

Bradford Level 2 Strategic Flood Risk Assessment - Appendix A

**Airedale Nominal Risk Site
Assessments
Draft**

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Prepared for:



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1 Introduction

A Level 2 Strategic Flood Risk Assessment (SFRA) is required by the City of Bradford Metropolitan District Council (CBMDC) as all identified potential development sites cannot be allocated outside of areas of flood risk, as identified through the Bradford Level 1 SFRA, finalised November 2023.

The Level 1 SFRA entailed the high-level flood risk screening of 1,396 potential development sites. 260 of these sites were shown to be at some level of fluvial and/or surface water flood risk yet considered important to CBMDC's Local Plan ambitions. 98 of the 260 sites were shown to be at nominal risk of flooding yet still required brief assessment and commentary to support allocation.

This report summarises the fluvial, surface water, groundwater, reservoir, sewer and canal risk to the sites at nominal risk of flooding within the Airedale Local Plan sub-area. This sub-area is located within the centre and north of Bradford district, covering the towns of Baildon, Bingley, Keighley and Silsden, and the villages of Cringles, East Morton, Eastburn, Hainworth, Laycock, Micklethwaite, Steeton and West Morton.

2 Nominal Risk Sites

2.1 E8

Site summary (Figure 2-1)	
Location	John Escritt Road
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Employment
Proposed site vulnerability	Less vulnerable
Site area	0.5 hectares



Figure 2-1: E8 site location boundary

2.1.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled

to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

The Leeds and Liverpool Canal is located to the east of the site.

2.1.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-1). There is a small area of ponding within the south of the site in the medium risk surface water event. Maximum depths within the site are between 0.15 and 0.3 m (Figure 2-2). The area of ponding is modelled to develop into a significant flow path along the south western boundary of the site in the medium risk event +40% climate change. Any existing topographic depressions and flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via John Escritt Road. This route becomes inundated in the surface water plus climate change event, however depths are low and therefore safe access and escape should remain possible.

Table 2-1: Existing surface water flood risk within E8 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
88	9	3	0

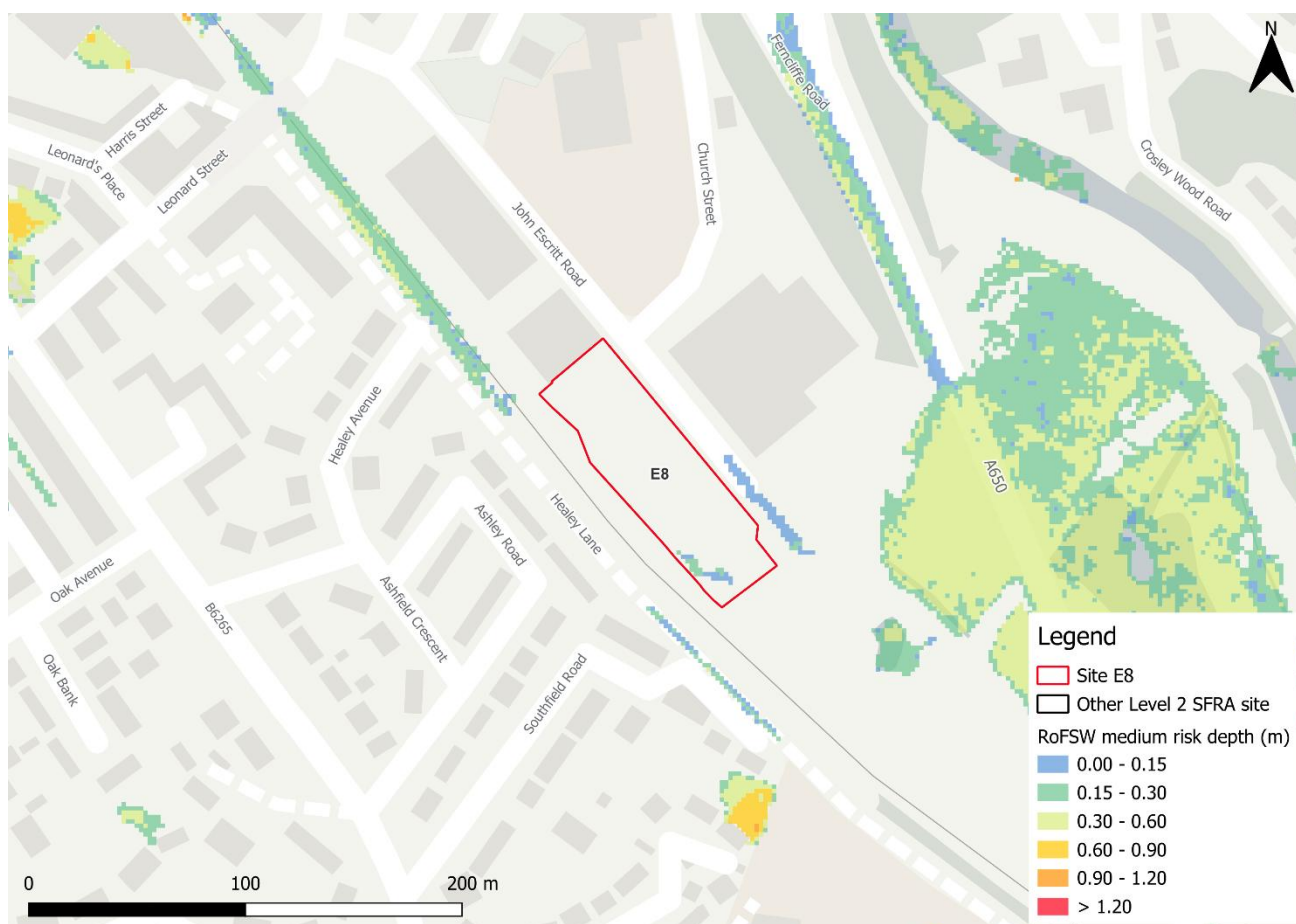


Figure 2-2: Medium risk event surface water flood depths within E8 (Risk of Flooding from Surface Water)

2.1.3 Groundwater

The entirety of the site is in an area where there is no risk of groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.1.4 Canals

The Leeds and Liverpool Canal is located to the east of the site. Given its distance from the canal, the site is not likely to be at risk from a canal breach.

2.1.5 Summary and recommendations

- The site is not required to pass the exception test as it is proposed for less vulnerable uses.
- The proposed development would see a change in the risk classification from water compatible to less vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).

- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the ponded area and flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.2 H34

Site summary (Figure 2-3)	
Location	Tong Park
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	1.8 hectares



Figure 2-3: H34 site location boundary

2.2.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

Gill Beck is located to the north of the site which is within Flood Zone 3a. There is unlikely to be risk to the site in the long term given the site is located approximately 12m above the level of the watercourse.

2.2.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-2). There is an area of ponding within the north of the site in the medium risk surface water event. Maximum depths within the site are > 1.2 m (Figure 2-4). The area of ponding is modelled to increase in both extent and depth in the medium risk event +40% climate change. Any existing topographic depressions should be maintained within site design.

Based on available information, safe access and escape routes should be possible via the A6038, given the shallow depths along the road. This route becomes inundated to greater depths in the surface water plus climate change event, therefore safe access and escape routes may be challenging to achieve.

Table 2-2: Existing surface water flood risk within H34 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
94	1	1	4

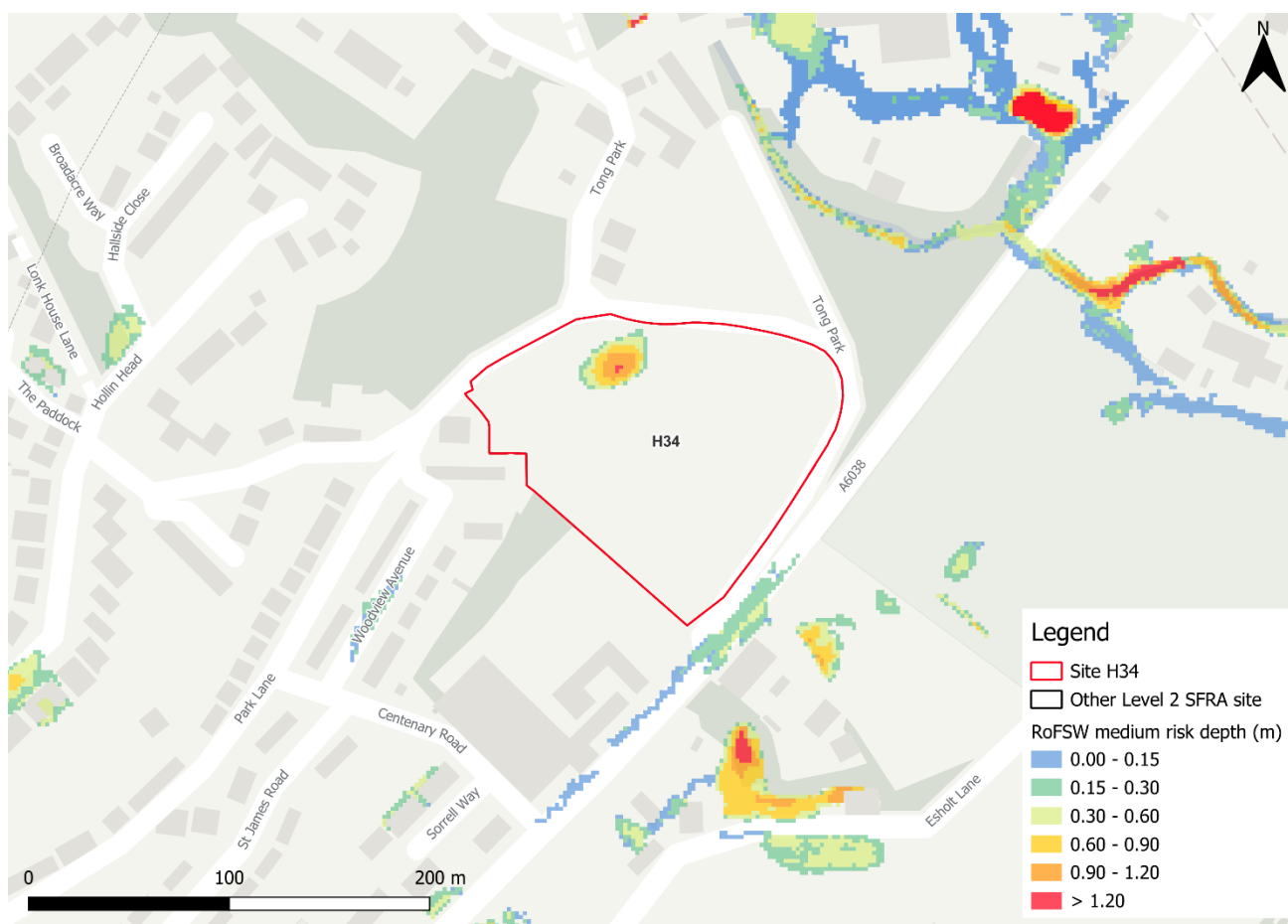


Figure 2-4: Medium risk event surface water flood depths within H34 (Risk of Flooding from Surface Water)

2.2.3 Groundwater

The entirety of the site is in an area where there is no risk of groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.2.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.

- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the ponded area in site design and investigate ground conditions for infiltration SuDS suitability.

2.3 H104

Site summary (Figure 2-5)	
Location	Coolgardie Keighley Road
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	3.0 hectares



Figure 2-5: H104 site location boundary

2.3.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

The Leeds and Liverpool Canal is located to the east of the site. The River Aire is located to the west of the site which has been modelled within the Leeds FAS Kildwick to Esholt 2022 model.

The site is partially located within a Flood Warning Area (FWA), namely 123FWF114 - River Aire at Crossflatts (Figure 2-6).



Figure 2-6: EA Flood Warning Areas within H104

2.3.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-3). There is an area of ponding within the north of the site in the medium risk surface water event. There is also a flow path along the eastern boundary of the site. Maximum depths within the site are between 0.3 and 0.6 m (Figure 2-7). The flow path along the eastern boundary is modelled to increase in both extent and depth in the medium risk event +40% climate change, extending across the northern boundary of the site. Any existing flow paths and topographic depressions should be maintained within site design.

Based on available information, safe access and escape routes should be possible via the B6265 both in the present day and longer term.

Table 2-3: Existing surface water flood risk within H104 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
89	7	2	2

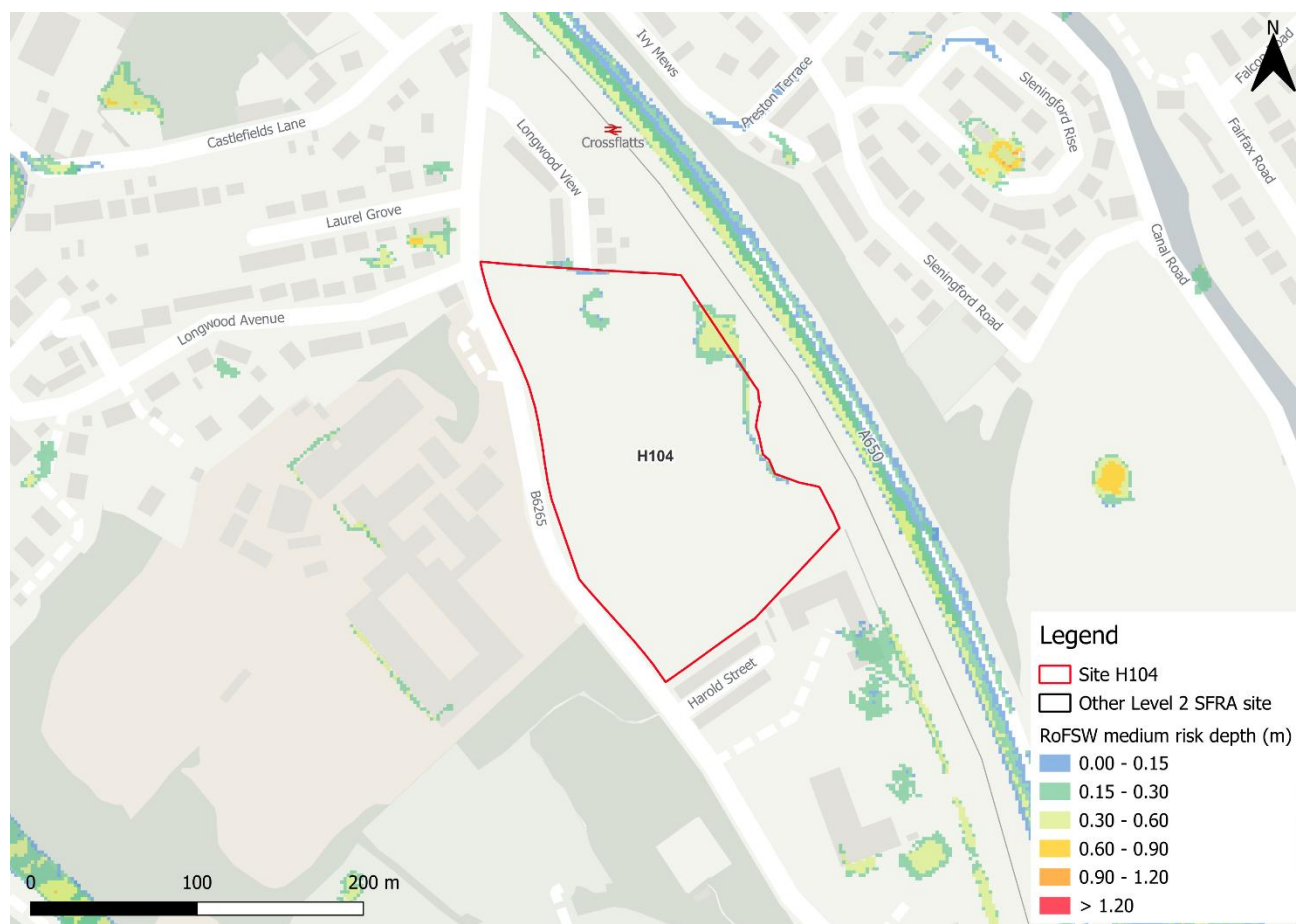


Figure 2-7: Medium risk event surface water flood depths within H104 (Risk of Flooding from Surface Water)

2.3.3 Reservoirs

The EA's Reservoir Flood Maps (RFM) (2021) show where water may go in the unlikely event of a reservoir or dam failure. Figure 2-8 shows the RFM in a 'dry day' and 'wet day' scenario. A 'dry day' scenario assumes that the water level in the reservoir is the same as the spillway level or the underside of the roof for a service reservoir and the watercourses upstream and downstream of the reservoir are at a normal level. A 'wet day' scenario assumes a worst-case scenario where a reservoir releases water held on a 'wet day' when local rivers have already overflowed their banks.

