Level 1 Strategic Flood Risk Assessment Wirral Council

Addendum to July 2021 Report

Final Report

April 2022

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Local Plan sites assessment

This report is an addendum to the Level 1 Strategic Flood Risk Assessment (SFRA) produced for Wirral Council in July 2021. It assesses 36 sites, six of which are new sites which have been identified for potential allocation in the Local Plan since the July 2021 Level 1 SFRA was completed; a further 29 sites have had a subsequent boundary change (including sites which have been split or merged) and one site is now proposed for a different land use since the July 2021 SFRA was completed.

This addendum provides a strategic assessment of the suitability, relative to flood risk, of these sites to be considered for allocation in the Local Plan. It should be read alongside the full Level 1 SFRA.

The Environment Agency datasets used within this Addendum have been updated since the 2021 Level 1 SFRA, however there have been no changes to the data within the extent of the study area. The climate change allowances for peak river flows have been uplifted since the 2021 Level 1 SFRA and were used in the Level 2 SFRA. Sea level rise allowances however have not changed since the Level 1 SFRA. Refer to Section E.2 for more information on the climate change allowances used within this Addendum.

The information and guidance provided in this Addendum (also supported by the SFRA maps in Appendix B and the development site assessment spreadsheet in the Appendix C Addendum) can be used by the LPA to inform the Local Plan and provide the basis from which to apply the Sequential Test in the development allocation and the development management process.

The LPA must use the Appendix C Addendum to record their decisions on how to take each site forward or whether to remove a site from allocation, based on the evidence and strategic recommendations provided in this Level 1 SFRA. Recording decisions in the Sites Assessment Spreadsheet demonstrates that a sequential, sustainable approach to development and flood risk has been adopted.

Wirral Council provided a GIS layer containing potential development sites. The total number of sites assessed was 36. In order to inform the Sequential Test to the allocation of development through the Local Plan (as illustrated in Figure 6-2 of the main report), this assessment entails a high-level GIS screening exercise overlaying the potential development sites against Flood Zones 1, 2, 3a and 3b, calculating the area of each site at risk. Flood Zones 1, 2 and 3 are sourced from the EA's Flood Map for Planning (Rivers and Sea), Flood Zone 3 is split into Flood Zone 3a and Flood Zone 3b (functional floodplain) as part of this Level 1 SFRA, as required by the National Planning Policy Framework (NPPF). The effects of climate change have also been included in the sites screening process. See Section E.2 for details. All flood zones are displayed on the GeoPDF maps in Appendix B.

Surface water risk to assessed sites is analysed by way of the EA's Risk of Flooding from Surface Water (RoFSW) dataset. The EA states that this dataset is not suitable for identifying whether an individual property will flood. It is recommended that the RoFSW is not displayed on base mapping more detailed than 1:10,000 as the data is open to misinterpretation if used as a more detailed scale. Because of the way the RoFSW has been produced and the fact it is indicative, it is not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies or evidence.

It is important to consider that each individual site will require further investigation, following this assessment, as local circumstances may dictate the outcome of the strategic recommendation. Such local circumstances are discussed in Section E.1.

The outcomes of the site assessments are presented in the Sites Assessment spreadsheet in the Appendix C Addendum.

E.1 Screening of potential sites

This section of the report draws together the results included in the assessment spreadsheet (Appendix C Addendum), produced from the GIS screening exercise. The LPA should use the spreadsheet to identify which sites should be avoided during the Sequential Test. If sites cannot be directed to Flood Zone 1, or where wider strategic objectives require development in areas identified through this Level 1 SFRA to be at risk from flooding, then the LPA should consider the compatibility of vulnerability classifications and Flood Zones and whether or not the Exception Test will be required before finalising sites for allocation in the Local Plan. Strategic recommendations are based on Tables 1, 2 and 3 of the flood risk and vulnerability tables[1] of the Flood Risk and Coastal Change Planning Practice Guidance (FRCC-PPG) (Paragraphs 065 - 067).

The decision-making process on site suitability should be transparent and information from this SFRA should be used to justify decisions to allocate land in areas at high risk of flooding.

The Sites Assessment spreadsheet provides a breakdown of each site and the area (in hectares) and percentage coverage of each fluvial / tidal and surface water flood zone. Fluvial / tidal Flood Zones 3b, 3a, 2 and 1 are considered in isolation. Any area of a site within the higher risk Flood Zone 3b that is also within Flood Zone 3a is excluded from Flood Zone 3a and any within Flood Zone 3a is excluded from Flood Zone 2. This allows for the sequential assessment of risk at each site by addressing those sites at higher risk first. The effects of climate change have been assessed additionally to existing risk.

The 'Previous Level 1 Strategic Recommendation' column within the Sites Assessment spreadsheet (Appendix C Addendum) indicates the recommendation that was assigned to each site in the previous SFRA completed in 2021. The strategic recommendations may have changed since the previous SFRA as a result of boundary changes to the site.

Table 1 shows the proposed use of the sites and the number of sites within each fluvial / tidal flood zone and Table 2 shows the number of sites within each surface water flood zone.

