ISLAND FARM DEVELOPMENT

DRAINAGE STRATEGY

29th April 2020.

Consulting Civil Engineer: WL Squared

Client: HD Ltd Masterplanner: Roberts Limbrick Architects Services Infrastructure Consultant: Troup Bywaters+Anders Planning Consultant: Savills

INTRODUCTION.

Island Farm is a circa 50 hectare site located within the south west outskirts of Bridgend between the A48 which forms its northern boundary and New Inn Road which forms its southern boundary.

The site currently comprises of an area of land owned by BCBC which is designated as an area of **Site of Importance for Nature Conservation** (**SINC**) and an area of the old Island Farm Prisoner of war camp that contains Hut 9 together with an area of land owned by HD Ltd that is made of up agricultural land and a sector of land that has been re-planted/re-developed by HD Ltd to provide an ecological area.

HD Ltd previously proposed to redevelop much of their site to provide mixed use development comprising of sports, leisure, commercial and office facilities. Planning consent for the overall development was granted in March 2012 and detailed planning permission was granted for a Tennis Centre in August 2014, conditions were discharged and meaningful works were undertaken on both the site wide scheme and the Tennis Centre and hence both planning permissions were implemented.

HD Ltd after liaising with BCBC have reviewed their previous proposals and have engaged Robert Limbrick Architects to develop a new masterplan to accommodate the following site development:

A new SEN School serving Bridgend to cater for approximately 300 pupils with a base area of approximately 15000m² on a site of some 7.26 acres.

A new “One Form Entry” Primary School of circa 12,700m² on a site of approximately 3.13 acres with parent drop-off, school transport and SEN provision on a site of circa 4 acres.

A residential development of circa 1805 Ha providing between circa 640 and 990 dwellings with associated green space,

And,

a Tennis Centre, on a site of 2.69 Ha.

This site is being promoted as a site suitable for allocation in BCBC's emerging new LDP for the above mixed use developmnet. The LDP site also includes land at Craig y Parcau, which is subject to a separate Drainage Strategy document.

A stormwater drainage strategy was developed for the original development comprising of the mixed use leisure development by Opus International Consultants.

WL Squared have been engaged to review the information available from that work and develop a stormwater drainage strategy to accommodate the new proposed land use/masterplan.

This document describes in outline terms:

- site constraints that affect the strategic approach taken when developing detailed designs to accommodate the discharge of storm and foul water from the proposed development,
- the work undertaken and conclusions reached in respect of the previously developed storm and foul water discharge for the previously consented masterplan,
- the hierarchical and design considerations given to the development of a stormwater strategy for the revised development/masterplan as per guidance on SuDS
- ,

and,

- the storm and foul water drainage strategy developed for the new proposals as a result of those considerations.

SITE AND EXISTING CONDITIONS.

The Island Farm site is of approximately 51 hectares and is shown opposite.

The existing site comprises of approximately 13.0 Ha of tree and scrubland owned by BCBC much of which is designated as a Site of Importance for Nature Conservation , 2.5 Ha which is green ecological space previously developed by HD Ltd and 35.5 Ha of arable agricultural land owned by HD Ltd.

Intrusive site investigations undertaken on the site comprised of a mix of boreholes, trial pits and filtration testing. The results of these tests show the site to be underlain with relatively impervious glacial tills/clay soils containing some proportion of sands and gravels between circa 3 and 6.5 metres deep overlying Lower Lias beds overlying Carboniferous Limestone.

The Lower Lias geological unit identified beneath the site is susceptible to natural cavity formation. To the north of the Island Farm site, at least thirteen subsidences were recorded in the vicinity of Nolton Street, Bridgend between 1920 and 1950 within Lower Lias deposits which were, predominantly, overlain by Glacial Sand and Gravel. It is thought that natural cavities within the limestone were previously at surface level and that these features were in-filled with superficial glacial deposits at the end of the ice age. Groundwater over time flows through the soils and washes out the cavity backfill resulting in the creation of voids which eventually reach the surface.

A number of Karst features of various size have been recorded on the site; four of which are significant in size.

Furthermore a number of sink holes have opened up on the site more recently.

In view of these conditions the discharge of significant amounts of rainfall run-off via filtration methods such as soakaways, raingardens, filter drains and unlined swales are unsuitable for use.