The site is potentially at risk from Sunnydale reservoir located within Bradford, owned and maintained by Yorkshire Water Services Ltd.

The EA's SFRA guidance states that where a proposed development site is at flood risk from a reservoir, then an assessment into whether the reservoir design or maintenance

schedule needs improving should be carried out. Expert advice may be required from an all-reservoirs panel engineer. The Council should consult with Yorkshire Water Services Ltd to ascertain whether the proposed development could affect the reservoir's risk designation, it's design category or how it is operated. The Council, as category 1 responders, can access more detailed information about reservoir risk and reservoir owners using the [Resilience Direct](#) system.



Figure 2-8: Flood risk from reservoirs within H104

2.3.4 Groundwater

The entirety of the site is in an area where there is no risk of groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.3.5 Canals

The Leeds and Liverpool Canal is located to the east of the site. Given its distance from the canal, the site is not likely to be at risk from a canal breach.

2.3.6 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.

- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the ponded area and flow path in site design and investigate ground conditions for infiltration SuDS suitability.
- The Council should contact Yorkshire Water Services Ltd regarding the potential reservoir risk.

2.4 H107

Site summary (Figure 2-9)	
Location	West of Heights Lane, Eldwick
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	0.8 hectares



Figure 2-9: H107 site location boundary

2.4.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.4.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-4). Surface water risk in the medium risk event is confined to the southeastern corner of the site. Maximum depths within the site are between 0.3 and 0.6 m (Figure 2-10). The area at risk is modelled to increase in extent in the medium risk event +40% climate change, developing into a shallow flow path through the centre of the site. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Heights Lane both in the present day and longer term.

Table 2-4: Existing surface water flood risk within H107 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
92	7	1	0



Figure 2-10: Medium risk event surface water flood depths within H107 (Risk of Flooding from Surface Water)

2.4.3 Groundwater

The entirety of the site is in an area where groundwater emergence is unlikely. Groundwater conditions may therefore be suited to infiltration SuDS.

2.4.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.5 H393

Site summary (Figure 2-11)	
Location	Shann Lane
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	0.8 hectares

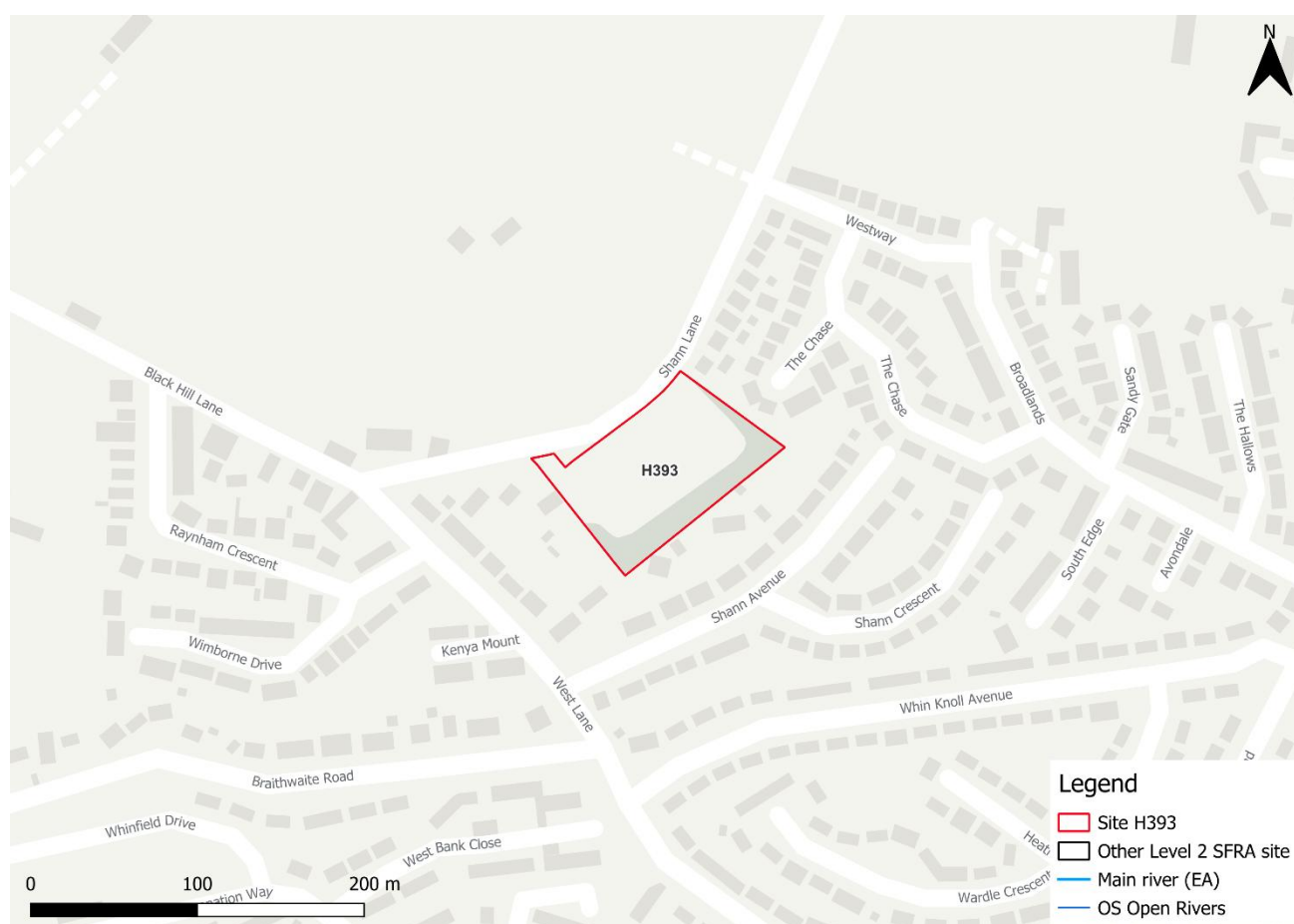


Figure 2-11: H393 site location boundary

2.5.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.5.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-5). There is an area of ponding within a topographic low spot in the centre of the site in the medium risk surface water event. Maximum depths within the site are between 0.3 and 0.6 m (Figure 2-12). The area at risk is modelled to increase in extent in the medium risk event +40% climate change. Any existing topographic depressions should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Shann Lane both in the present day and longer term.

Table 2-5: Existing surface water flood risk within H393 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
92	6	2	0

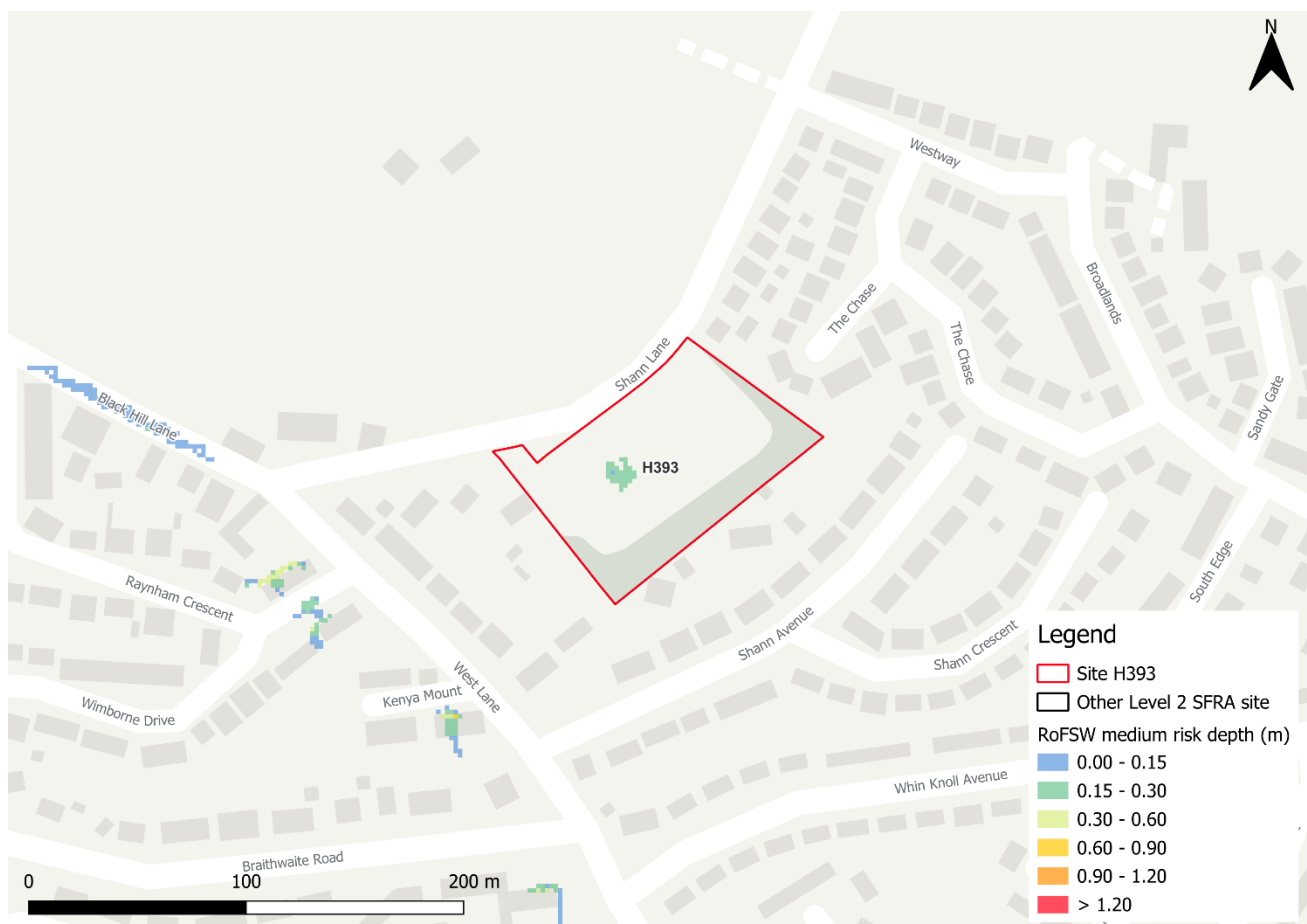


Figure 2-12: Medium risk event surface water flood depths within H393 (Risk of Flooding from Surface Water)

2.5.3 Groundwater

The majority of the site is in an area where groundwater emergence is unlikely. Groundwater conditions may therefore be suited to infiltration SuDS.

2.5.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the ponded area in site design and investigate ground conditions for infiltration SuDS suitability.

2.6 H406

Site summary (Figure 2-13)	
Location	Keighley Road, Exley Head (1)
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	2.7 hectares

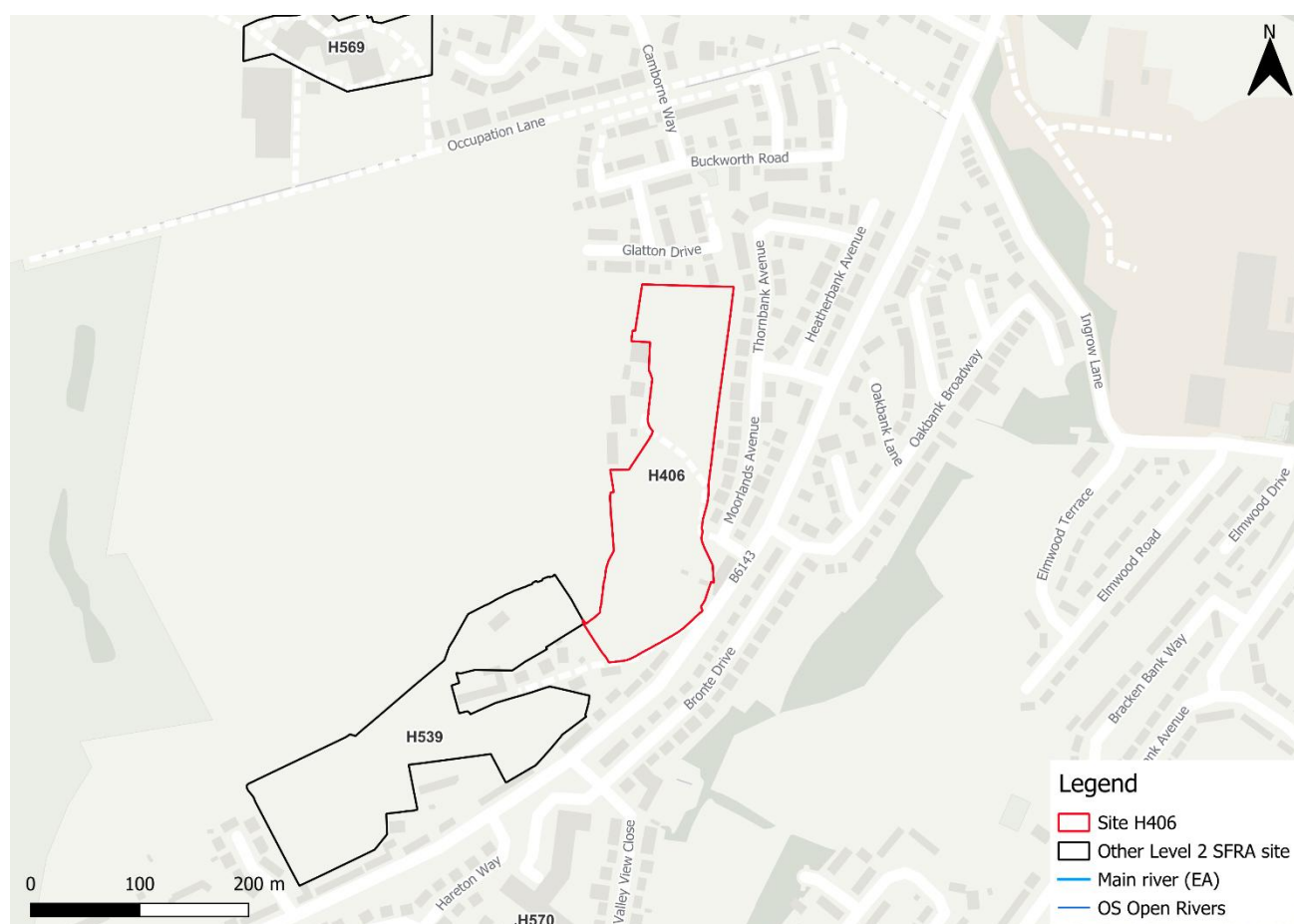


Figure 2-13: H406 site location boundary

2.6.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.6.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-6). There is an area of ponding within a topographic low spot in the centre of the site in the medium risk surface water event. There is also a short, shallow flow path through the north of the site. Maximum depths within the site are between 0.3 and 0.6 m (Figure 2-14). The flow path within the north is modelled to increase in both extent and depth in the medium risk event +40% climate change. Any existing flow paths and topographic depressions should be maintained within site design.

