

## Appendix F: GIS Data

Type	Layer	Source	Description of Layer	Included	Comment	Benefits	Limitations
Fluvial	Environment Agency Broad-scale Flood Zone Maps	Provided as GIS layer by NCC	Polygon layer showing EA flood zone maps including Flood zone 2 and 3	Y		A quick and easy reference that can be used as an indication of flood risk.	Flood zones may not give an accurate representation of flood risk. The models do not take into account defences; are commonly based on 5m resolution DTM; JFLOW software is commonly used that is generally thought to have inaccuracies. Typically watercourses with a catchment area less than 3km <sup>2</sup> are omitted from Environment Agency mapping unless there is a history of flooding affecting a population. Consequently there will be some locations adjacent to watercourses that on first inspection, it is suggested there is no flood risk.
	Main Rivers	Provided as GIS layer by EA	Polyline layer showing all watercourses designated Main Rivers	Y		Identification of the watercourses for which the EA have discretionary and regulatory powers	There are other watercourses that may be a significant flood source.
	Hydraulic model outputs: various combined reaches of watercourse, 20yr, 100yr, 1000yr, 20yr+CC, 100yr+CC, 100yr+CC	Provided as GIS layers by EA	Polygon data showing the modelled outlines of reaches of watercourses in Northumberland	Y	Limited data	Detailed and calibrated hydraulic model outlines that have been mapped using LiDAR (1m and 2m resolution). These outlines provide a much greater degree of accuracy and therefore confidence than the broad-scale flood zones.	There are watercourses within the study area that have not been modelled and therefore the flood risk from these cannot be as accurately assessed.
	Combined Flood Zone 3b - Functional Floodplain	EA Flood Zone Maps & Hydraulic Modelled Data	Polygon layer created using best available data for whole district. Where 1:20yr modelled outlines available, these have been used to represent FFP (with agreement from EA and Council).	Y	Combined data	A single GIS layer created using best available information at time of publication.	Assumption made that where modelled data for 20yr event is not available, the 100yr FZ3 broad-scale outline has been used. This could be overly conservative and, where possible, data should be updated as and when available.
	Combined Flood Zone 3a	EA Flood Zone Maps & Hydraulic Modelled Data	Polygon layer created using best available data for whole district. Where 1:100yr modelled outlines available, these have been used to represent FZ3a (with agreement from EA and the Council). Where modelled data is not available for fluvial reaches, EA broad-scale FZ3 has been used.	Y	Combined data	A single GIS layer created using best available information at time of publication.	Assumption made that where modelled data for 100yr event is not available, the 100yr FZ3 broad-scale outline has been used. This could be overly conservative and, where possible, data should be updated as and when available.
	Combined Flood Zone 3 a+ CC	EA Flood Zone Maps, Hydraulic Modelled Data	Polygon layer created using best available data for whole district. Where 1:100yr + CC modelled outlines available, these have been used to represent FZ3 + CC (with agreement from EA and the Council). Where modelled data is not available EA broad-scale FZ2 has been used.	Y	Combined data	A single GIS layer created using best available information at time of publication.	Assumption made that where modelled data for 100yr+CC event is not available, the 1000yr FZ2 broad-scale outline has been used. This could be overly conservative and, where possible, data should be updated as and when available.
Groundwater	Combined Flood Zone 2	EA Flood Broad Scale Flood Zone Maps and hydraulic modelled data	Polygon layer of 1:1000yr FZ2 outline created for whole district.	Y	Combined data	A single GIS layer created using best available information at time of publication.	Based on FZ2 broad-scale mapping and detailed model outputs.
	Groundwater Vulnerability Maps	Provided as GIS layer by EA	Polygon layers showing major aquifers and their vulnerability	Y		Broadly shows extents of aquifers in the district. Where aquifers are highly vulnerable, they often have a more permeable covering and, together with dry valley and watercourse networks, potential groundwater flooding areas can be identified.	Coarse assessment of potential areas where GW flooding could occur. This is not foolproof and is based on assumptions. Where necessary, detailed groundwater flooding studies should be undertaken at SSFRA.
Other	Sewer Flooding History	DG5 data registers provided by Northumbrian Water	Data layer showing drainage areas with instances of flooding.	Y		Indicates areas that are most prone to flooding as have experienced flooding within a postcode area due to hydraulic incapacity.	The drainage areas cover relatively large areas and it is not possible to determine the exact location of the incidents from this dataset. Data only covers 6 month period and it is therefore difficult to determine long-term trends.
	Flooding Issues	GIS layer of digitised flooding issues provided by NCC from previous SFRA	Polygon layer showing locations of recorded historic flood events	Y		Indicates areas which have been recorded as having been flooded	Source of flooding is not always recorded and quantity and accuracy of recorded information does not reflect true scale of past flooding
Mapping	OS Mapping	NCC provided OS Mapping under contractor license	1:10k, 1:50k and 1:250k OS raster maps for use in GIS	Y		Provides background mapping to other GIS layers.	Designed for use at 1:10k, 1:50k, 1:250k scales