Guildford, Woking and Waverley Branch of Friends of the Earth

October 2014

Review of Access Appraisal

Wallingford HydroSolutions Limited

Guildford, Woking and Waverley Branch of Friends of the Earth

Technical Review of Access Appraisal submitted in support of a planning application by Berkeley Strategic Land Ltd for the construction of 425 dwellings on land south of Cranleigh, Surrey

Document issue details

WHS1255

Version number	Issue date	Issue status	Issuing Office
V1	15/10/14	Draft	Cardiff

For and on behalf of Wallingford HydroSolutions Ltd.

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Date **15/10/14**

This report has been produced in accordance with the WHS Quality Management system which is certified as meeting the requirements of ISO 9001:2008.

WHS

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1 Introduction

WHS has been commissioned by the Guildford, Waverley and Woking branch of Friends of the Earth to technically review the Access Appraisal prepared by WSP Ltd, dated October 2014, submitted in support of a planning application for the construction of 425 dwellings on land south of Cranleigh (ref number: WA/2014/0912). This work follows a similar review of a Flood Risk Assessment (hereafter abbreviated to FRA) prepared by WSP Ltd, dated 28th April 2014 which WHS undertook in August 2014. All documents were accessed via the online public planning record[1].

As before, this technical review has been formulated in line with the current planning policy relating to flood risk – namely paragraphs 100-104 of the National Planning Policy Framework (hereafter abbreviated to NPPF) which is supported by paragraphs 001-068 of the Flood Risk and Coastal Planning Practise Guidance (hereafter abbreviated to PPG).

The NPPF advocates that a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

2 Background

As part of our review of the original FRA we collated locally-available photographic and anecdotal evidence of recent flooding through December 2013 to February 2014 that has occurred in the Cranleigh area.

Appendix 1 provides a reproduction of our compilation of local data recorded at the time of this flooding event.

This shows:

- Green route – flooding at Elmbridge Road on the section over the River Wey making the B2130 impassable in a flood and preventing access onto the A281. The 2013/14 events concur with EA records of the 1986 floods.
- Blue route – flooding at Alfold Road crossing the Littlemead Brook immediately adjacent to the proposed exit of the new development.
- Red route – flooding at Flash Bridge, Alfold Road making Alfold Road impassable at this point and preventing access onto the A281.
- Turquoise route - flooding at a Waterbridge over the Cranleigh Waters making Knowle Lane impassable at this point and preventing access onto the A281.

The Appendix also shows data that is already included in the FRA:

- Black route – road known to flood (Surrey County Council records)

1 Planning Application Public Record for application number WA/2014/0912 http://waverweb.waverley.gov.uk/live/wbc/pwl.nsf/(RefNoLU)/WA20140912?OpenDocument [last accessed 20/08/14]

- Orange route – roads likely to be flooded, as shown by the EA Flood Maps and the FRA

In view of these data and other technical observations on the FRA, our review was used by Guildford, Woking and Waverley Branch of Friends of the Earth to submit a 10-point objection to the development proposal on flood risk grounds (dated 28th August 2014).

The EA responded to this consultation on 15th September 2014[2] and on the basis of this new evidence and in line with Paragraph 101 of National Planning Policy Framework (NPPF) which states *"local planning authorities should … only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment … it can be demonstrated that … development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning…"*

In response to the EA's objection, WSP Group has prepared an Access Appraisal dated October 2014. This Access Appraisal is the subject of this review.

2.1 Environment Agency objection

According to the EA's letter dated 15/09/14 the FRA needs to provide a safe access route away from area subject to flooding which meets all of the following criteria:

- All new units in the housing development must have access to the proposed access route
- The route must lead to an area wholly outside of the flood risk areas
- The "design event" of the 1 in 100 year plus climate change event from all sources must be assessed
- The route must be via publically-accessible land
- The route must be flood free or present a "very low " hazard rating during the design event in accordance with EA/DEFRA technical report "Flood Risks to People" FD2321/TR2

The EA letter also states that if the above criteria cannot be met then they will maintain an objection until Waverley Borough Council is satisfied that hazards can be managed.

