

Issue 2 Flood Risk

Day1-2

NAS/RL/09213/

December 2011

B&NES Core Strategy

Hignett Family Trust Ref: 276

Addendum 2 to PS

**Review of WYG Engineering Bath Compensatory Storage Study Phase 1
– Final Report dated November 2011 (CD4/FR35)**

Background

B&NES Core Strategy for provision of residential and employment relies on use of existing Flood Zone 3 land being infilled or defences raised to defend new development against flooding.

The strategy suggested by B&NES to replace the flood conveyance and storage volumes lost during the redevelopments is to create upstream storage areas to intercept the flows that cause the flooding through the centre of Bath. The strategy consists of lowering ground levels in existing Flood Zone 3 areas. To date no details of how the flows will be attenuated or throttled back have been presented.

Compensation Storage

PPS25 (CD2/20) and CIRIA C624 – Development and flood risk – guidance for the construction industry prescribe how flood compensation storage should be provided:-

“Compensatory flood storage must become effective at the same point in a flood event as the lost storage would have done”

If the storage is provided at a different level or location it may fill prior to the same effective point in a flood event. Issues such as tributary watercourses joining the main watercourse, structures including weirs or bridges between the compensation storage and the development site locations can make it difficult to calculate exactly when remote flood storage should become effective.

There are two types of compensatory storage, Direct Storage, commonly known as “level for level” and Indirect Storage where the flood storage is provided at a different level but should be designed to provide the storage at the same return period design storm and flow.

The B&NES strategy is based on Indirect compensation storage as the proposed location of the storage is remote from the development sites. When indirect storage is provided it can only be delivered as stored volumes behind raised features such as embankments or walls otherwise flows will continue downstream unchecked, the figure below shows how direct, “level for level” compensation should work:

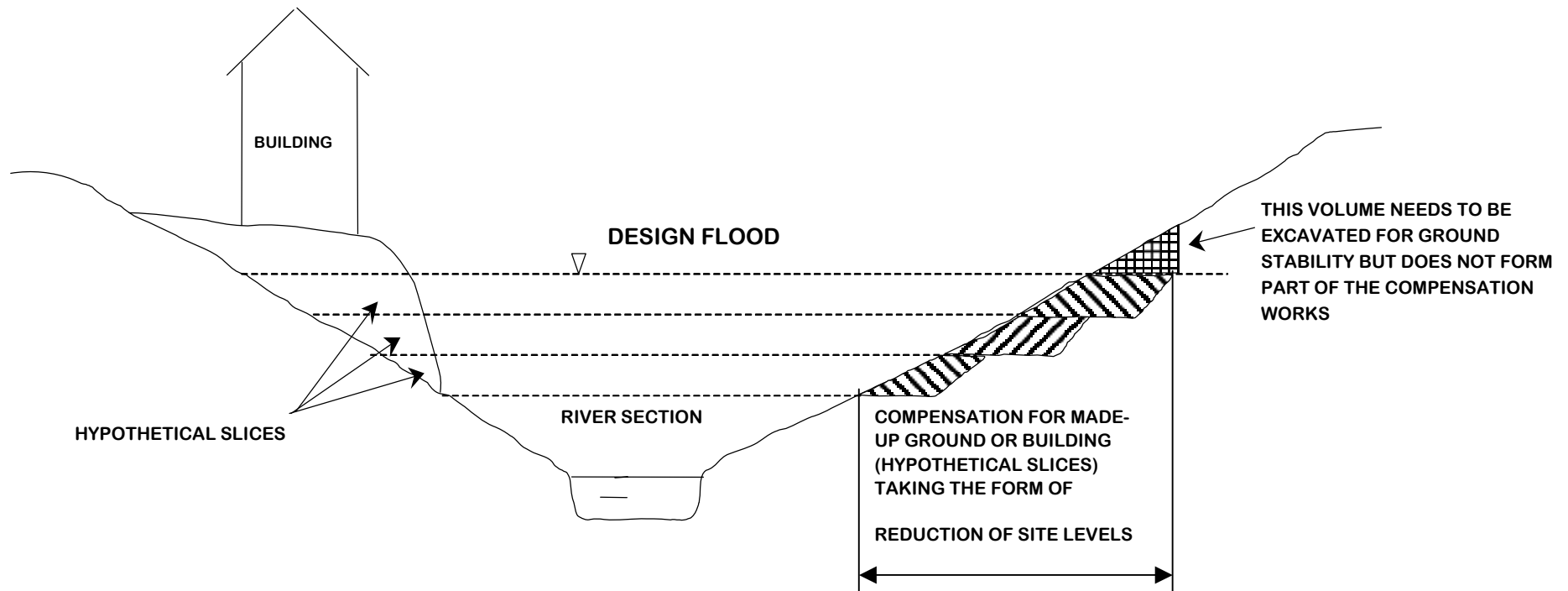
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Figure 1 - Direct or “level for level” Flood Plain Compensatory Storage



Any loss of flood storage must be compensated for by the reduction in level of nearby ground, such that the same volume is available at every flood level before and after the works and it can freely fill and drain. In other words, in order to mirror the existing situation for a particular flood, each stage (or level) is provided with the same storage volume, cut and fill must equate on a level for level basis, ie at each level (say at 0.2 metre vertical intervals for example) the excavated and filled volumes are equal.

