Table 4-3: Bicester 11 – Extended Boundary: Employment Land at North-East Bicester

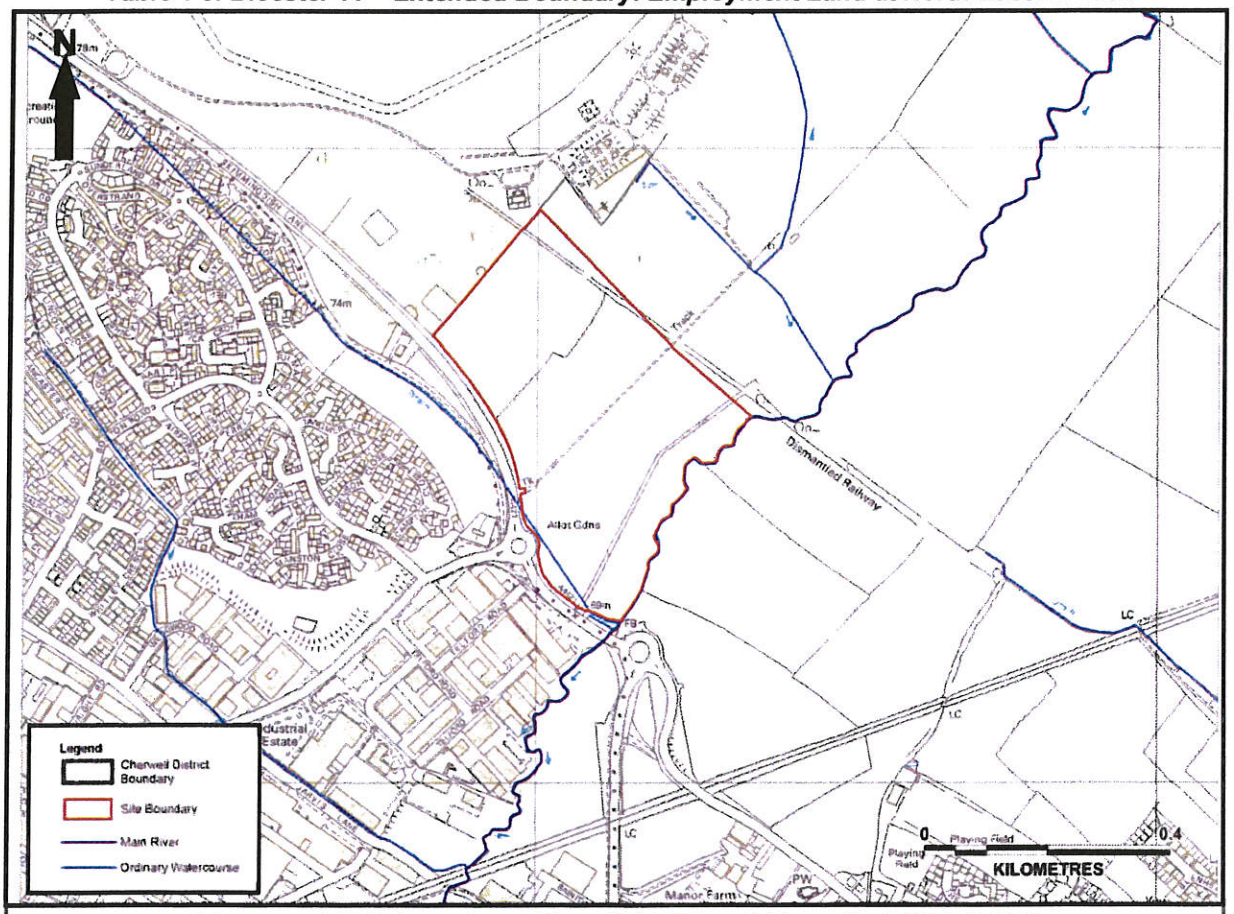
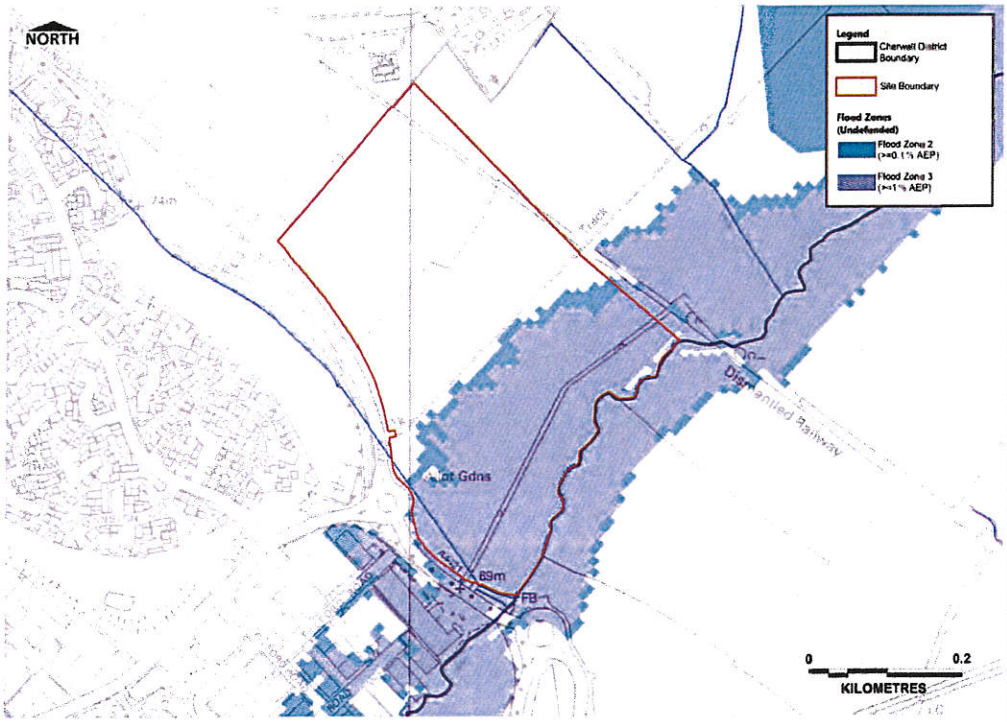


