Oldbury_sites_for-JBA-v1.pdf

Site-1_combined.pdf

Site-2_combined.pdf

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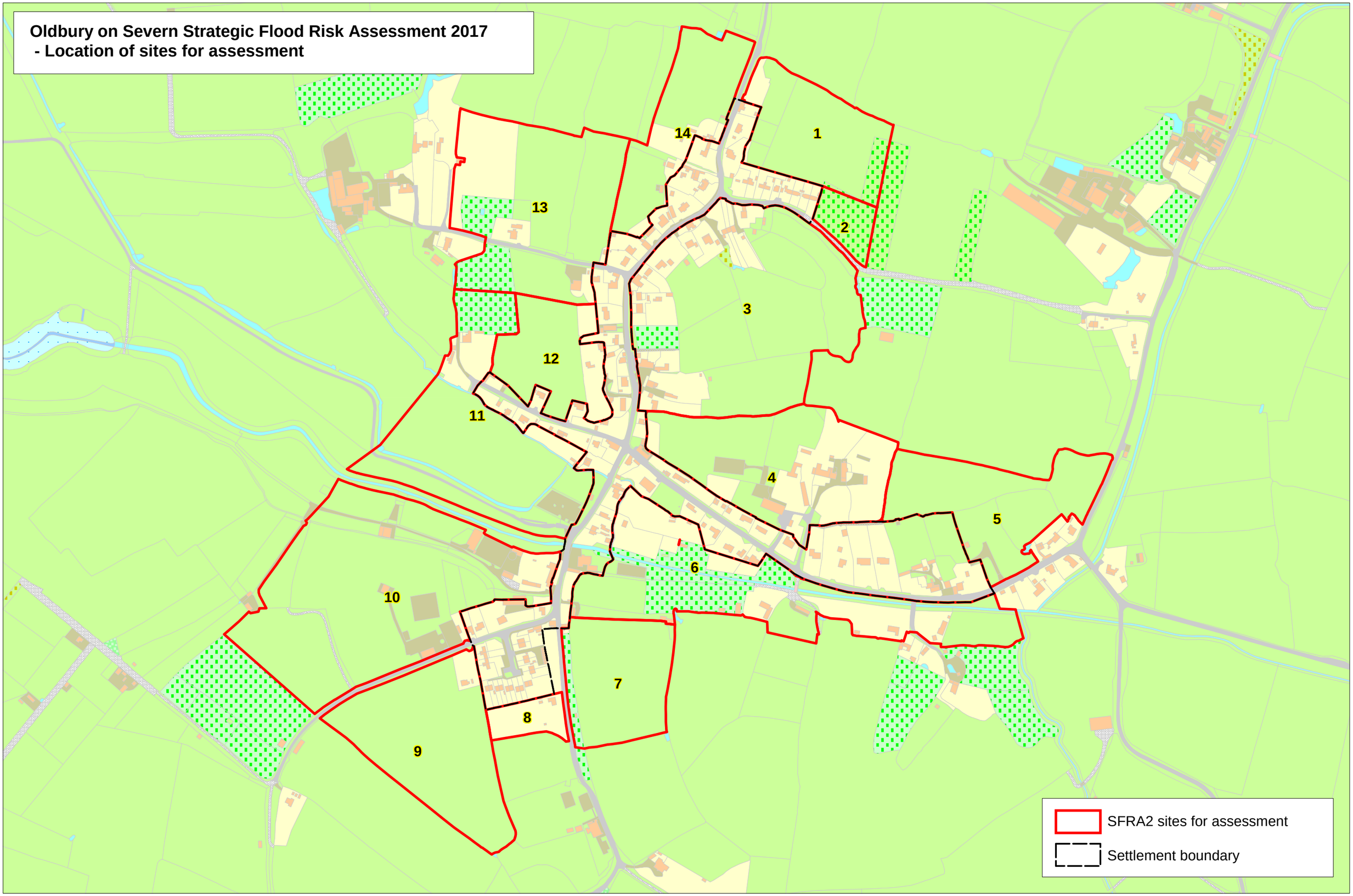
Site-13_combined.pdf

Site-14_combined.pdf

Oldbury on Severn Strategic Flood Risk Assessment 2017
- Location of sites for assessment



a b c

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	1			
	OS Grid reference	ST 61210 92954			
	Area	2.39 hectares			
Sources of flood risk	**Existing drainage features**	The site is located to the north of Oldbury on Severn to the east of Ham Lane. The south of the site is located on land that is considerably higher than the surrounding land, which provides it with a degree of protection from flooding. The Westend Rhine runs along the opposite side of Ham Lane before flowing westwards around the western boundary of the village and does not pose a risk to the site.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	43	66	81
		Range of depths (m)	0 – 1.5	0 – 2.5	0 – 3.0
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is outside of the Environment Agency's historic flood map.			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-

Mapping

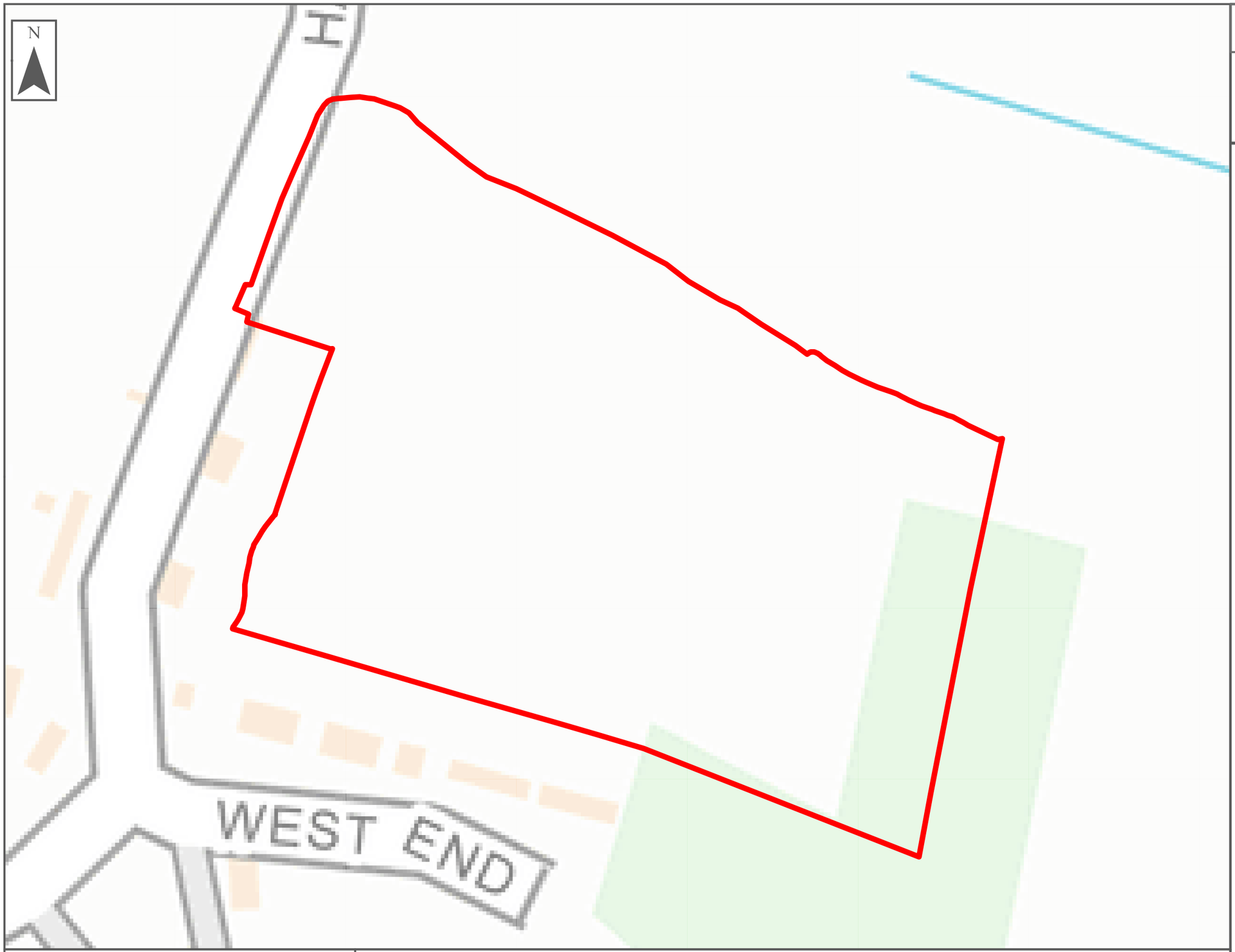
Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	1			
	OS Grid reference	ST 61210 92954			
	Area	2.39 hectares			
Emergency planning	**Flood warning**	The site is partially covered by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area The site is partially covered by the Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston areas Flood Warning Area			
	Access and egress	The only existing access and egress route is down Ham Lane and Camp Road to either Chapel Road or Church Road. Both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Range of hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	47	77	
		Range of depths (m)	0 – 1.5	0 – 2.5	
		Maximum hazard	Danger for Most	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	1
	OS Grid reference	ST 61210 92954
	Area	2.39 hectares
	Requirements for site-specific Flood Risk Assessment **Guidance for developers**	• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1. Much of the risk to the site is residual tidal flood risk with the defences providing protection for both present day 0.5% and 0.1% AEP events. However, in the future, with climate change, these defences will be overtopped in both scenarios. • The residual risk to the site both now and into the future should be investigated, for example overtopping or breach of defences. To pass the Exception Test, it needs to be demonstrated that the development can be made safe and that the residual risk has been overcome • Safe access and egress should be demonstrated. This site is in the north of the village with only one access and egress route down Ham Lane and Camp Road to either Chapel Road or Church Road. Both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event. • Other sources of flooding should also be considered as part of a site-specific flood risk assessment • Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage • 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 • Onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment • 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: ○ 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 Zone 2 and 3 as public open space