Proposed use	**Number of sites within…**			
	Flood Zone 1*	**Flood Zone 2**	**Flood Zone 3a**	**Flood Zone 3b**
Housing	18	9	7	5
Employment	3	3	5	3
TOTAL	**21**	**12**	**12**	**8**
*Sites with 100% area within Flood Zone 1 **Note**: Sites may be in more than one flood zone. In reality, a site in Flood Zone 3a will also be in Flood Zone 2				

Table 1: Number of sites at risk from fluvial and / or tidal flooding

[1] https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-zone-and-flood-risk-tables

Proposed use	Number of sites within…		
	Low risk zone (1 in 1000)	Medium risk zone (1 in 100)	High risk zone (1 in 30)
Housing	18	14	10
Employment	7	7	4
TOTAL	**25**	**21**	**14**
*Note: Sites may be in more than one flood zone. In reality, a site in the high risk zone will also be in the medium and low risk zones			

Table 2: Number of sites at risk from surface water flooding

The strategic recommendations are intended to assist the LPA in carrying out the Sequential Test and to highlight those sites at greatest flood risk.

Table 3 shows the number of sites each strategic recommendation applies to:

- Strategic Recommendation A – consider withdrawal due to functional floodplain unless functional floodplain can be included in site design or the site boundary can be redrawn to remove the function floodplain from the site boundary;
- Strategic Recommendation B – Exception Test required, if site passes Sequential Test;
- Strategic Recommendation C – consider detailed site layout and design around the identified flood risk if site passes Sequential Test i.e. redrawing of development boundaries to remove risk or incorporation of risk through appropriate mitigation techniques;
- Strategic Recommendation D – site-specific FRA required as a minimum; and
- Strategic Recommendation E – subject to consultation with the LPA and LLFA, the site could be allocated or permitted for development on flood risk grounds due to little perceived risk.

Proposed use	Number of sites assigned to Strategic Recommendation…				
	A	B	C	D	E
Housing	1	3	5	11	8
Employment	0	0	5	2	1
TOTAL	**1**	**3**	**10**	**13**	**9**

Table 3: Number of sites per strategic recommendation

It is important to note that each individual site will require further investigation before development is allocated, as local circumstances may dictate the outcome of the strategic recommendation. Such local circumstances may include the following:

- Flood depths and hazards will differ locally to each at risk site therefore modelled depth, hazard and velocity data should be assessed for the relevant flood event outlines, at the site-specific FRA stage;
- The RoFSW map is national scale and is not considered suitable for robustly identifying risk at the property level. For sites identified to be at significant risk from surface water based on the RoFSW, more detailed surface water modelling may therefore reveal higher or lower risk to the site. The LLFA should be consulted when considering development viability at such sites;
- Current surface water drainage infrastructure and SuDS suitability are likely to differ at each site considered to be at risk from surface water flooding. Further investigation would therefore be required for any site at surface water flood risk. The LLFA should require that all planning applications must be accompanied by an appropriate drainage strategy, independent of the requirement for a site-specific FRA;
- If sites have planning permission but construction has not started, the SFRA will only be able to influence the design of the development e.g. finished floor levels. New, more extensive flood extents (from new or updated models) cannot be used to reject development where planning permission has already been granted;
- It may be possible at some sites to develop around the flood risk. Planners are best placed to make this judgement i.e. will the site still be deliverable if part of it needs to be retained to make space for flood water?
- Surrounding infrastructure may influence scope for layout redesign/removal of site footprints from risk;
- Safe access and egress routes must exist at all times during a flood event for emergency response and evacuation. Emergency Planners should be consulted;
- Current land use. A number of sites included in the assessment are likely to be brownfield, thus the existing development structure could be taken into account as further development may not lead to increased flood risk; and
- Existing planning permissions may exist on some sites where the EA may have already passed comment and/or agreed to appropriate remedial works concerning flood risk. Previous flood risk investigations/FRAs may already have been carried out at some sites.

E.1.1 Strategic Recommendation A – consider withdrawal due to functional floodplain unless functional floodplain can be included in site design or site boundary can be redrawn

This strategic recommendation DOES NOT consider local circumstances, only that part of a site area falls within a flood zone.

Strategic Recommendation A applies to any site where one or more of the following criteria is true:

- A significant proportion of the site area is within the functional floodplain. The FRCC-PPG flood risk vulnerability classification states that only water compatible uses and essential infrastructure should be permitted in the functional floodplain, though any essential infrastructure must pass the Exception Test and water compatible uses must be designed and constructed to remain operational and safe for users in times of flood; must result in no net loss of floodplain storage; and must not impede water flows and not increase flood risk elsewhere. Development should not be permitted for sites within the highly, more or less vulnerable categories that fall within the functional floodplain. If the developer can avoid 3b however, then part of the site could still be delivered.
- A significant proportion of the site area of any site type is within the high risk or medium risk surface water flood outline, and therefore potentially at significant surface water flood risk.

It is important to state that it may still be possible to deliver a site that has been recommended for withdrawal from allocation upon more detailed investigation through a Level 2 SFRA.

Depending on local circumstances, if it is not possible to adjust the site boundary to remove the developable area from Flood Zone 3b to a lower risk zone then development should not be allocated or permitted.

For the sites at surface water risk, the LLFA must be consulted when considering the viability of future development at such sites.

1 of the 36 potential development sites have been recommended for withdrawal.

Any area within Flood Zone 3b must be left as open green space or the site boundary amended to remove the developable area from the risk area. For smaller sites, this approach is unlikely to be achievable compared to larger sites where there may be enough space to limit the impact through effective SuDS. If this is not possible, the site should be withdrawn.

