

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BR/BE/1			
	Site Name	Bewdley Fire Station			
	Area	0.19ha			
	Current land use	Brownfield			
	Proposed site use	Residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Severn, which flows in a south east direction 48.8m to the site. 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		52%	13%	6%	28%
	The site is partially located within the EA Flood Zones along the northern half of the site and western site boundary, with fluvial risk from the River Severn.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		0%	1%	11%	
		The uFMfSW shows the site to be at risk from surface water flooding along the western site boundary for all return periods and the northern site boundary during the 1,000-year event.			
	Reservoir	The site is not within the flood inundation extent in the event of reservoir failure.			
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's recorded flood outline dataset shows the site to have flooding in December 1960 and Autumn 2000.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	This site benefits from demountable flood defences operated by the EA in the event of a flood.				
Residual risk	Standard of protection of the demountable defences in Bewdley is to a 1% AEP event. Climate change modelling shows an increase of Flood Zone 3 and therefore likelihood of overtopping increases. A detailed site-specific FRA should confirm the flood risk to the site from overtopping of defences.				
Emergency planning	Flood warning	The site is partially covered by the Environment Agency's River Severn at Severnside, Bewdley Flood Warning area.			
	Access and egress	Access and egress can be provided by Dog Lane via Dowles Road. However, there is potential for this to be lost during the 1,000-year flood event which floods Dog Lane.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			0%	0%

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Site details	Site Code	BR/BE/1
	Site Name	Bewdley Fire Station
	Area	0.19ha
	Current land use	Brownfield
	Proposed site use	Residential
	Implications for the site	Climate change modelling shows a significant increase in the extent of Flood Zone 3 for all modelled allowances. Mapping suggests the increase in extent for the 70% allowance inundates the site completely and is the same as the present Flood Zone 2 extent.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is partially within Groundwater Source Protection Zone 3, infiltration techniques are generally acceptable but the developer must liaise with the Environment Agency to confirm in this area. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If the site has contamination issues; a liner will be required. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is partially located within Zone 3. Infiltration techniques are generally acceptable but the developer must liaise with the Environment Agency to confirm in this area. Infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BR/BE/1
	Site Name	Bewdley Fire Station
	Area	0.19ha
	Current land use	Brownfield
	Proposed site use	Residential
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific Flood Risk Assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Severn to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zones 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>	
Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>	

[Mapping](#)

**Wyre Forest District Strategic
Flood Risk Assessment Level
2 Detailed Site Summary
Tables**



Site details	Site Code	BR/BE/1
	Site Name	Bewdley Fire Station
	Area	0.19ha
	Current land use	Brownfield
	Proposed site use	Residential
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	



Site details	Site Code	BHS/39				
	Site Name	Boucher Building				
	Area	0.03ha				
	Current land use	Brownfield				
	Proposed site use	Mixed use				
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour Unnamed watercourse 				
	Fluvial	Proportion of site at risk				
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	100%	0%	
	The whole of the site is located within Flood Zone 2 with fluvial risk from the River Stour.					
	Surface Water	Proportion of site at risk (uFMfSW)				
		30-year	100-year	1,000-year		
		0%	0%	0%		
The uFMfSW shows the site to be not at risk from surface water flooding.						
Reservoir	The site is within the flood inundation extent in the event of reservoir failure.					
Canal	The site is not within 100 meters of a canal.					
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.					
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition		
		-	-	-		
	The site benefits from the Kidderminster Flood Alleviation Scheme.					
Residual risk	Residual risk is present where the River Stour is culverted under Green Street, which could impact the site. This should be investigated further as part of a site-specific FRA by the developer.					
Emergency planning	Flood warning	The site is partially covered by the Environment Agency's River Stour at Kidderminster Flood Warning area.				
	Access and egress	Access and egress can be provided via Dixon Street and Green Street. However, these streets are covered by Flood Zone 2, therefore a fluvial event of this scale may present access and egress issues for the site.				
Climate Change	Climate change allowances for '2080s'	River Basin District		Central	Higher Central	Upper End
		River Severn		25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			75%	92%	100%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/39
	Site Name	Boucher Building
	Area	0.03ha
	Current land use	Brownfield
	Proposed site use	Mixed use
	Implications for the site	Climate change modelling shows a significant increase in the extent of Flood Zone 3 for all modelled allowances. Mapping suggests the increase in extent for the 70% allowance inundates the site completely and is the same as the present Flood Zone 2 extent.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is entirely underlain by Groundwater Source Protection Zone 2, infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 2. As such, infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/39
	Site Name	Boucher Building
	Area	0.03ha
	Current land use	Brownfield
	Proposed site use	Mixed use

Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific Flood Risk Assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
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Mapping Information

Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency’s Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>
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Climate change	<p>The upper end climate change allowances for the ‘2080’s were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the ‘undefended’ scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
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Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>
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Mapping