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.02 0.04 0.08 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	2			
	OS Grid reference	ST 61259 92832			
	Area	0.51 hectares			
Sources of flood risk	**Existing drainage features**	The site is located to the north of Oldbury on Severn at the end of West End. The site is located on land that is considerably higher than the surrounding land, which provides it with a degree of protection from flooding. There are a couple of smaller drains to the north east of the site around Naite Farm. However, these watercourses drain away from the site.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is outside of the Environment Agency's historic flood map. No other records of flooding have been found for this site.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	2			
	OS Grid reference	ST 61259 92832			
	Area	0.51 hectares			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
Emergency planning	**Flood warning**	The site is not covered by the Environment Agency's Flood Warning Service.			
	Access and egress	The only existing access and egress route is down West End and Camp Road to either Chapel Road or Church Road. Both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.			

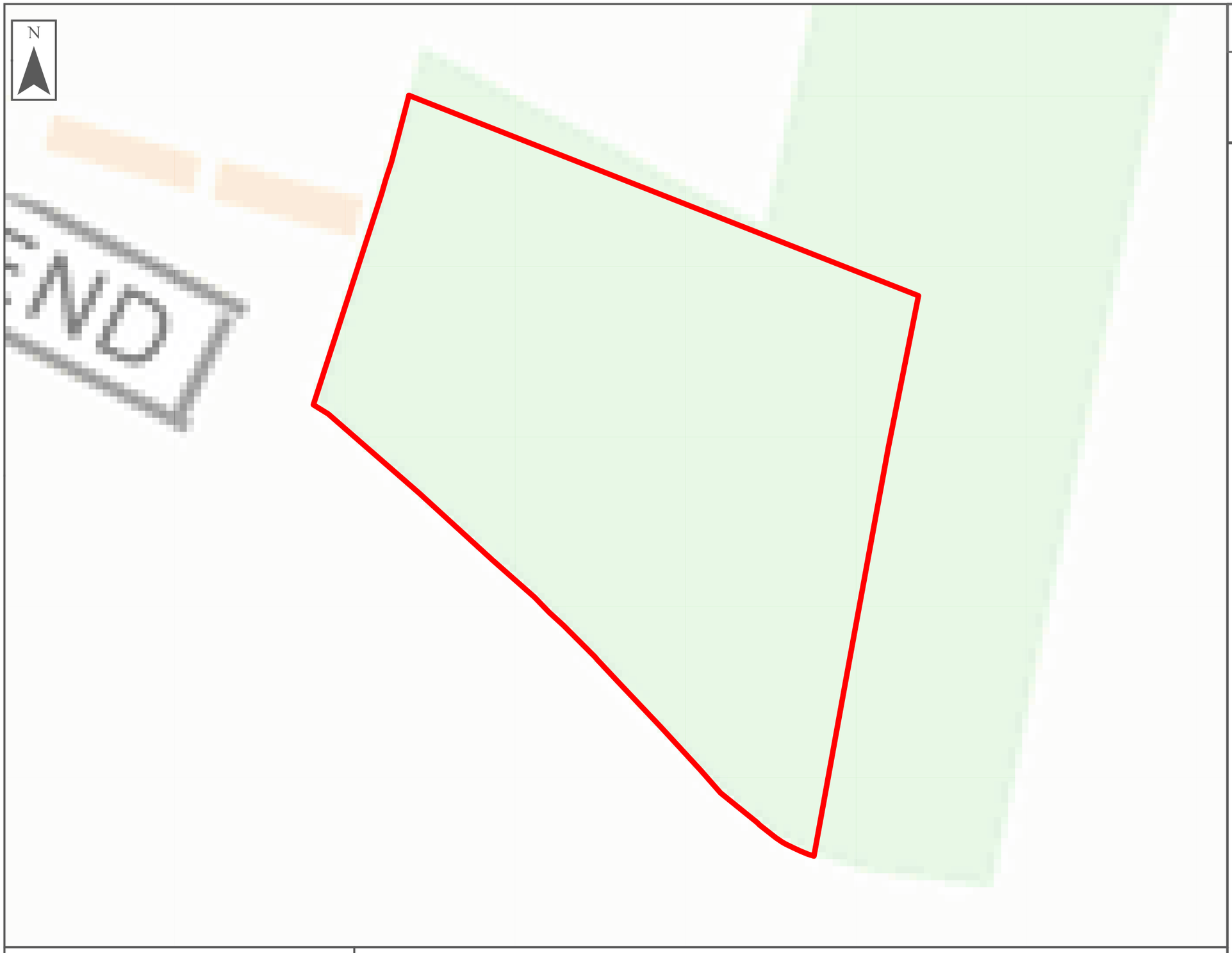
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	0	0	
		Range of depths (m)	-	-	
		Maximum hazard	-	-	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed.			
	Exception Test requirements	The site is outside of Flood Zones 2 and 3; therefore, the Exception Test is not required.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	2
	OS Grid reference	ST 61259 92832
	Area	0.51 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required for any development greater than one hectare in Flood Zone 1.
		• A key consideration at the planning application stage is demonstrating safe access and egress for the site. This site is in the north of the village with only one access and egress route down Ham Lane and Camp Road to either Chapel Road or Church Road. Both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• 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
		• Onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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 Zone 2 and 3 as public open space



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.01 0.02 0.04 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	4			
	OS Grid reference	ST 60921 92663			
	Area	3.95 hectares			
Sources of flood risk	**Existing drainage features**	The site is located between Chapel Road and The Toot. The northern part of the site is located on land of a higher elevation, whilst the remainder of the site is in the low lying plain of the Oldbury Naite Rhine. The Rhine flows in a westerly direction along the opposite side of Church Road. Westend Rhine joins the Oldbury Naite Rhine upstream of Church Road bridge.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0%	0%	1%
		Range of depths (m)	-	-	0 – 0.1
		Maximum hazard	-	-	Very Low
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	-	-	48
		Range of depths (m)	-	-	0 – 1.5
		Maximum hazard	-	-	Danger for Most
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	82	88	92
		Range of depths (m)	0 – 3.5	0 – 4.0	0 – greater than 4
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	1		4
	Flood history	The south west corner of the site is within the Environment Agency's historic flood map for the December 1981 flood event.			
	Defences	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