E.1.2 Strategic Recommendation B – Exception Test required

This strategic recommendation DOES NOT consider local circumstances, only that part of a site area falls within a flood zone.

Strategic Recommendation B applies to sites where the following criteria is true:

- Any proportion of a more vulnerable or essential infrastructure site is within Flood Zone 3a. Less vulnerable (employment) uses of land do not require the Exception Test.

NOTE: All development proposals in Flood Zone 3a must be accompanied by a FRA.

Strategic Recommendation B applies to sites where it is likely the Exception Test would be required, assuming the Sequential Test has been passed in the first instance. This

does not include any recommendation on the likelihood of a site passing the Exception Test. A more in-depth investigation such as a Level 2 SFRA would be required to assess this. The developer/LPA should always attempt to avoid the risk area where possible.

Strategic Recommendation B applies to 3 of the 36 potential development sites assessed.

E.1.3 Strategic Recommendation C – consider site layout and design

This strategic recommendation DOES NOT consider local circumstances, only that part of a site area falls within a Flood Zone.

Strategic Recommendation C applies to sites where one or more of the following criteria is true:

- A manageable proportion of any site type is within Flood Zone 3b;
- A manageable proportion of any residential, mixed use or other (more vulnerable) site is within Flood Zone 3a; and
- A manageable proportion of any more vulnerable site is within the high or medium risk surface water flood zone.

Strategic Recommendation C applies to 10 of the 36 sites. Seven sites are within Flood Zone 2.

Strategic Recommendation C applies in instances where, from a high-level strategic viewpoint, there is a greater possibility that risk may be manageable on site. This should be informed by a detailed review of site layout and design, including SuDS, around the flood risk, as part of a detailed FRA and drainage strategy at the development planning stage. Similarly, in line with the daylighting policy and where there may be opportunities to do so, there could be potential to remove any culverts and restore watercourses to a more natural condition. In many cases, opening culverts can reduce flood risk when combined with SuDS. A Level 2 SFRA and/or detailed site-specific FRA would be required to help inform on site layout and design.

Where Strategic Recommendation C applies to a potential site, the developer should consider the site layout with a view to excluding the developable area from the flood extent that is obstructing development. If this is not possible then the alternative would be to investigate the incorporation of on-site storage of water into the site design. Depending on local circumstances, if it is not possible to adjust the site boundary to confine the developable area to a lower risk zone then this part of the development should not be permitted (for any site in Flood Zone 3b), or the Exception Test should be undertaken and passed as part of a site-specific FRA for the more vulnerable sites within Flood Zone 3a. Development planning should always be aware of the requirement not to develop within 8 metres of any watercourse, flood defence structure or culvert, or within 16 metres on a tidal river, i.e. the River Wear, which is likely to be a regulated flood risk activity under Schedule 25 of the Environmental Permitting (England and Wales) Regulations 2016. Site layout and design will have to take this into consideration for development proposals. The 8 metre no development buffer zone of watercourses, shown on the SFRA maps in Appendix B, is recommended by the EA to allow ease of access to watercourses for maintenance works. Any site redesign, where Flood Zones 3b and 3a, are included within the site footprint, should allow water to flow naturally or be stored in times of flood through application of suitable SuDS.

E.1.4 Strategic Recommendation D – development could be allocated subject to FRA

This strategic recommendation DOES NOT consider local circumstances, only that part of a site area falls within a flood zone.

This recommends that development could be allocated due to low flood risk perceived from the EA flood zones, assuming a site-specific FRA shows the site can be safe for its lifetime and it is demonstrated that the site is sequentially preferable. A site within Flood Zone 2 could still be rejected if the conclusions of the FRA decide development is unsafe or inappropriate.

Strategic Recommendation D applies to sites where one or more of the following criteria is true:

- Any site within Flood Zone 2 that does not have any part of its footprint within Flood Zone 3a, with the exception of highly vulnerable development which would be subject to, and have to pass, the Exception Test;
- Less vulnerable and water compatible sites within Flood Zone 3a. No part of the site can be within Flood Zone 3b;
- Less vulnerable sites which are 100% within Flood Zone 1 where surface water flood risk is apparent but not considered significant; and
- Any site which is 100% within Flood Zone 1 that is greater than or equal to 1 hectare in area.

Strategic Recommendation D applies to 13 sites. Each site-specific FRA should investigate the risk and mitigate accordingly, including consideration of plans for safe site access and egress during a possible flood event. Each FRA should include its own emergency plan.

E.1.5 Strategic Recommendation E – development could be allocated on flood risk grounds subject to consultation with the LPA/LLFA

This strategic recommendation DOES NOT take account of local circumstances, only that part of a site area falls within a flood zone. This recommends that development could be allocated on flood risk grounds, based on the evidence provided within this SFRA. Further investigation (i.e. FRA) may be required by the developer at the planning application stage if any further or new information becomes available since the publication of this SFRA. Strategic Recommendation E applies to 9 sites.

Strategic Recommendation E applies to any site with 100% of its area within Flood Zone 1 and not within any surface water flood zone, and therefore considered to be at very low risk.

