

Analysis of Responses to a Consultation on Proposed Changes to Section 3.3 Flooding and Groundwater of the Technical Handbooks

February 2026

Report prepared by:

Optimal Economics Ltd
1 St Colme Street
Edinburgh
EH3 6AA

www.optimaleconomics.co.uk

The opinions expressed in this report are those of the author.

Report commissioned by:

Housing Directorate
Building Standards Division
Denholm House
Almondvale Business Park
Livingston
EH54 6GA

Tel: 0131 244 4000

e-mail: buildingstandards@gov.scot

web: <https://www.gov.scot/policies/building-standards/>

© Crown Copyright 2025

Applications for reproduction of any part of this publication should be addressed to:
Building Standards Division, Directorate for Local Government and Communities,
Denholm House, Almondvale Business Park, Livingston, EH54 6GA.

This report is published electronically to limit the use of paper, but photocopies will be provided on request to Building Standards Division.

Contents

1	Introduction	4
1.1	Introduction	4
1.2	The Consultation	4
1.3	Methodology	4
1.4	Overview of Responses	5
1.5	Report Structure	6
2	Draft Section 3.3 Flooding and Groundwater	7
2.1	Introduction	7
2.2	Clause 3.3.0: Introduction	7
2.3	Clause 3.3.1: Flood Risk Assessment	9
2.4	Clause 3.3.2: Groundwater	11
2.5	Clause 3.3.3: Resilient Construction in Flood Risk Areas	13
2.6	General Feedback	18
3	Annex 3.B, Building Standards Advice on Flooding	26
3.1	Introduction	26
3.2	Annex 3.B	26

Appendix A: List of Respondents

1 Introduction

1.1 Introduction

1.1.1 Optimal Economics has been invited by the Building Standards Division (BSD) of the Scottish Government to submit a tender to undertake an analysis of responses to the public consultation on the proposed changes to Section 3.3 Flooding and Groundwater of the Technical Handbooks.

1.2 The Consultation

1.2.1 In 2018, it was estimated that 1 in 11 homes in Scotland were at risk from flooding from rivers, surface water and sea. This is projected to increase to 1 in 9 homes if a 2080 future climate change scenario is considered. The responsibility for protecting property from flooding rests with the homeowner.

1.2.2 The Property Flood Resilience Delivery Group (PFRDG) was established to prepare and deliver an action plan to help property owners take action to make their properties more resilient against the impacts of flooding. BSD, as a member of the PFRDG, has considered how property flood resilience (PFR) may be incorporated into new and existing homes.

1.2.3 BSD prepares and updates building standards legislation and guidance documents and this consultation sets out proposed updates to guidance in Section 3.3 Flooding and Groundwater of the Building Standards Technical Handbook, including the introduction of a new Annex 3.B Building Standards Flood Guide.

1.2.4 The purpose of the update is to provide designers and verifiers with more knowledge and information on how to meet the Mandatory Standard 3.3 where a flood risk has been identified. The consultation seeks to obtain the views and opinions of stakeholders on any updates and amendments to the Technical Handbooks and has ten questions:

- Five questions on proposed updates to the main parts of the standard.
- Three more general questions on the proposed updates.
- Two questions on the introduction of Annex 3.B.

1.3 Methodology

1.3.1 The first stage of the analysis was to review the responses to ensure that they are relevant to the consultation, whether there were any duplicate responses and whether there were any campaign responses. The validation stage also developed a typology for analysing responses. All respondents were allocated to one of the following groups:

- Individuals.
 - Local authorities.
 - Other.
- 1.3.2 The second stage of the research focused on establishing an appropriate framework for the analysis. The consultation combined both quantitative and qualitative aspects to each question and while the quantitative responses provided a good overview of opinion, the qualitative comments provided much more detail to support the response.
- 1.3.3 A coding framework was established of the main themes with a more detailed coding of each main theme also established. The framework allowed responses to be analysed to reflect the issues/views for the typology groups set out above.
- 1.3.4 The final stage of the research was the analysis and reporting of the results. All 'closed' questions asked for a yes/no answer and the analysis presents the number of responses by group answering yes/no and those who did not answer the question. The overall proportion of responses answering yes/no is also provided.
- 1.3.5 All responses to the 'open' questions have been given equal weighting, allowing every idea presented to be considered. Where possible we have used a number of simple bands to provide an indication of the frequency of an idea, although it is noted that this treats the response from an individual with the same weight as the response from a 'representative body' which many have many members. Nevertheless, the following bands have been used:
- Few: up to 3 responses.
 - Several: 4 to 10 responses.
 - Many: over 10 responses.

1.4 Overview of Responses

- 1.4.1 At the close of the consultation period (3rd October 2025) there were 18 responses submitted online and a further two responses submitted directly to BSD. These additional responses were input into Citizen Space taking the total number of responses to 20.
- 1.4.2 The responses were categorized into the following three groups:
- Individuals: respondents who were individuals.
 - Local Authorities: respondents who were from a local authority.
 - Other: all other organisations.
- 1.4.3 Table 1.1 shows the distribution of respondents by group with Appendix A providing a list of respondents by group.

Table 1.1: Summary of Respondents by Group

Group	Number	%
Individuals	2	10.0
Local Authorities	11	55.0
Other	7	35.0
Total	20	100.0

1.5 Report Structure

1.5.1 The remainder of the report is organised as follows:

- Section 2 presents the analysis for draft updated guidance on Section 3.3 flooding and groundwater.
- Section 3 sets out the analysis relating to Annex 3.B building standards advice on flooding.

