

# *Tim Hortons*



A Planning Application by  
**TIM HORTONS**

In respect of  
**Installation of Drive Thru Lane, Lakeside Retail Park,  
THURROCK**

## **Flood Risk Assessment and Evacuation Plan**

January 2021



## Document Management

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# 1 Introduction

- 1.1 Transport Planning Associates ('TPA') have been commissioned by 'Tim Hortons' to prepare a Flood Risk Assessment and Evacuation Plan for the proposed 'Installation of a Drive Thru lane at Lakeside Retail Park, Thurrock' to be referred to hereafter as 'the Site'.
- 1.2 This report has been prepared for the benefit of Tim Hortons and the contents should not be relied upon by others without the express written authority of TPA. If any unauthorised third party makes use of this report they do so at their own risk and TPA owe them no duty of care or skill.
- 1.3 The anticipated description of development, subject to some minor amendments, is as follows:

*"Full planning permission with advertisement consent for the installation of a drive thru lane and associated engineering works including alterations to the service yard area, minor alterations to the unit and elevations including recladding and associated changes to car parking and landscaping and new signage."*

## Flood Risk Assessment

- 1.4 The Flood Risk Assessment ('FRA') is a desktop study to ascertain potential flood risks to the development Site by gathering information from:
- The British Geological Survey ('BGS') 'Superficial' and 'Bedrock' maps;
  - The Environment Agency 'Flood Maps';
  - Nearby Planning Applications in Thurrock, and;
  - The Thurrock Council Strategic Flood Risk Assessment Level 1 ('TC SFRA').

## Evacuation Plan

- 1.5 The Evacuation Plan has been prepared in accordance to the following documents prepared by Thurrock Council:
- The Community Flood Planning Pack;
  - Local Flood Risk Management Strategy, and;
  - Strategic Flood Risk Assessment Level 2.
- 1.6 The Flood Planning Pack states that the main aims of a flood evacuation plan is to increase the resilience to any future flood, by identifying the procedures that can be undertaken before, during and after a flood.

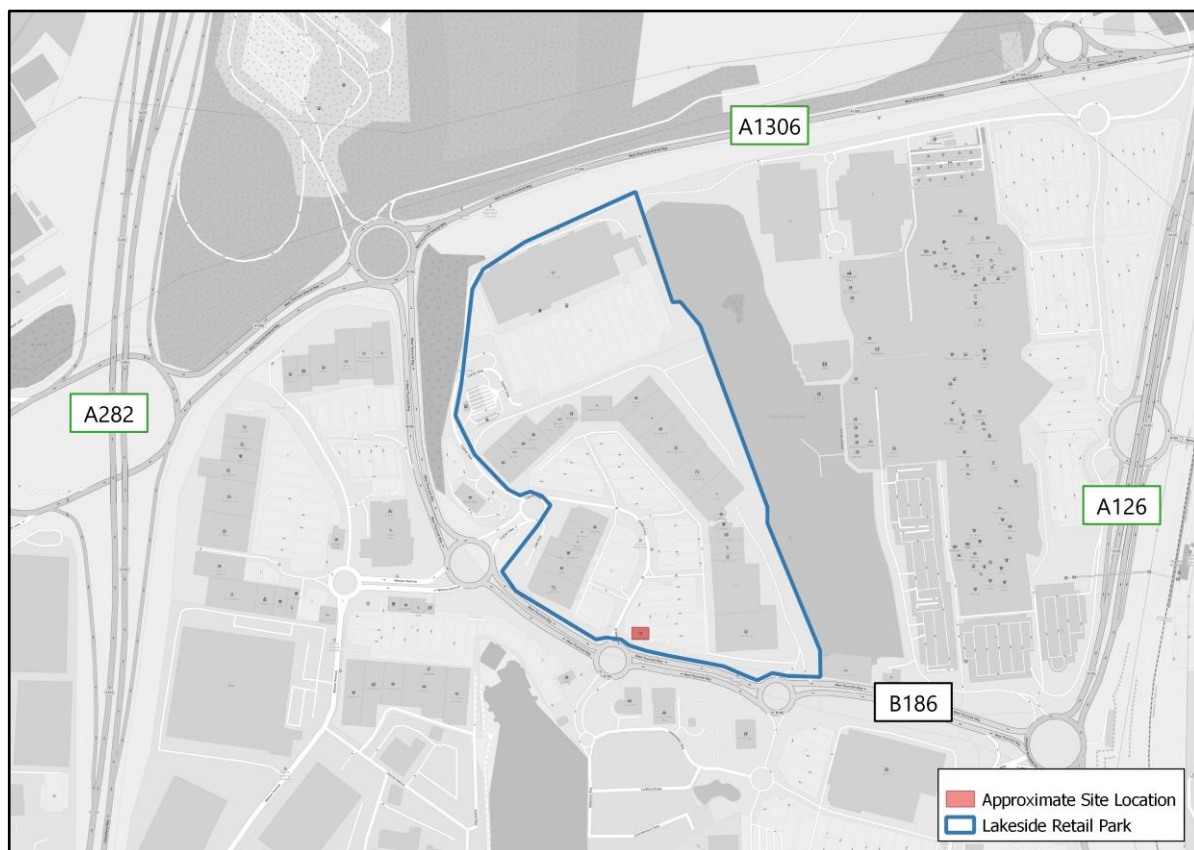


## 2 Existing Site

### Site Location & Description

- 2.1 The Site to which the application relates is located on the northern outskirts of West Thurrock.
- 2.2 It is currently Brownfield as there is an existing 'Pizza Hut Restaurant (Unit F)' and it is bounded to the south by West Thurrock Way, to the west by Grebe Crescent and to the north and east to the existing commercial units forming part of the Lakeside Retail Park.
- 2.3 The post code is RM20 1WN and the approximate grid reference for the centroid of the Site is X\_558205, Y\_178651.
- 2.4 Figure 2.1 below shows the extent of the Lakeside Retail Park and the approximate Site location highlighted in red:

Figure 2.1 Site Location



### 3 Development Proposals

- 3.1 The development proposals comprise the installation of a drive thru lane and associated engineering works including alterations to the service yard area, minor alterations to the unit and elevations including recladding and associated changes to car parking and landscaping and new signage.
- 3.2 The existing Pizza Hut is classified as Use Class E and provides a takeaway service. The proposed development therefore does not constitute any change to this. The 296 sq.m GEA of the proposed development represents a decrease of 22 sq.m over the existing GEA and has resulted from changes to the external service yard.
- 3.3 As part of the proposals, the existing car park will be rearranged to facilitate the drive thru facility, which will route around the western side of the building.
- 3.4 The proposed site layout is included in **Appendix A**.

## 4 Flood Risk

4.1 The Environment Agency ('EA') Flood Maps for Planning and the TC SFRA Level 1 have been consulted to identify the flood zone for the Site, as well as the potential sources of flooding facing the scheme. These potential sources of flooding may be categorised as follows:

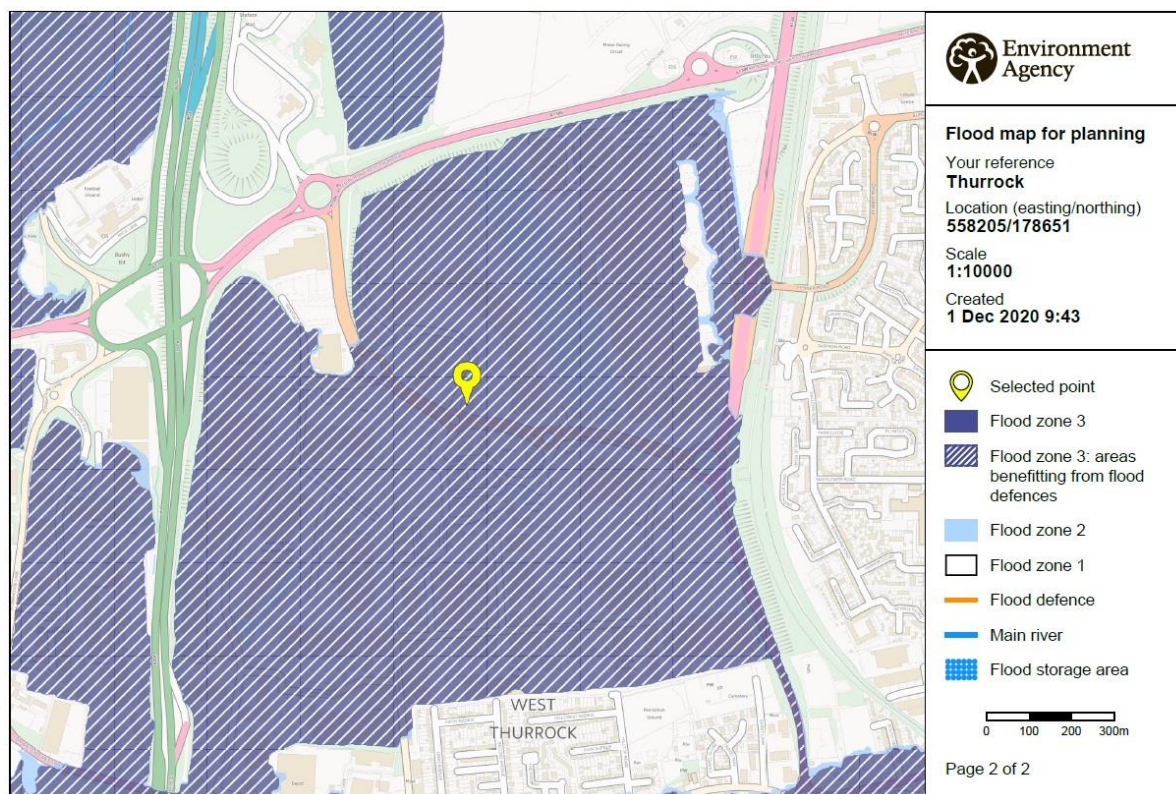
- Flood risk from Rivers or the Sea;
- Flood risk from Surface Water;
- Flood risk from Reservoirs;
- Groundwater Flooding;
- Historic Sewer Flooding, and;
- Overland Flooding.

4.2 Each of the above sources of flooding with regards to their effect and proposed method of mitigation on the scheme is addressed below. A copy of the Flood Mapping obtained from the EA website and the TC SFRA Level 1, which identify the potential flooding issues in the area for each flood source, is included in **Appendix B**.

### Flood Risk from Rivers and the Sea

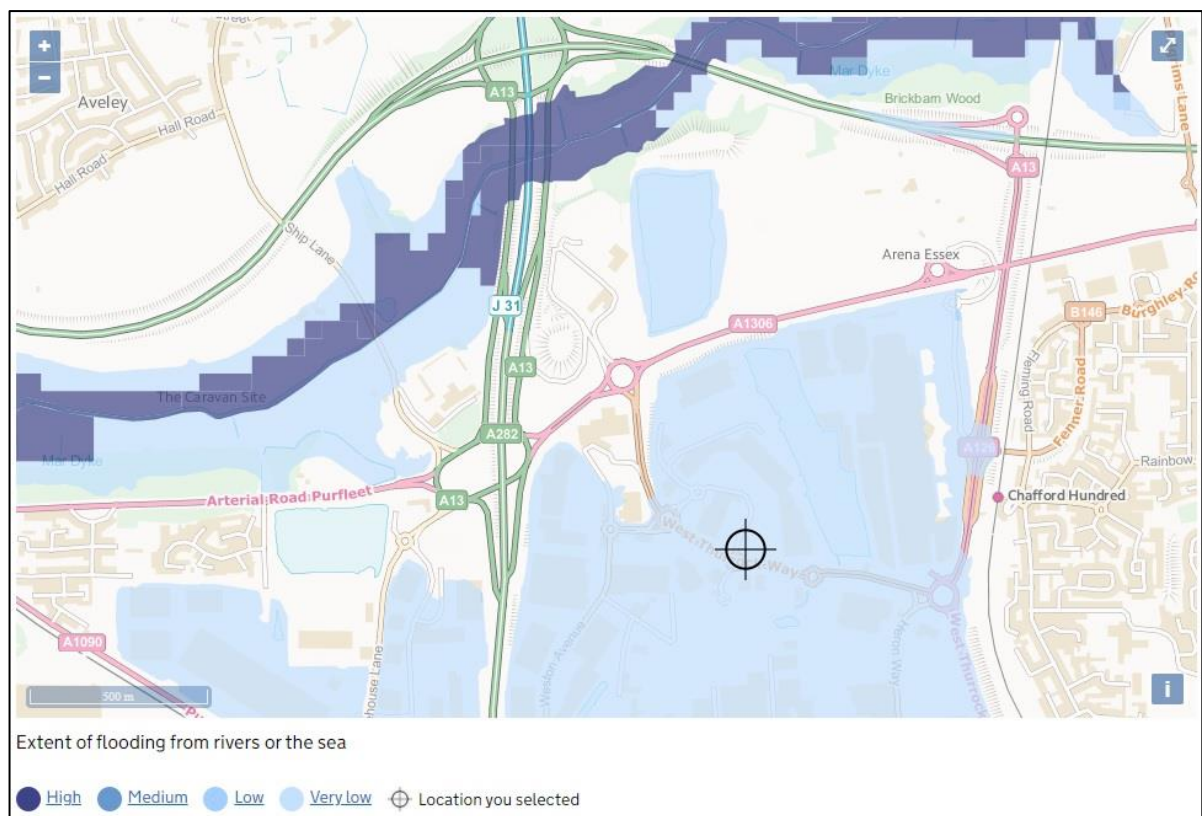
4.3 In accordance with the EA Flood Mapping, the Site is entirely located within Flood Zone 3, an area with a high probability of flooding that benefits from flood defences.

Figure 4.1 Environment Agency Map – Flood Zones



- 4.4 The land within this flood zone would have a high probability of flooding without the local flood defences. However, these protect the area against a river flood with a 1% chance of happening each year or a flood from the sea with a 0.5% chance of happening each year.
- 4.5 Therefore, this means that the Site is protected against of flooding and that the risk of flooding from rivers and the sea is considered to be low. Figure 4.2 below shows an extract from the EA website flood warning information service.

Figure 4.2 Environment Agency Map – Extent of Flooding from Rivers and the Sea



### Flood Risk from Surface Water

- 4.6 Based on the EA Flood Mapping, the flood risk from surface water is considered to be at high risk of flooding at the south-western corner of the Site. This area has a probability of flooding from surface water higher than 3.3%, however the depth of flooding has been measured to be below 300mm.
- 4.7 The flood risk from surface water will not be an issue as it is shown to be located outside the area of the proposed lane and therefore it will not be affected by this source of flooding. Furthermore, the TC SFRA Level 1 flood mapping does not highlight any historic surface water flooding issues within the Site surroundings.
- 4.8 Figure 4.3 below shows the extent of surface water flooding within the Site.

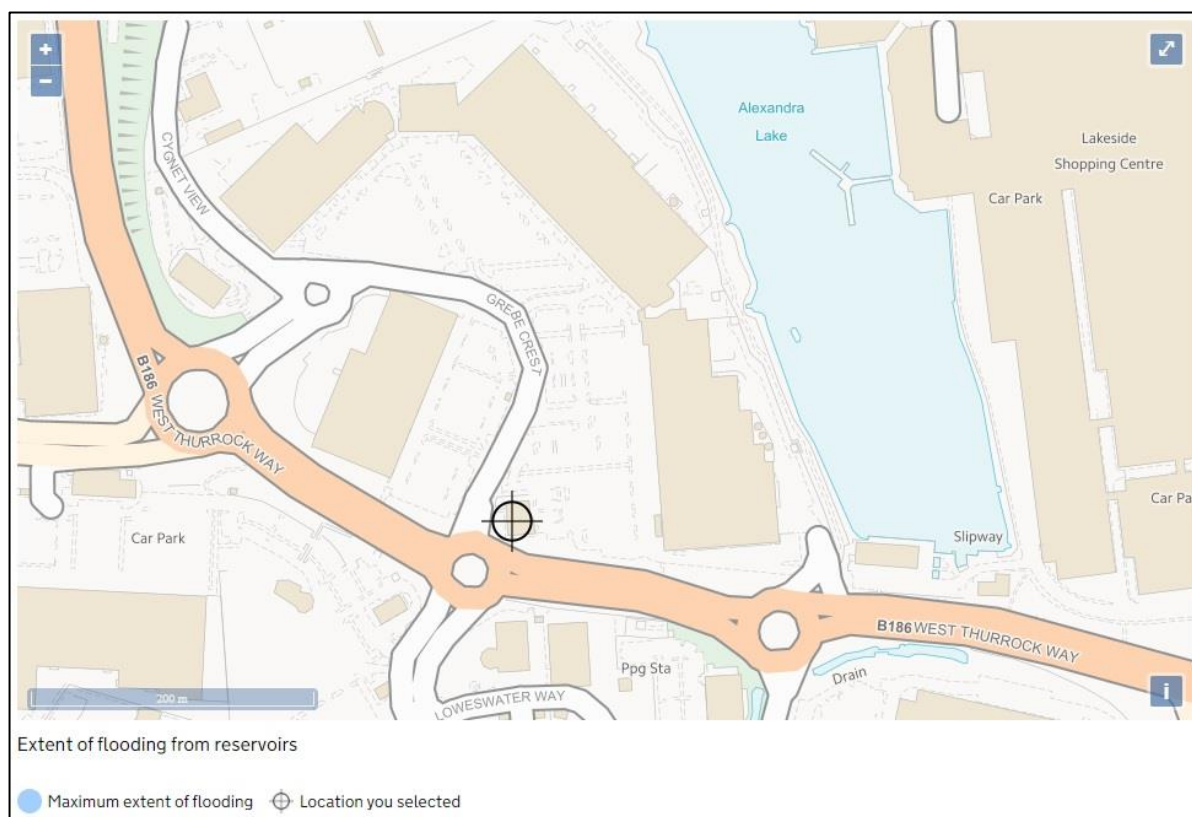


Figure 4.3 Environment Agency Map – Flood Risk from Surface Water



## Flood Risk from Reservoirs

Figure 4.4 Environment Agency Map – Flood Risk from Reservoirs



- 4.9 The EA Flood Mapping information confirms that the Site is not at risk from flooding from reservoirs.

