# CC010-A

| | |
|---|---|
| | **Chelmsford City Council Level 2 Strategic Flood Risk Assessment Detailed Site Summary Tables** |
| **Site details** | |
| **Site Code** | **CW1a** |
| **Address** | Former Gas Works, Wharf Road, Chelmsford |
| **Area** | 3.29ha |
| **Current land use** | Disused gas work site with a car park to the east and some vegetated areas |
| **Proposed land use** | Residential |
| **Flood Risk Vulnerability** | More Vulnerable |
| **Sources of flood risk** | |
| **Location of the site within the catchment** | The site is located within the Chelmer Operational Catchment, which is 657.4km$^2$. Within the operational catchment, the site is located at the confluence of the River Chelmer and River Can. This catchment is not designated as artificial or heavily modified.<br>The site is bounded by the River Chelmer to the southwest (flowing in a southeasterly direction), the A1099 to the northwest, Wharf Road to the northeast and an industrial area to the southeast.<br>The catchment is predominantly rural, but at the site the River Chelmer has flown through the urban area of Chelmsford City. |
| **Topography** | EA LiDAR 1DRM indicates that the site is relatively flat with an average elevation of approximately 23.5mAOD. There is a slight elevation in the southeast of the site to approximately 25.0mAOD.<br><br>There are two areas of depression which are the former gas works with an elevation of approximately 22.3mAOD to the north of the site. |
| **Existing drainage features** | The Environment Agency's Statutory Main River Map indicates that there are no main rivers within the site boundary. The nearest Main River is the River Chelmer, located along the southern boundary. There are no Ordinary Watercourses or ditches within the site boundary. The River Chelmer is constrained with development built up almost to the river edge.<br><br>Parts of the site are already developed and so is likely drained by the surface water drainage network. |
| **Critical Drainage Area** | The site is not in a critical drainage area. |
| **Fluvial and tidal** | **The proportion of site at risk FMFP:**<br>**FZ3 – 93.8%**<br>**FZ2 – 100%**<br>**FZ1 – 0%**<br><br>*The Flood Zone values quoted show the percentage of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone. This is because the values quoted are the area covered by each Flood Zone/extent within the site boundary. For example: Flood Zone 2 includes Flood Zone 3. Flood Zone 1 is the remaining area outside Flood Zone 2 (FZ2+ FZ1 = 100%).* |

| | |
|---|---|
| | **Defended outputs:**<br>**3.3% AEP fluvial event – 5.1%**<br>**1% AEP fluvial event – 84.1%**<br>**0.1% AEP fluvial event – 92.6%**<br><br>*Modelled results show the percentage of site at risk from a given AEP flood event.*<br><br>**Available data:**<br>Proportion of the sites at flood risk are determined from the Environment Agency's Flood Map for Planning Flood Zones. This represents the undefended scenario.<br><br>Therefore, the defended scenario outputs have been reported as a more accurate representation of the flood risk in Chelmsford due to the presence of flood defence structures.<br><br>Flood defence structures along the River Chelmer are designed to protect to a 1% AEP flood event.<br><br>The EA's Reduction in Risk of Flooding from Rivers and Sea due to Defences dataset extent has been used to assess the area of the site located within this extent, see the 'Defences' section below for more details.<br><br>The Environment Agency's 1D-2D ISIS-TUFLOW detailed hydraulic model for the River Chelmer (2010) has been used within this assessment of fluvial flooding.<br><br>**Flood characteristics:**<br><br>The 3.3% fluvial AEP event shows a small amount of fluvial flooding along the southwestern site boundary with a maximum depth and velocity of approximately 0.1m and 0.2m/s respectively.<br><br>The 1% and 0.1% fluvial AEP models predict vast fluvial flooding on the site, with almost all of the site inundated, except for areas of highest elevation. The maximum depth and velocity for 1% are approximately 1.6m and 0.2m/s respectively. The maximum velocity is found in the southeast of the site whereas the maximum depth is found in the former gas works in the north of the site.<br>The maximum depth and velocity for the 0.1% AEP event are approximately 1.8m and 2.6m/s respectively, located in the former gas works in the north of the site.<br><br>Whilst hazard results are not available for this model, maximum depths and velocities suggest flooding is likely to pose significant danger to all site users in the 1% and 0.1% AEP events.<br><br>The site is not considered to be at risk from tidal flooding. |
| **Surface Water** | **Proportion of site at risk (RoFfSW):**<br><br>**3.3% AEP** – 0.8%<br>Max depth – 0.15-0.3m<br>Max velocity – 0.00-0.25m/s<br>**1% AEP** – 3.4%<br>Max depth – 0.6-0.9m<br>Max velocity – 0.5-1.0m/s<br>**0.1% AEP** – 55.3%<br>Max depth – >1.2m<br>Max velocity – 1.0-2.0m/s |