2 Draft Section 3.3 Flooding and Groundwater

2.1 Introduction

2.1.1 This section of the report sets out the analysis of the responses to the draft Section 3.3 Flooding and groundwater. Each sub-section of this document covers a different clause in Section 3.3 with the final sub-section considering general feedback.

2.2 Clause 3.3.0: Introduction

2.2.1 Mandatory Standard 3.3 Flooding and groundwater in the Technical Handbook is unchanged, but the consultation proposed that the introduction to the standard be updated and expanded to give further context to the risks associated with flooding from various sources, the need to assess flood risk and the importance of addressing PFR when developing in flood risk areas.

2.2.2 There is greater emphasis on the two actions sought under the standard – flood risk assessment (FRA) and a PFR response where flood risk is identified and development still takes place.

Question 1: Do you have any comments on the amended introductory information setting out background to the issues to be addressed by Standard 3.3?

2.2.3 Question 1 asked respondents if they had any comments on the amended introductory information setting out background to the issues to be addressed by Standard 3.3. Table 2.1 shows the quantitative responses to the question.

Table 2.1: Summary of Responses to Question 1

Group	Yes	No	Not Answered	Total
Individual	1	1	0	2
Local Authority	5	6	0	11
Other	3	2	2	7
Total Respondents	9	9	2	20
% Respondents Answering Question	50.0	50.0	0	100.0

2.2.4 Respondents were split evenly between having comments to make on the amended introduction or not. There were 9 comments made in response to this question and responses are considered separately for those making positive and negative comments. In addition, a number of suggestions for improvement were made and these are presented separately.

Positive Comments

2.2.5 Several points were made across all three respondent groups which were supportive of the amended introduction to the Standard. These comments covered three main topics:

- The context for the Standard is improved through the integration of SEPA flood-risk statistics, NPF4 policy and Scotland-specific content.
- There is more clarity around flood sources, climate risk and the dual requirement for assessment and resilience.
- The importance of PFR measures is welcomed.

Negative Comments

2.2.6 There was only one comment which raised a concern and this was in relation to the following statement:

“Where a new building is sited on land assessed as being at risk of flooding, it is important that flood resistant and recoverable materials and construction methods are used.”

2.2.7 Concern was expressed that in insolation this statement is contrary to NPF4. There are specific situations where this type of development is possible, but a statement should be added to highlight that this will be a minority of situations.

Suggestions for Improvement

2.2.8 A number of suggestions were made by respondents which could further enhance the introduction. These include:

- Adding a brief reference to the recent incorporation of climate change allowances in flood mapping methodologies. Further clarity could be provided on the implications of climate change projections and the role of planning policy.
- Recommending a paragraph on the role of digital flood risk tools (e.g. LiDAR, GIS based modelling) to signpost designers to emerging solutions.
- Adding a flood assessment flow chart which shows the process from the source of flooding to the type of assessment to approach.
- Further clarity is required, particularly where planning permission is not required.

- The standard is mandatory and the PFR measures should be framed to reflect that compliance is not optional.
- There could be greater emphasis on the role of catchment processes and the benefits of integrating nature-based solutions with built form.
- Further information should be given on the impacts on occupants given the disruption that could arise from an event.
- Raising awareness and consideration that when undertaking work on an adjacent site, the potential impact of groundwater on nearby existing buildings should be considered (e.g. the effect of removing topsoil on drainage patterns).
- The need for property owners and communities to be prepared for a flood event should be stated with properties in flood zones identified and occupants notified of the potential hazard.

2.3 Clause 3.3.1: Flood Risk Assessment

2.3.1 Clause 3.3.1 sets out the expectation on the need to undertake a flood risk assessment for any development site. It expands on previous guidance in clause 3.3.2 and notes the issues to be considered in a risk assessment and provides updated and comprehensive information on where further information can be accessed on how to undertake and report on such an assessment. Commentary is also offered to clarify the application of the mandatory standard to work other than new buildings. Current guidance on surface water run-off is also provided.

Question 2: Do you consider the proposed expansion of the guidance on flood risk assessment to be useful in better framing the action expected and where to access supporting information on undertaking the assessment?

2.3.2 Question 2 asked respondents if they considered the proposed expansion of the guidance on flood risk assessment to be useful in better framing the action expected and where to access supporting information on undertaking the assessment. Table 2.2 shows the quantitative responses to the question.

Table 2.2: Summary of Responses to Question 2

Group	Yes	No	Not Answered	Total
Individual	2	0	0	2
Local Authority	10	1	0	11
Other	4	0	3	7
Total Respondents	16	1	3	20
% Respondents Answering Question	94.1	5.9	0	100.0

2.3.3 The majority of respondents (94%) across all respondent groups were supportive of the expansion of guidance on flood risk assessment. There were 13 comments made in response to this question and these are presented for those who found the expanded guidance useful and those who did not. In addition, a number of suggestions for improvements were made and these are presented separately.