## Groundwater Flooding

- 4.10 Groundwater flooding can occur, after prolonged periods of high winter rainfall, when the regional water table rises above the land surface and inundates limited areas of low lying ground. It occurs in the unconfined parts of aquifers (where strata comes to the surface). It is often differentiated from fluvial flooding by the clarity of the flood waters.
- 4.11 Groundwater flooding is usually associated with chalk and limestone catchments that allow groundwater to rise to the surface through the permeable subsoil following long periods of wet weather. Groundwater flooding can also occur in areas where Made Ground has been deposited above impermeable subsoils, typically during ground raising or levelling works.
- 4.12 Despite this, it is considered unlikely that groundwater flooding will pose a significant flood risk within Thurrock, as the presence of London Clay will generally prevent groundwater rising to the surface.

### **Historic Flooding**

- 4.13 The TC SFRA Level 1 mapping does not highlight any historic sewer flooding being recorded within the vicinity of the Site.

### **Overland Flooding**

- 4.14 Overland flow flooding typically arise following intense rainfall, often of short duration, that is unable to soak into the ground or enter receiving drainage systems.
- 4.15 As mentioned previously, the Site is bounded to the south by West Thurrock Way, to the west by Grebe Crescent and to the north and east to the existing commercial units forming part of the Lakeside Retail Park.
- 4.16 Therefore, overland flows the proposed scheme are expected to be minimal at the Brownfield runoff rate before reaching the lowest point of the Site, where it will soak into the ground.



## Policy Guidance

4.17 The National Planning Policy Framework ('NPPF') takes over from where Planning Policy Statement 25 ('PPS25') left off, although looks further into more community driven priorities. Its main driver is sustainability making developments concentrate on how the proposals impact upon the community in which it resides. It incorporates a number of key objectives including providing quality homes, improving quality of life and meeting the challenge of climate change, flooding and coastal change.

4.18 Where the NPPF relates to Flooding and Flood Risk it states:-

*"155. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*

*156. Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.*

*157. all plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:*

- applying the sequential test and then, if necessary, the exception test as set out below;*
- safeguarding land from development that is required, or likely to be required, for current or future flood management;*
- using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and*
- where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.*

*158. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding. Development should not be allocated or permitted if there are reasonably available Sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.*

*159. If it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the Site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in national planning guidance.*

*160. The application of the exception test should be informed by a strategic or Site specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. For the exception test to be passed it should be demonstrated that:*

- the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

*161. Both elements of the exception test should be satisfied for development to be allocated or permitted.”*

- 4.19 The Site, being located within Flood Zone 3 benefiting from flood defences, complies with the Sequential Test and is therefore suitable for all land uses. The proposed scheme meets the requirements of Sections 155 to 160 of the NPPF.
- 4.20 Based upon Tables 1-3 of the National Planning Policy Framework ('NPPF') 'Technical Guidance' the Site is identified within the EA Flood Maps as being within Flood Zone 3. The proposed commercial land use is categorised as being 'Less Vulnerable' from effects of flooding. Therefore, according to the NPPF guidance, a 'Less Vulnerable' categorised Site, such as proposed for the Site, is an appropriate land use for a Flood Zone 3 and an Exception Test is not required.

## 5 Evacuation Plan

### Background

- 5.1 As mentioned earlier within this report, the Site is identified as being within Flood Zone 3, within an area benefiting from Flood Defences. The land within this flood zone would have a high probability of flooding without the local flood defences. However, these protect the area against a river flood with a 1% chance of happening each year or a flood from the sea with a 0.5% chance of happening each year.
- 5.2 The TC SFRA states that tidal flood defences in Thurrock mainly consist of reinforced concrete walls, steel walls or earth embankments. The flood defence height varies within the borough between 6.90m AOD to 7.20m AOD and the defences are designed for the 1in1000 year return period event (0.1% annual probability).
- 5.3 In terms of watercourses and Main Rivers within close proximity to the Site, the following are the nearest:
- Alexandra Lake located approximately 300 metres to the east of the Site;
  - River Mar Dyke located at 1,500 metres to the north of the Site, and;
  - Thames River located at 2,500 metres to the south of the Site.
- 5.4 The EA provides an early flood warning system which the occupant of the unit should sign up to. This is available by telephone, mobile, e-mail, text message, fax or pager. Signing up to the service entitled 'Flood Warnings Direct' can be achieved by phoning the EA's Floodline telephone number which is 0845 988 1188.
- 5.5 The different types of flood warnings that can be issued by the EA and the actions required as a result of each warning type are explained below:



- **What it means?**
  - Flooding is possible.
  - Be prepared
- **When it's used?**
  - Two hours to two days in advance of flooding.
- **Triggers**
  - Forecasts that indicate that flooding from rivers may be possible.
  - Forecast intense rainfall for rivers that respond very rapidly.
  - Forecast of high tides, surges or strong winds.
- **Impact on the ground**
  - Flooding of fields, recreation land and car parks.
  - Flooding of minor roads.
  - Flooding of farmland.
  - Spray or wave overtopping on the coast.
- **Advice to the public/media**
  - Be prepared to act on your flood plan.
  - Prepare a flood kit of essential items.
  - Avoid walking, cycling or driving through flood water.
  - Farmers should consider moving livestock and equipment away from areas likely to flood.
  - Call Floodline on 0845 988 1188 for up-to-date flooding information.
  - Monitor local water levels on the Environment Agency website [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk).
- **Advice to operational organisations**
  - Check your flood response plans to see how your organisation needs to respond.
  - Speak to your local Environment Agency Flood Warning Duty Officer for the latest forecast information.
  - Dial info Flood Advisory Service teleconferences.
  - Advise the public to call Floodline on 0845 988 1188 for up-to-date flooding information.
  - Please report any flooding in your area to your local Environment Agency office.



- **What it means?**
  - Flooding is expected.
  - Immediate action required.
- **When it's used?**
  - Half an hour to one day in advance of flooding.
- **Triggers**
  - High tides, surges coupled with strong winds.
  - Heavy rainfall forecast to cause flash flooding of rivers.
  - Forecast flooding from rivers.
- **Impact on the ground**
  - Flooding of homes and businesses.
  - Flooding of rail infrastructure.
  - Flooding of roads with major impacts.
  - Significant waves and spray on the coast.
  - Extensive flood plain inundation (including caravan parks or campsites).
  - Flooding of major tourist/recreational attractions.
- **Advice to the public/media**
  - Protect yourself, you family and help others.
  - Move family, pets and valuables to a safe place.
  - Turn off gas electricity and water supplies if safe to do so.
  - Put flood protection equipment in place.
  - If you are caught in a flash flood, get to higher ground.
  - Call Floodline on 0845 988 1188 for up-to-date information.
- **Advice to operational organisations**
  - Check flood response plans for actions required at this stage.
  - Speak to your local Environment Agency Flood Warning Duty Officer for the latest forecast information.
  - Advise the public to call Floodline on 0845 988 1188 for up-to-date flooding information.
  - Please report any flooding in your area to your local Environment Agency office.



- **What it means?**
  - Severe flooding.
  - Danger to life.
- **When it's used?**
  - When flooding poses a significant risk to life or significant disruption to communities.
- **Triggers**
  - Actual flooding where the conditions pose a significant risk to life and/or widespread disruption to communities.
  - On-site observations from flooded locations.
  - A breach in defences or failure of a tidal surge barrier or dam that is likely to cause significant risk to life.
  - Discussions with partners.
- **Impact on the ground**
  - Deep and fast flowing water.
  - Debris in the water causing danger.
  - Potential or observed collapse of buildings and structures.
  - Communities isolated by flood waters.
  - Critical infrastructure for communities disabled.
  - Large number of evacuees.
  - Military support.
- **Advice to the public/media**
  - Stay in a safe place with a means of escape.
  - Be ready should you need to evacuate from your home.
  - Co-operate with the emergency services.
  - Call 999 if you are in immediate danger.
  - Call Floodline on 0845 988 1188 for up-to-date information.
- **Advice to operational organisations**
  - Check flood response plans for actions required at this stage.
  - Advise the public to put their safety first and to be ready to evacuate should the authorities decide it's needed.
  - Develop clear messages for local communities and the public.

## WARNING NO LONGER IN FORCE

- **What it means?**
  - No further flooding is currently expected for your area.
- **When it's used?**
  - When a flood warning or severe flood warning is no longer in force.
- **Triggers**
  - Risk of flooding has passed.
  - River or sea levels have dropped back below severe flood warning or flood warning levels and no further flooding is expected.
  - Professional judgement and discussions with partners agree that a severe flood warning status is no longer needed.
- **Impact on the ground**
  - No new impacts expected from flooding, however there may still be:
    - Standing water following flooding;
    - Flooded properties; and
    - Flooded or damaged infrastructure.
- **Advice to the public/media**
  - Be careful. Flood water may still be around for several days and could be contaminated.
  - If you've been flooded, ring your insurance company as soon as possible.
- **Advice to operational organisations**
  - Recovery phase will have started.
  - Advise the public to call Floodline on 0845 988 1188 for advice on what to do if they have been affected by flooding.

5.6 In addition to issuing flood warnings, the EA also provide the following services:

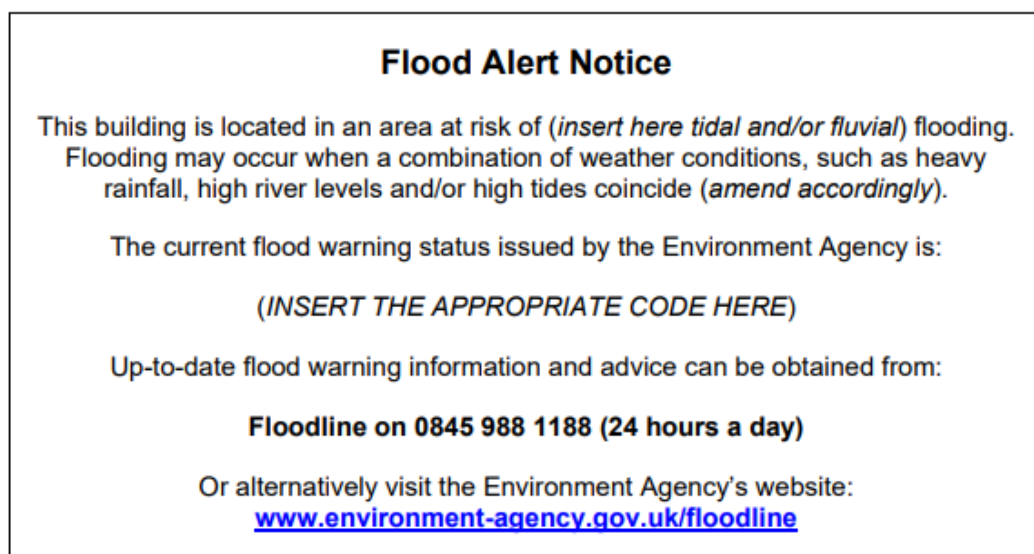
- Three day flood risk forecast. This shows, county by county, where there is risk of flooding over the next five days. The five-day forecast is updated at least every eight hours. For more information, the following link is available: <https://flood-warning-information.service.gov.uk/5-day-flood-risk>
- Rivers and sea levels. The EA measure river and sea levels by collecting data from our monitoring stations along rivers and the coast. This information will show how the rivers and sea are behaving at key locations. Rivers and sea levels are updated once a day on the EA's website. During flooding, it will be updated more frequently if levels reach above a given threshold. For more information, the following link is available: <https://flood-warning-information.service.gov.uk/river-and-sea-levels>

5.7 Weather and flood products provided by the Met Office and Flood Forecasting Centre can also be used by responders to ensure they are fully aware of the current and forecasted situations.

5.8 The Thurrock Community Flood Planning Pack outlines that the fact that absence of a warning does not mean that there is no threat of flooding from other sources such as flash flooding and tidal.

- 5.9 In terms of lead times for flood alerts, the EA aims to issue alerts a minimum of 12 hours prior to a tidal event and a minimum of 2 hours prior to a river flood event.
- 5.10 Flood warnings and additional emergency information is given on national and local radio stations. Local radio stations will give the most detail on the local area. Local radio stations are:
- Heart Essex – 96.3 FM & DAB
  - Gateway – 97.8 FM
  - BBC Radio Essex – 95.3 FM & DAB
  - Time – 107.5 FM & DAB
- 5.11 A 'Flood Alert Notice' could be displayed at a prominent location within the drive thru lane. The notice will include the current flood warning status issued by the EA. An example of a Flood Alert is included within the LBR Guidance on Producing a Flood Emergency Plan (Page 7) and is shown below:

Figure 5.1 Flood Alert Notice Example



- 5.12 Due to the commercial nature of the proposed drive thru lane, in the event of a flood or in the event of any emergency or disruption to usual activity the drive thru lane will be closed.



## Evacuation Routes

- 5.13 Should evacuation be required and specified by the emergency services, the EA's indicative flood map and mapping provides as part of the TC SFRA Level 2 have been used to derive safe evacuation routes avoiding known flow paths.
- 5.14 The Appendix B within the TC SFRA Level 2 'Predicted Flood Depth and Time to Inundation Maps' do not present the Site within areas that will be affected by flooding in the instances of a 1000 year tidal/fluvial event or 200 year tidal/100 year fluvial event. These maps are included within this report within **Appendix C**.
- 5.15 Therefore, safe and dry access can be maintained for the lifetime of the development and as result of this, a safe refuge point inside the drive thru lane does not need to be considered.
- 5.16 When analysing the Flood Depth and Time to Inundation map, the Site is not included within any of the boundaries of expected flooding. As such, and notwithstanding the location of the Site within Flood Zone 3, the Site is not expected to flood in both 1in1000 year tidal and fluvial event scenarios. The nearest extent that is included within the expected flooding boundaries is located 1km south of the Site, just north of the railway line.
- 5.17 The first stage of evacuation, if required, would be to vacate the drive thru lane as quickly and safely as possible and for staff to congregate in the car park or an area of the nearby existing retail park which has not been affected by flooding.
- 5.18 Taking into account the above information and areas of potential flooding around the Site, if there is a need to evacuate visitors from the Site as specified by the emergency services of local authority, safe, dry evacuation can take place by heading north around Grebe Crescent towards West Thurrock Way. The safe route continues from the West Thurrock Way/Weston Avenue roundabout heading north, as West Thurrock Way is located within Flood Zone 1 and thus the likelihood of flooding here is low.
- 5.19 In order to avoid the extent of Flood Zone 3 and any potential flooding that may occur from Mar Dyke, the evacuation route continues east on the Arterial Road West Thurrock (A1306) due to the area being located away from a flood zone. Once in a safe area on the Arterial Road West Thurrock evacuees will await instruction from the relevant authorities.

5.20 As outlined in the 'Flood Risk to People' document issued by the EA in 2006:

*'Adults are unable to stand in still floodwater with a depth of about 1.50m or greater, although this is obviously affected by the height of the person. The depth of flowing floodwater where people are unable to stand is much less. For example, some people will be at risk when the water depth is only 0.50m if the velocity is 1m/s. if the velocity increases to 2m/s, some people will be unable to stand in a depth of water of only 0.30m. Most people will be unable to stand when the velocity is 2m/s and the depth is 0.60m.'*

5.21 As stated previously however, the predicted flood depth maps for both flooding scenarios, there is no flooding predicted within a close proximity of the Site. The nearest extent to the south, just north of the railway line is expected to reach between 1.00-2.00m in depth.

5.22 The Site Flood Plan is to be overridden by any advice given competent authorised staff include the Emergency Services of Local Authority responders on the ground in the event of a serious flood.

## **Role of Organisations**

5.23 The response to a major flood event will involve a number of organisations working together at a local level, including the emergency services, local authority, the EA and utility companies. As mentioned previously, the Essex Resilience Forum is a multi-agency partnership, made up of local councils, emergency services, health providers, the voluntary sector and many more organisations that work together to plan and prepare for a multi-agency response to a major emergency to provide relevant information and outline the response arrangement in place for a coordinated multi-agency response.

5.24 As specified in the Community Flood Planning Pack, the general roles of the main bodies in relation to a major flood event are summarised below. It should be noted that this is a general list, and specific duties may vary between different bodies:

### *Essex Police*

- Save life in conjunction with the other emergency services;
- Co-ordinate the emergency responders and other organisations acting in support at the scene of the incident;
- Secure, protect and preserve the scene, and to manage sightseers and traffic through the use of traffic control and cordons;
- Following liaison with the Fire and Rescue Service, the EA and Local Authorities, co-ordinate carryout evacuation if required;
- Collation and dissemination of casualty information, and;
- Identification of the dead on behalf of HM Coroner.

### *Essex Fire and Rescue Service*

- Rescue of trapped casualties;
- Prevention of further escalation of the incident;
- Gather information and conduct a hazard assessment to assist Essex Police in the decision to evacuate;
- Liaison with the police regarding the establishment of cordons around the incident site;
- The safety of all personnel involved in rescue work;
- Consideration of actions to minimise any dangers to the environment;
- Liaise with the Medical Incident Officer, the Ambulance Service and other medical services, and;
- Standing by during non-emergency, recovery phase as appropriate.

### *East of England Ambulance Service*

- Save life in conjunction with the other emergency services;
- Extricate, stabilise and care for those injured, at the scene;
- Provide sufficient ambulances, medical staff, equipment and resources;
- Establish effective triage points and systems, and determine the priority evacuation needs of those injured;
- Provide a focal point at the incident for all NHS resources at the scene, with direct radio links to hospitals, Emergency Operations Centre and any other agency as required;
- Nominate and alert the receiving hospitals;
- Provide transport to the incident scene for the medical Incident Officer, mobile medical/surgical teams and their equipment, and;
- Arrange the most appropriate means of transporting those injured to the receiving and supporting hospitals.

### *Environment Agency*

- Provide flood forecasting and warning for both tidal/coastal and main river flooding;
- Maintaining main river channels and flood defence structures, and;
- Monitor weather forecasts, weather radar, rainfall, river and tidal levels, on a continuous 24-hours basis to detect and forecast possible flooding incidents.

### *HM Coastguard (HMCG)*

- The HMGC primary responsibilities as regards emergency response are to coordinate civil maritime Search and Rescue ('SAR') with the UK SAR Region (including on the coast and on certain inland waters). The HMCG will also assist other emergency responders inland where resources are available.