The timing at which the storage effect comes into operation is significant. If this volume is reduced for any stage of a flood then the lost storage results in flood waters being diverted elsewhere, leading to third party detriment. The detriment caused by a small encroachment may not be significant, or even measurable, when taken in isolation but the cumulative effect of many such encroachments along a length of river will be significant.

It is not adequate compensation to provide indirect compensation storage by means of :

- *excavating holes in the existing floodplain as these fill early in any flood event.*
- *provide low level compensation volumes to replace high level floodplain and vice-versa as the river flows do not necessarily fill these compensation areas at the same time as the development site would have filled prior to being raised.*

Core Strategy documents available to Robson Liddle

- 1) FRMS Appendix I - The Atkins Site Specific Report (CD/FR22) detailing flood levels, return periods of each site flooding and the initial compensatory storage volumes – Document 1
- 2) The B&NES FRMS Note on Reviewed Flood Storage Volume (CD4/FR36) used as the basis for the WYG Bath Compensatory Storage Study Phase 1 (November 2011) - Document 2
- 3) The WYG Engineering - Bath Compensatory Storage Study Phase 1 – Final Report (CD4/FR35) – Document 3

Provision of flood compensation against return period

Each of the development sites requires replacement flood storage or conveyance to be provided at a certain point in the design storm hydrograph. Document 1 indicates the approximate return period flow when each site floods, these range between the less than 10 year, 25, 50, 75, 100 and climate change events. The volumes of replacement flood storage need to be designed to fill in a controlled manner so that they provide the like for like volume at the equivalent design flow based on the recalculated volumes including climate change and “cut off” areas.

Site B3a, the REC floods first at less than a 10 year flow event and needs flood compensation storage very early on with 10,155m³ at the 10 year design flow and 52,776m³ in the climate change event. Site B13f, Brassmill requires 16,285m³ between the 25 year and climate change events, whilst site B9a, South Quay needs 10,855m³ to be provided between the 50 year and climate change events and site B4, Manvers Street requires 7,911m³ to be provided between the 75 year and climate change events. It can therefore be seen that designing any storage area will need full 3D hydraulic modelling to be carried out to determine actual rather than theoretical volumes prior to any compensation design commencing. As the storage proposed is indirect rather than direct, only flows stored behind raised embankments can deliver such a range of timescales when replacement storage is required.

Flood compensation storage strategy

WYG have been commissioned to undertake a study into the potential upstream storage sites and the compensation volumes that could be achieved. We have obtained a copy of the flood level data used in the WYG study from the Environment Agency (EA) to assess the potential storage sites in more detail and whether they will impact on third parties that lie adjacent to them.

The full EA data set includes a range of flood levels between the 2 year and 100 year + climate change scenarios at various points along the River Avon. It is therefore possible to determine when the potential storage sites would be available relative to the return period storm and whether the correct mix of flood compensation can be delivered at the right point in the design storm hydrograph.

A copy of the EA spreadsheet with level and flow information at the various return periods is included in the Appendix 1.

Based on the WYG report two of the three sites, Kensington Meadows and Bathampton have the capability to deliver fully controlled filling of flood compensation storage behind raised embankments. Detailed below is our assessment of each of the three sites and the potential volumes available for compensation storage:

BATHEASTON - At Batheaston, the volume of earthworks required in creating embankments to impound storage and the range of existing site and potential storage levels, make the site too small to be viable, but instead ground levels could be lowered. The 2 year flood level is 20.49m, the 10 year flood level is 21.42m and the 25 year flood level is 21.92m. The maximum ground level available for reducing is 21.60m although at this height it is a very small area with most of the land available up to 21.45m. It can therefore be seen that flood compensation storage is only available between the 2 year and 15 year storms, after that the land is under water during the existing flood regime. If compensation storage is proposed at this location, a low level bowl could be created by lowering the higher land (21.00 – 21.45m) to 20.49m south of the 21m contour level. This would create a flood compensation storage bowl with a rim level of 21.0m and up to 0.51m deep where water could be impounded. The land below this level equates to approximately 11,800m² or 6000m³ of potential storage which would be available between the 2 year and 10 year return period flows. Any embankments raised in the existing flood plain at this location would need their volumes and any volumes cut off behind, adding to the total development site compensation figure at the appropriate return period design flow.

At the return period when compensation can be delivered at this site, just over 10% of the total volume of 52,776m³ required at the REC Site B3a could be offset, no other development sites would benefit or are suitable to offset flood storage against at this low level return period flood.

KENSINGTON MEADOWS - At this location the existing part of the site with potential to be lowered, floods around the 50 year event. Any potential compensation storage would only therefore be available between the 2 year and 50 year events. The existing site frontage to the Avon lies below the 2 year flood level of 19.21, further into the site the land rises to a maximum of 21.8m before dropping back down to below 19.60m on the northwest boundary.