To understand how the Access Appraisal has met the above EA criteria, we have divided this report into the following:

- Consideration of the Access Appraisal technical work with regards to the EA/DEFRA technical report "Flood Risks to People" FD2321/TR2
- Comments on the findings of the Access Appraisal

2 A copy of this can be found on :
http://waverweb.waverley.gov.uk/live/wbc/pwl.nsf/(RefNoLU)/WA20140912?OpenDocument

3 Consideration of EA/DEFRA technical report "Flood Risks to People" FD2321/TR2

The EA/DEFRA technical report "Flood Risks to People" FD2321/TR2[3] provides a method of estimating flood risks to people that is suitable for assessing and mapping the risk of death or serious harm to people as a result of flooding. The guidance document is the accepted industry-standard for assessment of flood hazards to people, vehicles and property.

3.1 Flood Risk to People

Tables 1 and 2 of the Access Appraisal provide a breakdown of the assessment of hazard in relation to the access route proposed for the development. According to FD2321/TR2 flood hazard to people is a function of depth, velocity and debris factor. Tables 1 and 2 of the Access Appraisal provide depth data only. No velocity data has been stated in this assessment. FD2321/TR2 recognises that shallow fast flowing water can provide an equal hazard to deep slow moving water. For example, shallow flooding of just 25cm at only 2.5 m/s would present a "Danger for Some". In addition no information has been provided on the debris factor assigned to this assessment. The addition of a debris factor will increase the hazard rating.

To complete an assessment of hazard the depth, velocity and debris factor must be considered, however it is unclear whether this has been undertaken in the Access Appraisal. The inclusion of all the factors in accessing hazard is supported by Planning Policy Guidance (Paragraph 039) which states *"The acceptable flood depth for safe access will vary depending on flood velocities and the risk of debris within the flood water"*

Furthermore, no assessment of climate change has been included in the assessment of surface water flood risk in relation to access for people. This is also supported by Planning Policy Guidance (Paragraph 039) *"Access and egress must be designed to be functional for changing circumstances over the lifetime of the development".*

3.2 Flood Risk to Vehicles

The Access Appraisal has focused on providing a flood risk hazard assessment with regards to people. No assessment has been undertaken for hazards posed to vehicles – and in particular the ability of emergency services vehicles to access the site. Pages 66-69 of FD2321/TR2 provide the assessment methodology.

It is useful to attempt to characterise the stability thresholds of a vehicle in water in a similar way to how the stability of people is presented in order to provide general guidance for evacuation plans. Following best practise this technical assessment should be used to consult with the emergency services to obtain their support

3 Can be found at: http://randd.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=12016 [last accessed 13/10/14]

This approach is supported by Planning Policy Guidance (Paragraph 039) *"Vehicular access to allow the emergency services to safely reach the development during design flood conditions will also normally be required"*

Similarly to the above, no assessment of climate change has been included in the assessment of surface water flood risk in relation to vehicle access.

4 Comments on the findings of the Access Appraisal

The technical work on the Access Appraisal focused on three potential access routes:

- Alfold Road – towards Cranleigh village
- Knowle Lane – towards Cranleigh village
- Pedestrian route to village centre

Based on this the report concludes:

1. The site itself is a safe zone free from flood risk for all events up to the 1 in 1000 year event and therefore during an extreme flood the residents can stay safely within their homes.
2. The residents will also be able to access the facilities within the village safely on foot at a very low hazard.
3. The residents will be able to drive safely from the site using Alfold Road at a very low hazard.
4. The development is proposing some alterations to the highway verge height between the road and the roadside ditch to provide some resilience in case the highway drainage becomes blocked again as it did in the winter of 2013/14.

Our comments in relation to these conclusions are provided below

4.1 Access around and within the site

Access Appraisal: "The site itself is a safe zone free from flood risk for all events up to the 1 in 1000 year event and therefore during an extreme flood the residents can stay safely within their homes."

The EA objection letter[2] indicates this solution on its own is not deemed acceptable. The EA has stated that all new units must have an access route to an area wholly outside of the extent of the 1 in 100 year plus climate change event via publically accessible land and consideration given to all sources of flooding.

