

Statement of Common Ground

Bath Flood Compensation Scheme

HR Wallingford on behalf of The Duchy of Cornwall,
The Environment Agency and
BATH & NORTH EAST SOMERSET COUNCIL

31st January 2012

1.0 Introduction

- 1.1 As requested by the Core Strategy Inspector, Simon Emerson, Bath & North East Somerset planning authority has been asked to coordinate the production of succinct *Statements of Common Ground* to grapple with the main questions raised by the technical submissions and establish as far as possible an agreed overall approach to the provision of compensatory storage.
- 1.2 The Inspector is clear that these must not be lengthy descriptions of background, but should highlight matters that will assist him with getting to grips with the complex and diverse material relating to the sites, including clear cross referencing to existing material. The content of this statement shall seek to provide:
- Clarity on the evidence and submissions provided to date regarding the provision of upstream storage.
 - What the critical areas of agreement/disagreement are
 - What further work needs to be undertaken to progress the potential scheme

2.0 Matters of Agreement

2.1 The following are areas of agreement between the parties:

Existing Situation:

Key development sites along the River Corridor in Bath are subject to fluvial flooding. The current standards of protection of key development sites are listed in the Table 4.1 of the Bath & North East Somerset Flood Risk Management Strategy Report (CD4/FR2).

General Requirement:

To comply with PPS25 it will be necessary to provide flood compensation storage. This needs be delivered on site, or where this is not possible, off site, prior to development commencing.

Overall Approach:

That from the high level assessments undertaken to date there is potential for an upstream flood storage area to provide some degree of compensation for the volume otherwise lost due to cumulative redevelopment/regeneration of river corridor sites in high flood risk areas. Such facilities also have the potential to provide additional habitat and amenity uses. However, such areas may also affect existing habitats and visual amenity.

Hydraulic Modelling:

Hydraulic river modelling will be required to confirm whether any scheme works successfully and determine the volume figure required upstream with more accuracy. The modelling will be needed to inform detailed design and construction of any compensation storage area. This is currently being undertaken by WYG on behalf of the B&NES. The current volume figure is only an initial broad brush estimate that will be confirmed as part of the on-going hydraulic modelling. There is high likelihood that the final figure required for a successful scheme will be different to the initial broad brush estimate.

Level for Level compensation:

Given that the compensation area is upstream it will not be possible to provide compensation on a direct level for level basis. However, where possible, direct level for level and volume for volume compensation in close proximity to a site should be

explored in the first instance. Upstream storage work will not preclude this. The potential for upstream storage is being assessed by B&NES with the endorsement of the EA due to the realisation that it is unlikely all sites along the river will have the ability to deliver direct level for level and volume for volume compensation.

Consideration of climate change and cut-off areas:

That there needs to be some allowance in the overall volume for the effects of climate change and for areas beyond development sites boundaries in the floodplain that could be cut off from flooding when development sites are defended.

Consideration of other environmental constraints:

It will be necessary to undertake a full EIA for the proposed compensation works to assess, inter alia, the impacts on the AONB, biodiversity, transport, flood risk, etc.

3.0 Matters in Dispute

3.1 The following are matters of dispute between parties:

a) Arithmetic error suggested by Robson Liddle Addendum 1 to PS:

Position of the Council and EA:

To finalise the volume estimate, the proposed sites with a footprint of 10% or less located in FZ3 were excluded from the upstream volume estimate. For those sites, mitigation measures may be better considered as part of site-specific flood mitigation. This will need to be justified by developers undertaking site specific topographical survey and flood risk assessments.

The sites initially excluded from the upstream volume estimate were;

B13C Lower Bristol Road	298.31 m ³
B15 The Maltings	81.01 m ³
B17 BWR Phase 3	31.83 m ³

These sites should have been highlighted in the table (Appendix A of CD4/FR36) to explain that they are not included in the preliminary calculations. Without these sites, the total upstream volume estimate is 150,662.85 m³.