## Thurrock Council

- Provide support to the emergency services if resources are available;
- Provision of Emergency Assistance Centres;
- Provision of temporary emergency accommodation;
- Provision of evacuation transportation;
- Distribution and placement of sandbags to vulnerable persons if resources available;
- Assist in the dissemination of information to the public;
- To assist the Police in establishing road blocks and diversions;
- Assist in warning and informing the public including door to door knocking if requested by Essex Police;
- Lead the Recovery Coordinating Group;
- To remove debris from public areas and highways;
- To repair flood damaged council owned properties;
- Provide advice and on sources of financial and other assistance available to affected households;
- Chair additional Economic Development Working Groups and liaise with the Federation of Small Businesses to support businesses during the Recovery Phase;
- Signpost local businesses to external agencies for assistance during the Recovery Phase, and;
- Provide civil engineering measures on roads, bridges and repair.

## Monitoring and Review of the Plan

- 5.25 It is important that the Site Flood Plan is kept up-to-date and accurate. This plan must be updated at least every three years, when new information becomes available or a change in circumstances that may affect it occurs.

## Contact Numbers

### Resource Contacts

Organisation	Address	In hours number	Out of hours number
Environment Agency	<a href="mailto:enquires@environment-agency.gov.uk">enquires@environment-agency.gov.uk</a>	0845 988 1188	0845 988 1188
Essex Police		Non-emergency number 0300 333 4444	Non-emergency number 0300 333 4444
Essex Fire and Rescue		Non-emergency number 01376 576000	Non-emergency number 01376 576000
Thurrock Council	Thurrock Council, Civic Offices, New Road, Grays, Essex, RM17 6SL	01375 652652	01375 652652
Thurrock Council Civil Protection Team	<a href="mailto:civilprotection@thurrock.gov.uk">civilprotection@thurrock.gov.uk</a>	01375 652652	01375 652652
Essex and Suffolk Water		0845 604 7468	0845 782 0999 for emergencies
Anglian Water		08457 919155	08457 145145 for emergencies
Gas		Emergency number 0800 111 999	Emergency number 0800 111 999
Electricity EON		Emergency number 0800 7838838	Emergency number 0800 7838838
RSPCA		0300 1234 555	0300 1234 999 for emergencies
Essex info net – for traffic information	<a href="http://www.essexinfo.net/na/492815/">http://www.essexinfo.net/na/492815/</a>	Webpage only	Webpage only

# APPENDIX A

[illegible]



















**DELIVERY AREA**  
EXISTING LAY-BY USED FOR  
DELIVERY








**KNEE RAIL**  
NEW KNEE RAIL TO DEMARK SITE  
BOUNDARY FROM PEDESTRIAN  
ACCESS ROUTE








**COLLECTION POINT**  
NEW LAMP POST, DT LOOP SENSOR  
AND BOLLARDS ADJACENT TO  
DT WINDOW

**DRIVE THRU WINDOW:**  
NEW SMALL SINGLE STOREY  
REAR EXTENSION TO INCLUDE  
DRIVE THRU WINDOW AND  
CANOPY ABOVE.



REV.	EXTERIOR FURNITURE	QTY	DESCRIPTION
01		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
02		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
03		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
04		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
05		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
06		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
07		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
08		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
09		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
10		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
11		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
12		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
13		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
14		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
15		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
16		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
17		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
18		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
19		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
20		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
21		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
22		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
23		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
24		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
25		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
26		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
27		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
28		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
29		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
30		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
31		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
32		01	SEATING: 120" x 60" x 30" (120" x 60" x 30")
33			

KEY:	EXTERIOR FIXTURES
	DIAMONTE BAY - BLACK (OF DESIGNATED BACKING ANGLE)
	SMALL UTTER BAY - BLACK (FOR ADJUNCT TO BUILDING)
	COMBO DELTA UNDER-APERTURE UTTER BAY - BLACK (FOR CAMPING)
	SEA-JOINED STAINLESS STEEL SHIPBOARD (SAY)
	WINE RHYTHM (RIDGE)
	METAL BALUSTRADE
	CYCLO RACK

REVIEW		LANDSCAPING	
	THUNDER CLAD SOFT PLANTER		
	TRAILS		
	SHRUBS AND DRIPAL COVERS		
	BOLLERS		
			GRASS
			STONE MATERIAL
			PAVING
		<b>PAVING:</b> MARBLE A.S. VIBE BLOCK/INTERCOMERIAL BLOCK/PAVIA 300 X 300 X 60MM LATED REFRESH SONE FORMAT COLOUR: CHAMICAL	

TIM HORTONS VEHICLE TRACKING	
JAGUAR XJS	YES
MINIBUS	YES
LUTON VAN	YES

TOTAL SHARED PARKING NUMBERS	
BICYCLE	8
CARS (STANDARD)	9
CARS (ACCESSIBLE)	5
CARS (PARENT + CHILD)	0
<b>TOTAL</b>	<b>14 (+shared)</b>

	TREE POSITIONS AMENDED TO REFLECT ACCURATE LOCATIONS	MC
11.01.2021		
12.01.2021	NOTES RE-USED, SILVERADO SIGN ADDED.	MR
2.2020	DEMO TREES REMOVED FROM PLAN	MR

PI	EXPIRATION DATE	DESCRIPTION	NAME
		PLANNING	

Signature \_\_\_\_\_

**Beyond**

40 KING STREET, ELDOCS, LONDON, NW3 0JA  
 WWW.BEYOND-COMMUNICATIONS.CO.UK  
 TEL: 020 8846 3860

Client: **Tim Hortons**

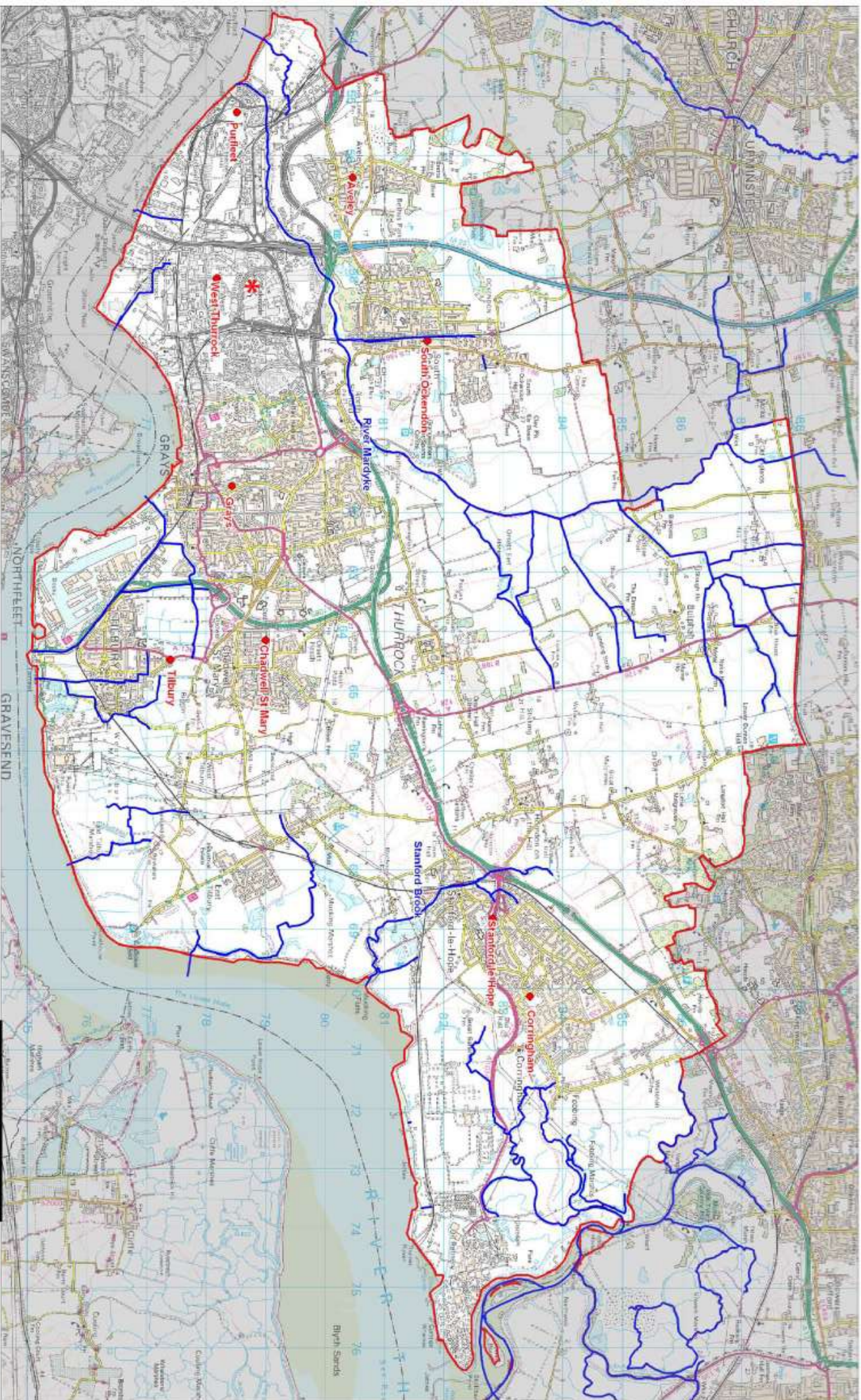
Project Name:	THUR ROCK
Format:	DRIVE-THRU

Title: PROPOSED SITE PLAN	Site Address: LAKESIDE RETAIL PARK THURROCK
------------------------------	---

RM20 1WN	Drawing No:	Rev:
	7317-PS-01.5	C
Date:	03/12/2020	Scale: 1:200 @A1
Drawn by:	MC	Checked: *DB*

# APPENDIX B





Project:

Thurrock Borough  
Council SFRA Level 1

Title:

Study Area

- Main Watercourses
- Main Urban Centres
- Thurrock Borough Council Boundary



**FIGURE 1**

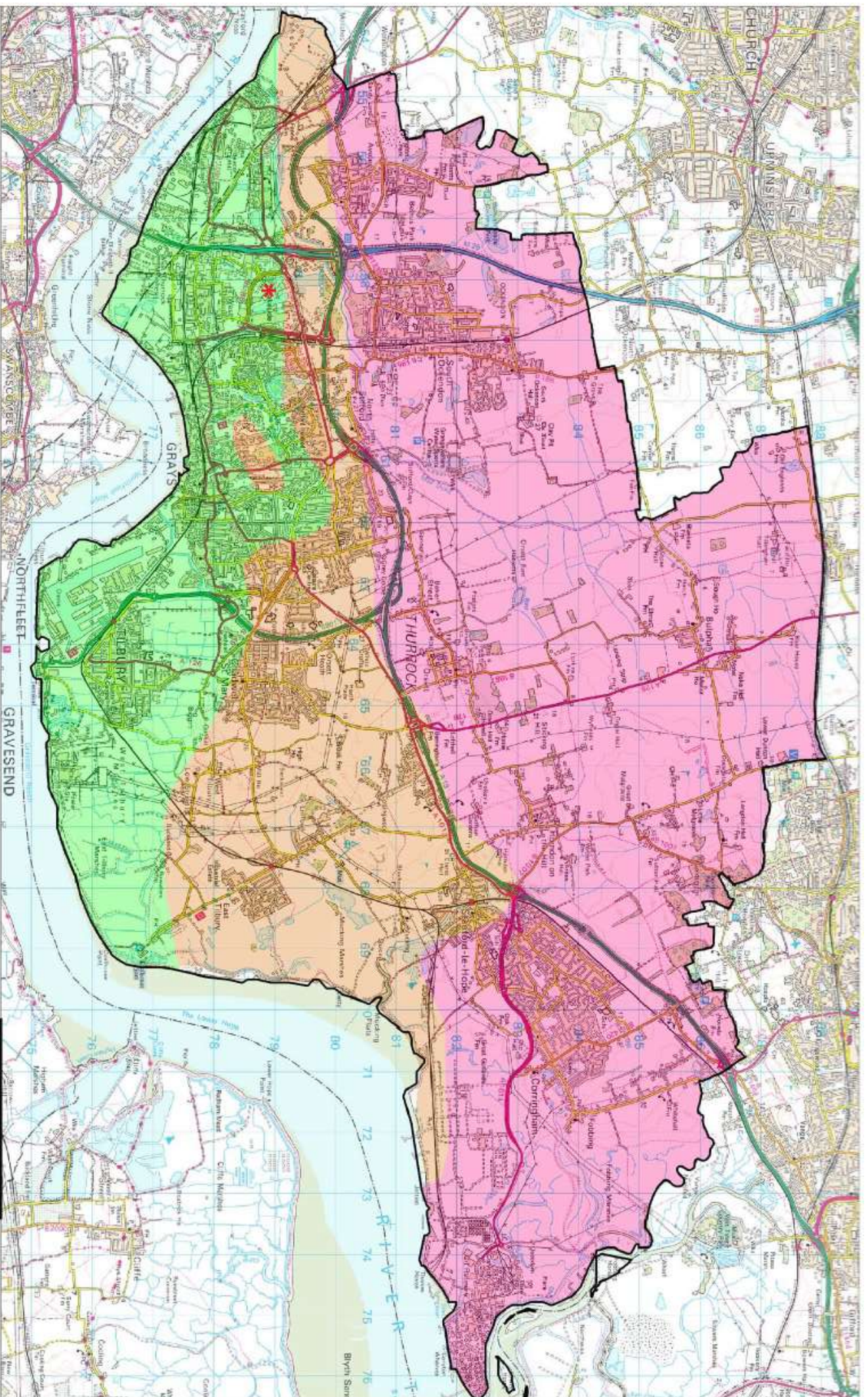
Scale 1:100,000 @ A3

Drawn SW Date 06/09 Rev 1



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Project:  
Thurrock Borough  
Council SFRA Level 1

Title:  
Solid Geology

- Thurrock Borough Council Boundary
- London Clay
- Lambeth Group and Thanet Beds
- Chalk

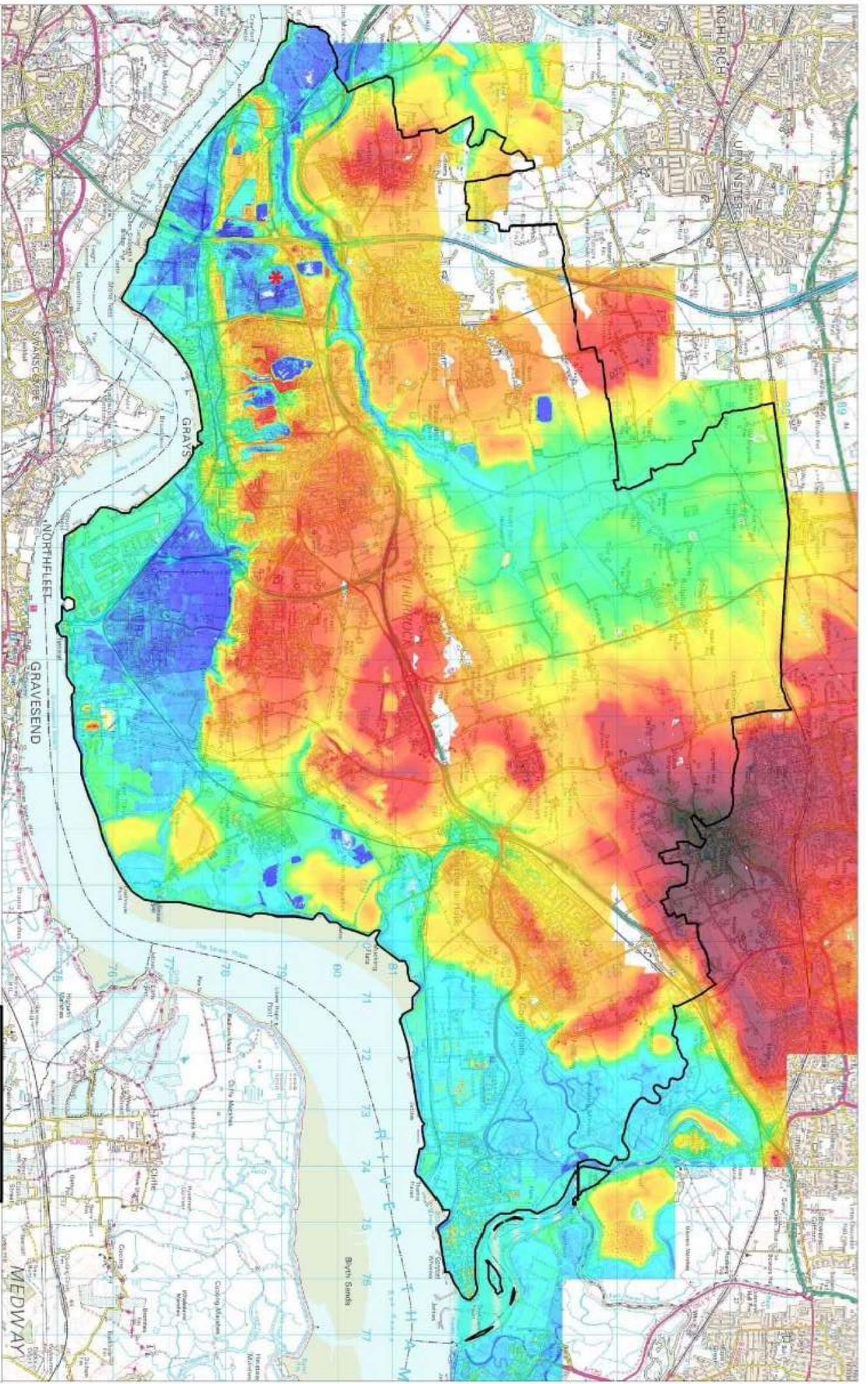


FIGURE 2A

Scale 1:100,000 @ A3

Dwg SW Date 05/09 Rev 1





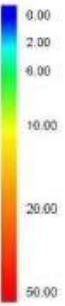
Project:

Thurrock Borough  
Council SFRA Level 1

Title:

Aerial Survey LIDAR  
Topographic Data

Elevation (m AOD)