E.2 Assessment of climate change

To represent the increased flood risk resulting from climate change in fluvially dominated scenarios, peak inflows were uplifted according to the EA guidelines. Being located in the Lower Mersey Management Catchment meant that increases of 44% (central), 57% (higher central) and 90% (upper end) were applied to represent the allowances. The climate change allowances for peak river flows applied within the modelling used for this Addendum have increased since the previous Level 1 SFRA in line with the EA guidance. However, the Level 2 SFRA has used the most up to date allowances. The previous allowances applied within the modelling were 30% (central), 35% (higher central) and 70% (upper end). The allowances for sea level rise have not changed since the Level 1 SFRA was prepared.

For tidally dominated scenarios, increases to the sea level rise were added to the model. This involved updating the model's hydrological base year to 2021, then calculating the sea level rise over the next 100 years for both the higher central and upper end allowances. This equated to increases of 0.9m (HC) and 1.3m (UE) which

were then applied to the tidal curves in the model[2]. At the time of writing, the following EA guidance should be followed:

https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

In areas where modelling was not available, climate change risk was determined based on whether a site is at existing risk, and therefore likely to be at increased risk in the long term, due to climate change. However, for this SFRA, it should be assumed that all potential development sites identified to be at existing risk from fluvial and / or tidal flooding, are at risk from the effects of climate change.

Using the above approach, all sites identified to be at increased risk from climate change are indicated in the Sites Assessment Spreadsheet in Appendix C. Within the spreadsheet, the climate change risk is displayed as such:

- Very high risk due to modelling, where modelled climate change flood outlines intersect the site boundary;
- High risk due to existing risk, where a site is currently at fluvial and / or tidal flood risk;
- Medium risk, where a site is 100% within Flood Zone 1 and near a watercourse that has not been modelled for climate change; and
- Low risk, where a site is 100% within Flood Zone 1 and near a watercourse that has been modelled for climate change, or where a site is not near to a watercourse.

As all of the sites within this screening are located within the model domains used to model climate change scenarios, any site that is not within the climate change outlines has been given a low risk ranking. 20 allocations are modelled to be at increased risk from climate change. Of these sites, 8 are within Flood Zone 3b and 12 are within Flood Zone 3a.

E.3 Summary of sites assessment outcomes

There are several consequential development considerations which could come out of the site assessment sequential testing process. Each outcome is discussed below. The LPA should refer to Section E.1 and Appendix C for details on the site assessments carried out for this SFRA.

E.3.1 Rejection of site

A site which fails to pass the Sequential Test and/or the Exception Test should be rejected and development not permitted. Rejection would also apply to any sites within the functional floodplain (unless water compatible or essential infrastructure informed by a FRA). However, if the developer can avoid or incorporate the functional floodplain, part of the site could still be delivered.

In terms of surface water flood risk, if risk is considered significant, based on AEP or development vulnerability, or where the size of the site does not allow for onsite storage or application or appropriate SuDS then such sites could be rejected. The LLFA will be best placed to advise on site-specific surface water flood risk and whether sites can be taken forward or not.

E.3.2 Exception Test required

Applies to those sites that, according to the FRCC-PPG vulnerability tables, would require the Exception Test. Only water-compatible and less vulnerable land uses would not require the Exception Test in Flood Zone 3a. More vulnerable uses and essential

[2] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

infrastructure are only permitted if the Exception Test is passed and all development proposals in Flood Zone 3a must be accompanied by a Flood Risk Assessment at the planning application stage.

E.3.3 Consideration of site layout and design

Site layout and site design is important at the site planning stage where flood risk exists. The site area would have to be large enough to enable any alteration of the developable area of the site to remove development from a risk area, or to leave space for onsite storage of floodwater. Careful layout and design at the site planning stage may apply to such sites where it is considered viable based on the level of risk. Surface water risk and opportunities for SuDS should also be assessed during the planning stage.

Any development within 8 metres of any flood defence structure or culvert on a Main River is likely to be a regulated flood risk activity under Schedule 25 of the Environment Permitting (England and Wales) Regulations 2016. Any site redesign, where Flood Zone 3a is included within the site footprint, should allow water to flow naturally or be stored in times of flood through application of appropriate SuDS techniques (see main report). Similarly, any change or alteration to an ordinary watercourse within a site would need consent from the LLFA under the Land Drainage Act 1991[3].

E.3.4 Site-specific Flood Risk Assessment

A site-specific Flood Risk Assessment should assess whether a potential development is likely to be affected by current or future flooding, accounting for the impacts of climate change, from any source. This should include referencing this SFRA to establish sources of flooding. Further analysis should be performed to improve the understanding of flood risk including agreement with the LPA and the EA on areas of functional floodplain that have not been specified within this SFRA. The LLFA should be consulted on risk from surface water and from ordinary watercourses.

According to the FRCC-PPG (Para 030), a site-specific FRA is:

"…carried out by (or on behalf of) a developer to assess the flood risk to and from a development site. Where necessary (see footnote 50 in the National Planning Policy Framework), the assessment should accompany a planning application submitted to the local planning authority. The assessment should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users (see Table 2 – Flood Risk Vulnerability of FRCC-PPG)."

