The site context plan at **Figure 2** shows local designations relating to landscape, ecology and heritage.

## Ecology

The Preliminary Ecology Appraisal (PEA) prepared by Amber Environmental confirms that *"The main habitats are a small copse of broadleaved woodland on the north-eastern boundary, scattered trees within the boundaries, semi-improved neutral grassland, tall ruderals (thistles and nettles) and defunct hedges.*

*Bats use the site for foraging and may use some of the larger trees and the copse for roosting.*

*Badgers are known to commute across the site and are within the wider vicinity.*

*It is likely that Hedgehog are using the site and the adjacent gardens for foraging and nesting.*

*There are birds using the trees and hedges on site, mainly small passerines.*

*Grass Snake are present on site and there is suitable reptile habitat onsite as well as adjacent land and gardens."*

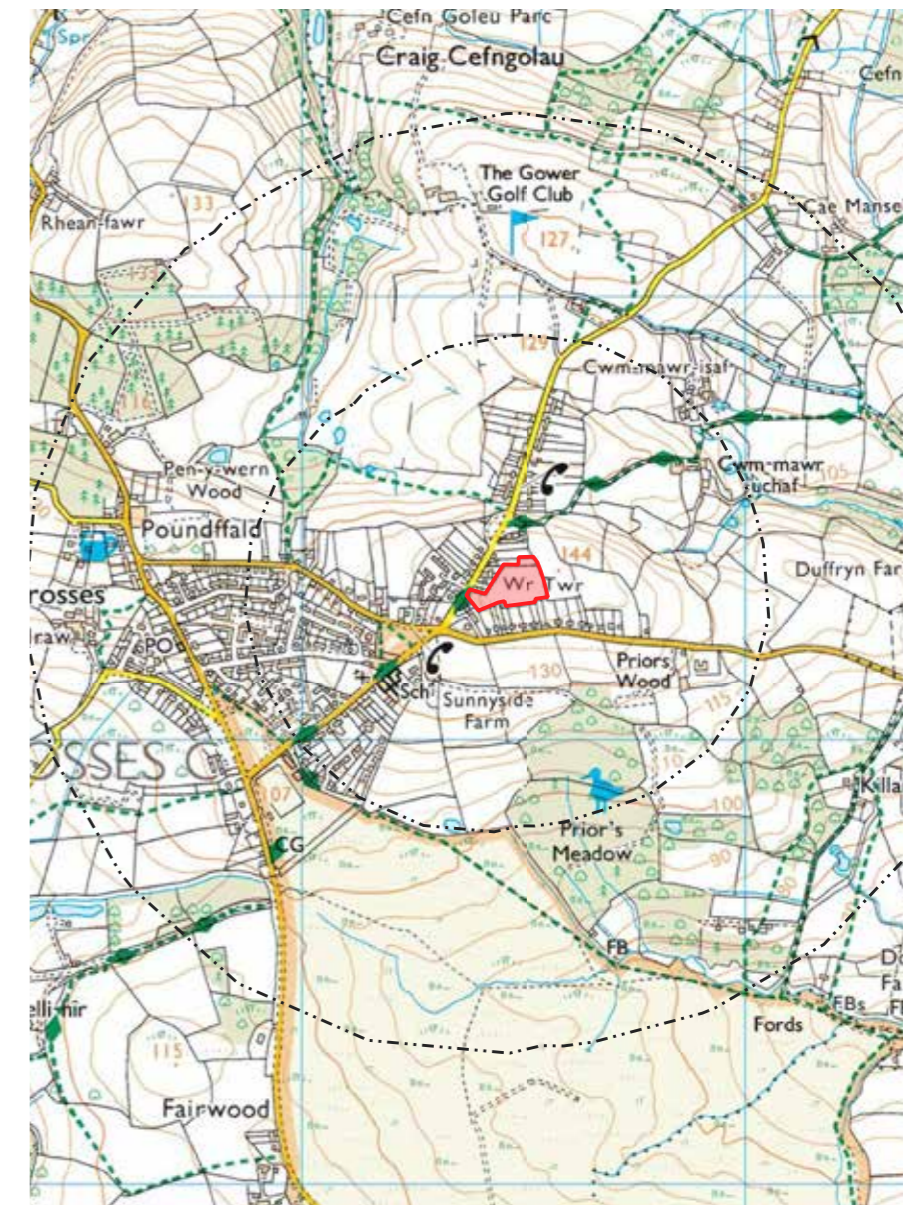
## Arboriculture

The Tree Survey prepared by RTAC confirms that *"site is bordered to the north and south by outgrown hedgerows of predominantly hawthorn (Crataegus monogyna) with some domestic species such as privet (Ligustrum ovalifolium), leylandii (X Cupressocyparis leylandii) and Escallonia.*

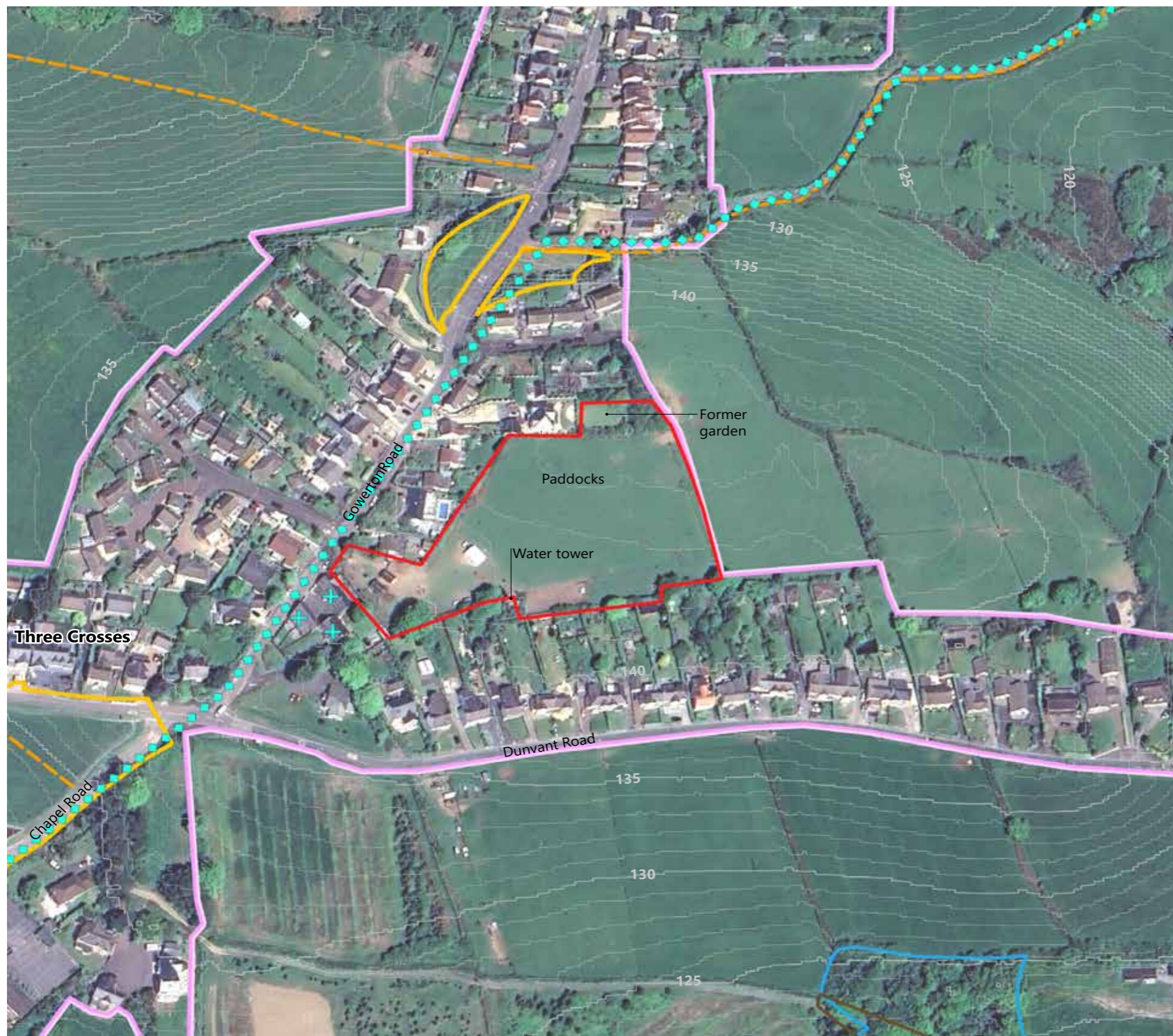
*A small, wooded area to the north-east of the grazing fields has also been included in this survey. This woodland area is predominantly wych elm (Ulmus glabra) with a small amount of common oak (Quercus robur) and an understory of common*