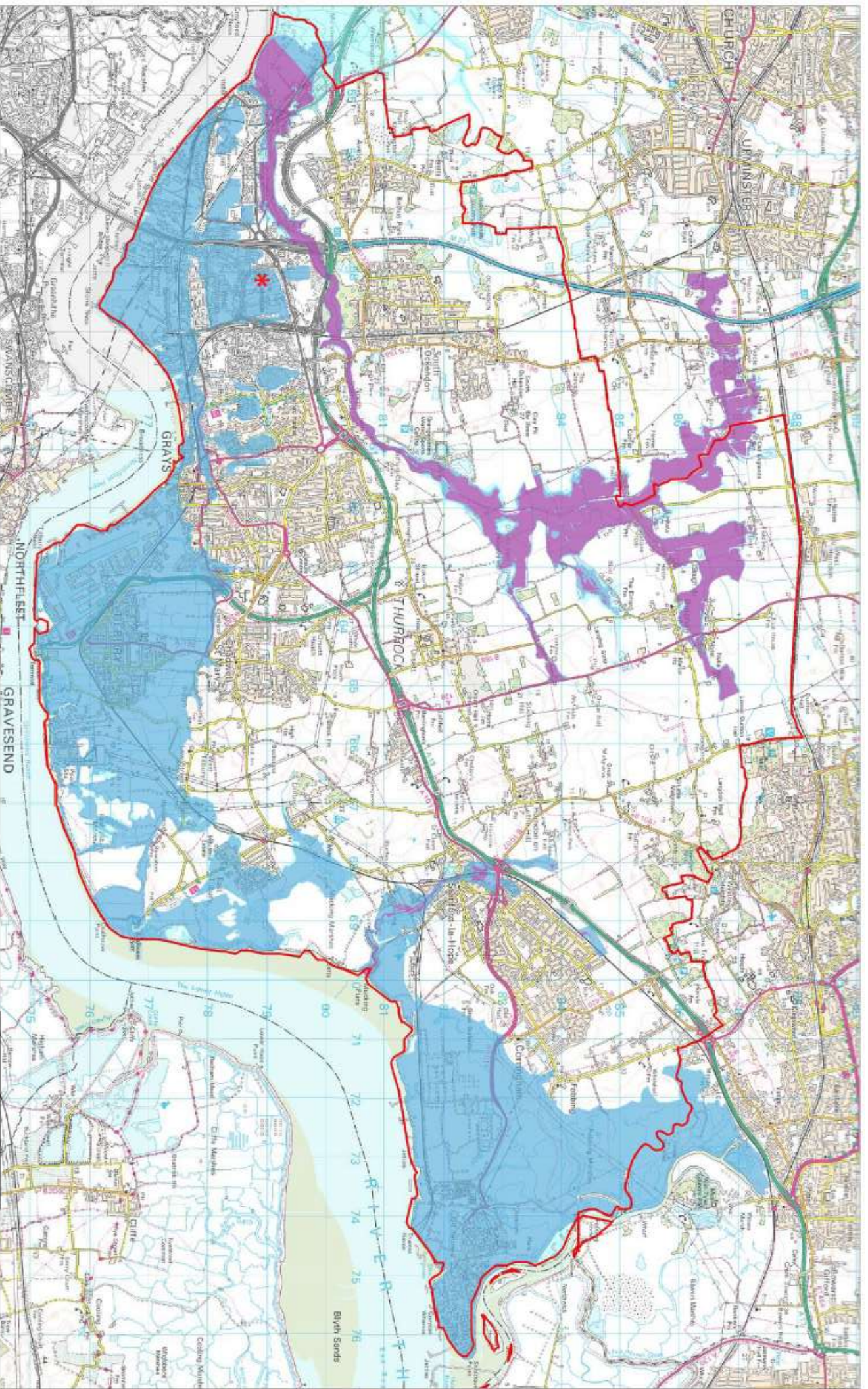
Thurrock Borough Council Boundary

FIGURE 3

Scale 1:100,000 @ A3

Drw SW Date 05/09 Rev 1





Project:  
Thurrock Borough  
Council SFRA Level 1

Title:  
Flood Zones (2009)

Flood Zone 2  
 Flood Zone 3a  
 Flood Zone 3b  
 Thurrock Borough Council Boundary

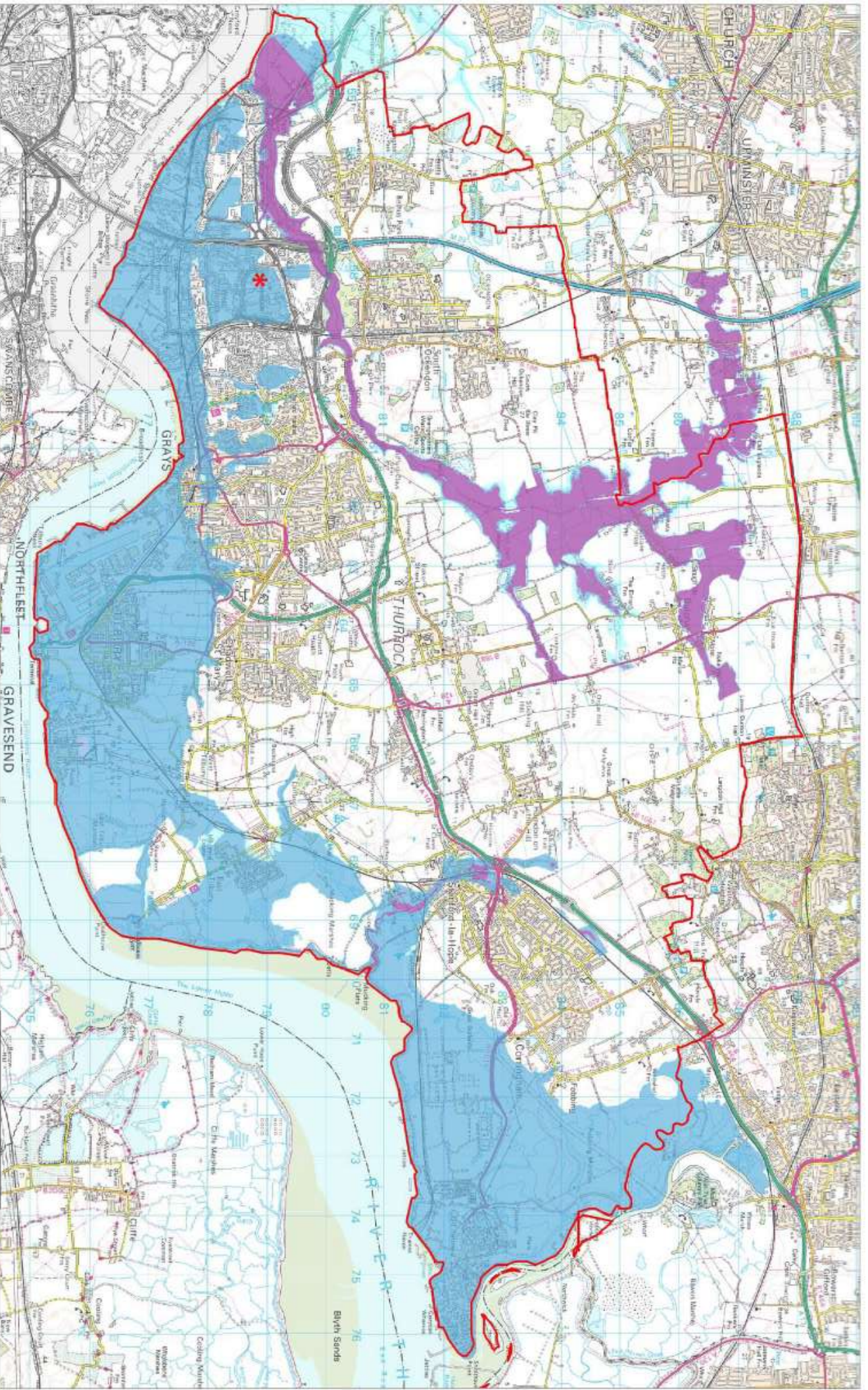


**FIGURE 5**

Scale 1:100,000 @ A3

Drw SW Date 05/09 Rev 1





Project:

Thurrock Borough  
Council SFRA Level 1

Title:

Flood Zones (2109)

■ Flood Zone 2  
■ Flood Zone 3a  
■ Flood Zone 3b  
■ Thurrock Borough Council Boundary



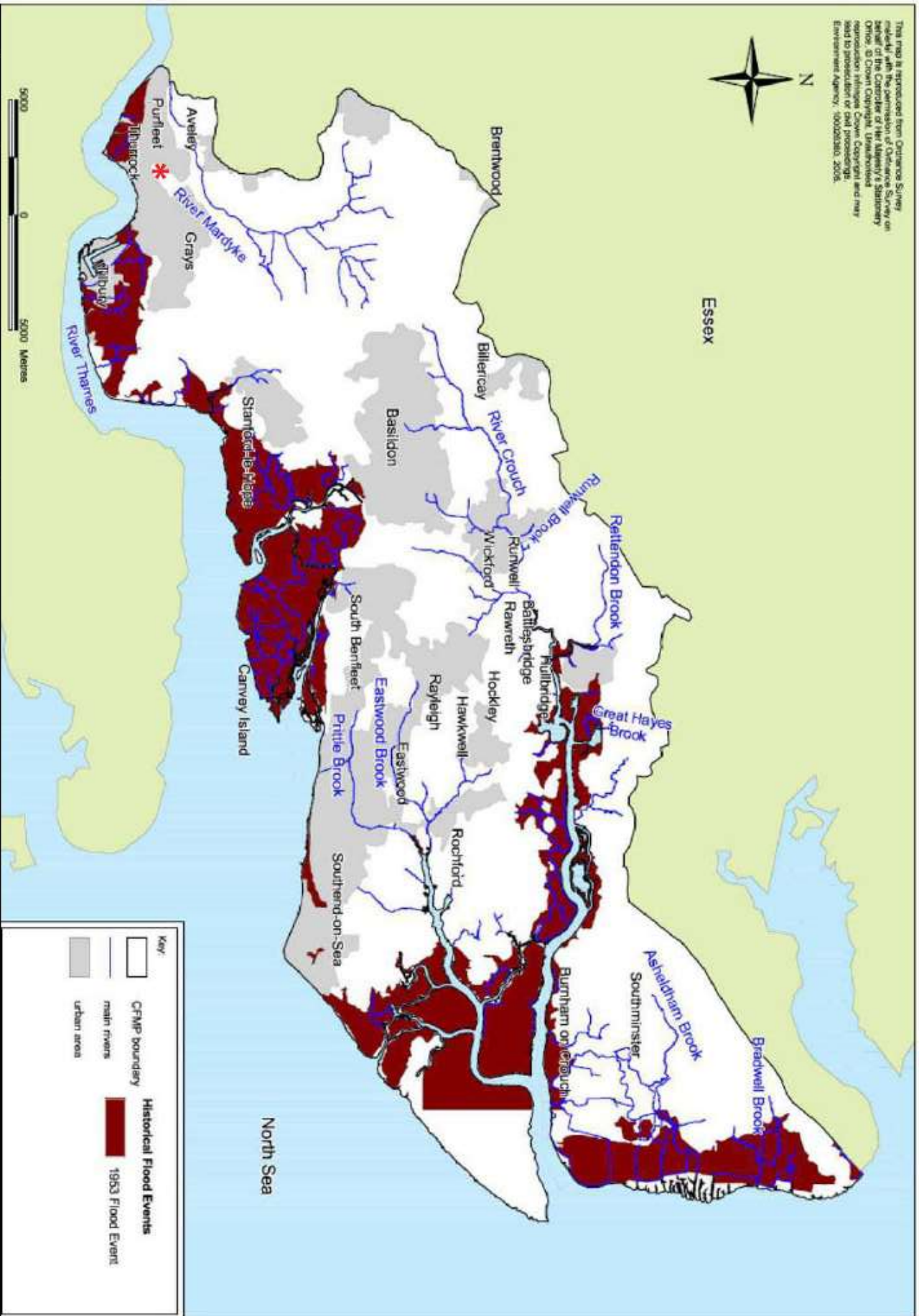
**FIGURE 6**

Scale 1:100,000 @ A3

Drw SW Date 05/09 Rev 1

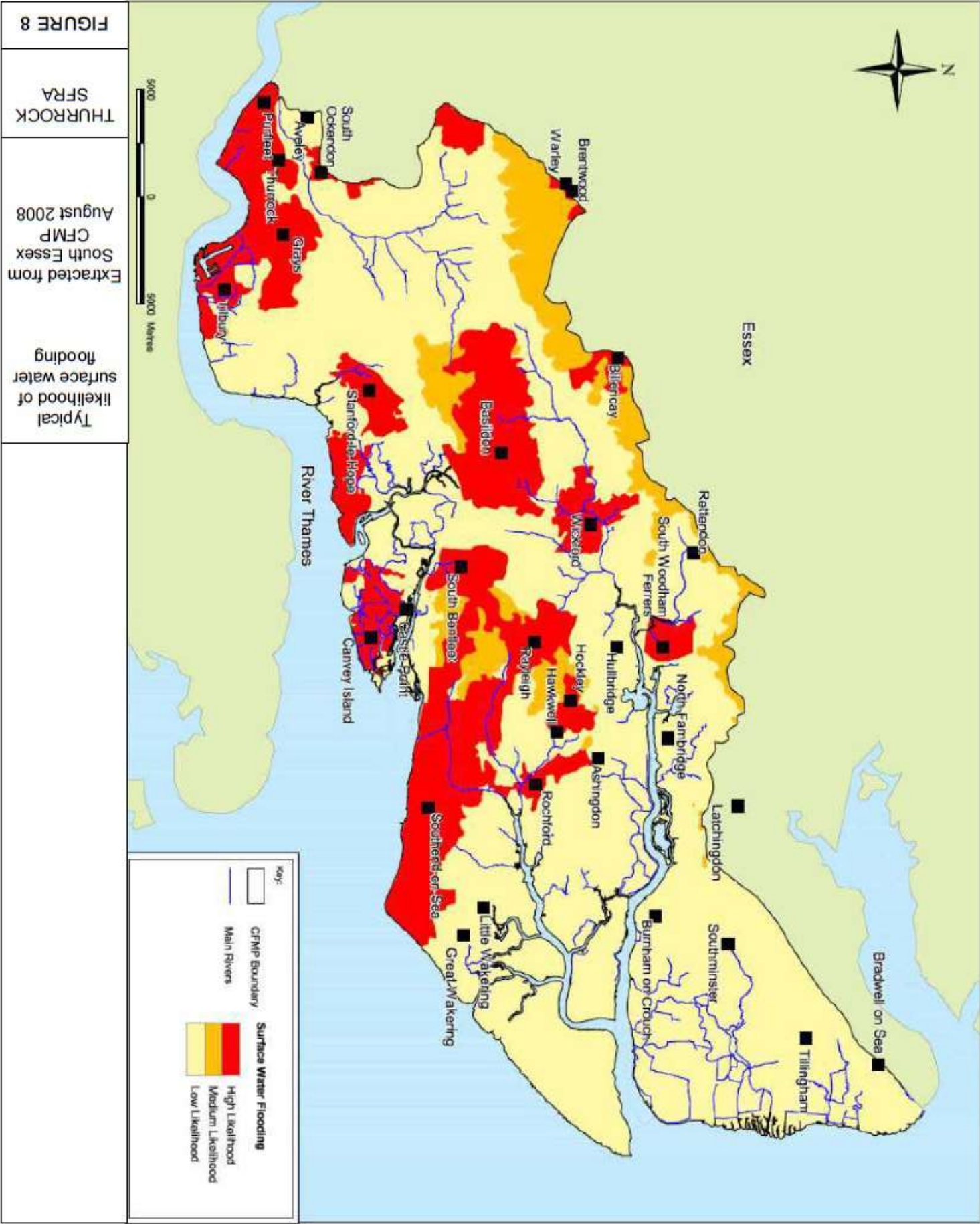


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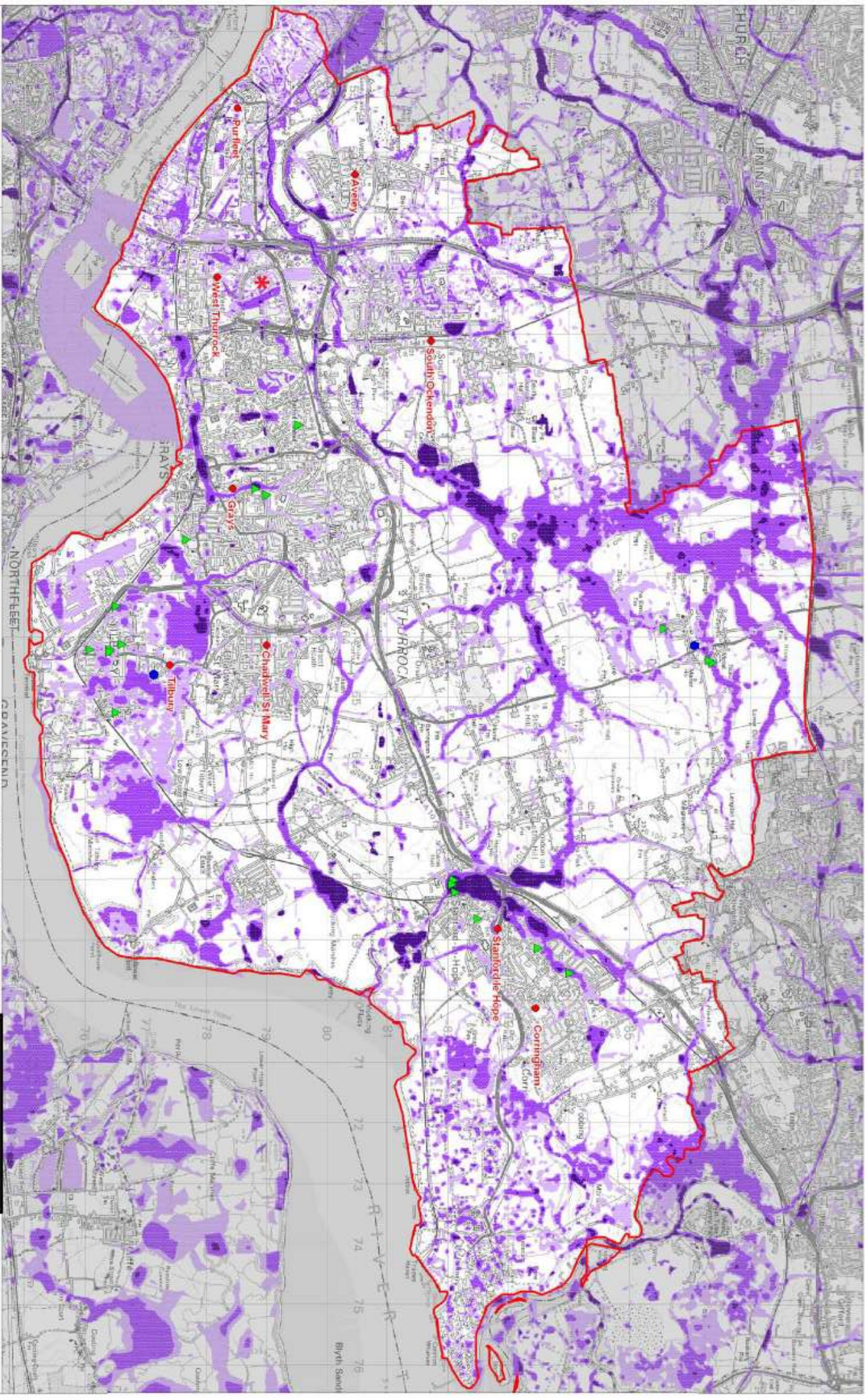


