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Julian Turner  
Tully De'Ath Consultants  
Sheridan House, Hartfield Road  
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21 March 2017

Dear Julian,

**Pre-Application Query: Tully De'Ath Flood Risk Assessment for The Hyde Group; Further Evidence Review (March 2017).**

WSCC LLFA has now reviewed Tully De'Ath's response (Reference G) to our earlier letter (Reference F) together with Reference H.

This letter summarises the LLFA's current position with respect to the above.

Notwithstanding the sensitivity testing undertaken on the model, the interpretation provided by Reference H of drainage flows across the site is not consistent with the LLFA's understanding of the Lancing Brooks network (the latter updated by recent survey work of drainage across the New Monks Farm site). The modelling report outputs included in Reference I show extensive surface water flooding issues for 1%AEP +CC events. It is considered that these plots do not accurately represent the potential flood risk from surface water under a worst case scenario but they do provide an indication of the surface water management issues for the site.

Monitoring of groundwater levels during 2016 has shown these to be repeatedly higher than 0.8m AOD across the site over winter months. The LLFA does not hold data for New Salts Farm for 2012 / 2013; however, there is evidence to suggest that groundwater levels (GWLs) at New Salts Farm would have been significantly higher than has been recorded for the site during 2015-16. In view of the inherent difficulties with draining an essentially flat area of coastal plain, it is considered that the assessment of flood risk needs to be based upon a worst case scenario. Furthermore, the tidal influence upon GWLs across the site is evident from the monitoring data; it is reasonable, therefore, to expect that the effects of sea-level rise (SLR) will result in increasing GWLs over time because of the tidal influence – particularly over the lifetime of the development. Contrary to Tully De'Ath's assertion that tidal influence does not affect the proposed drainage strategy for the site, it is the LLFA view that tidal influence and the related consideration of SLR effects upon GWLs **should** influence the proposed drainage strategy for the site. It is, however, acknowledged that further research into this issue is needed. This issue is being given some consideration in a forthcoming GWL study commissioned by the LLFA to inform a better understanding.

While Tully De'Ath has provided a theoretical drainage solution, it is based upon a design that has inherent problems that are likely to inhibit its effective implementation in practice; examples include the divergence from the SuDS manual recommendation that longitudinal slopes should be constrained to 0.5%-6%; gradients for the swales are shown on the Drainage Strategy at 0.2% but given the very flat nature of the site, it is possible that gradients would be even lower than 0.2%. A further issue is the suggestion in Reference G (section 1.4.1) of lining the detention basin to add further protection to infiltration from very high ground water events. This would defeat the scope for infiltration potentially worsening drainage for this part of the site as well as introducing additional concerns regarding flotation of the basin.

## **Conclusion**

Concerns regarding the effective implementation of the proposed drainage strategy, at the margins of design tolerance, need to be set in a wider context of uncertainty regarding the baseline conditions that have informed the design; specifically the hydraulic modelling undertaken where assumptions made do not reflect documented data for Lancing Brooks; and the GWL monitoring data for the site that has been unseasonably low. On this basis LLFA reservations regarding development of New Salts Farm remain; namely that there is a high risk of surface water flooding during a 1% AEP + CC event.

Yours sincerely

Ray Drabble  
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West Sussex Lead Local Flood Authority

Copies to: Ken Argent, Adur-Worthing Council  
Ben Daines, Adur-Worthing Council  
Adrian Jackson, Environment Agency  
Dinny Shaw, Bowyer Planning

Internal: Caroline West, West Sussex County Council

## **References:**

- A. WSCC LLFA letter to Ben Daines, Adur-Worthing Council dated 5 Jan2017.
- B. Email: Andrew Picton (Tully De'Ath) Ray Drabble (WSCC LLFA) dated 8 Feb 17.
- C. Email Ray Drabble (WSCC LLFA) Andrew Picton (Tully De'Ath) dated 9 Feb 17.
- D. Tully De'Ath (Feb 2017) High Groundwater Scenario (No filtration).
- E. JBA Consulting (Feb 2017) New Salts Farm Road, Shoreham Modelling Report and appended Flood Estimation Report
- F. WSCC LLFA letter to Andrew Picton, Tully De'Ath dated 26 Feb 17.
- G. Tully De'Ath response to WSCC LLFA letter dated 26 Feb 17.
- H. FEH Calculation Record (v3) dated 8/03/17.

I. New Salts Farm Flood Risk Assessment Issue 4.