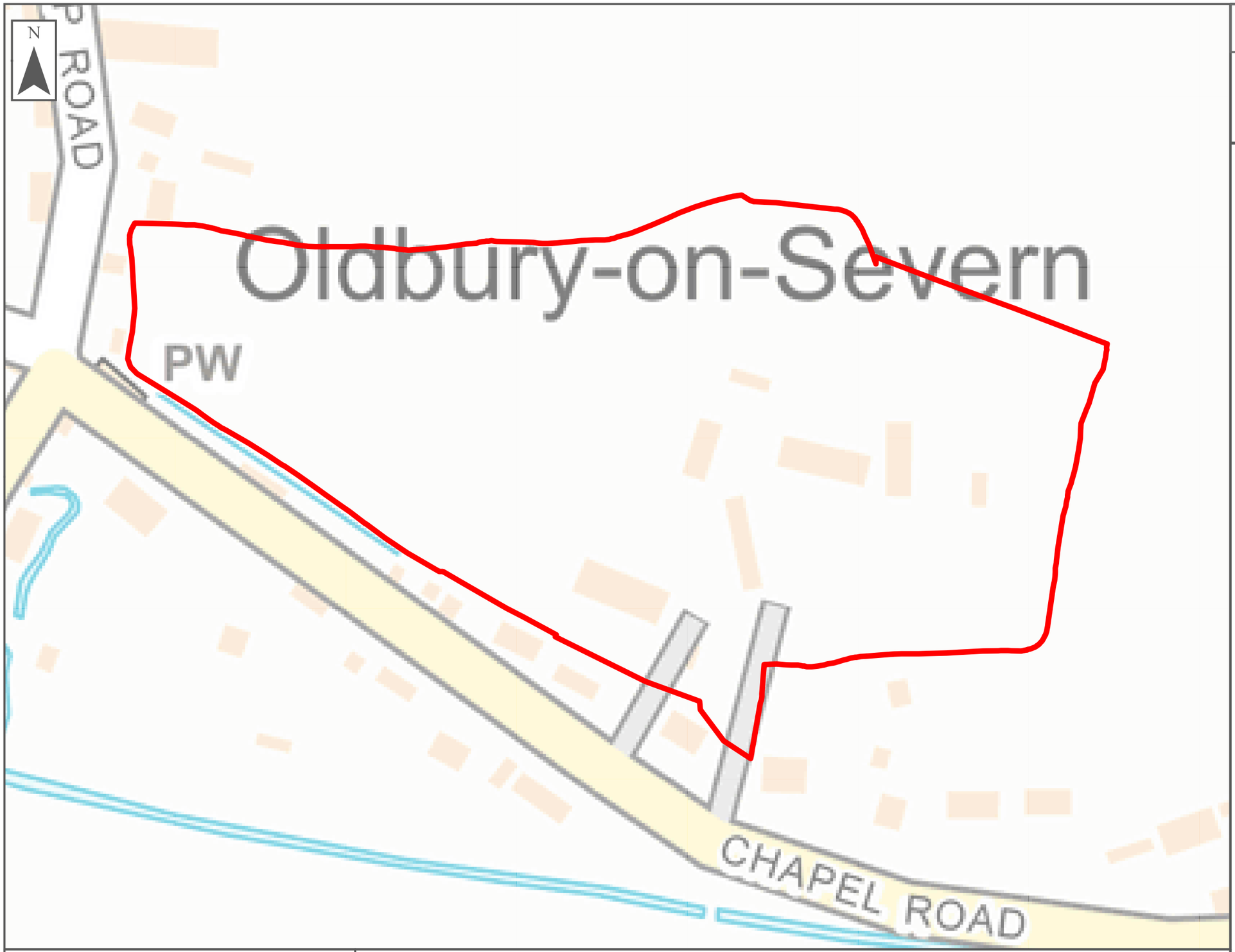
Site details	**Site Number**	4			
	OS Grid reference	ST 60921 92663			
	Area	3.95 hectares			
Flood risk management infrastructure	**Residual risk**		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	1	13	0
		Range of depths (m)	0 – 1.5	0 – 1.0	-
		Maximum hazard	Danger for Most	Danger for Some	-
Emergency planning	**Flood warning**	The site is partially covered by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. The south west corner of the site is partially covered by the Tidal Severn Flood Warning Area.			
	Access and egress	Potential access and egress routes for the site are Chapel Road and The Naite. Both roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	1	1	4
		Range of depths (m)	0 – 0.1	0 – 0.5	0 – 0.5
		Maximum hazard	Very Low	Very Low	Danger for Some
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	87	96	
		Range of depths (m)	0 – 4.0	0 – greater than 4.0	
		Maximum hazard	Danger for All	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	4
	OS Grid reference	ST 60921 92663
	Area	3.95 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		Modelling has shown that the site is only marginally affected by fluvial flooding, now and in the future. The Sequential approach should be used to direct buildings away from the risk areas.
		The greatest risk to the site is tidal flood risk. Whilst the defences protect the site from a 0.5% AEP event, they are overtopped in a 0.1% AEP event and flood just under half of the site.
		In the future, with climate change, these defences will be overtopped in both 0.5% and 0.1% scenarios, flooding almost all the site, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• The residual risk to the site should be investigated, for example overtopping or breach of defences. To pass the Exception Test, it needs to be demonstrated that the development can be made safe and that the residual risk has been overcome.
		• Safe access and egress should be demonstrated. Potential access and egress roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• Surface water risk to the site is low. However, 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



0 0.025 0.05 0.1 km

JBA consulting

LEGEND

Authority Information
- Potential Site Location
- Rhines

Fluvial (Present Day)
- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)
- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)
- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)
- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)
- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)
- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating
- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)
- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)
- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating
- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating
- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)
- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	5			
	OS Grid reference	ST 60921 92663			
	Area	2.86 hectares			
Sources of flood risk	**Existing drainage features**	The site is located south east of The Toot near the junction of Church Road, The Naite and Pickedmoor Lane. The western half of the site is located on land of a higher elevation, whilst the remainder of the site is in the low lying plain of the Oldbury Naite Rhine. The Rhine flows in southerly direction along the opposite side of The Naite. It is joined by the Pickedmoor Brook and Pool Brook before flowing in a westerly direction along the opposite side of Church Road.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	3	3	6
		Range of depths (m)	0 – 0.5	0 – 0.5	0 – 1.0
		Maximum hazard	Danger for Some	Danger for Most	Danger for Most
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	-	-	19
		Range of depths (m)	-	-	0 – 1.5
		Maximum hazard	-	-	Danger to Most
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	91	97	99
		Range of depths (m)	0 – 3.5	0 – 4.0	0 – greater than 4.0
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		1	1		3
	Flood history	The north east and the centre of the site are within the Environment Agency's historic flood map for the July 1968 flood event.			
	Defences	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