THURROCK SFRA	Extracted from South Essex CFMP August 2008	Flood Extent during 1953 Tidal Flood Event
---------------	---	--

FIGURE 7







Project

Thurrock Borough  
Council SFRA Level 1

Title

Areas Susceptible to Surface Water  
Flooding & Recorded Surface Water  
& Sewer Flooding Events

- Thurrock Borough Council Boundary
- Main Urban Centres
- Surface Water Flood Event
- ▲ Sewer Flooding Event

Areas Susceptible to Surface  
Water Flooding (EA, 2009)

- More
- Intermediate
- Less

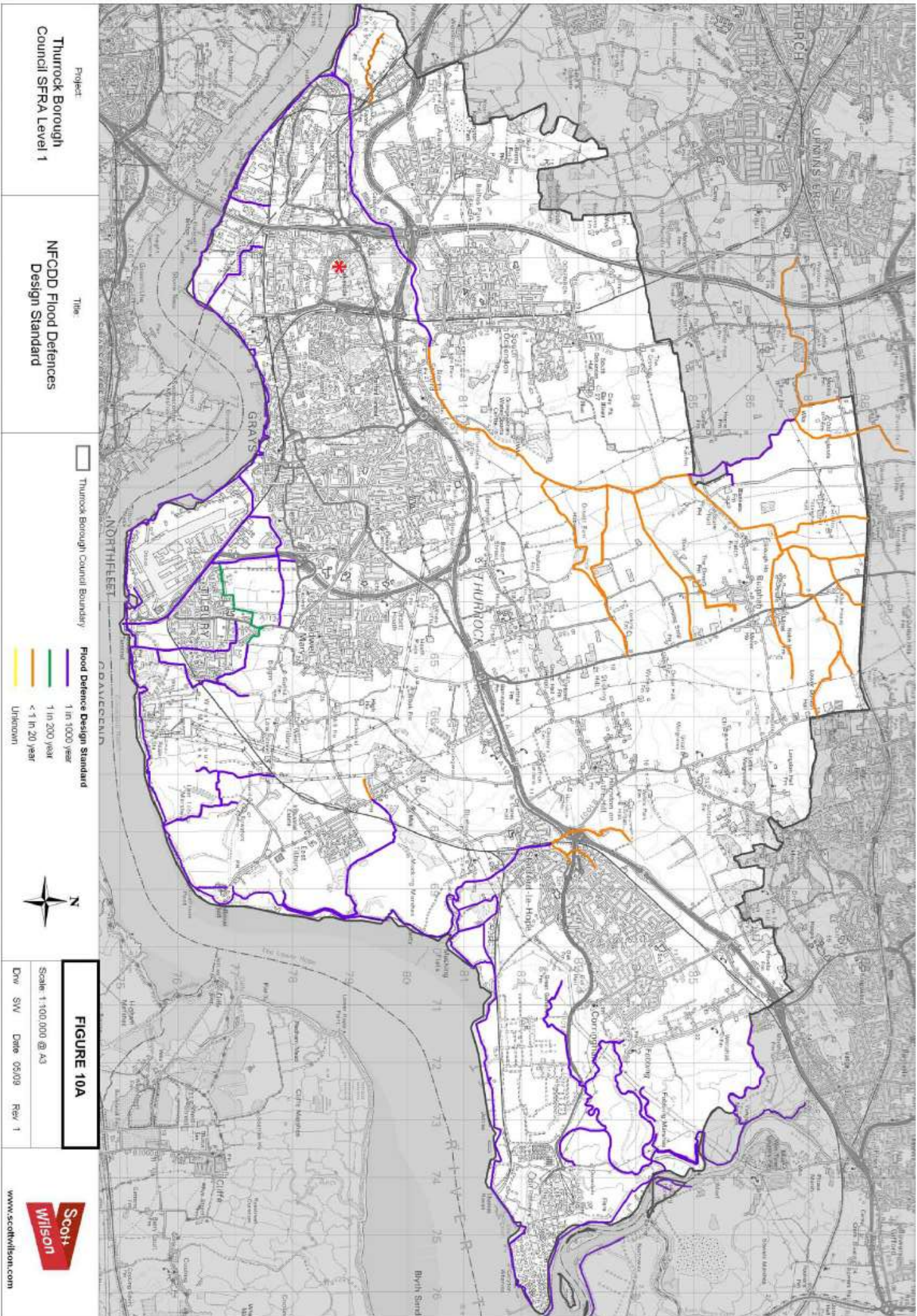


**FIGURE 9**

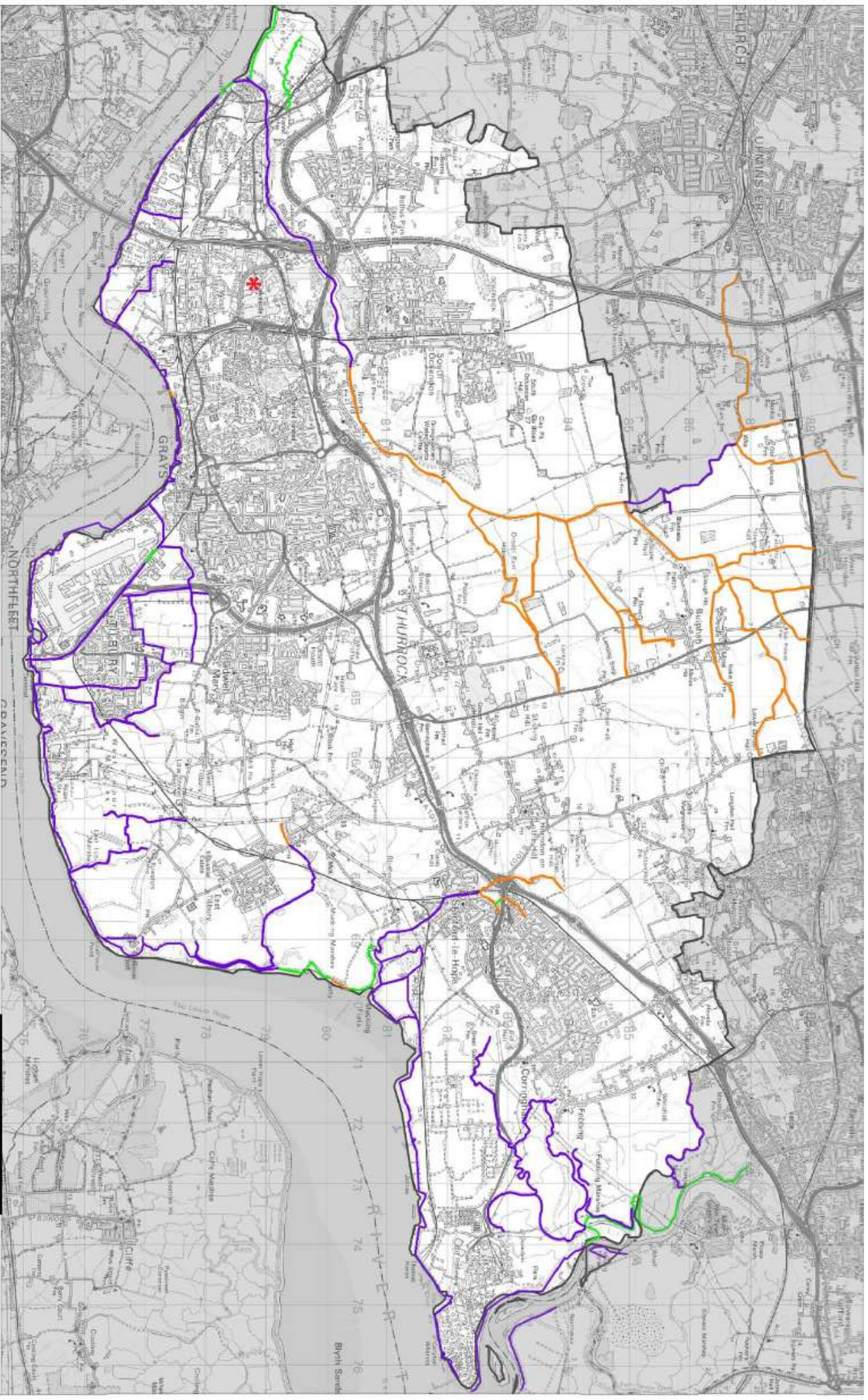
Scale 1:100,000 @ A3

Drw SW Date 05/09 Rev 1







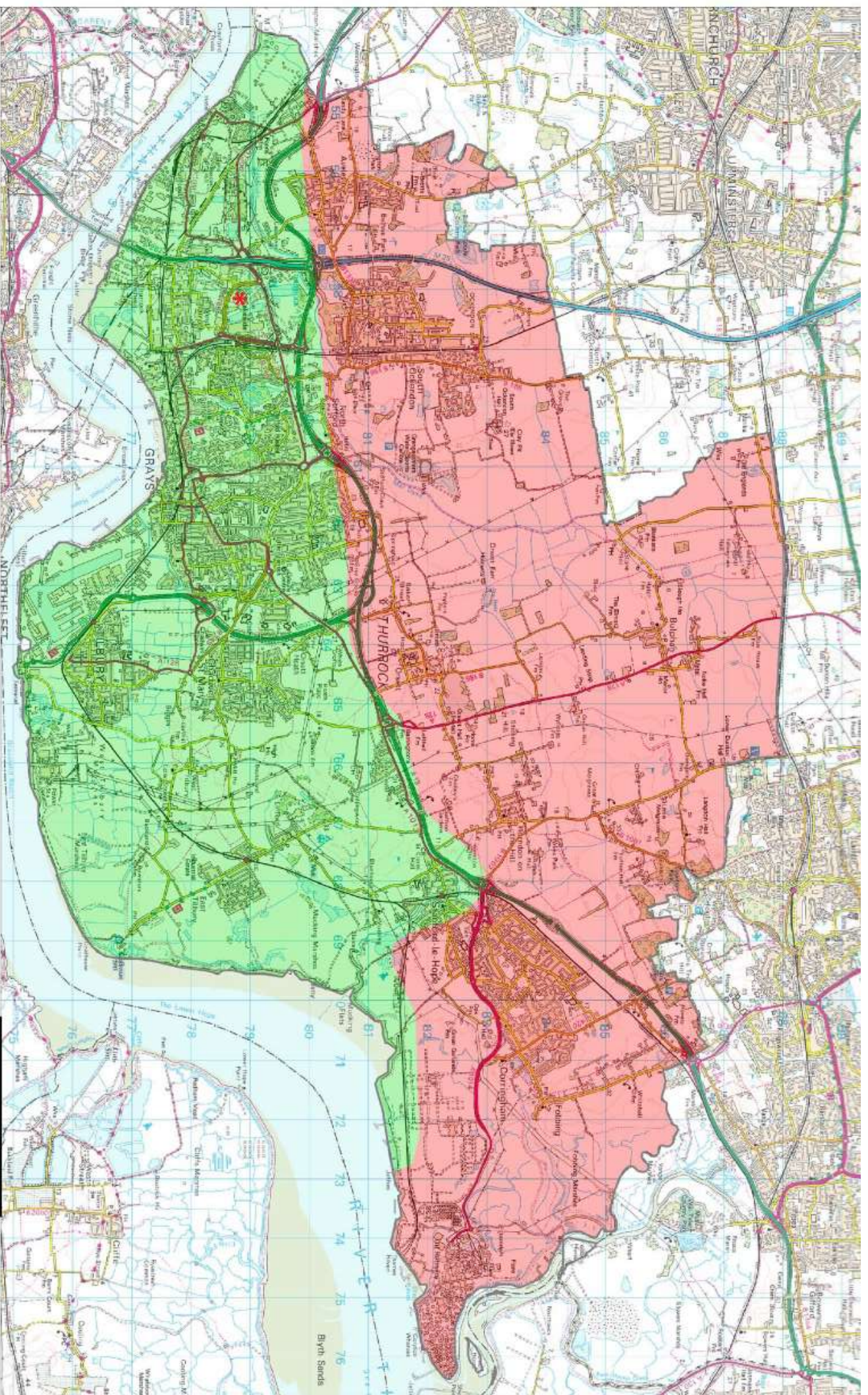


**FIGURE 10B**

Scale 1:100,000 @ A3

Drw SW Date 05/09 Rev 1





Project

Thurrock Borough  
Council SFR Level 1

Title

Sustainable Drainage Systems

Recommended SUDs

Attenuation systems

Infiltration systems and combined  
infiltration / attenuation systems

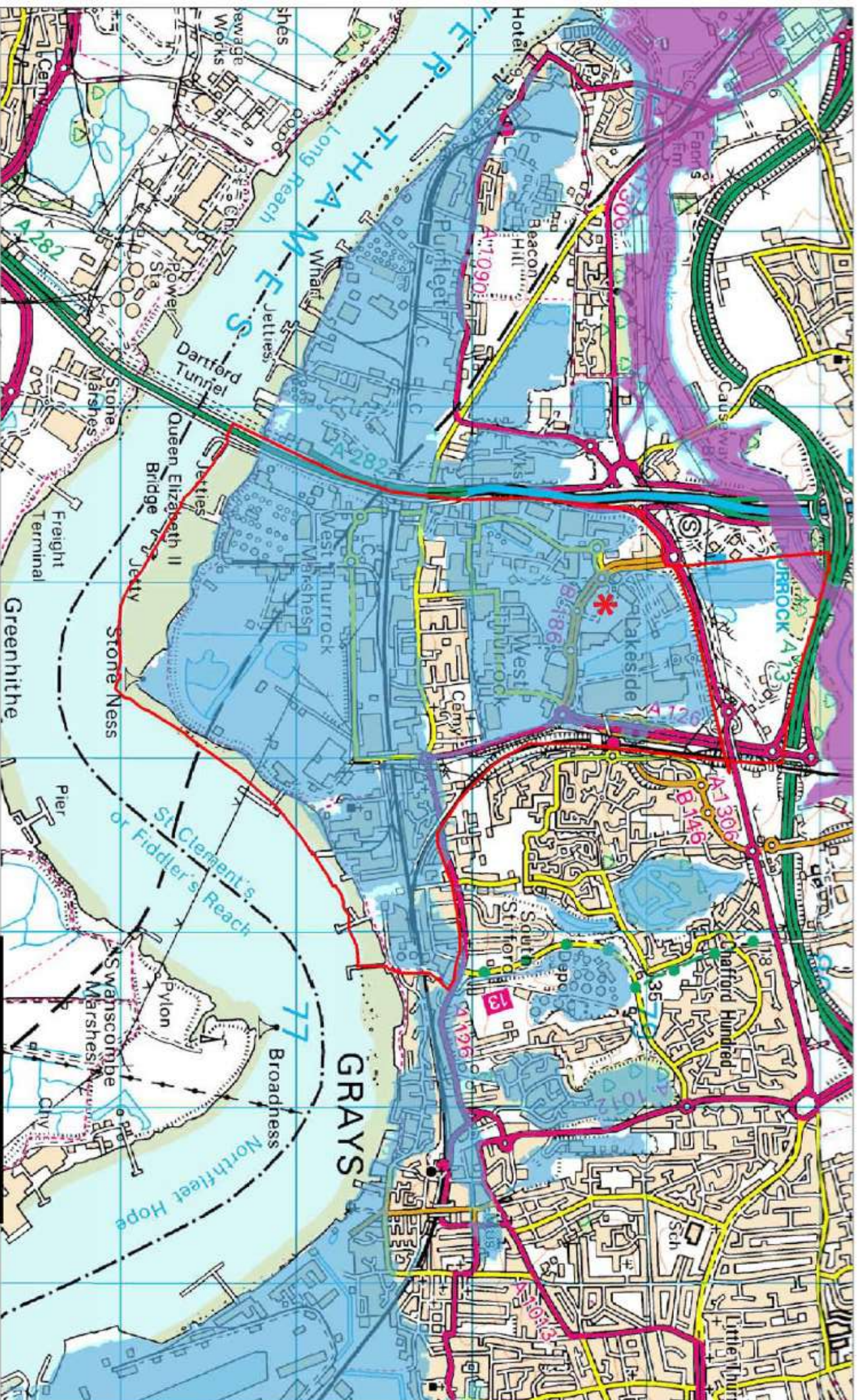
Thurrock Borough Council Boundary

FIGURE 13

Scale 1:100,000 @ A3

Drw SW Date 05/09 Rev 1





Project:

Thurrock Borough  
Council SFRA Level 1

Title:

West Thurrock Urban Area  
Flood Zones (2009)