This site lends itself to retaining the higher frontage level of 19.6 – 21.0m and excavating behind to create a controlled filling of the created void. The front bank (weir) controlling the flows into the storage will need to be 2 - 3m crest top width to maintain the structural integrity against the head of water on the Avon side with 1 in 3 side slopes as WYG have suggested.

The 2 year flood level is 19.21m, the 10 year is 20.18m, the 25 year is 20.65m, the 50 year is 21.15m and the 75 year flood level is 21.61m. Water would pass over Kensington Meadows at approximately 21.2m affecting property to the north as the land and housing to the north of Kensington Meadows, in London Road and Ringswell Gardens, is lower than Kensington Meadows itself and is also located in Flood Zone 3. The lowering of any frontage of Kensington Meadows to the Avon or the excavation of a new flood storage area would create an increased flood risk to any properties in that area. Without providing any enhanced defence to the properties to the north, the maximum compensatory storage level of Kensington Meadows is therefore approximately 21.0m, where existing site levels would retain any flood water from inundating existing

properties. An alternative would be to raise an earth embankment on the northwest boundary to a higher level, to create more storage at Kensington Meadows, but the volume of flood plain lost to the north and the embankment volume itself would need to be taken into account, in any detailed cut / fill flood compensation design.

Excavating to 19.21m and with water filling to 21.0m, we calculate that up to 59,620m³ flood compensation storage could be provided, however this volume makes no allowances for the sterilised area mentioned by WYG, where an existing public sewer runs across the site.

If water was stored to a higher level of 21.2m with raised defences on the northwest area of the site, then the volume of potential storage would drop to 50,536m³ excluding any allowances for the loss of floodplain in Ringswell Gardens and London Road.

It can therefore be seen that flood compensation storage is only available between the 2 Year and 50 Year storms, after that the Kensington Meadows site is under water during the existing flood regime. If measures are taken to protect properties put at risk, to the north then the site will have a net compensatory storage of less than 14,500m³ as the area in Flood Zone 3 to the north is over 2.6ha with water levels up to 2.2m deep adjacent to Kensington Meadows.

This site has been used for landfill in the past and WYG correctly identify that the material deposited will need be tested and then removed to a suitable off site location based on any contamination found. Landfill tax alone on a volume of 59,620m³ will be in excess of £8.5m.

Drawings 9213-SK3 and SK4 included in Appendix 1 show the typical sections of the two options at Kensington Meadows.

BATHAMPTON – The previous two sites have offered potential flood compensation storage at return periods between the 2 year and 50 year event. The volumes offered (6,000 + average of 55,000m³) do not compensate for the total volumes required at all of the sites in Appendix A of document 2. Neither the Kensington Meadows or Batheaston sites have offered any potential storage beyond a 50 year event as they are already flooding in the existing flood regime at this return period however Bathampton may have some potential to offer some storage between the 50yr and climate change events. Based on our assessed requirement of 270,000m³ of flood compensation storage there is a shortfall of 209,000m³. At the Bathampton site, the WYG report offers a maximum potential storage volume of 210,600m³ above the 2 year level in an area of 148,714m².

The type of flood compensation storage provided at Bathampton needs to be the same as that shown on Drawing 9213-SK3A prepared for Kensington Meadows or no benefit will be provided downstream.

At Bathampton the 2 year flood level is 21.21m, the 10 year is 22.09m , the 25 year is 22.64m, the 50 year is 23.08m, the 75 year is 23.42m, the 100 year is 23.57m and the climate change flood level is 24.33m.

This site relies on excavating into the valley sides and creating banded areas at a set level into which flood flows will enter via controlled overtopping. As most of the remaining storage required relates to return periods greater than a 50 year event the spill level into the storage areas will need to be around the 23.08m (50 year level). The

only realistic land available above the 23.00 contour is defined by the yellow and red areas on Figure 5.4 in Document 3. The area which can be cut down to lower storage levels equates to at best 66,000m² of the site area offered or 118,140m³ between the 23.00m and 21.21m level where impounding would occur.. Additional cut slopes from the higher ground above 24.33 climate change level will eat into the available land. The red band on Figure 5.4 includes land above 24.2m so may contain land above the 24.33m level which will not provide any compensation as it will need cutting down to create stability of the earthworks as shown in Figure 1 earlier in this report.

Overall we estimate that less than 115,000m³ will be available at the Bathampton site between the 50 Year and the climate change flood event after taking cut slopes into account leaving a shortfall of nearly 94,000m³ of flood compensation storage.

Other Flood Storage Options

WYG have suggested further flood compensation volumes may be available below the current 2 year flood level. This is only a suggestion and has not been agreed with the EA as solution. This would not be in accordance with PPS25 and CIRIA C624 which do not advise holes to be excavated in the existing floodplain as compensatory storage because they will fill early on in any storm and not necessarily be available at the correct point in time relative to the development site flooding. If the filling of the low areas is controlled by raised embankments or structures constructed in the existing flood plain then any volumes lost due to the earthworks or existing flood plain cut off behind the embankments will need to be added to the overall flood compensation storage strategy.

Any water impounded below the 2 year flood level will be stored until after the river level subsides below the lowered area level and if the land is lowered too far it will fill with ground water rather than flood compensation storage flows.