Based on available information, safe access and escape routes should be possible via the B6143 both in the present day and longer term.

Table 2-6: Existing surface water flood risk within H406 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
94	4	1	1

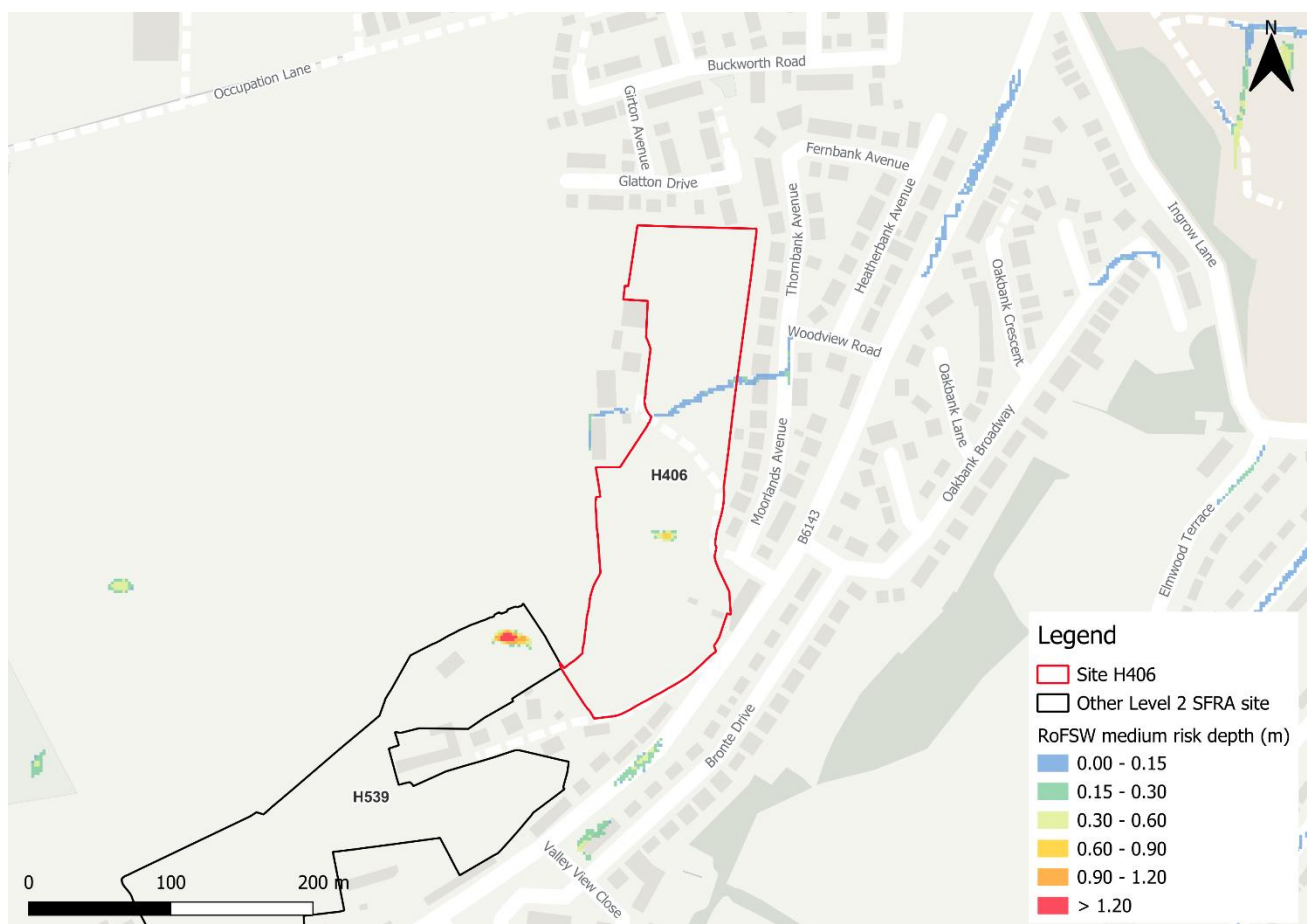


Figure 2-14: Medium risk event surface water flood depths within H406 (Risk of Flooding from Surface Water)

2.6.3 Groundwater

The majority of the site is in an area where groundwater emergence is unlikely. Groundwater conditions may therefore be suited to infiltration SuDS.

2.6.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the ponded area and flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.7 H440

Site summary (Figure 2-15)	
Location	Higherwood Close, Keighley
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	1.0 hectares



Figure 2-15: H440 site location boundary

2.7.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.7.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-7). There is a shallow flow path along the north eastern boundary in the medium risk surface water event. Maximum depths within the site are < 0.15 m (Figure 2-16). The flow path along the north eastern boundary is modelled to increase in both extent and depth in the medium risk event +40% climate change. There is also an additional shallow surface water flow path through the west of the site. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Higherwood Close in the medium risk present day event. This route becomes inundated in the surface water plus climate change event however depths are low, therefore safe access and escape routes should remain possible.

Table 2-7: Existing surface water flood risk within H440 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
84	14	2	0

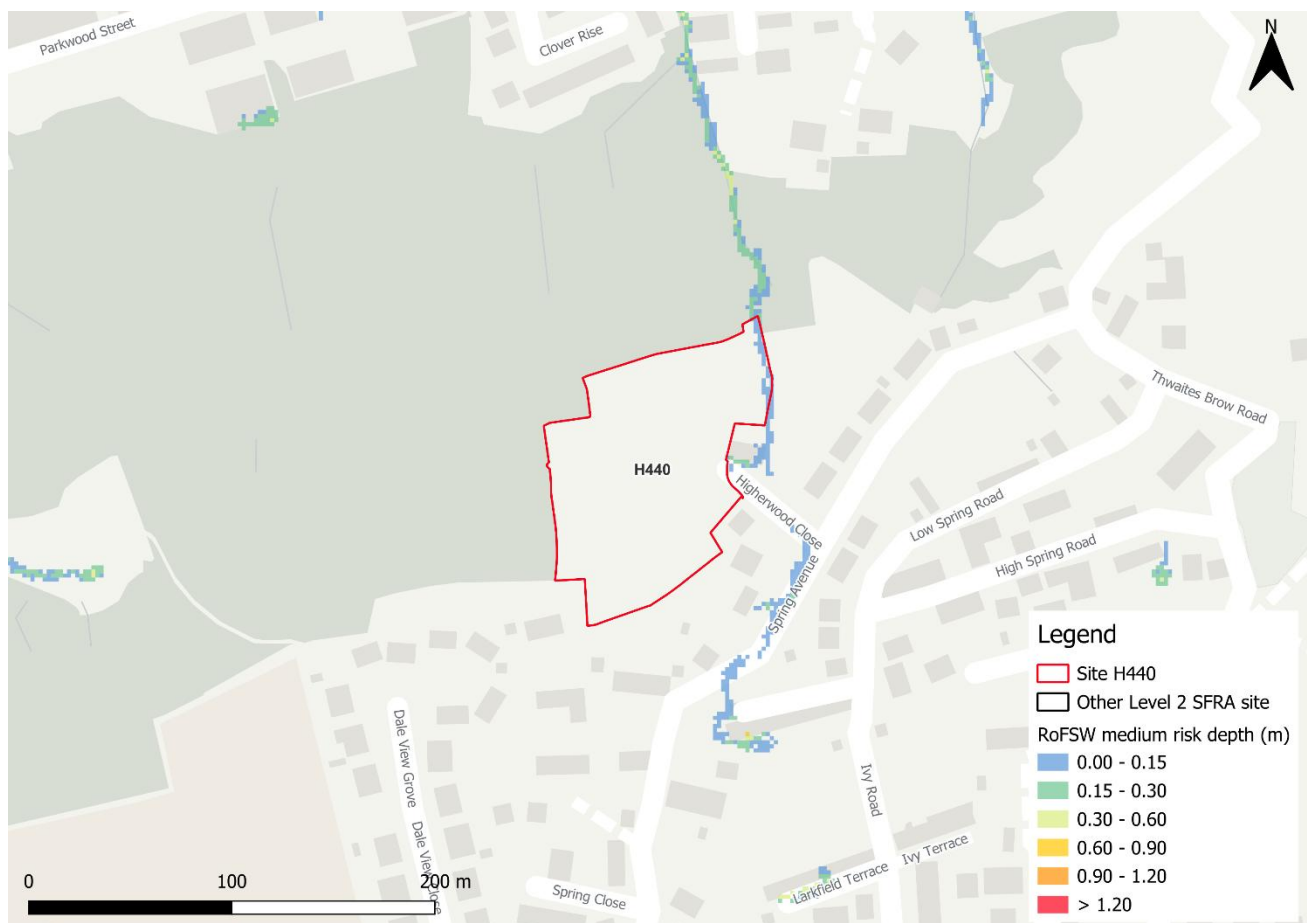


Figure 2-16: Medium risk event surface water flood depths within H440 (Risk of Flooding from Surface Water)

2.7.3 Groundwater

The majority of the site is in an area where groundwater emergence is unlikely. There is no risk of groundwater emergence within the south of the site. Groundwater conditions may therefore be suited to infiltration SuDS.

2.7.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.8 H522

Site summary (Figure 2-17)	
Location	Airedale House Funeral Director (field), Skipton Rd
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	1.1 hectares



Figure 2-17: H522 site location boundary

2.8.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.8.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-8). There is a short, shallow flow path within the south of the site in the medium risk surface water event. Maximum depths within the site are < 0.15 m (Figure 2-18). There are a number of additional shallow flow paths modelled through the centre of the site in the medium risk event +40% climate change. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via the B6265 in the medium risk present day event. This route becomes inundated in the surface water plus climate change event however depths are low towards the north, therefore safe access and escape routes should remain possible.

Table 2-8: Existing surface water flood risk within H522 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
88	10	2	0



Figure 2-18: Medium risk event surface water flood depths within H522 (Risk of Flooding from Surface Water)

2.8.3 Groundwater

Almost the entirety of the site is within an area where there is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely.

2.8.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow paths in site design.

2.9 H539

Site summary (Figure 2-19)	
Location	Keighely Road, Exley Head (2)
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	3.1 hectares

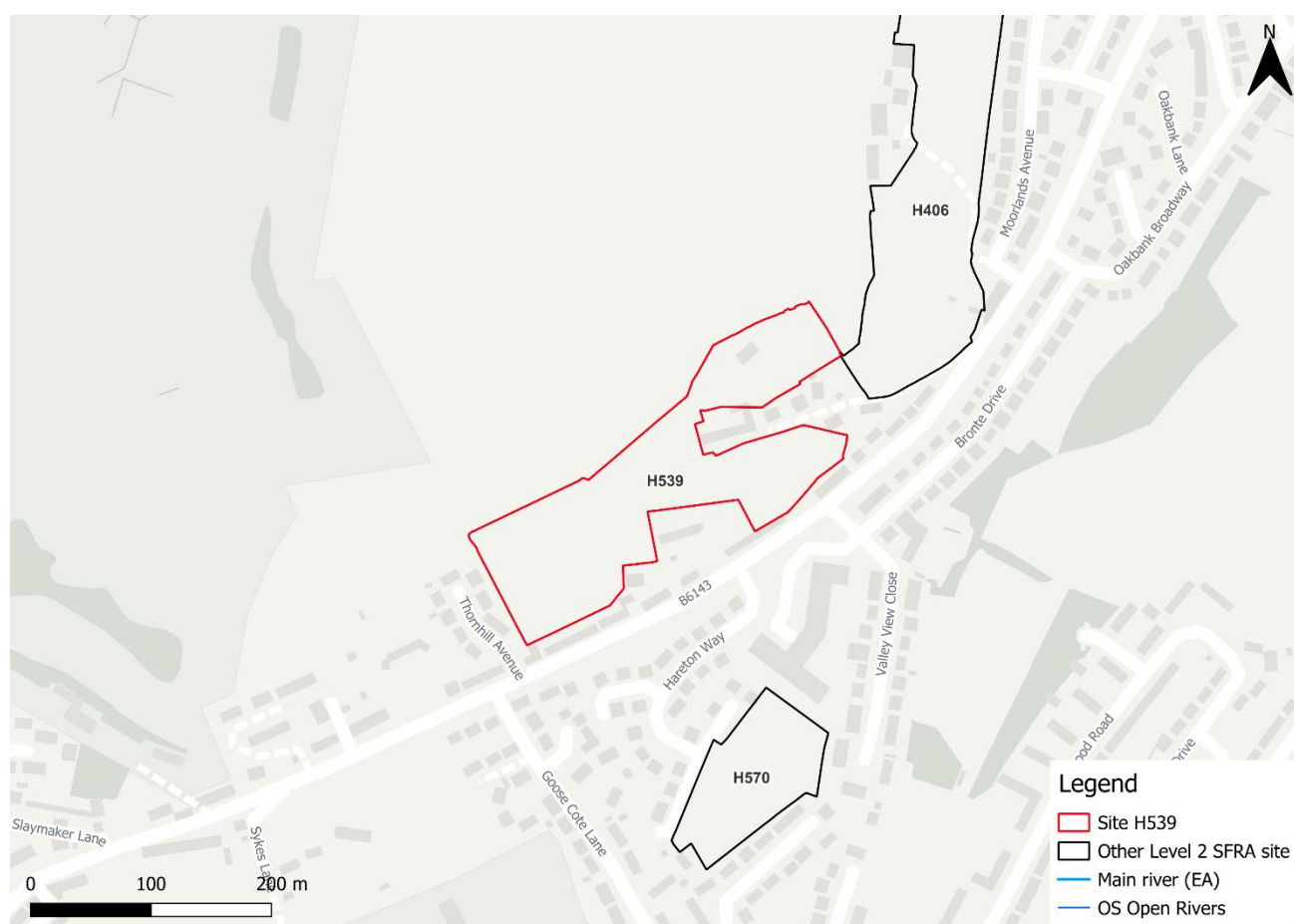


Figure 2-19: H539 site location boundary

2.9.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.9.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-9). There is an area of ponding within the north east of the site in the medium risk surface water event. Maximum depths within the site are > 1.2 m (Figure 2-20). The area of ponding is modelled to increase in extent in the medium risk event +40% climate change. Any existing topographic depressions should be maintained within site design.