*hawthorn (Crataegus monogyna), common holly (Ilex aquifolium) and coppiced hazel (Corylus avellana).*

*Twenty-three individual trees; three hedgerows and two groups of trees were recorded".*



**Figure 1:** Site Location



**Key**

- Site boundary
- Contours:
- 1m intervals
- 5m intervals
- Special Landscape Area (SLA)
- Ancient Woodland sites:
- Restored Ancient Woodland Site
- Listed Buildings:
- + Grade II
- Site of Importance for Nature Conservation (SINC)
- Public access:**
- Footpath
- ◆◆◆ Gower Way
- CRoW access

**Figure 2:** Site Context

## 02 Policy Context

### Wales Legislation

#### Well-being of Future Generations (Wales) Act 2015

The Act requires public bodies to carry out **sustainable development**. Sustainable development principle is "the process of improving the economic, social, environmental and cultural well-being of Wales." The principle is made up of five ways of working, including **looking to the long-term**; taking an **integrated approach**; involving a **diversity** of the population; **working collaboratively**; and **preventing issues**.

It sets out seven well-being goals including resilience and being globally responsible.

#### Environment (Wales) Act 2016

The Act is intended to work alongside the Well-being of Future Generations Act. It included a new biodiversity duty to **reverse the decline of biodiversity and to secure long-term resilience**.

**Section 6** states "A public authority **must seek to maintain and enhance biodiversity... and in so doing promote the resilience of ecosystems**". In relation to resilience of ecosystems, the following "must be taken into account:

- (a) diversity between and within ecosystems;
- (b) the connections between and within ecosystems;
- (c) the scale of ecosystems;
- (d) the condition of ecosystems (including their structure and functioning);
- (e) the adaptability of ecosystems."



The seven well-being goals from Well-being of Future Generations (Wales) Act, 2015

### National Planning Policy

#### Future Wales: The National Plan

The plan provides a strategy for addressing key national priorities through the planning system, including achieving climate-resilience, developing strong ecosystems and improving the health and well-being of our communities. It also embeds the principles of the Well-being of Future Generations (Wales) Act 2015.

The key policy in relation biodiversity and green infrastructure is **Policy 9 – Resilient Ecological Networks and Green Infrastructure**. It states, "action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals through innovative, nature-based approaches to site planning and the design of the built environment."

#### Planning policy Wales (PPW)

PPW aims to contribute towards the delivery of sustainable development, embedding the principles of the Well-being of Future Generations (Wales) Act 2015. PPW ingrains Placemaking Wales Charter and how sustainable development can be achieved through implementing placemaking.

**Section 6.2** sets out **green infrastructure** should be given early consideration in development proposals and how it should be integrated into developments.

- **Paragraph 6.2.12** states " A **green infrastructure statement should be submitted with all planning applications**. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal... The green infrastructure statement will be an effective way of demonstrating **positive multi-functional outcomes** which are appropriate to the site in question and must be used for demonstrating how the **step-wise approach has been applied**."
- **Paragraph 6.2.14** states "Development proposals should be informed by the priorities identified in green infrastructure assessments and locally based planning guidance. The **Building with Nature standards** represent good practice and are an effective prompt for developers to **improve the quality of their schemes and demonstrate the sustainable management of natural resources**."

**Section 6.4** describes **biodiversity and ecological networks** and provides a summary of the **Step-Wise Approach** and how it should be used to "**maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity** by ensuring that any adverse environmental effects are firstly avoided, then minimised, mitigated, and as a last resort compensated for."<sup>1</sup> **Paragraph 6.4.12** states "providing evidence in the Green Infrastructure Statement that the step-wise approach has been followed, a scheme of enhancements must be provided to ensure a **net benefit for biodiversity**."

<sup>1</sup> Paragraph 6.4.11, Planning Policy Wales Edition 12, February 2024

In relation to **trees, woodland and hedgerows**, paragraph **6.4.37** sets out their importance for biodiversity and "connecting habitats for resilient ecological networks and make an essential wider contribution to landscape character, culture, heritage and sense of place..."

The **planting of new trees, hedgerows, groups of trees and areas of woodland** should be promoted as part of new development. Existing trees/ groups of trees, hedgerows and areas of woodland must be protected "where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial green infrastructure function."<sup>1</sup>

<sup>1</sup> Paragraph 6.4.39 Planning Policy Wales Edition 12, February 2024

In relation to the permanent removal of trees, woodland and hedgerows, it "will only be permitted where it would achieve significant and clearly defined public benefits."<sup>2</sup> The step-wise approach must also be followed. Where loss is unavoidable, PPW sets out the requirements of replacement planting, which "shall be at a ratio equivalent to the quality, environmental and ecological importance of the tree(s) lost and this must be preferably onsite, or immediately adjacent to the site, and at a minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 lost."<sup>3</sup>

Finally, in relation to **SuDS**, paragraph 6.6.18 states "The provision of SuDS must be considered as an **integral part of the design of new development** and considered at the earliest possible stage when formulating proposals for new development." Paragraph 6.6.19 goes on to state "Design for multiple benefits and green infrastructure should be secured wherever possible..."<sup>4</sup>

<sup>2</sup> Paragraph 6.4.42 Planning Policy Wales Edition 12, February 2024

<sup>3</sup> Paragraph 6.4.42 Planning Policy Wales Edition 12, February 2024

<sup>4</sup> Paragraph 6.6.19 Planning Policy Wales Edition 12, February 2024



## Local Planning Policy

### Swansea Local Development Plan 2010-2025

The Swansea Local Development Plan was adopted on the 28th of February 2019. In relation to green infrastructure, **Policy PS.2: Placemaking and Place Management** states that development should 'Integrate effectively with the County's network of multifunctional open spaces and enhance the County's Green Infrastructure network'.

**Policy ER 2: Strategic Green Infrastructure Network** states that 'Green Infrastructure will be provided through the protection and enhancement of existing green spaces that afford valuable ecosystem services.

Development that compromises the integrity of such green spaces, and therefore that of the overall Green Infrastructure network, will not be permitted.