Responses Finding Expanded Guidance Useful

2.3.4 Many comments (across all groups) were supportive of the additional guidance with the main themes emerging including:

- Several respondents acknowledged the references to the planning framework, SEPA future-scenario flood maps and British Standard (BS) 8533. The reference to SEPA guidance and BS 8533 can signpost designers towards recognised methods, support more consistent practice and should improve the quality of building warrant applications
- A few comments were made in relation to the FRA for extensions and conversions with the incorporation of the design of PFR into conversions/extensions and the requirement for an FRA for basement conversions welcomed.
- Surface water run-off to adjacent sites was raised by a few respondents. One respondent highlighted it as an area which is often forgotten, while another stated that it was important to consider how procedures to mitigate these occurrences can be integrated within the existing regulatory framework. It was suggested that this should be addressed at the planning stage. The risk of increasing off-site flood risk to adjacent sites should also be considered for relatively low risk sites.

2.3.5 Respondents who found the additional guidance useful also raised a few concerns including:

- Different views between planning and building standards and potential duplication of work. The guidance states that “*where a FRA has been produced in support of planning application this should be used as the basis for meeting Standard 3.3 at building warrant stage*”. A few local authority respondents suggested that this statement is misleading. Planning permission for a site which includes a FRA does not automatically mean that a building warrant would be granted. The verifier retains sole responsibility for determining compliance with building standards and this distinction should be made explicit in the guidance.
- A lack of clarity on who can produce the FRA.
- Whether all local authorities would have engineers or flood officers.
- The expanded expectations around PFR (e.g. use of BS 85500) may lead to increased design and construction costs.

Responses not Finding Expanded Guidance Useful

- 2.3.6 One respondent did not agree that the proposed expansion of the guidance was useful. The respondent was concerned about the cost implications for a small extension/conversion that did not require planning permission to undertake a FRA. In this case, the FRA costs are likely to be disproportionate.
- 2.3.7 While the reference to surface water run-off was worthwhile, it is covered by the requirements for construction of SuDS and therefore not considered an “improvement” to the guidance.

Suggestions for Improvement

- 2.3.8 A number of suggestions were made by respondents which could further enhance Section 3.3.1. These included:
- Explicit reference to BS 8546: 2019 (surface water management) alongside SuDS guidance to cover pluvial risk where future SEPA maps are not available.
 - A flowchart or graphic could summarise the key steps: Desk study → site visit → modelling → report.
 - Reference to SEPA maps being ready in 2025 needs to be checked and updated. It is understood these maps are now available.
 - Can surface water run-off management be strengthened or mandated?

2.4 Clause 3.3.2: Groundwater

- 2.4.1 Clause 3.3.2 on Groundwater is principally unchanged from current text in clause 3.3.1 on this topic, other than updated references to relevant assessment standards.

Question 3: Do you have any comments on the revised guidance on assessing groundwater risks?

2.4.2 Question 3 asked respondents whether they had any comments on the revised guidance assessing groundwater risks. Table 2.3 shows the quantitative responses to the question.

Table 2.3: Summary of Responses to Question 3

Group	Yes	No	Not Answered	Total
Individual	1	1	0	2
Local Authority	4	7	0	11
Other	3	2	2	7
Total Respondents	8	10	2	20
% Respondents Answering Question	44.4	55.6	0	100.0

2.4.3 A minority of respondents (44%) had comments to make on the proposed changes to Clause 3.3.2. There were eight comments across all respondent groups in relation to Section 3.3.2 groundwater.

Comments and Suggestions

2.4.4 Three main themes emerged from the comments:

- A few comments from individuals and local authorities related to monitoring. There was concern that the guidance was vague in terms of monitoring durations and the qualifications required for those conducting assessments. Also expanding groundwater monitoring protocols to capture seasonal fluctuations would be beneficial.
- A few respondents (individual and local authority) provided positive support for the references to British Standards.
- There were a few references to drainage (local authorities and other respondents). It was suggested that the drainage assessment should also consider climate change and a question was posed as to whether groundwater discharge is to be considered as part of the drainage strategy for a site.

2.4.5 Other comments related to:

- Groundwater level data are not as abundant as that for river levels.
- Groundwater flooding is specific to the regional geology. Ground profiling through various phases of geo-environmental reports should be adopted for new developments.

- The cost of providing protection against groundwater flooding at 0.05% likelihood may be disproportionately high.
- There could be more definition around the role of the verifier in assessing compliance with PFR measures e.g. what constitutes reasonable inquiry, how should conflicting evidence be handled?
- The revised guidance was welcomed by one respondent who noted groundwater risk is often underestimated or only considered at late stages of the design process.

2.5 Clause 3.3.3: Resilient Construction in Flood Risk Areas

2.5.1 Clause 3.3.3 on delivery of flood resilient construction is significantly expanded upon. The current guidance is short and makes reference to two supporting publications. The amended guidance clause is structured to take the reader through the process of developing a suitable approach to building specification and considers and applies both flood resilience and recoverability options.

2.5.2 It notes further sources of information and presents the example of the Construction Industry Research and Information Association (CIRIA) Code of Practice standards. It then presents supporting guidance explaining how those standards can be implemented, following good practice, setting out recommendations to relevant elements of the building construction which could be affected by flooding.

Question 4: A significant expansion on previous guidance on flood resilient construction is proposed. Do you have any views on the usefulness of this additional information, including example construction details?

2.5.3 Question 4 asked respondents if they considered the proposed expanded guidance to be useful. Table 2.4 shows the quantitative responses to the question.