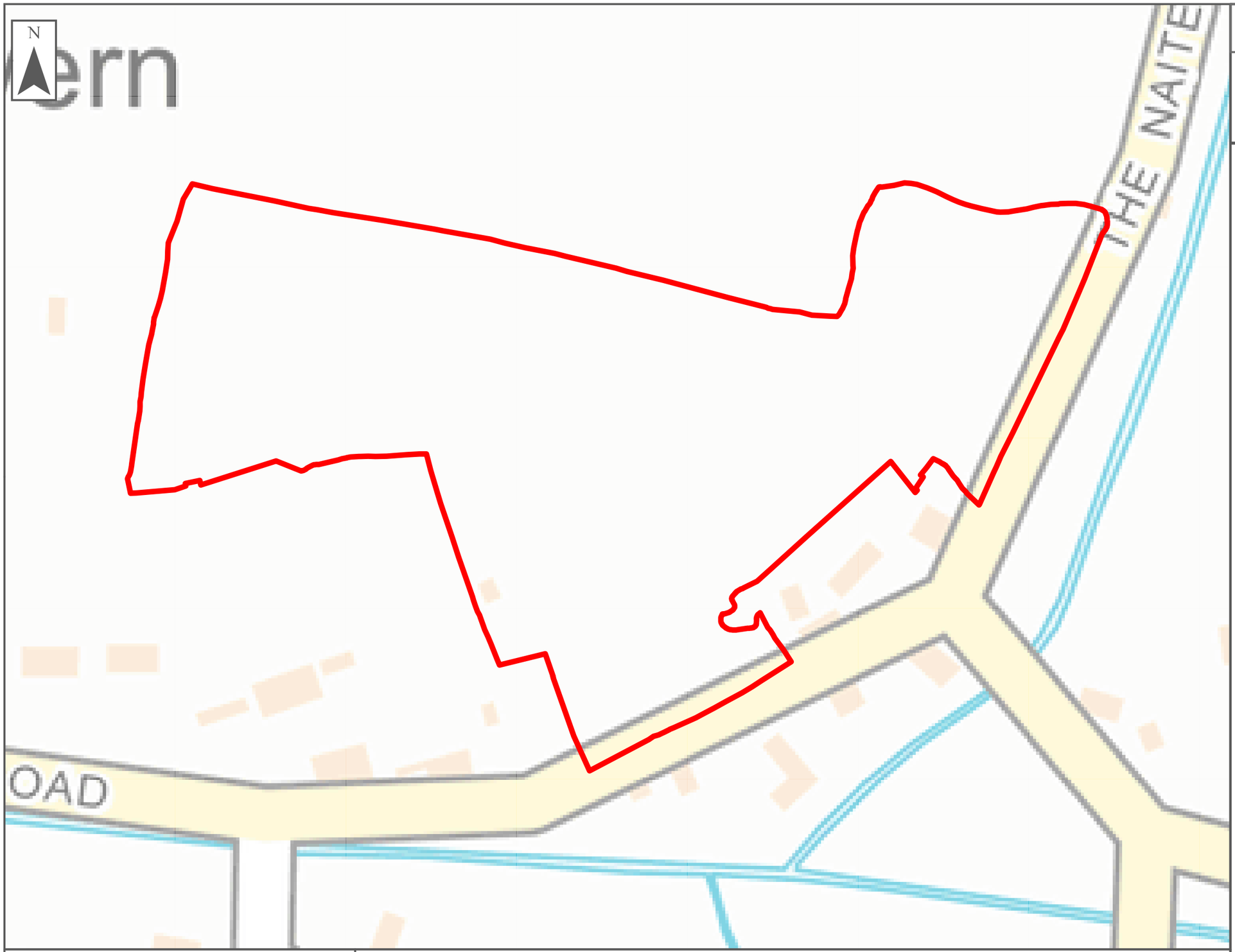
Site details	**Site Number**	5			
	OS Grid reference	ST 60921 92663			
	Area	2.86 hectares			
Flood risk management infrastructure	**Residual risk**		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	1	2	0%
		Range of depths (m)	0 – 0.5	0 – 0.5	-
		Maximum hazard	Danger for Some	Danger for Some	-
Emergency planning	**Flood warning**	The site is partially covered by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. Most of the site is covered by the Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston Flood Warning Area. The eastern corner of the site is covered by the Severn Estuary at Oldbury-on-Severn, Chapel Road and Olveston Common Flood Warning Area			
	Access and egress	Potential access and egress routes for the site are Chapel Road and The Naite. Both roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	9	10	11
		Range of depths (m)	0 – 0.5	0 – 1.0	0 – 1.0
		Maximum hazard	Danger for Most	Danger for Most	Danger for Most
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	81	100	
		Range of depths (m)	0 – 2.0	0 – 2.5	
		Maximum hazard	Danger for Most	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	5
	OS Grid reference	ST 60921 92663
	Area	2.86 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		Modelling has shown that the site is only marginally affected by fluvial flooding, now and in the future. The Sequential approach should be used to direct buildings away from the risk areas.
		The greatest risk to the site is tidal flood risk. Whilst the defences protect the site from a 0.5% AEP event, they are overtopped in a 0.1% AEP event and flood approximately 19% of the site.
		In the future, with climate change, these defences will be overtopped in both 0.5% and 0.1% scenarios, flooding almost all the site, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• The residual risk to the site should be investigated, for example overtopping or breach of defences. To pass the Exception Test, it needs to be demonstrated that the development can be made safe and that the residual risk has been overcome.
		• Safe access and egress should be demonstrated. Potential access and egress roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• Surface water risk to the site is low. However, 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.0225 0.045 0.09 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	6			
	OS Grid reference	ST 61151 92335			
	Area	4.80 hectares			
Sources of flood risk	**Existing drainage features**	The site is located south of Chapel Road and west of Church Road. The Oldbury Naite Rhine flows east to west through the site centre. The Pool Brook joins the Oldbury Naite Rhine just upstream of the site.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	26	27	30
		Range of depths (m)	0 – 1.0	0 – 0.5	0 – 1.0
		Maximum hazard	Danger for Some	Danger for Some	Danger for Some
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	-	-	91
		Range of depths (m)	-	-	0 – 1.5
		Maximum hazard	-	-	Danger to Most
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	100	100	100
		Range of depths (m)	0 – 4.0	0 – 4.0	0 – greater than 4.0
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		10	12		19
	Flood history	The east of the site is within the Environment Agency's historic flood map for the December 1981 flood event.			
	Defences	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

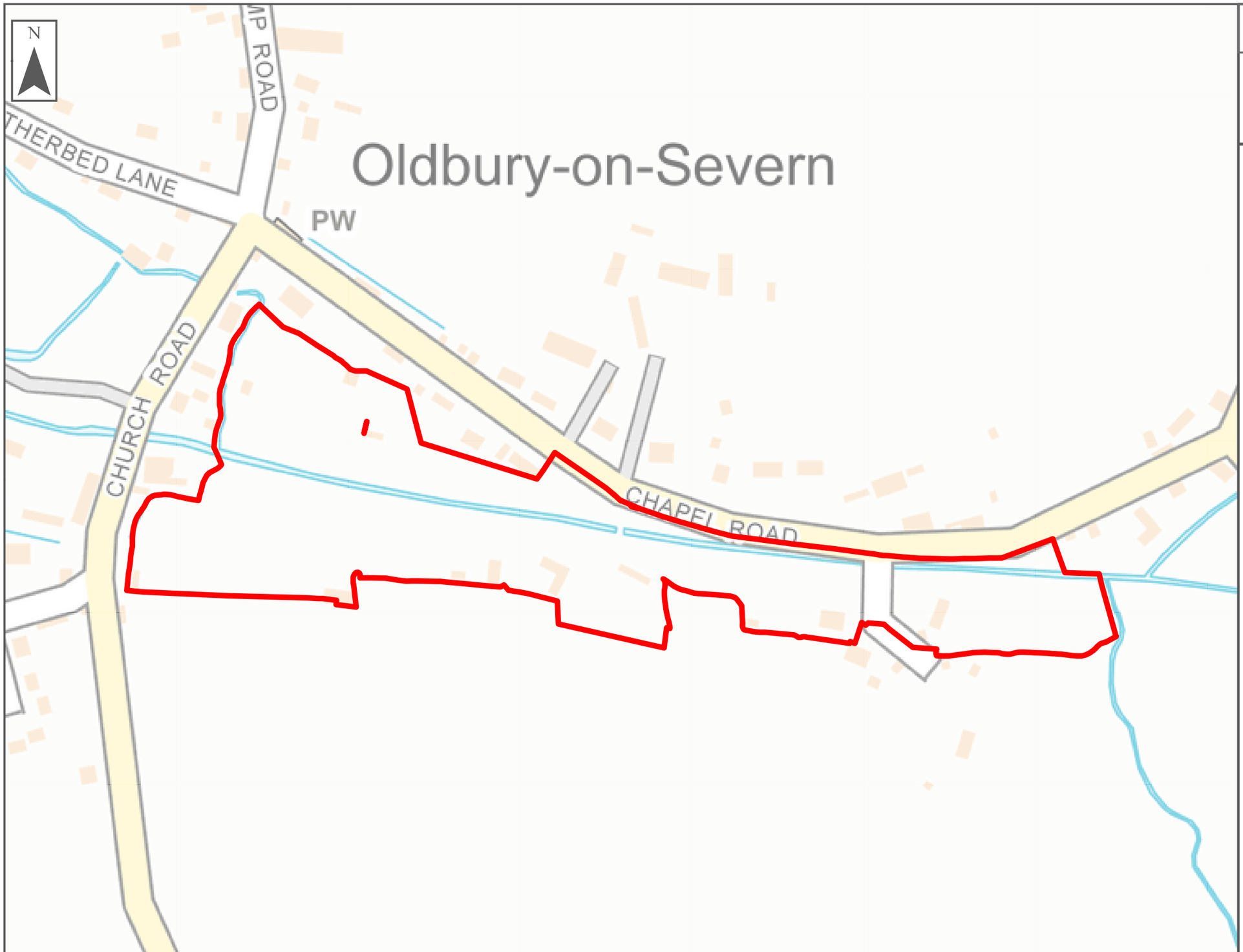
Site details	**Site Number**	6			
	OS Grid reference	ST 61151 92335			
	Area	4.80 hectares			
Flood risk management infrastructure	**Residual risk**		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	12	48	0
		Range of depths (m)	0 – 1.0	0 – 1.5	-
		Maximum hazard	Danger for Most	Danger for Most	-
Emergency planning	**Flood warning**	The site is partially covered by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. Most of the site is covered by the Severn Estuary at Oldbury-on-Severn, Chapel Road and Olveston Common Flood Warning Area. A small section in the west of the site is covered by the Severn Estuary at Oldbury-on-Severn, Oldbury Naite and Littleton Warth Flood Warning Area.			
	Access and egress	Potential access and egress routes for the site are Church Road and Chapel Road. Both roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	30	31	34
		Range of depths (m)	0 – 1.0	0 – 1.0	0 – 1.0
		Maximum hazard	Danger for Some	Danger for Some	Danger for Some
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	100	100	
		Range of depths (m)	0 – 3.5	0 – greater than 4.0	
		Maximum hazard	Danger for All	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	6
	OS Grid reference	ST 61151 92335
	Area	4.80 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		Modelling has shown that approximately 1/4 to 1/3 of the site is affected by fluvial flooding, now and in the future. The Sequential approach should be used to direct buildings away from the risk areas.
		The site is also at considerable tidal flood risk. Whilst the defences protect the site from a 0.5% AEP event, they are overtopped in a 0.1% AEP event and flood approximately 91% of the site.
		In the future, with climate change, these defences will be overtopped in both 0.5% and 0.1% scenarios, all the site, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• The residual risk to the site should be investigated, for example overtopping or breach of defences. To pass the Exception Test, it needs to be demonstrated that the development can be made safe and that the residual risk has been overcome.
		• Safe access and egress should be demonstrated. Potential access and egress roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)
- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)
- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating
- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)
- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)
- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating
- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating
- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)
- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.045 0.09 0.18 km