Summary

The three sites considered by WYG do not have the potential to deliver the flood compensation storage required at the correct point in the hydrograph of the various return period storms being considered.

At Kensington Meadows a volume of 50,536m³ is available for storms below the 50 year flow. At Batheaston a volume of 6,000m³ is available for storms below the 10 year flow. At Bathampton a volume of 115,000m³ is available between the 50 and climate change events.

At Kensington Meadows and Batheaston the lower return period storm compensation volumes can be balanced quite closely with the lost volumes in the development sites. Above the 50 year return period however there is insufficient high level land at Bathampton that can be lowered to provide the necessary flood compensation storage right through to the climate change event.

At Kensington Meadows, the increased risk of flooding to properties alongside from the proposed flood storage, means that the added protection works will be required. The potential impact of these protection works will reduce the net flood storage at Kensington Meadows to as low as 14500m³.

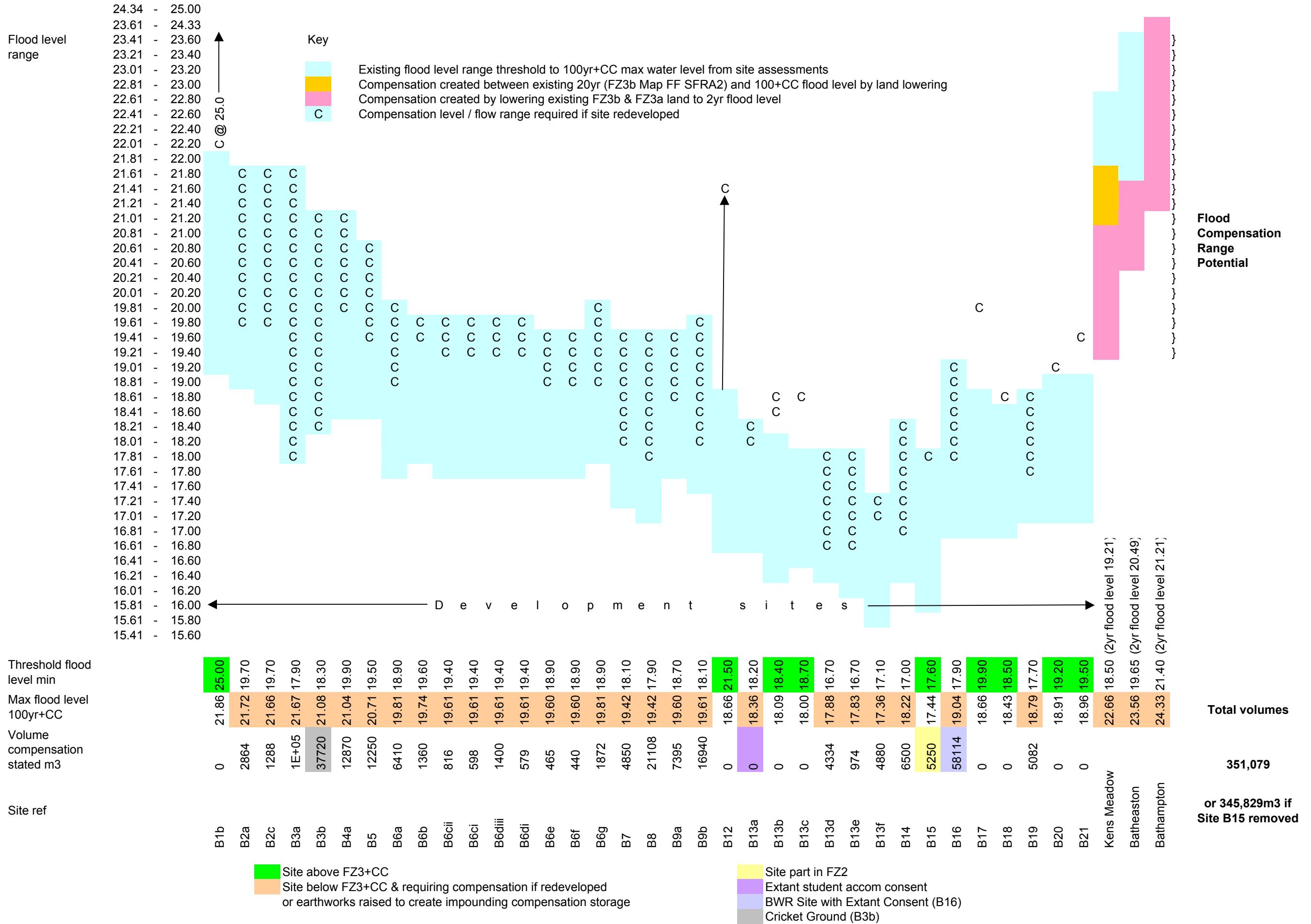
The strategy cannot rely on any flood storage capacity in the floor of the floodplain below the 2 Year event.

Flood level compensation and return period requirements

To demonstrate the range of flood levels, return periods and volumes involved the following table has been generated to show the relationship between the three potential upstream storage sites at Kensington Meadows, Batheaston and Bathampton and each of the development sites in Document 2. This shows that the range of volumes and levels (flows) at which compensation storage would be required.

