Appendix H FRA Toolkit

Site Specific FRA 'Toolkit'

This Toolkit should be used as local guidance for new developments in the Newark and Sherwood Study Area to establish in what circumstances a Site Specific Flood Risk Assessment (FRA) will be required, what issues will need to be considered, who should be consulted, and what will need to be provided.

1.1 OVERVIEW OF FLOOD RISK

SFRA Message and General Findings

1.1.1 Mapping within Appendix E of the Newark and Sherwood Level 2 SFRA provides a graphical representation of the variation in flood risk across the study area. These maps highlight the fluvial / tidal extent of Flood Zones 1 (Low Probability), 2 (Medium Probability) and 3 (High Probability). The National Planning Policy Framework (NPPF) and associated Technical Guide provides guidance on how sustainable development should be implemented within these various flood risk areas. Flood hazard mapping has also been provided from the River Trent Hazard Mapping Study (2011) carried out by the Environment Agency. This hazard mapping relates to breaching and overtopping events along the Tidal River Nene, as illustrated by the depth, velocity and hazard maps in Appendix E of the SFRA.

1.1.2 Newark and Sherwood District Council should review the risk of flooding posed to a particular site by reference to the maps in Appendices E, F and G of the Newark and Sherwood Level 2 Phase 2 SFRA. Clear planning and development recommendations have been provided in Section 1.4 of this Toolkit. These should be applied only once the Sequential Test has been undertaken in accordance with the NPPF (refer to section 1.2 of this note and section 2.11 of the SFRA).

1.1.3 One of the key recommendations of the Pitt Review "Learning lessons from the 2007 floods" was that Local Authorities should lead on the management of local flood risk, with the support of relevant organisations. The Flood and Water Management Act (2010), also highlights how a Lead Local Flood Authority (LLFA) in England must develop, maintain, apply and monitor a strategy for local flood risk management in its area.

1.1.4 The LLFA for Newark and Sherwood is Nottinghamshire County Council who has produced a Preliminary Assessment Report and identification of any Flood Risk Areas (PFRA) report dated June 2011. Refer to section 2.9 of the Level 2 Phase 2 SFRA for further information on this report. Nottinghamshire County Council are also working with organisations from across the county, including the seven Districts / Boroughs, Internal Drainage Boards, Environment Agency and Water Companies to develop a Local Flood Risk Management Strategy for Nottinghamshire.

1.1.5 The Act highlights that, in addition to a risk of flooding from fluvial and tidal sources, there is also a potential risk of flooding from localised sources, including sewers, blocked gullies and culverts, and surface water runoff. This is more difficult to predict and may occur at any location and / or point in time. It is essential that all future development is designed to minimise the potential impacts of localised flooding (e.g. through the provision of SuDS, overland flow routing of flood waters, and careful location of on-site detention areas). All sources of flooding should be taken into consideration as part of a site specific Flood Risk Assessment (FRA).

1.1.6 The Act also introduces the role of a SuDS Approving Body (SAB) which will be the responsibility of the LLFA. Precise details of how this will be implemented are not known at present, but new developments will need to accord with the SAB requirements.

1.1.7 Flood Risk Assessments should take in to consideration the requirements of all relevant stakeholders, not just the Environment Agency and Newark and Sherwood District Council. Where appropriate local Internal Drainage Board(s) (IDBs) should be consulted to ensure their requirements are met.

Current Policy

1.1.8 Site specific Flood Risk Assessments are primarily guided by the National Policy Planning Framework and Flood Risk and its associated Technical Guide.

1.1.9 Reference should be made within a site specific FRA to the Newark and Sherwood District Level 1 and Newark and Sherwood Level 2 SFRA reports. Further guidance on current policy is detailed within the main body of the Level 2 SFRA.

1.2 GENERAL SCOPE OF FLOOD RISK ASSESSMENTS

1.2.1 The Level 2 SFRA is a strategic document that provides an overview of flood risk throughout the study area.

1.2.2 Site specific FRAs should be carried out in line with the guidance provided in the NPPF and the NPPF Technical Guide. Paragraph 9 of the NPPF Technical Guide summarises the requirements for a site specific FRA The FRA should be submitted as an integral part of the planning application. Paragraph 9 of the NPPF Technical Guide is quoted below:

"As set out in the National Planning Policy Framework, local planning authorities should only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment. This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment."

1.2.3 This site specific FRA Toolkit has been based upon planning policies and information available at the time of report issue.