[3] https://www.legislation.gov.uk/ukpga/1991/59/contents

The objectives of a site-specific FRA are to establish:

- Whether the development will increase flood risk elsewhere;
- Whether the mitigation measures proposed to deal with these effects and risks are appropriate;
- The evidence for the local planning authority to apply (if necessary) the Sequential Test;
- Whether the development will be safe for its lifetime and pass the Exception Test, if applicable; and
- That an appropriate Emergency Plan is in place that accounts for the possibility of a flood event and shows the availability of safe access and egress points accessible during times of flood. (FRCC-PPG, Para 030)

Possible mitigation measures for at risk sites include ensuring floor levels are raised a minimum of 600 mm above the critical design event flood level (as advised by the EA). However, compensatory storage must be found where the risk is fluvial. If this cannot be achieved, it is for the applicant to identify alternative mitigation measures.

Stilted development is an option whereby floodwaters can still flow naturally though this can prove to be a costly solution. Any site identified to be at residual risk must have suitable site access and egress routes available during times of flood together with a full emergency plan that should accompany the FRA at the application stage. The provisions of suitable flood warning systems should also be investigated.

Detailed mitigation must be agreed through site-specific FRAs or through Level 2 SFRAs where it would be necessary to demonstrate site allocations would be safe for their lifetime.

When is a Site-Specific FRA Required?

According to the NPPF footnote 55, a site-specific FRA should be prepared when the application site is:

- Situated in Flood Zone 2 and 3; for all proposals for new development (including minor development and change of use);
- 1 hectare or greater in size and located in Flood Zone 1;
- Located in Flood Zone 1 on land which has been identified by the EA as having critical drainage problems (i.e. within an ACDP);
- Land identified in the SFRA as being at increased flood risk in future (i.e. based on RoFSW mapping; sites within Flood Zone 2 that may be within Flood Zone 3 in the longer term (in the absence of modelled climate change outputs));
- At risk of flooding from other sources of flooding, such as those identified in this SFRA; or
- Subject to a change of use to a higher vulnerability classification which may be subject to other sources of flooding.

Optionally, the LPA may also like to consider further options for stipulating FRA requirements, such as:

- Situated in an area currently benefitting from defences;
- At residual risk from reservoirs or canals; or
- Situated over a culverted watercourse or where development will require controlling the flow of any watercourse, drain or ditch or the development could potentially change structures known to influence flood flow.

These further options should be considered during the preparation and development of the Local Plan.

Paragraph 031 of the FRCC-PPG contains information regarding the level of detail required in the FRAs and indicates that it should always be proportionate to the degree of flood risk whilst making use of existing information, including this SFRA. Paragraph 068 of the FRCC-PPG contains an easy to follow FRA checklist for developers to follow.

Together with the information in the FRCC-PPG, there is further detail and support provided for the LPAs and developers via:

advice for developers:

https://www.gov.uk/guidance/flood-risk-assessment-standing-advice

advice for LPAs:

https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities

also, EA guidance for Flood Risk Assessments for planning applications:

https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

Section 6.5 of the main report provides further guidance for developers.

E.3.5 Sites passing the Sequential and Exception Tests

Development sites can be allocated or granted planning permission where the Sequential Test and the Exception Test (if required) are passed and agreement is reached between the LPA/LLFA, the EA, the water companies and any ancillary stakeholders. In addition, a site is likely to be allocated without the need to assess flood risk where the indicative use is for open space. Assuming the site is not to include

any development and is to be left open then the allocation is likely to be acceptable from a flood risk point of view. However, for sites where there is potential for flood storage, options should be explored as part of a FRA.

In terms of opportunities for reducing flood risk overall as a requirement of the Exception Test, the FRCC-PPG states:

"Local authorities and developers should seek opportunities to reduce the overall level of flood risk in the area and beyond. This can be achieved, for instance, through the layout and form of development, including green infrastructure and the appropriate application of sustainable drainage systems, through safeguarding land for flood risk management, or where appropriate, through designing off-site works required to protect and support development in ways that benefit the area more generally." (Paragraph 50).

E.3.6 Surface water risk to assessed sites

For sites at surface water flood risk the following should be considered:

- Possible withdrawal, redesign or relocation for those sites considered to be at significant risk. More detailed surface water modelling may reveal increased risk or less risk to a site. The LLFA should be consulted when considering development viability at such sites;
- Outline drainage strategy to ascertain natural flow paths and topographic depressions, particularly for the larger sites which may influence sites elsewhere;
- A detailed site-specific FRA incorporating surface water flood risk management;
- Full drainage strategy encompassing detailed surface water modelling of proposed site layouts, attenuation areas, diversion of flow routes;
- Ensuring future maintenance of surface water and SuDS assets through s106 agreements;
- The size of development and the possibility of increased surface water flood risk caused by development on current greenfield land (where applicable) and cumulative impacts of this within specific areas;
- Management and re-use of surface water onsite, assuming the site is large enough to facilitate this and achieve effective mitigation. Effective surface water management should ensure risks on and off site are controlled;
- Larger sites could leave surface water flood-prone areas as open greenspace, incorporating social and environmental benefits;
- SuDS should be used where possible. Appropriate SuDS may offer opportunities to control runoff to greenfield rates or better. Restrictions on surface water runoff from new development should be incorporated into the development planning stage. For brownfield sites, where current infrastructure may be staying in place, then runoff should attempt to mimic that of greenfield rates, unless it can be demonstrated that this is unachievable or hydraulically impractical. Developers should refer to the national 'non-statutory technical standards for sustainable drainage systems' and other guidance documents cited in the main report;
- Runoff up to and including the 1 in 100 AEP event (1%) should be managed on-site where possible;
- Measures of source control should be required for development sites;