| | |
|---|---|
| | *The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 100-year includes the 30-year %).*<br><br>The Environment Agency's Risk of Flooding from Surface Water mapping was used in this assessment.<br>**Description of surface water flow paths:**<br><br>For the 3.3% AEP event there is minimal surface water flooding, with a small amount of ponding on the edge of the northeastern boundary. This has a maximum depth of approximately 0.30-0.60m and a maximum velocity below 0.25m/s.<br><br>For the 1% AEP event the ponding on the northeastern border increases in size with the maximum depth being approximately 0.15-0.30m and a maximum velocity of approximately 0.00-0.25m/s. There is also a small amount of ponding in the western gas works with maximum depth of approximately 0.60-0.90m and a maximum velocity of approximately 0.5-1.0m/s.<br><br>For the 0.1% AEP event there is substantial surface water flooding covering over half of the site, with a flow path from the southwest of the site to the northeast. There are also several areas of ponding, in the former gas works and to the south of the site. The flow path has a maximum depth of approximately 0.30-0.60m and a maximum velocity of approximately of 1-2m/s. The ponding in the gas works has a maximum depth of approximately >1.2m and a maximum velocity of approximately 1-2m/s. The highest hazard value for this AEP event is 'Danger for Most' in the former gas works, in the centre of the site and down the southwestern boundary. |
| **Reservoir** | According to the Environment Agency's (EA) risk of flooding due to reservoirs dataset, in the Wet Day scenario there is a risk of flooding from the Chignal Hall Farm Reservoir, Handley Barns Farm (Private Individual), and Marshbury Hall Farm (CJH Farming Limited) extents covering the majority of the site, with the exception of two areas of high ground in the North-western corner and the southern corner.<br><br>In the Dry Day scenario, Chignal Hall Farm, Handley Barns Farm, and Marshbury Hall Farm have extents that encroach along the south-western boundary.<br><br>The risk designation of Chignal Reservoir has not yet been determined while the others have been determined to be high risk, therefore, in the very unlikely event that the reservoirs fail, there may be a risk to life. |
| **Groundwater** | The JBA Groundwater Emergence Map, is provided as 5m resolution grid squares.<br><br>The whole site is shown to have negligible risk of groundwater flooding in this area, and any groundwater flooding incidence has a chance of less than 1% annual probability of occurrence. There will be a remote possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location. |
| **Sewers** | Sewer flooding records were not available for this assessment. The entirety of Chelmsford is identified as a Flood priority catchment in Anglian Water's Drainage and Wastewater Management Plan (DWMP). Developers should consult Anglian Water as part of any development proposal to ensure development does not exacerbate existing issues and maximise opportunities for development to deliver benefits in line with the long term strategic aims set out in the DWMP. |
| **Flood history** | The Environment Agency's Historic Flood Map shows records of flooding on the site, associated with the River Chelmer. |