1.2.4 Flood risk will need to be considered by developers as part of any specific development proposals in the future. Developers must consult relevant stakeholders and operating authorities and seek guidance on the requirements for an FRA from the outset.

1.2.5 It should also be noted that the exact parameters of a Flood Zone for a site may be subject to change in line with future planning policy. It should also be noted that Flood Zones may be subject to change following consideration of detailed topographical information, or following investigation of site specific flood risk issues.

1.2.6 Any site specific FRA should be in line with the scale, nature and location of the proposed development.

1.2.7 The NPPF and the NPPF Technical Guide contains information on where to locate development in relation to flood risk and the assessment of flood risk. and/or other bodies have indicated that there may be drainage problems.

1.2.8 Individual IDB guidance on flood risk can be found on their specific websites or through contacting them directly. The Environment Agency website provides flood risk standing advice at the below link:

http://www.environment-agency.gov.uk/research/planning/82584.aspx

1.2.9 The vulnerability of a development in relation to the level of flood risk should be taken into consideration. Reference should be made to the tables 1, 2 and 3 of the NPPF Technical Guide. Reliable site level information, preferably in the form of a topographical survey, will be required in the first instance to determine finished floor levels. It is advised that any relevant stakeholders are contacted prior to the carrying out of a topographical survey to ensure their requirements are taken into account.

1.2.10 The FRA should consider the appropriateness of proposed development uses in flood risk areas in line with Table 3 of the NPPF Technical Guide. This is shown in section 7.2.6 of the Level 2 Phase 2 SFRA.

SEQUENTIAL TEST

1.2.11 A risk-based Sequential Test should be applied at all stages of the planning process on a case by case basis (see the NPPF Technical Guide paragraphs 3 to 5). Reference should be made to the Flood Zones provided in Appendix E, F and G of the Level 2 Phase 2 SFRA and the EA website. In areas at risk from fluvial or tidal flooding, preference should be given to locating new development in Flood Zone 1. If there is no reasonably available site in Flood Zone 1, the flood vulnerability of the proposed development can be taken into account in locating development in Flood Zone 2 and Flood Zone 3. If, following the application of the Sequential Test, it is not possible or consistent with wider sustainability objectives for the development to be located in zones of lower probability of flooding, the Exception Test can be applied.

EXCEPTION TEST

1.2.12 Paragraph 102 of the NPPF states that for the Exception Test to be passed:

- It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and
- A site-specific FRA must demonstrate that the development will be safe for its lifetime taking into account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

1.2.13 Both parts of the Exception Test must be passed for development to be acceptable.

1.3 DETAILED SCOPE OF FRA

1.3.1 This Level 2 Phase 2 SFRA provides specific recommendations with respect to the provision of sustainable flood risk mitigation opportunities. This addresses both the risk to life and the residual risk of flooding to development within particular Flood Zones in the study area. These recommendations should form the basis for a site specific FRA and have been briefly set out below. Recommendations have also been provided in a checklist included in the Newark and Sherwood District Level 1 SFRA.

All Developments

1.3.2 Foul water and surface water flows resulting from the development should be assessed to ensure that their impact on any receiving system is managed responsibly, does not cause downstream flooding, or increase the risk of flooding elsewhere. Liaison with the relevant body (IDB(s), Environment Agency, Anglian Water, Severn Trent or approving Local Authority) should be carried out to ensure the resulting flows are managed in the correct way.

1.3.3 All potential sources of flood risk should be considered within a site specific FRA. Where a site is located within Flood Zone 1, the site should be checked to see whether it is at risk of flooding in the case of overtopping or breach of defences. If a site shown to at risk, then a FRA will need to be prepared to assess this.

Future Development within Flood Zone 1 'Low Probability'

1.3.4 All proposed 'Major' future development within Flood Zone 1 will require a basic Flood Risk Assessment (FRA), in compliance with the NPPF, current guidance and policy. Major development is typically defined as exceeding 1 hectare. The FRA will need to focus primarily upon drainage impact assessment, implementation of appropriate forms of SUDS, and control of surface water runoff. See the Environment Agency Flood Maps in Appendix G of the level 2 SFRA for areas identified as Flood Zone 1.

Future Development within Flood Zone 2 'Medium Probability'

1.3.5 All proposed future development within Zone 2 will require a Flood Risk Assessment (FRA) in compliance with the NPPF, current guidance and policy that is commensurate with the risk posed to the proposed development. All potential sources of flood risk are to be considered. See the Environment Agency Flood Maps in Appendix G of the level 2 SFRA for areas identified as Flood Zone 2.