Figure 4-4: Site Location Plan – Bicester 11 Employment Land at North East Bicester

Site Information	
Site Area	15.9 Ha
Existing Use & Topography	Aerial photography and OS mapping illustrates that the site is predominantly occupied by open agricultural farmland and hedgerows, and is therefore considered to be essentially greenfield. A dismantled railway line runs roughly from the north west to the south east along the border of the site. An access track bisects the site running north east. The A4421 Skimmingdish Lane borders the southern boundary of the site. LiDAR data illustrates that the site slopes in a general southerly direction from around 73 mAOD down to 68 mAOD.
Proposed Use and Vulnerability Classification	The majority of the site is allocated under policy Bicester 11 in the Submission Local Plan, for B1 business use including high technology sectors. Also proposed is a strong landscape setting with open spaces and planting, which will provide SuDS and improve the microclimate. An extension to the site to incorporate land to the east is now being proposed. Under the NPPF, B1 business use is classified as 'less vulnerable'. Such land uses are considered appropriate in Flood Zone 1, Flood Zone 2, and Flood Zone 3a. Landscaping and open spaces are classified as 'water compatible' and are considered appropriate in all Flood Zone; 1, Flood Zone 2, Flood Zone 3a and Flood Zone 3b.
Sources of Flood Risk	
Rivers	OS mapping illustrates a small ordinary watercourse originating from a spring to the north east of the site that flows parallel to the site boundary in a south easterly direction. To the west of the site, an ordinary watercourse flows in a south easterly direction alongside the A4421. The EA's DRN illustrates this flowing south-eastwards across the

	southern extent of the site. However, as this is not visible on the OS map, it is possible that this is simply a connection implied between the two reaches of visible open channel and may be culverted following an alternative route beneath/alongside the A4421. Both of these watercourses feed into Langford Brook, an upstream tributary of the River Ray that flows in a south westerly direction forming the south-eastern boundary of the site. These watercourses could all present a flood risk to the site. The EA's Flood Map illustrates that approximately 40% of the site (at the south-eastern extent) as being located within Flood Zone 3 associated with Langford Brook, with a small additional margin located within Flood Zone 2. Flood extents associated with the un-modelled watercourses are not included in the Flood Zones shown, and as such the flood risk from these fluvial sources cannot be determined at this time.  *© Crown copyright. Ordnance Survey. Cherwell District Council. Licence No. 100024316. 2014.* ***Figure 4-5: Bicester 11 Undefended Flood Zone Map*** EA and CDC HFMs illustrate no historical incidents of fluvial flooding have been recorded at the site.
Land	The EA's uFMfSW (Appendix A) illustrates that approximately 55% of the site is at a very low risk (<0.1% AEP) of flooding. Approximately 25% of the site is at a low risk (>0.1% AEP) of flooding. Approximately 25% of the site, in the centre and east, is at a medium risk (>1% AEP) of flooding. Approximately 10% of the site, including areas in the centre and south-eastern corner alongside Langford Brook is at a high risk (>3.33% AEP) of flooding. The EA's uFMfSW hazard classifications (Appendix A) illustrate that within these extents, the risk shown in the centre and south-eastern extent alongside Langford Brook is considered to pose a 'danger to most'. The areas at medium and low risk pose a 'danger to some', and 'caution' should be taken across the remaining majority of the site. EA and CDC HFMs illustrate no historical incidents of surface water flooding have been reported at the site.
Groundwater	The EA's AStGWF map (Appendix A) illustrates that the site lies within 1 km grid squares where up to 25% of the area is considered to be susceptible to groundwater emergence.
Sewers	The TW DG5 register identifies no recorded incidents of sewer flooding within the post code areas covering the site between 2000 and 2010. CDC are aware of the limited sewer capacity in Bicester, however they are not aware of