| | |
|---|---|
| | Essex County Council as LLFA has seven records of flooding within 500m of the site. Two incidents were recorded approximately 270m northeast from the northeastern boundary and occurred on the 14/06/2007 and the 7/7/2008, although the source of the flooding is not noted. For the other five historic flood records, the date and source of flooding was not recorded. |
| **Flood risk management infrastructure** | |
| **Defences** | The Environment Agency AIMS dataset shows no flood defences at this site. However, there is engineered high ground approximately 105m north of the northwestern boundary and 32m west of the southwestern boundary, on the opposite side of the riverbank. There is also a flood wall approximately 26m west of the southwestern boundary on the opposite side of the riverbank.<br><br>The site does not lie within the Environment Agency's reduction in risk of flooding from rivers and sea dataset.<br><br>The Margaretting Flood Alleviation Scheme to safeguard the city centre was cancelled in March 2022. The risk from flooding remains. The City Council continues to work with the Environment Agency to supplement existing flood defences and deliver a new series of catchment-based measures under the Chelmsford Flood Resilience Partnership. Developers should consult the Environment Agency to find out whether this site will be affected by this flood alleviation scheme. Sites affected by flood risk should devise an FRA on the basis that existing city centre flood defences are in place and, if sufficiently advanced, the catchment-based measures identified by the Chelmsford Flood Resilience Partnership project. In either scenario a financial contribution to the Chelmsford Flood Resilience Partnership project would be required.<br><br>Whilst there are currently no formal defences within the vicinity of the site, developers should consult with Chelmsford City Council and the Environment Agency to identify whether land within the site boundary may need to be safeguarded for flood defences in future. If defences are proposed as part of the development, maintenance arrangements (including funding mechanisms) for the defences will need to be demonstrated for the lifetime of development. |
| **Residual risk** | There are no formal flood defences in the immediate vicinity of the site, although there is engineered high ground located approximately 100m upstream. The engineered high ground upstream along the Chelmer Channel is recorded to protect to a 1% AEP flood event, although modelling suggests the standard of protection is lower. The most recent Visual Asset Inspection (16 April 2023) found that the natural high ground protecting the site was in good condition.<br><br>The residual risk to the site posed by failure of flood defences, including overtopping and breach must be considered in a site-specific Flood Risk Assessment. Maintenance arrangements (including funding mechanisms) for the defences will need to be demonstrated for the lifetime of development, this will need to include how the existing defences can be improved and fixed. |
| **Emergency planning** | |
| **Flood warning** | The entire site is located in both an Environment Agency Alert Warning Area, and an Environment Agency Flood Warning Area.<br><br>Flood Alert Area: 051FWFEF61C (Riverside properties on the Rivers Chelmer and Can in Chelmsford) and 051WAFEF6BC (the Rivers Wid and Can).<br><br>Flood Warning Area: 051FWFEF6C2 (The Rivers Can and Chelmer, through Chelmsford). |

| | |
|---|---|
| **Access and egress** | Access and egress to the site is currently via a small access road off Wharf Road on the northeastern site border.<br><br>Access and egress are not impacted by surface water flooding for the 3.3% or 1% AEP events.<br><br>The 0.1% surface water AEP event, and 0.1% plus climate change event shows that the access road, and Wharf Road would be severely impacted by surface water flooding and therefore safe access and egress would not be possible. The maximum depth of this flooding is approximately 0.30-0.60m and the maximum velocity is approximately 1-2m/s.<br><br>Access and egress are not impacted in the 3.3% fluvial AEP event.<br><br>However, for the fluvial 3.3% AEP plus climate change, and greater events both the site access road and Wharf Road are inundated to a maximum depth and velocity of approximately 0.73m and 1.6m/s respectively.<br><br>Climate Change outputs for the 0.1% AEP event for the Chelmer 2010 model could not be produced for this study. At the time of writing, the Environment Agency are currently undertaking updates to modelling in this area and developers should consult the Environment Agency to understand the latest information. If climate change scenarios for the latest allowances for the 0.1% AEP are not available, developers will need to undertake additional work as part of a site- specific FRA to determine the risk to the site in this scenario.<br><br>Arrangements for safe access and egress will need to be demonstrated for 1% AEP plus an appropriate allowance for climate change, using the depth, velocity, and hazard outputs. Given the considerable risk to the site during the surface water scenarios, consultation with RMAs early on should be implemented to ensure an appropriate flood evacuation plan is put in place for the site. |
| **Dry Islands** | The site encounters a dry island in the Wet Day Hanningfield Raw Water reservoir flood event |
| **Climate change** | |
| **Implications for the site** | **Management Catchment: Combined Essex Management Catchment**<br><br>Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard, and frequency of both fluvial and surface water flooding.<br><br>**Fluvial**<br><br>The River Chelmer has available climate change outputs for the Central (25%) and Upper End (72%) allowances for the 2080s.<br><br>In the fluvial 3.3% AEP plus central climate change allowance there is substantially more fluvial flooding along this southwestern boundary which encroaches onto the centre of the site, down to the southeastern boundary. The flooding has a predicted maximum depth and velocity of approximately 0.36m and 0.25m/s respectively, increasing from 0.09m and 0.03m/s in the baseline event. The extent, depth and velocity of the 3.3% AEP plus central climate change allowance is very similar to the present day 1% AEP extent.<br><br>In the fluvial 3.3% AEP plus upper climate change allowance almost the entire site is inundated. The maximum depth and velocity is approximately 1.71m and 5.56m/s respectively. This is located in the disused gas works where there is a depression in elevation. For the rest of the site the |