1.3.6 A Flood Warning and Evacuation Plan is a key document to accompany FRAs in Flood Zone 2. This will help to ensure that there is safe management of residents in the event of flooding. This document, where necessary, will set out potential evacuation routes and information relating to flood warnings. This document should make reference to Newark and Sherwood District Council's Emergency Plan.

1.3.7 There is no statutory requirement for the Environment Agency or emergency services to approve evacuation plans. Newark and Sherwood District Council emergency planners should be contacted when undertaking evacuation plans.

1.3.8 Planning Policy Statement 25 and its associated practice guide gave guidance on flood risk for development sites; in accordance with Annexe 3 of the NPPF the practice guide has not been superseded by the NPPF. Therefore as the NPPF does not give any specific guidance on flood warning and evacuation plans, Figure 7.2 of the PPS25 Practice Guide has been reproduced below to provide an initial indication of what should be included within an evacuation plan. This does not replace the NPPF recommendation that advice should be sought from the emergency services when an evacuation plan is being prepared.

Figure 7.2 Flood warning and evacuation plans should include:

How flood warning is to be provided, such as:

- availability of existing flood warning systems;
- rate of onset of flooding and available flood warning time; and
- how flood warning is given.

What will be done to protect the development and contents, such as:

- how easily damaged items (including parked cars) will be relocated;
- the availability of staff/occupants/users to respond to a flood warning, including preparing for evacuation, deploying flood barriers across doors etc; and
- the time taken to respond to a flood warning.

Ensuring safe occupancy and access to and from the development, such as:

- occupant awareness of the likely frequency and duration of flood events;
- safe access to and from the development;
- ability to maintain key services during an event;
- vulnerability of occupants, and whether rescue by emergency services will be necessary and feasible; and
- expected time taken to re-establish normal use following a flood event (clean-up times, time to re-establish services etc.).

1.3.9 The flood warning and evacuation plan is a living document and will need to be reviewed annually and updated by residents or a management company, depending on the ownership of the site. Any updates to the plan will need to conform to Newark and Sherwood District Council's emergency plan and approved by the emergency planners.

Future Development within Flood Zone 3 'High Probability'

1.3.10 All proposed future development within Flood Zone 3 will require a detailed site specific Flood Risk Assessment (FRA), in compliance with the NPPF, current guidance and policy. See the Environment Agency Flood Maps in Appendix G of the SFRA for areas identified as Flood Zone 3. Any development in Flood Zone 3 should be discussed with the local council's Emergency Planning team.

1.3.11 Finished floor levels must be set above maximum flood depth (from maps in Appendix F and G). Where this is not possible then a range of measures including safe refuge must be considered. This could be achieved by, but is not restricted to:

- Adding a first floor;
- The addition of a mezzanine floor;
- Altering a bungalow to become a chalet bungalow; or
- Providing room within an easily accessible loft space with velux windows added.

1.3.12 The safe refuge should be provided above the predicted flood levels. We advise early consultation with Newark and Sherwood District Council delivery management planners and emergency planners if safe access and egress is not achievable.

1.3.13 In some instances, where finished floor levels cannot be raised high enough, sleeping accommodation on the ground floor levels may not be permitted. If there is doubt about what would be appropriate, early discussion with Newark and Sherwood District Council and the Environment Agency is required.

1.3.14 A Flood Warning and Evacuation Plan is a key document to accompany FRAs in Flood Zone 3. This will help to ensure that there is safe management of residents in the event of flooding. This document, where necessary, will set out potential evacuation routes and information relating to flood warnings. This document should make reference to Newark and Sherwood District Council's Emergency Plan. Refer to section 1.3.6 to 1.3. 9 of this toolkit for further information on the requirements for a flood warning and evacuation plan.

1.3.15 In line with the Pitt Review recommendations, key services such as substations and pumping stations should be safeguarded. Where possible this should be done through siting them above predicted high water levels. Where this is not possible they should incorporate flood risk mitigation such as water proofing, resistance or resilience measures.

1.3.16 Proposed development shall not result in an increase in flood risk to third parties i.e. no increase in maximum flood levels within adjoining properties. Flood plain compensation should be discussed with the District Council where required.

