

**Matter 1 – Sustainability Appraisal (1.4 and 1.5 Drainage and Flooding)**

- 1.4 To what extent has the development proposed to be allocated in the Plan been assessed for its overall impact on drainage and flooding?**
- i As the allocated sites are developed, can access to the rhyne network be guaranteed for the North Somerset Internal Drainage Board?**
  - ii The Environment Agency requires contributions for managing flood risk on Uphill, Cross Rhyne and Banwell catchments. Are these viable and deliverable, and how will they be secured?**
- 1.5 Does the Plan provide sufficient safeguards for those sites which have been identified as likely to have or to contribute to flood or drainage issues?**

1. The Environment Agency (EA) has made 13 comments on the Publication Version of the Plan. The North Somerset Levels Internal Drainage Board (IDB) has made 35 comments. In both cases, the comments identify concerns to be taken into account in developing allocated sites but do not suggest that these sites are unacceptable in flood risk terms.

2. The IDB has concerns about access for maintenance and flow management within its area. This area encompasses proposed site allocations on low-lying land that is generally in Flood Zone 3 but in addition the run-off from sites in Flood Zone 1 will often cross the Levels to reach the sea.

3. Table 1 below sets out a detailed response to the relevant representations.

4. The council's response (CD1<sup>1</sup>) to the Inspector's initial letter (ID1) sets out the range of documents relied upon to assess the overall impact of development on drainage and flooding. Tables 2 and 3 (contained in separate documents: PDF files) set out in more detail how this evidence has been applied. The residential and employment development proposed to be allocated in the Plan has been assessed for its overall impact on drainage and flooding as shown in those tables.

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<sup>1</sup> <http://www.n-somerset.gov.uk/wp-content/uploads/2017/02/CD1-Council-response-to-Inspectors-letter-ID1-dated-21-March-2017.pdf>

5. The Sequential Test aims to direct development to land at the lowest probability of flooding, but this is subject to the land being appropriate for the proposed development<sup>2</sup>. The Core Strategy sets out a hierarchy of towns and villages to which development is to be directed and this provides a context for consideration of flood risk issues. No housing or employment sites are located in Flood Zone 3b (functional floodplain) and where housing sites are within Flood Zone 3a they have been assessed in terms of the Exception Test.

6. Table 2 provides a site-specific assessment of the proposed residential allocations against various sources of flood risk and associated issues. It should be noted that the level of detail possible at plan-making stage is less than at planning application stage, as the development has yet to be designed. Of the 75 sites proposed for an element of housing, there are no 'in principle' flood risk issues affecting 41. This is either because no Exception Test is required, the site is under construction, or the area of Flood Zone 3a is marginal and could be accommodated in a layout as public or private amenity space. In other cases, where Flood Zone 3a is not avoidable, the sites are generally within existing settlements and contribute to urban regeneration. Sites in Yatton are either previously developed or support the development of Yatton North End, for which a new primary school is planned. Given the steer provided by the Core Strategy, these are considered to be a wider sustainability benefit to the community that outweighs flood risk.

7. The majority of Flood Zone 3 in North Somerset is an Area Benefiting from Defences (ABD). Flood defences at the coast protect the low-lying areas of Weston, Clevedon and Portishead. There are also fluvial flood defences and few allocated sites are subject to residual flood risk. Where the SFRA Level 2 has quantified this, the flood depths for a 1-in-100 year event, including the addition to flows forecast from climate change, are in the range 0-1.5 metres. Weston benefits from recent improvements to the seafront defences, which will continue to provide a 200yr standard of protection (SoP). To maintain this standard in the light of projected sea level rise, the defences will need to be raised around the end of this century. The sea wall has been designed to allow this. In theory, new development in Weston could therefore be exposed to tidal flood risk during its lifetime but in practice is likely to benefit from further investment at the appropriate time to maintain the current SoP for the town as a whole. Fluvial flood risk at Weston has been addressed through a Strategic Flood Solution, comprising the 'superpond' at Hutton and a compound channel on the River Banwell. This additional capacity, along with landraising on committed housing sites, will mean that once these works are complete the fluvial flood risk at Weston will need to be remapped.

