Ysgol Y Deri Expansion CEMP Appendix 7

Information and Communication Plan

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Contents

1. Purpose and Introduction to the scheme

The purpose of this document is to communicate to all stakeholders of the Ysgol Y Deri Expansion (YYDE) project the features that have been designed as part of the scheme to control surface water flooding.

The proposed YYDE development consists of the construction of a new school building on a greenfield site adjoining Lower Cosmeston Farm and associated agricultural land. It also includes a range of external hard landscaping works including a bus drop off area, a staff car park, a MUGA and outdoor play areas, as well as soft landscaping features such as a grass pitch and new planting.

2. What is Sustainable Drainage (SuDS) and why is it important?

SuDS stands for "sustainable drainage systems" and are a design feature that all new construction projects must follow. The aim of SuDS is to reduce surface water flooding, improve water quality and enhance the amenity and biodiversity value of the site.

SuDS achieve this by lowering flow rates, increasing water storage capacity and reducing the transport of pollution to the water environment.

Why is it important for natural water management systems to be created on our sites?

A variety of porous surfaces, attenuation features and rain gardens are being created on site at the YYDE project as part of the Sustainable Communities for Learning programme works.

It is important to manage water sustainability during and after construction to ensure any new buildings or infrastructure do not contribute to local flooding issues.

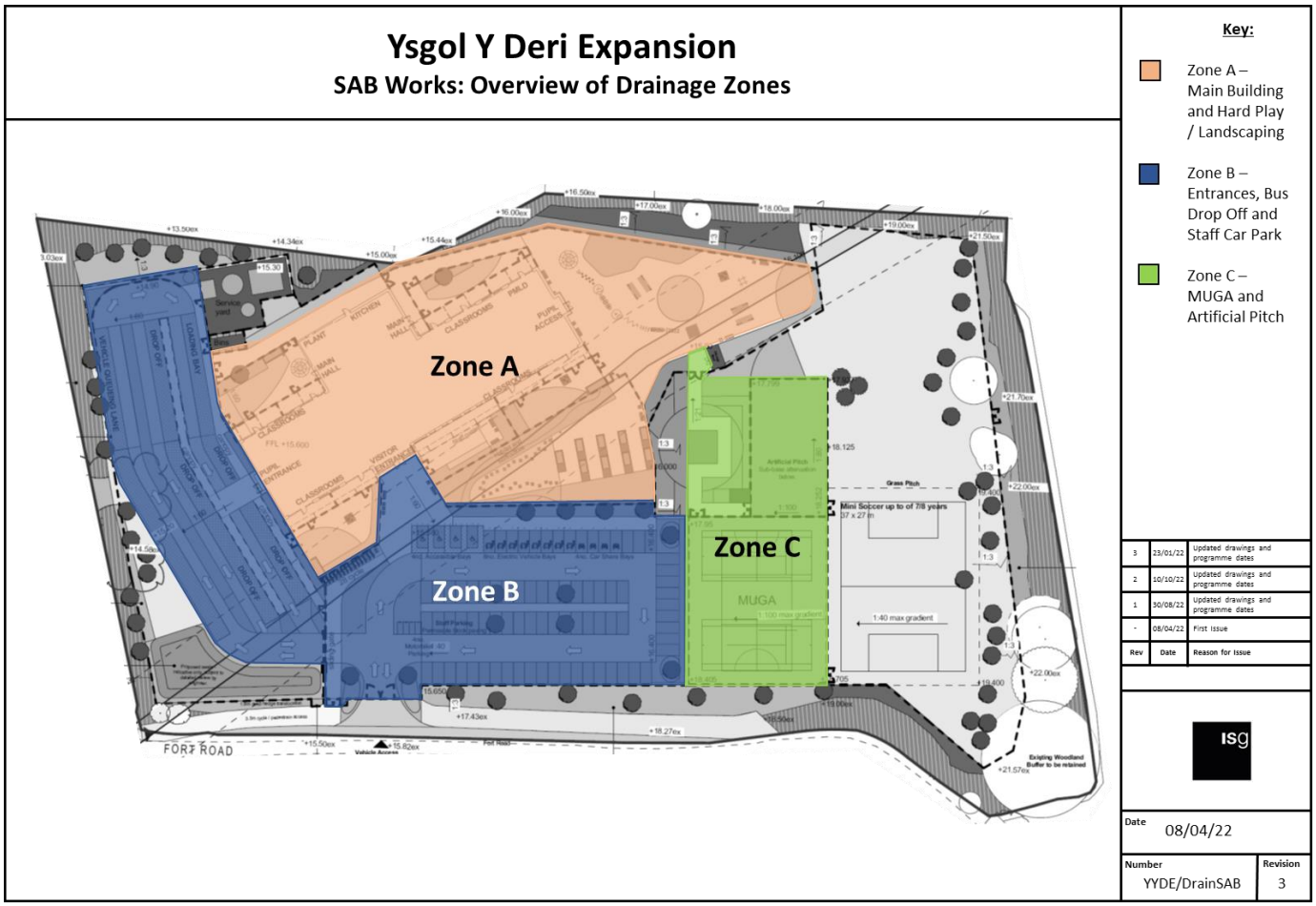
Traditionally this would be resolved through hard infrastructure, like pipes and tanks, moving the water elsewhere. Now we are taking an approach which utilises natural systems and treats water as a resource rather than a waste product.