1.4 MITIGATION MEASURES & DEVELOPMENT RECOMMENDATIONS

SURFACE WATER AND SUSTAINABLE DRAINAGE SYSTEMS

Surface Water

There is impending legislation due to come into force relating to SuDS as as result of the Flood Water Management Act (2010). As it is currently proposed the SuDS Approval Body, (The County Council) will become a significant organisation in the approval, adoption and maintenance of SuDS. Draft Standards and Regulations have been consulted on nationally and a final document will be available upon publication.

1.4.1 Surface water runoff needs to be managed to ensure that it does not pose a flood risk to existing or proposed development; the management of surface water is primarily carried out by Severn Trent Water, Anglian Water, Newark and Sherwood District Council and the Environment Agency.

1.4.2 The developer should seek to manage runoff rates and volumes to the receiving surface water drainage system and watercourses in a post development situation in order to reduce the flood risk to downstream areas. Nil detriment (i.e. no change) should be viewed as the standard for surface water discharge rates within the study area, although a reduction may be required in some locations. The use of SuDS should be implemented to ensure that runoff from the site is managed; any SuDS design must take due account of groundwater and geological conditions. Refer to 1.4.7 below for further details on SuDS.

1.4.3 A surface water drainage strategy should be provided as part of a site specific FRA where necessary (e.g. when the site is greater than 1 hectare or located within Flood Zones 2 and/or 3 or where the Environment Agency, Internal Drainage Board and / or other bodies have indicated that there may be drainage problems) and should provide information on how surface water will be managed as part of the development. The Newark and Sherwood District Level 1 SFRA contains a checklist stating when an FRA is required. Consultation with the Environment Agency and IDB(s) should be carried out prior to submitting an application to ensure surface water is being managed in an appropriate manner. If the drainage strategy shows discharge in to an IDB system then correspondence with the relevant IDB should be included as part of the FRA to confirm the arrangements made.

1.4.4 There is the potential for siltation of drainage systems to occur if too little flow is provided especially along existing systems. This can cause maintenance issues and reduce the effectiveness of the surface water drainage system. Discharge rates should be agreed with the relevant body (IDB, LLFA, Environment Agency, Anglian Water, Severn Trent Water or Local Planning Authority).

1.4.5 All developments must carefully consider surface water disposal, even if it is proposed to discharge to the public sewer, as even the public sewer can discharge to a watercourse(s) which may not be able to accept as great a discharge as the public sewer can accept.

1.4.6 For those sites that may cross approving authority / stakeholder boundaries there should be recognition that the LLFA may have different arrangements across the boarder and therefore the appropriate relevant body should be approached.

1.4.7 An initial overview of flooding from surface water can be gained from the Flood Map for Surface Water provided in Appendix E of this SFRA. These maps should not be used to identify surface water flooding on an individual property scale.

Sustainable Drainage Systems

1.4.8 Sustainable Drainage Systems (SuDS) is a term used to describe the various approaches that can be used to manage surface water drainage in a way that mimics the natural environment. Reference should be made to section 7.3 of the SFRA. The management of surface water runoff is considered an essential element of reducing flood risk to both the site and its surroundings.

1.4.9 SuDS may improve the sustainable management of water for a site by:

- Reducing peak flows to watercourses or sewers and potentially reducing the risk of flooding downstream;
- Reducing volumes and the frequency of water flowing directly to watercourses or sewers from developed sites;
- Improving water quality over conventional surface water sewers by removing pollutants from diffuse pollutant sources;
- Reducing potable water demand through rainwater harvesting;
- Improving amenity through the provision of public open space and wildlife habitat; and
- Replicating natural drainage patterns, including the recharge of groundwater so that base flows are maintained.

1.4.10 There are numerous different ways that SuDS can be incorporated into a development; information relating to the most commonly found components of a SuDS system can be found in the various documents listed below. The appropriate application of a SuDS scheme to a specific development is heavily dependent upon the topography and geology of the site and its surrounds. Careful consideration of the site characteristics must be undertaken to ensure the feasibility of the sustainable drainage design. SuDS Infiltration Feasibility mapping based on underlying ground conditions has been provided in Appendix D. This information has been taken from Newark and Sherwood District Council's Level 1 SFRA. This mapping should only be used as a guide, and does not replace the need for detailed ground investigations.

1.4.11 The location of Source Protection Zones should be taken into consideration, when considering the application of SuDS. However, there are no Source Protection Zones within the study area.

1.4.12 A ground investigation should be carried out to determine if the land the development site is located on is contaminated and to confirm whether the ground conditions are suitable for the use of SuDS. If SuDS are proposed in areas containing contaminated ground then the Environment Agency must be consulted.

