5 September 2011

Development Plans Officer
South Lakeland District Council
South Lakeland House
Kendal
LA9 4DL

Dear Sir or Madam

I write as a concerned resident in relation to proposed developments R121 and R141 which appear in the current Local Development Framework. I understand that modifications have been made to developments relating to field R141 and I have considerable reservations about these proposed developments particularly in relation to the increased likelihood of flooding should development proceed on those fields.

I am in the process of commissioning my own expert advice from a forensic expert in water, construction and the environment and appreciate that a great deal more investigative and assessment work will have to be undertaken in relation to flood risk before any development could proceed but can summarise my objections as follows :-

1. Any additional development in the area will obviously result in considerable additional runoff water particularly if rainwater harvesting is not incorporated as part of the development.

2. It is clear that climate change will inevitably result in considerable additional rainfall in the future. Recent predictions suggest an increase of up to 24% during winter downpours by 2050 and all sensible scientific predictions see rainfall increasing year on year between now and then.

3. The proposed development area will drain into Stock Beck the catchment area for which is approximately 2½ square kilometres of which approximately one third of the catchment area lies to the east of the main railway line. This area is uphill of the proposed development and consequently already produces a considerable amount of "runoff" water.

4. During heavy winter rain there is already localised flooding in the area and further development and climate change can only exacerbate the problem. I am aware that the flood lagoon/overflow reservoir has already been overwhelmed on 3 occasions and it is clearly at the limit of its capacity.

5. It is my understanding that the capacity of the Stock Beck Flood Alleviation Scheme cannot be increased any further because of housing development which has already taken place in the relevant area.

As indicated above I will be in a position to provide more technical information/ comment once I have received my expert's report.

In summary it is my firm view that if the precautionary approach now required of Planning Authorities in relation to flood risk is adopted the proposed developments in relation to fields R121 and R141 (as amended) ought to be removed from the Local Development Framework when it is finalised and I ask you to note this letter as a formal objection.

There are, of course, a number of other bases on which to object to the proposal but at this stage I am anxious to record my grave concerns in relation to the issue of flooding. My concern is exacerbated as a result of the modifications which have recently been made which, as I understand it, result in an increased number of dwellinghouses when compared with the original proposal.

Yours faithfully

Frances Astor

FCLE264

ThomsonWilsonPattinson

Kendal Office
[redacted]

RECORDED DELIVERY
South Lakeland District Council
Development Plans Officer
South Lakeland House
Kendal
LA9 4DL

Our ref: JH/CS/A00759-4
Your ref:
17 November 2011

Dear Sir/Madam

South Lakeland Local Development Framework
Site Reference Numbers : R121, R141 and R56

We have been consulted by Frances Astor of Greystead, 93 Sedbergh Road, Kendal who last wrote to you on the 5 September 2011 (copy letter enclosed). In that letter Mrs Astor indicated that she was in the process of commissioning her own expert advice and she has now done so.

We enclose a copy of a Preliminary Expert Report produced by Professor Robert Jackson which is dated the 29 September 2011 and, whilst the last round of consultation closed on, we believe, the 9 September 2011 we ask that this Report be logged and considered as part of the process.

Although we have sent this letter by recorded delivery we would be grateful if you could acknowledge receipt of it (and in particular the Expert Report) and confirm that the contents of the Report will be considered as part of the process.

Yours faithfully

[redacted]

Thomson Wilson Pattinson
email - jh@twpsolicitors.com
Secretary - 01539 815749

[redacted]

Doc Ref : -454848512

[redacted]

Independent Expert Opinion in
Water, Construction & the Environment

South Lakeland District Council
Proposed Housing Development - Kendal
Preliminary Expert Report – Sept 2011

JACKSON ***Consulting***

[redacted]

Principal: **Professor Robert Jackson***
nal Injury Lawyers Approved (1st Tier)
egister of Expert Witnesses Approved
ution of Civil Engineers Listed Expert
Member of the Academy of Experts
Law Society Checked Expert

l Management
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STATEMENT

Report:

South Lakeland District Council
Proposed Housing Development - Kendal
Preliminary Expert Report – Sept 2011

Prepared on instructions from:

Thomson Wilson Pattinson
Solicitors
[redacted]

Statement of Truth:

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signed:

Professor Robert P. Jackson CEng CWEM FICE FCIWEM MAE

Date:

29th September 2011

1.0 South Lakeland Local Development Framework

1.1 The Allocations of Land Development Plan dated November 2008 states

1. It is the Council's aim to find the most sustainable sites for development.

2. The Council is committed to conserving and enhancing the distinct character of the District ...

3. The key challenge will be to identify sufficient land to accommodate this development whilst at the same time affording appropriate protection to South Lakeland's high quality environment.