| | |
|---|---|
| | maximum flood depth and velocity is approximately 0.65m and 0.86m/s respectively.<br><br>The 1% fluvial AEP plus climate change event shows that the maximum depth and velocity increases to approximately 1.73m and 0.50m/s respectively. This is similar to the baseline 0.1% fluvial AEP event.<br><br>The fluvial 0.1% AEP plus climate change event shows that the maximum velocity and depth increases to approximately 1.82m 1.78m/s respectively.<br><br>This indicates that the site is highly sensitive to climate change, particularly in relatively frequent events.<br><br>**Surface Water:**<br><br>The latest climate change allowances have also been applied to the Risk of Flooding from Surface Water map to indicate the impact on pluvial flood risk. The 1% AEP plus 40% climate change corresponds to the 1% AEP upper end allowance for peak rainfall intensity for the 2070s epoch and is therefore the 'design event' scenario.<br><br>The 1% AEP plus climate change event impacts a much larger proportion of the site. Surface water flooding is predicted to be located in the centre of the site, on the northeastern, southeastern and southwestern boundaries as well as in the former gas works. In the areas of the site which are not former gas works the maximum depth and velocity and approximately 0.46m and 1.2m/s respectively, classifying the site as a 'Danger to Most'. This change in extent and depth, shows that this site is sensitive to climate change in the surface water events.<br><br>Development proposals at the site must address the potential changes associated with climate change and be designed to be safe for the intended lifetime. The provisions for safe access and egress must also address the potential increase in severity and frequency of flooding. |
| **Requirements for drainage control and impact mitigation** | |
| **Broad-scale assessment of possible SuDS** | **Geology & Soils**<br><br>The bedrock geology of the site is London Clay Formation consisting of clay, silt and sand.<br><br>The superficial geology is Alluvium consisting of clay, silt, sand and gravel.<br><br>The site is likely to have loamy and clayey floodplain soil with naturally high groundwater.<br><br>**SuDS**<br><br>• The site is not considered to be susceptible to groundwater flooding, due to the nature of the local geological conditions. This should be confirmed through additional site investigation work.<br>• BGS data indicates that the underlying geology is a mixture of clay, silt, sand, and gravel which is likely to be with highly variable permeability. This should be confirmed through infiltration testing. Off-site discharge in accordance with the SuDS hierarchy may be required to discharge surface water runoff from the site.<br>• The site is not located within a Groundwater Source Protection Zone and there are no restrictions over the use of infiltration techniques with regard to groundwater quality.<br>• The site is not located within a historic landfill site.<br>• It is advisable that attenuation features such as basins, ponds and tanks, are not located on the site, since the whole site is located in Flood Zone 2. This is to avoid the potential risks to the hydraulic |