**Wyre Forest District Strategic
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2 Detailed Site Summary
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Site details	Site Code	BHS/39
	Site Name	Boucher Building
	Area	0.03ha
	Current land use	Brownfield
	Proposed site use	Mixed use
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	FHN/11				
	Site Name	BT Mill Street				
	Area	0.20ha				
	Current land use	Brownfield				
	Proposed site use	Residential				
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour 				
	Fluvial	Proportion of site at risk				
		FZ3b	FZ3a	FZ2	FZ1	
		12%	28%	29%	31%	
	The site is significantly located within Flood Zones along the northern and eastern boundary. Flood Zone 3b is present along the northern site boundary with 3a and 2 inundating the middle of the site.					
	Surface Water	Proportion of site at risk (uFMfSW)				
		30-year	100-year	1,000-year		
		0%	0%	14%		
The uFMfSW shows the site to be at risk from surface water flooding along the northern site boundary. Ponding also occurs in the centre of the site for all return periods. Additionally, a flow path connects the ponding to Mill Street surface water in a south-easterly direction during the 1,000-year event.						
Reservoir	The site is partially within the flood inundation extent in the event of reservoir failure.					
Canal	The site is not within 100 meters of a canal.					
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.					
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition		
		-	-	-		
	The site is benefits from the Kidderminster Flood Alleviation Scheme.					
Residual risk	-					
Emergency planning	Flood warning	The site is partially covered by the Environment Agency's River Stour at Kidderminster Flood Warning area.				
	Access and egress	Access and egress can be available along Mill Street where there is no fluvial risk. However, this is not available during surface water flood events.				
Climate Change	Climate change allowances for '2080s'	River Basin District		Central	Higher Central	Upper End
		River Severn		25%	35%	70%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	FHN/11		
	Site Name	BT Mill Street		
	Area	0.20ha		
	Current land use	Brownfield		
	Proposed site use	Residential		
	% increase in flood extent compared to Flood Zone 3a	-24%	-23%	-23%
	Implications for the site	Climate change modelling shows the future extent of flood zone 3 to remain confined to the northern site boundary. A reduction in the extent of flood zone is observed due to different modelling conducted compared to modelling used for the EA's Flood Zones. This should be investigated further by the developer at a site-specific FRA.		
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is partially within Groundwater Source Protection Zone 3, infiltration techniques are generally acceptable but the developer must liaise with the Environment Agency to confirm in this area. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. 		
	Groundwater Source Protection Zone	The site is partially located within Zone 3. Infiltration techniques are generally acceptable but the developer must liaise with the Environment Agency to confirm in this area. Infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.		
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.		
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b. 		

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	FHN/11
	Site Name	BT Mill Street
	Area	0.20ha
	Current land use	Brownfield
	Proposed site use	Residential

Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
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Mapping Information

Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency’s Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>
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Climate change	<p>The upper end climate change allowances for the ‘2080’s were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the ‘undefended’ scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
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Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>
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Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



JBA
consulting

Site details	Site Code	FHN/11
	Site Name	BT Mill Street
	Area	0.20ha
	Current land use	Brownfield
	Proposed site use	Residential
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/BE/3			
	Site Name	Catchem's End, Bewdley			
	Area	5.61ha			
	Current land use	Greenfield			
	Proposed site use	Station carpark and residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> Ridings Book 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		0%	16%	4%	80%
		<p>The site is partially located within EA Flood Zones within the western land parcel, where the northern half of the site around the Ridings Brook is inundated in the 100-year. The eastern land parcel is not at fluvial flood risk.</p> <p>Additional 2D generalised modelling has been undertaken on this drain to provide an indication of risk for the drain's full extent through the site for climate change and 100-year depth, velocity and hazard in the mapping. It should be noted that the Flood Zones show a flow path from a culvert near the site WA/KF/1 to the north, and hence this may need to be confirmed by more detailed modelling at the FRA-stage regarding how this overland flow path may affect this site around the Kidderminster Road.</p>			
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		6%	13%	21%	
		<p>The uFMfSW shows both land parcels to be at risk from surface water; however, this is only a very small area of ponding in the north east corner of the eastern land parcel. Surface water risk in the western land parcel is more significant, situated in the northern half of the site along the Ridings Brook floodplain.</p>			
	Reservoir	The site is not within the flood inundation extent in the event of reservoir failure.			
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
		The site is not protected by any formal defences			

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Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/BE/3			
	Site Name	Catchem's End, Bewdley			
	Area	5.61ha			
	Current land use	Greenfield			
	Proposed site use	Station carpark and residential			
Residual risk	<p>Residual risk is presented where the Ridings Brook is culverted under the B4190 Kidderminster Road. This risk should be investigated at a site-specific FRA by the developer.</p> <p>Also, the culvert at the northern site of WA/KF/1 has not been explicitly modelled and therefore flood extents or mechanisms may be different when modelled using topographic survey at the FRA-stage (overland flow path connects to the watercourse again here).</p>				
Emergency planning	Flood warning	The site is not covered by an Environment Agency Flood Warning Area.			
	Access and egress	Safe access and egress can be provided to both land parcels via the A456. The eastern site parcel can also have this provided via Kidderminster Road. Surface water risk should be considered along these roads where the watercourses cross.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a	1%	1%	2%	
Implications for the site	Climate change modelling was conducted using 2D generalised modelling techniques. Modelling shows the extent of Flood Zone 3 to increase for all allowances. Additionally, the 35 and 70% allowances were modelled to be greater than the current extent of Flood Zone 2. The eastern land parcel is not at fluvial risk from climate change.				