1.4.13 For more guidance on SuDS the following documents and websites are recommended as a starting point:

- Anglian Water SuDS Guidance
  http://www.anglianwater.co.uk/developers/sewer-connection/suds.aspx
- Building Regulations Part H: Drainage and Waste
  http://www.planningportal.gov.uk/buildingregulations/approveddocuments/parth/
- CIRIA SuDS Manual (C697)
  http://www.ciria.com/suds/index.htm
- Environment Agency Website - SuDS
  http://www.environment-agency.gov.uk/business/sectors/36998.aspx
- Planning Policy Statement 25: Development and Flood Risk Practice Guide
  http://www.communities.gov.uk/publications/planningandbuilding/pps25guideupdate

1.4.14 The Environment Agency issues best practice guidance for Sustainable Drainage Systems, available from the Environment Agency development and flood risk teams. This provides a clear hierarchy for SuDS, reflecting the degree of sustainability offered by the SuDS application as captured in Table A1 on the next page. Table A1 is provided as a hierarchy from most sustainable options at the top to least sustainable options at the bottom.

Table A1 – SuDS Hierarchy

SuDS Technique	Flood Reduction	Water Quality Improvement	Landscape & Wildlife Benefit
Living Roofs	✓	✓	✓
Basins and Ponds ■ Constructed Wetlands ■ Balancing Ponds ■ Detention Basins ■ Retention Ponds	✓	✓	✓
Filter Strips and Swales	✓	✓	✓
Infiltration Devices ■ Soakaways ■ Infiltration Trenches and Basins	✓	✓	✓
Permeable Surfaces and Filter Drains ■ Gravelled Areas ■ Solid Paving Blocks ■ Porous Paving	✓	✓	
Tanked systems ■ Over-sized Pipes / Tanks ■ Geocellular Storage	✓		
Discharge to Surface Water Sewers			

RESILIENCE AND FLOOD WARNINGS

1.4.15 Where properties are deemed to be at 'significant' risk of flooding (i.e. situated in Flood Zone 3) it is essential to provide the community with the knowledge and tools that will enable them to help themselves should a flood event occur. This Level 2 SFRA and the Newark and Sherwood District Council Level 1 SFRA are key sources of flood risk information in the public domain.

1.4.16 Details of flood warning and flood resilience have been set out within the following community based measures which local communities may introduce to minimise the damage sustained to their own homes in the event of flooding.

Floodline Warnings Direct

1.4.17 Where available, communities in flood risk areas should be registered with the Environment Agency Floodline Warnings Direct facility. While this may not always cover the specific local watercourses that pose the greatest risk to the locale, advance warning of the onset of extreme weather conditions may be gathered and actions taken by residents at a local level. See section 8 of this Level 2 SFRA.

1.4.18 Further detail on flood warnings and the Flood Warnings Direct service can be found on the Environment Agency website at:

http://www.environment-agency.gov.uk/homeandleisure/floods/31618.aspx

1.4.19 In some instances for development in Flood Zone 2 and 3, a Flood Warning and Evacuation Plan will be required. See sections 1.3.6 to 1.3.9 of this Toolkit for more information on Flood Warning and Evacuation Plans.

Flood Resilience / Resistance

1.4.20 Flood resistance involves constructing a building in such a way so as to prevent floodwater entering the structure and damaging its fabric. Flood resilience involves constructing a building so as to permit floodwater to enter the structure but to reduce the impact of any damage caused (i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated). The NPPF Technical Guide Provides an overview of flood residence and resistance (paragraphs 17 to 19). Details of flood resilient construction can be found within the Department for Communities and Local Government publication; 'Improving the Flood Performance of New Buildings' published in May 2007. The design of new developments should accord with the guidance in this toolkit, to the satisfaction of Newark and Sherwood District Council.

1.4.21 One of the key recommendations of the Pitt Review; "Learning lessons from the 2007 floods", was that Building Regulations should be revised to ensure that all new or refurbished buildings in high flood-risk areas are flood resistant or resilient. Examples of flood resilient and resistant measures that can be adopted are listed below;

Raising of electrical wiring (Resilience)

1.4.22 The raising of electrical wiring and sockets within flood affected buildings reduces the risks to health and safety, and reduces the time required after a flood to rectify the damage sustained.

Use of sacrificial construction materials (Resilience)

1.4.23 These are materials used in housing fittings that are likely to be damaged in case of flooding but can also be repaired i.e. gypsum plaster board. This would be used for a 'water entry' strategy where the emphasis is placed on allowing water into the building, facilitating draining and consequent drying.

