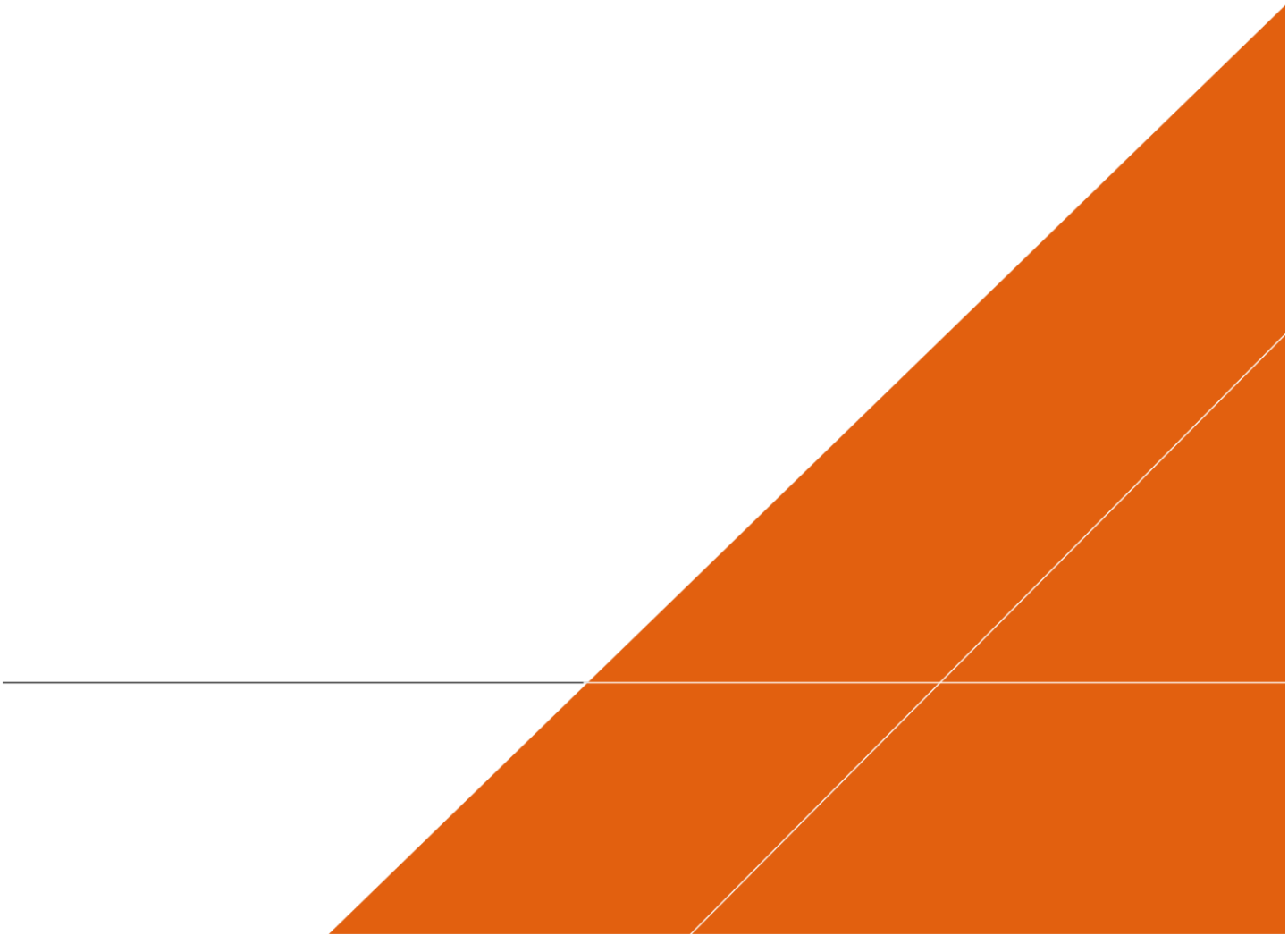
ARCADIS Design & Consultancy for natural and built assets

DRAINAGE MANAGEMENT PLAN – CONDITION 21

STOCKTON – SECONDARY ACCESS ROAD/HANZARD DRIVE (PHASE 2)

STO-ARC-XX-50-RP-CE-011-01

DECEMBER 2023



VERSION CONTROL

Issue	Revision No.	Date Issued	Page No.	Description	Reviewed By
01	01	21/11/23		First Issue	MD

Introduction

This document has been prepared to set out the particulars of the maintenance responsibilities for the surface water drainage strategy for the development, which includes the formation of new access road plus associated ancillary works and a new roundabout at Hanzard Drive, Wynyard.