Flood Zone 2

Flood Zone 3a

Flood Zone 3b

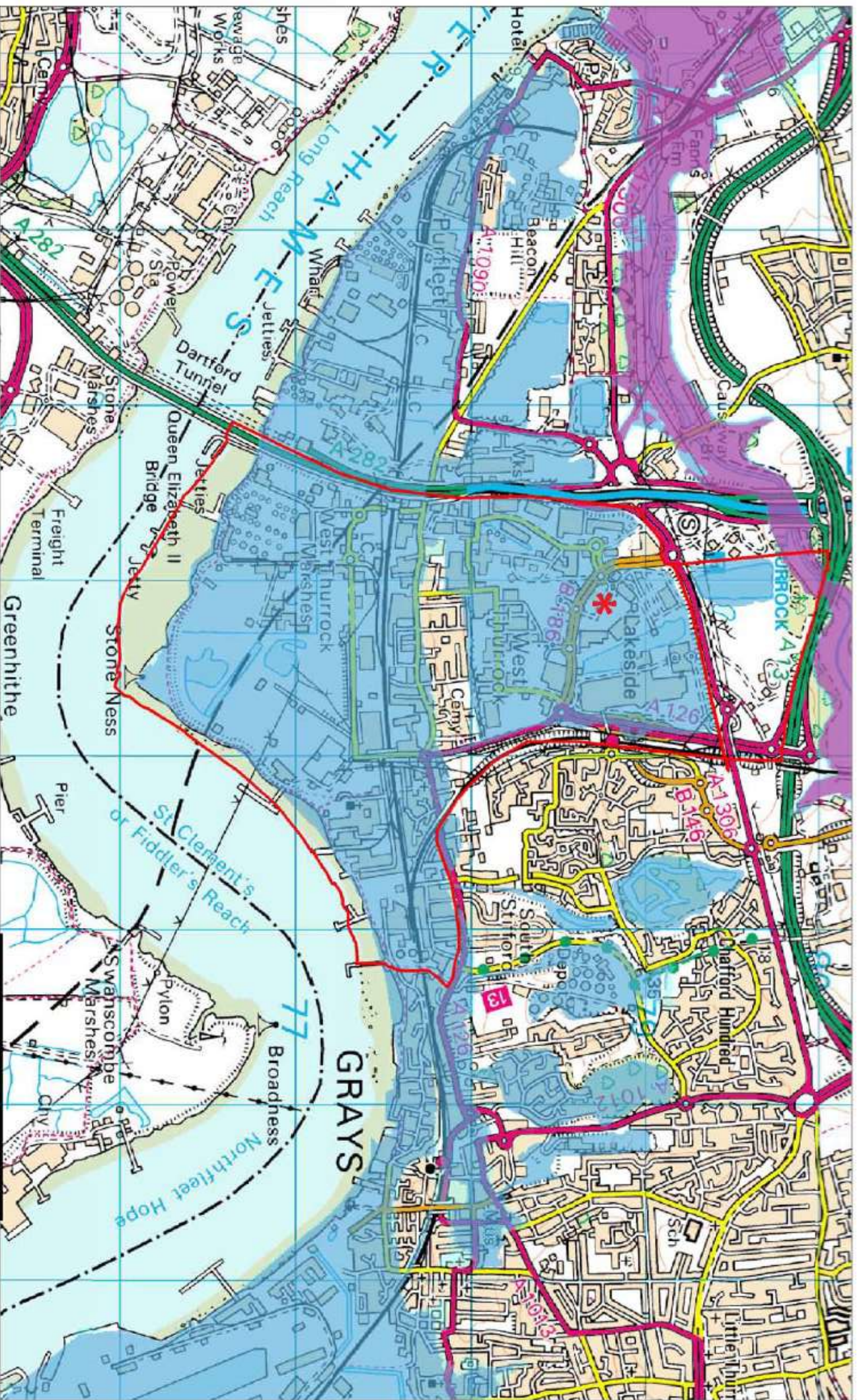
Boundary of Broad Area for Regeneration

**FIGURE 24**

Scale: 1:35,000 @ A4

Dnw SW Date 05/09 Rev 1





Project:

Thurrock Borough  
Council SFRA Level 1

Title:

West Thurrock Urban Area  
Flood Zones (2109)

Flood Zone 2

Flood Zone 3a

Flood Zone 3b

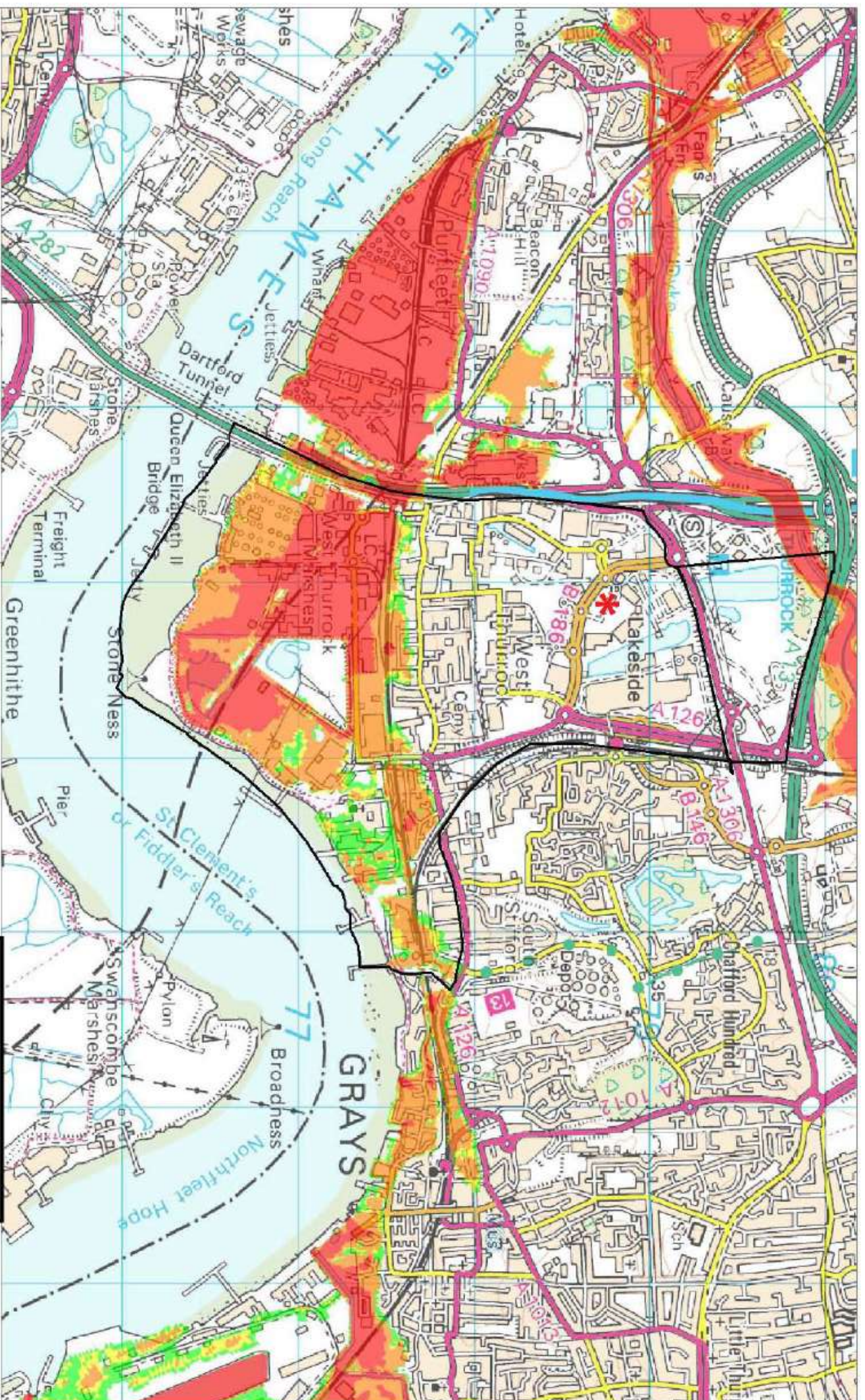
Boundary of Broad Area for Regeneration

**FIGURE 25**

Scale: 1:35,000 @ A4

Drw SW Date 05/09 Rev 1





Project:

Thurrock Borough  
Council SFRA Level 1

Title:

West Thurrock Urban Area  
Hazard Rating (2009)  
200yr Tidal / 100yr Fluvial Event

□ Boundary of Broad Area for Regeneration

Hazard Rating

Extreme  
Significant  
Moderate  
Low

**FIGURE 25**

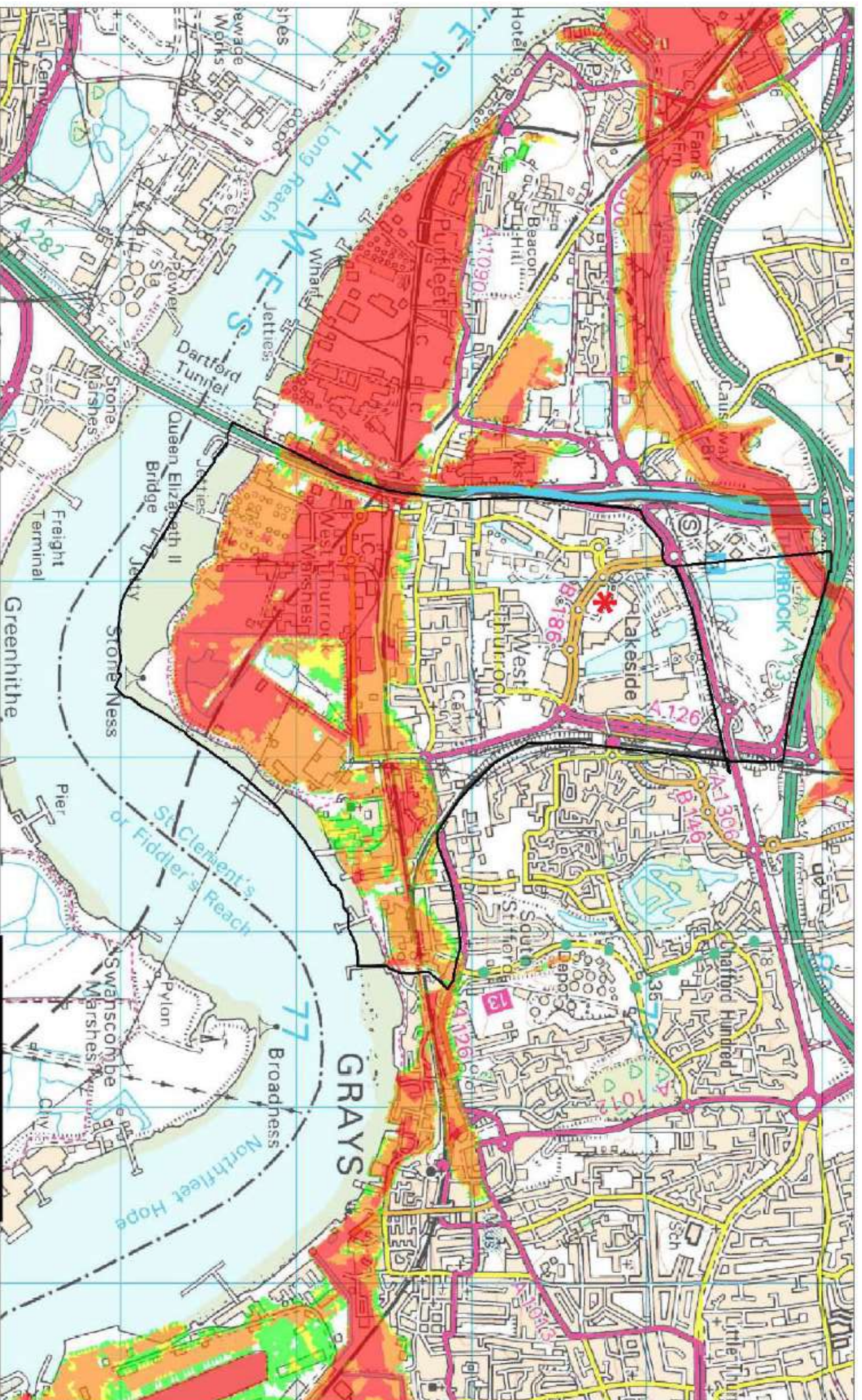
Scale: 1:35,000 @ A4

Dnw SW Date 05/09 Rev 1

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Project:

Thurrock Borough  
Council SFRA Level 1

Title:

West Thurrock Urban Area  
Hazard Rating (2009)  
1000yr Fluvial / 1000yr Tidal Event

□ Boundary of Broad Area for Regeneration

Hazard Rating

Extreme

Significant

Moderate

Low

**FIGURE 26**

Scale: 1:35,000 @ A4

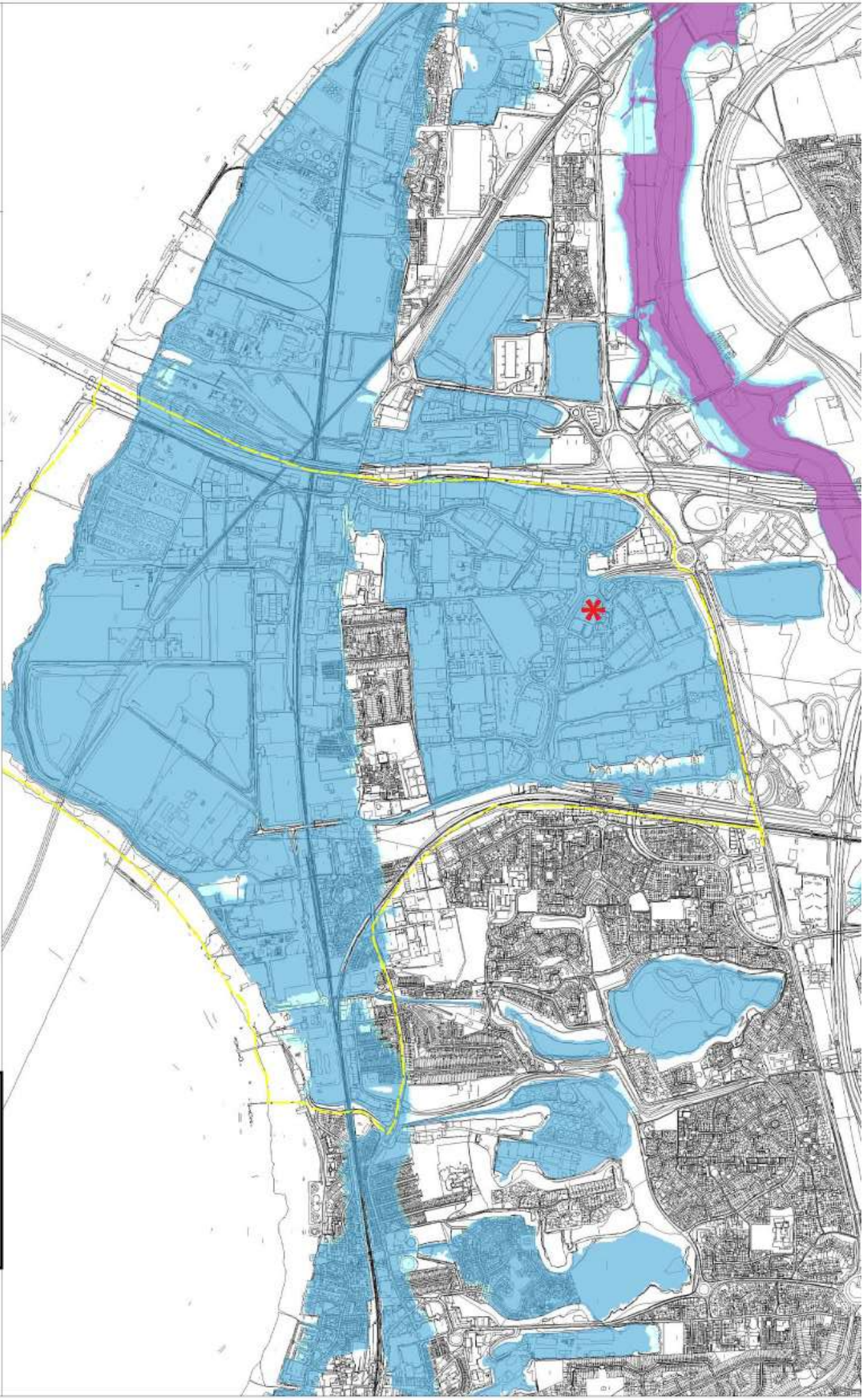
Dwg SW Date 05/09 Rev 1

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# APPENDIX C



Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Flood Zones  
(2009)



Broad Regeneration Area

Flood Zone 3b

Flood Zone 3a

Flood Zone 2

Tilbury Flood Storage  
Area - designated 3b

**WEST THURROCK**

Scale 1:25,000 @ A3

DWG

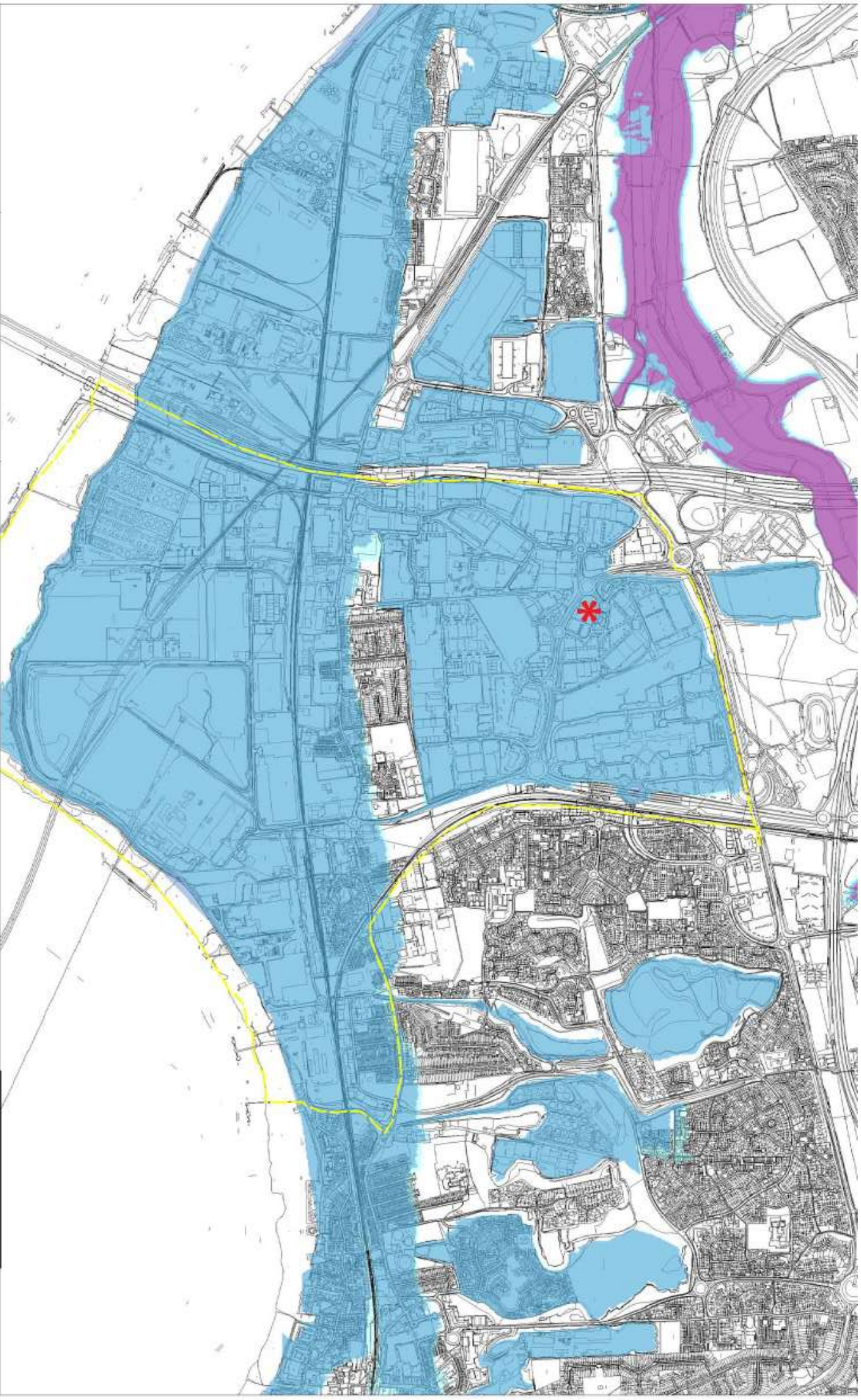
MV

Date 02/10



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Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Flood Zones  
(2109)



