The Parish of Sandon and Burston in the Borough of Stafford

Neighbourhood Plan 2031

Evidence Base Document (Supplemental)

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8.3 – Environment Agency correspondence 14th October 2015

From: Dingley, John [john.dingley@environment-agency.gov.uk]
Sent: 14 October 2015 11:57
To: Raj Bains
Cc: BRIAN BOUGHEY; Paul Shaw
Subject: RE: Sandon and Burston Neighbourhood Plan

Hi Raj,

The Parish Council and their agents have done a lot of work to establish the true extent of flooding on the sites you list below. This includes the commissioning of a HEC RAS model (which has been reviewed and approved by the EA) and confirms that the amount of Flood Zone 3 in this location is less than what is shown on our indicative Flood Maps. We are therefore confident that the limited amount of development proposed on these sites could be brought forward in a safe and sustainable manner.

I am unsure of the level of information that has been submitted to the LPA as part of the evidence base. To date, we have not seen the latest version of the NP and as such it is difficult for us to comment further. However, I am led to believe that a Policy has been included that clearly states that no development will take place on land within Flood Zone 3. This would be a minimum requirement from our perspective. It is also acknowledged that further modelling will be required at the detailed planning application stage to determine the extent of Flood Zone 2 so that any necessary mitigation measures can be taken.

Obviously, the requirement for these sites to pass the Sequential Test (ST) still remains and we have made the Parish Council aware of this fact throughout our discussions. However, it should be noted that the Environment Agency does not comment on the comparative assessment of land, its availability or suitability for a particular form of development. It is for the local planning authority to determine whether or not there are other sites available at lower flood risk as required by the ST in the National Planning Policy Framework. Guidance on the application of the ST is available in the Planning Practice Guidance (http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/applying-the-sequential-test-in-the-preparation-of-a-local-plan/).

Please let me know if you require any further clarification. If you wish to consult us on the plan itself we will be happy to provide additional comment.

Regards,

John

From: Raj Bains [mailto:Rbains@staffordbc.gov.uk]
Sent: 12 October 2015 15:39
To: Dingley, John
Cc: BRIAN BOUGHEY; Paul Shaw
Subject: Sandon and Burston Neighbourhood Plan

Hi John

I hope you are well.

With regard to the Sandon and Burston Neighbourhood Plan, please can you provide me with some clarity as to whether the proposals set out below are acceptable and if further tests will or will not be required to assist the Parish Council to move forward? Just so you know, that due to the location of these proposed areas, in the first instance, we would request that a sequential test is carried out to demonstrate that no alternative sites are available and if this test indicates that no other sites are not available, a Flood Risk

Assessment will need to be provided to support the allocation of these sites in the Neighbourhood Plan to demonstrate that the development is safe during its lifetime without increasing the flood risk. With this in mind, I would be very grateful if you can confirm how the Parish Council should proceed with regards to the 3 proposals indicated above.

Below is my understanding of your recent correspondence with the Parish Council.

Land adjacent to Burston Hall (Project 12) located in Flood Zones 2 and 3. Based on additional information provided, Environment Agency accept that the flood risk is lower than the current mapping indicates and the principle of 2 dwellings is deliverable and policy compliant. However further work is required to provide a detailed flood outline of Jolpool Brook in order to establish impact on this site and a formal sequential test would also need to be undertaken to demonstrate no other sites are available.

Land at Burston Lane (Site 1/ Project 13 and 14) and Land at Green bungalow – (Site 2/ Project 15) hydraulic modelling was requested. The hydraulic assessments received for Site 1 indicated that this site is unlikely to be affected by flooding and Site 2 is likely to flood but the extent is unknown and therefore accept the principle of development in these locations, providing it is outside of Flood Zone 3. However both these sites are identified in Flood Zone 3,

I look forward to your response.

Kind Regards

Raj Bains
Neighbourhood Planning Officer
Forward Plans Team
01785 619591

Kev Ryder

From: Dingley, John [john.dingley@environment-agency.gov.uk]
Sent: 15 April 2015 16:11
To: Kev Ryder
Subject: FW: Sandon & Burston NP: Sites Affected by Flooding

Hi Kevin,

Having reviewed the information submitted the EA wishes to make the following comments:

Land adjacent to Burston Hall:
The Agency's flood maps indicate that the proposed development site referred to as 'Land adjacent to Burston Hall' is located within Flood Zones 2 and 3. Additional information has been provided in the form of a Flood Risk Assessment (FRA) for Burston Hall dated May 2009 which included results of hydraulic modelling of the Jolpool Brook. This provided some flood level information for the ordinary watercourse which runs through Burston.

The new information includes details of the location of cross sections related to the hydraulic model and topographic survey of the proposed development site. The FRA states the modelled levels indicate that flows on the Jolpool Brook remain in bank for the 1 in 100 year plus climate change event. It is suggested that the bridge may restrict flows and cause some overtopping but that these flows would be routed towards the River Trent or along the road but would not impact on the site. The topographic survey for the site indicates that levels are also higher than modelled flood levels on the River Trent.

The information provided therefore indicates that the Agency's published floodplain overestimates the extent of flooding in this location.