Based on available information, safe access and escape routes should be possible via the B6143 both in the present day and longer term.

Table 2-9: Existing surface water flood risk within H539 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
96	2	1	1

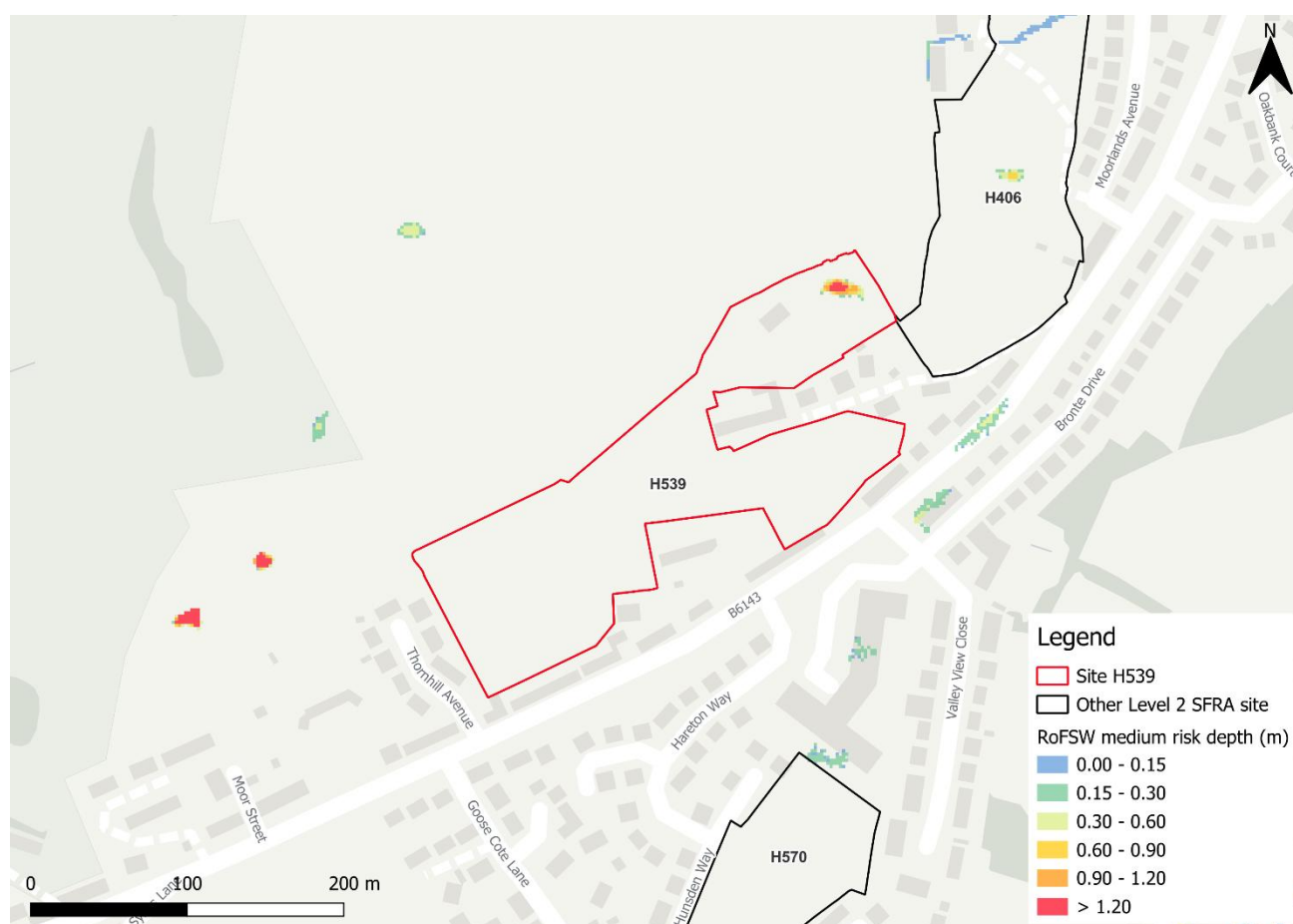


Figure 2-20: Medium risk event surface water flood depths within H539 (Risk of Flooding from Surface Water)

2.9.3 Groundwater

The majority of the site is in an area where groundwater emergence is unlikely. Groundwater conditions may therefore be suited to infiltration SuDS.

2.9.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the ponded area in site design and investigate ground conditions for infiltration SuDS suitability.

2.10 H544

Site summary (Figure 2-21)	
Location	Moss Carr Road, Long Lee
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	1.3 hectares



Figure 2-21: H544 site location boundary

2.10.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.10.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-10). Surface water risk is confined to a small area along the western boundary of the site in the medium risk surface water event. Maximum depths within the site are < 0.15 m (Figure 2-22). The area at risk in the present day event is modelled to develop into a shallow flow path through the north of the site in the medium risk event +40% climate change. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Moss Car Road both in the present day and longer term.

Table 2-10: Existing surface water flood risk within H544 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
96	3	1	0



Figure 2-22: Medium risk event surface water flood depths within H544 (Risk of Flooding from Surface Water)

2.10.3 Groundwater

Within the north of the site, there is no risk from groundwater emergence. The south of the site is in an area where groundwater emergence is unlikely. Groundwater conditions may therefore be suited to infiltration SuDS.

2.10.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.11 H551

Site summary (Figure 2-23)	
Location	Hainworth Wood Road
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	3.2 hectares



Figure 2-23: H551 site location boundary

2.11.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

The River Worth is situated to the northwest of the site. The watercourse is modelled in the River Worth 2022 model. There is an unnamed, unmodelled watercourse which runs through the centre of the site that is not a designated main river or located within OS Open Rivers dataset. There is an additional unnamed watercourse adjacent to the southern site boundary. There is potential for these watercourses to contribute to fluvial flooding within the site. The unnamed watercourses should be modelled as part of a site-specific FRA.

2.11.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-11). There is a surface water flow path through the centre of the site in the medium risk surface water event, coincident with the unnamed watercourse. Maximum depths within the site are between 0.6 and 0.9 m (Figure 2-24), however these are located within the unnamed channel. The area at risk in the present day event is modelled to increase in both extent and depth in the medium risk event +40% climate change. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Hainworth Wood Road both in the present day and longer term.

Table 2-11: Existing surface water flood risk within H551 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
97	1	1	1

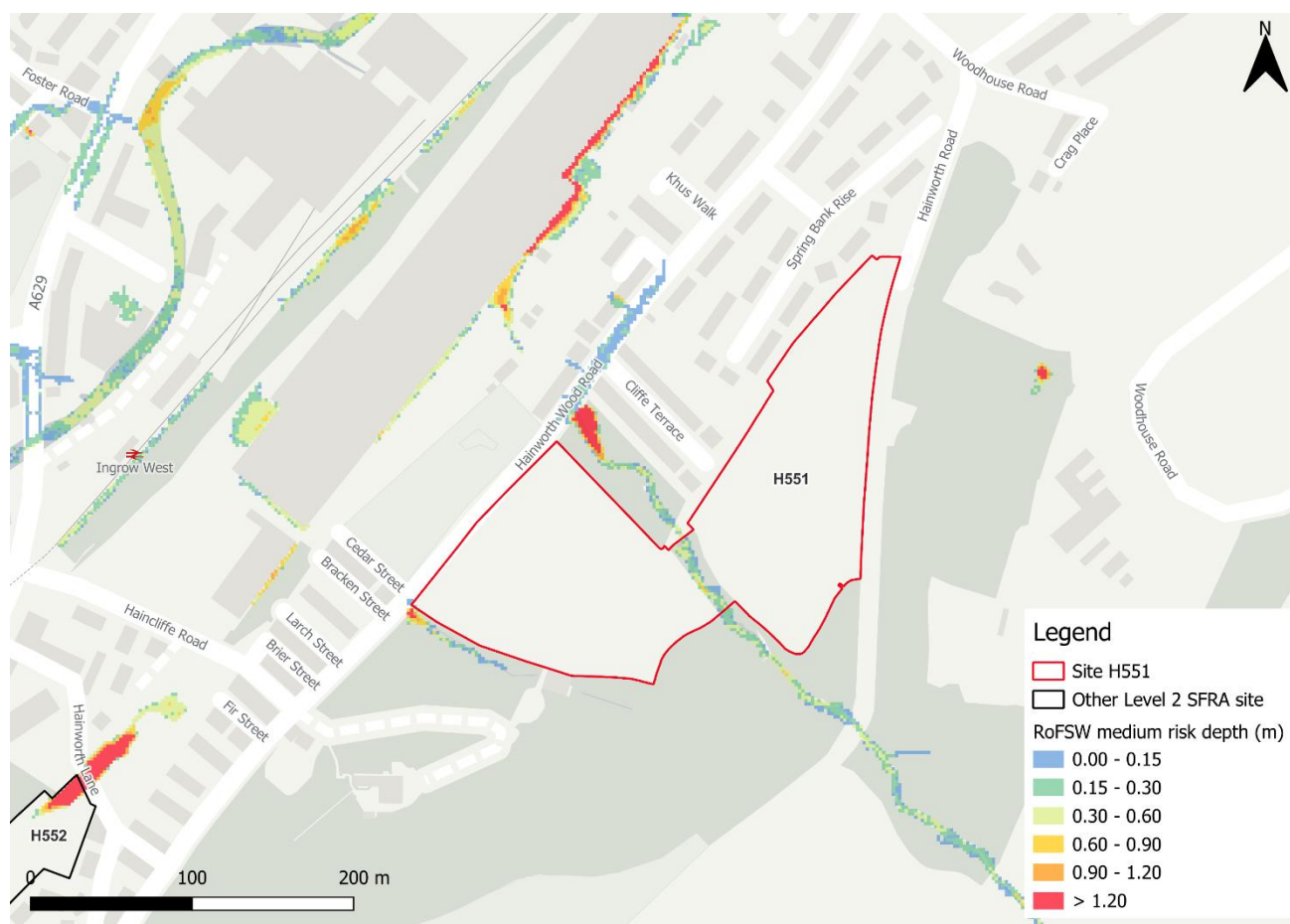


Figure 2-24: Medium risk event surface water flood depths within H551 (Risk of Flooding from Surface Water)

2.11.3 Groundwater

Almost the entirety of the site is within an area where there is no risk from groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.11.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site. However, potential fluvial risk from the unnamed watercourses must be confirmed.

- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change. However, potential fluvial risk from the unnamed watercourses must be confirmed.
- Any FRA should include for a drainage strategy which includes the existing channel in site design and investigate ground conditions for infiltration SuDS suitability.

2.12 H552

Site summary (Figure 2-25)	
Location	Hainworth Lane / Halifax Road, Keighley
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	0.4 hectares

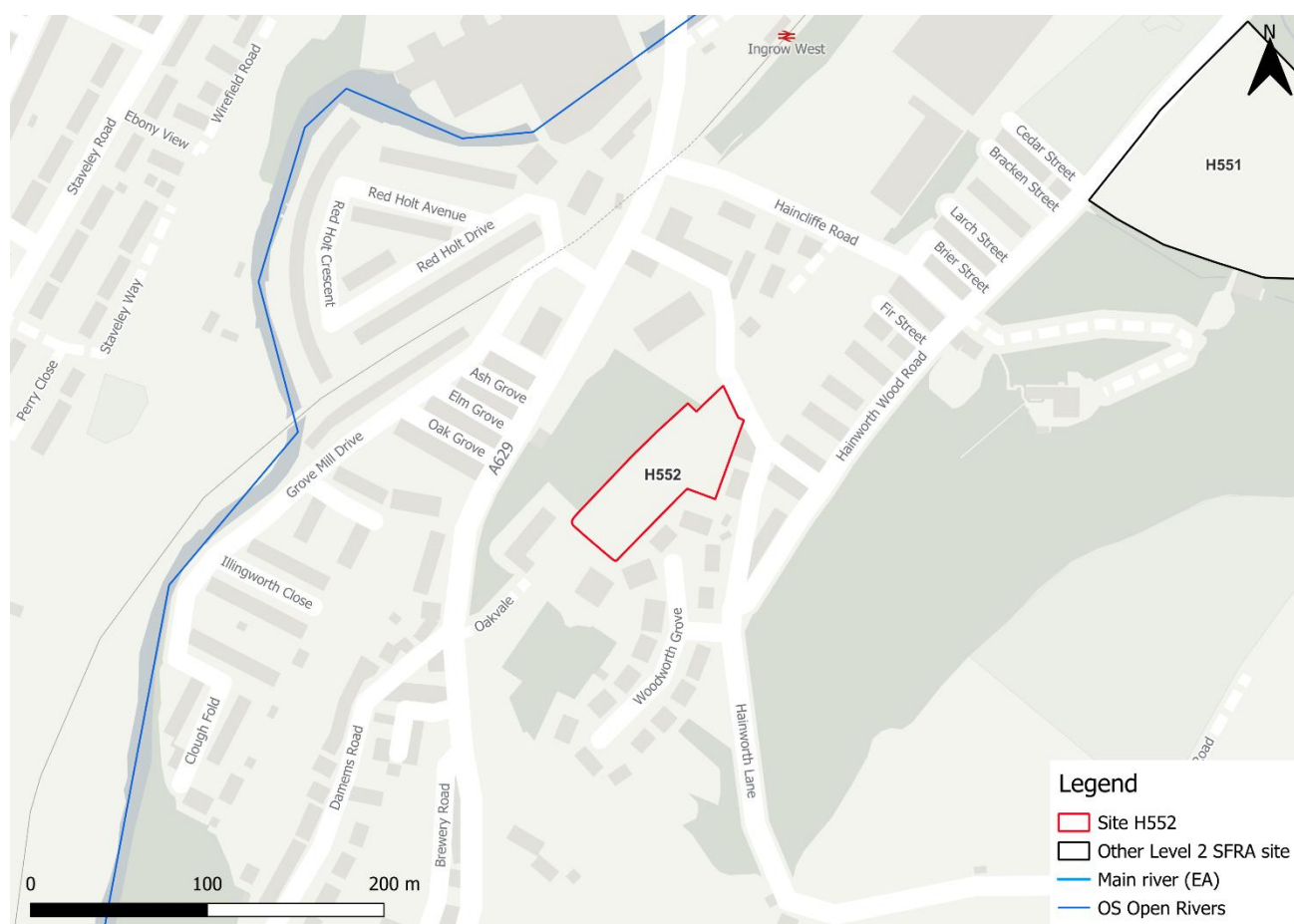


Figure 2-25: H552 site location boundary

2.12.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

The River Worth is situated to the west of the site. The watercourse is modelled in the River Worth 2022 model.

