Milton Keynes

Minerals Local Plan

Draft Plan Stage

April 2014

Strategic Flood Risk Assessment: Non-Technical Summary

Contents

1. Flood risk management in Milton Keynes

1.1 Local Plans should be supported by Strategic Flood Risk Assessment (SFRA) in accordance with the National Planning Policy Framework, NPPF (paragraph 100).

1.2 A SFRA is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future, taking account of the impacts of climate change, and to assess the impact that changes or development in the area will have on flood risk. The findings of the SFRA should be used to ensure that flood risk is considered at a strategic level to inform land use planning.

1.3 As a unitary authority, a SFRA (2008) was prepared for Milton Keynes Council for the administrative area of Milton Keynes Borough, this also included the production of flood risk maps providing coverage across the borough. The SFRA also addressed the potential impacts of climate change. A Water Cycle Study (2008) was also prepared to ensure that proposed growth does not adversely impact on the existing water cycle environment and that new Water Services Infrastructure (WSI) can be planned for and provided alongside new development in a sustainable and cost effective manner.

1.4 Preparation of the MK Minerals Local Plan is underway, currently at the Draft Plan for Consultation stage. This report acts as a non-technical summary of the SFRA and associated studies and how this has informed the plan-making process.

1.5 The main catchments within the borough are the River Great Ouse and River Ouzel. Tributaries of these rivers include the River Tove, The Twins, Clipstone Brook, Loughton Brook, Tongwell Brook, Water Eaton Brook and Broughton Brook. Rivers, floodplain and flood defences are mainly heavily modified due to historic development, industry and agriculture. Fluvial, surface water and sewer flooding have been recorded within the borough, and future development has the potential to increase the frequency and consequence of such flooding through increases in and runoff from impermeable areas. These increases can be mitigated through the use of integrated SUDS, careful development design, development control and masterplanning. Milton Keynes has a network of green infrastructure which will be maintained and enhanced through development design.

1.6 In the past development in areas of flood risk in Milton Keynes has largely been avoided through the provision of linear parks along watercourses. Some older parts of Milton Keynes are at risk of fluvial flooding including Stony Stratford, Newport Pagnell and Water Eaton. There have also been several incidences of flooding from smaller watercourses, due to blocked culverts or insufficient culvert capacity. In these cases works or improved maintenance may be needed to prevent future flooding.

1.7 The majority of Milton Keynes is built on impermeable clay, so groundwater flooding is unlikely, with the exception of the village of Woburn Sands (although there are no records of groundwater flooding here the possibility of groundwater flooding may be increased by development).

1.8 With the impact of future climate change, the risk in terms of fluvial flood risk is set to increase, highlighting the importance of strategic flood attenuation measures and incorporating sustainable urban drainage systems (SuDS) with new development.

1.9 The SFRA also recognises that any proposed development should look for opportunties to undertake river restoration and enhancement as part of development to make space for water (Flood Risk Objective 3: To enhance and restore the river corridor). Mineral extraction and restoration can make a significant contribution towards this objective.

1.10 More recent flooding of Milton Keynes town centre was caused by insufficient capacity of the surface water sewers, this would need to be addressed where significant infill development is planned. Upgrades to the wastewater treatment and network capacity will be required to accommodate significant growth with some strategic scale investment will required for medium and long term development in relation to wastewater network infrastructure in order to service the new development (e.g. expansion areas). The effects of climate change may also place further pressure on sewer systems with predictions of milder wetter winters and increased rainfall intensity in summer months. This combination is likely to result in more frequent sewer flooding and may require increased treatment capacity (to be assessed in line with new development).

1.11 The SFRA has been taken into account through the plan-making process. The main two components of the plan concerned with flood risk management include the spatial strategy for sand and gravel extraction and the site-specifc allocations. Sand and gravel working is classified as water-compatible development. The

spatial strategy focusses on the river valleys (where such mineral resources occur), and although it directs development towards these areas it is a high level policy as such it does not specify a quantity or sites – any proposed allocations or unallocated sites that come forward through the development applicaton process would require site-specific assessment (as acknowledged through the plan and its policies). All sites taken forward through plan-making process were subject to the Sequential Test and Exception Test (where required). The plans policies take account of flood risk maangement through its policies, particularly relating to development control / managment and restoration.

1.12 The SFRA's were used to:

- Inform the Council's knowledge of flooding, refine flood mapping, determine the variations in flood risk from all sources of flooding across and from the borough and prepare appropriate policies for flood risk management.

  This was done by collating and giving due consideration to the SFRA and EA flood mapping as well as other relevant reports and data sets (listed in Appendix 1). The SFRA was also used as the basis for identifying the policy approach for flood risk management relating to minerals-related development. This includes development of the policy approach for flood attenuation measures to be identified through restoration schemes, to address local flood risk issues where appropriate and tackling climate change.

- Inform the Sustainability Appraisal of local development documents.