- Developers should be required to set part of their side aside for surface water management, to contribute to flood risk management in the wider area and supplement green infrastructure networks;
- Developers should be required to maximise permeable surfaces;
- Flow routes on new development where the sewerage system surcharges as a consequence of exceedance of the 1 in 30 AEP design event should be retained; and
- It may then be beneficial to carry out a local SWMP or drainage strategy for targeted locations with any known critical drainage problems. Investigation into the capacity of existing sewer systems would be required in order to identify critical parts of the system i.e. pinch points. Drainage model outputs could be obtained from the water company to confirm the critical parts of the drainage network and subsequent recommendations could then be made for future development i.e. strategic SuDS sites, parts of the drainage system where any new connections should be avoided, and parts of the system that may have any additional capacity and recommended runoff rates. A Water Cycle Study would help to inform this.

JBA consulting

WIRRAL

Wirral Borough Council

Level 1 SFRA Sites Assessment Addendum

31 March 2022

Summary Table

			Fluvial / Tidal Flood Zone Coverage								Risk of Flooding from Surface Water					
			Flood Zone 1		Flood Zone 2		Flood Zone 3a		Flood Zone 3b		Low Risk (1 in 1000 year outline)		Medium Risk (1 in 100 year outline)		High Risk (1 in 30 year outline)	
Proposed Use	Number of Sites	Area (ha)	Area (ha)	No. 100%	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.
Housing	28	75.98	62.87	18	4.89	9	7.79	7	0.43	5	11.68	18	3.47	14	0.49	10
Employment	8	26.42	21.66	3	0.34	0	4.29	0	0.13	0	1.07	0	0.30	0	0.12	0
TOTAL	**36**	**102.40**	**84.53**	**21.00**	**5.24**	**9.00**	**12.08**	**7.00**	**0.56**	**5.00**	**12.75**	**18.00**	**3.77**	**14.00**	**0.61**	**10.00**

Key

Flood Zone 3b	The colour coding shows the highest risk element of the flood zone that is present on site and is not in itself an indication of whether the site should or shouldn't be developed for flooding reason
Flood Zone 3a	
Flood Zone 2	
Flood Zone 1 + Surface Water	
Flood Zone 1	