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/BE/3
	Site Name	Catchem's End, Bewdley
	Area	5.61ha
	Current land use	Greenfield
	Proposed site use	Station carpark and residential
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • Although mapping suggest groundwater flooding may be an issue at the site, Infiltration techniques may be suitable, providing they are located in areas that are not at medium to high risk from groundwater flooding. • As the site is partially within Groundwater Source Protection Zone 3, infiltration techniques are generally acceptable but the developer must liase with the Environment Agency to confirm in this area. • • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater flooding is a medium to high risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues or is at medium to high risk from groundwater flooding, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is partially located within Zone 3. Infiltration techniques are generally acceptable but the developer must liase with the Environment Agency to confirm in this area. Infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/BE/3
	Site Name	Catchem's End, Bewdley
	Area	5.61ha
	Current land use	Greenfield
	Proposed site use	Station carpark and residential
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the Ridings Brook to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p> <p>Developers should seek to confirm risk using detailed hydraulic modelling as part of a FRA</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site-specific FRA.</p>	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/BE/3
	Site Name	Catchem's End, Bewdley
	Area	5.61ha
	Current land use	Greenfield
	Proposed site use	Station carpark and residential
Surface Water		The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.
Depth, velocity and hazard mapping		Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from new 2D generalised modelling undertaken for the purpose of assessing this site. Developers should seek to confirm risk using detailed hydraulic modelling as part of a FRA.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/17			
	Site Name	Fire Station, Castle Road, Kidderminster			
	Area	0.38ha			
	Current land use	Brownfield			
	Proposed site use	Residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		9%	26%	58%	8%
	Almost the entirety of the site is within Flood Zone 2. Flood Zone 3 is shown to be along the eastern and southern site boundary. Flood Zone 3b is confined to the eastern site boundary.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		0%	10%	19%	
	The uFMfSW shows extents to follow the alignment on the watercourse along the eastern site boundary. Additionally, ponding occurs in the south west corner of the site.				
	Reservoir	The site is within the flood inundation extent in the event of reservoir failure.			
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site benefits from the Kidderminster Flood Alleviation Scheme which will protect up to 1 in 100-year event.				
Residual risk	-				
Emergency planning	Flood warning	The site is partially covered by the Environment Agency's River Stour at Kidderminster Flood Warning Area.			
	Access and egress	Access and egress can be provided via New Road and Dixon Street; however, this may not be possible when inundated during the 1,000-year event.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			57%	58%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/17
	Site Name	Fire Station, Castle Road, Kidderminster
	Area	0.38ha
	Current land use	Brownfield
	Proposed site use	Residential
	Implications for the site	Climate change modelling shows a significant increase in the extent of Flood Zone 3 for all modelled allowances. Mapping suggests the increase in extent is only slightly less than the current extent of Flood Zone 2.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is entirely underlain by Ground Water Source Protection Zone 2, infiltration techniques such as infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 2. As such infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/17
	Site Name	Fire Station, Castle Road, Kidderminster
	Area	0.38ha
	Current land use	Brownfield
	Proposed site use	Residential

Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 3b and 3a as public open space.
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Mapping Information

Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency’s Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>
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Climate change	<p>The upper end climate change allowances for the ‘2080’s were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the ‘undefended’ scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
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Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>
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Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

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Site details	Site Code	BHS/17
	Site Name	Fire Station, Castle Road, Kidderminster
	Area	0.38ha
	Current land use	Brownfield
	Proposed site use	Residential
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	MI/36			
	Site Name	Firs View Yard, Wilden Lane			
	Area	0.41ha			
	Current land use	Greenfield			
	Proposed site use	Gypsy pitches			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		32%	17%	21%	31%
	The site is significantly located within Flood Zone 3b from the western boundary and along the north and southern boundary, originating from the River Stour.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		3%	6%	23%	
		The uFMfSW shows the site to be at risk from surface water flooding along the north western corner of the site. Ponding also occurs in the centre of the site during the 100-year event.			
	Reservoir	The site is partially within the flood inundation extent in the event of reservoir failure.			
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site is not protected by any formal defences				
Residual risk	-				
Emergency planning	Flood warning	The site is not covered by an Environment Agency Flood Warning System.			
	Access and egress	Safe access and egress can be provided by Wilden Lane.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a		21%	42%	61%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	MI/36
	Site Name	Firs View Yard, Wilden Lane
	Area	0.41ha
	Current land use	Greenfield
	Proposed site use	Gypsy pitches
	Implications for the site	Climate change modelling shows an increase in the extent of Flood Zone 3 for all modelled allowances. Mapping suggests the increase in extent for the 35 and 70% allowances are also greater than the present Flood Zone 2 extent in some areas.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • Although mapping suggest groundwater flooding may be an issue at the site, Infiltration techniques may be suitable, providing they are located in areas that are not at medium to high risk from groundwater flooding and they are located outside of GSP Zone 3. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater flooding is a medium to high risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues or is at medium to high risk from groundwater flooding, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is partially located within Zone 3. Infiltration techniques are generally accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	MI/36
	Site Name	Firs View Yard, Wilden Lane
	Area	0.41ha
	Current land use	Greenfield
	Proposed site use	Gypsy pitches

Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> • At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. • Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. • Resilience measures will be required if buildings are situated in the flood risk area. • Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. • Assessment for runoff should include allowance for climate change effects. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding. • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
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Mapping Information

Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency’s Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>
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Climate change	<p>The upper end climate change allowances for the ‘2080’s were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the ‘undefended’ scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
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Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>
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Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	MI/36
	Site Name	Firs View Yard, Wilden Lane
	Area	0.41ha
	Current land use	Greenfield
	Proposed site use	Gypsy pitches
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	



Site details	Site Code	MI/10			
	Site Name	Four Acres Caravan Park			
	Area	2.93 ha			
	Current land use	Brownfield			
	Proposed site use	Residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Severn 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		0%	0%	11%	89%
	Flood risk to the site originates from the south west corner of the site from the River Severn (Flood Zone 2). Flood Zone 3 does not encroach into the site.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		0%	2%	7%	
	The uFMfSW shows ponding in isolated pockets in the middle of the northern boundary and in the south west corner of the site.				
	Reservoir	The site is not at risk of inundation in the event of reservoir failure.			
Canal	The site is not within 100 metres of a canal.				
Flood history	The Environment Agency's historic flood map does not show any flooding to the site in the past.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site is not protected by any formal flood defences				
Residual risk	The flood risk posed by the culverted watercourse that crosses the site has not been assessed due to the limited information available and therefore could not be modelled for the purpose of this study. The watercourse and associated flood risk will need to be considered by the developer and incorporated into the layout of any future development.				
Emergency planning	Flood warning	The site is not within a Flood Warning Area			
	Access and egress	Access and egress for the site is available via the A4025 and Power Station Road.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			0%	0%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	MI/10
	Site Name	Four Acres Caravan Park
	Area	2.93 ha
	Current land use	Brownfield
	Proposed site use	Residential
	Implications for the site	Climate change modelling shows at 70%, the flood extent of Flood Zone 3 becomes slightly greater than the current Flood Zone 2.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • Although mapping suggest groundwater flooding may be an issue at the site, Infiltration techniques may be suitable, providing they are located in areas that are not at medium to high risk from groundwater flooding and they are located outside of GSP Zone 3 • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater flooding is a medium to high risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues or is at medium to high risk from groundwater flooding, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 3. Infiltration techniques are generally accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	MI/10
	Site Name	Four Acres Caravan Park
	Area	2.93 ha
	Current land use	Brownfield
	Proposed site use	Residential
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> • At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. • Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. • Resilience measures will be required if buildings are situated in the flood risk area. • Onsite attenuation schemes would need to be tested against the hydrographs of the River Severn to ensure flows are not exacerbated downstream within the catchment. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. • Assessment for runoff should include allowance for climate change effects. • Risk from the Severn Navigation and the Staffordshire and Worcestershire Canal should be considered. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding. • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



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Site details	Site Code	MI/10
	Site Name	Four Acres Caravan Park
	Area	2.93 ha
	Current land use	Brownfield
	Proposed site use	Residential
Surface Water	The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.	
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) is not available for this site therefore it should be investigated further at a site-specific FRA stage.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/10			
	Site Name	Frank Stone Building			
	Area	0.32ha			
	Current land use	Brownfield			
	Proposed site use	Mixed use			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		5%	3%	92%	0%
	The whole of the site is located within Flood Zone 2 with fluvial risk from the River Stour.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		1%	1%	2%	
The uFMfSW extents are shown to encroach into the site along the southern and northern site boundaries, aligning with the watercourse to the north and the street to the south.					
Reservoir	The site is within the flood inundation extent in the event of reservoir failure.				
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site benefits from the Kidderminster Flood Alleviation Scheme.				
Residual risk	-				
Emergency planning	Flood warning	The site is partially covered by the Environment Agency's River Stour at Kidderminster Flood Warning area.			
	Access and egress	Access and egress can be provided via Dixon Street and Green Street. However, both these streets become inundated during the 100-year surface water event and are located within Flood Zone 2 – therefore there may be issues with the availability of safe access and egress in the event of a flood.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			81%	96%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/10
	Site Name	Frank Stone Building
	Area	0.32ha
	Current land use	Brownfield
	Proposed site use	Mixed use
	Implications for the site	Climate change modelling shows a significant increase in the extent of Flood Zone 3 for all modelled allowances. Mapping suggests the increase in extent is less than the current extent of Flood Zone 2.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is entirely underlain by Ground Water Source Protection Zone 2, infiltration techniques are not suitable. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 2. As such infiltration techniques should only be used where there are suitable levels of treatment although it is possible infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/10
	Site Name	Frank Stone Building
	Area	0.32ha
	Current land use	Brownfield
	Proposed site use	Mixed use

Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
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Mapping Information

Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency’s Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>
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Climate change	<p>The upper end climate change allowances for the ‘2080’s were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the ‘undefended’ scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>
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Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>
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Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