8. Planning officers have met with the council's Emergency Manager to examine those sites in Flood Zone 3 that do not have a current planning permission. His views are reflected in Table 2. The Emergency Manager will be consulted on relevant planning applications to ensure that layouts are safe. His advice is that Schedule 1 of the SAP should identify sites where multiple accesses would be needed for safety reasons.

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<sup>2</sup> NPPF, para. 101

9. A condition is attached to planning permission where necessary to require the submission of a Flood Evacuation Plan. The council's Emergency Management Unit comment on the adequacy of these plans. The council is therefore assured that the development is safe at the time it is first occupied. Thereafter it is the responsibility of the developer or the occupier(s) to ensure that the plan remains up-to-date. The council employs a Resilient Communities Support Officer to assist communities with their planning for flood risk.

10. Employment land is planned to accommodate office or industrial uses that are 'less vulnerable' in terms of the Planning Practice Guidance vulnerability classification and so are not subject to the Exception Test. However, applications will in most cases require a site-specific flood risk assessment. All but five proposed employment sites are 1ha or greater. Table 3 provides a summary of what is currently known concerning flood risk issues at these locations.

11. As the allocated sites are developed, access to the rhyne network for the IDB can be guaranteed through the detailed design of each site. The council would support the addition of suitable text to the relevant entries in Schedule 1 to ensure that this consideration is highlighted. IDB bylaws require 6m or 9m corridors alongside maintained watercourses, appropriate to the machinery used. Enforcement is possible under the Land Drainage Act 1991 but it is simpler to ensure that provision is made through the planning system.

12. Provision of access for rhyne maintenance could have a marginal impact on notional housing capacities. This is not in principle different from any other deduction from capacity, such as for roads or open space, and the land could be multi-purpose, subject to safety considerations.

13. A number of EA representations refer to potential financial contributions in various catchments across North Somerset. Their point is that to effectively drain the low-lying areas these watercourses will need to be maintained into the future and this becomes more important when they are serving even more developments. If the point is simply to highlight this as a key consideration then it is acknowledged to be so. This is different from being able at this stage to identify a specific need.

14. At Weston-super-Mare the challenge of accommodating development safely in a way that is compatible with the water environment is especially well understood and the council has experience in negotiating strategic solutions. The representation (1020673//2) does not specify the sites to which it relates and the council's response will differ according to where they are.

15. At the Weston Villages, provision has been made through the Strategic Flood Solution, which has already been delivered using West of England Revolving Infrastructure Fund (RIF) money. That will be repaid through S106 contributions and/or Community Infrastructure Levy (CIL) as sites come forward. Contributions have already been secured from the applications that have come forward to date, so there is no particular reason to believe that this would not continue.

16. Within the wider catchment and/or other sites in Weston, the EA has not specified the potential contributions sought and so their deliverability will depend on how much is required. As part of Weston regeneration work, the council is looking at town-wide requirements, including flood and drainage, so will identify any mitigation through that process. If works are required, then developer contributions may be sought (if proven to be justified) or the council may seek alternative public sector funding through the West of England, Homes & Communities Agency or other funders. Development contributions in Weston will to some extent be limited by viability, but flood schemes are recognised in the Infrastructure Delivery Plan as a Level 1 priority and so would be high on the list to receive any funds that become available. Flood provision in the CIL programme includes Levels & Moors long-term storage. The council expects to work with the EA and IDB to develop appropriate solutions. Sites will require SuDS to achieve greenfield run-off rates and volumes. On brownfield sites, the aim is for a 30% reduction in discharge rates/volumes.