Based on the additional information provided we accept that flood risk on the site is likely to be lower than our current mapping indicates. Therefore the principle of development of two dwellings at this location is likely to be deliverable and policy compliant. However, prior to development further work will be required in order to provide a detailed flood outline for the Jolpool Brook to establish the impact this has on the site. We have not as yet reviewed the hydraulic model and this may need revisiting as part of any new application for development in this location. This additional information should form part of a site specific FRA to be submitted as part of a planning application, and will inform any mitigation measures that may be required to ensure the site is developed safely. A formal sequential test would also need to be undertaken to demonstrate that there are no other sites available.

Land at Burston Lane:
The Agency's flood maps indicate that the proposed development site referred to as 'Land at Burston Lane' is located within Flood Zone 3. Additional information in the form of a topographical survey and watercourse cross sections were provided as supporting evidence in January 2015. However, the floodplain information at this location is based on generalised JFlow mapping and we do not hold specific flood level data to inform development of this site. We note that the hydraulic modelling undertaken to date does not extend as far as the site in question. For us to be able to further comment on flood risk on this site we would need to see the Hydraulic Model extending to north of A51 to provide site specific flood levels.

Land at the Green Bungalow:
The Agency's flood maps indicate that the proposed development site referred to as '*Land at the Green Bungalow*' is located within Flood Zone 3. Additional information in the form of a topographical survey has been provided as supporting evidence. However, the floodplain information at this location is based on generalised JFlow mapping and we do not hold specific flood level data to inform development of this site. We note that the hydraulic modelling undertaken to date does not extend as far as the site in question. For us to be able to further comment on flood risk on this site we would need to see the Hydraulic Model extending to north of A51 to provide site specific flood levels.

In Summary:

We therefore recommend that the sites '*Land at Burston Lane*' and '*Land at the Green Bungalow*' are withdrawn from the plan and alternatives outside the floodplain are considered in preference. If no alternative sites outside the floodplain are available, the allocation of these sites would need to be supported by a Strategic Flood Risk Assessment (SFRA) ***PRIOR*** to the Neighbourhood Plan's adoption. This is required prior to the sites allocation to demonstrate that it is possible to bring the sites forward without being in conflict with national and local planning policy. The SFRA must demonstrate that the developments will be safe for their lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible reducing flood risk overall. A formal sequential test would need to be undertaken to demonstrate there are no other sites available. A detailed flood risk assessment may also be required in support of the planning application.

Following the submission of further information we consider that the site '*Land adjacent to Burston Hall*' could remain in the plan. However, a flood risk assessment will be required at detailed application stage and this should be reflected within a Neighbourhood Plan policy. The information submitted to the EA relating to the assessment of flood risk on this site will need to be submitted to the LPA in order for it to be formally included within the evidence base supporting the plan.

I hope this helps.

Should you have any further queries please get in touch.

Thanks.

John Dingley

Kev Ryder

From: Dingley, John [john.dingley@environment-agency.gov.uk]
Sent: 23 July 2015 14:50
To: Kev Ryder
Cc: Smith, Lucy J
Subject: RE: Burston and Sandon Neighbourhood Plan Sites - Hydraulic Assessment
Attachments: image001.jpg

Hi Kev,

We have reviewed the modelling submitted in support of the Burston & Sandon Neighbourhood Plan and wish to make the following comments.

This model covers 2 sites proposed for development within the NP area. Both are currently shown on the Environment Agency's flood maps as being located in Flood Zone 3, an area of land with a high probability of flooding. The modelling the Agency holds is high level jflow and as such does not provide detailed flood level information for these sites. In view of this, RAB consultants have produced a Hec Ras hydraulic model to provide further detail on the extant of flooding at these locations.

Results of the modelling indicates that due to the height of the A51, Site 1 is unlikely to be affected by flooding during any event used within this assessment. However, some flooding may occur if the culvert under the A51 were to become blocked. The modelling also confirms that Site 2 will flood during the 1 in 100 and 1 in 100 year (plus climate change) annual probability events.

It should be noted that the hydraulic modelling does not include the 1 in 1000 year event. As such the extent of Flood Zone 2 is unknown. Residential development is acceptable within Flood Zone 2 so long as appropriate mitigation is provided – floor levels should be set at least 600mm above the predicted 1 in 100 year flood level. A means of safe dry access to/from the site should also be identified. We therefore accept the principle of development in these two locations providing it is outside of Flood Zone 3. You will need to speak to the LPA to discuss any requirements regarding the sequential test and evidence base. It may be worthwhile re-drawing the site boundary to exclude any land within Flood Zone 3.

Our National Modelling Team have approved the Hec Ras Model deeming it fit for purpose. However, should the sites come forward for development in the future this modelling will need refining. This includes using the FEH Statistical method to assess the hydrology and provision of rationale for the final choice of method used. If the model is developed further it would be useful to undertake unsteady runs to capture attenuation upstream of the culvert and some sensitivity testing of the downstream boundary should be carried out with rationale of how it has been derived.

Hope this helps.