| | |
|---|---|
| | capacity or structural integrity of these features. Surface water outfalls that discharge into the River Chelmer may be susceptible to surcharging due to water levels in the River Chelmer.<br>• Proposed attenuation features such as basins, ponds and tanks should be located outside of Flood Zone 3 to avoid the potential risks to the hydraulic capacity or structural integrity of these features. Surface water outfalls that discharge into the River Chelmer may be susceptible to surcharging due to water levels in the River Chelmer. The impacts of flood flows will need to be considered in terms of the attenuation storage requirements of the site and placement of the outfalls.<br>• Surface water discharge rates should not exceed pre-development discharge rates for the site and should be designed to be as close to greenfield runoff rates as reasonably practical in consultation with the LLFA. It may be possible to reduce site runoff by maximising the permeable surfaces on site using a combination of permeable surfacing and soft landscaping techniques.<br>• The Risk of Flooding from Surface Water (RoFSW) mapping indicates the presence of surface water flow paths during the 0.1% AEP event. Existing flow paths should be retained and integrated with blue-green infrastructure and public open space.<br>• If it is proposed to discharge runoff to a watercourse or sewer system, the condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner.<br>• Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. This could provide wider sustainability benefits to the site and surrounding area. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.<br>• Development at this site should not increase flood risk either on or off site. The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development.<br>• Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered. Consideration should be made to the existing condition of receiving waterbodies and their Water Framework Directive objectives for water quality. The use of multistage SuDS treatment will clean and improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies.<br>• Opportunities to incorporate source control techniques such as green roofs, permeable surfaces and rainwater harvesting must be considered in the design of the site.<br>• The potential to utilise conveyance features such as swales to intercept and convey surface water runoff should be considered. Conveyance features should be located on common land or public open space to facilitate ease of access. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. |
| **Opportunities for wider sustainability benefits and integrated flood risk management** | • Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity, and biodiversity. This could provide wider sustainability benefits to the site and surrounding area. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.<br>• Development at this site should not increase flood risk either on or off site. The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development.<br>• Opportunities to incorporate source control techniques such as green roofs, permeable surfaces, and rainwater harvesting must be considered in the design of the site. |

| | |
|---|---|
| | • SuDS are to be designed so that they are easy to maintain, and it should be set out who will maintain the system, how the maintenance will be funded and should be supported by an appropriately detailed maintenance and operation manual.<br>• Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered. Consideration should be made to the existing condition of receiving waterbodies and their Water Framework Directive objectives for water quality. The use of multistage SuDS treatment will clean and improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies.<br>• The potential to utilise conveyance features such as swales to intercept and convey surface water runoff should be considered. Conveyance features should be located on common land or public open space to facilitate ease of access. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. |
| **NPPF and planning implications** | |
| **Exception Test requirements** | The site is classified as more vulnerable and is within Flood Zone 2, therefore the Exception Test is required for this site. |
| **Requirements and guidance for site-specific Flood Risk Assessment** | **Flood Risk Assessment:**<br>• At the planning application stage, a site-specific FRA will be required as the proposed development site is:<br>  ○ Almost entirely within fluvial Flood Zones 2 and 3<br>  ○ Greater than one hectare<br>  ○ At risk of other sources of flooding (surface water and reservoir)<br>• All sources of flooding should be considered as part of a site-specific FRA, including consideration of the residual risk from a failure or overtopping of defences.<br>• Consultation with Chelmsford City Council, Essex County Council, Anglian Water, and the Environment Agency should be undertaken at an early stage.<br>• Any FRA should be carried out in line with the National Planning Policy Framework (NPPF); Flood Risk and Coastal Change Planning Practice Guidance (PPG); and the Council's Local Plan Policy's and SuDS Strategy.<br>• The development should be designed with mitigation measures in place where required.<br>• Climate Change outputs for the 0.1% AEP event for the Chelmer 2010 model could not be produced for this study. At time of writing, the Environment Agency are currently undertaking updates to modelling in this area and developers should consult the Environment Agency to understand the latest available information. If climate change scenarios for the latest allowances for the 0.1% AEP event are not available, developers will need to undertake additional work as part of a site-specific FRA to determine the risk to the site in this scenario.<br>**Guidance for site design and making development safe:**<br>• The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime. It is for the applicant to show that the development meets the objectives of the NPPF's policy on flood risk. For example, how the operation of any mitigation measures can be safeguarded and maintained effectively through the lifetime of the development. (Para 048 Flood Risk and Coastal Change PPG).<br>• The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff magnitudes from the development are not increased by development across any ephemeral surface water flow routes. A drainage strategy |