#### **Annex: List of abbreviations used in the tables**

ABD	Area Benefiting from Defences
EA	Environment Agency
FMfSW	Flood Map for Surface Water
ha	hectare
IDB	Internal Drainage Board
LFRMS	Local Flood Risk Management Strategy
NPPF	National Planning Policy Framework
SAP	Site Allocations Plan
SFRA	Strategic Flood Risk Assessment
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
SuDS	Sustainable drainage system
uFMfSW	Updated Flood Map for Surface Water
WsM	Weston-super-Mare

**Table 1: Addressing Representatives' Concerns**

Name / comment ID / subject matter	Summary	Council response
<p><b>Environment Agency</b> 1020673//1 <i>Policy context</i></p>	<p>Climate change and/or sea level rise should be considered when designing all new developments. Sites in fluvial Flood Zone 3 should be avoided. If approved sequentially they need to provide volume for volume flood plain compensation in areas of Flood Zone 1 or Flood Zone 2 with connectivity to Flood Zone 3. Exception Tests will need to be passed for all sites in Flood Zones 2 and 3. Site specific Flood Risk Assessment's required for all sites in Flood Zone 3.</p>	<p>Climate change additional extents were mapped in the SFRA Level 1. Schedule 1 can be amended to refer to flood plain compensation.</p> <p>Flood risk is assessed in tables 2 and 3.</p>
<p><b>Environment Agency</b> 1020673//2 <i>Total for Weston-super-Mare</i></p>	<p>We are potentially seeking financial contributions for managing the flood risk on the Uphill, Cross Rhyne and Banwell catchments. Developments in the Weston Super Mare areas will potentially increase runoff into the Uphill, Cross Rhyne and Banwell catchments putting additional pressure on this length of watercourse.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>Environment Agency</b> 1020673//3 <i>Total for Clevedon</i></p>	<p>We are potentially seeking financial contributions for managing the flood risk in the Blind Yeo catchment and around Marine Lake, Salthouse Bay, Littleharp Bay and Clevedon Bay areas. Developments in the Clevedon and Nailsea areas will potentially increase runoff into the Land Yeo/Blind Yeo catchments</p>	<p>Schedule 1 can be amended accordingly.</p>

	putting additional pressure on this length of watercourse.	
<b>Environment Agency</b> 1020673//4 <i>Total for Nailsea</i>	We are potentially seeking financial contributions for managing the Land Yeo downstream of Jacklands Bridge to Church Lane Tickenham. Developments in Nailsea will potentially increase runoff into the Land Yeo putting additional pressure on this length of watercourse.	Schedule 1 can be amended accordingly.
<b>Environment Agency</b> 1020673//5 <i>Total for Portishead</i>	We are potentially seeking financial contributions for managing the flood risk on the Portbury Ditch catchment. Developments in the Portishead area will potentially increase runoff into the Portbury Ditch catchment putting additional pressure on this length of watercourse.	Schedule 1 can be amended accordingly.
<b>Environment Agency</b> 1020673//6 <i>Total for Service Villages</i>	<i>Congresbury</i>  Seeking financial contributions for managing the flood risk on the Congresbury Yeo catchment. Developments in the Congresbury area will potentially increase runoff into the Congresbury Yeo catchment putting additional pressure on this length of watercourse.  <i>Yatton, Winscombe and Langford</i>  Surface water schemes should reduce the rate of runoff and volume from these sites to avoid increasing flows in these non-main river watercourses in particular at Yatton.	Schedule 1 can be amended accordingly.

<p><b>Environment Agency</b> 1020673//7 <i>Policy context: biodiversity</i></p>	<p>Opportunities for biodiversity enhancement should be sought wherever possible and seek to link up and create strategic green corridors throughout the site allocation plan area. Reference should be made to the South West Nature Maps to maximize protection and creation of strategically linked valuable wildlife sites and to avoid blocking or segmenting green corridors. Dark river corridors should be maintained to benefit wildlife where possible.</p>	<p>Policy provision for biodiversity is made in the Core Strategy (CS4) and Sites and Policies Part1:Development Management Policies (DM8). The SAP addresses site-specific matters only.</p>
<p><b>Environment Agency</b> 1020673//8 <i>Total for Nailsea</i></p>	<p><i>Nailsea/Backwell</i></p> <p>We are particularly concerned about this strategic location and the risk of impacts on the Tickenham, Nailsea and Kenn Moor SSSI here. The site is already negatively impacted by water quality and hydrological issues from existing development and road run off.</p>	<p>1020673//13 below suggests a possible resolution of this issue.</p>
<p><b>Environment Agency</b> 1020673//9 <i>Moor Road, Yatton</i></p>	<p>Development also close to Tickenham, Nailsea and Kenn Moors SSSI. This could impact adversely on the SSSI condition. This development could result in SSSI being impacted on both its south and north east sides by proposed development in the site allocation plan. The rhynes and ditches have high ecological value here and need to be protected in terms of water quality, disturbance and continuity of habitat.</p>	<p>1020673//13 below suggests a possible resolution of this issue.</p>
<p><b>Environment Agency</b> 1020673//10 <i>Portishead: Old Mill Road</i></p>	<p>These sites present opportunities for enhancing the river corridor for both riverine biodiversity and water based recreation.</p>	<p>Noted. Could be mentioned in last column of Schedule 1 if necessary.</p>