Table 2.4: Summary of Responses to Question 4

Group	Yes	No	Not Answered	Total
Individual	1	1	0	2
Local Authority	11	0	0	11
Other	5	0	2	7
Total Respondents	17	1	2	20
% Respondents Answering Question	94.4	5.6	0	100.0

2.5.4 The majority of respondents (94%) considered the expansion of the guidance on flood resilient construction to be useful. There were 16 comments made in response to this question, with most comments supportive of the additional information. There were also neutral and negative comments, and several detailed suggestions were made.

Responses Finding Expanded Guidance Useful

2.5.5 There were a range of positive comments made across all respondent groups:

- The inclusion of example construction was well received by several respondents across all groups. Support was provided for:
 - the section on external wall construction;
 - specifying that sand cement screed is resilient to the effect of water;
 - the inclusion of foundation and substructure advice; and
 - the example figures (3.1 to 3.6) help bridge theory and practice; mandating sub-floor air vents be made flood resistant.
- The inclusion of recoverability was welcomed by a few local authority respondents. It was noted that it could also be used alongside resistance measures on sites which are relatively low risk.
- A few local authority respondents noted that it was helpful to have the information in a single reference place and that it would aid discussions with designers.
- It was also noted that resilience should also be framed in terms of green infrastructure (e.g. rain gardens, green roofs) and not just hard defences or impermeable materials.

Responses not Finding Expanded Useful or Neutral Comments

2.5.6 Some of the comments raised questions or concerns about the guidance:

- The joining up of the standards with the code of practice was welcomed and the CIRIA C790 Code of Practice for flood resilience suite of documents was considered extremely useful. However, concern was expressed by a few local authority respondents that CIRIA 790B is not the most suitable publication for Scotland. The reason being that it is written with the English Building Regulations in mind where flood resistance is not a regulatory requirement. In Scotland, flooding and groundwater are the subject of a mandatory standard.
- It was suggested that some of the detailed guidance does not accurately reflect common construction practices and the reasons why certain material choices are made.
- The level of detail on construction types is less detailed than in BS 85500 and the CIRIA Code of Practice. As a result, designers will still have to refer to these documents.
- Table 3.3 uses the term 'unsuitable' for suspended timber floors although guidance is provided where they are used. Table 3.3 uses the term 'least suitable' for masonry and timber kit. Was it intended to use two different terms to describe two elements that appear equally least appropriate where flood resilience is required?
- A question was raised about the FRA component in that it is not usually considered by Scottish local authorities at the development control stage.

Suggestions for Improvement

2.5.7 A number of suggestions were made to enhance the guidance:

- The use of the word 'should' is too light with 'must' being a more appropriate word.
- In the section on sub-floor air vents, it may be useful to state "air vents including air bricks" to ensure full coverage and clarity.
- The guidance should address the practical challenges posed by conflicting requirements such as level access versus raised thresholds. More detailed design solutions or case examples would be helpful.
- Reference is made under timber frame walls to fire resistance and the plane of plasterboard sheets. Should the fire resistance duration be confirmed? This may also apply to internal partitions.
- The guidance states "Note than in most cases a building warrant will not be required for repair and remedial works to an existing building

following a flood event”. It was suggested that a caveat is added which states “...where it is considered a like for like replacement”.

- Clarification of the term “floor coverings” in the section on suspended timber floors. Does the reference to “floor coverings” not being covered by the building regulations refer to carpet, laminate etc.? If so, maybe a different term should be used e.g. floor finishes.
- Under external wall guidance, an explanation of the term “freeboard allowance” may be helpful.
- There should be a stronger message on the unsuitability of using sacrificial materials in the fabric of a property when flood risk extending to possible internal flooding has been identified.
- The use of hazard perception as adopted by BS 8550 could help PFR designers to evaluate risks and design appropriate solutions. An example was provided (based on Table 3.3) which highlighted the use of hazard perception.
- The document states that when specifying wall insulation, “careful consideration should be given to ensure that it is both resistant and recoverable in the event of a flood”. The following replacement sentence was suggested “*When specifying insulation, it is important to specify products that are flood resilient in the context of the specific application and associated flood hazards and receive confirmation of this from the manufacturer for the selected products*”.

Question 5: Are there additional construction details or other useful information which could also be included in clause 3.3.3?

2.5.8 Question 5 asked respondents if there were any additional construction details or information which could also be included in clause 3.3.3. Table 2.5 shows the quantitative responses to the question.

Table 2.5: Summary of Responses to Question 5

Group	Yes	No	Not Answered	Total
Individual	2	0	0	2
Local Authority	5	4	2	11
Other	5	0	2	7
Total Respondents	12	4	4	20
% Respondents Answering Question	75.0	25.5	0	100.0

2.5.9 The majority of respondents (75%) had additional information which they considered should be included in Clause 3.3.3. These 12 comments fell into two main categories – specific suggestions for additional information and thoughts on timber frame construction.

2.5.10 One respondent answering ‘no’ to the question felt that as the information could be found in the British Standards and CIRIA Code of Practice, there was no need to reproduce the information in the Technical Handbooks.

Suggestions for Additional Information

2.5.11 While a number of issues were raised, several respondents (across all respondents groups) identified specific areas where additional information would be beneficial. These included:

- Doors: guidance on how these are to be made flood resilient.
- Service entry points: these will be a weak spot and advice is required.
- Flood defence barriers: should the potential for flood defence barriers to be installed on boundary walls be included if they can’t be installed on doors?
- Mechanical and electrical services: placement of these services above flood level and guidance related to minimum heights for heat pumps, meters and switchgear etc.; flood resilient ducting and cable trunking.
- Fire safety integration: details on how PFR measures interface with fire-door ratings and escape routes.
- Waterproofing below-ground parking structures: could be linked to BS 8102 moisture resistance.
- Basements: additional guidance on basement drainage and consideration of sewer flood risk.