Broad Regeneration Area

Flood Zone 3b

Tilbury Flood Storage  
Area - designated 3b

Flood Zone 3a

Flood Zone 2

# WEST THURROCK

Scale 1:25,000 @ A3

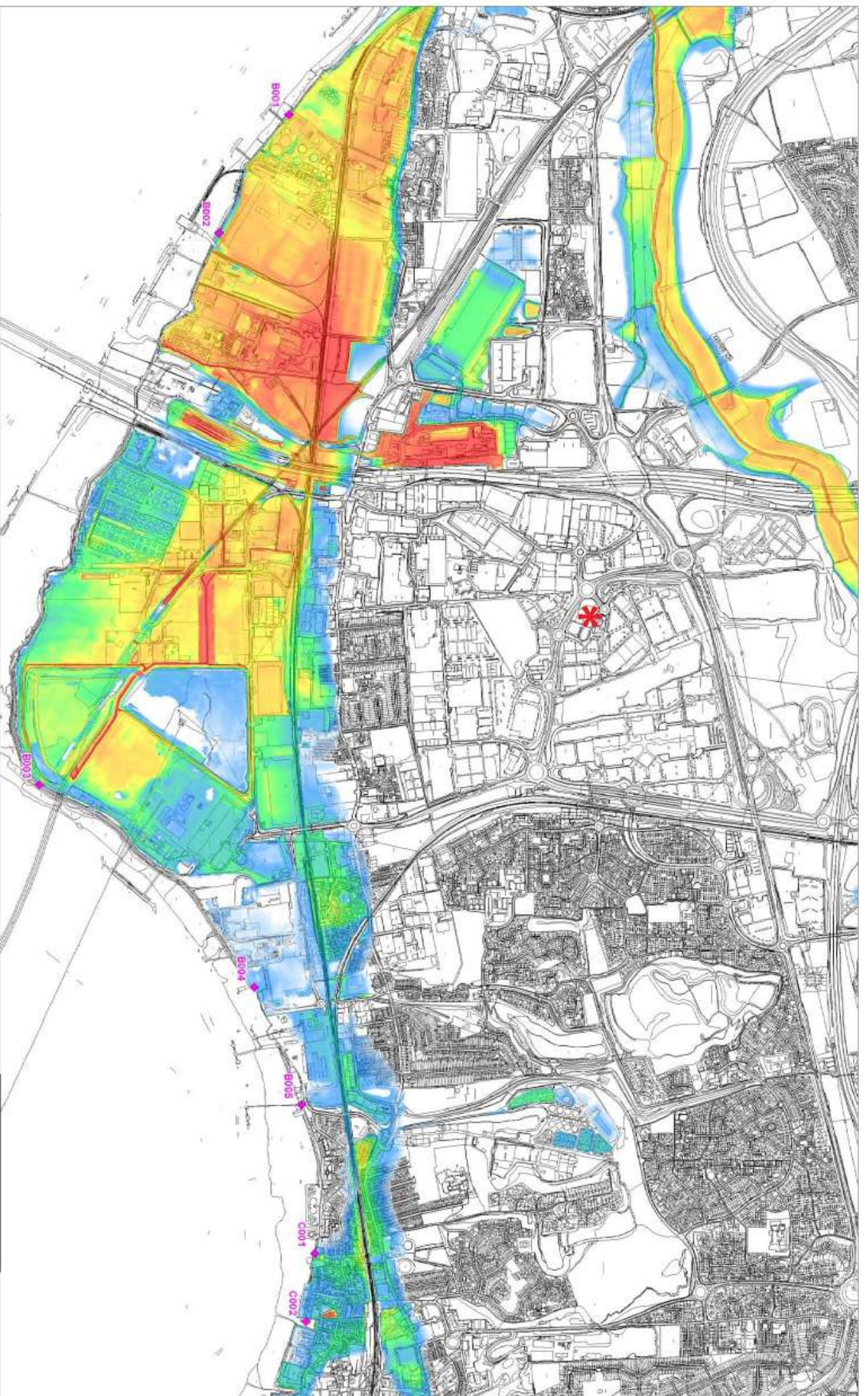
Draw

Rev

Date 02/10







Project:

Thurrock Borough  
Council SFRA Level 2

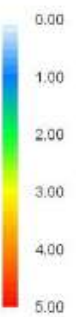
Title:

West Thurrock Urban Area  
Maximum Flood Depth  
1 in 200 Year Tidal / 1 in 100  
Year Fluvial Event (2109)



Breach Location and Label

Maximum Flood Depth (m)



## WEST THURROCK

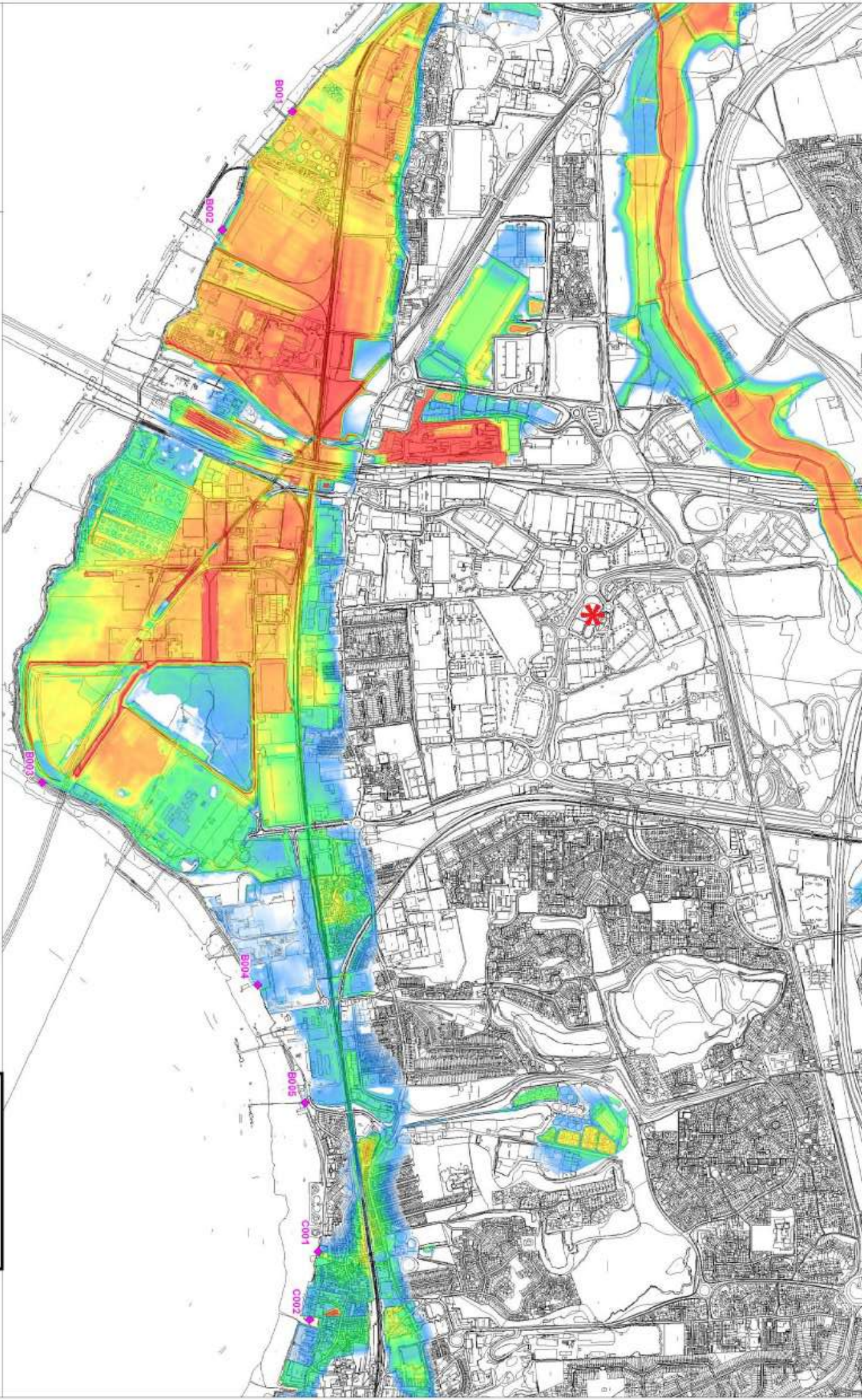
Scale: 1:30,000 @ A3

Dwg: MW

Date: 02/10







Project:

Thurrock Borough  
Council SFRA Level 2

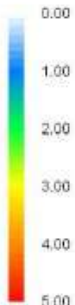
Title:

West Thurrock Urban Area  
Maximum Flood Depth  
1 in 1000 Year Tidal / 1 in 1000  
Year Fluvial Event (2109)



Breach Location and Label

Maximum Flood Depth (m)



# WEST THURROCK

Scale: 1:20,000 @ A3

DWG:

MV

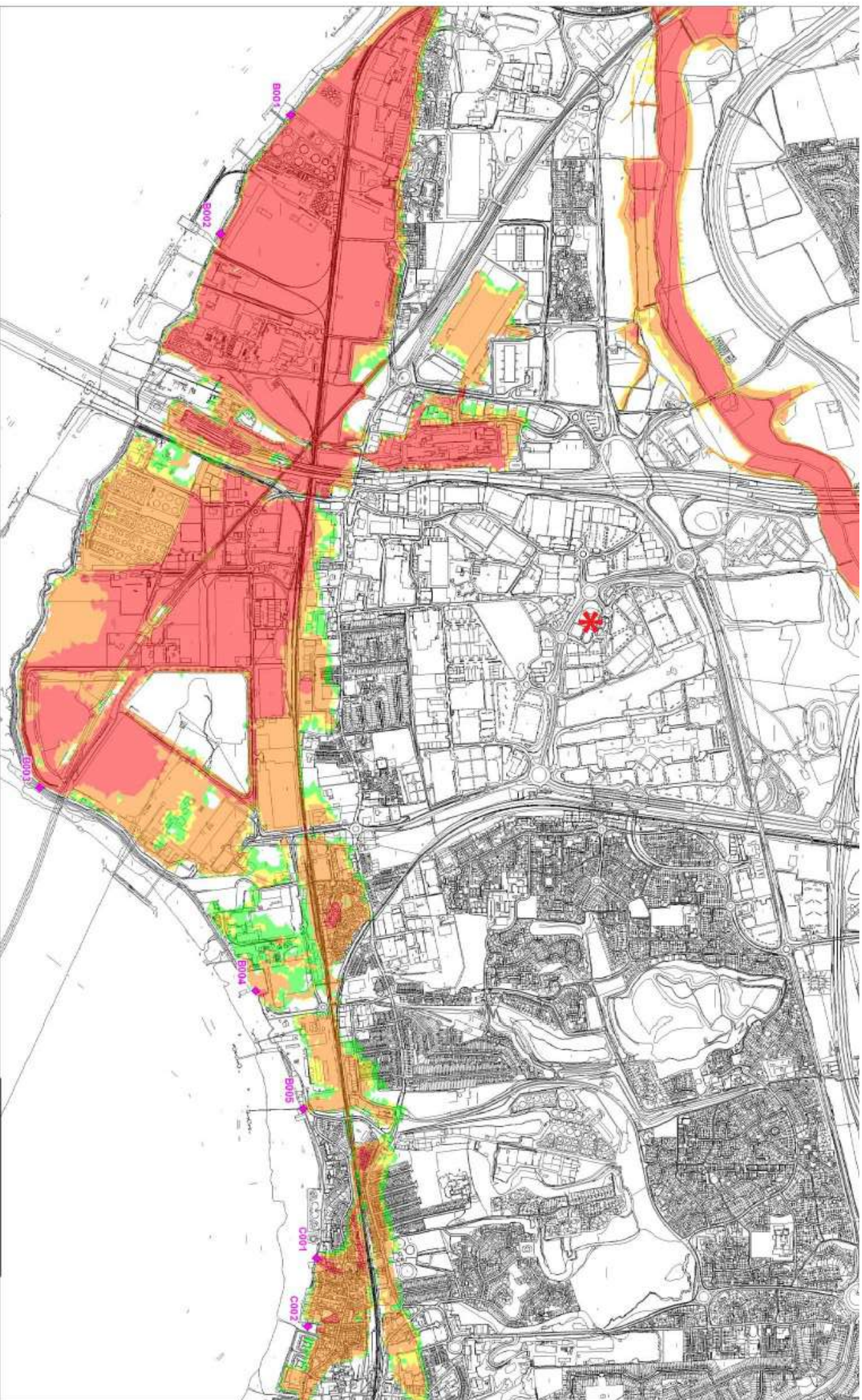
Date:

02/10



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Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Hazard Rating  
1 in 200 Year Tidal / 1 in 100  
Year Fluvial Event (2009)

◆ A001 Breach Location and Label

Flood Hazard Rating

Extreme Hazard  
Significant Hazard  
Moderate Hazard  
Low Hazard

WEST THURROCK

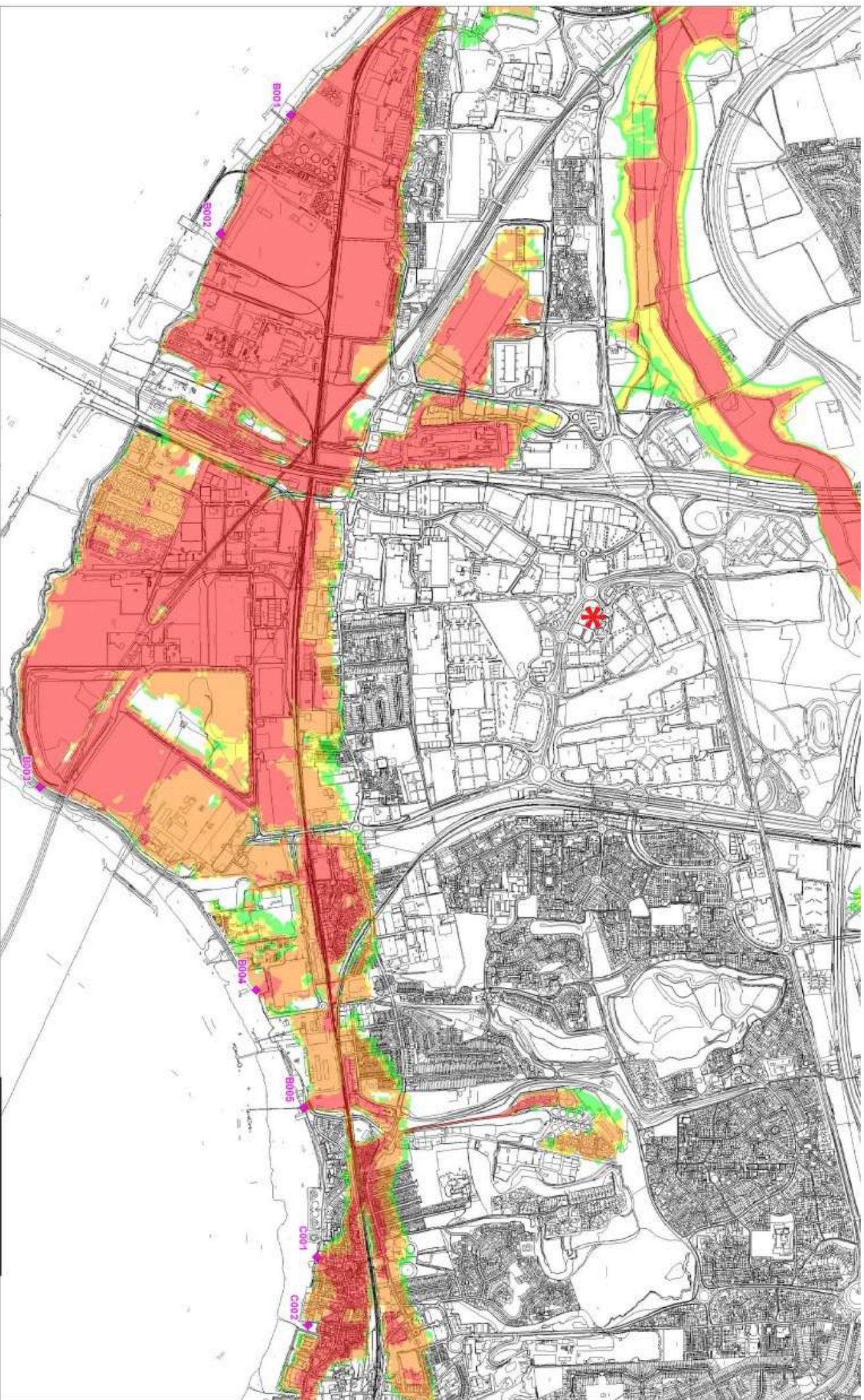
Scale 1:16,000 @ A3

Dwg MW

Date 02/10







Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Hazard Rating  
1 in 200 Year Tidal / 1 in 100  
Year Fluvial Event (2109)