2.12.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-12). Surface water risk is confined to a topographic low spot beneath Hainworth Lane in the medium risk surface water event. Maximum depths within the site are > 1.2 m (Figure 2-26). The area at risk in the present day event is modelled to develop into a flow path along the northwestern boundary of the site in the medium risk event +40% climate change. Any existing flow paths and topographic depressions should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Hainworth Lane both in the present day and longer term.

Table 2-12: Existing surface water flood risk within H552 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
88	4	2	6

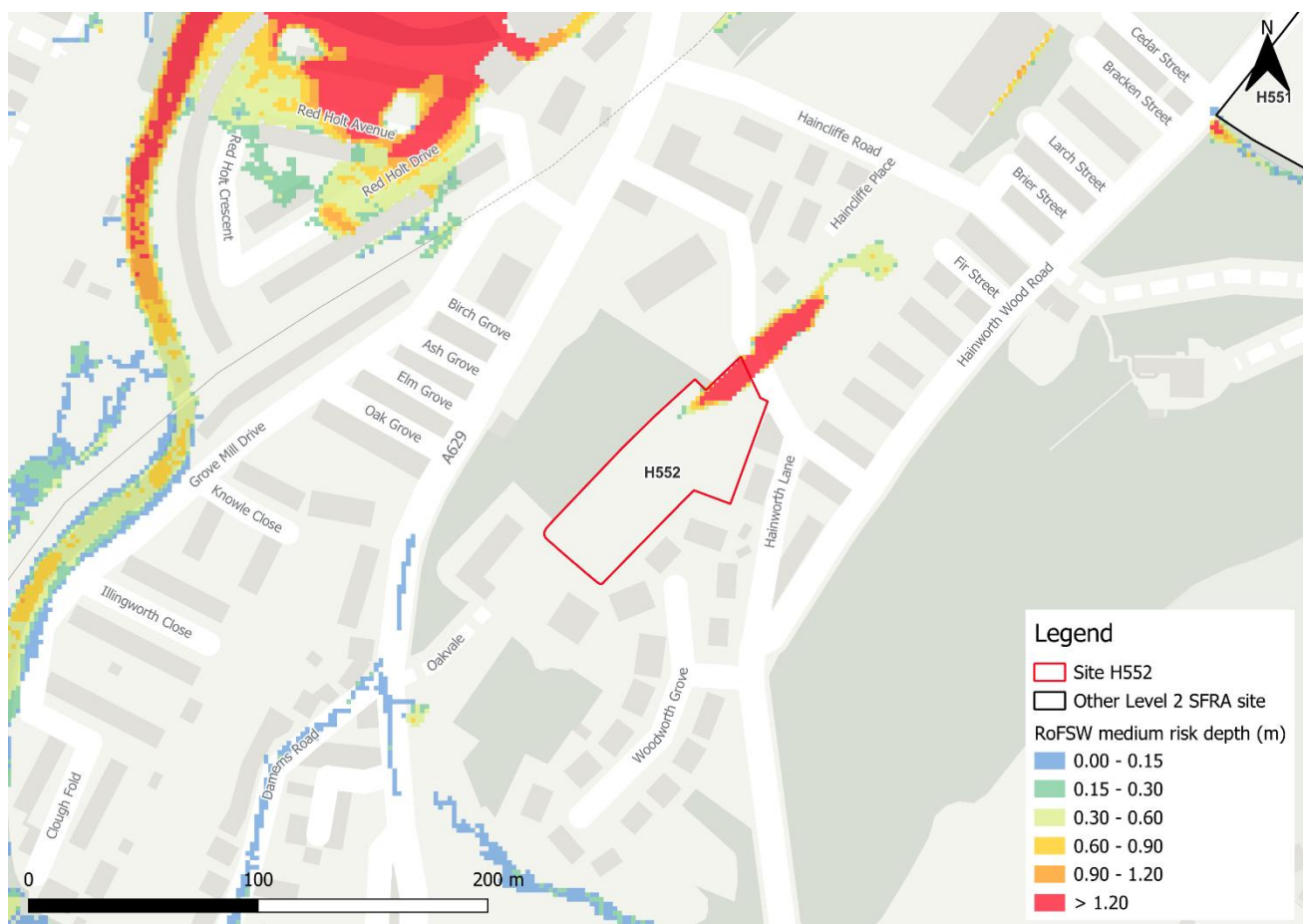


Figure 2-26: Medium risk event surface water flood depths within H552 (Risk of Flooding from Surface Water)

2.12.3 Groundwater

The entirety of the site is within an area where there is no risk from groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.12.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow path and ponded area in site design and investigate ground conditions for infiltration SuDS suitability.

2.13 H563

Site summary (Figure 2-27)	
Location	Braithwaite Avenue
Existing site use	Brownfield
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	5.1 hectares

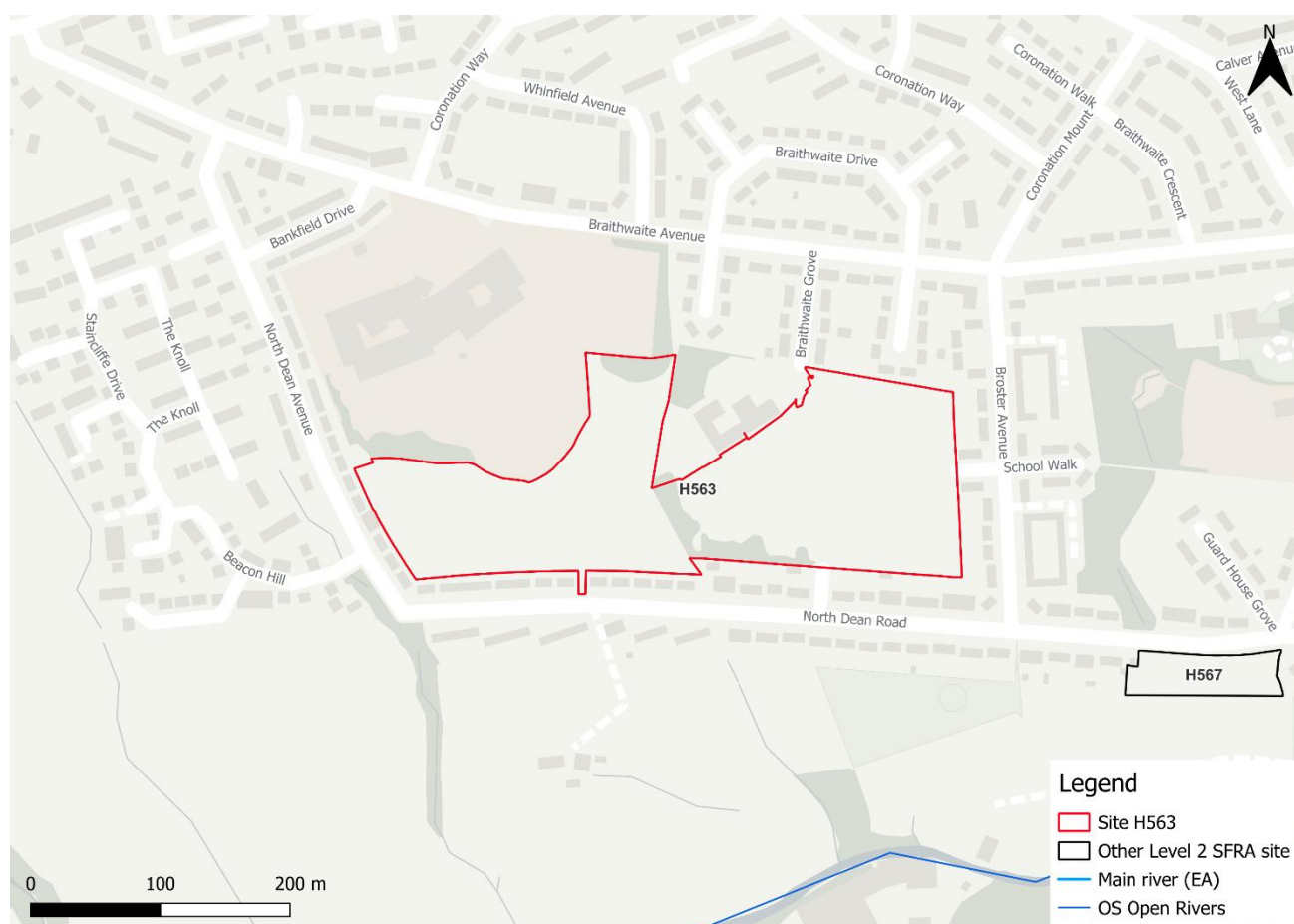


Figure 2-27: H563 site location boundary

2.13.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

North Beck is situated to the west of the site. The watercourse is modelled in the River Worth 2022 model.

2.13.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-13). There are two short flow paths within the east of the site in the medium risk surface water event. Maximum depths within the site are between 0.6 and 0.9 m (Figure 2-28). The area at risk in the present day event is modelled to develop into a distinct flow path through the east of the site in the medium risk event +40% climate change. There are two additional flow path within both the north and west of the site. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via multiple points surrounding the site in the medium risk present day event. These routes become inundated in the surface water plus climate change event therefore safe access and escape routes may be challenging to achieve in the long term.

Table 2-13: Existing surface water flood risk within H563 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
93	5	1	1

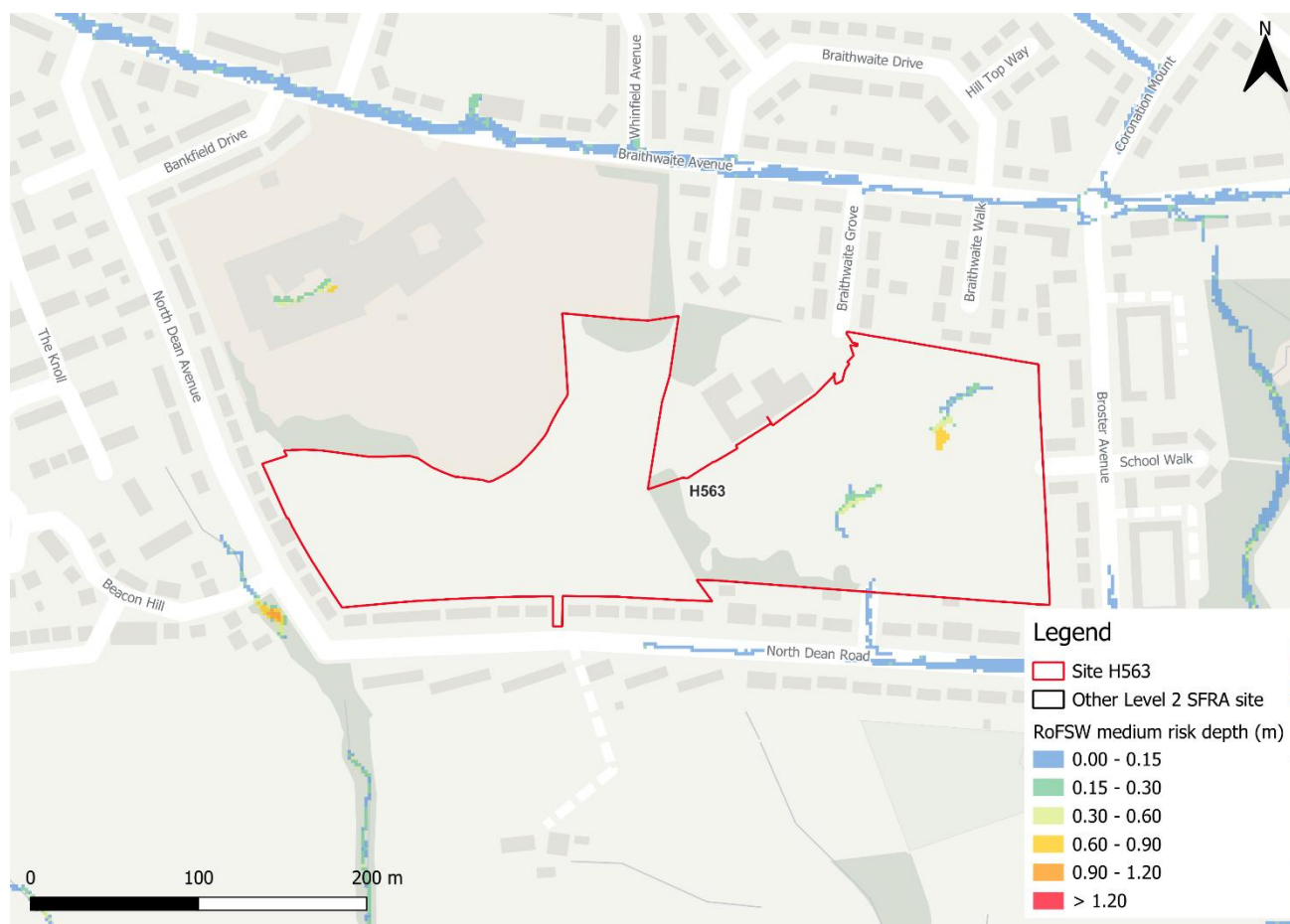


Figure 2-28: Medium risk event surface water flood depths within H563 (Risk of Flooding from Surface Water)

2.13.3 Groundwater

The entirety of the site is within an area where there is no risk from groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.13.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.

- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change, however safe access and escape routes in the long term should be considered further.
- Any FRA should include for a drainage strategy which includes the flow path and ponded area in site design and investigate ground conditions for infiltration SuDS suitability.