Position of the Duchy of Cornwall

From our view if the Council are prepared to accept that the initial flood volume is an estimate and that the required compensation volume may increase significantly as a result of modelling, inclusion of cut off areas and climate change considerations, then the Duchy would not go to town on the arithmetic.

b) Compensation volume allowance for climate change:

Position of the Council and EA:

Robson Liddle and HR Wallingford suggest that the upstream volume estimate should use the climate change envelope for volume calculation purposes. The provisional volume (146,786.24 m³) in CD4/FR36 (now revised to 150,662.85 m³) is based on the current day 1 in 100 year flood extent within the development sites. The lost volume is calculated by the FZ3 area multiplied by the increased flood depth taking into account climate change in the existing FZ3. The methodology, which the EA has accepted, is in accordance with PPS25, which is not explicit in terms of the exact calculation

methodology to be used. The final upstream volume estimate will be informed by further Hydraulic Modelling Sensitivity Checks, which will need to address this climate change allowance issue.

Position of the Duchy of Cornwall

We are not convinced that the EA will support this position if questioned more directly. It is normal EA practice to evaluate flood compensation requirements based on the footprint of development within the 1 in 100 year plus climate change flood plain. We will be seeking direct confirmation from the EA that it is now their stated policy that it would not normally be necessary for a developer to provide floodplain compensation for development within the 1 in 100 year plus climate change event.

c) Additional cut off areas:

Position of the Council and EA:

Robson Liddle suggests that additional 'cut off areas' along the Lower Bristol Road should be included in the upstream volume estimate. In consultation with the EA, B&NES would agree to include some further volume allowance for the existing area of FZ3 potentially lost to the east of B9a, south of the river. However, the Council does not agree with the volume estimate calculation supplied by Robson Liddle for this area. The Council agree to include 8,750m³ based on the overall site area of 14,487 m² multiplied by approx. 0.6m.

We have not included areas outside FZ3. We do not agree that B-LBR1 should be included as it lies outside of the FZ3 present day extent. Also disagree that land between B13 and B19/B20 should be included as the sites are not adjacent. They will not form a contiguous defence.

Therefore the total compensatory estimate is;

	Storage required
Development sites located within flood zone 3 with an allowance for climate change (revised from 146,786.24 m ³) Including B7	150,662.85 m ³
Additional 20% for peak flow accommodate is included as requested by the Environment Agency. (revised from 29,357.20 m ³)	30,132.57 m ³
Additional allowance for flood routes being 'cut off' for areas is included as requested by the Environment Agency. Taking into account the east of B9a (revised from 28,575 m ³)	37,325 m ³
Total requirement	218,120.42m³

Position of the Duchy of Cornwall

Again we think a pragmatic approach would be to agree that any areas of the 1 in 100 year plus climate change flood plain which are cut off as a result of development or flood defences should be compensated for would be sufficient for our purposes. Arguing about the exact figure now is premature.

If any flood storage is lost – wherever from and whatever the mechanism – there will be increased water levels as a result, so increased flood risk. This is not acceptable under PPS25.

We would therefore require confirmation from the EA regarding any consequential storage losses in other 1 in 100 year plus climate change flood plain areas. An example of this would be where there is loss of available (future) storage in a nearby non-development area due to raised defences / raised ground as part of the development, meaning that another part of the (future) floodplain becomes in effect cut off from the river.

This is particularly important as the projected increases in the peak 100 year water levels within Bath are up to about 0.9m, which will result in large additional areas being in the future floodplains.

d) Level for level compensation:

Position of the Council and EA:

As a guiding principle for site specific floodplain compensation, PPS25 advises both 'level for level' and 'volume for volume' compensation. However, based on the appraisals and recommendations made in the FRMS (CD4/FR2), it has been assessed that it may not be possible to fully apply this guiding principle. Further hydraulic modelling checks will be needed to confirm finalised upstream volume requirements, and assess whether there are any adverse impacts on flood risks elsewhere as a result of the provision of upstream compensatory storage.