4. In order to achieve a sustainable distribution of development, the preferred locational strategy ..... suggests that development be focussed primarily in the towns of Kendal and Ulverston

5. Limited development in rural areas will be supported under certain circumstances.

6. Evidence base studies and consultation with local residents have demonstrated that the District faces major challenges to address issues of affordability of housing.

7. A quality environment, accessible countryside, water areas, green space and good leisure and cultural facilities will be an important factor in attracting new investment to the area, enhancing the quality of life for existing and future communities, supporting wildlife and providing natural adaptation and mitigation mechanisms against the effects of climate change.

8. The scale of housing and employment growth required in the plan period is likely to result in considerable pressure for development within settlements. In many circumstances, this may be preferable to development of green-field sites and consistent with acceptable principles of sustainable development.

2.0 Flood Risk

2.1 Even in areas generally free from flooding, local conditions and exceptional rainfall can lead to flooding. Developers and planning authorities should therefore take a precautionary approach in taking decisions when flood risk is an issue.

2.2 The drainage catchment is already susceptible to intermittent flooding as evidenced by the Stock Beck Action Group and further upstream urbanization is likely to exacerbate these problems rather than alleviate them.

2.3 Consequently, there is a need to adopt a precautionary approach by ensuring that both the available scientific evidence and the scientific uncertainties which exist in relation to flood risk are taken into account when determining planning applications. Proceeding from the known facts and taking a precautionary approach to the uncertainties inherent in the decision-making process, will enable more open and better informed decisions to be made.

2.4 The precautionary principle requires that if a threat of serious or irreversible damage to the environment or human health exists, a lack of full scientific knowledge about the situation should not be allowed to delay containment or remedial steps if the balance of potential costs and benefits justifies enacting them. The precautionary principle is particularly relevant to dealing with the hazard of flooding since, because of local variability and uncertainties, it is often difficult to be prescriptive about the levels of risk. Hence, its application acknowledges the uncertainty in flood estimation.

2.5 The above begs the question, was a formal Flood Risk Assessment requested by South Lakeside District Council with the planning application for the proposed development?

2.6 An assessment of the risk of flooding to the proposed development was made by reference to the Environmernt Agency's (EA) flood map website. This revealed that the proposed development is adjacent to an area subject to flooding from rivers or sea without defences. However, the EA employs low resolution flood mapping to create indicative flood maps in order to provide a cautious estimate of flood risk but, on a more local scale, this mapping may not be accurate.

2.7 Due to their size, some watercourses are sometimes not modelled as part of the EA Flood Map. Consequently, as the modelling undertaken by the EA to derive an 'indicative' flood map may not include some local watercourses, the EA modelling may have limitations with regard to the area under investigation. Such potential limitations may give rise to significant uncertainties with respect to catchment flooding.

2.8 As well as assessing the risk to the site posed by fluvial (river) flooding, a comprehensive Flood Risk Assessment would need to consider flooding from other sources including groundwater. Any detailed flood modelling of the local drainage catchment within a Flood Risk Assessment would therefore be able to challenge the EA's modelled flood levels and its corresponding indicative flood zones.

3.0 Climate Change

3.1 The risk of potential future flooding is compounded by gaps in the understanding of how the changing climate will affect areas currently at risk of flooding. This risk is expected to increase significantly over time with the danger of flooding becoming more real each year with wetter winters and more frequent storms.

3.2 There is an increasing body of scientific evidence that the global climate is changing as a result of human activity. The nature of climate change at a regional level will vary: for the UK, projections of future climate change indicate that more frequent short-duration, high-intensity rainfall and more frequent periods of long-duration rainfall of the type responsible for the 2000 floods could be expected. These kinds of changes will have implications for river flooding and also for local flash flooding.

3.3 These risks, coupled with the risk of rising groundwater levels, must be addressed as part of the planning application process since development which would have a significant probability of being affected by flooding or would increase the probability of flooding elsewhere should not be permitted.