- Ecological considerations: green-blue infrastructure and natural flood management solutions; guidance SuDS and adaptation pathways.
- Glossary: a glossary or clearer definitions should be included to cover terms such as “recoverable materials”, “resilient construction”,
- The note about fire resistance performance under “timber frame walls” would be beneficial within the sections on internal partitions and internal linings.

2.5.12 Timber frame construction was also a topic which was raised by several local authority and other respondents. Comments on this topic included:

- It was suggested that there was inconsistency between clause 3.3.3 (Figure 3.6) and Table 2 in Annex 3.B.2. Clause 3.3.3 provides guidance on detailing of timber frame external walls but Table 2 (Annex 3.B.2) advises that timber frame and cladding are unsuitable for external walls on sites at risk at flooding.
- Guidance should be limited to constructions listed under “suitable” and “most suitable” in Table 2 (Annex 3.B.2) with other approaches considered on a case-by case basis.
- While one respondent felt that the level of detail provided on timber construction is very helpful, concern was raised about the vulnerability of this type of construction with respect to recoverability and therefore potential insurance.
- There is concern about the suitability of timber frame construction in flood prone areas, yet timber framed construction is the principle construction used to ensure compliance with other building standards e.g. sustainability and energy conservation.
- There should there be a presumption against certain construction types in high-risk areas.

2.6 General Feedback

2.6.1 Following the specific questions relating to proposed updates to the Technical Handbooks covered in Clauses 3.3.0 to 3.3.3, the respondents were given the opportunity to provide more general feedback on the proposed changes covering the need for updated guidance, the extent to which the revised guidance provides sufficient information to understand what is required to achieve compliance with Mandatory Standard 3.3, Flooding and groundwater and consideration of the cost implications of the revised guidance.

Question 6: Having reviewed the proposed changes in the context of current guidance to Standard 3.3, do you agree there is a need to update guidance in the Section 3.3 (Flooding and groundwater) of the Technical Handbooks?

2.6.2 Question 6 asked respondents if, having reviewed the proposed changes in the context of current guidance to standard 3.3, they agreed that there is a need to update the guidance. Table 2.6 shows the quantitative responses to the question.

Table 2.6: Summary of Responses to Question 6

Group	Yes	No	Not Answered	Total
Individual	2	0	0	2
Local Authority	9	2	0	11
Other	5	0	2	7
Total Respondents	16	2	2	20
% Respondents Answering Question	88.9	11.1	0	100.0

2.6.3 There was general support with the majority of respondents (89%) agreeing that there is a need to update the guidance. There was overall support from all groups with only two respondents in the local authority group disagreeing with the statement. There were 15 comments made in response to this question. Responses are considered separately for those agreeing and those disagreeing with the quantitative part of the question.

Respondents Agreeing that there is a Need to Update the Guidance

2.6.4 Respondents agreeing that there is a need to update the guidance made positive comments across the following themes:

- Several respondents across all three respondent groups noted that the updates to the guidance are welcomed, stating that it provides a better understanding of the issues and the available solutions. The links to additional information sources and established guidance is appreciated. The hope was expressed that the guidance can be expanded more regularly as practice and technologies in the area of flooding and groundwater develops and evolves. It was noted that the updates will help to provide a consistent approach to design and verification of proposals.
- The alignment of the updated guidance to new standards, best practice and climate projections is highlighted by several respondents, again across all three groups. The importance of the guidance keeping pace with climate projections was identified as a key issue, along with the need for the guidance to better reflect contemporary best practice.

- Several respondents, mainly in the other group, particularly appreciate the updated guidance in the context of highlighting that PFR is critical. The long-term flood resilience of homes is critical to the future prosperity, investment and insurability of communities at risk of flood. However, the proposed changes highlight the importance of the need to consider flood risk for development that may not be subject to planning approval. It was also felt that the suggested amendments align with the recommended actions for delivery identified within Scotland’s Flood Resilience Strategy published in December 2024.

2.6.5 A few respondents agreeing that there is a need to update the guidance raised some concerns:

- A few local authority respondents felt that the guidance needs to be more directive and that the current draft lacks the clarity and precision required to support robust and consistent verification across local authorities. There was a concern that the guidance reads as advisory as opposed to prescriptive, which could result in verifiers lacking the necessary direction to make confident decisions.
- It was felt that practical and operational challenges, such as resource limitations and access to specialist input, are not fully acknowledged.
- It was suggested that the CIRIA publication signposted in the existing guidance is better suited to informing compliance than CIRIA Code of Practice 790B, which is referred to in the updated guidance.

Respondents Disagreeing that there is a Need to Update the Guidance

2.6.6 Comments from local authority respondents who disagreed that the guidance needs to be updated included the view that whilst flood resilient materials can be recommended, it is up to the applicant to ensure that the current methods and materials are used. A question was also raised over how much emphasis would be given to the guidance by developers if the standard is already covered by planning conditions.

Question 7: Does the revised guidance provide enough information to understand what is required to achieve compliance with Mandatory Standard 3.3 Flooding and groundwater?