B&NES Site Specific Flood Compensation volume against flood level

Dec-11



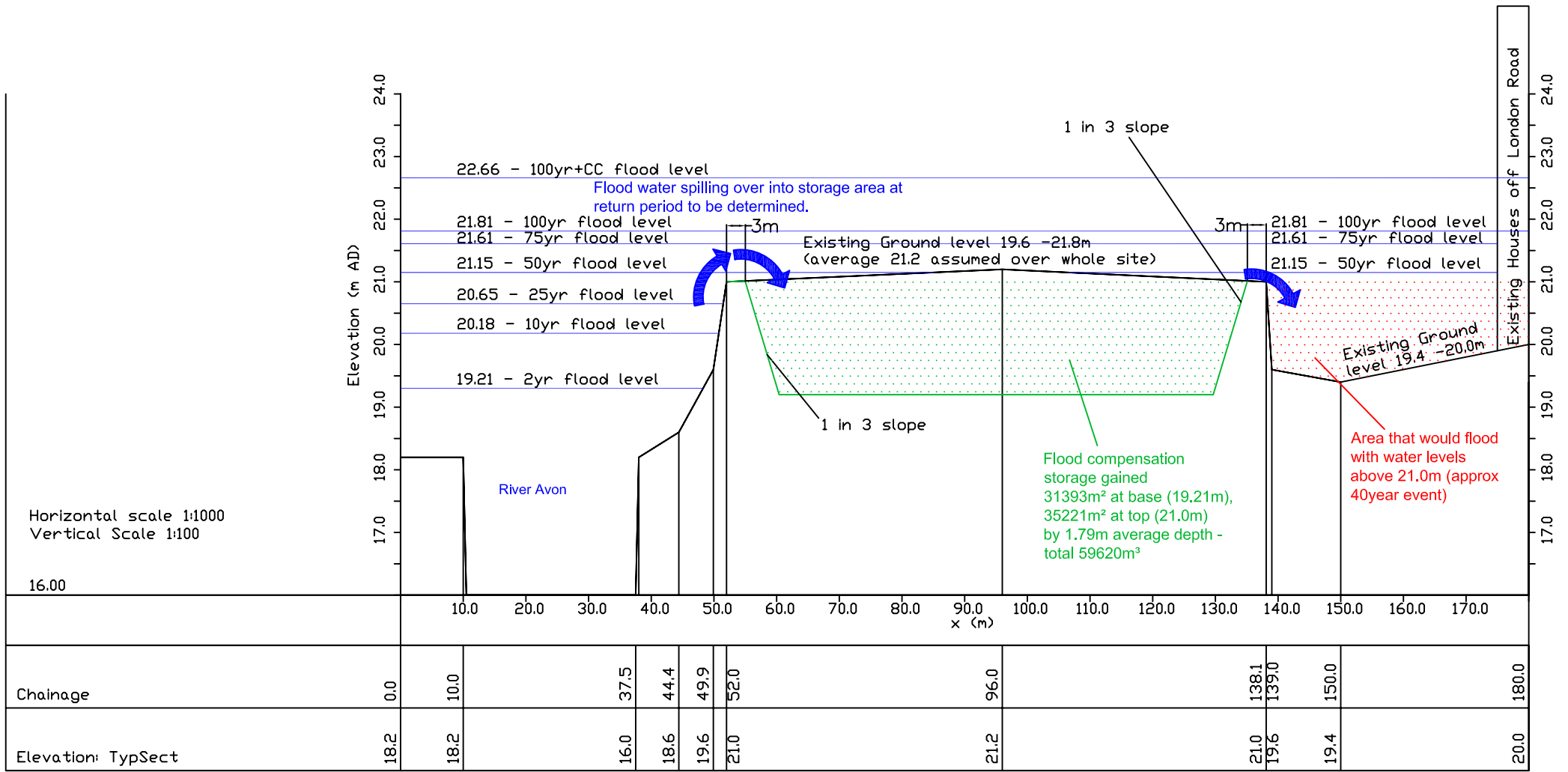
APPENDIX 1