<p>1020673//11 <i>Portishead: Severn Paper Mill</i></p>		
<p><b>Environment Agency</b> 1020673//12 <i>Clevedon: Land north of Churchill Avenue</i></p>	<p>Any development on this site should consider enhancement of the river corridor for both wildlife and recreation. The National Planning Policy Framework states that existing open space such as this site should not be built upon.</p>	<p>Noted. Could be mentioned in last column of Schedule 1 if necessary. Para. 74 of the NPPF allows the development of open space if surplus to requirements or where improved provision can be made. This site is a former reservation for a primary school and has never been formally public open space.</p>
<p><b>Environment Agency</b> 1020673//13 <i>Total for Nailsea</i></p>	<p>If new development becomes acceptable, it would be environmentally beneficial for the surface water runoff from the west side of Nailsea to be passed through some form of treatment prior to it discharging to the moor. The method by which it is treated would need to be decided in consultation with Natural England, but could take the form of a settlement pond or reed bed, both of which are visually non-intrusive and could be incorporated into the design of the new residential areas.</p>	<p>Noted.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//1 <i>Introduction</i></p>	<p>The Board does not object to any of the individual site allocations they object to the document as a whole. There are constraints imposed by the rhyne network in the Board's district that have been identified and provided as part of the local plan consultation process and we are disappointed that this information does not appear to have been taken into consideration or</p>	<p>Policy provision for flood risk management is made in the Core Strategy (CS3) and Development Management Policies (DM1). The SAP addresses site-specific matters only. A Flood and Water SPD has been suggested. The council recognises the value of such a document and would welcome the opportunity to work with the IDBs and other flood risk management authorities to produce it. Issues of concern to the</p>

	influenced the site allocations and associated policies.	IDB, such as access for maintenance and flow management, could by this means be addressed throughout North Somerset. Meanwhile, Schedule 1 can be amended to refer to likely IDB requirements wherever relevant.
<b>North Somerset Levels Internal Drainage Board</b> 16130337//2 <i>SA1: Housing Allocations</i>	There also appears to be an inconsistency in the 'Site specific details/notes' section of the schedules. Not all sites that would require a flood risk assessment have been noted. In accordance with the NPPF all sites above 1 ha required a flood risk assessment to be undertaken	Schedule 1 can be amended accordingly.
<b>North Somerset Levels Internal Drainage Board</b> 16130337//3 <i>Winterstoke Village (former Weston Airfield)</i> 16130337//4 <i>Parklands Village (former RAF Locking site)</i>	<ul style="list-style-type: none"> <li>• In the Board's district</li> <li>• Heavily reliant on the rhyne network</li> <li>• Accounted for within the Weston Villages Strategic Flood Solutions</li> <li>• Local rhyne network identified to require further assessment and possible enhancement</li> </ul> Engaging at detailed planning application stage Maintenance and access requirements may impact on achievable housing numbers	Noted
<b>North Somerset Levels Internal Drainage Board</b> 16130337//5 <i>WsM: Westacres Caravan Park</i>	A difficult site to develop due existing flood risk issues. A higher level of surface water attenuation will be required that could impact on plot capacity. This should be noted in the 'Site specific details/notes' column.	Schedule 1 can be amended accordingly.