Regards,

John Dingley

Kev Ryder

From: Dingley, John [john.dingley@environment-agency.gov.uk]
Sent: 30 July 2015 16:28
To: Kev Ryder
Cc: Smith, Lucy J
Subject: RE: Burston and Sandon Neighbourhood Plan Sites - Hydraulic Assessment
Attachments: image001.jpg

Hi Kev,

Just managed to speak to Lucy about this. We'd have no objections in principle to the proposed access road across the watercourse / within Flood Zone 3.

As I have already suggested, it may be prudent for you to speak to the LLFA about this (Staffordshire County Council) as they will ultimately approve/consent any such works and will be able to advise on a suitable design standard. They can be contacted at flood.team@staffordshire.gov.uk.

Your site boundary will have to be re-drawn to incorporate the proposed access road (if it doesn't already). You will also need to consider this in your work on the sequential test.

All other issues such as modelling for blockages etc can be addressed at the detailed application stage. If the proposed road were to flood (i.e. it couldn't be raised above the 1 in 100 year flood level) you may have to consider emergency access/egress arrangements.

Hope this helps.

John

8.4 – Flood Risk Sequential Test October 2015

Sequential Flood Risk Test for the Sandon and Burston Neighbourhood Plan

Introduction

This Sequential Test relates to 3 of our proposed projects/allocations for new development in Burston within our proposed submission Sandon and Burston Neighbourhood Plan (NP).
This Sequential Test draws upon information gathered and detailed within Stafford Borough Council's (SBC) own, Environment Agency (EA) approved, Borough wide Strategic Flood Risk Assessment (SFRA) (January 2008 / revised March 2012), produced in conjunction with the formation of the current Local Plan, the PSB, the Environment Agency's own Flood Zone Mapping and associated Flood Risk data specifically relevant to the subject location/s, and also that gathered as part of our Neighbourhood Plan process, including additional and more detailed Strategic Flood Risk reporting and assessment in consultation with the Environment Agency.

This Test follows the steps outlined in the National Planning Policy Framework (NPPF) and accompanying Technical Guidance (NPPF – TG), and follows examples of best practice as highlighted by the EA.
The NPPF at paragraph 100 requires' Local Plans' such as our Neighbourhood Plan to "apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by applying, where required, the Sequential Test, and, if necessary, applying the Exception Test"

The purpose of this Sequential Test exercise is to ensure that new development within our NP is steered toward areas with the lowest probability of flooding, thus, directing development away from areas of highest risk, where possible.
Whilst this Sequential approach is a National Planning Policy Requirement, it is not intended to prevent all development on sites liable to flooding, with the flood risk vulnerability designation of the intended land use/s matched to the designated flood risk of the site, and where development is necessary, making it safe without increasing flood risk elsewhere.

Our Neighbourhood Plan has been prepared to provide a vision for how our Parish wants to evolve and a delivery strategy for how that will be achieved.
In preparing our Neighbourhood Plan, given the current SBC- SFRA and indicative Flood Zone Mapping, and location of 3 of our proposed projects/allocations, we are required to undertake a flood risk test, using a sequential approach to, where reasonably possible, steer new development to areas at the lowest risk of flooding.

The NPPF tells us at paragraph 101 that a Sequential approach should be used in areas 'known' to be at risk from any form of flooding.
The NPPF-TG tells us at paragraph 3 that the Flood Zones, as defined (Table 1 – NPPF-TG), are the 'starting point' for a sequential approach.
The NPPF-TG tells us at paragraphs 4 & 7 that the Strategic Flood Risk Assessment, produced in conjunction with, and to support the Local Plan, in this instance being the SBC-SFRA, provides the basis for applying a Sequential Test, on the basis of the Table 1 Flood Zones, in the development allocation and development control process.
Where an SFRA is not available, the Sequential Test will be based upon the EA Flood Zones.

Flood Zones

The NPPF-TG tells us at paragraph 3 that the Flood Zones, as defined (Table 1 – NPPF-TG), are the 'starting point' for a sequential approach.
It further states that Flood Zones 2 & 3 are shown on the Flood Map (the EA Flood Zone Mapping), with Flood Zone 1 being all that land falling outside Flood Zones 2 & 3, and that these Zones refer to the probability of Sea and River Flooding only, ignoring the presence of existing defences.

These NPPF-TG Table 1 Flood Zones, as defined, are summarised below in the following Table A;

Table A – Summary of NPPF-TG Table 1 Flood Zones

Flood Zone	Risk of Fluvial Flooding
1 – Low Probability	**Definition** This Zone comprises land assessed as having a less than 1 in 1,000 annual probability of River or Sea flooding (<0.1%). **Appropriate Uses** All uses of land are appropriate in this Zone.
2 – Medium Probability	**Definition** This Zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of River flooding (1% - 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of Sea flooding (0.5% - 0.1%) in any year. **Appropriate Uses** Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in Table 2, are appropriate in this Zone. The highly vulnerable uses are *only* appropriate in this Zone if the Exception Test is passed.
3a – High Probability	**Definition** This Zone comprises land assessed as having a 1 in 100 or greater annual probability of River flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the Sea (>0.5%) in any year. **Appropriate Uses** The water-compatible and less vulnerable uses of land (Table 2) are appropriate in this Zone. The highly vulnerable uses should not be permitted in this Zone. The more vulnerable uses and essential infrastructure should only be permitted in this Zone if the Exception Test is passed. Essential infrastructure permitted in this Zone should be designed and constructed to remain operational and safe for users in times of flood.
3b – The Functional Floodplain	**Definition** This Zone comprises land where water *has* to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain. **Appropriate Uses** Only the water-compatible uses and the essential infrastructure listed in Table 2 that has to be there should be permitted in this Zone It should be designed and constructed to: • Remain operational and safe for users in times of flood; • Result in no net loss of floodplain storage; • Not impede water flows; and • Not increase flood risk elsewhere Essential infrastructure in this Zone should pass the Exception Test.