This changing approach is written into Welsh legislation regarding sustainable drainage.

This more natural approach has multiple benefits for people and wildlife as these systems remove urban pollutants, slows the water flow and disperse it steadily which reduces local flooding risk, increase biodiversity and provide opportunities for recreation.

3. Project SuDS features & Benefits

The scheme can be split into 3 distinct zones as highlighted by the image below:



Zone A (main school building and hard landscaping / play areas) features:

- Rainwater from the green roof areas is used to irrigate the incumbent planting, with the runoff connected directly into the storm water system via downpipes and below ground pipework.
- The external hard play surface is permeable and drains via perforated pipework into the storm drainage system.
- A rain garden takes the additional run off from the impermeable hard landscaping (the service yard) and feeds it back into the drainage system once the water has percolated through their layers.
- Flows pass through catch pits and into Zone B.

Zone B (bus drop off and car park) features:

- Permeable paving to car parking bays
- Porous asphalt to bus drop off and all access roads
- Catch pits

- Three geocellular attenuation tanks
- Gravity drainage
- Flow control device (Hydro-Brake)
- Flows discharge into existing Highway drainage, and subsequently Sully Brook

Zone C (MUGA and artificial pitch) features:

- Permeable surface to MUGA with attenuation tank below
- Artificial pitch with sub-base attenuation
- Flow control device (Hydro-Brake) prior to flows entering Zone A

The key benefits of the above features are:

- No surface water flooding across the site for all storm events up to and including the 1 in 100 year storm event with a 40% allowance for climate change.
- Surface water runoff from all areas of the site is attenuated within the system when flows are above the Greenfield run off rate (11.8l/s).
- Prevent the increased risk of flooding within and outside of the site via multiple methods of attenuation.
- No discharge from site for rainfall events of less than 5mm.
- The rainwater collected from the standard roof area is connected to a gravity drain system which drains into a rainwater harvesting tank. This allows the water to be used within the building, to flush toilets, or to irrigate the green roof.
- Permeable surfacing and porous asphalt is also installed to intercept possible pollutants.
- Permeable surfacing to MUGA allows school use directly following rain events and removes ponding and surface drainage maintenance.
- Drainage system designed to be maintained easily and safely.
- Educational opportunities for children.
- Planting of various species to encourage biodiversity and create green corridors.
- Surface water is returned to ground via unlined permeable surfacing.

4. Explanation of SuDS features and maintenance regime

The following section describe the types of SuDS components and drainage features which are found on site and their intended purpose. To accompany this Communication Plan there is a detailed maintenance plan for the designated contractor or individual to follow.

Each element below has a specific section within the maintenance plan:

- **Bio-retention system / rain garden:**
  This is provided to capture runoff from an adjacent hard surfaced area, such as the service yard. These systems cleanse and filter surface water as well as slowing the passage of water into the surrounding ground or drainage network via perforated pipework.
  Maintenance includes inspecting for litter / sediment build-up, adequate infiltration, vegetation condition and inlet / outlet pipe blockages.

- **Swale:**
  This is a detention pond which is designed to convey and attenuate, as well as intercept, runoff from the adjacent Fort Road highway widening works.
  Maintenance includes inspecting for litter and vegetation condition, as well as ensuring the inlet and outlet pipes are free from blockages. Surface level inspections should also monitor silt build up and regular maintenance is required to the planting.