2.14 H567

Site summary (Figure 2-29)	
Location	North Dean Road
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	0.4 hectares

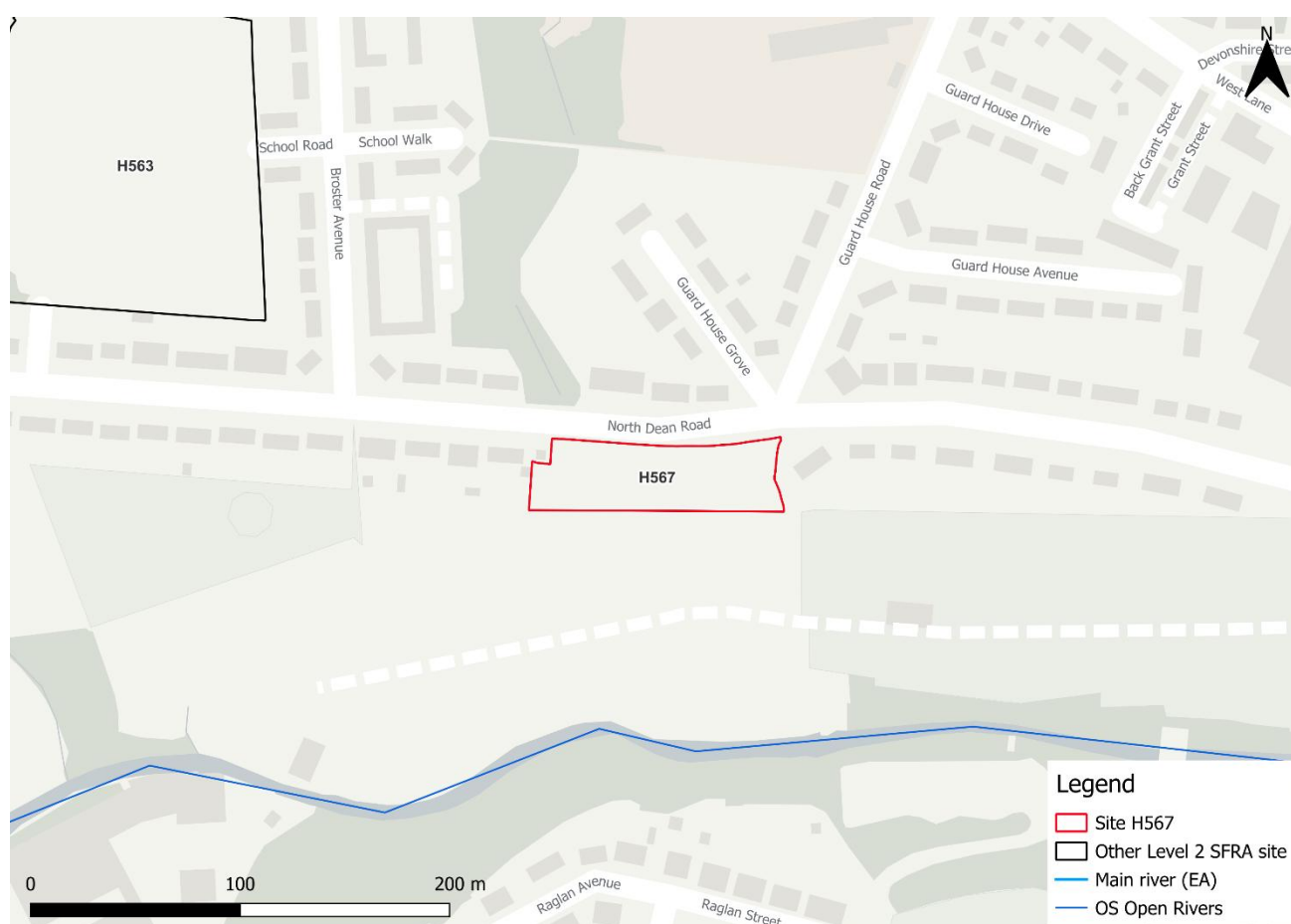


Figure 2-29: H567 site location boundary

2.14.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers.

North Beck is situated to the west of the site. The watercourse is modelled in the River Worth 2022 model. There is also a culverted watercourse which runs beneath the west of

the site that is unmodelled and is not a designated main river or located within OS Open Rivers dataset. There is potential for this watercourse to contribute to fluvial flooding within the site. The unnamed watercourse should be modelled as part of a site-specific FRA.

2.14.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-14). Surface water risk is confined to two small areas along the northern and eastern site boundaries in the medium risk surface water event. Maximum depths within the site are < 0.15 m (Figure 2-30). There is a significant area of ponding in the east of the site in the medium risk event +40% climate change, however depths remain low.

Based on available information, safe access and escape routes should be possible via North Dean Road in the medium risk present day event. This route becomes inundated in the surface water plus climate change event therefore safe access and escape routes may be challenging to achieve in the long term.

Table 2-14: Existing surface water flood risk within H567 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
79	20	1	0

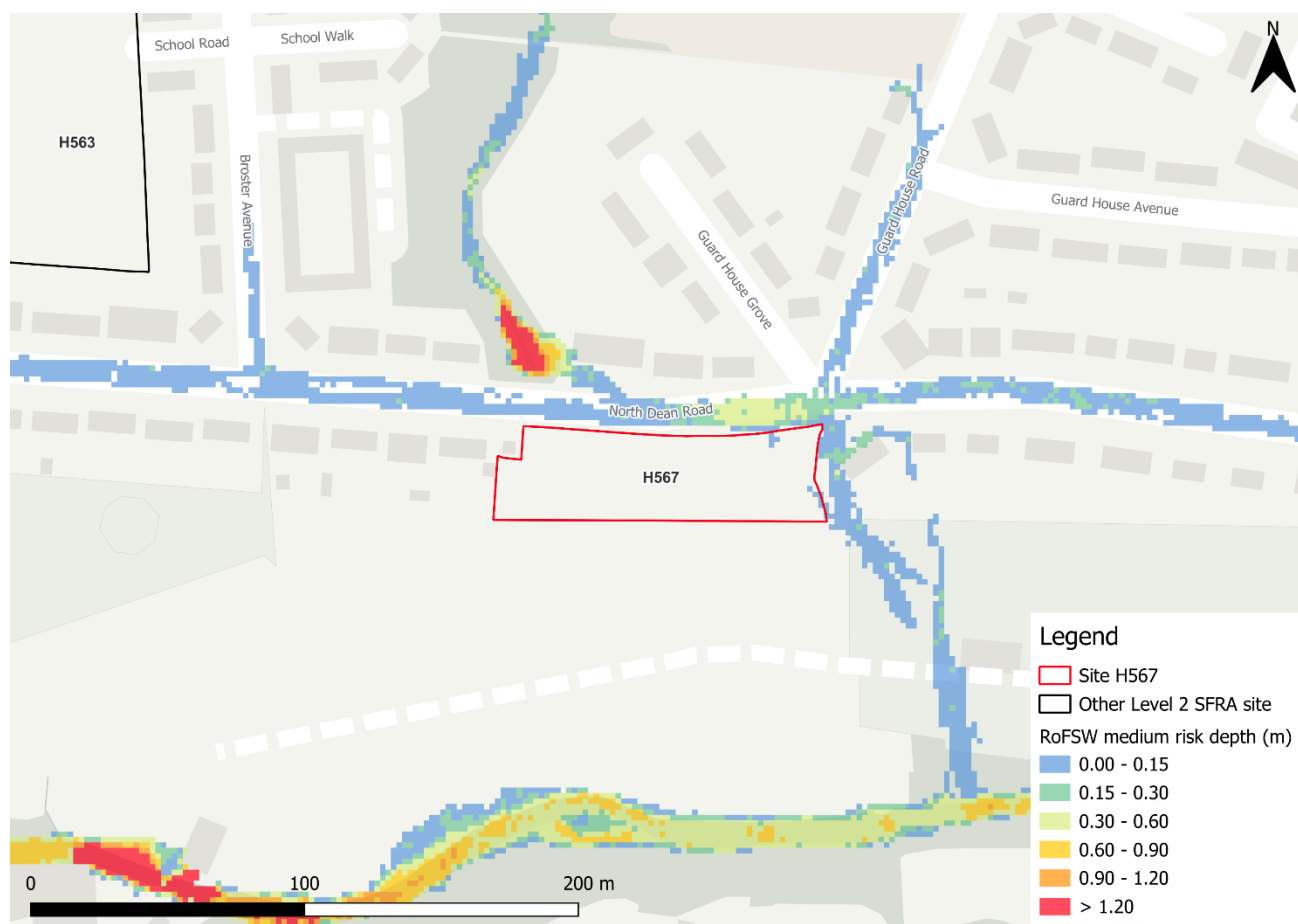


Figure 2-30: Medium risk event surface water flood depths within H567 (Risk of Flooding from Surface Water)

2.14.3 Groundwater

The entirety of the site is within an area where there is no risk from groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.14.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site. However, potential fluvial risk from the unnamed watercourse must be confirmed.

- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change, however safe access and escape routes in the long term should be considered further. The potential fluvial risk from the unnamed watercourse must also be confirmed.
- Any FRA should include for a drainage strategy which includes the ponded area in site design and investigate ground conditions for infiltration SuDS suitability.

2.15 H570

Site summary (Figure 2-31)	
Location	Former Bronte School Playing Fields
Existing site use	Greenfield
Existing site vulnerability	Water compatible
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	1.0 hectares



Figure 2-31: H570 site location boundary

2.15.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.15.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-15). In the high and medium risk events, surface water risk is confined to a very small area along the northern site boundary. In the low risk event, there is a distinct surface water flow path through the centre of the site. Maximum depths within the site in the low risk event are between 0.15 and 0.3 m (Figure 2-32). The medium risk event +40% climate change is modelled to be similar in extent and depth to the present day low risk event. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via Hareton Way both in the present day and longer term.

Table 2-15: Existing surface water flood risk within H570 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
84	14	1	1

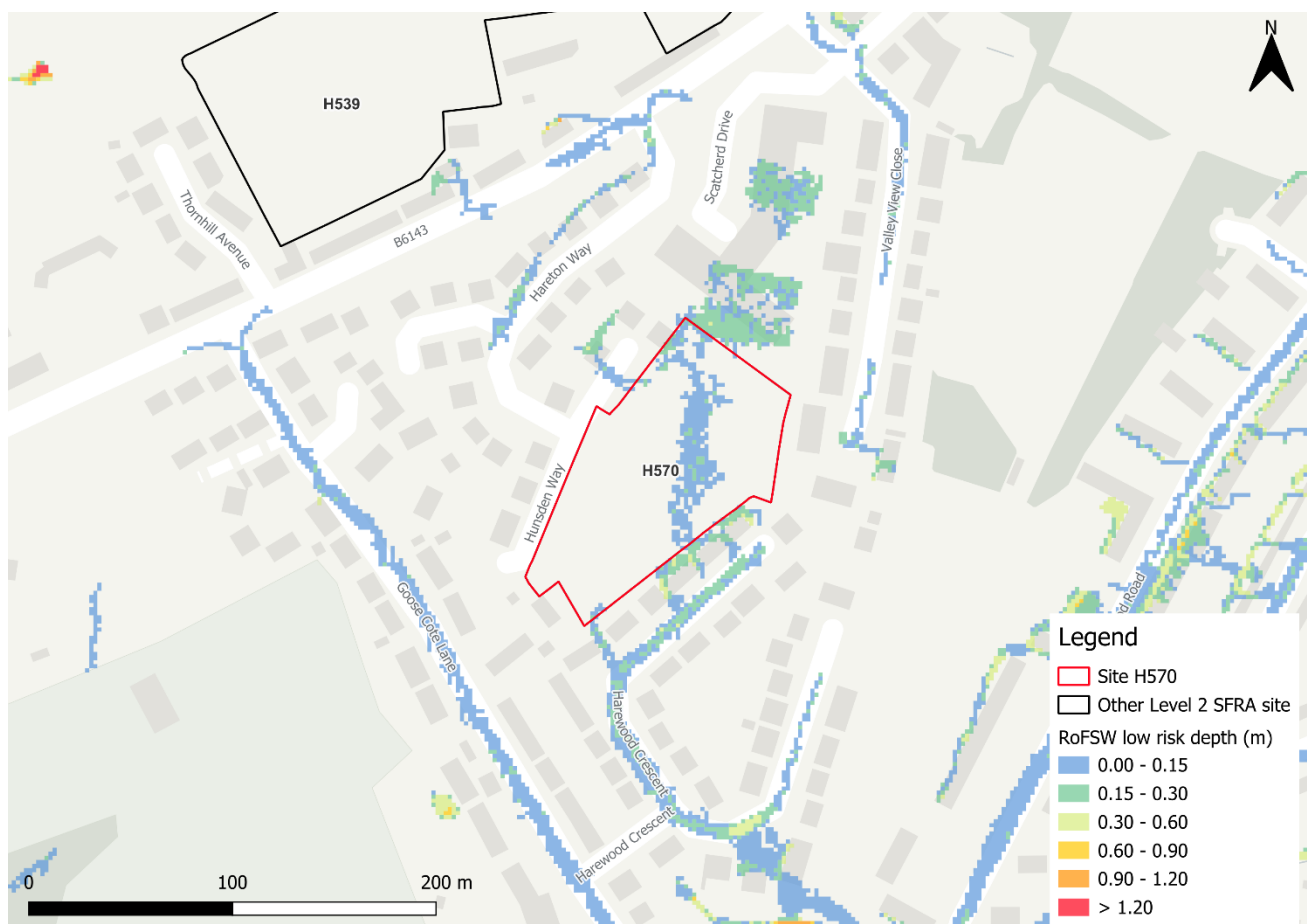


Figure 2-32: Low risk event surface water flood depths within H570 (Risk of Flooding from Surface Water)

2.15.3 Groundwater

The majority of the site is within an area where groundwater emergence is unlikely. There is no risk from groundwater emergence across the rest of the site. Groundwater conditions may therefore be suited to infiltration SuDS.

2.15.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from water compatible to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.16 H1087

Site summary (Figure 2-33)	
Location	North Dene Road
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	1.4 hectares

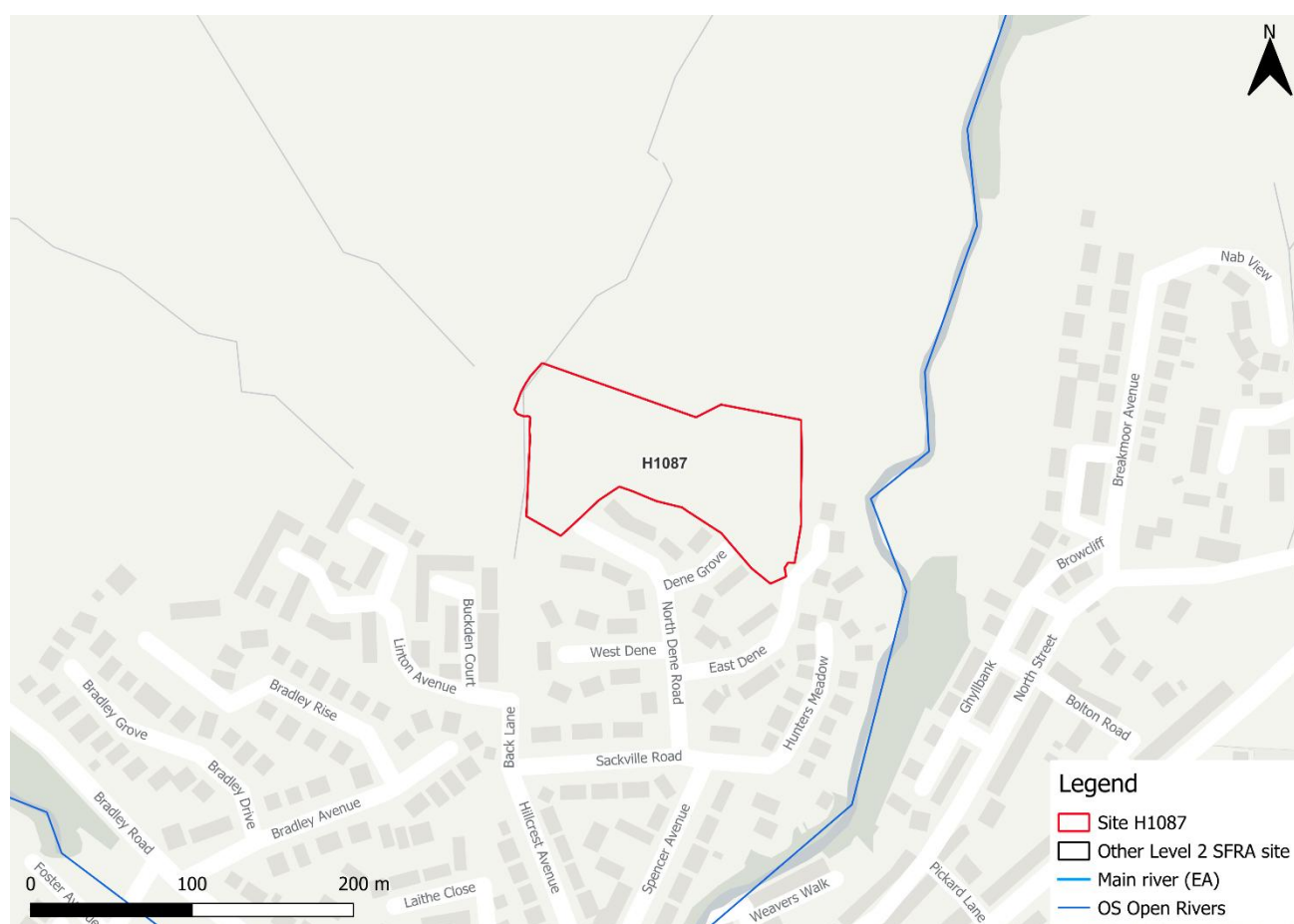


Figure 2-33: H1087 site location boundary

2.16.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers.