The preserved Hut No. 9, located in the north east of site was the scene of an escape from the PoW camp on 10th March 1945. In Summer 2003 the tunnel was excavated and inspected. The tunnel was found to be open with wooden shoring in-situ. Internet sources (http://www.islandfarm.fsnet.co.uk) report the tunnel dimensions as 2.7m below ground level and measuring 0.9m by 0.9m.

Public sewer records and extensive site walkovers that have been undertaken have shown the site to be completely unserved by piped surface water sewer connections.There are no watercourses on the site and the site is landlocked from both the nearby River Ewenny and River Ogwr by land that is in the ownership of other parties.

Rainfall run-off currently discharges from the site via an amalgamation of ground flow run-off, very slow percolation through the subsoils (which does lead to the opening up of sinkholes), discharge via the major karst features and evaporation.

Soakaway tests show the glacial till/clays that underly the site to have very low permeability values.

The site is considered to unaffected by fluvial or tidal/coastal flooding, see bottom image right.

There is no existing foul water communication originating from the proposed development site.

HISTORIC DEVELOPMENT PROPOSALS

The original masterplan consented in March 2012 was for a mixed use " Sports Village" development with some associated office development that comprised of 34.4 Ha of impermeable area, see opposite.

Proposals prepared by Opus at the time in relation to stormwater discharge were based on the collection of the run-off from all impermeable areas within the development, attenuation of the collected flows local to the source of the flow to restrict the overall flow from the development to greenfield run-off rates and the discharge of flows into an existing surface water sewer within the A48. The sewer in the A48 is under the ownership of Welsh Water Dwr Cymru and runs westwards to deposit its flow into the River Ogwr to the west of the development site, see opposite below.

The existing DCWW stormwater sewer increases in size from a 600mm diameter pipe to a 750mm diameter pipe alongside the A48 as an allowance was made in the original design of the sewer for the construction of a future expansion of the existing Bridgend Science Park on the Island Farm site itself.

Opus undertook a check on the full bore capacity of the differing pipe sizes within the sewer and determined that the "full bore" capacity of the sewer increases from 0.554m^3/s to 1.4m^3/s for the 600mm diameter and 750mm diameter pipes respectively. Hence there was a theoretical increase in capacity of 0.846m^3/s as a result of the change in pipe diameter.

Opus liaised closely with Welsh Water at the time who in their email of 9th October 2014, stated that *"on the basis that all alternatives for the disposal of surface water have been exhausted …. the principle of a surface water communication with the surface water sewer …. would be acceptable."*

As surface water flows are eventually discharged to the River Ogwr the principle of discharging the restricted flow to the Ewenny was also checked with Environment Agency Wales (now Natural Resource Wales).

Environment Agency Wales advised that the permitted discharge rate to the River Ogwr depended upon where on the River the development surface water was discharged. If the discharge to the River Ogwr was north of the A48 crossing then a maximum discharge rate of 28.2l/s/ha would be permitted.

If however the discharge was south of the A48 then there would be no restriction of discharge rate imposed by them provided SUDS features were incorporated within the proposed drainage scheme.

EXISTING DRAINAGE

KEY

- Existing DCWW surface water drainage
- Existing DCWW foul water / combined drainage
- Existing Chambers

Public sewer records have been obtained to better inform the extent of the existing foul drainage provision to the development site.

The Dwr Cymru, Welsh Water (DCWW) public sewer record asset plan, reproduced in part opposite, shows a 150mm diameter public foul sewer running along the site's eastern boundary, this conveys flows from the adjacent Pen Y Bont Court. The pipe then joins a 225mm foul sewer, originating within the existing Science Park, which runs across the north easterly corner of the site in a westerly direction.