	any historical sewer flooding incidents.
Artificial Sources	There are no canals or elevated/impounded reservoirs in the vicinity of the site.

Flood Defence Infrastructure

The NFCDD identifies no existing raised flood defence infrastructure present at the site or within the local vicinity.

Residual Flood Risks

As no raised flood defences are present along the watercourse within, or adjacent to the site, no defence breach analysis or analysis of defences overtopping were required.

The 'Risk of Flooding from Reservoirs' map on the EA's website illustrates no risk of inundation from breach failure of any reservoirs upstream of the site.

Therefore, no further assessment of these is required as part of this Level 2 SFRA.

Recommendations and Policies

- Development should be restricted to outside the Flood Zone 3 envelope for Langford Brook, and a minimum of 20 m from the small ordinary watercourses/drains to create 'blue corridors' which provide reduced flood risk, wildlife habitat and public amenity areas.
- As the LLFA, OCC should be contacted during the undertaking of an FRA to determine their requirements for any margin for maintenance either side of the local ordinary watercourses in the north west of the site. Although they are not designated EA Main Rivers, it is recommended that development does not encroach within a minimum of 8 m of the watercourse banks, which is the EA's by-law distance for maintenance access along Main Rivers in the Thames Region. This would be beneficial in terms of flood risk, wildlife habitat and amenity potential.
- As the area is primarily greenfield, any development within the area will increase surface water runoff (unless attenuated). A surface water management framework should be adopted as part of a masterplan to reduce surface water runoff to greenfield runoff rates and volumes from the developed site as required by the EA, and as such prevent any resultant increase in flood risk posed to downstream at Bicester. NPPF states that SuDS should where possible mimic the natural drainage mechanism of an area. Infiltration is part of the natural drainage process. The EA advice indicates a presumption in favour of infiltration SuDS techniques being used wherever possible, as the District lies in an area of water stress.
- The Level 1 SFRA SuDS map illustrates that part of the site is located above a Highly Vulnerable Aquifer. Due to the underlying geological composition and groundwater vulnerability, infiltration SuDS techniques are likely to be unsuitable across most of the site and incorporation of attenuation SuDS techniques may therefore be more appropriate to limit surface water runoff from development proposals for this site. There is a small area running through the site, from north to south, where infiltration SuDS techniques are likely to be suitable; the area above the aquifer is to the west of this area. Detailed site-specific analysis and ground investigation should be undertaken before the use of infiltration SuDS techniques is fully dismissed in any area of the site pending the outcome of any contamination assessment/remediation works.
- Limited sewer capacity will require consideration as part of any new development proposals.

Please Note →

Site-Specific FRA Guidance

- Should development pressure create a need to develop within 20 m of the ordinary watercourses, a site-specific FRA should be required to be undertaken to quantify the risks associated with these fluvial sources further.
- Should development pressure create a need to develop within Flood Zone 3, appropriate mitigation measures should then be incorporated to enable development within the defined extents of Flood Zone 3 plus climate change. Appropriate minimum floor levels to adopt should be determined in agreement with the EA. Such development should not increase the risk of flooding to surrounding areas (i.e. flood volume compensation on a level for level basis will be required within the site boundary within a lower flood risk zone).
- A site-specific surface water FRA will also be required for any development within Flood Zone 1, which exceeds 1 Ha applying consideration of surface water management options. It will be

necessary as part of a site specific FRA to quantify the volumes of surface water runoff to be discharged (subject to consultation with the LLFA and/or EA), and the suitability of the SuDS techniques to be incorporated to reduce the risk posed should be demonstrated.

- A site-specific FRA should demonstrate suitable provision for dry site access and egress, taking into account any requirements of the Cherwell emergency plan.
- An agreement in principle from TW that foul drainage from the site will be accepted into their network should be obtained as part of any planning application for the site.
- A site-specific FRA should consider the likelihood and impact of groundwater emergence.
- To define the relative risk of groundwater flooding and SuDS suitability, the FRA should be informed by a suitable site GI.