3.4 With changing climate the risk of flooding is expected to increase significantly over time. The UK floods of 2007 caused 55,000 properties to flood, 7,000 people had to be rescued and 13 people died; the resulting insurance bill topped £3.5bn.

4.0 Hydrogeology

4.1 Within an aquifer, the water table is rarely horizontal, but reflects the surface relief due to the capillary effect in soils, sediments and other porous media. When water reaches the zone of saturation the movement of water is no longer vertical but is horizontal in the direction of the slope of the water table; the slope of the water table, or hydraulic gradient, depends on the rate at which water is added to the system and the permeability of the material. Notably, perched aquifers reduce rates of recharge to underlying regional aquifers and redirect subsurface water flow along horizontal flowpaths.

4.2 The proposed development site to the south of Sedbergh Road comprising fields R121; R141 and R56 contains numerous land drainage ditches together with springs and seepages, and ponds. Springs and seepages occur whenever water-bearing conduits intersect the ground surface and these features serve to confirm that the area has a complex hydrogeology.

4.3 The relationship between rainfall and water levels within the ponds needs to be established and forms another unknown that should have been resolved at the planning application stage since the planning authority must take the probability of flooding from groundwater into account when determining planning applications; the interaction between surface waters and ground waters is of fundamental importance to flood risk in the area of the proposed development.

4.4 It is interesting to note that the 1968 OS Map (1:2500) confirms two ponds to the south of the development site (R141) yet subsequent ordnance mapping only confirms the presence of a single pond. This suggests that one of these ponds has, since 1968, dried out.

4.5 Given the above observations, it is likely that this pond is a Temporary Pool, sometimes referred to as a Vernal Pool or Pond that is hydraulically connected to a perched water table located beneath the site. These pools are temporary bodies of water that are usually devoid of fish. They are termed 'vernal' because they are often, but not necessarily, at their peak in the spring ('vernal' - of, relating to, or occurring in the spring).

4.6 Most Vernal Pools are dry for at least part of the year and fill with winter rains. Some pools may remain at least partially filled with water throughout the year but all dry up periodically. Relatively little is known about how perched aquifers regulate hydrogeological processes in Venal Pool landscapes. However, it is likely that a perched aquifer maintains a saturated connection with local Vernal Pools and that perched aquifer hydrology plays an important role in stream base flow and Vernal Pool function.

4.7 Any significant changes in the management of the local aquifer, for instance by substantially increasing pumping to abstract groundwater, would have no effect on a Vernal Pool since perched groundwater flows laterally and downward at rates that are unaffected by the position of the regional water table. However, the presence of a Vernal Pool in the area would further suggest a complex hydrology/hydrogeology.

5.0 Conclusion & Recommendations

5.1 A detailed site inspection revealed that

1. the proposed development sites do not constitute the most sustainable sites for development;
2. the proposed development will not conserve and enhance the distinct character of the District;
3. the proposed development will not afford appropriate protection to South Lakeland's high quality environment;
4. the circumstances that warrant the proposed development in a rural area are unclear;
5. the proposed development will not address issues of affordability of housing;
6. the proposed development will not support wildlife nor provide natural adaptation and mitigation mechanisms against the effects of climate change;
7. the proposed development of a green-field site is not consistent with acceptable principles of sustainable development; and in so doing
8. the proposed development does not comply with the provisions of the South Lakeland Local Development Framework Allocations of Land Development Plan November 2008.

5.2 Specifically, there would appear to be numerous uncertainties with respect to flood risk and further investigative works are suggested to permit the preparation of a detailed report on this matter.

5.3 Further investigative works should comprise a detailed desk study which includes, but is not limited to, an inspection, review and assessment of

1. Environment Agency Drainage Catchment Modelling Data
2. Environment Agency Catchment Abstraction Management Strategies (CAMS); six year plans that record how the Environment Agency is going to manage water resources within a relevant water catchment
3. Environment Agency Groundwater Source Protection Zones
4. British Geological Survey Hydrogeology Maps (Major & Minor Aquifers)
5. British Geological Survey Superficial Deposits Distribution Maps
6. British Geological Survey Superficial Deposits Engineering Geology Maps
7. British Geological Survey Geomorphology & Drainage Maps
8. British Geological Survey Hydrogeology & Flood Limits Maps
9. Further Hydrological and Hydrogeological data and memoirs held at the British Geological Survey in Keyworth, Nottinghamshire