Development will be required to take opportunities to maintain and enhance the extent, quality and connectivity of the County's multi-functional Green Infrastructure network, and where appropriate:

- i). Create new interconnected areas of Green Infrastructure between the proposed site and the existing strategic network;
- ii). Fill gaps in the existing network to improve connectivity; and
- iii). In instances where loss of Green Infrastructure is unavoidable, provide mitigation and compensation for the lost assets'.

At section **2.9 Ecosystem and Resilience**, paragraph 2.9.9, the multi-functionality of green infrastructure is listed, ' Green Infrastructure ecosystem services include:

- Mitigating for and adapting to the impacts of climate change;
- Protecting and enhancing biodiversity;
- Opportunities for contact with nature;
- Providing cycleways, canals, bridleways and PROWs;
- Improving health and well-being;
- Encouraging sports, active and passive recreation;
- Improving townscape, landscape quality and visual amenity;

- Preventing flooding;
- Carbon storage;
- Food production;
- Community cohesion;
- Assisting in economic regeneration;
- Preventing settlement and neighbourhood coalescence;
- Providing opportunities to conserve and enhance historic assets and increasing levels of interpretation;
- Improving air quality.

### Swansea Local Development Plan (LDP) and Supplementary Planning Guidance (SPG): Trees, Hedgerows and Woodland, October 2021

The SPG states that the retention and planting of trees can play a role in demonstrating how development delivers against the Council's duties under the Environment (Wales) Act 2016, to ensure that development maintains and enhances biodiversity and ecosystem resilience. LDP Policy ER 11 is clear that the principle of avoidance of development which affects trees should be applied. A 'stepwise process' should then be followed from the earliest stage of the development process, which is informed by appropriate information in relation to identification and assessment of trees within the site.

The SPG on Trees, Hedgerows and Woodland includes a tree replacement standard (TRS) for calculating the number of proposed trees to replace Category A and B trees being removed due to development proposals. 'The Swansea TRS supports the Council and the Applicant in the process of agreeing a Tree Replacement Scheme, to mitigate or compensate for the loss of individual and/or groups of Category A and/or B trees (as identified in a BS 5837:2012 Survey) as a result of development. This applies to both trees within and adjacent to the site. Figure A.1 of the TRS provides a transparent method to calculate the number of replacement trees to be provided. The method seeks to mitigate the impact of loss of canopy cover, and not simply the number of tree stems lost.'

### Biodiversity Supplementary Planning Guidance

This guidance document sets out how Swansea City Council will "seek to ensure development within Swansea maintains and enhances the Council's biodiversity and delivers long term ecosystem resilience".

The document sets out a 'Stepwise approach' to maintaining and enhancing biodiversity, which "serves to ensure adverse environmental effects of development are first avoided, then minimised, mitigated and, as a last resort, compensated for".

The Stepwise approach is an eight-step process, comprising the following:

- **Step A: Identify and Assess** existing or potential important habitats or species and ecological connectivity corridors
- **Step B: Avoid** loss of any existing or potential important habitats or species, or fragmentation of ecological connectivity
- **Step C: Respond and Design** – Identify and assess existing or potential important habitats or species and ecological connectivity corridors
- **Step D: Mitigate** for any unavoidable hard or loss to important habitats or species or the fragmentation of ecological connectivity
- **Step E: Compensate** – Address the residual effects of a proposal after avoidance and mitigation have been considered and provide appropriate compensation
- **Step F: Enhance** – Explore all opportunities to enhance biodiversity and ecosystem resilience, proportionate to the scale and nature of the proposal
- **Step G: Manage** – Submit and implement long term management plan of agreed and appropriate mitigation, compensation and enhancement measures
- **Step H: Monitor** – Submit and implement a monitoring plan to ensure that the development and associated mitigation, compensation and enhancement measures deliver the attributes or resilience post-construction



## Guidance

### Placemaking Wales Charter

The **Placemaking Wales Charter** has been developed by Welsh Government and the Design Commission for Wales in collaboration with the Placemaking Wales Partnership. The charter outlines six placemaking principles that cover the range of considerations that contribute to establishing and maintaining good places.

### Landscape Institute Green Infrastructure: An integrated Approach, 2013

The document defines **Green Infrastructure (GI)** as *"the network of natural and semi-natural features, green spaces, rivers and lakes... It is a natural, service-providing infrastructure that is often more cost-effective, more resilient and more capable of meeting social, environmental and economic objectives..."*

The Landscape Institute recommends *"local authorities ensure that GI is a core requirement in their policy documents" and "developers be aware of an area's strategic GI goals and appreciate how those goals contribute to mitigating the environmental impacts of new development and creating beautiful places."* The **Placemaking Wales Charter** has been developed by Welsh Government and the Design Commission for Wales in collaboration with the Placemaking Wales Partnership. The charter outlines six placemaking principles that cover the range of considerations that contribute to establishing and maintaining good places.

Well designed, maintained and connected green infrastructure is an essential component of good placemaking. The design of the proposed development should focus on well connected GI with multi-functionality to maximise the benefits to residents and the environment.

### Building with Nature Standards

The **Building with Nature Standards** Framework 2.0 involves twelve Standards, arranged across four groups. There are six Core Standards and three themes, Wellbeing, Water and Wildlife, containing two Standards in each.

The six Core Standards underpin the delivery of high-quality green infrastructure through design, planning and development. The Standards in the Wellbeing, Water and Wildlife themes build on this to target specific aspects:

#### CORE Standards

- Standard 1** Optimises Multi functionality and Connectivity
- Standard 2** Positively Responds to the Climate Emergency
- Standard 3** Maximises Environmental Net Gains
- Standard 4** Champions a Context Driven Approach
- Standard 5** Creates Distinctive Places
- Standard 6** Secures Effective Place-keeping

#### WELLBEING Standards

- Standard 7** Brings Nature Closer to People
- Standard 8** Supports Equitable and Inclusive Places

#### WATER Standards

- Standard 9** Delivers Climate Resilient Water Management
- Standard 10** Brings Water Closer to People

#### WILDLIFE Standards

- Standard 11** Delivers Wildlife Enhancement
- Standard 12** Underpins Nature's Recovery



## 03 Existing Green Infrastructure

Desktop studies and field surveys have been carried out to confirm the green infrastructure features at the site and its surrounding context. The elements that are considered to form the existing Green Infrastructure of the site and surrounding context are:

- Trees and vegetation
- Habitat of ecological value
- Public Rights of Way
- Public Open Space
- Residential gardens

The GBI elements are described in the following sections, identifying and assessing (Swansea SPG Stepwise Steps A and B) existing or potentially important habitats or species and ecological connectivity corridors. This has been informed by the desktop studies, field surveys and specialist surveys / reports. It summarises the first two stages of the Stepwise approach in the **Biodiversity SPG**, which are **Step 1: Avoid** and **Step 2: Minimise**.



**Figure 3:** Oblique View from Google Earth

## Trees and vegetation

An Arboricultural Report was undertaken by RTAC in September 2023. The surveys followed the methodology as set out in the British Standard 5837:2012.

The overall findings of the report notes that the site is bordered to the north and south by outgrown hedgerows of predominantly hawthorn (*Crataegus monogyna*) with some domestic species such as privet (*Ligustrum ovalifolium*), leylandii (*X Cupressocyparis leylandii*) and *Escallonia*. A small, wooded area to the north-east of the grazing fields has also been included in this survey. This woodland area is predominantly wych elm (*Ulmus glabra*) with a small amount of common oak (*Quercus robur*) and an understory of common hawthorn (*Crataegus monogyna*), common holly (*Ilex aquifolium*) and coppiced hazel (*Corylus avellana*).

