

**Helios, Newton Aycliffe**

**TECHNICAL NOTE**

**Drainage Strategy Note – Environmental Permit**

**DOCUMENT CONTROL SHEET**

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## **Introduction**

This technical note has been prepared by Burrows Graham Ltd. on behalf of Helios to support the environmental permit application for the Waste to Energy Facility, Newton Aycliffe.

The current drainage scheme (ref. L046-BG-52-01.00-D-C-000210 C05 Drainage Layout) is appended to this note in Appendix A. The surface water and foul drainage discharge via separate systems as outlined below.

## **Surface Water Drainage**

The drainage strategy is to direct surface water from the newly formed impermeable areas to the attenuation pond via the on plot gravity drainage network into the infrastructure network utilising existing connections located to the south of the development. The surface water is collected by a series of channels on plot and a small section of roof passes through the on plot attenuation pond prior to leaving the plot. Upon leaving the plot drainage system the water is generally considered to be clean and free from contamination and may be discharged directly to the infrastructure SuDS system. The surface water will collect in the main attenuation lagoon prior to the outfall from the site to the watercourse via the existing headwall. The runoff is restricted to Qbar, providing a reduction in the existing runoff rate.

In accordance with Ciria guidance 736 (Containment Systems for the Prevention of Pollution) there is provision for two no. penstocks on the drainage system.

- The first is located on the manhole downstream of the yard drainage which will contain any fire water within the yard, where there it is proposed to install sealed kerbing with an impermeable concrete yard.
- The second is located on the final manhole before discharge offsite. This will ensure that fire water is contained onsite and within the small attenuation pond to the west of the car park which will be designated as the sacrificial containment area.

The proposed drainage layout has been designed in accordance with Sewers for Adoption (SfA) and SuDs guidance (Ciria 753). It is a requirement of these documents and NPPF that drainage systems be designed not to flood any part of the site in a 1 in 30 year storm event (3.33% annual probability). The below ground surface water design may require some areas to flood in events exceeding this storm event, this is generally considered acceptable providing no risk is posed to the building or adjacent areas. Once flood levels recede this water will enter the drainage network freely. All drainage designs will include the appropriate climate change allowance, in this case a 20% increase in rainfall for the 1 in 100 year event.

## **Foul Water Drainage**

It is proposed to install a new foul drainage network for the plot. There are two separate systems for the plot which have differing strategies to suit their usage.

The domestic sewage from the offices (comprising toilets, sinks and showering facilities) discharges via gravity to the foul sewage system in the car park. The other non-hazardous sewage from the external bin store, pump house and the internal bin wash and jet wash areas will be collected in a 16 cu m underground tank prior to being pumped to the foul drainage system in the car park. These two systems will then join and be discharged

offsite to the existing infrastructure in the site access road. This ultimately discharges to a site wide pumping station which pumps the foul sewage under the Millennium Way Bridge (within previously installed ducts) to the (public) sewer within Millennium Way to the east of the main rail line. This has approval from Northumbrian Water.

The hazardous foul from the Energy Centre will be collected in the internal area and discharge to HDPE gullies and Stainless Steel channel drainage. These products will be extreme corrosion and chemical resistant and will discharge via HDPE dual contained pipework (extreme corrosion and chemical resistant) to a concrete trench. It will then be pumped from a sump in the trench to an overground hazardous 10 cu m tank, where it will be tankered offsite or disposed of via the high temperature incinerator on site when required.

**Appendix A – Drainage Layout**



# Manhole Schedules

MH Ref.	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	IL (m)	Cover
S2	426608.443	522454.792	96.350	1.771	1350	94.579	D400
S4	426682.342	522461.157	96.350	2.211	1350	94.139	D400
S5	426693.622	522462.129	96.650	2.539	1350	94.111	D400
S6	426696.242	522436.401	97.310	3.349	1350	93.961	D400 VENTED
S7	426699.903	522393.139	97.319	3.465	1350	93.854	D400
S8	426702.343	522378.921	97.187	3.369	1350	93.818	D400
S9	426696.266	522375.000	97.050	3.246	1350	93.804	D400 VENTED
S10	426587.680	522427.249	97.384	1.070	1200	96.314	D400 VENTED
S11	426592.086	522375.187	97.370	1.270	1200	96.100	D400 VENTED
S13	426626.105	522369.062	97.025	1.516	1200	95.509	D400
S14	426647.100	522370.838	97.200	1.778	1200	95.422	D400 VENTED
S15	426681.515	522373.752	97.250	3.551	1500	93.699	D400
S16	426626.377	522360.799	96.827	1.500	1200	95.327	D400
S17	426673.899	522364.821	97.016	1.884	1200	95.132	D400
S18	426682.211	522365.525	97.016	3.333	1500	93.683	D400

MH Ref.	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	IL (m)	Cover
F1	426611.751	522375.409	97.353	1.404	1200	95.949	D400
F2	426648.396	522372.927	97.400	1.905	1200	95.495	D400
F3	426656.290	522373.597	97.400	2.036	1200	95.364	D400
F4	426667.144	522374.526	97.400	2.218	1200	95.182	D400
F6	426671.660	522374.896	97.400	2.294	1200	95.106	D400
F7	426685.209	522368.510	97.157	2.297	1200	94.860	D400
F8_OUT	426709.596	522370.436	96.865	2.170	1200	94.695	D400
F9	426596.388	522455.151	96.375	1.350	1200	95.025	D400
F10	426624.153	522457.542	96.375	2.045	1200	94.330	D400