Flood Risk Vulnerability

The NPPF-TG tells us at paragraph 5 that the overall aim should be to steer new development to Flood Zone 1.
However, where there are no 'reasonably available' sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should take into account the Flood Risk Vulnerability of land uses (NPPF-TG-Table 2), and consider 'reasonably available' sites in Flood Zone 2, applying the Exception Test, if required (NPPF-TG-Table 3).
Only where there are no reasonably available sites in Flood Zones 1 or 2, should the suitability of sites in Flood Zone 3 be considered, taking into account the Flood Risk Vulnerability of land uses and applying the Exception Test if required.

These NPPF-TG Table 2 Flood Risk Vulnerability Classifications, as defined, are displayed below in the following Table B;

Table B – NPPF-TG Table 2 Flood Risk Vulnerability Classifications

Title	Vulnerability Classification
Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly Vulnerable	• Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent (where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure").
More Vulnerable	• Hospitals • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, *subject to a specific warning and evacuation plan.*
Less Vulnerable	• Police, ambulance and fire stations which are *not* required to be operational during flooding. • Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable", and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do *not* need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).

Water - Compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, *subject to a specific warning and evacuation plan*.

Flood Risk Vulnerability & Flood Zone Compatibility

The NPPF-TG tells us at paragraph 5, consistent with paragraph 102 of the NPPF, that where there are no 'reasonably available' sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should take into account the Flood Risk Vulnerability of land uses (NPPF-TG-Table 2), and consider 'reasonably available' sites in Flood Zone 2, applying the Exception Test, if required (NPPF-TG-Table 3).
Only where there are no reasonably available sites in Flood Zones 1 or 2, should the suitability of sites in Flood Zone 3 be considered, taking into account the Flood Risk Vulnerability of land uses and applying the Exception Test if required.

The NPPF-TG-Table 3 brings together both the Flood Zones, as defined (NPPF-TG-Table 1), and the Flood Risk Vulnerability Classifications, as defined (NPPF-TG-Table 2), demonstrating which type of development can be appropriately located in each Flood Zone, and where the Exception Test is required.
This is displayed below in the following Table C;

Table C – NPPF-TG Table 3 Flood Risk Vulnerability & Flood Zone Compatibility

Flood Zone	**Flood Risk Vulnerability Classification**				
	Essential Infrastructure	**Water Compatible**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**
Zone 1 – Low Probability	Yes	Yes	Yes	Yes	Yes
Zone 2 – Medium Probability	Yes	Yes	Exception Test Required	Yes	Yes
Zone 3a – High Probability	Exception Test Required	Yes	No	Exception Test Required	Yes
Zone 3b – Functional Floodplain	Exception Test Required	Yes	No	No	No

Key: Yes = Development is appropriate
No = Development should not be permitted

Exception Test

Whilst the Exception Test is a National Planning Policy Requirement, it is not intended to prevent all development on sites liable to flooding; accepting that some form of development may have to be located here.

The Exception Test is only appropriate when there are large areas in Flood Zones 2 & 3, where the Sequential Test alone cannot deliver acceptable sites, but where some continuing development is necessary for wider sustainable development reasons.

It may also be appropriate where restrictive National designations, such as Landscape, Heritage and Nature Conservation prevent the availability of unconstrained sites in lower risk areas.

In the context of this Sequential Test, as displayed, the Exception Test is not required.

EA Flood Zone Mapping

The EA published Flood Maps, or, Flood Zone Mapping, in the absence of detailed watercourse and flood risk modelling, reflect the generalised and high level 'jflow' modelling undertaken by themselves, and therefore do not provide detailed and accurate flood level information.

In the context of this Sequential Test, this is confirmed by the EA in their correspondence of the 23rd July 2015, being our Evidence Base Document reference 8.1.
The EA further confirm in this document that they do not hold any detailed flood level/risk information for the 3 sites that are the subject of this Test.

SBC-SFRA

The NPPF at paragraph 100 tells us that Local Plans should be supported by an SFRA.
The NPPF at paragraph 101 tells us that this SFRA will provide the basis for applying the Sequential Test.

The NPPF-TG tells us at paragraphs 4 & 7 that the Strategic Flood Risk Assessment, produced in conjunction with, and to support the Local Plan, provides the basis for applying a Sequential Test, on the basis of the Table 1 Flood Zones, in the development allocation and development control process.
Where an SFRA is not available, the Sequential Test will be based upon the EA Flood Zones.