Twenty-three individual trees, three hedgerows and two groups of trees were recorded with species as listed in the table below:

Common Name	Botanical Name	Number of Trees
Groups	Holly/ hawthorn/ leylandii	2
Hedgerows	Mixed	3
Wych elm	<i>Ulmus glabra</i>	9
Sycamore	<i>Acer pseudoplatanus</i>	8
Common hawthorn	<i>Crataegus monogyna</i>	2
Silver birch	<i>Betula pendula</i>	1
Leyland Cypress	<i>X Cupressocyparis leylandii</i>	1
leylandii	<i>Aesculus hippocastanum</i>	1
Common oak	<i>Quercus robur</i>	1

The survey identified 6 trees identified as **Category A**, which are **T1** (Wych elm), **T4** (Sycamore), **T6** (Silver birch), **T7** (Sycamore), **T10** (Sycamore) and **T582** (Common oak). There are 3 trees identified as **Category B**, which are **T2** (Sycamore), **T3** (Sycamore) and **T5** (Horse Chestnut). The remaining groups were identified as **Category C** with no trees identified as **Category U**.

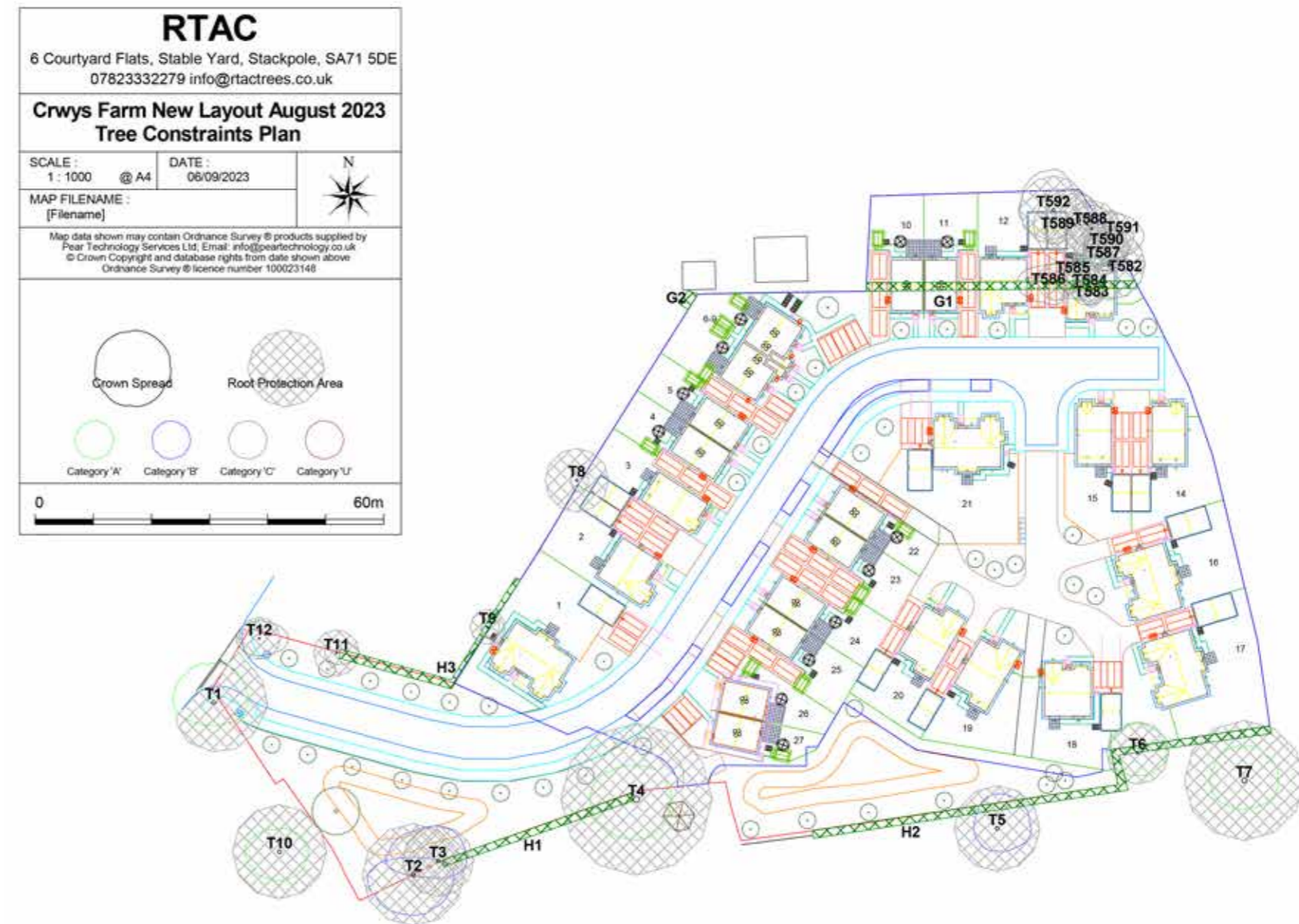


Figure 4: Tree Constraints Plan (by RTAC)

### Habitat of ecological value

A Preliminary Ecological Survey Appraisal (PEA) was undertaken in August 2023 by Amber Environmental Consultancy. The PEA provides identification of any designations within the site and its context. The PEA also seeks to identify any protected habitats and species within the site. This is a reflection of Stepwise Approach **Step 1: Avoid** and **Step 2: Minimise**.

The main habitats are a small copse of broadleaved woodland on the north-eastern boundary, scattered trees within the boundaries, semi-improved neutral grassland, tall ruderals (thistles and nettles) and defunct hedges. The survey identified that:

- Bats use the site for foraging and may use some of the larger trees and the copse for roosting.
- Badgers are known to commute across the site and are within the wider vicinity.
- It is likely that Hedgehog are using the site and the adjacent gardens for foraging and nesting.
- There are birds using the trees and hedges on site, mainly small passerines.
- Grass Snake are present on site and there is suitable reptile habitat on-site as well as adjacent land and gardens.

**Recommendations for mitigation** include:

- Hedges and scattered trees should be retained throughout the site. Translocation of hedge to be lost if viable under ecological supervision.
- Further surveys in relation to bats of the trees within the copse and any trees that will need any works such as trimming.
- Any external lighting on any proposed scheme must consider the use of the area by bats and must be at a suitable level and lumens to avoid disturbance to their behaviour, particularly along the boundaries of the site.
- Pre-works commencement check for badger by experienced ecologist.
- If used fencing within any proposed scheme is raised from the ground, creating hedgehog highways.

- Any vegetation clearance works should take place outside of the bird nesting season.
- Fingertip search followed by a two-stage cut to prevent injury to reptiles on site.
- Site strip under ecological supervision.
- No night working or external lighting during the construction.
- No materials such as tarpaulins etc. that could be used as refugia are to be left on site during construction.
- All open excavations should be covered or fitted with a means of escape when not in use.
- Construction Environmental Management Plan (CEMP) should be implemented.

**Enhancements for Biodiversity Net Benefit** include:

- New planting of equivalent numbers of native fruit and berry bearing trees of local provenance to replace the small broadleaved woodland copse if lost.
- New hedge to replace the lost northern boundary hedge if not translocated.
- Planting up of gaps within existing hedgerows with a diverse mix of native species.
- Planting of curtilage or other hedges with native fruit trees and bushes providing shelter, food and breeding opportunities for a wide range of wildlife and connectivity to existing features.
- Bat boxes/bricks integrated into the scheme design to enhance roosting provision within the area.
- A dark flight corridor along the boundaries, particularly the southern boundary.
- A corridor along the boundaries for badger to use to access other foraging grounds.
- Swallow cups, Swift bricks, House Sparrow terraces and other bird boxes incorporated into the build or placed on the buildings with berry bearing trees planted for winter food.
- Reptile banks and brash piles for refugia around the boundaries.
- Pollinator and other invertebrate friendly planting and features such as bug hotels. Desk study - habitats.

