

June 2020



# **Housing at Chancery Lane, Tullamore**

## **FLOOD RISK ASSESSMENT (Stage1 – Flood Risk Identification)**



**Housing Capital**



---

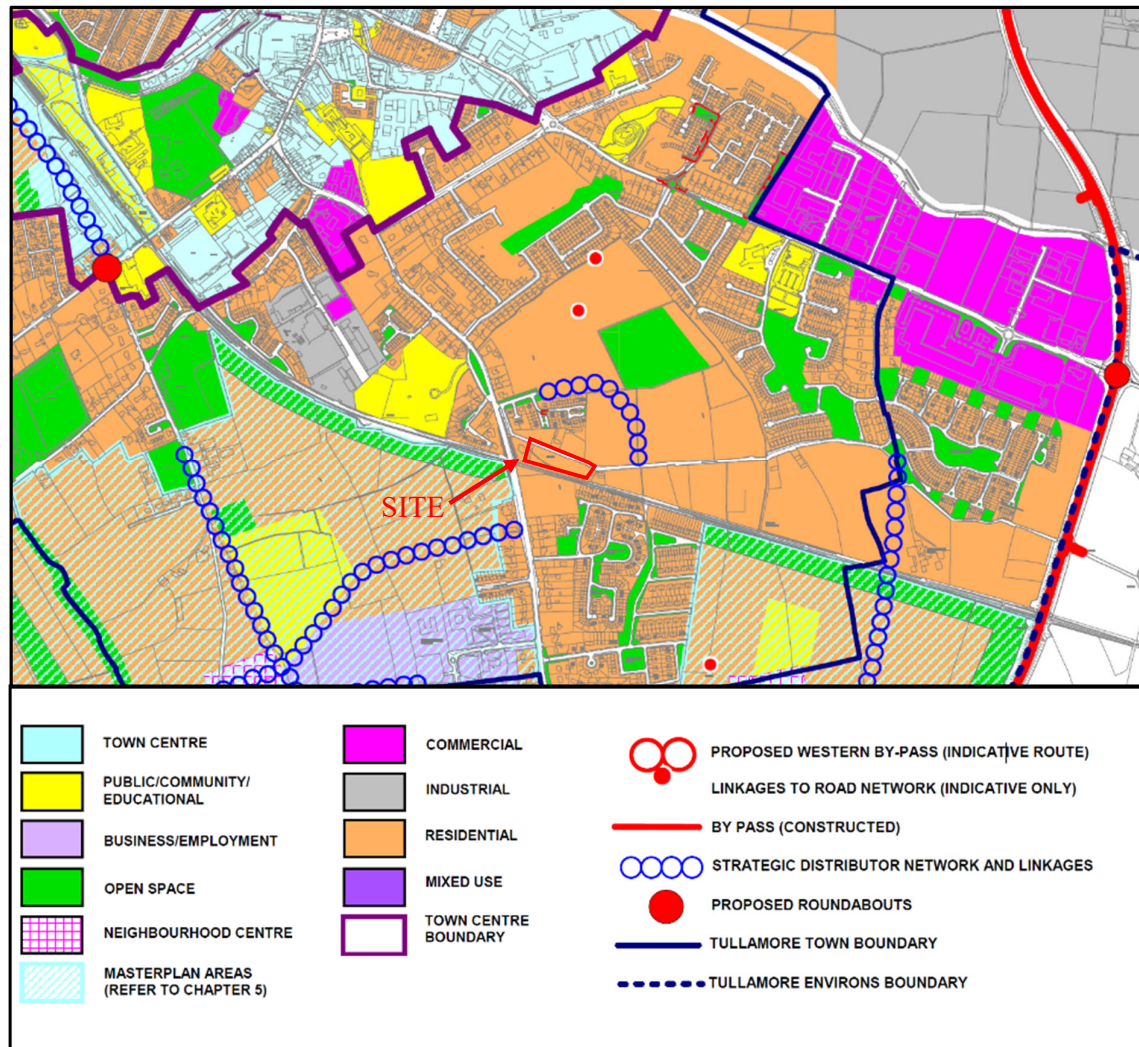
## Contents

1. Introduction .....	3
2. Site Location and Information.....	5
2.1. Site Location .....	5
2.2. Site Information.....	7
2.3. Proposed Development .....	7
2.4. Historical Flooding.....	8
2.5. Offaly County Development Plan – Strategic Flood Risk Assessment .....	9
3. Existing Watercourses .....	12
4. Identification of Flood Risk & Potential Sources.....	14
4.1. Flood Risk .....	14
4.2. Potential Sources of Flooding .....	14
5. Flood Zones .....	16
6. Conclusion .....	<b>Error! Bookmark not defined.</b>
7. References .....	18



## 1. Introduction

This Flood Risk Assessment (FRA) – Stage 1 document sets out to identify the risk of flooding at a proposed housing development at an existing site at Chancery Lane, Tullamore, Co. Offaly. The site is identified in the Tullamore Town and Environs Development Plan 2010 – 2016 (extended to 2020) where it is zoned ‘Residential’, this can be seen in the map below.