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Site details	Site Code	BHS/10
	Site Name	Frank Stone Building
	Area	0.32ha
	Current land use	Brownfield
	Proposed site use	Mixed use
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/13a			
	Site Name	Land at Stone Hill			
	Area	89.37ha			
	Current land use	Greenfield			
	Proposed site use	Mixed use			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> Hoo Brook A number of unnamed drains 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		3%	1%	1%	95%
	Fluvial flood risk stems primarily from Hoo Brook which flows across the site from east to west. Secondary risks include the western boundary drain.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		1%	2%	6%	
	The uFMfSW shows the site to be at risk from surface water flooding in the small narrow 'neck' of the site, with a similar alignment to the fluvial risk. Minor encroachment occurs where extents run along the site boundary.				
	Reservoir	The area of the site adjacent to Hoo Brook is susceptible to flood inundation in the event of reservoir failure			
Canal	There are no canals within 100m of the site.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site is not protected by any formal flood defences				
Residual risk	-				
Emergency planning	Flood warning	The site is not within a Flood Warning area.			
	Access and egress	Safe access and egress to site is available via Stanklyn Lane in the south as well as the A448 and Comberton Road in the centre.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			1%	2%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/13a
	Site Name	Land at Stone Hill
	Area	89.37ha
	Current land use	Greenfield
	Proposed site use	Mixed use
	Implications for the site	There is a slight increase in the extent of flooding in the site in climate change allowances but the majority of the site remains outside the 100-year flood event.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • Although mapping suggest groundwater flooding may be an issue at the site, Infiltration techniques may be suitable, providing they are located in areas that are not at medium to high risk from groundwater flooding and they are located outside of GSP Zone 3 • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater flooding is a medium to high risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues or is at medium to high risk from groundwater flooding, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 3. Infiltration techniques are generally accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/13a
	Site Name	Land at Stone Hill
	Area	89.37ha
	Current land use	Greenfield
	Proposed site use	Mixed use
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>	
Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



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Site details	Site Code	OC/13a
	Site Name	Land at Stone Hill
	Area	89.37ha
	Current land use	Greenfield
	Proposed site use	Mixed use
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	AKR/18			
	Site Name	Land at Yew Tree Walk			
	Area	4.97ha			
	Current land use	Greenfield			
	Proposed site use	Unknown			
Sources of flood risk	Existing drainage features	River Severn			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		23%	1%	5%	70%
	Fluvial flood risk is shown to impact the southern, eastern and western site boundaries. The site is raised in the northern area hence no risk here and little differences in Flood Zone extents.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		0%	1%	10%	
The uFMfSW shows a small isolated area of ponding to occur in the centre of the site. Additionally, in the south eastern corner of the site, along the southern and western site boundary where topography is lower.					
Reservoir	The site is not at risk of flood inundation in the event of reservoir failure.				
Canal	The site is not within 100 metres of a canal.				
Flood history	The Environment Agency's historic flood map shows the site has flooded in past, but no date is recorded.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	Residual risk	-			
Emergency planning	Flood warning	The site is partially within the Environment Agency's River Severn at Stourport including Lockhill, Lincomb and Riverlands Flood Warning area,			
	Access and egress	Safe access and egress can be provided by Stagborough Way, Briar Way and Lilac Grove.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a	25%	25%	27%	
	Implications for the site	Climate change modelling shows a slight increase in the extent of Flood Zone 3 for the 70% climate change allowance; however, mapping suggests that the increase in extent is less than the current extent of Flood Zone 2. Due to the topography of the site, all extents are very similar.			

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	AKR/18
	Site Name	Land at Yew Tree Walk
	Area	4.97ha
	Current land use	Greenfield
	Proposed site use	Unknown
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • Although mapping suggest groundwater flooding may be an issue at the site, Infiltration techniques may be suitable, providing they are located in areas that are not at medium to high risk from groundwater flooding and they are located outside of GSP Zone 1. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater flooding is a medium to high risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues or is at medium to high risk from groundwater flooding, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 1. Infiltration techniques are not accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	AKR/18
	Site Name	Land at Yew Tree Walk
	Area	4.97ha
	Current land use	Greenfield
	Proposed site use	Unknown
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the River Severn to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>	
Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>	

[Mapping](#)