<p><b>North Somerset Levels Internal Drainage Board</b>  16130337//6  <i>WsM: Orchard House, Ebdon Road</i>  16130337//7  <i>WsM: Land to the rear of Locking Road</i>  16130337//8  <i>WsM: Land to the west of Winterstoke Road</i>  16130337//9  <i>WsM: Land to the north of the A370, Summer Lane</i>  16130337//10  <i>WsM: Bridge Farm, Bristol Road</i>  16130337//11  <i>WsM: Gas Works, Winterstoke Road</i></p>	<p>A higher level of surface water attenuation will be required that could impact on plot capacity. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
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<p><b>North Somerset Levels Internal Drainage Board</b>  16130337//12  <i>WsM: Nightingale Close, Mead Vale</i>  16130337//13  <i>WsM: South of Herluin Way (Avoncrest site)</i>  16130337//14  <i>WsM: Former Bournville School Site, Sellworthy Road</i>  16130337//15  <i>WsM: Former Sweat FA Site, Winterstoke Road</i>  16130337//16  <i>WsM: Station Gateway</i></p>	<p>Extremely difficult site to drain, with numerous current issues. The Board would expect a reduction in surface water run-off to contribute to alleviating current issues. A higher level of surface water attenuation will be required that could impact on plot capacity. A reduction in runoff is required. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b>  16130337//17  <i>WsM: Land at Bridgewater Road</i></p>	<p>In the Board's district  Extremely difficult site to drain, with numerous current issues. The Board would expect a reduction in surface water run-off to contribute to alleviating current issues. A higher level of surface water attenuation will be required that could impact on plot capacity. A reduction in runoff is required. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>

<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//18 <i>Nailsea: West of Engine Lane</i> 16130337//19 <i>Nailsea: Land south of The Uplands</i> 16130337//20 <i>Land at NW Nailsea</i></p>	<p>Just outside of the Board's district but will drain into the Board's district. Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//21 <i>Land east and west of Wemberham Lane</i></p>	<p>Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//22 <i>Yatton: Oxford Plasma</i></p>	<p>A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column. Outside of the Board's district, but drains into the Board's district. Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//23</p>	<p>A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted</p>	<p>Schedule 1 can be amended accordingly.</p>

<i>Yatton Station</i>	in the 'Site specific details/notes' column. Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk.	
<b>North Somerset Levels Internal Drainage Board</b> 16130337//24 <i>Backwell: Moor Lane</i>	Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.	Schedule 1 can be amended accordingly.
<b>North Somerset Levels Internal Drainage Board</b> 16130337//25 <i>Congresbury: Cobthorn Way</i> 16130337//26 <i>Congresbury: Venus Street</i>	Outside Board's district but will drain into the Board's district. Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.	Schedule 1 can be amended accordingly.
<b>North Somerset Levels Internal Drainage Board</b> 16130337//27 <i>Yatton: Land at North End</i> 16130337//28 <i>Yatton: Arnolds Way (Phase 2)</i>	A higher level of surface water attenuation will be required that could impact on plot capacity.	Schedule 1 can be amended accordingly.

<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//29 <i>Banwell: Land to the east of Wolvershill Road</i></p>	<p>Outside Board's district but will drain into the Board's district. Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//30 <i>Yatton: Moor Road</i></p>	<p>Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//31 <i>Bleadon Quarry</i></p>	<p>Close to the Axe Brue Drainage Board's district and drains into the district. A higher level of surface water attenuation will be required that could impact on plot capacity. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedule 1 can be amended accordingly.</p>
<p><b>North Somerset Levels Internal Drainage Board</b> 16130337//32 <i>WsM proposed employment sites</i></p>	<p>Some detailed comments on a number of employment sites in Weston.</p>	<p>Schedule 2 can be amended accordingly.</p>

<p><b>North Somerset Levels Internal Drainage Board</b>  16130337//33  <i>Clevedon proposed employment sites (Land to the west of Kenn Road)</i>  16130337//34  <i>Service villages proposed employment sites (Elliott Medway, Congresbury and Park Farm, Yatton)</i>  16130337//35  <i>Proposed primary school sites at Kewstoke and Yatton</i></p>	<p>Significant drainage issues in downstream catchment, development should contribute to reducing existing flood risk. A higher level of surface water attenuation will be required that could impact on plot capacity. Development will be expected to contribute to reducing existing flood risk. This should be noted in the 'Site specific details/notes' column.</p>	<p>Schedules 2 and 5 can be amended accordingly.</p>
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