Appendix R: Flood Risk

	HS2 Alignment	Surface Water (Utilising 200yr output)	Historical Flood Data	Any Ordinary Watercourse interactions
1	River Trent Floodplain to Long Eaton	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk to the surrounding community.	No reported historical interactions.	The proposed alignment intersects several ordinary watercourses and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.
2	Long Eaton	The proposed route interacts with the 1 in 200 year surface water model outlines at several points particularly at the points it crosses near to Main Street. Any development in these areas at risk should take into account the output of the model and not exacerbate the risk to the surrounding community.	No reported historical interactions.	The proposed alignment intersects several ordinary watercourses and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.
3	Toton Station	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk to the surrounding community.	No reported historical interactions.	The proposed alignment intersects several ordinary watercourses and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.

	HS2 Alignment	Surface Water (Utilising 200yr output)	Historical Flood Data	Any Ordinary Watercourse interactions
4	Toton Station to M1 (Erewash)	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk to the surrounding community.	No reported historical interactions.	The proposed alignment intersects the River Erewash approximately 300m west of Toton. Any works on or near the main river may require land drainage consent from the Environment Agency.
5	Pinxton to Tibshelf	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk	The proposed alignment interacts with an historical fluvial flooding incident from the River Doe Lea approximately 2.5km north of Pinxton (9446000, 357920). No information was recorded relating to source, mechanism or duration of incident. There are numerous other recorded events within 1km of the proposed alignment (see map) for which more information can be given on request.	The proposed alignment intersects several ordinary watercourses and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.

	HS2 Alignment	Surface Water (Utilising 200yr output)	Historical Flood Data	Any Ordinary Watercourse interactions
6	Tibshelf to M1 Junction 29 (Hardwick Hall)	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk	No reported historical interactions.	The proposed alignment intersects several ordinary watercourses and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.
7	M1 Junction 29 to Markham Vale	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk	The proposed alignment interacts with an historical flooding incident approximately 200m east of the M1/HS2 crossing point near Junction 29a (445230, 373085). There are numerous other recorded events within 1km of the proposed alignment (see map) for which more information can be given on request.	The proposed alignment intersects several ordinary watercourses and any works on or near these watercourses may require land drainage consent from Derbyshire County Council. The River Doe Lea crosses the proposed route approximately 1km north of Junction 29a.
8	Markham Vale to Killamarsh (Included Maintenance Depot junc)	The proposed route interacts with the 1 in 200 year surface water model outlines at several points (likely to be low points in topography). Any development in these areas at risk should take into account the output of the model and not exacerbate the risk	The proposed alignment interacts with many historical flooding incidents within 100m of the HS2 route (see map). Most are related to fluvial flooding from the River Doe Lea and the River Rother between Staveley and Renishaw.	The proposed alignment intersects several ordinary watercourses, mostly tributaries of the Doe Lea and Rother rivers and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.

	HS2 Alignment	Surface Water (Utilising 200yr output)	Historical Flood Data	Any Ordinary Watercourse interactions
9	Killamarsh to Sheffield	The proposed route does not interact with the 1 in 200 year surface water model outlines in this section. However, much of the section falls outside of the Derbyshire County Council boundary.	The proposed alignment interacts with many historical flooding incidents within 100m of the HS2 route (see map). Most are related to fluvial flooding from the River Rother and its tributaries in and around Killamarsh.	The proposed alignment intersects several ordinary watercourses, mostly tributaries of the River Rother and any works on or near these watercourses may require land drainage consent from Derbyshire County Council.
#	Staveley Infrastructure Maintenence Depot	The proposed route interacts with the 1 in 200 year surface water model outlines northeast of Staveley at 444380,375369. Any development in these areas at risk should take into account the output of the model and not exacerbate the risk	No reported historical interactions.	There are no records of ordinary watercourses interacting with the proposed maintenance depot. However, the River Doe Lea crosses the proposed access route to the depot.

1.1 Derbyshire County Council and HBDL have met with HS2 Limited on numerous occasions since the publication of the route in January 2013 to discuss their proposals and how they impact on Markham Vale. At those meetings the HS2 programme and process was outlined, and there was discussion over how the proposed route layout and other impacts could be mitigated. We understand there is an inability to remove the overall uncertainty until the final route is settled after public consultation. However, some of the major impacts from HS2 on Markham Vale could be eliminated if a minor realignment away from the development platforms themselves is accepted.

- Removal of the need to relocate or work around the strategic surface water flood storage area. This would have a significant cost saving to HS2 Limited.
- The realigned route would reduce the amount of excavation through a highly contaminated and unstable spoil tip within Markham Vale. Currently the projected route cuts through the middle of this tip.
- The re-alignment will allow the partly developed rail freight site to be fully developed for potential investors and creation of employment opportunities.