JBA consulting

LEGEND

Authority Information
- Potential Site Location
- Rhines

Fluvial (Present Day)
- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)
- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)
- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)
- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	7			
	OS Grid reference	ST 60951 92226			
	Area	2.01 hectares			
Sources of flood risk	**Existing drainage features**	The site is located east of Church Road. The Oldbury Naite Rhine flows east to west north of site.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	32	38	41
		Range of depths (m)	0 – 2.0	0 – 2.5	0 – 3.0
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is outside of the Environment Agency's historic flood map.			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

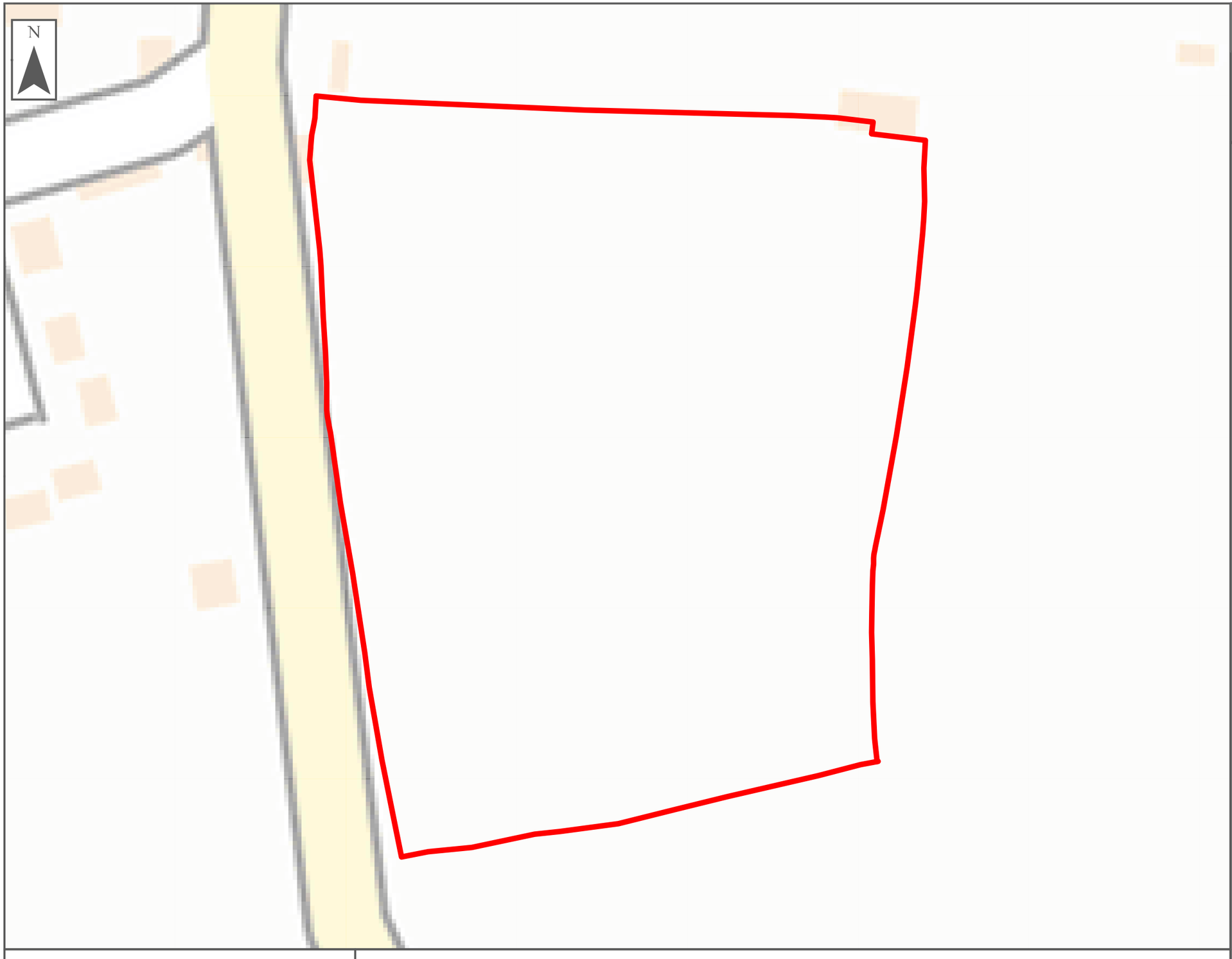
Site details	**Site Number**	7			
	OS Grid reference	ST 60951 92226			
	Area	2.01 hectares			
Emergency planning	**Flood warning**	The site is partially covered by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. The northern half of the site is partially covered by the Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston Flood Warning Area			
	Access and egress	The main access and egress route to the site is south along Church Road. The higher elevation of this road means it is free of water in times of flood. Church Road north of the site would be cut off by flood water in flood events.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	36	43	
		Range of depths (m)	0 – 2.5	0 – 3.0	
		Maximum hazard	Danger for Most	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	7
	OS Grid reference	ST 60951 92226
	Area	2.01 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		Modelling has shown that the site is at tidal flood risk in the future. The Sequential approach should be used to direct buildings away from the risk areas.
		In the future, with climate change, defences will be overtopped in both 0.5% and 0.1% scenarios, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.0175 0.035 0.07 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	8			
	OS Grid reference	ST 60824 92174			
	Area	0.48 hectares			
Sources of flood risk	**Existing drainage features**	The site is located to the south of Oldbury on Severn off Chapel Road, south of Westmarsh Lane. The Cowhill North Rhine is located north of Westmarsh Lane. The site is located on an area of higher elevation which provides protection against fluvial and coastal flooding.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is outside of the Environment Agency's historic flood map.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	8			
	OS Grid reference	ST 60824 92174			
	Area	0.48 hectares			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
Emergency planning	**Flood warning**	The site is not covered by the Environment Agency's Flood Warning Service.			
	Access and egress	The main access and egress route to the site is south along Church Road. The higher elevation of this road means it is free of water in times of flood. Church Road north of the site would be cut off by flood water in flood events.			

