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SUSTAINABLE DRAINAGE STATEMENT

LAND AT CROPPER ROAD, BLACKPOOL

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1 STATEMENT BACKGROUND

Following guidance issued by DCLG, all 'major' planning applications being determined from 6 April 2015, must consider sustainable drainage systems (SUDS) at an early stage of the design process.

SUDS incorporate a range of techniques that aim to mimic the way rainfall drains in natural systems. Their purpose is to minimise the impact

of urban development on the water environment, reduce flood risk and to improve water quality.

In accordance with the National Planning Policy Framework (NPPF), SUDS should be specified wherever possible to manage surface water. This in turn reduces the burden downstream on both watercourses and sewerage systems. The NPPF also requires the impact of climate change on flood risk.

This statement sets out a framework SUDS strategy to be developed prior to a future planning application, and demonstrating that surface water run off can be managed to satisfy the recent change in planning policy.

2 PROPOSED DEVELOPMENT

The proposed development is located to the south east of Blackpool Town Centre, covering an area of approximately 1.63Ha. The site currently comprises mixed commercial use (predominantly a garden centre) and stables. The application proposes a scheme of 65No affordable homes.

3 SUDS STRATEGY

The prime function of SUDS, as with conventional drainage, is to provide effective surface water drainage, ensuring the greatest degree of flood risk protection over the long term both within and downstream of the development and prevent pollution. However, SUDS approaches can bring wider benefits too. Appropriately designed, constructed and maintained, SUDS are more sustainable than conventional drainage systems and can help to:

- Reduce run-off surface water flow-rates and/or volumes and hence reduce the risk of flooding
- Encourage natural groundwater re-charge
- Reduce pollutant concentrations in storm water
- Provide habitat for wildlife.

There are many site-specific factors which will influence the choice of any single or combination of SUDS devices used within a development. The primary factors are:

- Whether the development is domestic, commercial or industrial
- Whether the underlying ground is contaminated. If so infiltration systems will most probably not be permitted.
- Whether the underlying ground is permeable enough for infiltration systems to be considered.
- Whether the ground water levels are deep enough for infiltration systems to be considered
- Whether the site is steeply sloping and its general topography
- The availability of space inside the development for each potential SUDS facility.
- Health & Safety aspects should the development be likely to be inhabited or used by children.

To ensure no increased flood risk to offsite land and development, disposal of surface water to the ground is encouraged and runoff volumes will be reduced through the SUDS management train where ground conditions permit. Where ground conditions are unsuitable, a discharge to an open water body / sewer will be necessary with rates restricted to the existing site conditions.

4 SUDS METHODS

Tables 1 and 2, below, provide an assessment of various above and below ground SUDS methods that can provide water quality treatment and management of flows to reduce runoff rates and volumes. The purpose of this assessment is to set out options to be considered at the planning stage with considerations to site constraints, viability and lifetime maintenance of the residential development.

Table 1: Surface SUDS Methods

Method	Comment	Suitability for Development
Green Roofs	• Can be used on suitable low rise buildings to provide retention, attenuation and treatment of rainwater, and promotes evaporation and local biodiversity.	Not suitable: • Architectural proposals for the development involve a pitched roof arrangement which are not suitable for green roofs.
Rainwater Harvesting	• Rainwater harvesting reduces the total runoff volume from the developed site, and reduces treated water consumption.	Not suitable: • Additional costs of installation would have severe effect on viability of the development. • Running and maintenance costs would not be acceptable to our client. • The ability to restrict peak flow rates and short term peak volumes is non-existent where a critical storm event occurs.
Infiltration	• Reduces total run off volume from the development.	Initial desk study work has identified that the ground is not suitable for discharge to infiltration devices. To be confirmed with Phase 2 SI.
Permeable Surfacing (Infiltration)	• Reduces total run off volume from the development. • Can be used to enhance quality of run off water.	Initial desk study work has identified that the ground is not suitable for discharge to infiltration devices. To be confirmed with Phase 2 SI.
Permeable Surfacing (Standard)	• Can be used to enhance quality of run off water. • Sub-base provides 'source' storage and reduces the volume of storage downstream. • The storage can be created with selection of the stone fill or use of plastic box systems. • Impermeable membrane at base of construction to prevent impact on pavement stability.	Not suitable: • Long term maintenance required and risk of reduction in permeability. • Specialist maintenance required to maintain porous surfaces. • No services to run beneath areas of permeable surface (due to presence of base impermeable barrier which is very difficult to excavate through and reinstate if required). Spatial constraints of site do not allow alternative routes for services along plot frontages. • Difficult to install small areas of tanked systems that require very small flow controls which can lead to maintenance issues.

Swales, basins and ponds	• Provide areas for above ground surface run off storage. • Swales also allow filtering of particulate matter, improving water quality.	Suitable: • Area to west of site has been allocated for above ground flood storage. • No scope to reduce plot numbers due to site viability.
Bio-Retention Areas	• Collect and retain run-off to help improve water quality, prior to discharge in piped system or infiltration.	Not suitable: • Space constraints on site do not permit large above ground areas for flood storage. • No scope to reduce plot numbers due to site viability.

Table 2: Sub-Surface SUDS Methods

Method	Comment	Suitability for Development
Geocellular Storage	• Suitable for sites with insufficient space for basins etc. • Suitable for sites where topography prevents the use of open basins etc. • Can be very effective infiltration devices subject to ground conditions.	Suitable: • Subject to detailed design and drainage layout.
Pipes and Accessories	• Suitable for sites with insufficient space for basins etc. • Laid underground, conveying surface water to a suitable location for treatment and/or disposal (only be considered where surface SUDS techniques are not practicable)	Suitable: • Subject to detailed design and drainage layout.
Large Diameter Pipes, Culverts or Tanks	• Suitable for sites with insufficient space for basins etc. • Provide a volume of below ground storage with a high void ratio and good man entry provision to allow for future maintenance and cleaning. • Generally be suitable for adoption by the statutory water company (e.g. United Utilities).	Suitable: • Subject to detailed design and drainage layout.

5 SUMMARY

The SUDS strategy described demonstrates that surface water can be properly managed to sustainable criteria and that storm events can be adequately routed through the development to the receiving water body. Discharge rates will be managed to ensure no increased offsite flood risk occurs. Opportunities will be taken to maximise infiltration to the ground and reduce runoff volumes to the receiving water body, the strategy has considered the site constraints, viability and lifetime maintenance of the residential development.

The SUDS approach will minimise the impact of the development on the water environment.