Source: Tullamore Town and Environs Development Plan 2010 – 2016 (extended to 2020)

The objectives of this report are to inform the Planning Authority regarding flood risk for the potential development at Chancery Lane. The report will assess the site and development proposals in accordance with the requirements of “The Planning System and Flood Risk Management Guidelines for Planning Authorities”.



The Guidelines set out a staged approach to the assessment of flood risk with each stage carried out only as needed. The stages are listed below as follows:

- **Stage 1- Flood Risk Identification** – to identify whether there may be any flooding or surface water management issues related to either the area of regional planning guidelines, development plans and LAP's or a proposed development site that may warrant further investigation at the appropriate lower level plan or planning application levels.
- **Stage 2 - Initial Flood Risk Assessment** – to confirm sources of flooding that may affect an area or proposed development, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps.
- **Stage 3 - Detailed Flood Risk Assessment** – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

This staged approach is recommended for flood risk assessments at Regional, County and site-specific levels. Within this hierarchy of Regional, County and site-specific flood-risk assessments, a staged approach ensures that the level of information is appropriate to the scale and nature of the flood-risk issues and the location and type of development proposed, avoiding expensive flood modelling and development of mitigation measures where it is not necessary.

## 2. Site Location and Information

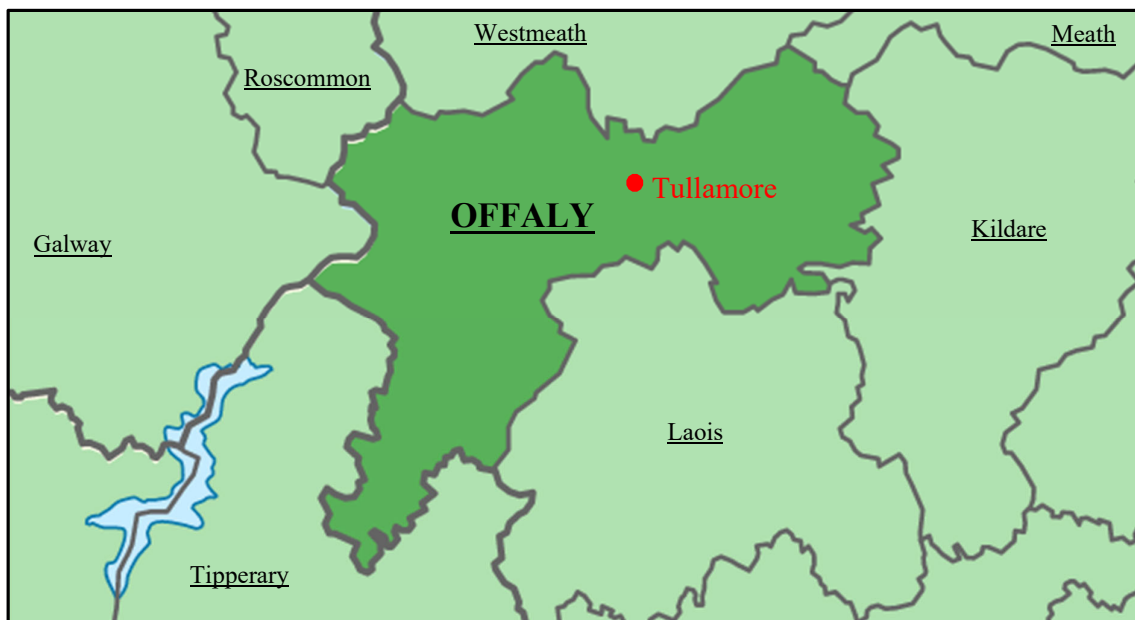
### 2.1. Site Location

Tullamore is the capital town of the county of Offaly, and is located in the centre of Ireland approximately 100km from Dublin and 125km from Galway.

**“Tullamore acts as a key population and employment centre for the surrounding hinterland. It is located on the Dublin to Galway rail line, in close proximity to the M6 Dublin/Galway Motorway with the N80 and N52 providing important and essential intra-regional linkages to motorways, the Regional Growth Centre of Athlone and key towns of Portlaoise, Mullingar and Longford. Flanked by the Slieve Bloom Mountains to the south and Lough Boora Discovery Park to the west, which is to be connected by a greenway along the Grand Canal by 2020, the town offers significant quality of life advantages. The town has a high ratio of jobs to resident workers, reflecting its role as an employment centre and the extent of its area of influence. Continued employment and population growth coupled with placemaking and regeneration are key priorities for the settlement.”**

*Source: Eastern & Midland Regional assembly – Regional Spatial & Economic Strategy 2019 – 2031.*

Tullamore is a thriving and bustling town and a gateway to the midlands.