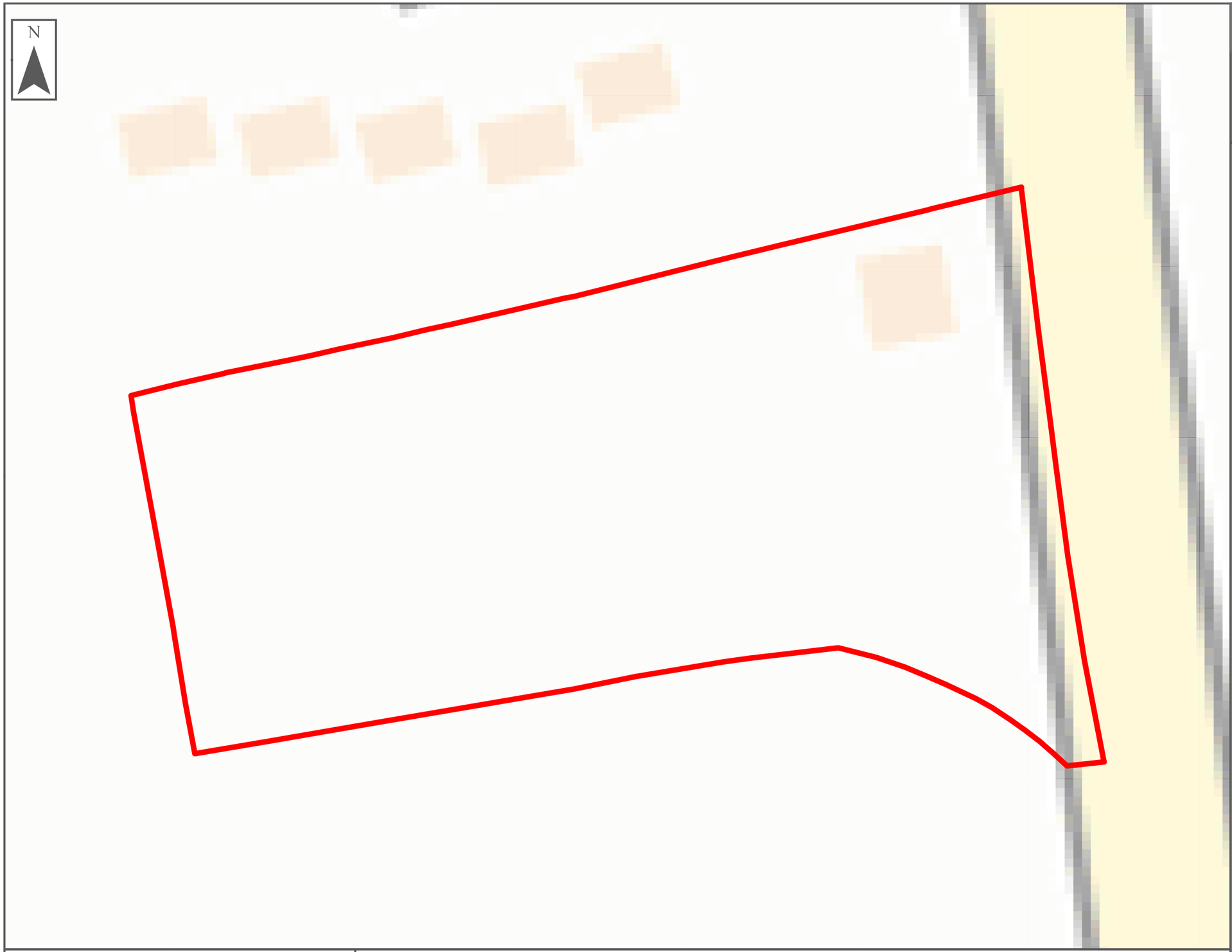
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	0	0	
		Range of depths (m)	-	-	
		Maximum hazard	-	-	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed.			
	Exception Test requirements	The site is outside of Flood Zones 2 and 3; therefore, the Exception Test is not required.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	8
	OS Grid reference	ST 60824 92174
	Area	0.48 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required for any development greater than one hectare in Flood Zone 1.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• 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
		• Onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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 Zone 2 and 3 as public open space



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.0075 0.015 0.03 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	9			
	OS Grid reference	ST 60683 92145			
	Area	3.52 hectares			
Sources of flood risk	**Existing drainage features**	The site is located south off Westmarsh Lane and west of Church Road. The Cowhill Wharf Rhine flows north of Westmarsh Lane.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	8	15	18
		Range of depths (m)	0 – 0.5	0 – 1.0	0 – 1.5
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is outside of the Environment Agency's historic flood map.			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

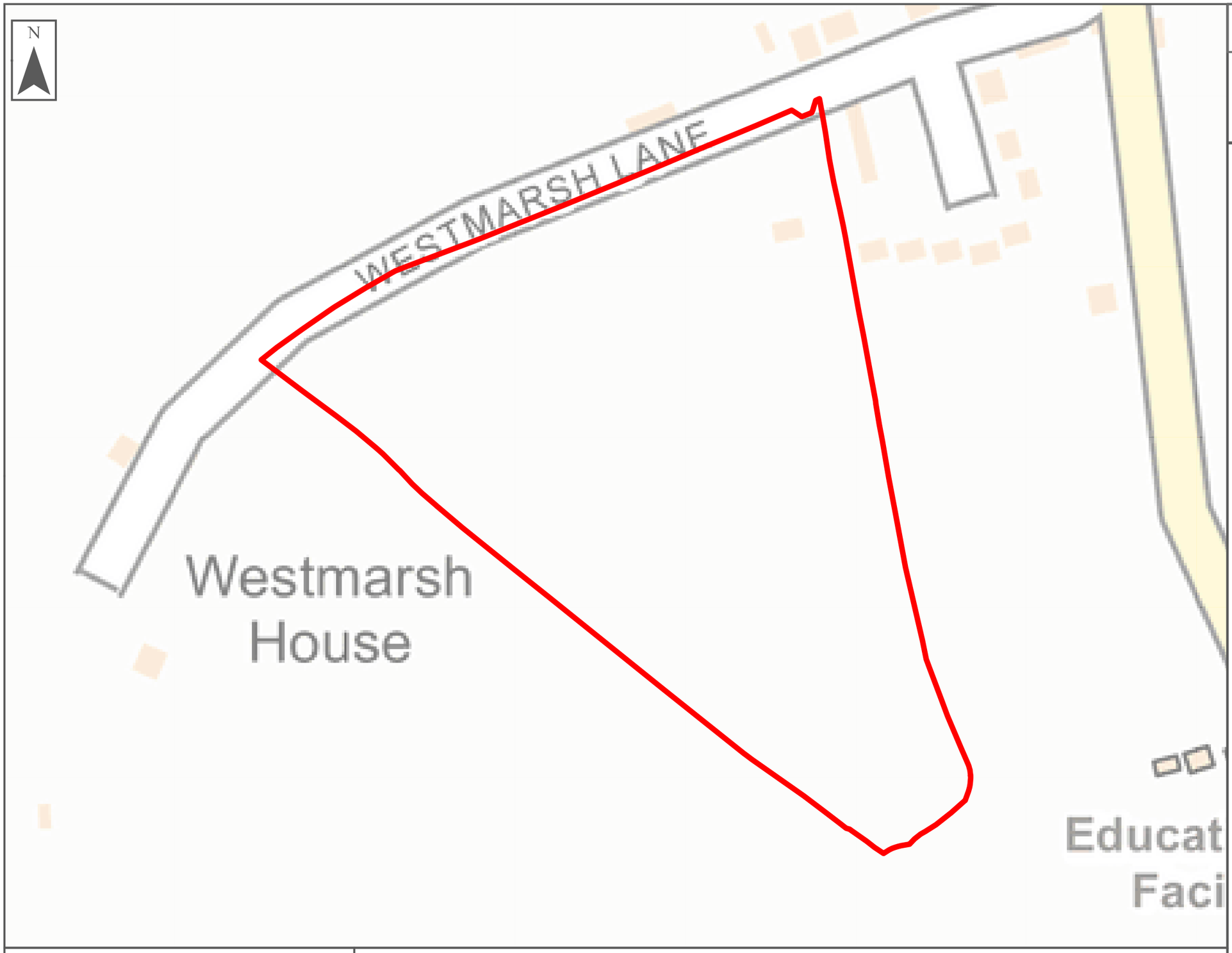
Site details	**Site Number**	9			
	OS Grid reference	ST 60683 92145			
	Area	3.52 hectares			
Emergency planning	**Flood warning**	The site is partially covered along the northern boundary by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. The northern boundary of the site is partially covered by the Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston areas Flood Warning Area.			
	Access and egress	The main access and egress route to the site is south along Westmarsh Lane and south along Church Road. The end of Westmarsh Lane is shown to flood in the present day tidal 0.1% AEP and in both 0.5% AEP and 0.1% AEP future tidal events.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	15	22	
		Range of depths (m)	0 – 0.1	0 – 2.5	
		Maximum hazard	Danger for Some	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	9
	OS Grid reference	ST 60683 92145
	Area	3.52 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		Modelling has shown that the site is at tidal flood risk in the future. The Sequential approach should be used to direct buildings away from the risk areas.
		In the future, with climate change, defences will be overtopped in both 0.5% and 0.1% scenarios, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.0275 0.055 0.11 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	12			
	OS Grid reference	ST 60855 92652			
	Area	1.83 hectares			
Sources of flood risk	**Existing drainage features**	The site is in an area of higher elevated land north of Featherbed Lane, south of Westend Lane and west of Camp Road. The Westend Rhine flows west to east to the south of Featherbed Lane. OS mapping also shows a small drain to the west of the site.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	13
		Range of depths (m)	-	-	0 – 0.5
		Maximum hazard	-	-	Danger for Some
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	69	84	97
		Range of depths (m)	0 – 2.5	0 – 2.5	0 – 3.0
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is just outside of the Environment Agency's historic flood map.			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	1	8	6
		Range of depths (m)	0 – 0.5	0 – 0.5	0 – 0.5
		Maximum hazard	Very Low	Danger for Some	Very Low