It sets out the requirements and objectives for maintenance of the drainage and Sustainable Drainage features for the discharge of Condition 21, which states.

> *Prior to the building being occupied a Drainage Management Plan (including the SuDs features) shall be submitted to and approved in writing by the Local Planning Authority. The Drainage Management Plan shall include:*
>
> *(a) confirmation of who will be responsible for the maintenance of the drainage system*
> *(b) description of the system and how each element is expected to work*
> *(c) management objectives for the site*
> *(d) inspection and maintenance schedules and specification*
> *(e) confirmation of maintenance access points, easements and outfalls*
> *(f) health and safety guidance for maintainers of drainage and landscape, and also utility companies.*
>
> *The drainage scheme including SuDS features shall be managed and maintained in accordance with the Drainage Management Plan as approved.*

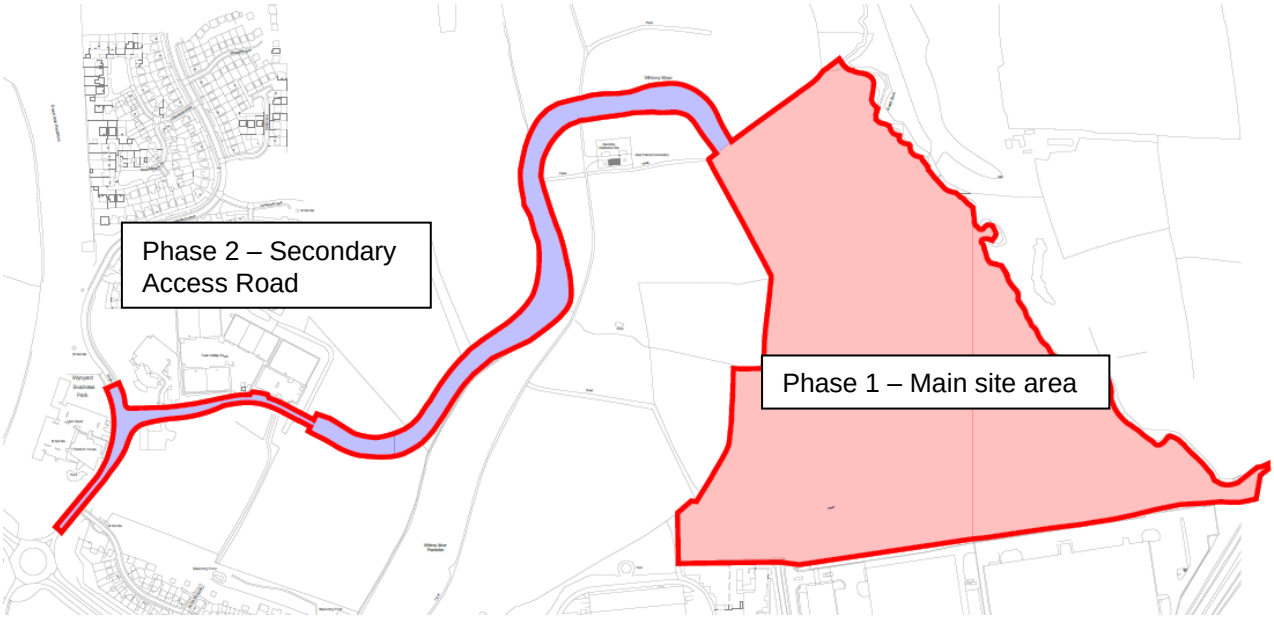
The objective of the maintenance and management of the surface water drainage systems are twofold:

- Ensuring the systems continue to maintain capacity for up to and including the 1 in 100 year rainfall event (including an allowance for climate change) to prevent flood risk to the unit or to the surrounding area and downstream.
- Effective management of pollutants and potential for spillages within the site

The approved drainage strategy is set out within the Stockton Drainage Statement for Discharge of Condition 20 and 31 (Rev 3), May 2021.