### Public Open Space

Public open space makes an important contribution to green infrastructure in Three Crosses. The central green / common is located just over 100 metres to the southwest of the site adjacent to Crwys Primary School. This is the only area of formal open space within the village.

Within the central green / common, there is an open grass area with houses along Joiners Road and Chapel Road fronting onto the space. An equipped play area is located near the south boundary of the space.



**Figure 5:** View across the green towards the site

### Public Rights of Way

There are no public footpaths within the site; refer to **Figure 6**. The Gower Way skirts the most western part of the site boundary, following Chapel Road and Gowerton Road through Three Crosses. Just to the north of the site, the route heads in an easterly direction, across farmland to connect with Gowerton and Waunarwydd to the northeast, beyond the study area.

Approximately 115m to the north of the site, a footpath heads in a west direction from Gowerton Road before looping south at Pen-y-Wern Wood and connecting to Joiner Road in the north of Three Crosses. Another footpath heads north from Pen-y-Wern Wood to connect with a local road beyond the study area.

Approximately 170m to the southwest of the site, a footpath transects a small area of access land in the northeast of Three Crosses.

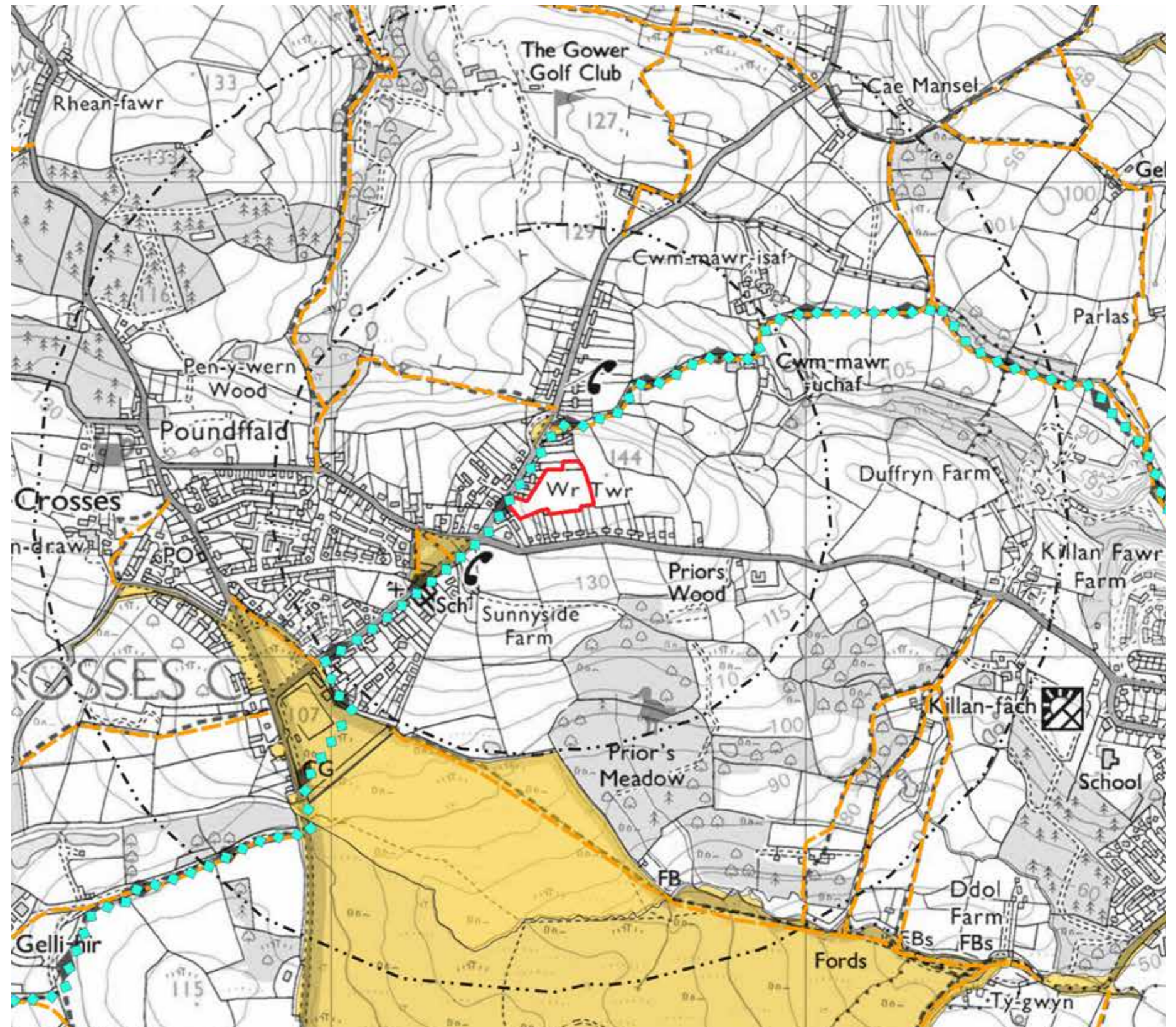
Beyond 0.5km of the site, The Gower Way enters the northern edge of Fairwood Common. A footpath crosses the Gower Way at the edge of the Common and then follows the northern boundary of the Common in a south-easterly direction.

A small area of Open Access Land at Ffrwd Wood extends into the northwestern fringes of the study area, approximately 825m from the site boundary at its nearest point.

### Residential gardens

The southern, western and northern boundary of the site is defined by the rear gardens of the properties that line Dunvant Road and Gowerton Road. It includes a mix of gappy hedgerows, scattered trees and fencing.

The rear gardens surrounding the site contribute to the green infrastructure of the neighbourhood, provide some amenity grass, hedges, shrubs and trees, including occasional mature trees to the road frontages.



**Figure 6:** OS map showing public footpaths

# 04 Landscape Strategy

## Theme

## Aim

The Landscape Concept for the proposed development is illustrated at **Figure 7**. It is guided by the following **five concept themes** which are illustrated over the following pages. These are:

- Connected Landscape
- Biodiverse Landscape
- Sustainable Landscape
- Hands on Landscape
- Active Landscape

The landscape concept themes have defined the approach to the green infrastructure and open space strategy, which follows the **six placemaking principles** from the Wales Placemaking Charter through a landscape strategy which responds to the character of the site.

The planting strategy for Crwys Farm includes a variety of flowering and fruiting species which will provide contrast and year-round interest. Planting will include a combination of grasses, herbaceous plants and shrubs, located to define front gardens. Species-rich grass/ wildflowers will edge the green spaces for interest and to increase biodiversity. Tree planting will filter views between houses and also provide some shelter.

The Local Area of Play (LAP) provide informal, nature-based play within the site. A fully equipped play area on the central green of Three Crosses is within easy reach for older children. Landform, boulders, logs and beams are proposed within the LAP to encourage imaginative play within the landscape for all age groups.

The incorporation of SuDS features throughout will increase the amenity and biodiversity value of the green spaces within the site. Swales and rain gardens will be planted with diverse planting.