EA flood level and flow data from River Avon ISIS model

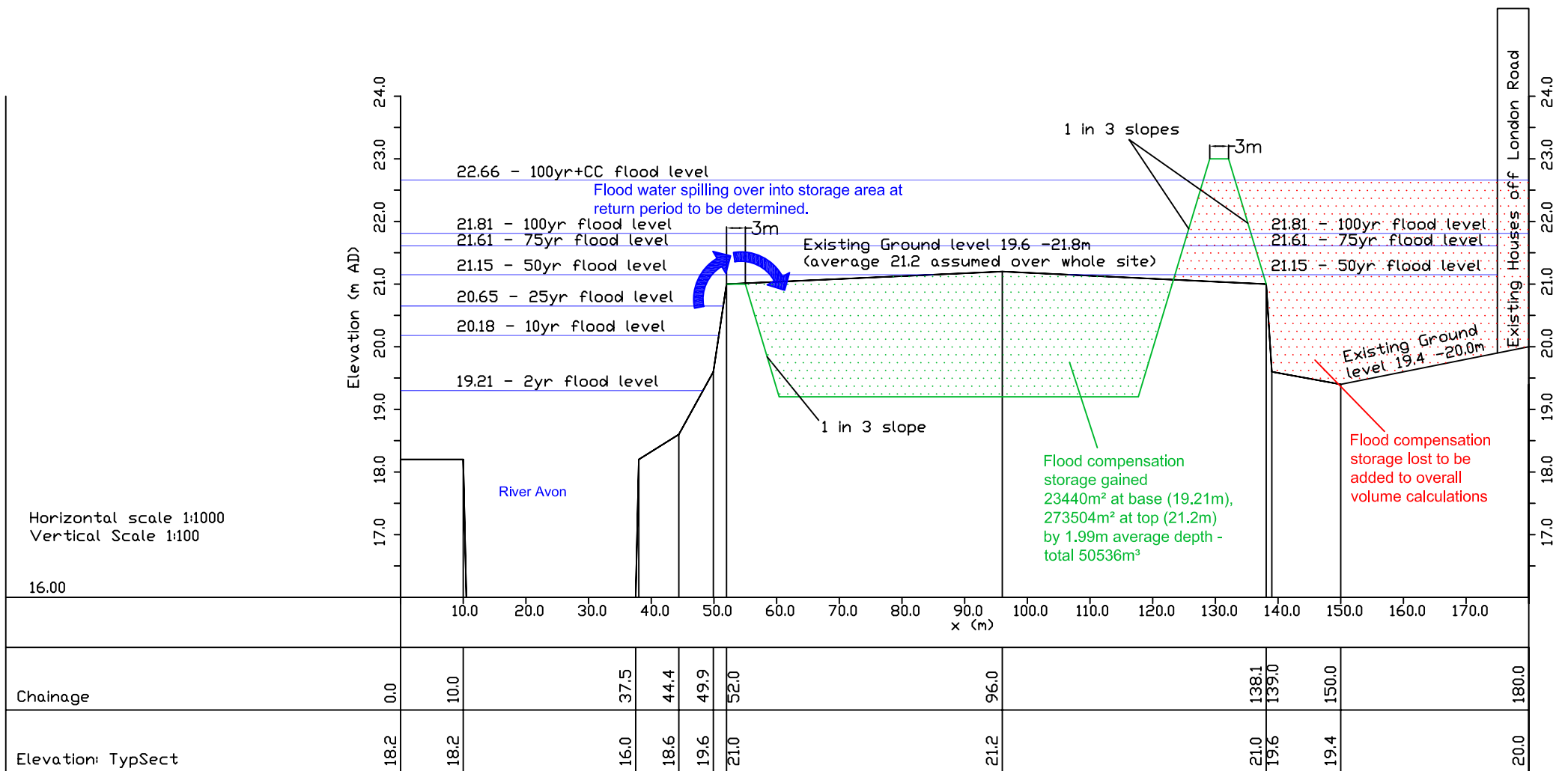
Drawing 9213-SK3A Typical Sections at Kensington Meadows