This report is to discharge Condition 21 for Phase 2 the secondary access road.

Extract 1 - STO-ARC-SW-XX-SK-AR-9003-S2



Summary of Surface Water Drainage Strategy

The surface water drainage strategy is illustrated on drawings STO-ARC-XX-XX-DR-CE-0530 & 0531 Drainage Plans and will be maintained as per the schedule below:

- Attenuation Basins will be maintained by Wynyard Estates.

- Highway Drainage will be adopted and maintained by Stockton Borough Council and until such time as the S38 Agreement maintenance period is completed maintenance will be undertaken by the occupier.

Description of the Highway Drainage and SuDS

Attenuation Basins

Attenuation basins will be maintained by Wynyard Estates. These collects surface water runoff from Hanzard Drive (part), Hanzard Drive Roundabout, Glenarm Road and the Secondary Access Road (part) conveying runoff along gravity pipes and collecting and storing surface water runoff within attenuation basins which limit surface water discharge from the site to the mean annual greenfield runoff rates into the unnamed ditch.

Pollution from the highway is prevented by passing flows through trapped road gullies which will also intercept silt.

The surface water drainage consists of the following elements:
- Manholes provided at changes in direction of drainage.
- Vortex flow control
- Detention Basins
- Headwalls – precast concrete into basins

Highway Drainage

Highway drainage within roads, designed in accordance with Stockton Borough Council Design Guide, is to be maintained by SBC. Highway drainage consists of the following elements:
- Trapped gullies
- Piped drainage
- Manholes

Manholes have been located within running lanes to allow for access from a single lane only, with appropriate traffic management to be implemented.

The vortex flow control is located outside of the carriageway to allow ease of access where a vehicle can pull up off highway with a dropped kerb being provided, allowing for a maintenance vehicle to pull off the road and park and for SBC to inspect the basins, headwalls and flow control as required.

Drainage Maintenance Schedule (to be carried out by Wynyard Estates)

Detention Basin – Operation and maintenance requirements is accordance with CIRIA C753 – The SuDS Manual		
Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Remove litter and debris	Monthly.
	Cut grass - for spillways and access routes	Monthly (during growing season), or as required.
	Cut grass - meadow grass in and around basin	Half yearly (spring - before nesting season, and autumn.
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required).
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect banksides, structure, pipework etc for evidence of physical damage	Monthly.
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required.
	Check any penstocks and other mechanical devices.	Annually.
	Tidy all dead growth before start of season.	Annually.
	Remove sediment from inlets, outlets and forebay.	Annually (or as required).
	Manage wetland plants in outlet pool - where provided.	Annually (as set out in chapter 23 of CIRIA C753).
Occasional Maintenance	Reseed areas of poor vegetation growth.	As required.
	Prune and trim any trees and removed cuttings.	Every 2 years, or as required.
	Remove sediment from inlets, outlets, for bay and main basin when required. (likely to be minimal requirements where effective upstream source control is provided).	Every 5 years, or as required
Remedial Actions	Repair erosion or other damage by re-turfing or reseeding.	As required.
	Realignment of rip-rap.	As required.
	Repair / rehabilitation of inlets, outlets and overflows.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.
Detention basin will be maintained by the owner / occupier appointed management company		

Vortex Flow Control – Operation and maintenance requirements is accordance with CIRIA C753 – The SuDS Manual		
Maintenance Schedule	**Required Action**	**Frequency**
Routine Maintenance	Remove litter, debris and inspect for sediment, oil and grease accumulation	Six monthly
	Change the filter media	As recommended by manufacturer
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill.
Remedial Actions	Replace malfunctioning parts of structures	As required
Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect filter media and establish appropriate preplacement frequencies	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during the first half year of operation, then every six months
Refer to manufacturer's requirements for detailed specification and frequencies for the required maintenance		
Proprietary treatment systems will be maintained by the owner / occupier appointed management company		