The approach here is very simple, in that;
The SFRA has the ability to 'potentially' provide a greater degree of accuracy and detailed flood risk information regarding any given location, over and above that provided by the generalised EA Flood Maps, and therefore, for obvious reasons, if available, is the preferred source to inform a Sequential Test.

In the context of this Sequential Test, the SFRA being Stafford Borough Council's (SBC) own, Environment Agency (EA) approved, Borough wide Strategic Flood Risk Assessment (SFRA), of January 2008 and revised in March 2012, produced in conjunction with the formation of the current Local Plan, the PSB.

In the context of this Sequential Test;

Executive Summary – Page 3
The SFRA, at paragraph 2, states that it does take full account of climate change predictions.

The SFRA, at paragraph 3, states that Flood Zones 1, 2 and 3 have been mapped using data collected from the EA, SBC, Severn Trent Water (STW), the Highways Agency (HA), and British Waterways (BW), and that this includes information on flooding from rivers, surface water (land drainage), groundwater, artificial water bodies and sewers.
It concludes this paragraph by confirming that it does provide the basis for a Sequential Test to be applied.
This is reaffirmed at Section 1.5, paragraph 1, Page 5, stating that it does provide sufficient data and information to enable SBC to apply a Sequential Test to land use allocations.

The SFRA, at paragraph 4, states that SBC will need to apply a Sequential Test to all sites within Flood Zones 2 & 3 to demonstrate that there are no reasonably available sites in areas with less risk of flooding that would be appropriate to the type of development or land use proposed.
This reaffirmed at Section 1.5.1, paragraph 1, Page 6, stating that a Sequential Test is applied to demonstrate that there are no reasonably available sites in areas with less risk of flooding that would be appropriate to the type of development or land use proposed.

1.2 – Project Aims – Page 4
The SFRA, at paragraph 2, states that its aim is to map all forms of flood risk and use this as an evidence base to locate new development 'primarily' in Flood Zone 1, and where development cannot be located in Flood Zone 1, SBC will need to apply a Sequential Test to land use allocations.

1.5.1 – The Sequential Test – Page 6
The SFRA, at paragraph 2 states that preference should be given to locating new development in Flood Zone 1.
If there is no reasonably available site in Flood Zone 1, the Flood Vulnerability of the proposed development can be taken into account in locating development in Flood Zone 2, using the above Table C (PPG-TG-Table 3).

3.3.1 – Flood Zones – Page 17
The SFRA, at paragraph 3 states that its Flood Zone Maps have been produced from two sources: EA Flood Zone Maps, published and updated quarterly on their website, and, detailed local hydraulic model outlines.

3.4 – EA Flood Zone Maps – Page 17
The SFRA, at paragraph 1, reaffirming comments made above on Page 5, states that most of Flood Zones 2 & 3 upon this national dataset produced by the EA are derived from the JFlow modelling package, which is a 'coarse' modelling approach.
It further states that, in many places, the results of detailed flood mapping studies, generally including hydrological research, surveyed river cross sections, and precise digital modelling, such as ISIS, TuFlow and HecRas, have superseded the JFlow outlines.

4.2 – Historical Flooding – Page 18
The SFRA, at paragraph 3, states that it has only gathered anecdotal reference data to flooding throughout Stafford Borough, with little data available from flood management studies, and no historical flood outlines available from the EA.

4.3 – Fluvial Flood Risk in Stafford Borough as defined by the Flood Zone Maps – Page 18
The SFRA, at paragraph 1, states that it's Flood Zone Maps, show an 'indication' of the locations at risk from fluvial sources within Stafford Borough.

The SFRA, at paragraph 6 of this Section, upon Page 19, states that, at Burston, the Jolpool Brook joins the River Trent, and it 'appears' that the majority of the village is located in Flood Zone 3.
It goes on to state that, again, this 'could' be the influence of the River Trent rather than the Jolpool Brook.

4.4 – Flooding from Other Sources – Page 20
The SFRA, at paragraph 1, states that it has gathered information on flooding experienced from sources other than rivers, which are described in the following sub-sections;

4.4.1 – Flooding from Artificial Drainage Systems and Surface Water Runoff – Page 20
The SFRA, across this sub-section states that information on flooding from surface water and artificial drainage sources has been provided by STW in the form of four digit postcode locations as recorded within their DG5 Flood Register, which includes records of flooding from foul, combined and surface water sewers, yet, given that this recording of flood events has often led to network improvements, historical flooding is 'not necessarily' evidence of propensity for future flooding.

The STW DG5 Register, as displayed upon Page 21 of the SFRA, shows that there are 6 number properties at risk from flooding within the ST18 0 Postcode Area, which, does include Burston; and, Sandon, Weston, Salt, Great Haywood, Little Haywood, Hixon, North East Stafford Town, and all that land in between, being a significant geographic area, and these events could have occurred anywhere with the same, with no evidence to attribute these to Burston.

The final sub-section paragraph upon Page 22 states that consultation with both the Highways Agency and Highways Authority did not return any data in respect of Highway Flooding.