2.6.7 Question 7 asked respondents if they agreed that the revised guidance provides enough information to understand what is required to achieve compliance with Mandatory Standard 3.3, Flooding and groundwater:

“Standard 3.3 Every building must be designed and constructed in such a way that there will not be a threat to the building or the health of occupants as a result of flooding and the accumulation of groundwater.”

2.6.8 Table 2.7 shows the quantitative responses to the question.

Table 2.7: Summary of Responses to Question 7

Group	Yes	No	Not Answered	Total
Individual	1	1	0	2
Local Authority	9	2	0	11
Other	3	1	3	7
Total Respondents	13	4	3	20
% Respondents Answering Question	76.5	23.5	0	100.0

2.6.9 Just over three-quarters of the respondents (76%) agreed that the guidance provides enough information to understand what is required to achieve compliance with Mandatory Standard 3.3, Flooding and groundwater. There were four respondents, across all groups, who disagreed with the statement. A total of 12 comments were made in response to this question. Responses are considered separately for those agreeing and those disagreeing with the quantitative part of the question.

Respondents Agreeing that Revised Guidance Provides Enough Information

2.6.10 Comments received by respondents supporting the assertion that the revised guidance provides enough information to understand what is required to achieve compliance fell into the following themes:

- Several respondents in the local authority and other groups positively endorsed the revised guidance noting that the guidance is useful and provides sufficient clarity to understand what is required to meet Standard 3.3. The addition of Annex 3.B, references to external standards and checklists are welcomed.
- Several respondents across all three groups had suggestions as to possible additions to the revised guidance, including:
 - templates for flood risk assessment reports;
 - checklists for applicants;
 - a worked example illustrating an application end-to-end;
 - a compliance matrix or decision tree that maps design-flood depth to minimum PFR measures;

- signposting to the CIRIA Code of Practice;
 - training through Chartered Institution of Water and Environmental Management (CIWEM); and
 - a more explicit link between the standard and long-term maintenance requirements (not just construction).
- One local authority respondent suggested that it would be beneficial to implement monitoring of the practical application of the amended regulations to allow assessment of the need for further guidance.
 - One local authority respondent stated that whilst the revised guidance represents an improvement, it does not go far enough in defining what is required to achieve compliance and the role of the verifier could be more clearly articulated. There was a desire expressed for stronger, more directive language to support verifiers in fulfilling their statutory responsibilities.

Respondents Disagreeing that Revised Guidance Provides Enough Information

2.6.11 A few comments were provided by respondents who disagreed that the revised guidance provides enough information to understand what is required to achieve compliance with Mandatory Standard 3.3:

- One respondent in the local authority group stated that whilst the revised guidance is extensive, it lacks clarity in some areas, and it was felt that the inclusion of CIRIA C790B introduces ambiguity around mandatory compliance versus client preference. It was felt that a more direct and prescriptive approach would better support designers and verifiers in understanding what is required to meet Standard 3.3.
- One local authority respondent felt that clarification was required over responsibility for assessing the risk information from groundwater flood sources within councils. It was suggested that as groundwater flood risk is not something explicitly considered under the Flood Risk Management (Scotland) Act, there may be limited capacity within council flooding teams to undertake such risk assessments.
- An individual respondent raised a point of clarification over the definition of 'threat to the building or the health of occupants' as specified in Standard 3.3, noting that if flood resilience is required then there is a threat to the building so it could be considered contradictory. It was felt that that evacuation on receipt of a flood warning to prevent any risk to the health of occupants was not covered by the consultation.

- A response in the other group felt that the guidance does not sufficiently provide design and construction methodology for the threat to health of the occupants and suggested further expansion is required in this area. Another respondent in this group also felt that there would be a need to consult the CIRIA Code of Practice and the relevant British Standards to provide the necessary depth of understanding.

Question 8: Do you consider that the revised guidance will add to the potential cost of development?

2.6.12 Question 8 asked respondents if they considered that the revised guidance will add to the potential cost of development. Table 2.8 shows the quantitative responses to the question.

Table 2.8: Summary of Responses to Question 8

Group	Yes	No	Not Answered	Total
Individual	2	0	0	2
Local Authority	7	4	0	11
Other	2	0	5	7
Total Respondents	11	4	5	20
% Respondents Answering Question	73.3	26.7	0	100.0

2.6.13 Just under three-quarters of the respondents (73%) considered that the revised guidance will add to the potential cost of development. Several respondents in the local authority group considered that the revised guidance would not add to the potential cost of development.

2.6.14 There were 14 comments made in response to this question. Responses are considered separately for those agreeing and those disagreeing with the quantitative part of the question.

Respondents Agreeing that the Revised Guidance will Add to Potential Cost of Development

2.6.15 Comments from respondents who considered that the revised guidance will add to the potential cost of development fell into the following themes:

- The potential cost of assessing flooding risk and PFR was highlighted by several respondents in the local authority and other groups. The need to request flooding risk assessments could impact the cost of development and the potential for local authorities to undertake peer review could

result in an additional cost to the building standards service. Implementing PFR measures prior to an event occurring will potentially add costs to the developer or property owner. It was suggested that the main additional costs would likely relate to flood risk assessments, groundwater monitoring and site surveys rather than increased construction costs.