Flood boards / gates (Resistance)

1.4.24 The placement of a temporary watertight seal across doors, windows and air bricks to avoid inundation of the building interior. This may be suitable for relatively short periods of flooding, however the porosity of brickwork may result in damage being sustained should water levels remain elevated for an extended period of time.

Boundary walls and fencing (Resistance)

1.4.25 Boundary walls and fencing can be designed with high water resistance materials and/or effective seals to minimise water penetration for low depth, short duration floods (but not for groundwater flooding). Consideration of flow paths should be made when deciding on what walls or fencing type to implement, as these elements may fail in the event of a flood creating additional debris and hazard.

Raising Floor Levels

1.4.26 The raising of floor levels above the anticipated maximum flood level ensures that the interior of the property is not directly affected by flooding, avoiding damage to furnishings, wiring and interior walls. It is highlighted that plumbing may still be impacted as a result of mains sewer failure. In some parts of the study area, especially in areas close to the River Trent, the raising of flood levels above an anticipated maximum flood level is unreasonable due to the depth of water expected. Please see paragraph 1.3.6, 1.3.7 and 1.3.8 for further details on finished floor levels and safe refuge / escape.

Basements

1.4.27 Due to the topography and flood risk within the study area it is generally inappropriate to provide basements in developments in Flood Zone 2 and 3.

1.4.28 Consultation should be carried out with Newark and Sherwood District Council at the earliest opportunity to ensure that the proper steps are carried out when assessing the feasibility of a basement, and to ensure no undue hazard is generated through provision of a basement.

Raising Ground Levels

1.4.29 Raising of ground levels on a site specific basis should be avoided where possible. Any change in ground levels will affect the flow paths for flood waters in the surrounding area, potentially changing the hazard / risk in these areas. Strategic raising of ground levels with suitable compensation / mitigation may be acceptable. This is subject to being agreed through a strategic assessment of flood risk incorporated as part of masterplanning for the relevant site which will need to consider the residual risk and the risk to third parties.

Floodplain Compensation

1.4.30 Flood plain compensation may be appropriate in some circumstances but proposed development must not result in an increase in maximum flood levels for adjoining or surrounding properties. This may be achieved by ensuring (for example in the case of the re-development of a site) that the existing building footprint is not increased. Due to the defended nature of the study area it is not reasonable to provide compensation in every situation. Consultation should be carried out with the Environment Agency and the District Council for major developments to ascertain whether floodplain compensation is required and what form it will take.

1.5 CONSENTS

1.5.1 Under the terms of the Water Resources Act 1991, the prior written consent of the Lead Local Authority is required for any proposed works or structures, in, under, over or within nine metres of the top of the bank of a Main River. Where there are flood defences in place the eight metres is measured from the landward toe of the bank / wall. Obtaining this consent is not part of the FRA process however, designers and developers should be aware of this when producing a site layout and drainage design.

Flow Control Structures and Culverting of Watercourses

1.5.2 Erection of flow control structures or any culverting of a watercourse requires the prior written approval of the Drainage Authority (Lead Local Flood Authority or IDB for Ordinary Watercourses and EA for Main Rivers) under s.23 of the Land Drainage Act 1991 or s.109 of the Water Resources Act 1991.

1.5.3 Culverting and the filling in of watercourses is resisted by many authorities on nature conservation and other grounds and consent for such works will not normally be granted except for exceptional circumstances.

1.5.4 It should be noted that under the Flood and Water Management Act 2012, that consenting powers (as outlined in 1.5.2) will be transferred to the LLFA on 6th April 2012. This applies to ordinary watercourses outside the rateable area of an IDB and not to ordinary watercourses within the rateable area of an IDB. Anyone proposed works to ordinary watercourses should consult with the LLFA prior to submitting the application. Main Rivers will still be under the jurisdiction of the Environment Agency.

1.5.5 Under the Land Drainage Act 1991, Trent Valley IDB, Upper Witham IDB and the Environment Agency have bye-laws for governing the watercourses they are responsible for. The Land Drainage Act (1991) states that: 'these are considered necessary for securing the efficient working of the drainage system in their district'. The byelaws include reference to control systems, operations, obstacles, set back distances and safety. The IDB policies in relation to development control are stated within their planning response. Copies of the IDB byelaws can be viewed on their websites. Obtaining this consent is not part of the FRA process however, designers and developers should be aware of this when producing a site layout and drainage design.