4.4.2 – Flooding from Impounded Water Bodies – Page 22
The SFRA, across this sub-section states that this sub-section refers to flooding from reservoirs and canals.
It states that consultation with BW has indicated two incidences related to flood risk from the canals, being at Church Eaton and High Offley.

It states that reservoirs with an impounded volume in excess of 25,000 cu m are governed by the Reservoirs Act 1975 and are listed on a register held by the EA, and that, due to high standards of inspection and maintenance, normally flood risk from registered reservoirs is moderately low.
The SFRA records no flood events in respect of those five reservoirs in the Borough area.

4.4.3 – Flooding from Groundwater – Page 23
The SFRA, across this sub-section states that consultation with the EA, who holds records of groundwater levels on their WISKI database, and also records of instances where high water tables has led to individual groundwater flooding events, has suggested that there are no known problems with flooding from groundwater within the Borough area.

5 – Strategic Flood Risk Mapping – Page 24
5.1 – Strategic Flood Risk Maps – Page 24
The SFRA, across this sub-section states that it has sought to use Flood Zone outlines which have been produced using detailed modelling techniques in preference to the EA Flood Zone Mapping, with the SFRA Strategic Flood Risk Mapping showing flood risk from sources including fluvial, surface

water, foul and combined sewers, groundwater and impounded water bodies such as rivers and canals.
The SFRA Flood Risk Map – Tile B4, showing Burston, is included below at Appendix 1.

5.1.1 – Hydraulic River Models – Page 25
The SFRA, across this sub-section states that there are only two EA hydraulic river models which adhere to the SFRM specification, being for the rivers Sow and Penk and The Rising Brook, and that these, and their associated Flood Zone and climate change outlines have been used in the production of its SFRA Flood Maps.

It further states that a hydraulic model exists for the River Trent, and Flood Zone 3 has been modelled.
Comparison of the EA's outlines show that this outline is already adopted and therefore no further work has been done to replace it, with this outline used in the SFRA Flood Maps.

Further Strategic Flood Risk Assessment & Reporting – in conjunction with the EA

As part of the formation of our NP, further strategic flood risk assessment and reporting has been gathered, in conjunction with the EA, and subsequently assessed by them.

The information provided being;
Project 8 – Land adjacent to Burston Hall – EA Flood Zone Mapping / SBC SFRA = 2 & 3
Site Specific FRA, including Hydraulic Modelling & Watercourse Section Surveys of Jolpool Brook.
Topographical Survey.

Projects 9/10 – Land at Burston Lane - EA Flood Zone Mapping / SBC SFRA = 3
SFRA, including Hydraulic Modelling & Watercourse Section Surveys of Jolpool Brook.
Topographical Survey.

Project 11 – Land at The Green Bungalow - EA Flood Zone Mapping / SBC SFRA = 3
SFRA, including Hydraulic Modelling & Watercourse Section Surveys of Jolpool Brook.
Topographical Survey.

This information and the conclusions of the EA form part of this Sequential Test.

The Sequential Test

Having established above, all of the Policy requirements and criteria, and localised strategic flood risk information within the SBC-SFRA relevant to this Test, we now turn our attention to the same.

Our NP and relevant projects/allocations
Our Neighbourhood Plan sets a quantum of some 26 to 30 new homes and some 735sq m of commercial floor space for the Plan period up to 2031, across some 13 proposed projects/allocations.

3 of our proposed Neighbourhood Plan projects/allocations are located in areas of potential Flood Risk, as identified by the SBC- SFRA and EA Flood Zone Mapping.

The 3 subject proposed Neighbourhood Plan projects/allocations are;
Project 8 – Land adjacent to Burston Hall – EA Flood Zone Mapping / SBC SFRA = 2 & 3
Projects 9/10 – Land at Burston Lane - EA Flood Zone Mapping / SBC SFRA = 3
Project 11 – Land at The Green Bungalow - EA Flood Zone Mapping / SBC SFRA = 3

Question 1 / Table 1 – Are the proposed allocations within Flood Zone 1 ?

Table 1

Question 1 – Are the proposed allocations within Flood Zone 1 ?	
Yes	**Development areas wholly within Flood Zone 1:** Project 8 – Land adjacent to Burston Hall **Development areas primarily within Flood Zone 1:** Project 8 – Land adjacent to Burston Hall
No	Projects 9/10 – Land at Burston Lane Project 11 – Land at The Green Bungalow

Question 1
The above Table displays Project 8 as being both wholly and primarily within Flood Zone 1, with Projects 9/10 and 11 being outside Flood Zone 1.

Currently, Project 8 is displayed upon both the EA Flood Zone Mapping and the SBC-SFRA Flood Maps as being within Flood Zones 2 & 3, and Projects 9/10 and 11 displayed as being within Flood Zone 3.

In the context of Question 1, our further Strategic Flood Risk Assessment and Reporting has identified only Flood Zone 3 in respect of Projects 9/10 and 11, with Flood Zone 3 present only upon part of Project 9/10.
Therefore, it is not known at this time whether Projects 9/10 and/or 11 will be partially or wholly within Flood Zone 1 or 2, so we have taken the cautious approach at this Test that they are not in Flood Zone 1, and assumed to be in Flood Zone 2.
This will be determined at any future detailed planning application stage, as endorsed by the EA in their correspondence of the 14 October 2015, being our Evidence Base Document reference 8.3.

