DRAINAGE STATEMENT

FOR

PROPOSED CONVERSION OF FORMER LODEMATIC PREMISES

AT

PRIMROSE MILL,

PRIMROSE ROAD

CLITHEROE

BB7 1BS

SUNDERLAND PEACOCK ARCHITECTS SURVEYORS

Sunderland Peacock and Associates Ltd

Hazelmere, Pimlico Road, Clitheroe, Lancashire, BB7 2AG

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Enclosed is PSA Design original drainage statement undertaken for the currently approved scheme of 18no units which has now been increased to 2no units.

Subsequently, PSA Design have been commission to update their calculations to reflect this change which will be forwarded onto the acting planning officer once to hand.

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Our Reference : D1990/GS/L01
Your Reference :

11 February 2015

Lodematic Ltd
No. 1,2 & 3 Works
Primrose Mill
Primrose Road
Clitheroe
BB7 1BD

Dear Sir / Madam,

Drainage Statement - Proposed Redevelopment at Lodematic Ltd, Clitheroe

Introduction

PSA Design were commissioned by Lodematic Ltd to carry out a Drainage Assessment for the proposed development at the Lodematic Works, Clitheroe.

It is understood that consideration is being given to the re-development of the site to residential properties with related infrastructure and gardens/landscaping. The works will involve the partial demolition of the northern parts of the main building, conversion of the remainder, with some new build construction within the grounds.

The existing site is brownfield with a number of very large industrial units. The units are surrounded by concrete / tarmac yards and roads with some small areas of vegetation.

The existing site is drained via a network of foul and surface water sewers.

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Surface Water Management

Surface Water Management is a key consideration when assessing flood risk from new developments. The result of increased man made impermeable area increases the volume and rate at which rainwater enters the local sewers and watercourses. It is therefore important to ensure a sustainable approach is taken to deal with surface water run-off from any new development.

When assessing options to drain surface water from new developments, national guidance confirms that a surface water hierarchy should be investigated.

There are a number of options available for the provision of surface water drainage for a proposed development:

- Soakaways / Infiltration
- Discharge to local watercourse.
- Discharge to public sewer.
- Discharge to adjacent land drains and ponds.

Whilst no detailed assessment of the infiltration potential of the ground has been made, given the constraints within the site it is unlikely that drainage to soakaway would be a viable option. The ground within the area is described as "slowly permeable seasonally wet acid loamy and clayey soil with impeded drainage". Therefore, at this stage and further to a detailed ground investigation, soakaways have been ruled out as a means to draining the site.

There are no watercourses within the site boundary or within the applicants ownership. Therefore, drainage to watercourse has also been ruled out.

The next logical step is therefore to drain the site to the existing sewers serving the site. As previously discussed, the site is brownfield and is well served by both foul and surface water drains. The assessment below looks at the existing drainage regime and compares that to the proposed site run-off characteristics.

Drawing D1990/FR01 highlights the existing and proposed impermeable (drained) areas on site. These are summarised below:-

- Existing Impermeable Area = 2,130m^2
- Proposed Impermeable Area = 1,578m^2

It can therefore be seen that there will be a significant reduction (25%) in impermeable area as a direct result of the redevelopment of the site. This also assumes that all proposed roads and car parks will be impermeably paved. Should the developer decide to install a porous solution then the proposed area and hence run-off will reduce further.

In order to quantify the surface water run-off from the site the rates from the proposed impermeable areas have been calculated (based on the Rational Method). Rainfall intensities are based on figures listed within Table 1(a) TRL 595.

$Q = 2.78 \times R \times A$ Where Q = Flow, R = Rainfall and A = Area

Rainfall rates are taken as follows.

1 in 1yr = 50.8mm/hr
1 in 30yr = 111.5mm/hr
1 in 100yr = 143.9mm/hr

An allowance for the effects of climatic change needs to be accounted for when calculating the proposed surface water run-off. An increase of 30% has been applied in line with standard guidance.