| | |
|---|---|
| | should help inform site layout and design to ensure runoff rates are as close as possible to pre-development greenfield rates.<br>• Arrangements for safe access and egress will need to be provided for the 1% AEP fluvial and rainfall events with an appropriate allowance for climate change, considering depth, velocity, and hazard. Design and access arrangements will need to incorporate measures, so development and occupants are safe. Given the significant risk to the site and proximity to the watercourse, a flood warning and evacuation plan should be prepared for the site. See Section 8.6 of the Level 1 SFRA for details of the requirements for plans.<br>• Provisions for safe access and egress should not impact on surface water flow routes or contribute to loss of floodplain storage. Consideration should be given to the siting of access points with respect to areas of surface water flood risk.<br>• Flood resilience and resistance measures should be implemented where appropriate during the construction phase, e.g. raising of floor levels and use of boundary walls. These measures should be assessed to make sure that flooding is not increased elsewhere. |

**Key messages**

The site is at significant risk of fluvial and surface water flooding, and is shown to be highly sensitive to increased risk as a result of climate change, therefore the Exception Test will need to be passed before the site can be bought forwards. With regards to the flood risk portion of the Exception Test, development may be able to proceed if:

- The area along the southwestern border, which is shown to flood in the 3.3% AEP fluvial scenario is left undeveloped.
- Development is steered away from the former gas works in the north of the site as these are at severe risk of deep ponding from 1% and 0.1% surface water and fluvial AEP events.
- A carefully considered and integrated flood resilient and sustainable drainage design is put forward, with development steered away from the areas identified to be at risk of surface water flooding across the site.
- Safe access and egress can be demonstrated in the fluvial and surface water 1% AEP plus climate change events. This includes measures to reduce flood risk along these routes such as raising access, but not displacing floodwater elsewhere. Given the significant risk to the site a suitable flood warning and evacuation plan will be required.
- A site-specific FRA demonstrates that site users will be safe throughout the lifetime of the development and that development of the site does not increase the risk of surface water flooding on the site and to neighbouring areas.
- If flood mitigation measures are implemented then they are tested to check that they will not displace water elsewhere (for example, if land is raised to permit development on one area, compensatory flood storage will be required in another).

**Mapping Information**

The key datasets used to make planning recommendations for this site were the Environment Agency's Flood Map for Planning, the Environment Agency's Risk of Flooding from Surface Water map and the Environment Agency's River Chelmer model. More details regarding data used for this assessment can be found below.

| | |
|---|---|
| **Flood Zones** | Flood Zones 2 and 3 have been taken from the Environment Agency's Flood Map for Planning mapping. |
| **Climate change** | The central and upper end allowances were available for the River Chelmer (2010) hydraulic model to indicate the impacts on fluvial flood risk.<br>The latest climate change allowances (updated May 2022) have also been applied to the Risk of Flooding from Surface Water map to indicate the impact on pluvial flood risk. |

| | |
|---|---|
| **Fluvial and tidal extents, depth, velocity and hazard mapping** | Depth, velocity, and hazard data was derived from the River Chelmer (2010) hydraulic model. |
| **Surface Water** | The Risk of Flooding from Surface Water map has been used to define areas at risk from surface water flooding. |
| **Surface water depth, velocity and hazard mapping** | The surface water depth, velocity, and hazard mapping for the 3.3%, 1%, and 0.1% AEP events (considered to be high, medium, and low risk) have been taken from Environment Agency's RoFSW. |