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

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Site details	Site Code	AKR/18
	Site Name	Land at Yew Tree Walk
	Area	4.97ha
	Current land use	Greenfield
	Proposed site use	Unknown
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/6			
	Site Name	Land East of Offmore Farm			
	Area	10.69ha			
	Current land use	Greenfield			
	Proposed site use	Housing			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> Unnamed drain along the southern site boundary, flowing in a south-westerly direction 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		1%	1%	1%	97%
	The site is not shown in the EA's Flood Zones as catchments smaller than 3m ² are not represented. 2D generalised modelling was therefore undertaken to represent indicative flood risk along the drain. This shows a marginal encroachment of flood risk around the southern boundary.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		1%	1%	5%	
The uFMfSW shows the site to be at risk from surface water flooding along the southern and western site boundary. Additionally, a flow path originating from the eastern site boundary in to the centre of the site occurs during the 1,000-year event.					
Reservoir	The site is not at risk from flood inundation in the event of reservoir failure.				
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's recorded flood outline dataset shows the site to not have flooded in the past.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site is not protected by any formal defences				
Residual risk	-				
Emergency planning	Flood warning	The site is not covered by an Environment Agency's Flood Warning or Alert area.			
	Access and egress	Access and egress can be provided by Husum Way and Tennyson Way during a fluvial flood event. There is however some surface water risk along these roads, as surface water follows topographic flow paths.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			+1%	+1%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/6
	Site Name	Land East of Offmore Farm
	Area	10.69ha
	Current land use	Greenfield
	Proposed site use	Housing
	Implications for the site	Climate change modelling shows a small increase in the extent of Flood Zone 3 for all modelled allowances. The amount of encroachment into the site's southern boundary may need to be confirmed by a detailed hydraulic model.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. If groundwater is identified as a potential risk for the site, then non-infiltrating systems may be required. • Infiltration techniques are likely to be suitable, providing the site is not at risk from groundwater flooding. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is partially located within Zone 3. Infiltration techniques are generally accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/6
	Site Name	Land East of Offmore Farm
	Area	10.69ha
	Current land use	Greenfield
	Proposed site use	Housing
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> • At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. • Due to the generalised nature of the modelling undertaken along this watercourse, it may be necessary for the developer to undertake more detailed hydraulic modelling, utilising channel survey, to confirm the extent of risk/ encroachment along the site's southern boundary. • It is advised development is steered away from the southern boundary line. • Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. • Resilience measures will be required if buildings are situated in the flood risk area. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. • Assessment for runoff should include allowance for climate change effects. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding. • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080s' were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site-specific FRA.</p>	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/6
	Site Name	Land East of Offmore Farm
	Area	10.69ha
	Current land use	Greenfield
	Proposed site use	Housing
Surface Water		The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.
Depth, velocity and hazard mapping		Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/KF/1			
	Site Name	Land on corner of Grey Green Lane, Bewdley			
	Area	6.95ha			
	Current land use	Greenfield			
	Proposed site use	Residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> Ridings Brook 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		0%	1%	0%	99%
	The site is partially located within EA's Flood Zone 3a and 2 in the north eastern corner of the site. Additional 2D generalised modelling has been undertaken on this drain to provide an indication of risk for the drain's full extent through the site as the Flood Zones start at the downstream end of the site. This output is provided for climate change and 100-year depth, velocity and hazard in the mapping. It should be noted that the Flood Zones show a flow path from a culvert at the site's eastern boundary which may need to be confirmed by more detailed modelling at the FRA-stage.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
2%		3%	13%		
The uFMfSW shows the site to be at risk from surface water flooding along the centre of the site where flooding occurs in a unnamed drain flowing from west to east into the Ridings Brook. Flooding extends from the channel during the 1,000-year event.					
Reservoir	The site is partially within the flood inundation extent in the event of reservoir failure.				
Canal	The site is not within 100 meters of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
The north east corner of the site is benefitted by the Wribbenhall Flood Alleviation Scheme which protects the estate below from flooding from the Riddings Brook.					
Residual risk	Residual risk is presented for the site where the Ridings Brook is culverted under Cordle Marsh Road. This should be investigated at a site-specific FRA by the developer. The culvert has not been explicitly modelled and therefore flood extents or mechanisms may be different when modelled using topographic survey at the FRA-stage.				

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/KF/1			
	Site Name	Land on corner of Grey Green Lane, Bewdley			
	Area	6.95ha			
	Current land use	Greenfield			
	Proposed site use	Residential			
Emergency planning	Flood warning	The site is not covered an Environment Agency Flood Warning area.			
	Access and egress	Access and egress can be provided Crundalls Lane.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a		11%	11%	13%
	Implications for the site	Climate change modelling has been conducted using 2D generalised modelling techniques on the culverted watercourse. Flood extents of the current Flood Zone 3 show an increase for all allowances in a southerly direction. Additionally, ponding occurs in the north east corner of the site where Flood Zone 3 was previously not covered. The future flood extent of Flood Zone 3 is also greater than the current Flood Zone 2.			
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is entirely underlain by Ground Water Source Protection Zone 3, infiltration techniques are not suitable. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. 			
	Groundwater Source Protection Zone	The site is partially located within Zone 3. Infiltration techniques are generally accepted in this zone.			
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.			

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WA/KF/1
	Site Name	Land on corner of Grey Green Lane, Bewdley
	Area	6.95ha
	Current land use	Greenfield
	Proposed site use	Residential
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> • At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. • Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. • Resilience measures will be required if buildings are situated in the flood risk area. • Onsite attenuation schemes would need to be tested against the hydrographs of the Riding Brook to ensure flows are not exacerbated downstream within the catchment. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. • Assessment for runoff should include allowance for climate change effects. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding. • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

JBA
consulting

Site details	Site Code	WA/KF/1
	Site Name	Land on corner of Grey Green Lane, Bewdley
	Area	6.95ha
	Current land use	Greenfield
	Proposed site use	Residential
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. However, the Flood Zones are only shown to commence from the eastern site boundary at the culvert. This is because catchments <3km² are not present in the Flood Zones and therefore the catchment further upstream is not currently represented.</p> <p>The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years. Flood Zone 3b is not available for the site and therefore needs to be confirmed by the developer at a site-specific FRA. Developers should seek to confirm risk using detailed hydraulic modelling as part of a FRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site-specific FRA.</p>	
Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>	
Depth, velocity and hazard mapping	<p>Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from new 2D generalised modelling undertaken for the purpose of assessing this site. Developers should seek to confirm risk using detailed hydraulic modelling as part of a FRA.</p>	