- Development to be connected to existing neighbourhoods, providing opportunities for social interaction and civic participation
- Strengthening routes to open space, play opportunities and other community assets
- Connect networks of green and blue infrastructure

- Working with nature
- Landscape to create green streets and spaces that protect and enrich habitats and biodiversity
- Wildlife friendly neighbourhoods
- Streets should be people places, highly vegetated and attractive

- Resilient to a changing climate
- Landscape strategy to be delivered using low-carbon materials and build methods
- SuDS to be an integral part of the design
- Promote walking and cycling

- Opportunities for food growing or foraging should be explored with fruit trees planted on site.
- Residents should feel valued and proud of neighbourhoods.
- Support people's health and wellbeing by bringing them into contact with the natural environment.

- Child friendly neighbourhoods
- Provide opportunities for formal and incidental play
- Support people's health and wellbeing by bringing them into contact with the natural environment

# Multi-functionality

- Connect networks of green and blue infrastructure provide a which encourages walking (**Active Landscape**), SuDS (**Sustainable Landscape**), and improve biodiversity (**Biodiverse Landscape**)
- Improved connectivity offers opportunities for social interaction (**Hands on Landscape**)



- A nature focused landscape strategy will be easier to maintain and require less resources to do so (**Sustainable Landscape**).
- More biodiversity will improve the connection between residents and nature (**Active Landscape**), (**Hands on Landscape**)



- A nature focused landscape strategy will be easier to maintain and require less resources to do so (**Biodiverse Landscape**).
- Increasing green infrastructure will create more opportunities for nature (**Biodiverse Landscape**) and edible landscape (**Hands on Landscape**)



- Opportunities for foraging and growing food encourage movement and exercise (**Active Landscape**) while reducing food miles (**Sustainable Landscape**).
- Local involvement in conservation and landscape maintenance can provide a local focus on biodiversity (**Biodiverse Landscape**)



- Connect networks of green and blue infrastructure to provide a better setting for walking routes (**Active Landscape**), SuDS (**Sustainable Landscape**), and improve biodiversity (**Biodiverse Landscape**)
- Increasing interaction with the landscape through play/exercise/growing food/ relaxation will foster community responsibility for the landscape (**Hands on Landscape**)



# 04 Landscape Strategy




## Tree Planting

The planting strategy includes native and ornamental species throughout. Specifically native mix are proposed for sections of hedgerows where there is sufficient space available. The native species chosen provide fruiting and flowering and also offer interest due to foliage colour.












Where plant material is used of native species, there is a preference for local provenance plants, which in this case would be seed source zone 303 or 304, as defined Forest Practice Note No. 8, titled Using Local Seed Sources for Planting Native Trees and Shrubs, Forestry Commission (1999).

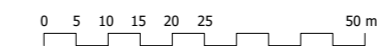
### Key

 Planning Application boundary

### Soft Landscape

Landscape planting will provide an overall positive impact on the biodiversity value of a site and the local area. Pollinator- friendly plants will be included in the landscape planting for insects.

-  Existing trees to be retained with Root Protection Area (RPA) shown as an orange dashed line
-  Existing vegetation to be removed
-  Proposed shrub planting including selected native species where possible
-  Proposed tree planting with diverse species with colourful foliage, seasonal interest, flowering and/or fruiting species
-  Proposed species rich grass with reduced mowing frequency away from pedestrian routes
-  Proposed wildflower/annual grassland areas to encourage pollinators, provide biodiversity and amenity
-  Proposed detention basin with species rich damp grassland
-  Swales with shrub, perennial and grass species
-  Proposed native species hedgerow along site boundary
-  Proposed ornamental hedgerows
-  Proposed nature based play space



Scale @ A1 - 1:400

TC24212\_L1-L4 v3.dwg



22 March 2023



## Tree Planting

Bird Cherry - *Prunus padus*



Field Maple - *Acer campestre* Elsrijk



Apple - *Malus domestica* 'Laxton's Superb'



Downy Birch - *Betula pubescens*

## Planting mix



*Cornus stolonifera flaviramea*



*Rosa rugosa* 'Fru Dagmar Hastrup'



*Choisya ternata*



*Verbena bonariensis*



*Viburnum opulus*



*Phlomis russeliana*

The planting strategy for Crwys Farm includes a variety of flowering and fruiting species which will provide contrast and year-round interest. Planting will include a combination of grasses, herbaceous plants and shrubs, located to define front gardens and along the edge of the active travel route.

Shrubs for structure within the site will include *Cornus stolonifera* 'Flaviramea', *Choisya ternata* and *Viburnum opulus*. Focal plants will include *Verbena bonariensis* with its bold colour and the form of *Phlomis russeliana*. There will be variations in the planting in each part of the site with a different combination of structure, texture and colour to provide visual interest.

Native species will also be included to increase biodiversity value where there is sufficient space, such as *Viburnum opulus* and *Corylus avellana*.

## Native Scrub and Hedge Mix



*Acer campestre*



*Crataegus monogyna*



*Corylus avellana*



*Lonicera periclymenum*



*Ilex aquifolium*



*Viburnum opulus*

The planting strategy includes native and ornamental species throughout. Specifically native mixes are proposed for sections of proposed hedgerows where there is sufficient space available. Native species are used within planting areas also; chosen to provide fruiting and flowering interest while also enhancing biodiversity.

Where plant material is used of native species, there is a preference for local provenance plants, which in this case would be seed source zone 303 or 304, as defined Forest Practice Note No. 8, titled Using Local Seed Sources for Planting Native Trees and Shrubs, Forestry Commission (1999).

## SuDS Planting

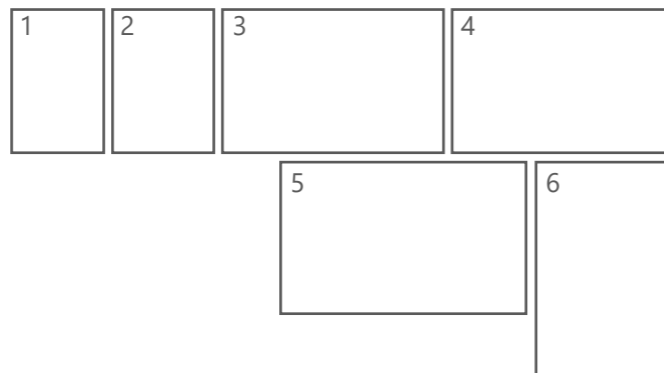
Within the rain gardens the plants will include species which can withstand short term inundation and long periods of drought, whilst also providing seasonal interest. Robust plants with bright colours will line the SuDS adjacent to the road. In contrast, a delicate mix of plants will be provided within green spaces, combining with a damp wildflower seed mix for the larger areas (EM8: Meadow Mixture for Wetlands (by Emorsgate)).

# 04 Landscape Strategy

## SuDS Planting



1. SuDS features associated with doorstep landscape based play.
2. Mixed perennial and ornamental grasses within rain gardens at key locations.
3. Species-rich grassland within detention basins and swales.
4. Mixed perennial and shrub planting to create focal elements.
5. Species-rich grassland within raingardens along streets with tree root barrier to maintain separation from the filter medium.
6. Mixed perennial and shrub planting to create focal elements within residential streets.



## Landscape based play



The LAP within the site is designed to create an informal play opportunity using landscape-based play. Landform, boulders, logs and beams will encourage imaginative play within the landscape for all age groups. This provision will be complemented by the Local Equipped Area of Play (LEAP) in central green of Three Crosses.



The design of the play space and associated planting incorporates landscape elements to encourage contact with nature. Species-rich grass/ wildflowers will edge the space for interest and to increase biodiversity.