Main Table

				Fluvial / Tidal Flood Zone Coverage								Risk of Flooding from Surface Water					
				Flood Zone 1		Flood Zone 2		Flood Zone 3a		Flood Zone 3b		Low Risk (1 in 1000 year outline)		Medium Risk (1 in 100 year outline)		High Risk (1 in 30 year outline)	
Site Reference	Site Name	Proposed Use	Area (ha)	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%
EMP-RA6.3	MEA Park East, Beaufort Road, Birkenhead	Employment	9.0639	6.6906	73.8160	0.2173	2.3973	2.0675	22.8098	0.0885	0.9768	0.2754	3.0382	0.0381	0.4204	0.0000	0.0000
EMP-RA6.4	MEA Park Phase 2, Beaufort Road, Birkenhead	Employment	1.7903	1.7893	99.9428	0.0000	0.0000	0.0000	0.0020	0.0010	0.0552	0.0064	0.3568	0.0001	0.0070	0.0000	0.0000
EMP-RA6.5	Hydraulic Tower, Tower Rd (Maritime Knowledge Hub) 0.95 WELPS 25 Yes	Employment	0.9547	0.7665	80.2937	0.1169	12.2435	0.0313	3.2838	0.0399	4.1790	0.0026	0.2772	0.0004	0.0401	0.0004	0.0401
EMP-RA8.1	Northside West, Dock Road, Poulton	Employment	6.2993	6.2993	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5183	8.2275	0.1484	2.3558	0.0476	0.7556
EMP-SA2.1	Cammell Laird South, Tranmere	Employment	5.5369	5.5369	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1009	1.8232	0.0271	0.4897	0.0235	0.4247
EMP-SA3.1	North Cheshire TE - West of Prenton Way	Employment	0.5743	0.5743	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EMP-SA5.3	West of Reeds Lane - South of Access Road	Employment	1.9431	0.0000	0.0000	0.0080	0.4137	1.9350	99.5863	0.0000	0.0000	0.1553	7.9939	0.0842	4.3340	0.0518	2.6646
EMP-SA5.4	Tarran Way North, Moreton	Employment	0.2563	0.0000	0.0000	0.0000	0.0000	0.2563	100.0000	0.0000	0.0000	0.0155	6.0333	0.0001	0.0395	0.0000	0.0000
RES-RA11.1	43 Bebington Road, New Ferry	Housing	0.1161	0.1161	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-RA11.2	Woodhead Street Car Park, New Ferry	Housing	0.7808	0.7808	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039	0.5005	0.0000	0.0000	0.0000	0.0000
RES-RA11.3	Land Grove Street and Bebington Road, New Ferry	Housing	0.2846	0.2846	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0199	6.9856	0.0025	0.8846	0.0000	0.0000
RES-RA11.4	78, 78A and 82 Bebington Road, New Ferry	Housing	0.0702	0.0702	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0142	20.2492	0.0000	0.0000	0.0000	0.0000
RES-RA11.5	100 New Chester Road, New Ferry	Housing	0.2385	0.2385	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-RA2.1	Land East of Birkenhead Road, Seacombe (North)	Housing	1.9052	1.9051	99.9954	0.0001	0.0046	0.0000	0.0000	0.0000	0.0000	0.0655	3.4398	0.0177	0.9316	0.0109	0.5713
RES-RA2.2	Land East of Birkenhead Road, Seacombe (South)	Housing	1.5771	1.3749	87.1796	0.0884	5.6044	0.1138	7.2160	0.0000	0.0000	0.2319	14.7059	0.0208	1.3158	0.0014	0.0907
RES-RA3.4	Rose Brae, Woodside, Birkenhead	Housing	1.9756	1.9756	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0073	0.3696	0.0000	0.0000	0.0000	0.0000
RES-RA4.2	WGC Town Centre Plot G	Housing	1.1996	1.1996	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2299	19.1649	0.0492	4.0996	0.0012	0.0986
RES-RA5.1	Hind Street, Tranmere	Housing	15.5947	15.5947	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.7018	36.5624	2.2329	14.3183	0.2585	1.6579
RES-RA6.2	Wirral Waters - Vittoria Studios and Sky City	Housing	12.3360	8.3852	67.9737	0.6661	5.3993	3.0408	24.6494	0.2440	1.9777	1.0977	8.8980	0.2024	1.6405	0.0220	0.1782
RES-RA6.3	Wirral Waters - Northbank East 1 (Urban Splash)	Housing	0.8056	0.8055	99.9915	0.0000	0.0000	0.0000	0.0000	0.0001	0.0085	0.1310	16.2573	0.0170	2.1108	0.0107	1.3334
RES-RA6.4	Wirral Waters - Northbank West 2 (Urban Splash)	Housing	1.5024	1.4684	97.7373	0.0340	2.2627	0.0000	0.0000	0.0000	0.0000	0.2219	14.7671	0.0481	3.1997	0.0000	0.0000
RES-RA6.5	Wirral Waters - Northbank East 3 (Tower Road)	Housing	0.4919	0.2598	52.8156	0.0787	15.9916	0.1534	31.1927	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-RA6.6	Wirral Waters - Northbank West 1 (Legacy)	Housing	2.1693	2.1243	97.9259	0.0122	0.5605	0.0056	0.2567	0.0273	1.2570	0.2364	10.8990	0.0089	0.4098	0.0005	0.0233
RES-RA9.1	Former Liscard Municipal, Seaview Road, Liscard	Housing	0.8330	0.8330	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0038	0.4526	0.0004	0.0473	0.0000	0.0000
RES-SA3.2	Redcourt, 7 Devonshire Place, Birkenhead	Housing	0.4839	0.4839	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0898	18.5689	0.0000	0.0000	0.0000	0.0000
RES-SA3.9	Former Christ Church, Park Road South, Birkenhead	Housing	0.0613	0.0613	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-SA4.11	Unilever Research, Quarry Road East, Port Sunlight	Housing	3.4350	3.4350	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3182	9.2646	0.0524	1.5260	0.0000	0.0000
RES-SA4.18	45 Palatine Road, Bromborough	Housing	0.0435	0.0435	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-SA4.6	Former Croda, Prices Way, Bromborough Pool	Housing	4.6208	0.0562	1.2157	0.4355	9.4258	4.0392	87.4133	0.0899	1.9452	0.6095	13.1911	0.1366	2.9559	0.0256	0.5550
RES-SA4.7	Former D1 Oils, Dock Road South, Bromborough	Housing	22.7491	18.7442	82.3955	3.5729	15.7056	0.4320	1.8988	0.0000	0.0000	2.4062	10.5771	0.5660	2.4879	0.1277	0.5612
RES-SA5.14	2 Hendon Walk, Greasby	Housing	0.0240	0.0240	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-SA5.8	Former Dodds Builders Merchants, Moreton	Housing	0.4206	0.3444	81.8933	0.0054	1.2836	0.0051	1.2098	0.0657	15.6133	0.2899	68.9265	0.1127	26.7924	0.0312	7.4080
RES-SA6.4	Land at Grange Hill Farm, West Kirby	Housing	1.1334	1.1334	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-SA6.9	Sundial, 61 Caldy Road, Caldy	Housing	0.2784	0.2784	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-SA7.2	Former Gospel Hall, Pensby Road, Heswall	Housing	0.2036	0.2036	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RES-SA7.5	Willowbank, 33 Oldfield Road, Heswall	Housing	0.6478	0.6478	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Site Reference	Significant Surface Water Risk?	Risk from Fluvial and/or Tidal Climate Change?	Flood Risk Vulnerability Classification (NPPF)	Level 1 Strategic Recommendation (see Appendix E Addendum)	Previous Level 1 Strategic Recommendation	Development Considerations	Recommended Next Steps	Council Comments	Council Decision on Site for Local Plan
EMP-RA6.3	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Consider site layout and design	Flood risk should be manageable through careful consideration of site layout and design around the flood risk early on in the planning stage		