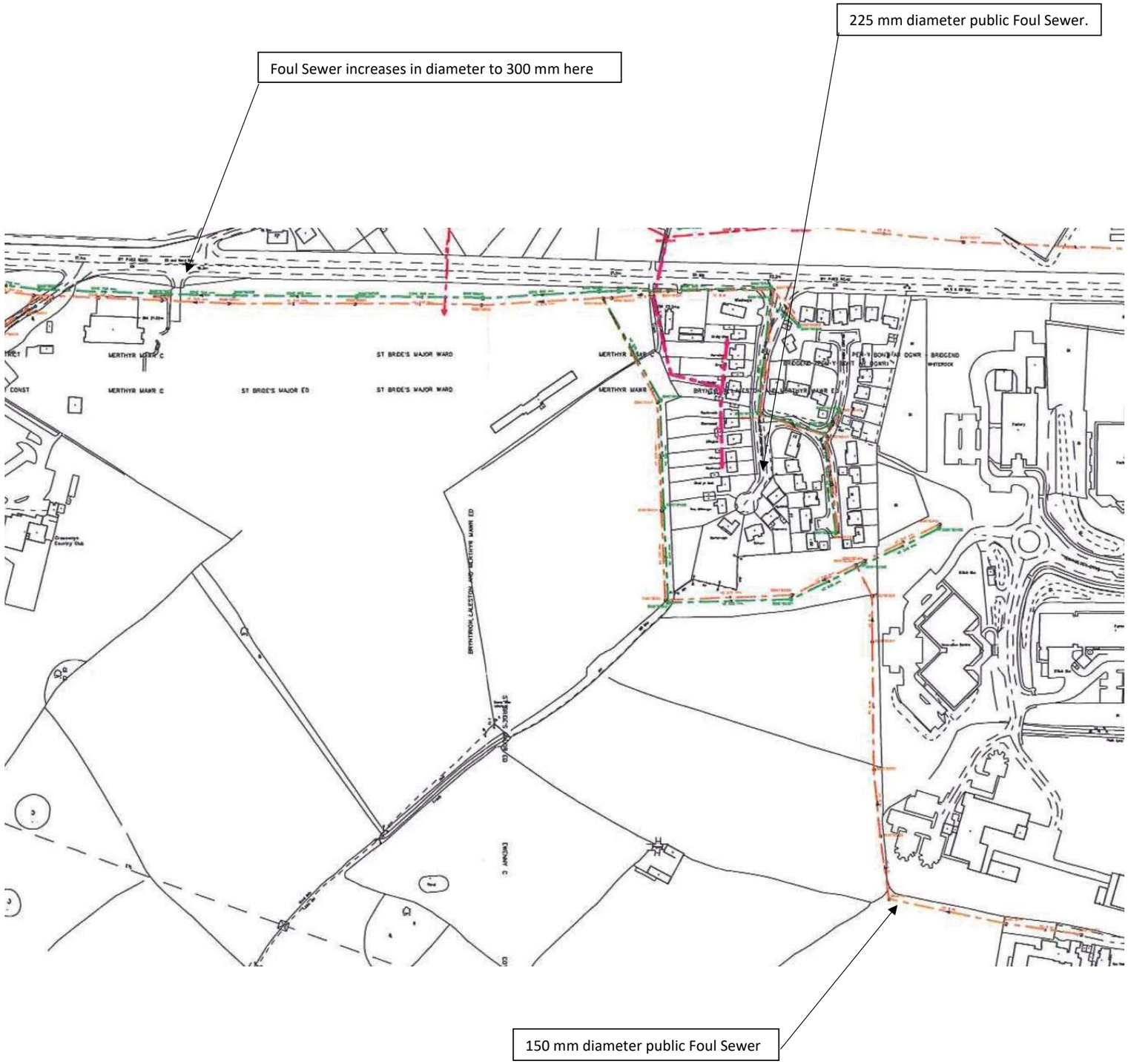
At the north western corner of the overall development site, this sewer upsizes to a 300mm diameter pipe and continues alongside the A48 to discharge into the Penybont Trunk Sewer.

These sewers were constructed in the early 1980's to serve the existing Science Park to the east of the overall development site. The design of these sewers was undertaken by Veryards and Partners (latterly absorbed into Opus) on behalf of Mid Glamorgan County Council.

Opus have confirmed that the system was designed to accommodate flows from both the existing 30 acre Bridgend Technology Park Science Park and an anticipated 60 acre phase 2 extension which would have been located on the Island Farm development site.

Opus have confirmed that the available increase in foul flow capacity occurs adjacent to the existing north western entrance into the site where the sewer increases in size from 225 mm diameter to 300 mm diameter.

The change in capacity at this point has been confirmed as being from a 225mm diameter pipe (minimum gradient 1:153 pipe full flow 36.7l/s) to a 300mm diameter pipe (minimum gradient 1:232 pipe full flow 63.4l/s).



CURRENT DEVELOPMENT PROPOSALS.