	Area	1 in 1yr Storm *	1 in 30yr Storm *	1 in 100yr Storm *
Existing Run-Off (l/s)	2,130m^2	30.1 l/s	66.0 l/s	85.2 l/s
Proposed Run-Off (l/s) *	1,578m^2	28.9 l/s	63.6 l/s	82.1 l/s
Run-off Rate Reduction Compared to Existing		-1.2 l/s	-2.4l/s	-3.1 l/s

Table 1: Existing & Proposed Run-off Rates
*(* Proposed Run-off Rates include an increase of 30% climatic change allowance)*

The above calculations indicate that even when applying an increase of 30% to the proposed site run-off rates, surface water run-off for all storm event will be less than existing.

This meets with the requirements set out in Planning Practice Guidance "Flood Risk and Coastal Change"

Foul Sewage

Foul drainage will be assessed in further detail post approval in consultation with United Utilities. As previously discussed the site is currently served by existing foul sewers and it is the intention to utilise these existing outfalls to drain the proposed site.

Whilst subject to detailed design, estimation can be made in to the potential flows from the proposed development. In accordance with British Water Code of Practice – Flows and Loads – 3, a predicted flow of 180l/d/person is estimated. This breaks down as follows:

1 x 3 Bed = 5P
14 x 2 Bed = 4P x 14 = 56P
3 x 1 Bed = 3P
Total = 64P
Reduction Factor = 0.8
Total Population Equivalent = 64 x 0.8 = 52P

Therefore the total predicted load is calculated at 52 x 180 = 9,360 l/day or 0.108 l/sec

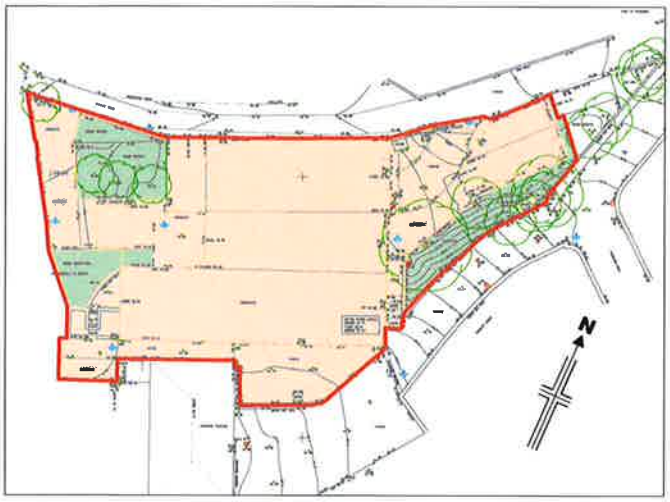
There are no known capacity issues associated with the local foul drainage network and the additional load from this modest development would be insignificant in the context of the present loads from existing development in the area and future loads arising from other much larger developments currently under way in the area.

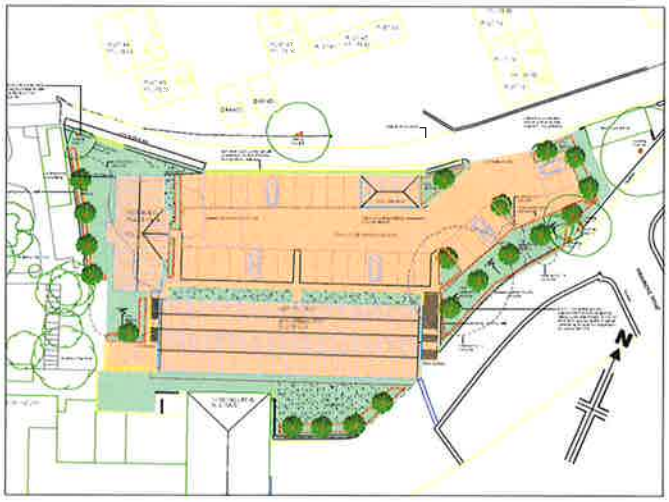
Conclusion

Subject to detailed design the site can be delivered to meet the requirements of PPG and to Local Authority and United Utilities approval.

Yours sincerely,

Graham Sanderson
PSA Design Ltd.





Existing Site Layout

site area = 2,520m²

soft area = 390m²

hard area = 2,130m²

Proposed Site Layout

site area = 2,520m²

soft area = 942m²

hard area = 1578m² (25% reduction compared to existing)

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Client	Lodematic Ltd	Drawn	GS	Date	10 Feb 2015	Drwg No.	D1990/FR01
Job	Primrose Milol, Primrose Road, Clitheroe	Check		Scale	NTS	Rev.	
Title	Impermeable Areas	Appr.					

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