EMP-RA6.4	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th Wirral Tidal Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation C	Strategic Recommendation D	Consider site layout and design	Flood risk should be manageable through careful consideration of site layout and design around the flood risk early on in the planning stage		
EMP-RA6.5	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Consider site layout and design	Flood risk should be manageable through careful consideration of site layout and design around the flood risk early on in the planning stage		
EMP-RA8.1	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation D	-	FRA required	Site can progress to FRA stage		
EMP-SA2.1	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation D	-	FRA required	Site can progress to FRA stage		
EMP-SA3.1	No	Low risk	Less Vulnerable	Strategic Recommendation E	Strategic Recommendation E	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
EMP-SA5.3	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC95th Wirral Tidal Undefended 0.5% AEP + CC70th Wirral Tidal Undefended 0.1% AEP + CC70th Wirral Tidal Undefended 0.5% AEP + CC95th Wirral Tidal Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Level 2 SFRA has been completed. Minor amendments to site boundary	Refer to Level 2 SFRA Addendum.		
EMP-SA5.4	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th Wirral Tidal Undefended 0.5% AEP + CC70th Wirral Tidal Undefended 0.1% AEP + CC70th Wirral Tidal Undefended 0.5% AEP + CC95th Wirral Tidal Undefended 0.1% AEP + CC95th	Less Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Level 2 SFRA has been completed. Minor amendments to site boundary	Refer to Level 2 SFRA Addendum.		
RES-RA11.1	No	Low risk	More Vulnerable	Strategic Recommendation E	Strategic Recommendation E	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-RA11.2	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-RA11.3	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-RA11.4	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-RA11.5	No	Low risk	More Vulnerable	Strategic Recommendation E	-	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-RA2.1	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th Wirral Tidal Undefended 0.5% AEP + CC70th Wirral Tidal Undefended 0.1% AEP + CC70th Wirral Tidal Undefended 0.5% AEP + CC95th Wirral Tidal Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Level 2 SFRA has been completed. Site split in two (RES-RA2.1 and RES-RA2.2)	Refer to Level 2 SFRA Addendum.		
RES-RA2.2	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Consider site layout and design	Flood risk should be manageable through careful consideration of site layout and design around the flood risk early on in the planning stage		
RES-RA3.4	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-RA4.2	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-RA5.1	Yes	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation D	Strategic Recommendation A	Level 2 SFRA has already been completed. Updated as addendum due to increase in site footprint	Refer to Level 2 SFRA Addendum.		
RES-RA6.2	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation B	Strategic Recommendation B	Level 2 SFRA has been completed. Sites RES-RA6.1 and 6.2 merged into one (RES-RA6.2). Risk remains the same	Refer to Level 2 SFRA Addendum.		
RES-RA6.3	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Consider site layout and design	Flood risk should be manageable through careful consideration of site layout and design around the flood risk early on in the planning stage		
RES-RA6.4	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation D	Strategic Recommendation C	FRA required	Site can progress to FRA stage		
RES-RA6.5	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation B	Strategic Recommendation B	Level 2 SFRA has been completed. Minor amendments to site boundary	Refer to Level 2 SFRA Addendum.		
RES-RA6.6	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Consider site layout and design	Flood risk should be manageable through careful consideration of site layout and design around the flood risk early on in the planning stage		
RES-RA9.1	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-SA3.2	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-SA3.9	No	Low risk	More Vulnerable	Strategic Recommendation E	Strategic Recommendation E	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-SA4.11	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation D	FRA required	Site can progress to FRA stage		
RES-SA4.18	No	Low risk	More Vulnerable	Strategic Recommendation E	-	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-SA4.6	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation B	Strategic Recommendation B	Level 2 SFRA has been completed. Minor amendments to site boundary	Refer to Level 2 SFRA Addendum.		
RES-SA4.7	No	Very high risk due to modelling . Within: Mersey Estuary Undefended 0.5% AEP + CC70th Mersey Estuary Undefended 0.1% AEP + CC70th Mersey Estuary Undefended 0.5% AEP + CC95th Mersey Estuary Undefended 0.1% AEP + CC95th	More Vulnerable	Strategic Recommendation C	Strategic Recommendation C	Level 2 SFRA has been completed. Minor amendments to site boundary	Refer to Level 2 SFRA Addendum.		
RES-SA5.14	No	Low risk	More Vulnerable	Strategic Recommendation E	-	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-SA5.8	Yes	Very high risk due to modelling . Within: Wirral Tidal Undefended 0.5% AEP + CC70th Wirral Tidal Undefended 0.1% AEP + CC70th Wirral Tidal Undefended 0.5% AEP + CC95th Wirral Tidal Undefended 0.1% AEP + CC95th Birket Fender and Arrowe Brook Defended Q20CC44, Q20CC57, Q100CC44, Q100CC57	More Vulnerable	Strategic Recommendation A	Strategic Recommendation A	Level 2 SFRA has already been completed. Updated as addendum due to increase in site footprint	Refer to Level 2 SFRA Addendum.		
RES-SA6.4	No	Low risk	More Vulnerable	Strategic Recommendation D	Strategic Recommendation E	FRA required	Site can progress to FRA stage		
RES-SA6.9	No	Low risk	More Vulnerable	Strategic Recommendation E	Strategic Recommendation E	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-SA7.2	No	Low risk	More Vulnerable	Strategic Recommendation E	-	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		
RES-SA7.5	No	Low risk	More Vulnerable	Strategic Recommendation E	Strategic Recommendation E	Development could be allocated on flood risk grounds based on the evidence of this Level 1 SFRA	LPA to make decision on allocation		