No assessment of climate change has been included in the assessment of surface water flood risk so the FRA has yet to provide evidence that the site will be free from flood risk for all events up to the 1 in 1000 year event. Planning Policy Guidance (Paragraph 039) states that *"Access and egress must be designed to be functional for changing circumstances over the lifetime of the development".*

4.2 Pedestrian route to village centre

Access Appraisal: "The residents will also be able to access the facilities within the village safely on foot at a very low hazard"

We do not believe that the pedestrian route to the village centre (Route 3) is an appropriate route for consideration. Planning Policy Guidance (Paragraph 039) states that *"Access considerations should include the voluntary and free movement of people during a 'design flood* Limited pedestrian access only to Cranleigh High Street would not constitute a voluntary and free movement of people.

No assessment of climate change is included in the assessment of surface water flood risk so the FRA has yet to provide evidence that the residents will be able to access the village safely on foot. Planning Policy Guidance (Paragraph 039) states that *"Access and egress must be designed to be functional for changing circumstances over the lifetime of the development".*

The EA has stated that all new units must have an access route to an area wholly outside the 1 in 100 year plus climate change event and this route will lead residents to any area in and surrounded by land considered to be in Flood Zone 3 and 2.

In summary Table 1 provides an assessment of compliance of this option against the EA requirements.

Table 1 Summary table, evidence of compliance of pedestrian route to village centre against EA requirements

Criteria	Inclusion
All new units in the housing development must have access to the proposed access route	*Y*
The route needs to lead to an area wholly outside the any flood risk areas	*N*
The "design event" of 1 in 100 year plus climate change event from all sources has been assessed	*N*
The route must be via publically accessible land	*Y*
The route must be free from flooding or "very low risk" in this design event	*N*

4.3 Alfold Road (north)

Access Appraisal: "The residents will be able to drive safely from the site using Alfold Road at a very low hazard"

AND

"The development is proposing some alterations to the highway verge height between the road and the roadside ditch to provide some resilience in case the highway drainage becomes blocked again as it did in the winter 2013/14"

The EA objection letter stated that the land accessed by Alfold Road is a "dry island". The EA's Flood Risk Standing Advice defines dry islands as "Some areas within Flood Zone 1 that are surrounded by areas at a higher risk of flooding i.e. areas falling within Flood Zones 2 and 3. In certain cases development within such `dry islands' can present particular hazards to public safety such as people being surrounded by water and needing to be rescued."

The applicant's submitted Design and Access Statement (Illustrative Masterplan - connectivity (10.4))[4] shows separation between the Alfold Road and Knowle Lane spine roads. The plan suggest this link is planned to comprise of private drive and emergency access and the description confirms *"The vehicular connection for residents is split between both access points"* The access routes proposed in this Access Appraisal contradict those provided Masterplan. Neither private driveway nor emergency accesses are publically accessible land therefore the assessment has not demonstrated safe access for all units.

No assessment of climate change is included in the assessment of surface water flood risk so the FRA has not provided evidence that the residents will be able to safely use the Alfold Road exit in the design event (by foot, car or emergency services). Planning Policy Guidance (Paragraph 039) states that *"Access and egress must be designed to be functional for changing circumstances over the lifetime of the development".*

The FRA stated that SCC data reports a "wet spot" on Guildford Road which is in contradiction to this assessment's statement that *"…as the road is super-elevated a route will be available"* The design standard for highway drainage is normally to achieve no surface flooding in the 1 in 30 year flood [5] so it is therefore reasonable to expect exceedance of drainage capacity and flooding from this system in the design event. Therefore following the precautionary approach an assessment of the likely depths and velocities of surface water flooding should be undertaken.

With regards to the mitigation measures proposed to the Alfold Road highways drainage no indicative storage calculations have been provided in the assessment to demonstrate the viability of the solution to accommodate the design event. The design standard for highway drainage is normally to achieve no surface flooding in the 1 in 30 year flood so it is therefore reasonable to expect exceedance from this system in the design event, even when the proposed improvement has been implemented.

In summary Table 1 provides an assessment of compliance of this option against the EA requirements.