In the context of Question 1, our further Strategic Flood Risk Assessment and Reporting has identified, in respect of Project 8, that the extent of Flood Zones 2 and 3, as indicated, is not case, and that there is no presence of Flood Zone 3, and that the extent of Flood Zone 2, as stated by the EA, is far less then indicated, with the probability that the vast majority of this site will in actual fact, be within Flood Zone 1, hence the above.

Question 2 / Table 2 – Could the following proposed allocations be alternatively located in Flood Zone 1 ?

Table 2

Question 2 – Could the following proposed allocations be alternatively located in Flood Zone 1 ?	
Projects	Projects 9/10 – Land at Burston Lane Project 11 – Land at The Green Bungalow
No	**a) Identify alternative sites that were considered and explain why they were dismissed** The NPPF at Para 101 and its TG at Para 5 expresses that such alternative sites are required to be 'reasonably available'. As displayed upon both the EA Flood Zone Mapping and SFRA Flood Map (Tile B4), the extent of Flood Zones 2 and 3 at this location are extensive. Whilst we have shown, in respect of our investigations into these 3 proposed allocations, that these Flood Zone Maps are not definitive, there is no merit in, having expended considerable resource into these 3 sites and determined that they are in principle acceptable, to pursue other sites within these Zones, as indicated, with potentially a more negative outcome than those 3 proposed. Given this constraint, along with wider constraints documented within Section 6.3 of our NP Basic Conditions Statement, 3 other potential sustainable, non-isolated, infill/edge of settlement locations were considered at part of our NP formation process. These being: 1. Land to the South West of Woodcock Lane 2. Land to the South East of Burston Lane, adjacent to the Railway Line 3. Land to the South East of Burston lane, adjacent to the Greyhound Inn All these land areas are indicated via the Flood Zone Maps to be within Flood Zone 1. Sites 1 & 2 were determined to be in private ownership and not available. Site 3 did initially form a NP proposal, albeit for a different purpose than those proposed, yet was later withdrawn by the owner, therefore, not available. All 3 potential alternatives being therefore, not reasonably available. **b) Explain why the proposals cannot be directed to Flood Zone 1** As stated in Question 1, it is assumed currently that both sites will be located within Flood Zone 2, yet may, in the final analysis, be actually within Flood Zone 1. On the basis of being within Flood Zone 2 – as displayed above, there is no reasonably available land availability to enable this, and, in any event, the uses proposed are deemed under the NPPF & NPPF-TG to be appropriate within Flood Zone 2.

Question 2

The purpose of the Sequential Test is to steer development towards areas with the lowest probability of flooding, primarily Flood Zone 1, and if not reasonably available, then to consider development within Flood Zone 2, and then 3, taking into account the vulnerability of the uses proposed.

The above displays this approach has been undertaken in accordance with the NPPF and its TG.

Question 3 / Table 3 – For Proposed Allocations in Flood Zone 2

Table 3

Question 3 – For Proposed Allocations in Flood Zone 2	
Projects	**Locations in Flood Zone 2 include, in whole or in part:** Projects 9/10 – Land at Burston Lane Project 11 – Land at The Green Bungalow

Question 3a – Are the Proposed Uses in the 'Water Compatible', 'Less Vulnerable', 'More Vulnerable', 'Highly Vulnerable', or 'Essential Infrastructure' Flood Risk Vulnerability Classifications set out in Table B ?	
Yes	**List the proposed uses in these Classifications within Flood Zone 2:** Water Compatible – None Less Vulnerable – Bullet 2 More Vulnerable – Bullet 3 Highly Vulnerable – None Essential Infrastructure – None **These proposals are appropriate if located in Flood Zone 2. Hence, there is no need to proceed with the Exception Test.**
No	**List the proposed uses not in these Classifications:** None
Question 3b – Can the more flood sensitive development types ('Highly Vulnerable' & 'More Vulnerable') be directed to parts of the site where the risks are lower for both the occupiers and the premises themselves?	
No	As explained in Question 1 above, it is assumed at this time that both of these Projects and their proposals will be situated and take place within Flood Zone 2. Should these sites be determined to be Flood Zone 1, then optimum use will be made of the same, but, in any event, both uses are deemed 'appropriate' within the NPPF-TG.

Question 3

As stated in Question 1, in respect of these sites, the actual extent of Flood Zones 1 and 2 are not yet determined, so for the purposes of this Test, have been assumed to be wholly in Flood Zone 2.

In any event, the uses proposed are deemed by both the NPPF-TG and EA to be 'appropriate'.