  This was done by incorporating the SFRA into the SA process (e.g. identification of relevant reports and subsequent flood risk issues and SA objectives) and the Sequential Test into the site assessment methodology (a key tool used to identify allocations taken forward through the plan).

- Provide the basis from which to apply the Sequential Test and Exception Test in the development allocation and development control process.

  The Sequential Test was applied to all potential allocations through the plan-making process and site assessment methodology. All sites carried forward passed the Sequential Test, as such there was no need to apply the Exception Test.

Application of the Sequential Test

1.13 The NPPF requires Local Plans to apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change. The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding.

1.14 The Sequential Test was carried out as part of the plan-making process. The conclusion of which was that all sites carried forward as allocations within the plan were determined to pass the sequential test. There was no need to apply the Exception Test. The most recent EA flood maps were used in undertaking the assessment.

1.15 A summary of the assessment is set out in Appendix 2.

Accounting for climate change

1.16 The National Planning Practice Guidance (NPPG) sets out flood risk vulnerability classifications, sand and gravel working is classified as water-compatible development.

1.17 Flood risk vulnerability and flood zone 'compatibility' as per the NPPG Table 3 is set out below. Sensitivity testing of flood maps produced by the Environment Agency, using the 20 per cent from 2025 to 2115 allowance for peak flows, suggests that changes in the extent of inundation are negligible in well-defined floodplains, but can be dramatic in very flat areas. However, changes in the depth of flooding under the same allowance will reduce the return period of a given flood. This means that a site currently located within a lower risk zone (e.g. Zone 2) could in future be re-classified as lying within a higher risk zone (e.g. Zone 3a). This in turn could have implications for the type of development that is appropriate according to its vulnerability to flooding.

1.18 This means that for the nine sites classed as water compatible development put forward as potential allocations for the extraction of sand and gravel through the draft plan even if the flood risk increases (re-classifying the current zone to a higher risk zone e.g. Zone 2 could increase to Zone 3a) development would

still be considered appropriate. Working and processing of minerals (except for sand and gravel working) is classified as less-vulnerable development. Of the three potential limestone extraction sites (classified as less vulnerable development) two are located wholly within Zone 1 (low probability), with one (Weston Underwood) being predominantly within Zone 1 (96% of the land area) however Zone 2 and 3 follow a drainage line from the central north through to the south-eastern corner of the main section of the site. Should flood risk increase development would still be considered appropriate.

1.19 **Table 1: Flood risk vulnerability and flood zone 'compatibility'**

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓ *

Key: ✓ Development is appropriate.
× Development should not be permitted.

Flood risk mapping

1.20 The most up-to-date flood risk mapping is available on the Environment Agency's website[1].

[1] http://maps.environment - agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=floodmap

Appendix 1: Flood and water related studies and strategies

Milton Keynes Council Strategic Flood Risk Assessment for Local Development Framework Level 1, July 2008

Milton Keynes Water Cycle Study, Outline Strategy, December 2008

Milton Keynes Drainage Study, Development and flood risk Supplementary Planning Guidance, May 2004

River Great Ouse Catchment Flood Management Plan, December 2009

River Basin Management Plan: Anglian River Basin District, December 2009

Appendix 2: Sequential test for potential site-specific allocations

Site information														Sequential test process				
	Land area (hectares)				Percentage of site identified as ...													
Site name / ref	Flood zone 1	Flood zone 2	Flood zone 3	Area susceptible to Surface water flooding (less, intermediate and more)	Total site area (ha)	Flood zone 1	Flood zone 2	Flood zone 3	Area susceptible to Surface water flooding (less, intermediate and more)	Description of site proximity to / coverage of flood zones 2 and 3	Description of site proximity to / coverage of surface water	Mineral for extraction	Is the site 'reasonably available'?	Flood risk vulnerability classification	Sequential test passed?	Exception test required?	Taken forward as an allocation?	Site specific development requirements
Calverton/Passenham Extension	4.372	9.828	7.613	9.78	14.2	31%	69%	54%	69%	The majority of the site is affected by Flood Zones 2 and 3, except for the southern section. A main river (Ouse) is adjacent to the northern boundary of the site.	Areas susceptible to surface water flooding identified over the majority of the site except for a strip running along the eastern boundary.	Sand and gravel	Yes	Water compatible development	Yes	No	Yes	Use of on-site water management systems (dewatering / pumping, bunding & gabions, settlement & retention ponds, drainage, re-routing of watercourses). Use of mobile plant. Associated infrastructure (static plant) and built development to be locate in areas of lower flood risk. Potential for restoration scheme to incorporate flood alleviation measures.
Land adjoining Lavendon Road	2	0	0	0	2	100%	0%	0%	0%	Site is located in Flood Zone 1 (lowest risk), the functional flood plain of the River Ouse (flood zones 2 and 3) are approximately 70m to the south	No surface water flood risk is posed to the site.	Limestone for building stone	Yes	Less-vulnerable development	Yes	No	No	NA
Land near Newport Pagnell	0	11	10.46	6.277	11	0%	100%	95%	57%	The entire site is affected by Flood Zone 2 and 3, with the main river (Ouse) adjacent to the southern and western boundary.	Areas susceptible to surface water flooding are scattered across the site concentrated mainly through the centre following a north to south-east line and in the northern corner.	Sand and gravel	Yes	Water compatible development	Yes	No	No	NA
Land north of Sherington Bridge	0.77	11.23	8.881	1.4144	12	6%	94%	74%	12%	Majority of site is affected by floodzone 2 and 3, with a strip running along the eastern boundary being within floodzone 1.	Small areas susceptible to surface water flooding running along the western boundary and in the centre of the site.	Sand and gravel	Yes	Water compatible development	Yes	No	No	NA
Land South East of Stoke Goldington	18.627	0.673	0.592	2.923	19.3	97%	3%	3%	15%	A small narrow strip along the eastern boundary is affected by Flood Zone 2 and 3.	Areas susceptible to surface water flooding are identified running from the centre of the site to the eastern boundary with smaller scattered areas to the north and south-west corner of the site.	Sand and gravel	Yes	Water compatible development	Yes	No	No	NA