- Several respondents across all three groups noted that any short-term cost would be offset by the longer-term gains, including mitigation and resilience benefits and lowered insurance premiums. There should be reduced post-flood remediation costs and flood resilient properties where the necessary measures to manage flood risks have been taken are expected to have lower costs over the longer term. It was suggested that the additional short-term cost should be offset by the long-term reduction in damage, health impacts, potential loss of income and potential alternative accommodation costs associated with flooding of assets that are not designed and constructed to be resilient to flooding.
- Several respondents across all three groups expected impacts on costs explaining that adding requirements adds cost. It was noted that any adjustments that put a requirement for novel or specific materials to be used will likely increase the cost of development as, in general, resistant and recoverable materials tend to be more expensive, and may incur additional labour costs through longer installation times. It was also highlighted that the requirement to use specialist materials and installers could delay completion of developments and increase costs.
- A few respondents in the local authority group warned that there is a danger that the guidance will inadvertently hinder progress on housing delivery, as the financial burden from the additional requirements may render developments financially unviable in the context of high construction cost inflation. It was suggested that the Scottish Government could mitigate these challenges with solutions such as phased implementation, targeted exemptions and financial support mechanisms. It was also suggested that unnecessary financial burden could be mitigated by distinguishing between mandatory measures and suggested best practice.
- One respondent in the other group felt that once acceptable standards are established then there was potential for funding from flood agencies and reinsurance companies to be realigned into grant funding for communities to protect homes and lives.

Respondents Disagreeing that the Revised Guidance will Add to Potential Cost of Development

2.6.16 A few local authority respondents felt that the revised guidance will not add to the potential cost of development as, in theory, developers should have been following the guidance. However, it was conceded that greater awareness through the revised guidance may add to the development cost.

3 Annex 3.B, Building Standards Advice on Flooding

3.1 Introduction

- 3.1.1 A new Annex 3.B is introduced which gathers and represents information drawn primarily from the previously published Planning Advice Notice (PAN) 69 on flood risk. Annex 3.B sets out background information on the water environment and the factors which contribute to flooding, including watercourses, coasts, sewer surcharging, groundwater and the influence of climate change.
- 3.1.2 The main purpose of Annex 3.B is to supplement the guidance in Section 3.3 by raising awareness and knowledge of flood risk and measures to mitigate flooding. It also presents a guide on the interaction of the building standards process with other statutory processes relating to flood risk management.

3.2 Annex 3.B

Question 9: Do you agree that the introduction of the guidance in Annex 3.B offers further useful information to support the informed practice in flood risk assessment and the application of flood risk principles?

- 3.2.1 Question 9 asked respondents if they agreed that the introduction of the guidance in Annex 3.B offers further useful information to support the informed practice in flood risk assessment and the application of flood resilience principles. Table 3.1 shows the quantitative responses to the question.

Table 3.1: Summary of Responses to Question 9

Group	Yes	No	Not Answered	Total
Individual	1	1	0	2
Local Authority	10	1	0	11
Other	3	1	3	7
Total Respondents	14	3	3	20
% Respondents Answering Question	82.4	17.6	0	100.0

- 3.2.2 There was general support for the introduction of guidance in Annex 3.B with the majority of respondents (82%) agreeing that it provides useful information to support flood risk assessment practice and the application of flood resilience principles. There was overall support from all groups with only one respondent in each group disagreeing with the statement.
- 3.2.3 There were 14 comments made in response to this question. Responses are considered separately for those agreeing and those disagreeing with the quantitative part of the question.

Respondents Agreeing that Annex 3.B Offers Further Useful Information

3.2.4 Positive comments on the information contained within Annex 3.B fell into the following themes:

- Several respondents noted that the Annex is a practical resource to inform flood risk assessment practice and the application of property flood resilience principles. Having consolidated information in a single resource was felt to be helpful for both verifiers and designers and it is thought that it will aid consistency across Scotland.
- A few respondents highlighted the checklists as particularly welcome additions, noting that the Building and Flooding Checklist, Table 2 Building Components and Table 3 Good Practice Checklist provide a helpful quick reference for designers and verifiers. It was suggested that the Good Practice Checklist could be made available as an interactive online tool on Citizen Space.

3.2.5 In addition, whilst agreeing that the guidance in Annex 3.B offers further useful information, several respondents identified specific points of clarification including:

- One local authority respondent made the assertion that the guidance remains vague and lacks the necessary precision to support informed decision-making, and that clearer, more prescriptive guidance is required to ensure consistency and confidence in the verification process.
- A local authority respondent highlighted the need to update the statement “There has been a requirement in the building regulations since 1985 for all new buildings, other than dwellings, to be accessible to disabled people.” (p36 of Consultation) to clarify current requirements for dwellings.
- Another local authority respondent felt that whilst Annex 3.B provides useful background and context, particularly for verifiers and designers unfamiliar with flood risk issues, its alignment with planning policy and building standards could perhaps be improved.