Question 4 / Table 4 – For Broad Locations in Flood Zone 3a

Table 4

Question 4 – For Broad Locations in Flood Zone 3a	
Projects	**Locations in Flood Zone 3a include, in whole or in part:** Projects 9/10 – Land at Burston Lane
Question 4a – Can the development proposal be redirected to Flood Zone 2?	
Yes	Further SFR Assessment & Reporting has identified that part of the above site is within Flood Zone 3. No development is proposed within the same, and whilst this does currently form part of the geographic, Broad Location boundary, once a detailed scheme is proposed, and the extent of remainder identified as either Flood Zone 1 or 2 – assumed at this time to be Zone 2, Via site specific FRA at detailed application stage, the 'development' boundary of the site will be re-drawn to exclude that with Flood Zone 3, as identified. This is endorsed by the EA in their correspondences of the 23rd July & 14th October, being our Evidence Base Document references 8.1 & 8.3. This is reinforced via our NP Policy SD1.
Question 4b – Are the development proposals in the 'Water Compatible' or 'Less Vulnerable' Classifications?	
No	**List the proposed uses not in these Classifications:** More Vulnerable – Bullet 3. As stated above to 4a, this is not applicable, as the presence of Flood Zone refers only at this time to the broad, geographic location, as per the headline Question 4, and not to the proposed development, which, will not take place in Flood Zone 3, as identified.
Question 4c – Is the development proposal in the 'Highly Vulnerable' Classification?	
No	Not Applicable
Question 4d – Can the more flood sensitive development use types ('Highly Vulnerable' & 'More Vulnerable') be directed to parts of the site where the risks are lower for both the occupiers and the premises themselves	
Yes	As stated, whilst forming part of the overall Broad Location at this time, no development will take place within Flood Zone 3.

Question 4

Whilst part of this 'broad' location is situated within Flood Zone 3, no development will take place within the same, save for the provision of a point of access from Burston Lane, with development taking place wholly within, what is currently assumed for the purpose of this Test, to be in Flood Zone 2.
Further assessment and reporting at detailed planning application stage will determine the actual extent of Flood Zones 1 and 2, and once identified at that stage, will the boundary line be re-drawn in accordance with the detailed scheme proposed.
All the above is reinforced via our NP Policy SD1, and has been determined by the EA to be acceptable, as endorsed by their correspondences of the 23rd and 30th July, and 14th October, being our Evidence Base Document references 8.1, 8.2 and 8.3.

Conclusions

3 allocations are proposed in our NP, which, are shown, using primarily the SBC-SFRA Tile B4 Flood Risk Map, and also the EA Flood Zone Mapping to be within Flood Zones 2 and 3.

The EA Flood Zone Mapping is, at best, indicative, and is acknowledged as being the same, and, the SFRA Flood Risk Map, following the inclusion of more detailed analysis, and whilst therefore being to some degree more comprehensive, is largely nevertheless, also indicative.

Potential alternative locations were initially considered but later found not to be reasonably available.

Further and additional Strategic Flood Risk Assessment and Reporting was undertaken, in conjunction with the EA, as documented above, to determine the actual and true extent of flooding at these 3 locations.
All this submitted information has been both reviewed and approved by the EA, resulting in the actual amount and extent of Flood Zone 3 to be considerably less than indicated upon both the EA Flood Zone Mapping and the SFRA Flood Risk Map.

All 3 locations have been assessed at a Strategic level, and confirm the presence of Flood Zone 3 in only 1 location, being Project 9/10 – Burston Lane, and further that the actual extent of Flood Zone 3 is limited to a small part of that site.

There remains further, Site Specific Flood Risk Assessment and Reporting to be undertaken at the detailed planning application stage to determine the extent of Flood Zones 1 and 2, so that any potential necessary mitigation measures can be taken, if required, which the EA has confirmed to be acceptable.

Looking at each proposed allocation site in turn;

Project 8 – Land adjacent to Burston Hall
Initially indicated to be within Flood Zones 2 & 3.
Strategic Assessment has determined no Flood Zone 3 presence and that across the whole site; the indicated Floodplain overestimates the extent of flooding in this location, with the actual flood risk likely to be lower, with the probability that the vast majority of this site will in actual fact be within Flood Zone 1.

Project 9/10 – Land at Burston Lane
Initially indicated to be within Flood Zone 3.
Strategic Assessment has determined that Flood Zone 3 is present, but only upon a small part of this site, upon which no development will take place, save for a point of access.
It has been cautiously assumed during this Test that the remainder is within Flood Zone 2, yet site specific reporting at detailed planning application stage may determine the presence of Flood Zone 1.
In any event, the proposed use is deemed 'appropriate' within Flood Zone 2.

Project 11 – Land at The Green Bungalow
Initially indicated to be within Flood Zone 3.
Strategic Assessment has determined no Flood Zone 3 presence.
It has been cautiously assumed during this Test that the remainder is within Flood Zone 2, yet site specific reporting at detailed planning application stage may determine the presence of Flood Zone 1.
In any event, the proposed use is deemed 'appropriate' within Flood Zone 2.

The purpose of the Sequential Test is to steer development towards areas with the lowest probability of flooding, primarily Flood Zone 1, and if not reasonably available, then to consider development within Flood Zone 2, and then 3, taking into account the vulnerability of the uses proposed.

The above displays this approach has been undertaken in accordance with the NPPF and its TG.

Following Strategic Flood Risk Assessment, reviewed and approved by the EA, the proposals put forward are appropriate and can be bought forward in a safe and sustainable manner.

Appendix 1 – SBC-SFRA Flood Risk Map – Tile B4 – Burston