**Drawing 9213-SK4 – EA Flood Zones and
Typical Section Location at Kensington Meadows**

NODE	WATERCOURSE	SCENARIO	TYPE	SOFTWARE	LEVEL	2YR FLOW	2YR LEVEL	10YR FLOW	10YR LEVEL	25YR FLOW	25YR LEVEL	50YR FLOW	50YR LEVEL	75YR FLOW	75YR LEVEL	100YR FLOW	100YR LEVEL	100CC	100CC	Eastings	Northings	NODE
RC058	Avon	Defended	1D	ISIS	18.20	164.10	19.14	235.60	19.64	271.10	20.17	310.50	20.68	347.10	20.90	363.70	21.86	433.10	375155	165175	RC058	
RC059	Avon	Defended	1D	ISIS	18.38	164.10	19.30	235.60	19.78	271.20	20.29	310.50	20.76	347.20	20.98	363.80	21.90	433.30	375170	165283	RC059	
RC060	Avon	Defended	1D	ISIS	18.61	164.10	19.55	235.60	20.03	271.20	20.55	310.50	21.02	347.30	21.24	363.80	22.14	433.60	375196	165414	RC060	
RC061	Avon	Defended	1D	ISIS	18.65	164.10	19.60	235.60	20.09	271.20	20.60	310.60	21.07	347.40	21.28	363.90	22.18	433.80	375224	165479	RC061	
RC062	Avon	Defended	1D	ISIS	18.72	164.10	19.67	235.60	20.15	271.20	20.66	310.60	21.13	347.50	21.34	364.00	22.23	434.00	375260	165540	RC062	
RC063	Avon	Defended	1D	ISIS	18.69	164.10	19.63	235.60	20.11	271.20	20.62	310.70	21.09	347.50	21.30	364.10	22.21	434.10	375306	165611	RC063	
RC064	Avon	Defended	1D	ISIS	18.83	164.10	19.77	235.60	20.24	271.20	20.74	310.70	21.20	347.60	21.41	364.10	22.29	434.30	375384	165694	RC064	
RC065	Avon	Defended	1D	ISIS	18.90	164.10	19.85	235.60	20.32	271.20	20.82	310.70	21.27	347.60	21.48	364.10	22.35	434.50	375465	165748	RC065	
RC066	Avon	Defended	1D	ISIS	18.94	164.10	19.90	235.60	20.37	271.20	20.87	310.70	21.33	347.70	21.53	364.20	22.41	434.70	375571	165782	RC066	
RC067	Avon	Defended	1D	ISIS	19.00	164.10	19.95	235.60	20.42	271.20	20.92	310.80	21.37	347.70	21.57	364.30	22.44	434.90	375674	165794	RC067	
RC068	Avon	Defended	1D	ISIS	19.04	164.10	19.99	235.60	20.47	271.30	20.96	310.80	21.42	347.90	21.62	364.40	22.49	435.30	375784	165795	RC068	
RC069	Avon	Defended	1D	ISIS	19.10	164.10	20.05	235.70	20.52	271.30	21.02	310.90	21.50	348.00	21.71	364.50	22.59	435.60	375882	165835	RC069	
RC070	Avon	Defended	1D	ISIS	19.14	164.10	20.08	235.70	20.55	271.30	21.04	310.90	21.52	348.10	21.73	364.60	22.60	435.80	375949	165873	RC070	
RC071	Avon	Defended	1D	ISIS	19.20	164.10	20.18	235.70	20.65	271.40	21.15	311.00	21.61	348.30	21.81	364.80	22.66	436.20	376057	165920	RC071	
RC072	Avon	Defended	1D	ISIS	19.24	164.10	20.22	235.70	20.69	271.40	21.18	311.10	21.64	348.40	21.84	364.90	22.69	436.40	376134	165939	RC072	
RC073	Avon	Defended	1D	ISIS	19.32	164.10	20.27	235.70	20.73	271.40	21.22	311.10	21.68	348.50	21.87	365.00	22.71	436.60	376208	165959	RC073	
RC074	Avon	Defended	1D	ISIS	19.28	164.10	20.27	235.80	20.73	271.40	21.22	311.20	21.68	348.60	21.87	365.00	22.71	436.80	376255	166088	RC074	
Grosds1	Avon	Defended	1D	ISIS	19.36	164.10	20.32	235.80	20.77	271.40	21.26	311.20	21.71	348.60	21.90	365.10	22.73	436.90	376273	166112	Grosds1	
Grosus1	Avon	Defended	1D	ISIS	19.49	164.10	20.51	235.80	21.01	271.40	21.52	311.20	22.01	348.60	22.22	365.10	23.02	436.90	376275	166115	Grosus1	
RC075	Avon	Defended	1D	ISIS	19.51	164.10	20.53	235.80	21.02	271.50	21.53	311.30	22.02	348.70	22.23	365.10	23.02	437.00	376300	166133	RC075	
RC076	Avon	Defended	1D	ISIS	19.55	164.20	20.55	235.80	21.04	271.50	21.54	311.30	22.03	348.70	22.24	365.20	23.03	437.20	376381	166122	RC076	
RC077	Avon	Defended	1D	ISIS	19.58	164.20	20.58	235.90	21.06	271.50	21.56	311.40	22.05	348.90	22.26	365.40	23.05	437.50	376449	166141	RC077	
RC078	Avon	Defended	1D	ISIS	19.62	164.20	20.61	235.90	21.09	271.60	21.58	311.60	22.07	349.10	22.27	365.60	23.06	437.90	376513	166213	RC078	
RC079	Avon	Defended	1D	ISIS	19.62	164.20	20.61	236.00	21.09	271.70	21.59	311.60	22.07	349.30	22.28	365.70	23.07	438.00	376528	166267	RC079	
RC080	Avon	Defended	1D	ISIS	19.66	164.30	20.63	236.10	21.11	271.80	21.60	311.80	22.08	349.50	22.29	365.90	23.07	438.30	376560	166344	RC080	
RC081	Avon	Defended	1D	ISIS	19.68	164.30	20.65	236.10	21.12	271.90	21.61	311.90	22.09	349.70	22.30	366.20	23.08	438.70	376614	166427	RC081	
RC082	Avon	Defended	1D	ISIS	19.73	164.40	20.67	236.20	21.14	272.00	21.63	312.10	22.10	349.90	22.31	366.40	23.09	439.00	376681	166469	RC082	
RC083	Avon	Defended	1D	ISIS	19.73	164.50	20.67	236.30	21.14	272.10	21.62	312.20	22.10	350.10	22.30	366.60	23.08	439.30	376775	166487	RC083	