Position of the Duchy of Cornwall

There are two issues here. Firstly we think the EA needs to consider the possible alternatives, which takes us back to the sequential test. It is only necessary to depart from the guiding storage principle and to construct the proposed major upstream flood management infrastructure because B&NES feel this is more sustainable than reviewing the greenbelt issue. We consider that since the development is contingent on the upstream flood storage then that should also form part of the sequential test (which it doesn't).

Secondly on a purely technical point it is probably possible for the EA to agree to non level for level provided a detailed model demonstrates that there would be no adverse impacts. We would want the EA to agree that a suitable model should be produced and that the compensation scheme should not result in any predicted increases in flood levels in Bath either upstream or downstream of the proposed development, for all return periods between the 2 year and 1 in 100 years plus climate change. The modelling predictions for the "before" and "after" situations should be readily available to the public, such that it can be clearly demonstrated that there are no predicted level increases, however small, within the city

Experience tells us that in practice such compensation storage is usually not particularly efficient, due to level and distance issues. For example, the provision of relatively low level storage (say 2 year return period) is ineffective for compensating for storage lost

near the 100 year flood level. Thus, the required storage volume is usually substantially more than the lost volume. The provision of an adequate storage volume therefore becomes more difficult.

e) Prospect of Provision:

Position of the Council and EA:

Given the above technical consideration there is an appropriate level of assessment at this stage which provides sufficient evidence to demonstrate a reasonable prospect of provision. Hydraulic modelling, (which is not considered necessary at this stage) will confirm necessary volume and delivery in flood risk terms.

Position of the Duchy of Cornwall

We would disagree with this. Since delivery of the compensation scheme is fundamental to the development the uncertainties on both the required and the available storage volumes, the environmental impacts, land ownership and the effectiveness of storage do not give sufficient confidence that a suitable upstream storage scheme can be delivered and that the development can be brought forward in the short to medium term. Indeed, there are many significant uncertainties for each of the three sites regarding the prospects of delivering storage

The modelling IS necessary at this stage because the proposals depart significantly from the normally accepted principles of flood compensation. Detailed modelling at an early stage is vital to confirm whether there is any prospect of the proposed upstream storage being effective. The control systems used for filling and emptying storage are key to the overall efficiencies and so must be modelled. Inappropriate controls can make storage ineffective.

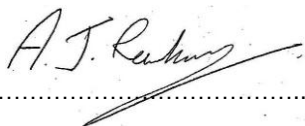
4.0 Further work to progress the potential scheme

- Hydraulic river modelling to confirm the required volume of upstream storage is currently being undertaken by WYG on behalf of the B&NES.
- Further assessments including the assessment of environmental impacts and detailed costing for three sites identified in the Phase 1 report are being prepared by WYG.
- The Council is undertaking a capacity assessment of the previously proposed park and ride site adjacent to the Batheaston site in the Phase 1 report. The site is entirely within flood zone 1 therefore a much bigger volume can be accommodated than indicated in Phase 1 report. The assessment should be completed shortly.
- Public consultation to identify the preferred site(s) will take place in spring 2012.
- Overall funding framework though the Regional Infrastructure Fund is agreed and once the specific scheme is agreed, the Council will apply to release the funding prior to the individual developments coming forward along the river corridor.

5.0 Declaration

The contents of this document are agreed for the purposes of the B&NES Core Strategy hearing.

Signed on behalf of Environment Agency

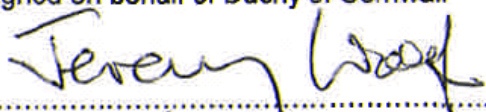


Position...Planning Liaison Officer.....

Date30/01/2012.....

Signed on behalf of Duchy of Cornwall

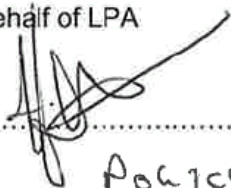
Signed on behalf of Duchy of Cornwall



Position... Agent

Date 30/1/12

Signed on behalf of LPA



Position... POLICY & ENVIRONMENT MANAGER

Date 30/1/12