Proposed tree planting will filter views over the adjacent houses and also include fruit trees. Seating will be provided in the space for supervision of younger children.



**Figure 9:** LAP - Landscape based play

## 05 Green Infrastructure Statement

The landscape strategy for the site identified the importance of retaining boundary vegetation. This vegetation is being supplemented by native and selected non-invasive ornamental planting to increase the biodiversity of the site and improve habitat connectivity.

A stepwise approach was utilised in the preparation of the masterplan and the landscape strategy. The first stage was to **Identify and Assess the value of** existing GI. The retention of existing GI was a priority wherever possible, in accordance with **Step 1: Avoid** and **Step 2: Minimise**. To address the loss of trees at the site, the green infrastructure proposals follow the Stepwise Approach set out in PPW12, namely **Step 3: Mitigate / Restore, Step 4 : Compensate** and by considering Enhancement at each stage in accordance with the **DECCA Framework**.

### Trees

The tree survey report concluded that the "majority of trees at this site are on or outside the site boundaries and will not be affected by this development".

There would be two A category trees and 11 C category trees that would need to be removed to facilitate the construction of this development. T1 and T12 will need to be removed to provide an adequate site access and the remaining trees comprise the small, wooded area in the north-east.

The Tree Survey highlights that the "Swansea City Council's Supplementary Planning Guidance for Trees, Hedgerows and Woodlands requires six replacement trees for any A or B category trees with a stem diameter measuring between 60.0cm and 69.9cm and five replacement trees for any A or B category trees with a stem diameter measuring between 50cm and 59.9cm".

The proposed open space within this development allows sufficient space to plant more than eleven trees in mitigation for the loss of T1 and T582, based on the requirement of the SPG.

Part of the RPA of T4 will be impacted by the construction of the access road, footpath and driveway for Plot 26. The Tree Survey proposes that this impact is eliminated by the use of a non-compressible geogrid such as 'Cellweb'. Approximately

7% of the RPA of T8 will be impacted by the proposed garages at Plots 2 and 3. This tree which is off site appears to be the remains of a leylandii hedgerow and is in poor condition. This tree has been topped at 4m and the removal of a small amount of the RPA will not de-stabilise the tree or have a detrimental effect on the condition of this tree.

The tree planting strategy for the site is shown on the **Landscape Strategy Plan (L1)** prepared by Tir Collective. The proposals are for 39no trees comprising a mix of seven different species. Native species are proposed along with fruit producing species. The proposals offer betterment based on the PPW 12 ration of 3 new trees for each 1 lost.

The proposals have focused on retaining existing trees wherever possible, particularly attempting to avoid the removal of higher quality, A and B Category trees. Where removal of 2no of category A trees is unavoidable, the replacement planting would successfully mitigate their loss based on the ratio in Swansea SPG: Trees, Hedgerows and Woodland, October 2021.

### Habitat of ecological value

A Preliminary Ecological Survey Appraisal (PEA) was undertaken in August 2023 by Amber Environmental Consultancy. The PEA provides recommendations for mitigation and enhancement, each of which are addressed below in *Green* text:

#### Recommendations for mitigation include:

- Hedges and scattered trees should be retained throughout the site. Translocation of hedge to be lost if viable under ecological supervision. *Existing hedgerows have been retained and supplemented with a substantial length of new hedgerow planting.*
- Further surveys in relation to bats of the trees within the copse and any trees that will need any works such as trimming. *As required.*
- Any external lighting on any proposed scheme must consider the use of the area by bats and must be at a suitable level and lumens to avoid disturbance to their behaviour, particularly along the boundaries of the site. *As required.*

- Pre-works commencement check for badger by experienced ecologist. *As required.*
- If used fencing within any proposed scheme is raised from the ground, creating hedgehog highways. *As per the illustration on page 15.*
- Any vegetation clearance works should take place outside of the bird nesting season. *As required.*
- Fingertip search followed by a two-stage cut to prevent injury to reptiles on site. *As required.*
- Site strip under ecological supervision. *As required.*
- No night working or external lighting during the construction. *As required.*
- No materials such as tarpaulins etc that could be used as refugia are to be left on site during construction. *As required.*
- All open excavations should be covered or fitted with a means of escape when not in use. *As required.*
- Construction Environmental Management Plan (CEMP) should be implemented. *As required.*

#### Enhancements for Biodiversity Net Benefit include:

- New planting of equivalent numbers of native fruit and berry bearing trees of local provenance to replace the small broadleaved woodland copse if lost. *Addressed by the tree and scrub planting strategy.*
- New hedge to replace the lost northern boundary hedge if not translocated. Planting up of gaps within existing hedgerows with a diverse mix of native species. *Addressed by the hedge planting strategy shown on the Landscape Strategy Plan (L1) prepared by Tir Collective.*
- Planting of curtilage or other hedges with native fruit trees and bushes providing shelter, food and breeding opportunities for a wide range of wildlife and connectivity to existing features. *Addressed by the planting strategy shown on the Landscape Strategy Plans (L1 and L2) prepared by Tir Collective.*

- Bat boxes/bricks integrated into the scheme design to enhance roosting provision within the area. *As required.*
- A dark flight corridor along the boundaries, particularly the southern boundary. *As required.*
- A corridor along the boundaries for badger to use to access other foraging grounds. *As required.*
- Swallow cups, Swift bricks, House Sparrow terraces and other bird boxes incorporated into the build or placed on the buildings with berry bearing trees planted for winter food. *As required.*
- Reptile banks and brash piles for refugia around the boundaries. *As required in the space along the southern boundary.*
- Pollinator and other invertebrate friendly planting and features such as bug hotels. *As required in the space along the southern boundary.*

### Public Open Space

The Green Infrastructure proposals at the site include the proposed green spaces, retention of existing vegetation along the southern and western boundary, tree planting, shrubs (ornamental and native species), species-rich grass/wildflower proposals. In addition, play will be incorporated (LAP).

Green space within the site will complement the open space provision of Three Crosses and enhance the amenity value of the site for residents and visitors.

### Public Rights of Way

Existing public rights of way including the Gower Way will not be affected by the proposed development. Within the site, footways along the highway will provide safe and direct access to the existing network of footways via Gowerton Road. The Gower Way follows Gowerton Road adjacent to the site access. It provides access to a network of other PROWs and the wider landscape of Gower.

### Residential gardens

The property gardens in the surrounding neighbourhood would not be affected by the development. Where rear gardens back on to the site (at the south and west boundary), tree planting will help provide separation between existing residents and the future residents of the site. The addition of property gardens including tree, shrub and herbaceous planting within the site would add to the green infrastructure potential and biodiversity value of residential gardens in the village.

### Resilience of Ecosystems

The **Environment (Wales) Act 2016** provides a duty upon public bodies such as Cardiff Council to promote the resilience of ecosystems, which is reflected in planning policy.

The proposed green infrastructure strategy would comprise areas of habitat retention (existing trees) and areas of habitat creation (wildflower lawns, tree planting, native scrub planting and rain gardens).

The planting strategy includes a combination of native and ornamental plant species to enhance biodiversity and botanical diversity. The species selected would be adaptable to wet and dry conditions, including lengthy dry spells with the rain gardens.

The range of both tree and plant species proposed would enhance the biodiversity, increase species diversity, the age diversity of vegetation and improve the resilience of habitats to climate change.

The proposed green infrastructure strategy has considered the existing green infrastructure features within and beyond the site boundary, as recommended by a stepwise approach.