RC084	Avon	Defended	1D	ISIS	19.78	No Result	20.72	No Result	21.18	No Result	21.66	No Result	22.13	No Result	22.34	No Result	23.11	No Result	376907	166568	RC084	
RC085	Avon	Defended	1D	ISIS	19.83	No Result	20.75	No Result	21.20	No Result	21.68	No Result	22.14	No Result	22.34	No Result	23.12	No Result	376964	166617	RC085	
RC086	Avon	Defended	1D	ISIS	19.85	No Result	20.76	No Result	21.21	No Result	21.69	No Result	22.16	No Result	22.35	No Result	23.13	No Result	377041	166658	RC086	
RC089	Avon	Defended	1D	ISIS	19.94	No Result	20.83	No Result	21.27	No Result	21.74	No Result	22.20	No Result	22.40	No Result	23.16	No Result	377322	166764	RC089	
Bathwds	Avon	Defended	1D	ISIS	20.00	No Result	20.88	No Result	21.31	No Result	21.78	No Result	22.23	No Result	22.42	No Result	23.18	No Result	377396	166902	Bathwds	
Bathwus	Avon	Defended	1D	ISIS	20.15	No Result	20.99	No Result	21.41	No Result	21.86	No Result	22.31	No Result	22.50	No Result	23.25	No Result	377441	166965	Bathwus	
RC091	Avon	Defended	1D	ISIS	20.17	No Result	21.01	No Result	21.43	No Result	21.89	No Result	22.33	No Result	22.52	No Result	23.27	No Result	377448	166978	RC091	
Bathus1	Avon	Defended	1D	ISIS	20.23	No Result	21.20	No Result	21.74	No Result	22.22	No Result	22.62	No Result	22.81	No Result	23.53	No Result	377482	167011	Bathus1	
RC092	Avon	Defended	1D	ISIS	20.33	No Result	21.33	No Result	21.86	No Result	22.32	No Result	22.70	No Result	22.89	No Result	23.59	No Result	377567	167081	RC092	
RC096	Avon	Defended	1D	ISIS	20.50	No Result	21.42	No Result	21.92	No Result	22.37	No Result	22.75	No Result	22.93	No Result	23.63	No Result	377823	167344	RC096	
RC098	Avon	Defended	1D	ISIS	20.59	No Result	21.46	No Result	21.94	No Result	22.38	No Result	22.76	No Result	22.94	No Result	23.64	No Result	377995	167353	RC098	
RC101	Avon	Defended	1D	ISIS	20.67	No Result	21.49	No Result	21.97	No Result	22.40	No Result	22.78	No Result	22.96	No Result	23.65	No Result	378285	167223	RC101	
RC103	Avon	Defended	1D	ISIS	20.70	No Result	21.49	No Result	21.95	No Result	22.38	No Result	22.75	No Result	22.93	No Result	23.61	No Result	378493	167072	RC103	
RC103us	Avon	Defended	1D	ISIS	20.73	No Result	21.52	No Result	21.98	No Result	22.41	No Result	22.78	No Result	22.96	No Result	23.70	No Result	378499	167053	RC103us	
AV2298_11935	Avon	Defended	1D	ISIS	20.77	No Result	21.61	No Result	22.08	No Result	22.52	No Result	22.89	No Result	23.06	No Result	23.80	No Result	378512	167030	AV2298_11935	
AV2299_119.5	Avon	Defended	1D	ISIS	20.88	No Result	21.92	No Result	22.51	No Result	22.98	No Result	23.33	No Result	23.49	No Result	24.29	No Result	378521	167018	AV2299_119.5	
AV2310_12015	Avon	Defended	1D	ISIS	20.92	No Result	21.93	No Result	22.53	No Result	22.98	No Result	23.34	No Result	23.50	No Result	24.29	No Result	378539	166992	AV2310_12015	
AV2320_12214	Avon	Defended	1D	ISIS	20.97	No Result	21.97	No Result	22.55	No Result	23.00	No Result	23.35	No Result	23.51	No Result	24.30	No Result	378562	166808	AV2320_12214	
AV2330_12599	Avon	Defended	1D	ISIS	21.13	No Result	22.09	No Result	22.64	No Result	23.08	No Result	23.42	No Result	23.57	No Result	24.34	No Result	378483	166449	AV2330_12599	
AV2340_12923	Avon	Defended	1D	ISIS	21.38	No Result	22.26	No Result	22.76	No Result	23.18	No Result	23.51	No Result	23.66	No Result	24.41	No Result	378440	166140	AV2340_12923	
AV2350_13334	Avon	Defended	1D	ISIS	21.61	No Result	22.46	No Result	22.92	No Result	23.32	No Result	23.65	No Result	23.79	No Result	24.51	No Result	378282	165761	AV2350_13334	
AV2360_13744	Avon	Defended	1D	ISIS	22.01	No Result	22.74	No Result	23.14	No Result	23.52	No Result	23.83	No Result	23.97	No Result	24.66	No Result	378361	165362	AV2360_13744	



Kensington Meadows Flood Compensation Storage Area Without Defences To Rear - Typical Section









Kensington Meadows Flood Compensation Storage Area With Defences To Rear- Typical Section

09213-SK3A - Kensington Meadows Flood Compensation Storage Area - Typical Sections

Map legend

Click on the map to see what is the Risk of Flooding at a particular location.

Flood Maps 

-  Flooding from rivers or sea without defences
-  Extent of extreme flood
-  Flood defences
-  Areas benefiting from flood defences
-  Main rivers

X: 376,035;Y: 165,963 at scale 1:10,000