- **Geocellular attenuation tanks:**
  These are large, below-ground voided spaces which are used to temporarily store peak flows before controlled release. The storage structure for the tanks at YYDE will be constructed using a geo-cellular modular system.
  Maintenance includes inspecting for blockages / debris, as well as the build-up of sediments and debris around inlets and outlets vents to ensure they are in good condition and operating as designed. Surveys of the inside of the tank for sediment build-up and subsequent removal may be required.

- **Catch-pits / silt traps:**
  These are provided upstream of the attenuation tanks, and at the point where rain garden drainage meets the main lines. They are located to capture silt and other debris which may have got into the drainage pipework, with the aim to maintain the overall effectiveness of the drainage system.
  Maintenance includes inspecting feature and removing any silt or debris from the catchpit sump.

- **Green roof:**
  This is a build-up on top of the standard Kalzip roof which is formed of a drainage layer, sub-soil and sedum planting. A green roof is designed to convey and intercept run-off before utilising the rainwater for the irrigation of the plants within it.
  Inspections of the roof should be completed to ensure planting remains healthy and to remove any debris which might be built up within the system.

- **Access structures:**
  Elements such as manholes, inspection chambers and rodding eyes are located at heads of drainage runs, changes in direction and level or to provide points of access to the gravity drainage system for cleaning and maintenance.
  Maintenance includes inspecting and cleaning as required during the maintenance of the other SuDS features.

- **Inlet Structures:**
  Rainwater downpipes, hoppers, gullies and channel drains are all incorporated to intercept and direct surface water run-off into SuDS features. Silt traps and sumps within the inlets are provided as first stage sediment and silt removal features.
  Maintenance includes inspection of the various features and subsequent removal of sediment, silt and debris as required. Linear channel drainage and gullies are accessible via removable gratings.

- **Below ground gravity drainage:**
  Gravity drains, pipes and gully connections are provided to direct surface water runoff to its intended point of discharge. This is what connects all the other SuDS elements and makes up the overall drainage system.
  Maintenance includes inspection via CCTV surveys to check for blockages and debris in the lines. These can then be cleaned via jetting.

- **Flow control chambers:**
  An element similar to a manhole, these chambers are fitted with flow control devices which only let a managed discharge rate pass through. On YYDE the flow control closest to the final outfall into the highway drainage is set to 11.8l/s to replicate Greenfield run-off rates. Another flow control is positioned adjacent to the MUGA and artificial pitch, which has a lower flow rate (8l/s) to allow these elements to also attenuate a peak flow.
  Maintenance includes visual inspection of the inlet sump for sediment build-up and removal of any debris.

- **Permeable paving and surfacing:**
  The YYDE scheme includes porous asphalt in the bus drop off and car park access roads, permeable paving in the car parking spaces and a permeable surface to the MUGA. These materials each allow water to percolate through into underlying

drainage layers via pores or joints. The permeable surface, underlying geotextile and drainage layers each capture silt and sediment to clean the surface water as it passes through, before being discharged into the rest of the drainage system.
Maintenance includes surface level inspection for silt build-up in pores and joints, as well as regular brushing / vacuuming as required. It is important to protect permeable surfaces from silt, sand, soil, and mulch etc as much as possible to avoid the drainage holes becoming blocked.

5. School Engagement and Education opportunities

After the completion of the works there will be excellent opportunities for the school pupils to investigate what wildlife and biodiversity has been attracted to the site. The Swale will provide a new eco-system and will sustain a variety of plant life as well as providing a habitat for wildlife.

The various SuDS features also offer educational opportunities for pupils to learn about the water cycle and the journey rainwater takes through the site, along with completing activities such as 'pond dipping' and associated surveys.

6. Communication Strategy

The below details when and how the information within this document will be communicated to all stakeholders of the project:

Who	When	How	Frequency
Current Staff	At end of project	Presentation	Once
School SuDS Champion	At end of project	Presentation	Once
New School Staff	At induction	Presentation	At induction by SuDS Champion
Pupils	During appropriate lessons	Presentation and site inspection	As required
VoG Ground Maintenance	At end of project	Site tour and maintenance plan	Once
Sustainable Communities for Learning Team	At end of project	Site tour and maintenance plan	Once