The new development proposals differ from the previously consented masterplan in that they provide for:

24.31 ha for blue/green infrastructure,ecological enhancement, nature conservation, heritage and public open space,

4.07 ha for a Special Educational Needs School,

1.42 ha for a One Form Entry Primary School,

2.69 ha of development for a Tennis Centre,

And,

18.33 ha for Residential development which could comprise of 641 units at @ 35 dwellings per hectare or 733 units @ 40 dwellings per hectare together with 0.18 ha for a Community Hub

The Tennis Centre is likely to be built as a separate entity independently of the other mix of development proposed, hence it must be considered as a developable plot that could be built out prior to anything else being developed on the site.

The two schools should be developable in phases that are separate from each other and from the residential development and visa-versa.

STORMWATER STRATEGY, BRIEF, DISCHARGE, HIERARCHY AND STRATEGY.

The stormwater strategy takes account of the following brief.

- The Tennis Centre may well be built as a separate entity and hence must be considered as a developable plot that could be built out prior to anything else being developed on the site, the two schools should be developable in phases that are separate from each other and from the residential development and visa-versa.

- The Stormwater drainage strategy should utilise SUDS systems wherever possible. The proposals should aim to:

  - manage water on or close to the surface and as close to the source of the runoff as possible,
  - Treat rainfall as a valuable natural resource,
  - ensure pollution is prevented at source,
  - manage rainfall to help protect from increased flood risk, and the environment from morphological and associated ecological damage resulting from changes in flow discharge,
  - take account of climate change and urban creep,
  - incorporate a SuDS Management Train, utilising drainage components in series, across a site to achieve a robust surface water management system,
  - maximise the delivery of benefits for amenity and biodiversity;
  - seek to make the best use of available land through multifunctional usage of public spaces and the public realm;
  - perform safely, reliably and effectively over the design life of the development taking into account the need for reasonable levels of maintenance;
  - minimise the need for to pump flows as much as practically possible and be affordable, taking into account both construction and long term maintenance costs and the additional environmental and social benefits afforded by the system.

The Strategy should comply in outline terms with the “Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems” implemented by Welsh Government via “The Flood and Water Management Act 2010 (Schedule 3)” which came into effect in Wales on 7 January 2019,

The drainage strategy should pay due cognisance to the potential risk of Karst features/sinkholes forming as a result of uncontrolled discharge of run-off into the ground.

The drainage strategy should pay due cognisance to the restrictions that may exist with respect to the local offsite stormwater drainage infrastructure and local water courses.

The additional capacity that exists within the stormwater sewer that runs parallel to and alongside the southern edge of the A48 is limited to 0.846m^3/s.

National Resources Wales have confirmed that there would be no restriction of discharge rate imposed by them if the flows were to be discharged into the River Ogwr south of the A48 provided SuDS features were incorporated within the proposed drainage scheme.

An assessment of the hard areas has been undertaken using the masterplan produced by Roberts Limbrick.

For the purposes of developing the strategy; these are;

Provision	**Impermeable Surface (ha)**
Tennis Centre	1.9
Blue/Green Infrastructure (main spine road)	1.15
SEN School	1.5
Primary School	0.25
Residential/Community Hub	12.08
Total	16.88

Considerations of the stormwater aspects of the development have been split into two independent considerations as a result of the brief; that relating to the Tennis Centre and that relating to the remaining development.

The Stormwater Greenfield runoff rate for a 1 in 100 year event has been calculated using the IH124 method for the Island Farm Tennis Centre site at 29.38 l/s.

The Stormwater Greenfield runoff rate for a 1 in 100 year event has been calculated using the FEH Statistical method for the Island Farm Site (excluding the Tennis Centre) at 853 l/s. The total storage volume required to cope with the development proposals described above in the case of a 1 in 100 year event has been estimated at 18,203m^3.

This storage requirement has been allocated to the differing elements of the development as follows:

Residential/community Hub development Circa 14679m^3
SEN School. 1823m^3
Primary School 304m^3
Main Spine Access Road 1397m^3

DISCHARGE HIERARCHY: TENNIS CENTRE

The hierarchical considerations given to the demands of accommodating surface water run-off from the Tennis Centre site are as follows:

Standard	Title	Priority Level	Commentary
S1	**Surface Water Destination**	1: Collection for Re-use	Rainwater collection will be provided and a pre-determined volume stored and used to service grey water demand within the Tennis Centre and to provide a volume of water for irrigation purposes.
		2: Surface water run-off infiltrated to ground	Surface water run-off will be collected, attenuated and discharged into carboniferous limestones underlying the site via lined deep borehole soakaways. Shallow filtration methods are not suitable due to the risk of dissolution features occurring within the underlying Lias limestones. Attenuation will be designed to restrict flows to 1 in 100 year flows and the realistic permeable achievable within the carboniferous limestone layers.
		3: Surface water run-off discharged to a surface water body	Not possible as site is landlocked from local watercourses, (River Ewenny).
		4: Surface water run-off is discharged to surface water sewer.	Not possible as there is no adjacent public stormwater sewer.
		5: Surface water run-off is discharged to a combined sewer.	Not possible as there is no adjacent public combined sewer.
S2	**Surface water runoff hydraulic control**	1: Surface water should be managed to prevent, so far as possible, any discharge from the site for the majority of rainfall events of less than 5mm	This will be accounted for in the detailed design of te system.
		2: The surface water runoff rate for the 1 in 1 year return period event (or agreed equivalent) should be controlled to help mitigate the negative impacts of the development runoff on the morphology and associated ecology of the receiving surface water bodies	This will be accounted for in the detailed design of the system, although not really relevant.
		3: The surface water runoff (rate and volume) for the 1% (1 in 100 year) return period event (or agreed equivalent) should be controlled to help mitigate negative impacts of the development on flood risk in the receiving water body.	This will be accounted for in the detailed design of the system
		4: The surface water runoff for events up to the 1% (1 in 100 year) return period (or agreed equivalent) should be managed to protect people and property on and adjacent to the site from flooding from the drainage system.	This will be accounted for in the detailed design of the system
		5: The risks (both on site and off site) associated with the surface water runoff for events greater than the 1% (1 in 100 year) return period should be considered. Where the consequences are excessive in terms of social disruption, damage or risk to life, mitigating proposals should be developed to reduce these impacts.	This will be accounted for in the detailed design of the system
		6: Drainage design proposals should be examined for the likelihood and consequences of any potential failure scenarios (e.g. structural failure or blockage), and the associated flood risks managed where possible.	This will be accounted for in the detailed design of the system
S3	**Surface water quality management**	1: Treatment for surface water runoff should be provided to prevent negative impacts on the receiving water quality and/or protect downstream drainage systems, including sewers.	Use of filtering mediums such as permeable paving systems linked to impermeable collection and storage systems will be utilised in the final detailed design.
S4	**Amenity**	1: The design of the surface water management system should maximise amenity benefits.	Collected surface water could be used within water features that provide amenity value.
S5	**- Biodiversity**	1: The design of the surface water management system should maximise biodiversity benefits.	Collected surface water could be used within water/garden features that provide biodiversity benefits.
S6	**Design of drainage for Construction, Operation and Maintenance.**	1: All elements of the surface water drainage system should be designed so that they can be constructed easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).	Proposed system utilises well established construction technologies that can be constructed easily and cost effectively.
		2: All elements of the surface water drainage system should be designed to ensure maintenance and operation can be undertaken (by the relevant responsible body) easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).	Proposed system utilises well established construction technologies that can be maintained easily within the minimum of operational input.
		3: The surface water drainage system should be designed to ensure structural integrity of all elements under anticipated loading conditions over the design life of the development site, taking into account the requirement for reasonable levels of maintenance.	Proposed system utilises well established construction technologies that can be designed for a 50 year + design life.

DISCHARGE HIERARCHY: SEN AND PRIMARY SCHOOLS, THE RESIDENTIAL AND COMMUNITY DEVELOPMENTS

The hierarchical considerations given to the demands of accommodating surface water run-off from the SEN and Primary Schools, the residential and community developments and the associated infrastructure are as follows:

Standard	Title	Priority Level	Commentary
S1	**Surface Water Destination**	1: Collection for Re-use	Rainwater collection will be provided to provide a volume of water for irrigation purposes.
		2: Surface water run-off infiltrated to ground	The discharge of the substantial quantities of surface water run-off from these developments to ground using shallow filtration methods are not suitable due to the risk of dissolution features occurring within the underlying Lias limestones.
		3: Surface water run-off discharged to a surface water body	Not possible as site is landlocked from local watercourses, (Rivers Ogwr and Ewenny).
		4: Surface water run-off is discharged to surface water sewer.	It is possible to discharge stormwater flows into a stormwater sewer running alongside the southern boundary of the A48 that has has been shown as having capacity to carry an additional 846 l/sec.
		5: Surface water run-off is discharged to a combined sewer.	Not applicable.
S2	**Surface water runoff hydraulic control**	1: Surface water should be managed to prevent, so far as possible, any discharge from the site for the majority of rainfall events of less than 5mm	This will be accounted for in the detailed design of the system.
		2: The surface water runoff rate for the 1 in 1 year return period event (or agreed equivalent) should be controlled to help mitigate the negative impacts of the development runoff on the morphology and associated ecology of the receiving surface water bodies	This will be accounted for in the detailed design of the system.
		3: The surface water runoff (rate and volume) for the 1% (1 in 100 year) return period event (or agreed equivalent) should be controlled to help mitigate negative impacts of the development on flood risk in the receiving water body.	This will be accounted for in the detailed design of the system.
		4: The surface water runoff for events up to the 1% (1 in 100 year) return period (or agreed equivalent) should be managed to protect people and property on and adjacent to the site from flooding from the drainage system.	This will be accounted for in the detailed design of the system
		5: The risks (both on site and off site) associated with the surface water runoff for events greater than the 1% (1 in 100 year) return period should be considered. Where the consequences are excessive in terms of social disruption, damage or risk to life, mitigating proposals should be developed to reduce these impacts.	This will be accounted for in the detailed design of the system
		6: Drainage design proposals should be examined for the likelihood and consequences of any potential failure scenarios (e.g. structural failure or blockage), and the associated flood risks managed where possible.	This will be accounted for in the detailed design of the system
S3	**Surface water quality management**	1: Treatment for surface water runoff should be provided to prevent negative impacts on the receiving water quality and/or protect downstream drainage systems, including sewers.	Use of filtering mediums such as permeable paving systems linked to impermeable collection and storage systems, conveyance via impermeable soft landscaped swales/reems and channels and storage lagoons will offer treatment opportunities that can be designed in during the detailed design of the drainage system.
S4	**Amenity**	1: The design of the surface water management system should maximise amenity benefits.	Impermeable soft landscaped swales/reems and channels and storage lagoons will offer opportunities amenity benefits that can be designed in during the detailed design of the drainage system.
S5	**- Biodiversity**	1: The design of the surface water management system should maximise biodiversity benefits.	Impermeable soft landscaped swales/reems, water gardens, channels and storage lagoons will provide opportunities to maximise bio-diversity within the site at the detailed design stage.
S6	**Design of drainage for Construction, Operation and Maintenance.**	1: All elements of the surface water drainage system should be designed so that they can be constructed easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).	Proposed system utilises well established construction technologies that can be constructed easily and cost effectively.
		2: All elements of the surface water drainage system should be designed to ensure maintenance and operation can be undertaken (by the relevant responsible body) easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).	Proposed system utilises well established construction technologies that can be maintained easily within the minimum of operational input.
		3: The surface water drainage system should be designed to ensure structural integrity of all elements under anticipated loading conditions over the design life of the development site, taking into account the requirement for reasonable levels of maintenance.	Proposed system utilises well established construction technologies that can be designed for a 50 year + design life.

OUTLINE STORMWATER DRAINAGE STRATEGY.

The following stormwater drainage strategy has been developed in response to the brief taking account of the hierarchical considerations.