Respondents Disagreeing that Annex 3.B Offers Further Useful Information

3.2.6 A few comments were provided by respondents who disagreed with the quantitative part of the question.

- One individual respondent stated that while they agreed that the Annex offers useful guidance in terms of flood resilience, it was felt that it does not address the contradiction in the planning 'requirement' to not build or redevelop or convert where there is a flood risk.
- One local authority respondent expressed concern around the presumption that building standards verifiers would interact with other sections of the local authority stating that there was no mechanism in place for this outside the planning application process. Capacity issues within flooding teams to take on this additional role were highlighted.
- One respondent in the other group expressed concern that Annex 3.B is reliant on withdrawn and outdated Government guidance, most notably Planning Advice Note (PAN) 69 from 2004, which has been superseded¹. It was felt that the Annex is not reconciled with current best practice.
- A Local Authority response highlighted a few specific points relating to the text in Annex 3.B in Section 3.B.2 Sources of flooding as follows:
 - Section 3.B.2 (Fluvial): overall, the text is too simplistic and is not using correct aggravation points as it omits the roles and responsibilities explanation in flood risk management.
 - Section 3.B.2 (Pluvial): the text fails to note the simple inability of the drainage system to take extreme rainfall events into the system (exceedance events). The FloodMaps link is for all reasonable sources, not just Pluvial.
 - Section 3.B.2 (Sewer): contains text for the pluvial section and incorrectly states sewerage system is Combined – it can be, but there are many areas that are separate. Combined Sewer Overflows (CSOs) are 'normal' and can exist without operating. The respondent challenges the statement that infiltration of surface water can contribute flows beyond design capacity.
 - Section 3.B.2 (Groundwater): Groundwater is not explicitly considered as part of FRM(S)A 2009. In fact, the Groundwater maps are missing from the current production of SEPA Flood

¹ Note that the introduction on page 26 of the Consultation states that PAN 69 where it relates to building standards has been reviewed and updated to support the guidance in Section 3.3.

Maps. On the original maps, the groundwater layer was to indicate the potential to influence the duration and extent of flooding from other sources only, and not where groundwater could cause flooding directly.

- Section 3.B.2 (Coastal): text fails to consider comments on joint probability where river and coastal effects combine.
- Section 3.B.2 (Drainage Assessment): it is in principle correct that moisture from ground and groundwater may need to consider a drainage assessment, however, this fails to highlight the potential barrier that is discharge of the collected water to somewhere other than ground (i.e. into a Scottish Water asset). There is reference to the sentence “NPF4 advises that “Development proposals will:...”. It was suggested that this should say “NPF4 *requires* that “Development...”. The drainage assessment undertaken to support applications covered by NPF4 does not typically include groundwater or soil moisture.
- Secondary Effects of Flooding: the section makes note of contamination by sewage. Should this occur, it would be necessary to have Scottish Water become involved in the assessment of flood mechanism / clean up.

Question 10: Are there any other issues that you consider Annex 3.B could address to further improve knowledge and understanding of the topic?

3.2.7 Question 10 asked respondents if there were any other issues that they consider Annex 3.B could address to further improve knowledge and understanding on this topic. Table 3.2 shows the quantitative responses to the question.

Table 3.2: Summary of Responses to Question 10

Group	Yes	No	Not Answered	Total
Individual	2	0	0	2
Local Authority	4	7	0	11
Other	4	0	3	7
Total Respondents	10	7	3	20
% Respondents Answering Question	58.8	41.2	0	100.0

3.2.8 More than half of the respondents (59%) suggested other issues that could be addressed by Annex 3.B. Respondents across all three of the groups suggested potential issues that could be considered. There were 10 comments made in response to this question which have been analysed by theme.

Suggestions for Other Issues to Include in Annex 3.B

3.2.9 The suggestions offered by respondents for potential additions to Annex 3.B include:

- A few respondents across all three of the groups suggested the addition of case studies or worked examples would be valuable, perhaps showing successful PFR measures for both new build and retrofit.
- A few respondents suggested specific edits to the guidance including:
 - accounting for potential extensions (increases in habitable space in a property that would not require planning permission), that may result in different levels of PFR within the building;
 - the wording around the annual probability of flooding greater than 0.5% should be changed to 'equal to or greater than' to avoid ambiguity;
 - checklists:
 - the Building and Flooding Checklist could be divided into distinct sections with a building warrant assessment resource and guidance on appropriate inspections to include in a Construction Compliance and Notification Plan (CCNP); and

- the Good Practice Checklist should note that groundwater flooding is not available on SEPA Flood Maps and is not considered explicitly in the planning process.
- A few respondents in the individual and other groups highlighted the need for greater consideration of PFR retrofit on existing buildings, including historical environment and conservation areas. It was noted that PFR measures are currently difficult to progress in older buildings due to planning constraints around NPF4 and it was suggested that flood resilient conversion should be welcomed by planning authorities. The need for the guidance to provide clear standards to property owners and communities on implementing cost effective flood resilience to protect homes was also noted.
- One respondent in the individual group thought that the Annex could signpost designers and verifiers to training or competency schemes for PFR and that guidance on engaging stakeholders and presenting PFR strategies would be useful.
- A local authority respondent raised the issue of potential delays to the building warrant process arising from a reliance on external professional services to provide specialist flood risk assessments. It was suggested that the guidance should acknowledge operational realities and provide mechanisms to mitigate delays, for example through clearer expectations, streamlined processes or improved access to competent assessors.

Appendix A

List of Respondents

Local Authorities

Aberdeenshire Council

City of Edinburgh Council

Dumfries and Galloway Council

Falkirk Council

Moray Council

Orkney Islands Council

Perth and Kinross Council

Stirling Council

West Dunbartonshire Council

Local Authority Building Standards Scotland (LABSS)

The Metropolitan Glasgow Strategic Drainage Partnership

Other

BSI

Defence Infrastructure Organisation

Flood Re

Mineral Wool Insulation Manufacturers Association

NHBC

RIAS

Scottish Water



© Crown copyright 2026

OGL

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at www.gov.scot

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80643-599-9 (web only)

Published by The Scottish Government, February 2026

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1690246 (02/26)

W W W . g o v . s c o t