Breach Location and Label

Flood Hazard Rating

Extreme Hazard  
Significant Hazard  
Moderate Hazard  
Low Hazard

WEST THURROCK

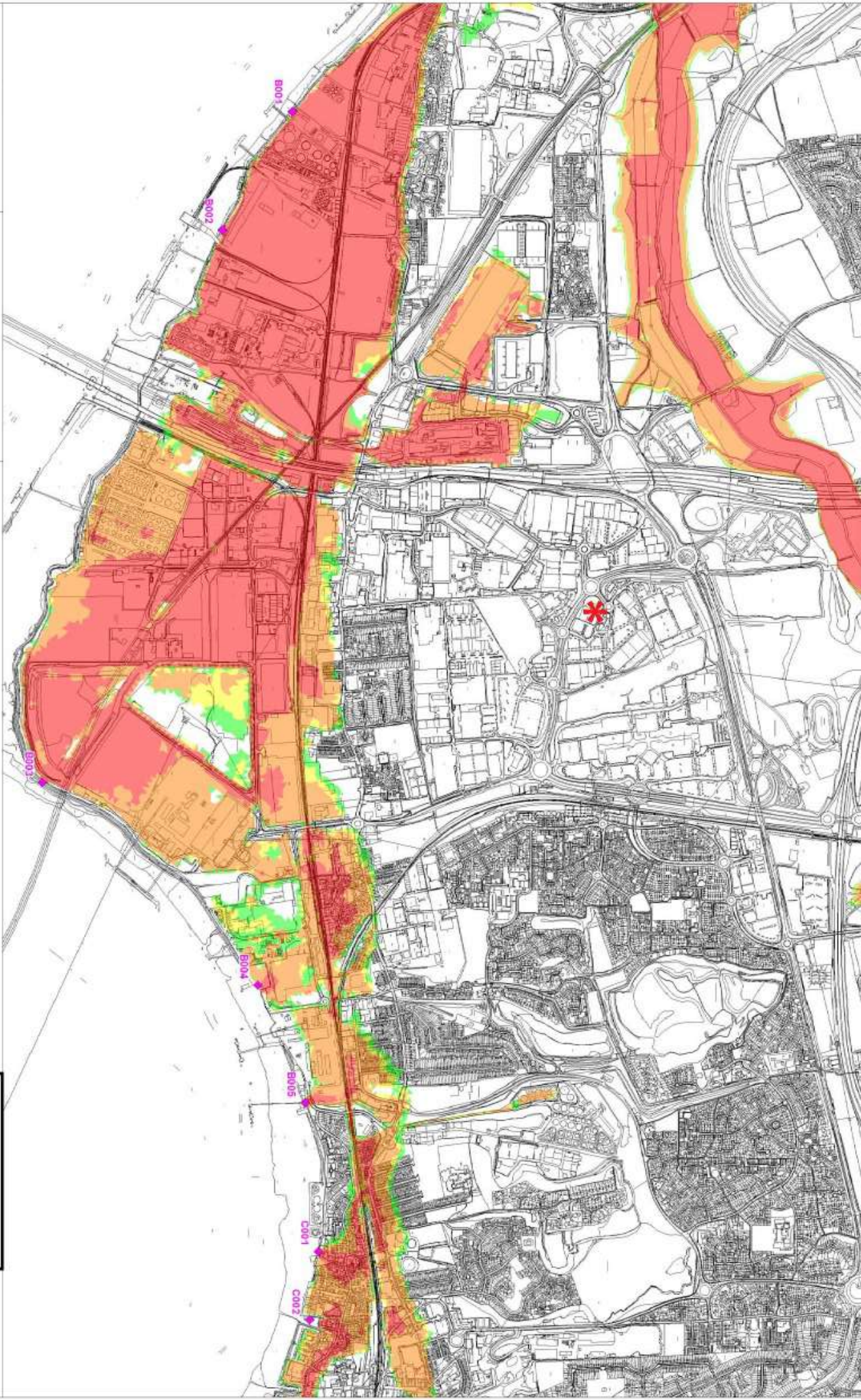
Scale 1:16,000 @ A3

Draw MW

Date 02/10







Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Hazard Rating  
1 in 1000 Year Tidal / 1 in 1000  
Year Fluvial Event (2009)



Breach Location and Label

Flood Hazard Rating

Extreme Hazard  
Significant Hazard  
Moderate Hazard  
Low Hazard

WEST THURROCK

Scale 1:16,000 @ A3

Dwg MV

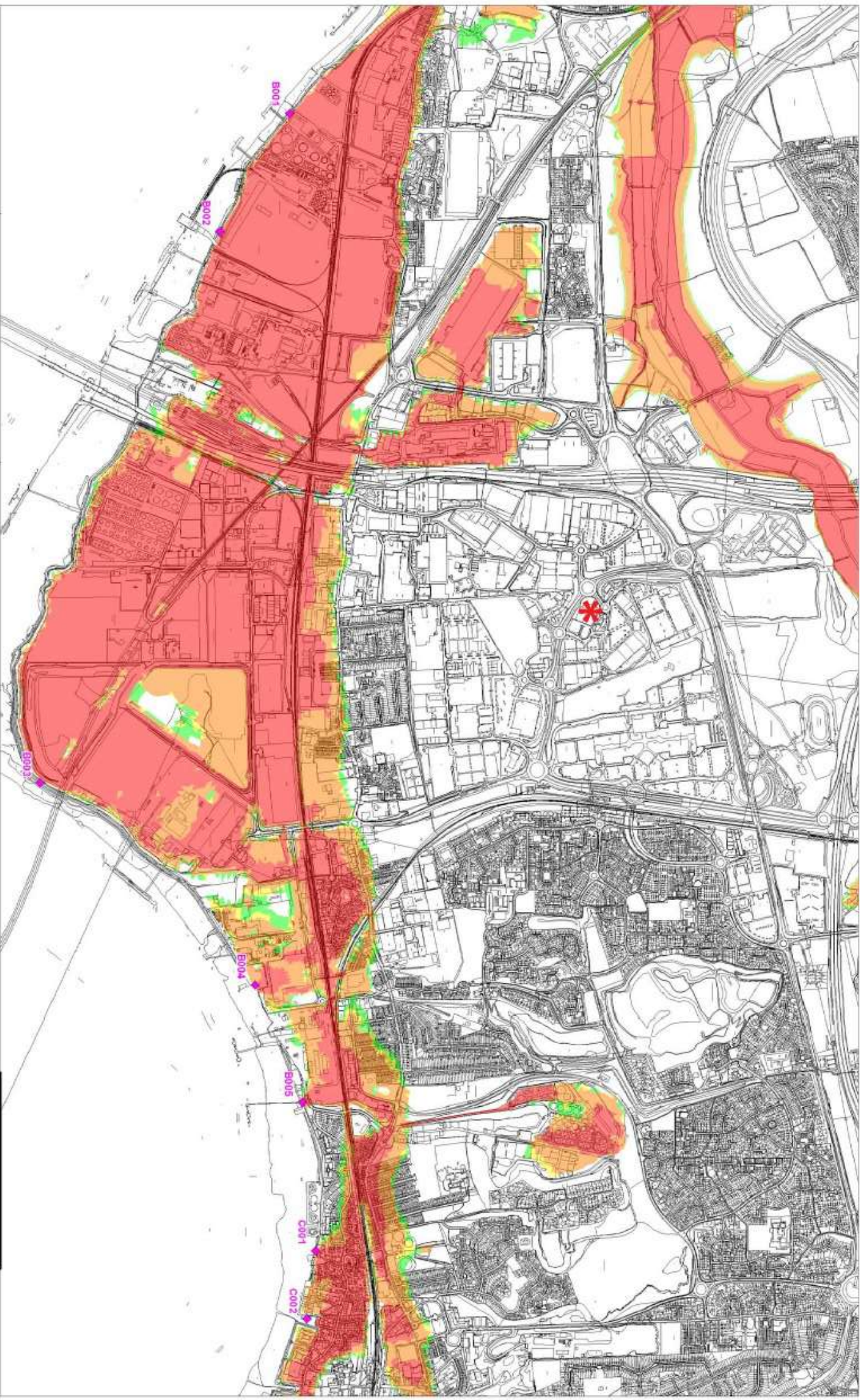
Date 02/10

N



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Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Hazard Rating  
1 in 1000 Year Tidal / 1 in 1000  
Year Fluvial Event (2109)



Breach Location and Label

Flood Hazard Rating

Extreme Hazard  
Significant Hazard  
Moderate Hazard  
Low Hazard

## WEST THURROCK

Scale: 1:16,000 @ A3

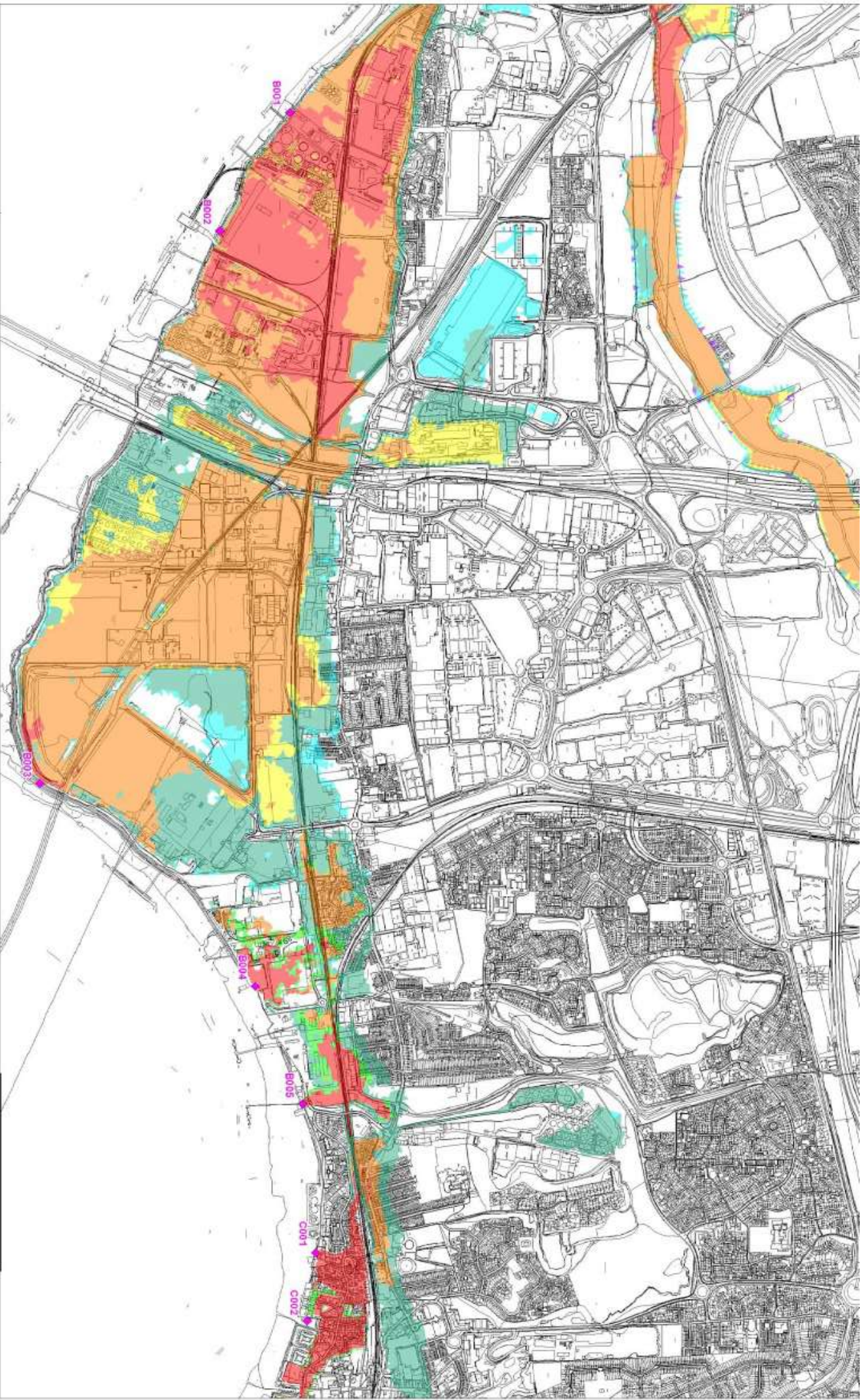
Draw

MW

Date: 02/10







Project

Thurrock Borough  
Council SFRA Level 2

Title

West Thurrock Urban Area  
Time to Inundation  
1 in 200 Year Event (2109)



Breach Location and Label

Time to Inundation (hours)

- < 1 hour
- 1 - 4 hours
- 4 - 8 hours
- 8 - 12 hours
- 12 - 16 hours
- 16 - 20 hours
- 20 - 24 hours
- 24 - 28 hours
- 28 - 32 hours

WEST THURROCK

Scale 1:20,000 @ A3

Dwg

MV

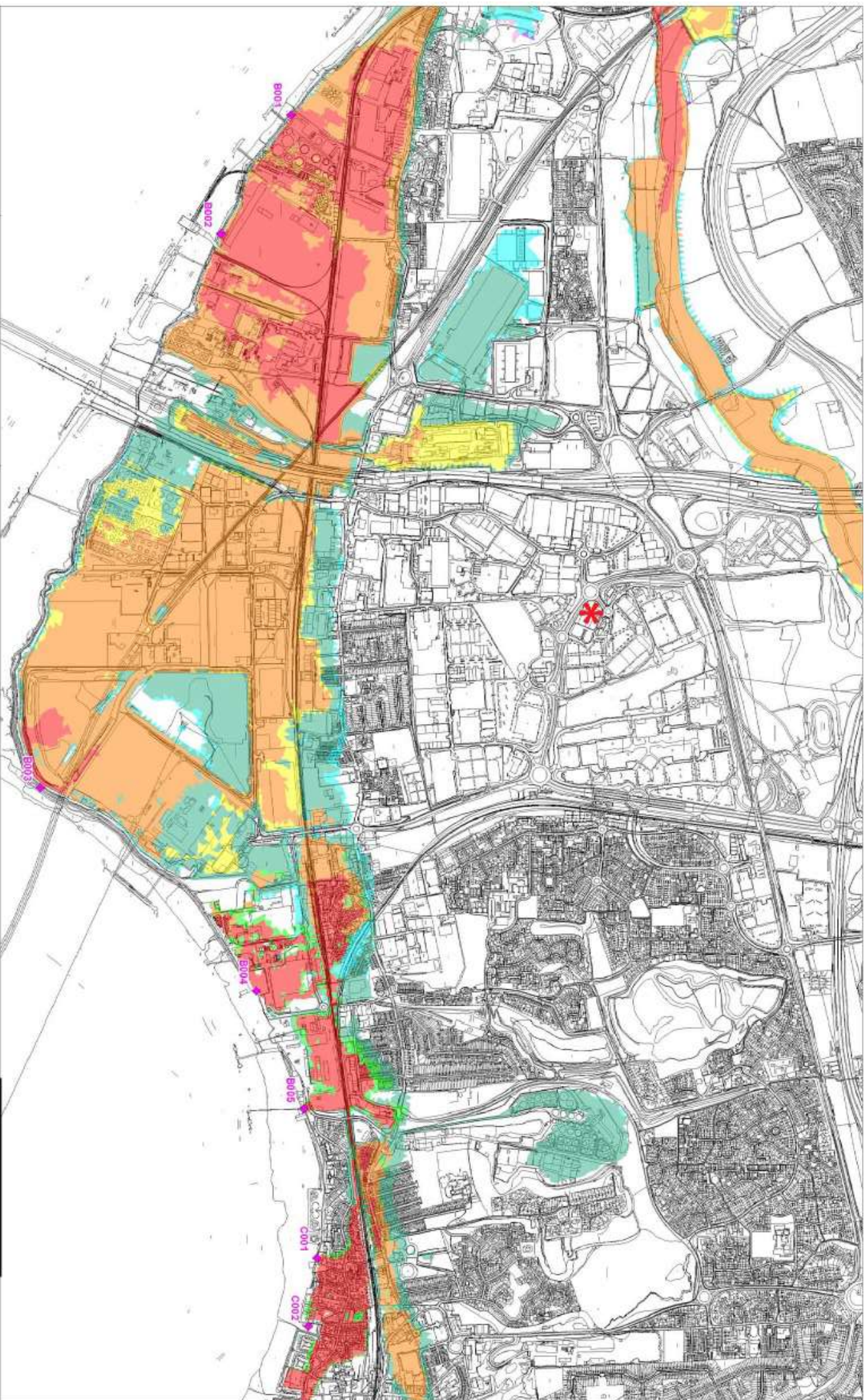
Date

02/10



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Project:

Thurrock Borough  
Council SFRA Level 2

Title:

West Thurrock Urban Area  
Time to Inundation  
1 in 1000 Year Event (2109)



A001

Breach Location and Label

Time to Inundation (hours)

- < 1 hour
- 1 - 4 hours
- 4 - 8 hours
- 8 - 12 hours
- 12 - 16 hours
- 16 - 20 hours
- 20 - 24 hours
- 24 - 28 hours
- 28 - 32 hours

## WEST THURROCK

Scale 1:30,000 @ A3

DWG MW

Date 02/10



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## 6 Conclusions and Recommendations

- 6.1 TPA has been commissioned by 'Tim Hortons' to prepare a Flood Risk Assessment and Evacuation Plan for the proposed 'Installation of Drive Thru Lane at Lakeside Retail Park, Thurrock'.
- 6.2 The Site is entirely located within Flood Zone 3, an area with a high probability of flooding that benefits from flood defences. These protect the area against a river flood with a 1% chance of happening each year or a flood from the sea with a 0.5% chance of happening each year. Therefore, this means that the Site is protected against flooding and that the risk of flooding from rivers and the sea is considered to be low.
- 6.3 The remaining sources of flooding have been assessed and overall these are considered to be at low risk.
- 6.4 According to the NPPF guidance, a 'Less Vulnerable' categorised Site, such as proposed, is an appropriate land use for a Flood Zone 3 and an Exception Test is not required, which means the proposed drive-thru is suitable for development.
- 6.5 The Evacuation Plan has been prepared in accordance with the Thurrock Council's Community Flooding Pack and the purpose of this is to raise awareness of the hazard present in the area, to define flood warnings and to outline an evacuation and safe refuge procedure.
- 6.6 Consequently, there are no insurmountable issues with regards to the flood risk aspects associated to the Site and a robust Evacuation Plan has been proposed, therefore, there are no reasons for objecting to the proposed development to be delivered.