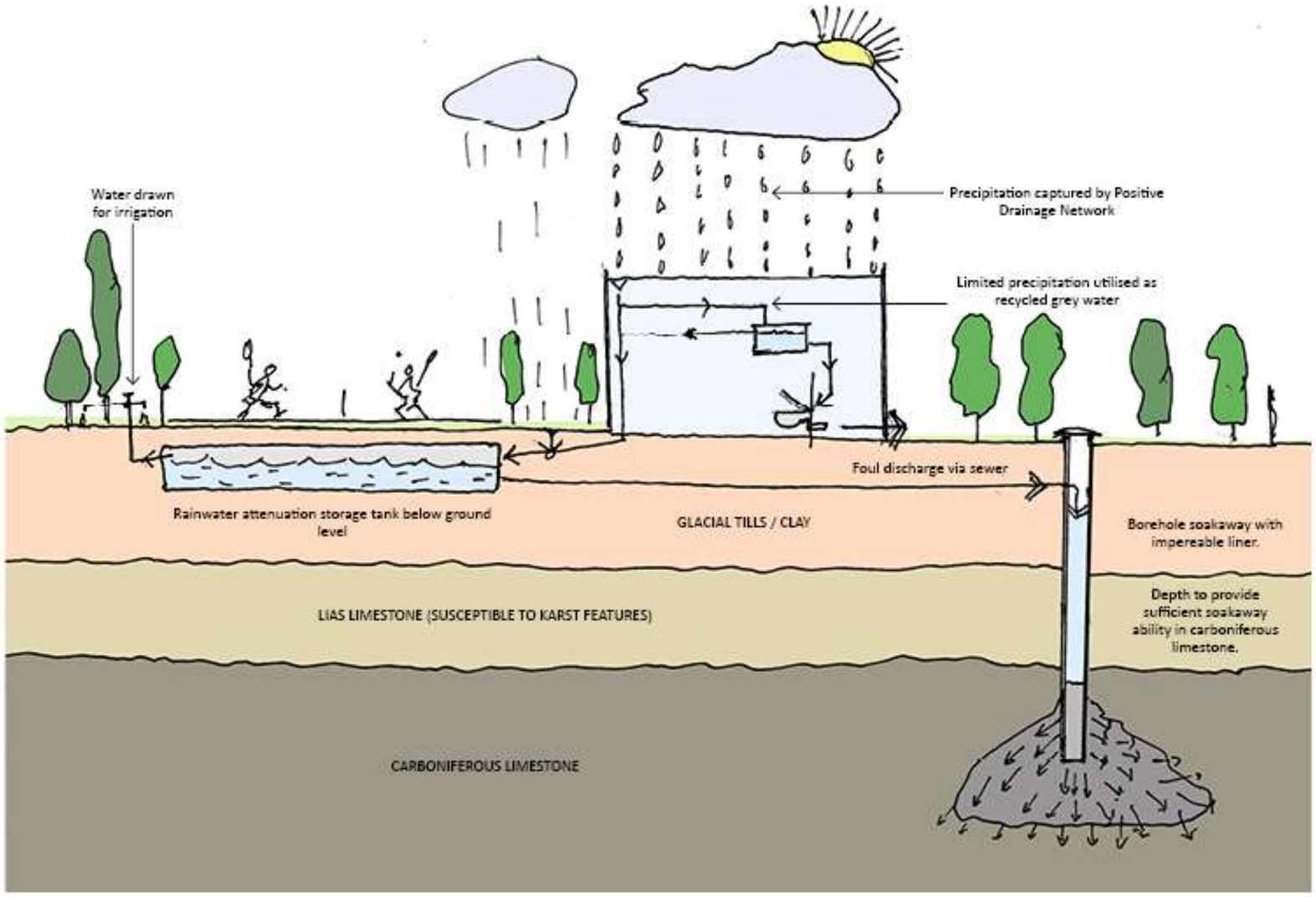
<u>The Tennis Centre Development.</u>

The detailed drainage strategy for the Tennis Centre part of the site envisages that the Tennis Centre development will be positively drained, the run-off will be collected and stored to attenuate the flow and the flow discharged at a pre-determined rate within the carboniferous limestone that underlies the site via a lined deep borehole soakaway. The rate of discharge and hence the attenuation storage volume will be determined by the lesser of the 1 in 100 year greenfield flow for the site area which is 29.38 l/s or by the permeability values within the carboniferous limestone that will be obtained by future testing.

Externally, permeable surfaces will be used to collect and filter run-off in landscaped areas and direct flows into underground attenuation tanks, prior to discharge via deep borehole soakaways.

Some proportion of the rainwater run-off collected will be used to service grey water demand within the Tennis Centre and to irrigate external soft landscaped areas and courts.

An illustration is shown opposite.



<u>The SEN and Primary School, Residential and Community developments.</u>

The remainder of the Island Farm development comprising of the SEN and Primary school, Residential and Community developments will be served separately from the Tennis Centre site.

Stormwater flows from developed areas (roofs, paved surfaces, etc) forming the residential/community area will be collected via a positive drainage system and conveyed using the natural fall of the site to a main collection point through a variety of attenuation/conveyance systems including underground tanks, impermeable reens/swales and attenuation lagoons to a pumping station facility that will then pump stormwater back up to a gravity sewer that will be provided within the main access road connecting the development with the A48.