The proposed green infrastructure would increase the biodiversity, species diversity, and habitat structure within the site whilst contributing to the multi-functionality of the green infrastructure elements.

## Multi-functionality of Green Infrastructure

This section identifies the multi-functionality of each proposed green infrastructure element: trees, native scrub planting, SuDS, wildflower lawns, and shrub planting. These elements reflect the over arching principle of **Stepwise Step 3: Mitigate / Restore, Step 4 : Compensate** and by considering **Enhancement** at each stage in accordance with the DECCA Framework, applying the principles of good placemaking and green infrastructure.

The multi-functionality of green infrastructure is described as “GI functions are the roles that assets can play if planned, designed and managed in a way that is sensitive to, and includes provision for, natural features and ecosystem services. They may have obvious primary functions, but each asset can perform different functions simultaneously”.

The Landscape Strategy aims and the GI functions and benefits of the proposals are reviewed against the list below:

- Contribution to Placemaking
- Flood Mitigation
- Cooling and Shade
- Food
- Exercise
- Health and Wellbeing
- Calming and Inspiring
- Nutrient Cycling
- Wildlife Habitat
- Wind break
- Cleaning Water and Air

**Figure 10** lists the key retained and proposed landscape assets, its green infrastructure element, and the functions of each landscape asset while signposting against the Building with Nature Standards.

Landscape asset	Green infrastructure element	Functions	Building with Nature Standards
Existing and proposed trees	Trees / vegetation	<ul style="list-style-type: none"> <li>• <b>Wildlife Habitat</b></li> <li>• Contribution to Placemaking</li> <li>• Cooling and Shade</li> <li>• Calming and Inspiring</li> <li>• Health and Wellbeing</li> <li>• Nutrient Cycling</li> <li>• Wind break</li> <li>• Cleaning Water and Air</li> </ul>	<ul style="list-style-type: none"> <li>• 2 - Positively Responds to the Climate Emergency</li> <li>• 4 - Champions a Context Driven Approach</li> <li>• 5 - Creates Distinctive Places</li> <li>• 6 - Secures Effective Place-keeping</li> <li>• 7 - Brings Nature Closer to People</li> </ul>
Scrub planting	Scrub	<ul style="list-style-type: none"> <li>• <b>Wildlife Habitat</b></li> <li>• Contribution to Placemaking</li> <li>• Cooling and Shade</li> <li>• Food</li> <li>• Calming and Inspiring</li> <li>• Health and Wellbeing</li> <li>• Nutrient Cycling</li> <li>• Wind break</li> <li>• Cleaning Water and Air</li> </ul>	<ul style="list-style-type: none"> <li>• 1 - Optimises Multi functionality and Connectivity</li> <li>• 2 - Positively Responds to the Climate Emergency</li> <li>• 3 - Maximises Environmental Net Gains</li> <li>• 5 - Creates Distinctive Places</li> <li>• 7 - Brings Nature Closer to People</li> <li>• 11 - Delivers Wildlife Enhancement</li> <li>• 12 - Underpins Nature’s Recovery</li> </ul>
Shrub planting within development	Trees / vegetation	<ul style="list-style-type: none"> <li>• <b>Contribution to Placemaking</b></li> <li>• Food</li> <li>• Calming and Inspiring</li> </ul>	<ul style="list-style-type: none"> <li>• 1 - Optimises Multi functionality and Connectivity</li> <li>• 2 - Positively Responds to the Climate Emergency</li> <li>• 3 - Maximises Environmental Net Gains</li> <li>• 7 - Brings Nature Closer to People</li> </ul>
Proposed SuDS features	Sustainable Drainage	<ul style="list-style-type: none"> <li>• <b>Cleaning Water and Air</b></li> <li>• Flood Mitigation</li> <li>• Contribution to Placemaking</li> <li>• Calming and Inspiring</li> <li>• Nutrient Cycling</li> </ul>	<ul style="list-style-type: none"> <li>• 1 - Optimises Multi functionality and Connectivity</li> <li>• 2 - Positively Responds to the Climate Emergency</li> <li>• 5 - Creates Distinctive Places</li> <li>• 7 - Brings Nature Closer to People</li> <li>• 9 - Delivers Climate Resilient Water Management</li> <li>• 10 - Brings Water Closer to People</li> </ul>
Proposed species rich grasslands	Grassland	<ul style="list-style-type: none"> <li>• <b>Wildlife Habitat</b></li> <li>• Calming and Inspiring</li> <li>• Exercise</li> <li>• Health and Wellbeing</li> <li>• Nutrient Cycling</li> <li>• Wildlife Habitat</li> <li>• Contribution to Placemaking</li> </ul>	<ul style="list-style-type: none"> <li>• 1 - Optimises Multi functionality and Connectivity</li> <li>• 2 - Positively Responds to the Climate Emergency</li> <li>• 3 - Maximises Environmental Net Gains</li> <li>• 5 - Creates Distinctive Places</li> <li>• 6 - Secures Effective Place-keeping</li> <li>• 7 - Brings Nature Closer to People</li> <li>• 11 - Delivers Wildlife Enhancement</li> <li>• 12 - Underpins Nature’s Recovery</li> </ul>

**Figure 10:** Green Infrastructure Functionality

## 06 Conclusions

The Environment (Wales) Act 2016 provides a duty upon public bodies such as Swansea Council to promote the **resilience of ecosystems**. The proposed green infrastructure strategy comprises a range of species, both native and non-native species to enhance biodiversity and botanical diversity.

The species selected are adaptable to wet and dry conditions, including lengthy dry spells. The range of both tree and plant species proposed would enhance the biodiversity, increase species diversity, the age diversity of vegetation and improve habitat resilience to climate change.

The proposed green infrastructure strategy has considered the existing green infrastructure features within and beyond the site boundary, as recommended by the Stepwise approach. The proposed features would increase the biodiversity, species diversity, and habitat structure on the site whilst contributing to the multi-functionality of the green infrastructure elements.

The proposals aim to create a hierarchy of spaces focused around existing and proposed green infrastructure. Naturalistic green spaces provide a setting for the development with space for play and walking within green spaces which encourage social interaction.

SuDS features are integrated into the landscape strategy, introducing flowering pollinator species to provide a source of nectar for bees and other insects.

The landscape proposals make a good contribution towards the strategy aims defined against the landscape concept themes for the project defined on Page 14. The strategy aims are:

- Retain existing trees wherever possible, particularly the removal of higher quality, A and B Category trees. Where removal of these trees is unavoidable then replacement planting would mitigate their loss based on the ratios in PPW12 and the Swansea SPG: Trees, Hedgerows and Woodland, October 2021.
- Supplement existing planting with new native planting of Welsh provenance.
- Establish strong connectivity across the site for people and nature.
- Focus on habitat enhancements which improve species and age diversity to improve longevity and resilience to climate change.
- Planting and grasslands to be designed to work with nature, based on lower future maintenance requirements.
- Integrate SuDS features as part of landscape proposals to improve amenity value.
- Establish a setting for informal play and landscape-based exercise which is attractive and provides interaction with nature.
- Create a landscape that changes with the seasons to increase amenity and reinforce a connection with nature.

With regards to the **Placemaking Wales Charter** the landscape proposals make a good contribution towards the six placemaking principles, which cover the range of considerations that contribute to establishing and maintaining good places.

The proposals also contribute well to the **12 Standards of Building with Nature**, creating well connected, multi-functional green infrastructure.

Overall, it is considered that the proposed development would be in accordance with the Swansea Council Local Plan Policies relating to Green Infrastructure.



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