Site details	Site Code	WFR/WC/21			
	Site Name	Land r/o Beehcote Avenue, Fairfield			
	Area	0.99ha			
	Current land use	Greenfield			
	Proposed site use	Unknown			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		22%	0%	2%	75%
	Flooding from the Honey Brook and the eastern unnamed drain represents the greatest sources of fluvial flood risk. The southern section of the site, particularly the south east corner would be inundated in a 20-year event.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		0%	0%	3%	
		Surface water flooding ponds in the south eastern corner of the site during the 1,000-year event. Another small area encroaches into the north eastern corner also during this event. Surface water flooding does not occur in the site during the 30 or 100-year event.			
	Reservoir	The site is not at risk of inundation is the event of reservoir failure.			
Canal	The site is not within 100 metres of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	This site is not protected by any formal flood defences.				
Residual risk	-				
Emergency planning	Flood warning	The area along the eastern boundary in the south eastern corner of the site is partially located within the River Stour at Wolverley Flood Warning area.			
	Access and egress	Dry access and egress is possible in all fluvial and surface water via the north bound section of Mill Lane.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WFR/WC/21		
	Site Name	Land r/o Beehcote Avenue, Fairfield		
	Area	0.99ha		
	Current land use	Greenfield		
	Proposed site use	Unknown		
	% increase in flood extent compared to Flood Zone 3a	22%	22%	22%
	Implications for the site	Climate change modelling shows a slight increase in the extent of Flood Zone 3 for the future allowances. This remains to be slightly less than the current extent of Flood Zone 2. In either case, the climate change extents are very similar to the Flood Zones.		
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is partially within Groundwater Source Protection Zone 3, infiltration techniques are generally acceptable but the developer must liaise with the Environment Agency to confirm in this area. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. 		
	Groundwater Source Protection Zone	The site is located within Zone 3. Infiltration techniques are generally accepted in this zone.		
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.		
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b. 		

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	WFR/WC/21
	Site Name	Land r/o Beehcote Avenue, Fairfield
	Area	0.99ha
	Current land use	Greenfield
	Proposed site use	Unknown
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. Resilience measures will be required if buildings are situated in the flood risk area. Onsite attenuation schemes would need to be tested against the hydrographs of the Honey Brook to ensure flows are not exacerbated downstream within the catchment. New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> Reducing volume and rate of runoff Relocating development to zones with lower flood risk Creating space for flooding. Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>	
Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>	

[Mapping](#)

**Wyre Forest District Strategic
Flood Risk Assessment Level
2 Detailed Site Summary
Tables**



Site details	Site Code	WFR/WC/21
	Site Name	Land r/o Beehcote Avenue, Fairfield
	Area	0.99ha
	Current land use	Greenfield
	Proposed site use	Unknown
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's 2011 generalised modelling as the detailed hydraulic models did not provide this information. As a result, there may be some small discrepancies between the extent of the depth, velocity and hazard grids with the extent of Flood Zone 3a.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/17			
	Site Name	Rock Works			
	Area	0.36ha			
	Current land use	Brownfield			
	Proposed site use	Residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> River Stour 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		0%	0%	0%	100%
	A very negligible area of the site is clipped within Flood Zone 2 in the north-eastern corner of the site. Flood Zone 3 remains along the confines of the channel to the east.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		0%	0%-	0%-	
		The uFMfSW shows no surface water flood risk to the site.			
	Reservoir	The site is not within the flood inundation extent in the event of reservoir failure.			
Canal	The site is within 100 meters of the Staffordshire and Worcestershire Canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site benefits from the Kidderminster Flood Alleviation Scheme.				
Residual risk	-				
Emergency planning	Flood warning	The site is not covered by an EA Flood Warning area. It is however covered by the River Stour in Worcestershire Flood Alert area.			
	Access and egress	Access and egress can be provided via Hill Street, Chapel Street and Park Lane (south bound).			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			0%	0%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/17
	Site Name	Rock Works
	Area	0.36ha
	Current land use	Brownfield
	Proposed site use	Residential
	Implications for the site	Climate change modelling shows the site to not be at risk of flood in the future extent of Flood Zone 3.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • As the site is partially within Groundwater Source Protection Zone 3, infiltration techniques are generally acceptable but the developer must liaise with the Environment Agency to confirm in this area. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater / landfill contamination is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Zone 3. Infiltration techniques are generally accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	BHS/17
	Site Name	Rock Works
	Area	0.36ha
	Current land use	Brownfield
	Proposed site use	Residential
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> • At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3. Other sources of flooding should also be considered. • Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. • Resilience measures will be required if buildings are situated in the flood risk area. • Onsite attenuation schemes would need to be tested against the hydrographs of the River Stour to ensure flows are not exacerbated downstream within the catchment. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. • Assessment for runoff should include allowance for climate change effects. • Risk from the Severn Navigation and the Staffordshire and Worcestershire Canal should be considered. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding. • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency's Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the '2080's were modelled using generalised 2D modelling techniques for the purposes of the SFRA. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the 'undefended' scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site specific FRA.</p>	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

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consulting

Site details	Site Code	BHS/17
	Site Name	Rock Works
	Area	0.36ha
	Current land use	Brownfield
	Proposed site use	Residential
Surface Water	The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.	
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) is not available for this site therefore it should be investigated further at a site-specific FRA stage.	