Other Drainage Items – Operation and maintenance requirements			
Owner/ occupier	**Feature**	**Maintenance**	**Frequency**
	Private Drains.	Inspection	CCTV survey every 5-10 years
		Regular Maintenance.	Jet clean system fully every 5-10 years. (Recommend prior to CCTV drainage survey is).
		Remedial/ Occasional Maintenance.	Carry our remedial works as identified in CCTV survey.
		Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
	Manholes and gratings	Manholes covers checked for operation/damage – seating's re-greased or replaced as required. Check for blockages and or damage to invert channel/inlets – jetting pipe runs if blocked, any damage to be repaired. All access ladders & other associated ironworks to be checked for corrosion & fixings to be checked for deterioration. To be repaired or replaced dependant of extent of damage.	Annually

	Gully/ Drainage channels	Remove silt and debris as necessary to prevent build up. Channel run to be jetted through between access points. Any channel grates to be inspected for damage & replaced as necessary	Half yearly
	Headwalls – Precast concrete	Power washer cleaning of exposed concrete surfaces	Annual
		Visual inspection – damage to the structure of any pre-cast concrete components to be replaced by qualified contractor.	As required
	Headwalls – Gabion Basket	Visual inspection to detect damage or abnormalities. Any damage should be reported and addressed by qualified contractor.	Annual / Periodic

Highways operation and maintenance responsibility and requirements

Filter drains– Operation and maintenance requirements is accordance with CIRIA C753 – The SuDS Manual		
Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices	Monthly (or as required)
	Inspect filter drain surface, inlet/ outlet pipework and control systems for blockages, clogging, standing water and structural damage	Monthly
	Inspect pre-treatment systems, inlets, and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies	Six monthly
	Remove sediment from pre-treatment devices	Six monthly, or as required
Occasional Maintenance **Remedial Actions**	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (eg NJUG, 2007 or BS 3998:2010)	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium	Five yearly, or as required
	Clear perforated pipework or blockages	As required
Filter drains will be maintained by the Stockton Borough Council		

Other Drainage Items – Operation and maintenance requirements			
Stockton Borough Council	**Feature**	**Maintenance**	**Frequency**
	Drains.	Inspection	CCTV survey every 5-10 years
		Regular Maintenance.	Jet clean system fully every 5-10 years. (Recommend prior to CCTV drainage survey is).
		Remedial/ Occasional Maintenance.	Carry our remedial works as identified in CCTV survey.
		Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
	Manholes and gratings	Manholes covers checked for operation/damage – seating's re-greased or replaced as required. Check for blockages and or damage to invert channel/inlets – jetting pipe runs if blocked, any damage to be repaired.	Annually

		All access ladders & other associated ironworks to be checked for corrosion & fixings to be checked for deterioration. To be repaired or replaced dependant of extent of damage.	
	Catch pits	Remove silt and debris as necessary to prevent build up & base jetted clean.	Annually
	Gully/ Drainage channels	Remove silt and debris as necessary to prevent build up. Channel run to be jetted through between access points. Any channel grates to be inspected for damage & replaced as necessary	Half yearly
	Headwalls – Precast concrete	Power washer cleaning of exposed concrete surfaces	Annual
		Visual inspection – damage to the structure of any pre-cast concrete components to be replaced by qualified contractor.	As required

Health and Safety

Health and Safety		
Operation	**Risk**	**Mitigating Measure**
Access to manholes for Inspection and Maintenance.	Confined spaces.	Entry to confined space to be minimised and, where unavoidable, to be carried out by appropriately trained personnel.
	Live traffic.	Traffic management required
Removal of silt from outfall	Risk to members of the public.	Access to hazardous areas by members of the public to be prohibited.
	Open Water.	To be carried out by appropriately trained personnel.
Removal of silt from drainage channel	Risk to members of the public.	Access to hazardous areas by members of the public to be prohibited.

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