Silsden Beck is situated to the east of the site. The watercourse is modelled in the Aire Tribs Silsden Beck 2021 model. There is also an unnamed, unmodelled watercourse which

runs along the western boundary of the site that is not a designated main river or located within OS Open Rivers dataset. There is potential for this watercourse to contribute to fluvial flooding within the site. The unnamed watercourse should be modelled as part of a site-specific FRA.

2.16.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-16). There is a surface water flow path along the western boundary of the site in the medium risk surface water event, coincident with the unnamed watercourse. Maximum depths within the site are between 0.15 and 0.3 m (Figure 2-34), however these are located within the unnamed channel. The flow path in the present day event is modelled to increase in both extent and depth in the medium risk event +40% climate change. Any existing flow paths should be maintained within site design.

Based on available information, safe access and escape routes should be possible via North Dene Road both in the present day and longer term.

Table 2-16: Existing surface water flood risk within H1087 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
91	7	1	1

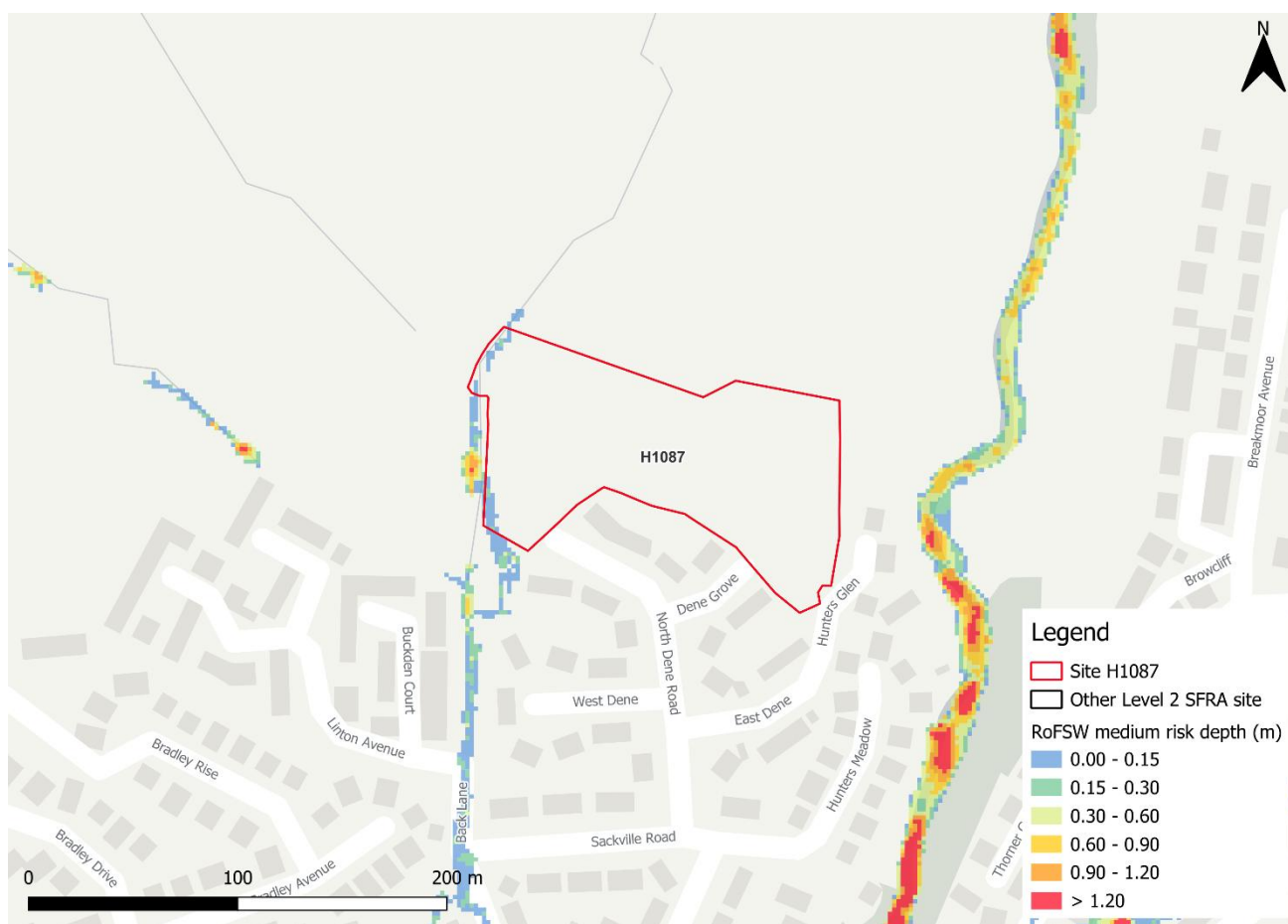


Figure 2-34: Medium risk event surface water flood depths within H1087 (Risk of Flooding from Surface Water)

2.16.3 Groundwater

Almost the entirety of the site is within an area where there is no risk from groundwater emergence. There is a very small area within the north of the site where there is a risk of groundwater flooding to surface and subsurface assets. Groundwater conditions may therefore be suited to infiltration SuDS across the majority of the site.

2.16.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.

- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site. However, potential fluvial risk from the unnamed watercourse must be confirmed.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change. However, potential fluvial risk from the unnamed watercourse must be confirmed.
- Any FRA should include for a drainage strategy which includes the flow path in site design and investigate ground conditions for infiltration SuDS suitability.

2.17 H1091

Site summary (Figure 2-35)	
Location	Aire View Infants School, Elliot Street
Existing site use	Education
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	0.5 hectares

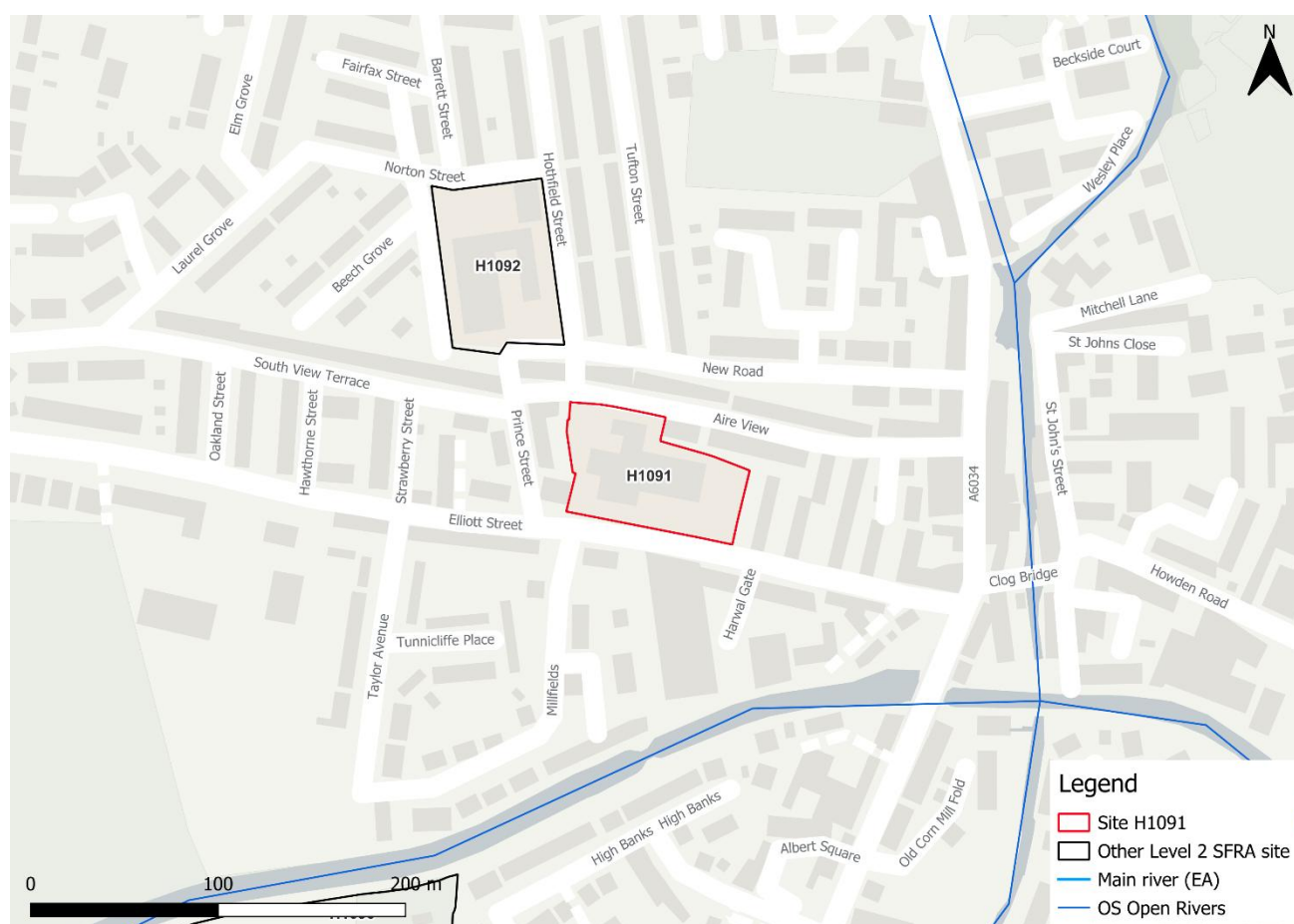


Figure 2-35: H1091 site location boundary

2.17.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

Silsden Beck is situated to the east of the site. The watercourse is modelled in the Aire Tribs Silsden Beck 2021 model. The Leeds and Liverpool Canal is located to the south of the site.

2.17.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-17). Surface water risk is confined to a very small area within the southeastern corner of the site. Maximum depths within the site are between 0.15 and 0.3 m (Figure 2-36). There is no significant additional surface water risk to the site in the medium risk event +40% climate change.

Based on available information, safe access and escape routes should be possible via Elliott Street in the medium risk present day event. This route becomes inundated in the surface water plus climate change event therefore safe access and escape routes may be challenging to achieve in the long term.

Table 2-17: Existing surface water flood risk within H1091 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
97	1	1	1

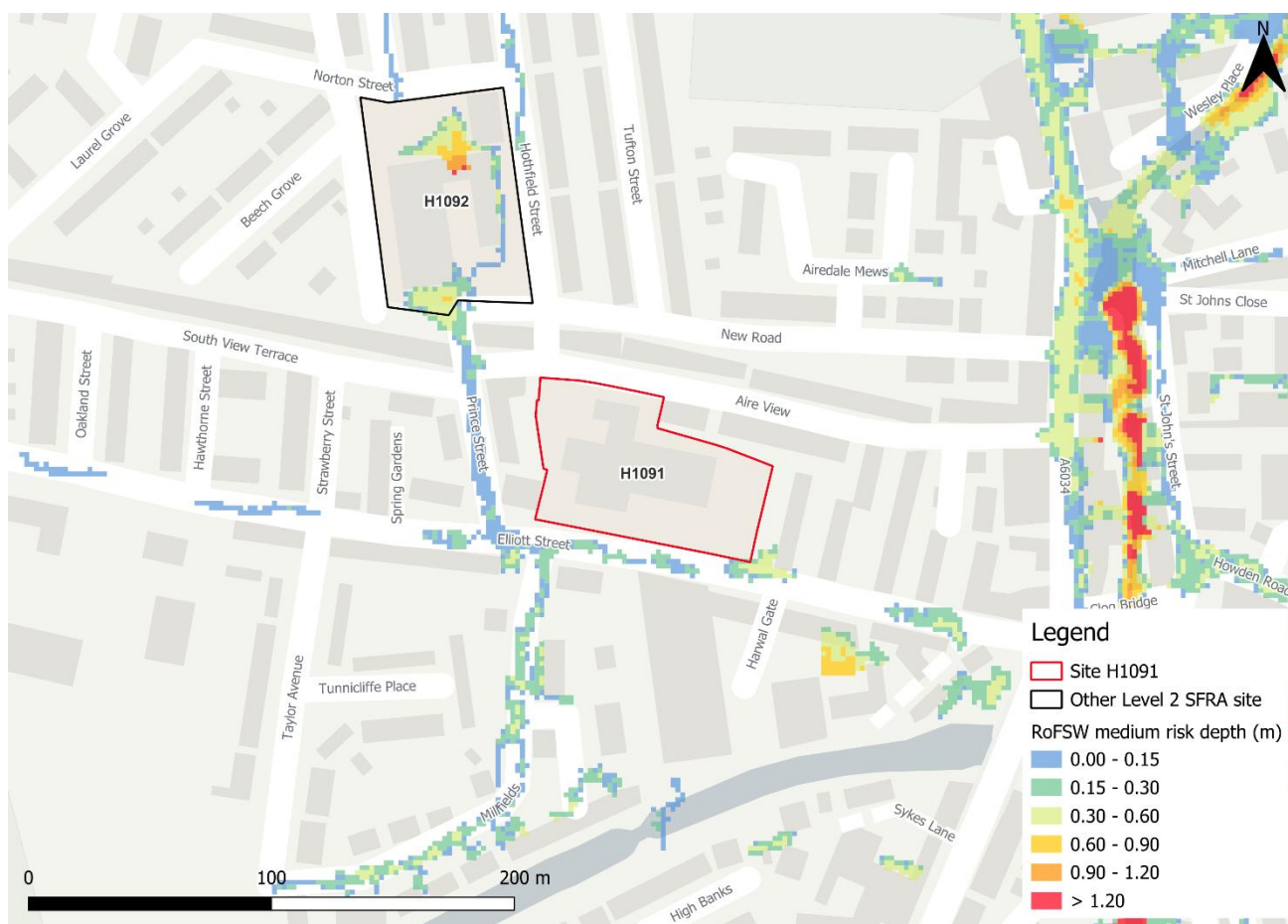


Figure 2-36: Medium risk event surface water flood depths within H1091 (Risk of Flooding from Surface Water)

2.17.3 Reservoirs

The EA's Reservoir Flood Maps (RFM) (2021) show where water may go in the unlikely event of a reservoir or dam failure. Figure 2-37 shows the RFM in a 'dry day' and 'wet day' scenario. A 'dry day' scenario assumes that the water level in the reservoir is the same as the spillway level or the underside of the roof for a service reservoir and the watercourses upstream and downstream of the reservoir are at a normal level. A 'wet day' scenario assumes a worst-case scenario where a reservoir releases water held on a 'wet day' when local rivers have already overflowed their banks.