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/11			
	Site Name	Stourminster School, Comberston Road, Kidderminster			
	Area	2.15ha			
	Current land use	Brownfield			
	Proposed site use	Residential			
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> Hoo Brook 			
	Fluvial	Proportion of site at risk			
		FZ3b	FZ3a	FZ2	FZ1
		6%	4%	4%	86%
	Flood risk is predominantly along the eastern site boundary, in alignment with the Hoo Brook floodplain.				
	Surface Water	Proportion of site at risk (uFMfSW)			
		30-year	100-year	1,000-year	
		2%	13%	19%	
		A small area of surface water ponding occurs in the centre of the site during the 100-year event. Surface water flooding also aligns with the Hoo Brook floodplain, similar to the Flood Zone extents along the eastern boundary.			
	Reservoir	The site is not at risk of inundation in the event of reservoir failure.			
Canal	The site not within 100 metres of a canal.				
Flood history	The Environment Agency's historic flood map shows the site to not have flooded in the past. This dataset only covers the River Severn in the study area and is therefore misleading as the site may have flooded in the past. This should be further considered by the developer at the site-specific FRA stage.				
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition	
		-	-	-	
	The site is not protected by any formal flood defences				
	Residual risk	Residual risk from blockage is presented where the Hoo Brook is culverted under Comberton Road. This could impact the site and therefore should be investigated at a site-specific FRA by the developer.			
Emergency planning	Flood warning	The site is not covered by the Environment Agency's Flood Warning Service.			
	Access and egress	Despite risk of flooding south of the site, safe access and egress should be provided via Comberton Road during a flood event.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		River Severn	25%	35%	70%
	% increase in flood extent compared to Flood Zone 3a			8%	9%

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/11
	Site Name	Stourminster School, Comberston Road, Kidderminster
	Area	2.15ha
	Current land use	Brownfield
	Proposed site use	Residential
	Implications for the site	Climate change allowances show a very small increase of the site being at risk from a 100-year flood risk in the future. These increases remain to be less than Flood Zone 2 extents, but are largely similar.
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Source control techniques are likely to be suitable for this site. • Although mapping suggest groundwater flooding may be an issue at the site, Infiltration techniques may be suitable, providing they are located in areas that are not at medium to high risk from groundwater flooding and they are located outside of GSP Zone 3. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater flooding is a medium to high risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues or is at medium to high risk from groundwater flooding, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.
	Groundwater Source Protection Zone	The site is located within Source Protection Zone 3. Infiltration techniques are generally accepted in this zone.
	Historic Landfill Site	The site is not designated by the Environment Agency as previously being a landfill site.
NPPF and planning implications	Exception Test requirements	<p>The Sequential test will need to be passed before the Exception test is applied.</p> <p>The Exception test will be required in the following scenarios</p> <ul style="list-style-type: none"> • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2. • If Essential Infrastructure is located in Flood Zone 3b <p>Development will not be permitted in the following scenarios</p> <ul style="list-style-type: none"> • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure within FZ3b.

Mapping

Wyre Forest District Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	OC/11
	Site Name	Stourminster School, Comberston Road, Kidderminster
	Area	2.15ha
	Current land use	Brownfield
	Proposed site use	Residential
	Requirements and guidance for site-specific Flood Risk Assessment	<ul style="list-style-type: none"> • At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 or 3 or for any development greater than one hectare in Flood Zone 1. Other sources of flooding should also be considered. • Climate change modelling should be undertaken using the relevant allowances for the type of development and level of risk. • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage. • Resilience measures will be required if buildings are situated in the flood risk area. • Onsite attenuation schemes would need to be tested against the hydrographs of the Hoo Brook to ensure flows are not exacerbated downstream within the catchment. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. • Assessment for runoff should include allowance for climate change effects. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding. • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
Mapping Information		
Flood Zones	<p>Flood Zones 2 and 3a are based on the Environment Agency’s Flood Zone 2 and 3. The SFRA has identified Flood Zone 3b as land which would flood with an annual probability of 1 in 20 years.</p> <p>Flood Zone 3b has been derived from a combination of results from Environment Agency detailed hydraulic models, generalised 2D hydraulic modelling, and additional 2D hydraulic modelling undertaken for this SFRA.</p>	
Climate change	<p>The upper end climate change allowances for the ‘2080’s were modelled using the Environment Agency existing River Stour model. Due to the generalised nature of the modelling, defences have not been accounted for and therefore mapping shows the ‘undefended’ scenario. The mapping provides a strategic assessment of climate change risk – developers should undertake detailed modelling of climate change allowances as part of a site-specific FRA.</p>	
Surface Water	<p>The updated Flood Map for Surface Water has been used to define areas at risk from surface water flooding.</p>	

Mapping

**Wyre Forest District Strategic
Flood Risk Assessment Level
2 Detailed Site Summary
Tables**



Site details	Site Code	OC/11
	Site Name	Stourminster School, Comberston Road, Kidderminster
	Area	2.15ha
	Current land use	Brownfield
	Proposed site use	Residential
Depth, velocity and hazard mapping	Depth, velocity and hazard mapping for the 1 in 100-year event (Flood Zone 3a) have been taken from the Environment Agency's River Stour generalised modelling.	