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

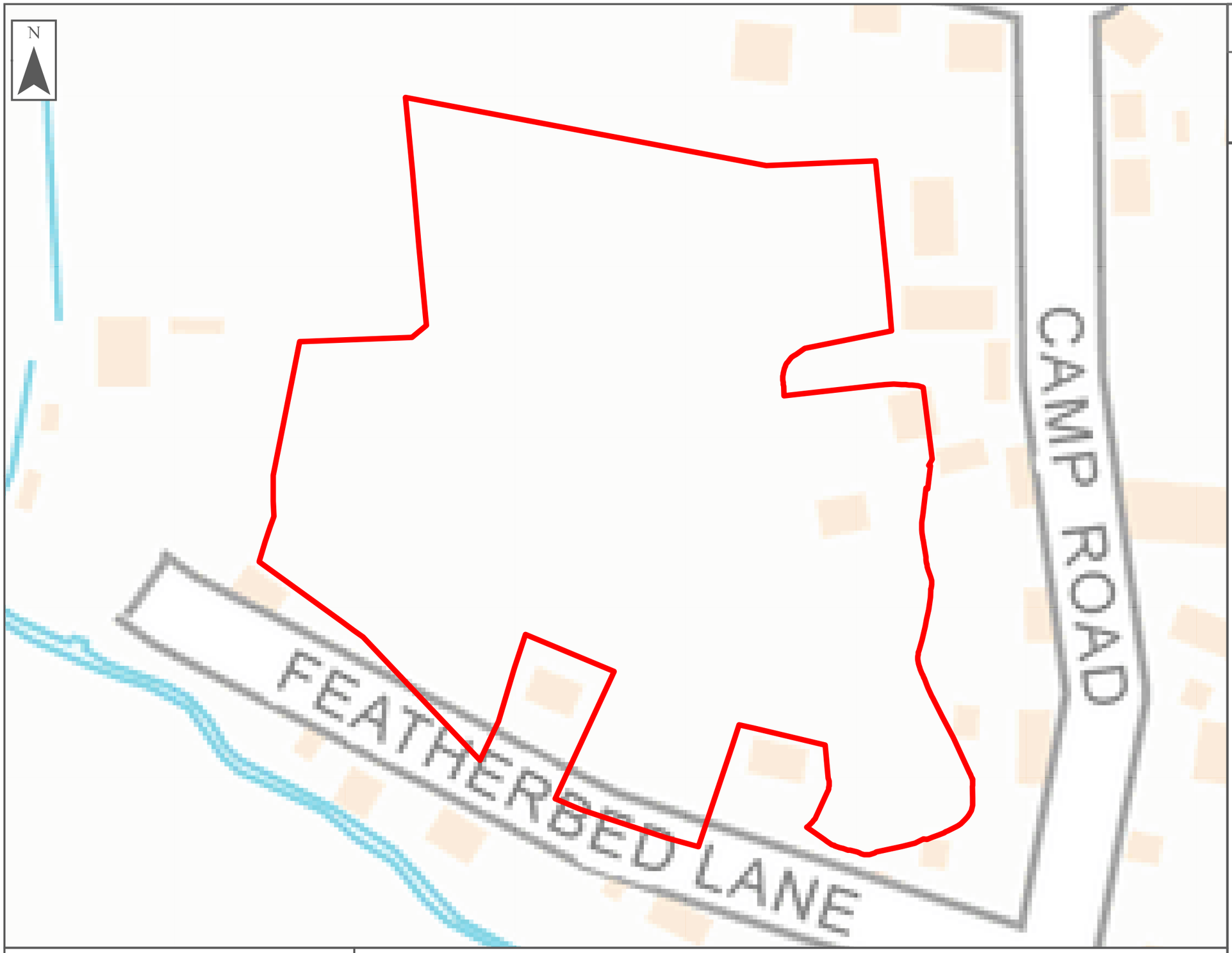
Site details	**Site Number**	12			
	OS Grid reference	ST 60855 92652			
	Area	1.83 hectares			
Emergency planning	**Flood warning**	The site is partially covered along the northern boundary by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. Most the site is covered by the Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston areas Flood Warning Area The southern boundary of the site is covered by the Severn Estuary at Oldbury-on-Severn, Chapel Road and Olveston Common Flood Warning Area.			
	Access and egress	The main access and egress route is either onto Camp Road or Featherbed Lane out via Chapel Road or Church Road. The junction where all four roads meet is at risk in both fluvial and tidal events and both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios. Therefore, there is potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	83	100	
		Range of depths (m)	0 – 2.5	0 – 2.5	
		Maximum hazard	Danger for All	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	12
	OS Grid reference	ST 60855 92652
	Area	1.83 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		The Sequential approach should be used to direct buildings away from the risk areas.
		The greatest risk to the site is tidal flood risk. Whilst the defences protect the site from a 0.5% AEP event, they are overtopped in a 0.1% AEP event.
		In the future, with climate change, these defences will be overtopped in both 0.5% and 0.1% scenarios, flooding almost all the site, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• The residual risk to the site should be investigated, for example overtopping or breach of defences. To pass the Exception Test, it needs to be demonstrated that the development can be made safe and that the residual risk has been overcome.
		• Safe access and egress should be demonstrated. Potential access and egress roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.015 0.03 0.06 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	13			
	OS Grid reference	ST 60683 92145			
	Area	4.69 hectares			
Sources of flood risk	**Existing drainage features**	The site is located north and south of Westend Lane. The Westend Rhine flows north of the site before changing direction to flow south towards the site. The course change again before it reaches the site to flows in a south west direction away from the village. It then changes direction again to flow south easterly around the edge of the village.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	43	60	73
		Range of depths (m)	0 – 2.0	0 – 2.5	0 – 2.5
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	0		0
	Flood history	The site is outside of the Environment Agency's historic flood map.			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

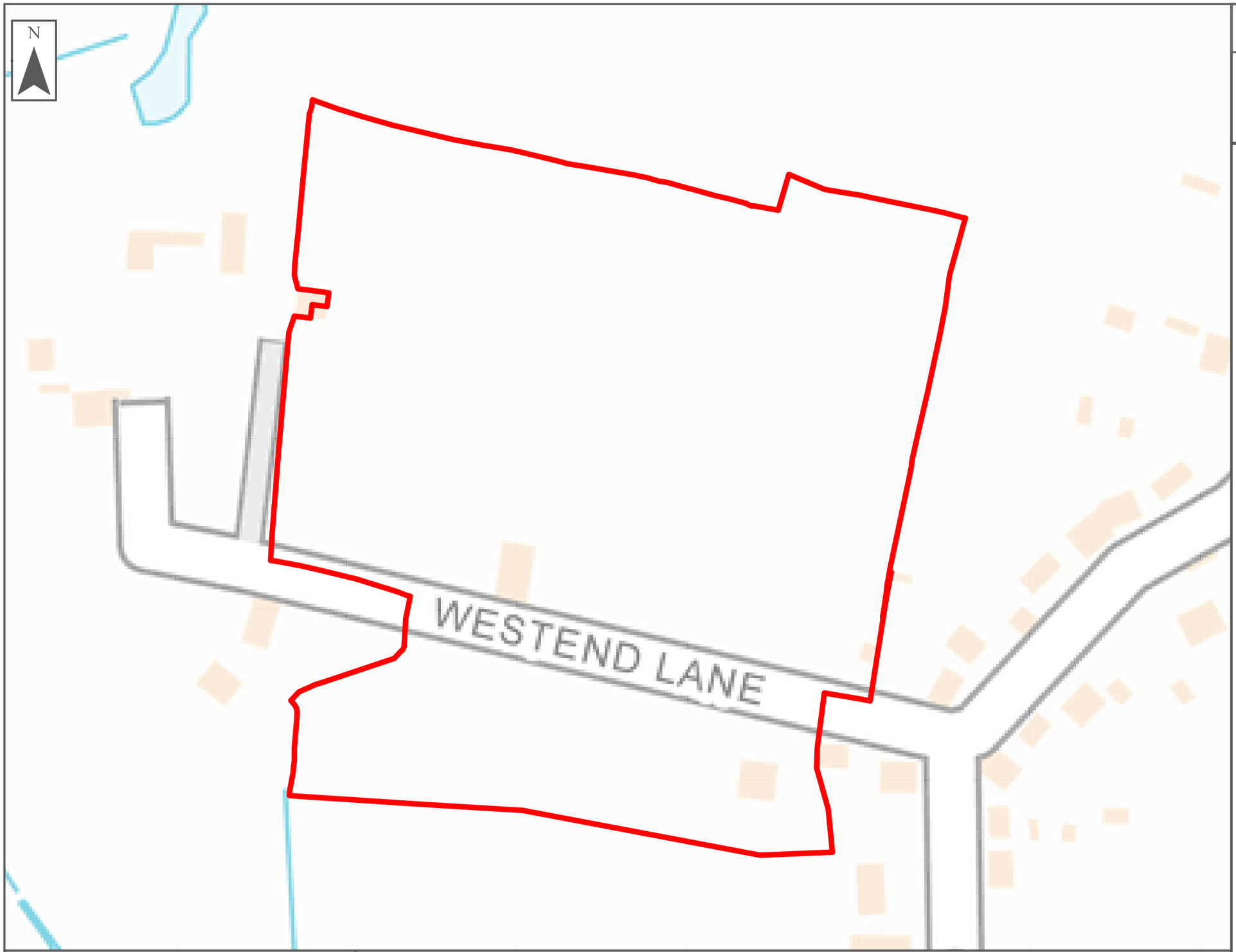
Site details	**Site Number**	13			
	OS Grid reference	ST 60683 92145			
	Area	4.69 hectares			
Emergency planning	**Flood warning**	The site is partially covered along the northern boundary by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. The site is partially covered by the Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston areas Flood Warning Area.			
	Access and egress	The main access and egress route along Westend Lane, down Camp Road and out via Chapel Road or Church Road. Both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	53	84	
		Range of depths (m)	0 – 2.5	0 – 2.5	
		Maximum hazard	Danger for Most	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	13
	OS Grid reference	ST 60683 92145
	Area	4.69 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		Modelling has shown that the site is at tidal flood risk in the future. The Sequential approach should be used to direct buildings away from the risk areas.
		In the future, with climate change, defences will be overtopped in both 0.5% and 0.1% scenarios flooding up to 84% of the site, if the defences are maintained at the current standard. The site also becomes a dry island during future tidal flooding with both Westend Lane and Camp Road flooded.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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



LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.025 0.05 0.1 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	14			
	OS Grid reference	ST 61043 92898			
	Area	2.23 hectares			
Sources of flood risk	**Existing drainage features**	The site is in an area of higher elevated west of Ham Lane and Camp Road. The Westend Rhine flows along the northern boundary of the site before flowing westerly away from the site.			
	Fluvial		**5% AEP**	**1% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
	Tidal	**Defended**			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	0	0	6
		Range of depths (m)	-	-	0 – 0.5
		Maximum hazard	-	-	Danger for Some
		Undefended			
			5% AEP	**0.5% AEP**	**0.1% AEP**
		Proportion of site at risk (%)	87	93	97
		Range of depths (m)	0 – 2.5	0 – 3.0	0 – 3.0
		Maximum hazard	Not available		
	Surface Water	**Proportion of site at risk (RoFfSW)**			
		3.3% AEP	**1% AEP**		**0.1% AEP**
		0	1		2
	Flood history	The site is just outside of the Environment Agency's historic flood map.			
Flood risk management infrastructure	**Defences**	**Defence Type**	**Standard of Protection**		**Condition**
		Penstock	n/a		n/a
		Tidal embankment	0.5% AEP		Good
	Residual risk		**Outlet failure**	**Oldbury Pill embankment breach**	**Power station embankment breach**
		Proportion at risk (%)	0	8	3
		Range of depths (m)	-	0 – 0.5	0 – 0.5
		Maximum hazard	-	Danger for Some	Very Low

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	14			
	OS Grid reference	ST 61043 92898			
	Area	2.23 hectares			
Emergency planning	**Flood warning**	The site is predominantly covered by the Severn Estuary at Oldbury on Severn, Northwick and Avonmouth Flood Alert Area. Most the site is largely covered by Severn Estuary at Oldbury-on-Severn, Westend, Cowhill and Olveston Flood Warning Area			
	Access and egress	The main access and egress route is either onto Camp Road or Ham Lane and out via Chapel Road or Church Road. Both Chapel Road and Church Road are at risk of flooding in fluvial, tidal and residual risk scenarios. Therefore, there is potential for the site to become cut off in a flood event.			
Climate Change	**Implications for the site**		**1% AEP**		
			Central	**High Central**	**Upper End**
		Proportion at risk (%)	0	0	0
		Range of depths (m)	-	-	-
		Maximum hazard	-	-	-
			Tidal (defended) 0.5% AEP	**Tidal (defended) 0.1% AEP**	
		Proportion at risk (%)	90	97	
		Range of depths (m)	0 – 2.5	0 – 3.0	
		Maximum hazard	Danger for Most	Danger for All	
NPPF and planning implications	**Sequential Test**	The Sequential Test will need to be passed. Only once the Sequential Test is passed should the Exception Test be applied			
	Exception Test requirements	The Exception test will be required in the following scenarios • If More Vulnerable and Essential Infrastructure is proposed in FZ3a. • If Highly Vulnerable development is proposed in FZ2. • If Essential Infrastructure is proposed in Flood Zone 3b Development will not be permitted in the following scenarios • Highly Vulnerable infrastructure within FZ3a and FZ3b. • More and Less Vulnerable Infrastructure within FZ3b.			

Mapping

Oldbury on Severn Level 2 Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables

Site details	**Site Number**	14
	OS Grid reference	ST 61043 92898
	Area	2.23 hectares

	Requirements for site-specific Flood Risk Assessment
	
	Guidance for developers
		• At the planning application stage, a site-specific flood risk assessment will be required if any development is located within Flood Zones 2 and 3 or for any development greater than one hectare in Flood Zone 1.
		The Sequential approach should be used to direct buildings away from the risk areas.
		The greatest risk to the site is tidal flood risk. Whilst the defences protect the site from a 0.5% AEP event, they are overtopped in a 0.1% AEP event.
		In the future, with climate change, these defences will be overtopped in both 0.5% and 0.1% scenarios, flooding almost all the site, if the defences are maintained at the current standard.
		To pass the Exception Test, it needs to be demonstrated that the development can be made safe.
		• The residual risk to the site should be investigated, for example overtopping or breach of defences. To pass the Exception Test, it needs to be demonstrated that the development can be made safe and that the residual risk has been overcome.
		• Safe access and egress should be demonstrated. Potential access and egress roads are at risk of flooding in fluvial, tidal and residual risk scenarios resulting in the potential for the site to become cut off in a flood event.
		• Other sources of flooding should also be considered as part of a site-specific flood risk assessment
		• Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
		• The long-term strategy for maintenance of the defences should be considered. The defences currently provide protection to the site from a 0.5% AEP event. However, in the future the level of overtopping of the defence means the site will be at risk if no action is taken. Investment would be required to sustain the current level of flood risk at the site into the future.
		• 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 and onsite attenuation schemes would need to be tested against the hydrographs of the Rhine system to ensure flows are not exacerbated downstream within the catchment
		• 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:
		  ○ 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

LEVEL 2 SITE SUMMARY TABLES

OLDBURY ON SEVERN LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

LEGEND

Fluvial Depth 1% AEP (Present Day)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Risk of Flooding from Surface Water (RoFfSW)

- 3.3% AEP
- 1% AEP
- 0.1% AEP

Fluvial Depth 1% AEP (Present Day)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Depth 0.5% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Depth 0.1% AEP (Present Day Defended)

Depth (m)

- 0 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- 3.00 - 3.50
- 3.50 - 4.00
- >4.00

Tidal Hazard 0.5% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Tidal Hazard 0.1% AEP (Present Day Defended)

Hazard Rating

- Very low hazard - caution
- Danger for some
- Danger for most
- Danger for all

Residual risk scenarios (0.5% AEP)

- Oldbury Pill embankment breach
- Outfall failure
- Power station embankment breach

0 0.0275 0.055 0.11 km

JBA consulting

LEGEND

Authority Information

- Potential Site Location
- Rhines

Fluvial (Present Day)

- 5% AEP
- 1% AEP
- 0.1% AEP

Fluvial (Future 2080s)

- 1% AEP (Central)
- 1% AEP (Higher Central)
- 1% AEP (Upper End)

Tidal (Present Day)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)

Tidal (Future 2117)

- 0.5% AEP (defended)
- 0.5% AEP (undefended)
- 0.1% AEP (defended)
- 0.1% AEP (undefended)