Land south west of Water Lane, Sherington	6.86	14.44	12.35	13.25	21.3	32%	68%	58%	62%	Majority of site is located within floodzone 3 with a large part of the remaining area located within floodzone 2.	Majority of site is identified as being susceptible to surface water flooding with the exception of the eastern section, a small section in the middle of the site and small sections to the north.	Sand and gravel	Yes	Water compatible development	Yes	No	No	NA
Land west of Sherington Bridge	16.4	12.66	11.445	7.933	29.06	56%	44%	39%	27%	Eastern section of the site is affected by flood zones 2 and 3.	Areas susceptible to surface water flooding located in the north-eastern section of the site with some small scattered areas to the south-west.	Sand and gravel	Yes	Water compatible development	Yes	No	No	NA
Lavendon	14.3	0	0	0	14.3	100%	0%	0%	0%	Site is located in Flood Zone 1 (lowest risk).	No surface water flood risk is posed to the site.	Limestone for building stone	Yes	Less-vulnerable development	Yes	No	No	NA
Manor Farm and Lavendon Mill	0.96	13.34	12.21	12.45	14.3	7%	93%	85%	87%	The majority of the site is affected by flood zones 2 and 3.	Majority of site is identified as being susceptible to surface water flooding with the exception of small pockets in the north.	Sand and gravel	Yes	Water compatible development	Yes	No	Yes	Use of on-site water management systems (dewatering / pumping, bunding & gabions, settlement & retention ponds, drainage, re-routing of watercourses). Use of mobile plant. Associated infrastructure (static plant) and built development to be locate in areas of lower flood risk. Potential for restoration scheme to incorporate flood alleviation measures.
Northampton Rd, Lathbury	34.219	9.201	8.374	6.708	43.42	79%	21%	19%	15%	Predominantly within floodzone 1 (lowest risk) however the south-eastern section is affected by flood zones 2 and 3 as is a small section of the northern (main) site area along the north-east boundary.	Areas susceptible to surface water flooding identified in the southern section of the site with smaller areas also running north-south through the centre of the site and a small section of the central eastern boundary.	Sand and gravel	Yes	Water compatible development	Yes	No	Yes	Use of on-site water management systems (dewatering / pumping, bunding & gabions, settlement & retention ponds, drainage, re-routing of watercourses). Use of mobile plant. Associated infrastructure (static plant) and built development to be locate in areas of lower flood risk. Potential for restoration scheme to incorporate flood alleviation measures.

Quarry Hall Farm	9.32	27.68	23.65	12.878	37	25%	75%	64%	35%	Site is affected by flood Zone 2 and 3 running diagonally across the site from north-north-east to south-west . The main river (Ouse) borders the southern boundary of the site.	Areas susceptible to surface water flooding scattered across the site but mainly concentrated to the east.	Sand and gravel	Yes	Water compatible development	Yes	No	Yes	Use of on-site water management systems (dewatering / pumping, bunding & gabions, settlement & retention ponds, drainage, re-routing of watercourses). Use of mobile plant. Associated infrastructure (static plant) and built development to be locate in areas of lower flood risk. Potential for restoration scheme to incorporate flood alleviation measures.
Weston Underwood	22.94	1.06	0.98	2.3	24	96%	4%	4%	10%	Flood zone 2 and 3 follow a drainage line from the central north through to the south-eastern corner of the main section of the site.	Areas susceptible to surface water flooding are identified running from the central north through to the south-eastern corner of the main section of the site, the northern section is also affected by surface water flooding along the western and southern boundaries.	Limestone for building stone	Yes	Less-vulnerable development	Yes	No	Yes	Use of on-site water management systems (dewatering / pumping, bunding & gabions, settlement & retention ponds, drainage, re-routing of watercourses). Use of mobile plant. Associated infrastructure (static plant) and built development to be locate in areas of lower flood risk. Potential for restoration scheme to incorporate flood alleviation measures.