Table 2 Summary table, evidence of compliance of the Alfold Road north option against EA requirements

Criteria	Inclusion
All new units in the housing development must have access to the proposed access route	*N*
The route needs to lead to an area wholly outside the any flood risk areas	*N*
The "design event" of 1 in 100 year plus climate change event from all sources has been assessed	*N*
The route must be via publically accessible land	*N*
The route must be free from flooding or "very low risk" in this design event	*N*

4 A copy of the Masterplan can be obtained from http://waverweb.waverley.gov.uk/live/wbc/pwl.nsf/(RefNoLU)/WA20140912?OpenDocument

[5] See http://www.dft.gov.uk/ha/standards/dmrb/vol4/section2.htm

4.4 Knowle Lane (north)

The Access Appraisal concludes that this route is unsuitable due to the route being assessed as above "very low" hazard.

4.5 Knowle Lane (south) and Alfold Road (south)

The EA letter dated 15/09/14 states that *"that a full assessment of the access and egress route has not been completed over the Cranleigh Waters on Alfold Road and Knowle Lane"* No further analysis of these routes has been provided as part of this appraisal so we assume that these routes are no longer preferred or proposed.

5 Conclusion

The EA letter dated 15 September 2014 provides a rigorous set of technical criteria that to be met in order for any access route from the development to be considered safe. A summary of our comparison of the information provided in the Access Appraisal against the EA criteria is provided below in Table 3. This shows that none of the access routes suggested in the Access Appraisal met all the criteria required based on the evidence supplied.

Table 3 Summary table, evidence of compliance of all access routes against EA requirements

Criteria	Pedestrian route to village centre	Alfold Road towards Cranleigh village	Knowle Lane north	Knowle Lane south and Alfold Road south
All new units in the housing development must have access to the proposed access route	*Y*	*N*	*N*	-
The route needs to lead to an area wholly outside the any flood risk areas	*N*	*N*	-	-
The "design event" of 1 in 100 year plus climate change event from all sources has been assessed	*N*	*N*	-	-
The route must be via publically accessible land	*Y*	*N*	-	-
The route must be free from flooding or "very low risk" in this design event	*N*	*N*	*N*	-
Overall	***Not met***	***Not met***	***Not suitable***	***No information***

With regard to other elements of the Access Appraisal, our review has highlighted areas which may need to be improved to comply with Planning Policy Guidance, such as the assessment of access

for emergency vehicles (required by Planning Policy Guidance, Paragraph 039) and the assessment of climate change with regards to surface water (also required by Planning Policy Guidance, Paragraph 039).

A key issue as indicated in the EA's objection letter dated 15/09/14 is that land accessed by Alfold Road is a "dry island". The EA's Flood Risk Standing Advice for Local Authorities defines dry islands as *"Some areas within Flood Zone 1 are surrounded by areas at a higher risk of flooding i.e. areas falling within Flood Zones 2 and 3. In certain cases development within such `dry islands' can present particular hazards to public safety such as people being surrounded by water and needing to be rescued."* Using this definition and the evidence gathered on local flood risk around the development site, in order to access the nearest area wholly outside of the flood plain, the development would need to provide a safe access route to either the B2130 / B2128 Roundabout (B2130 to Guildford) or cross the Cranleigh Waters to access the A281 (Godalming – Horsham Road). The Access Appraisal does not provide sufficient information to confirm that access to either of these areas is possible.

It is therefore likely that the EA will maintain their objection until further information is provided or Waverley Borough Council can satisfy themselves that hazards can be managed via an Emergency and Evacuation Plan appended to the FRA.

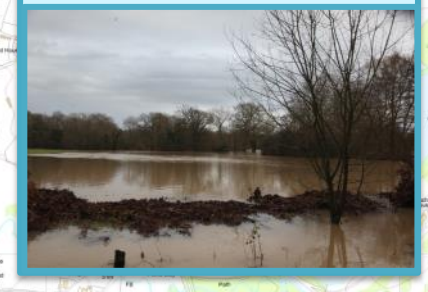
Appendix 1 Map showing access routes affected by all sources of flood risk relevant to the application site

Flooding at Elmbridge, taken on 24/12/2013

Flooding at Alfold Road exit, taken 24/12/2013

Flooding at Flash Bridge, taken 02/01/2014

Flooding at Waterbridge, taken 24/12/2013



Cranleigh

CRANLEIGH CP

⬠ Denotes location of photographs

Lines refer to access routes as described in section 2.