The site is potentially at risk from Silsden reservoir located within Bradford, owned and maintained by Yorkshire Water Services Ltd.

The EA's SFRA guidance states that where a proposed development site is at flood risk from a reservoir, then an assessment into whether the reservoir design or maintenance schedule needs improving should be carried out. Expert advice may be required from an all-reservoirs panel engineer. The Council should consult with Yorkshire Water Services Ltd to ascertain whether the proposed development could affect the reservoir's risk designation, it's design category or how it is operated. The Council, as category 1 responders, can

access more detailed information about reservoir risk and reservoir owners using the [Resilience Direct](#) system.

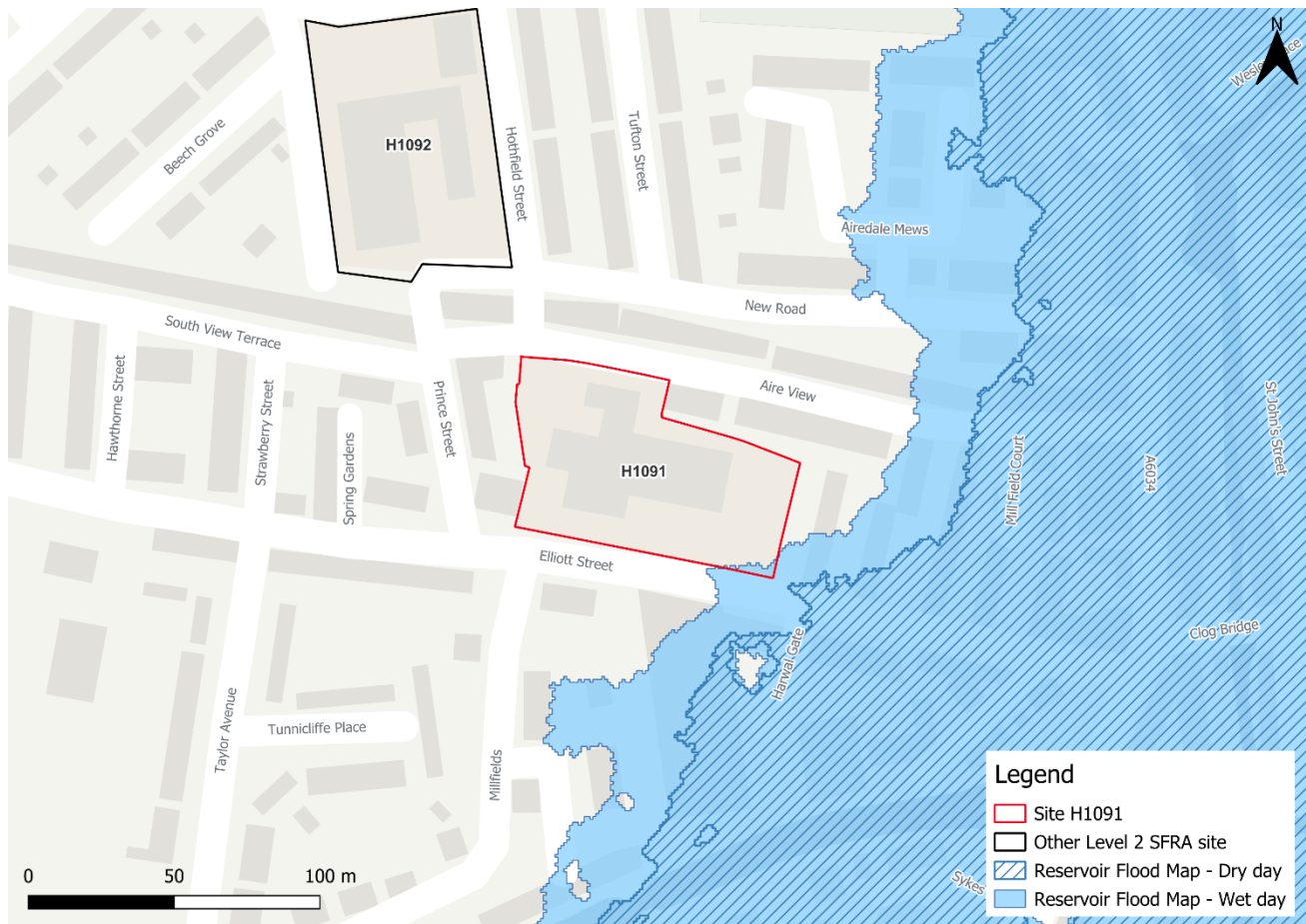


Figure 2-37: Flood risk from reservoirs within H1091

2.17.4 Groundwater

The entirety of the site is within an area where there is no risk from groundwater emergence. Groundwater conditions may therefore be suited to infiltration SuDS.

2.17.5 Canals

The Leeds and Liverpool Canal is located to the south of the site. Given its distance from the canal, the site is not likely to be at risk from a canal breach.

2.17.6 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.

- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes investigation into ground conditions for infiltration SuDS suitability.
- The Council should contact Yorkshire Water Services Ltd regarding the potential reservoir risk.

2.18 H1354

Site summary (Figure 2-38)	
Location	Hollins Lane
Existing site use	Agriculture
Existing site vulnerability	Less vulnerable
Proposed site use	Housing
Proposed site vulnerability	More vulnerable
Site area	2.4 hectares

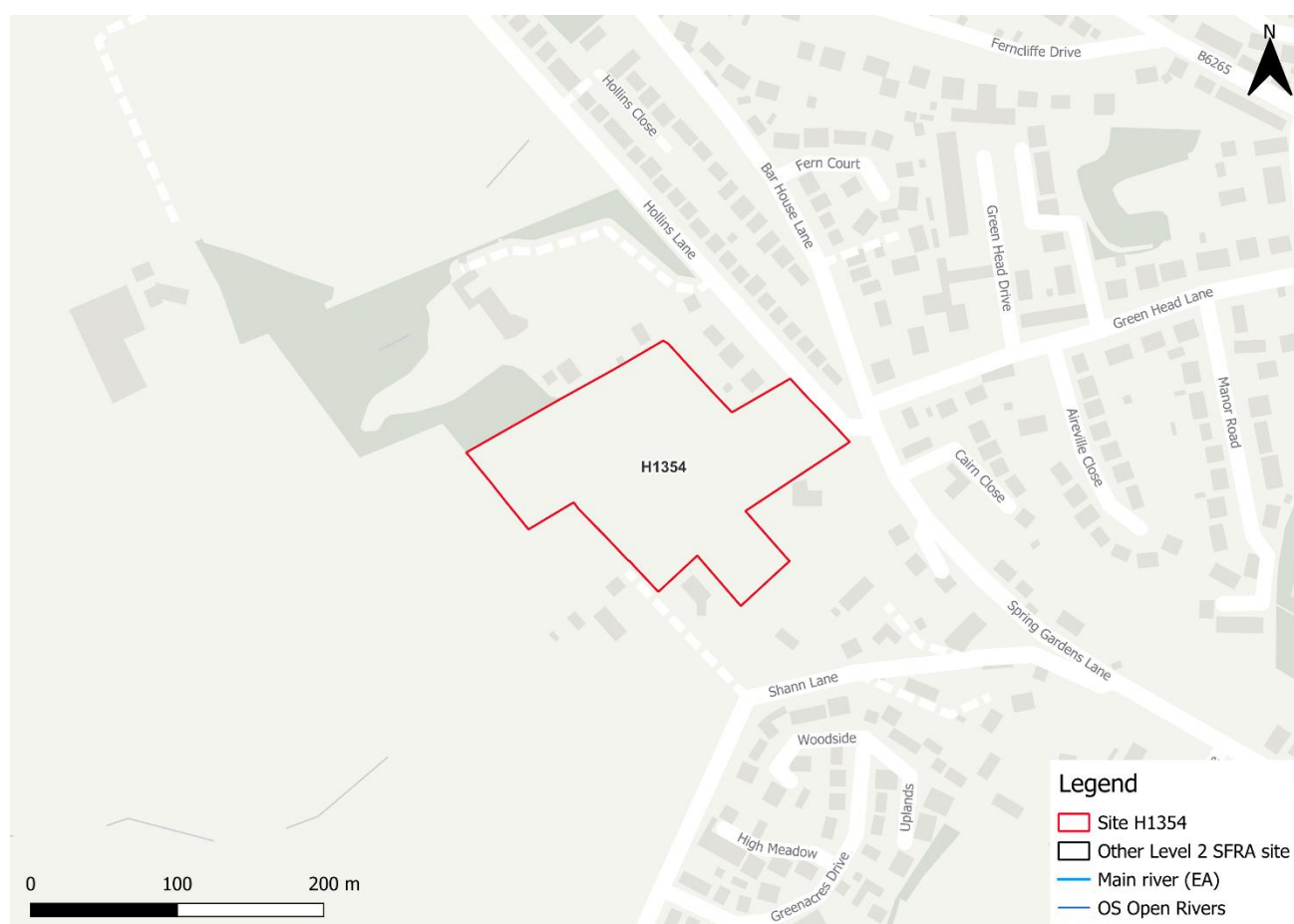


Figure 2-38: H1354 site location boundary

2.18.1 Fluvial

The site is wholly located within Flood Zone 1 of the Environment Agency's (EA) Flood Map for Planning which indicates it as at low risk of flooding from rivers. The site is not modelled to be at additional risk from fluvial climate change and is therefore at low risk of flooding from rivers in the future.

2.18.2 Surface water

The site is predominantly at very low risk of surface water flooding, based on the EA's Risk of Flooding from Surface Water (RoFSW) map (Table 2-18). Surface water risk is confined to a short, shallow flow path within the centre of the site in the medium risk surface water event. Maximum depths within the site are < 0.15 m (Figure 2-39). This develops into a significant flow path through the centre of the site in the medium risk event +40% climate change, however depths remain low.

Based on available information, safe access and escape routes should be possible via Hollins Lane in the medium risk present day event. This route becomes inundated in the surface water plus climate change event, however depths remain low therefore safe access and escape routes should remain possible.

Table 2-18: Existing surface water flood risk within H1354 based on the RoFSW map

Very low risk (%)	Low risk (%)	Medium risk (%)	High risk (%)
94	5	1	0

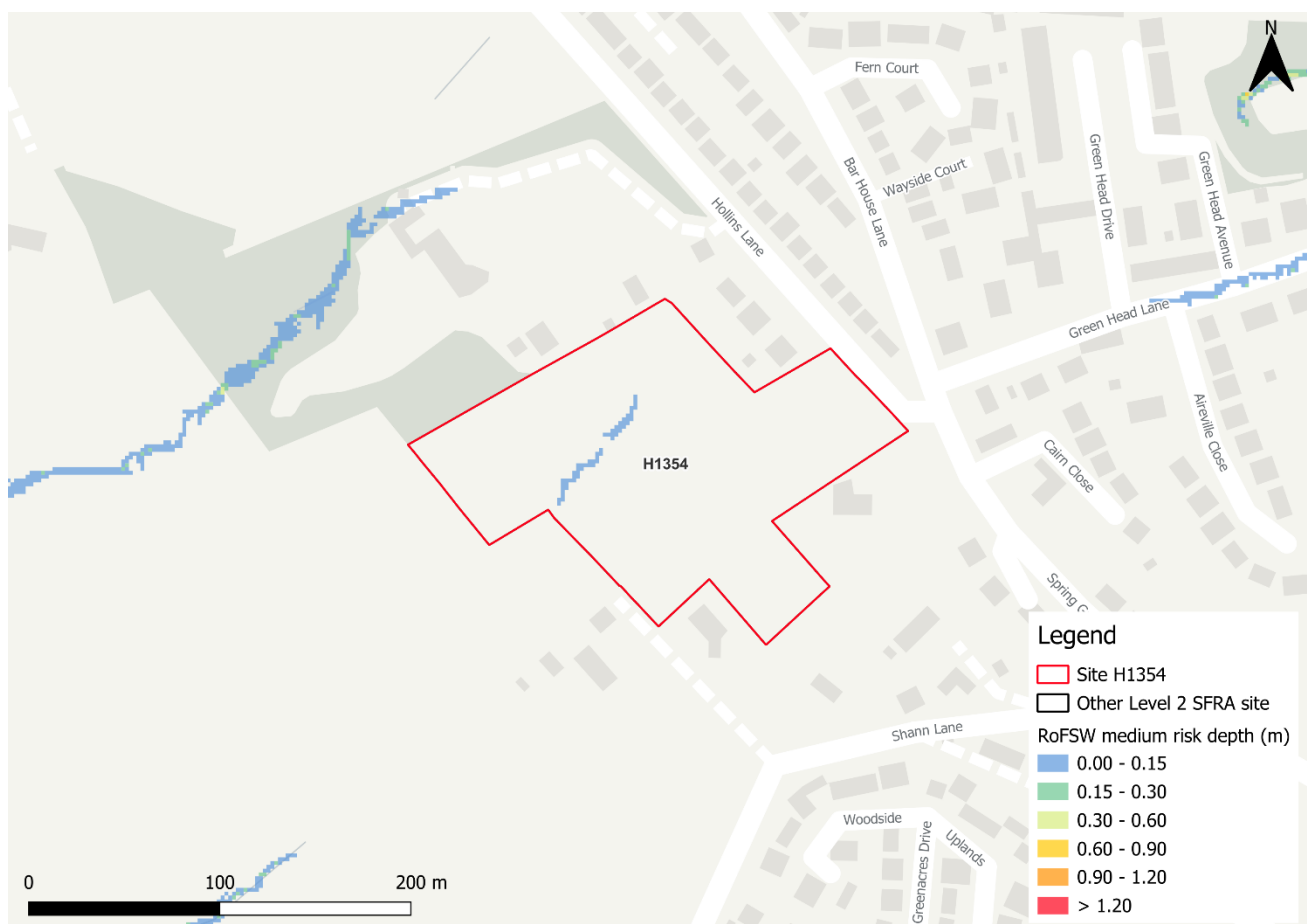


Figure 2-39: Medium risk event surface water flood depths within H1354 (Risk of Flooding from Surface Water)

2.18.3 Groundwater

The centre of the site is within an area where groundwater emergence is unlikely. There is no risk from groundwater emergence across the rest of the site. Groundwater conditions may therefore be suited to infiltration SuDS.

2.18.4 Summary and recommendations

- The site is not required to pass the exception test as it is not located within Flood Zone 3a.
- The proposed development would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
- Given the change in use and therefore vulnerability of the site, the FRA must show that the development can be designed to be safe and that there is adequate emergency planning provision (para 014 FRCC-PPG).
- Based on available information, there is no additional risk to the site from reservoir, canal or sewer flooding.
- Development should be possible at this site given the low fluvial and very low surface water flood risk to the site.
- The site is not modelled to be at significant additional fluvial or surface water risk as a result of climate change.
- Any FRA should include for a drainage strategy which includes the flow path in site design and investigate ground conditions for infiltration SuDS suitability.

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