This gravity sewer will connect to the adopted sewer that runs adjacent to the site and connects with the River Ogwr within the north west corner of the site, see opposite.

Flows will then be discharged via the gravity sewer into the River Ogwr west of the site just to the south of the A48.

The use of permeable paving connected to impermeable attenuation systems will provide a means of filtration that improves discharge water quality.

The provision of impermeable swales/reems and storage lagoons as a means of flow conveyance provide engineered elements that are landscaping opportunities that will enhance bio-diversity and provide enhanced levels of amenity for users and residents whilst providing much needed infrastructure.

Precedents of suitable approaches are shown on this page.

The Stormwater flows from developed areas (roofs, paved surfaces, etc) forming the SEN and Primary schools will be collected via a positive drainage system, the flows will be attenuated using a suitable means of storage determine by the design response developed for the schools taking due account of such systems to enhance bio-diversity and provide amenity.

Image courtesy Simon Bunn

Upton

The attenuated flows will then be discharged into the stormwater sewer that will gravity sewer that will be provided within the main access road connecting the development with the A48. This gravity sewer will connect to the adopted sewer that runs adjacent to the site and connects with the River Ogwr within the north west corner of the site.

OUTLINE FOUL DRAINAGE STRATEGY.

The following Foul water drainage strategy has been developed in response to the brief.

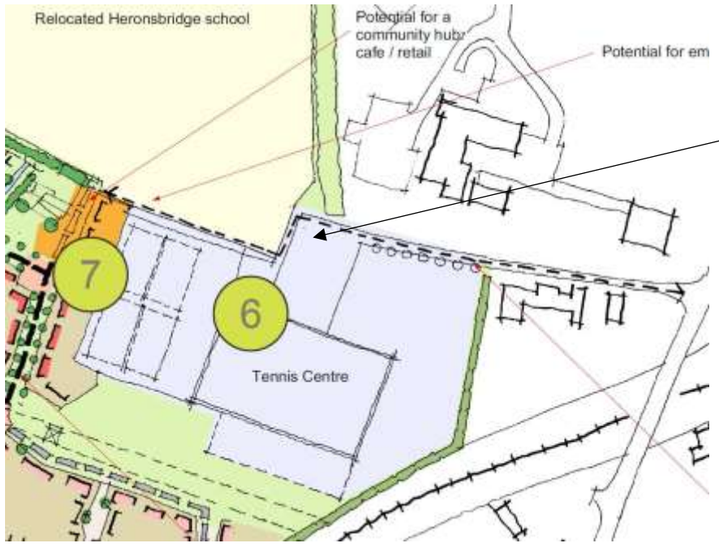
<u>The Tennis Centre Development.</u>

An assessment of existing levels indicate that a standard gravity connection can be made between the proposed Tennis Centre development and the adjacent public sewer that runs within the Island Farm development site.

The likely point of connection is indicated opposite.

Dwr Cymru Welsh Water have previously advised that foul flows from the previously consented Tennis Centre scheme can be communicated by the adopted sewer that is located within the confines of the overall Island Farm development boundary

Any connection will be subject to the approval of Dwr Cymru Welsh Water, detailed design considerations and compliance with relevant standards such as “Sewers for Adoption” and the normal S104 agreements.



The SEN and Primary School, Residential and Community developments

The remainder of the Island Farm development comprising of the SEN and Primary school, Residential and Community developments will be served by a separate Foul sewer connection from that utilised by the proposed Tennis Centre development.

Foul water flows from the residential/community development will be collected via an adopted drainage system conveying flows via gravity following natural ground contours to the south eastern corner of the site from where they will be discharged into a pumping station which will deliver flows via an adopted rising main to a gravity foul sewer laid within the curtilage of the main access road between the main development area and the A48. This gravity sewer will then discharge into the 300 mm diameter sewer at the position of the existing north eastern entrance into the site. Flows from this point are then carried and discharged into the the Penybont Trunk Sewer.

Any connection will be subject to the approval of Dwr Cymru Welsh Water, detailed design considerations compliant with relevant standards such as “Sewers for Adoption” and the normal S104 agreements.

Any future detailed considerations will need to be based on a more detailed brief than that provided at this stage.

Should flows from future phases of the development be found to exceed those that can be accommodated within the existing Dwr Cymru Welsh Water system then a new foul sewer connecting to the Penybont Trunk Sewer would need to be requisitioned under the relevant Water Act.