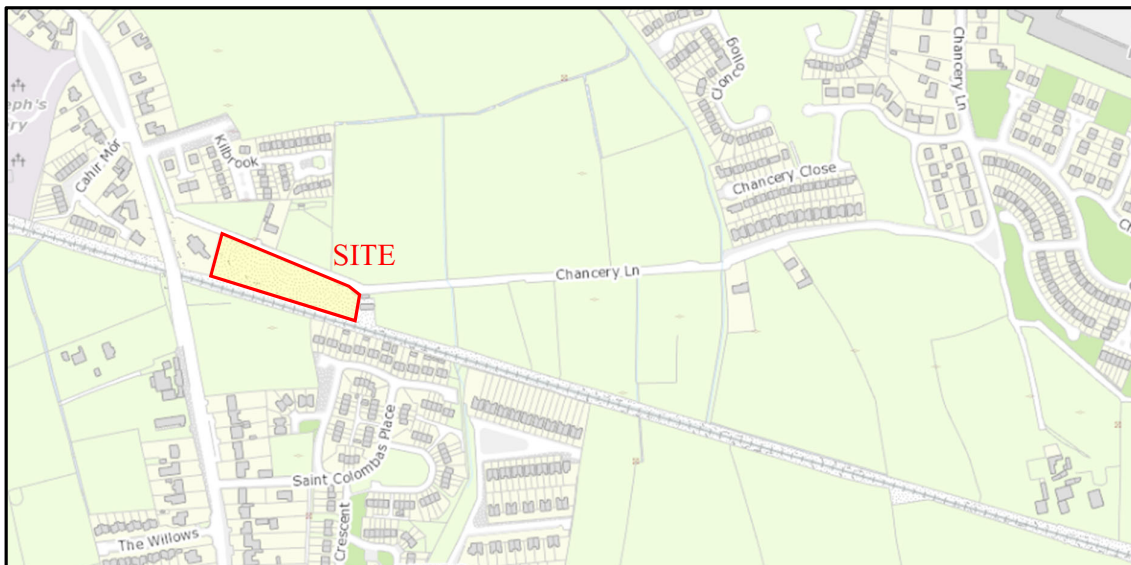
*Source: OCC Housing*



The proposed site is located on the southern side of Tullamore off Chancery Lane as shown in the maps below.



Source: OCC Housing



Source: OCC Housing

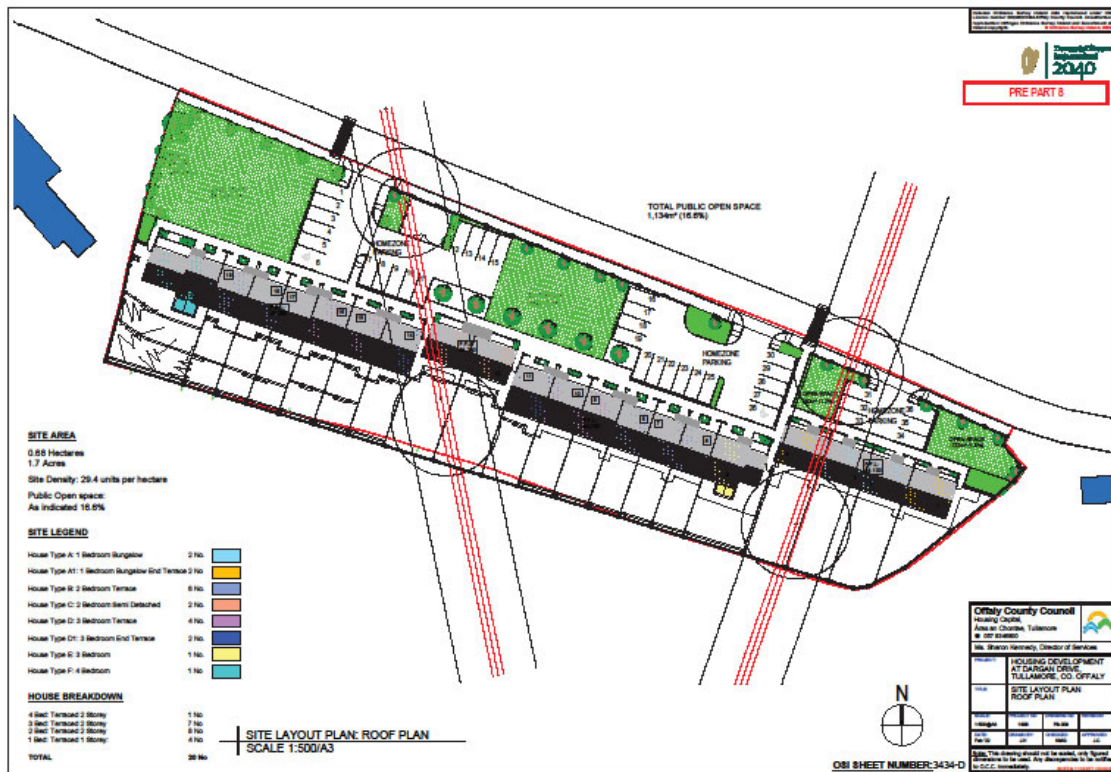


## 2.2. Site Information

The site is a disused green field site which is sandwich between a public road and the railway line, and is located in a housing area of Tullamore. The topography of the site is relatively flat.

## 2.3. Proposed Development

The extent of the proposed development is shown in the map below. This development consists of 20 no. terrace housing units, and is a mix of 1, 2, 3 and 4 beds along with site development works.

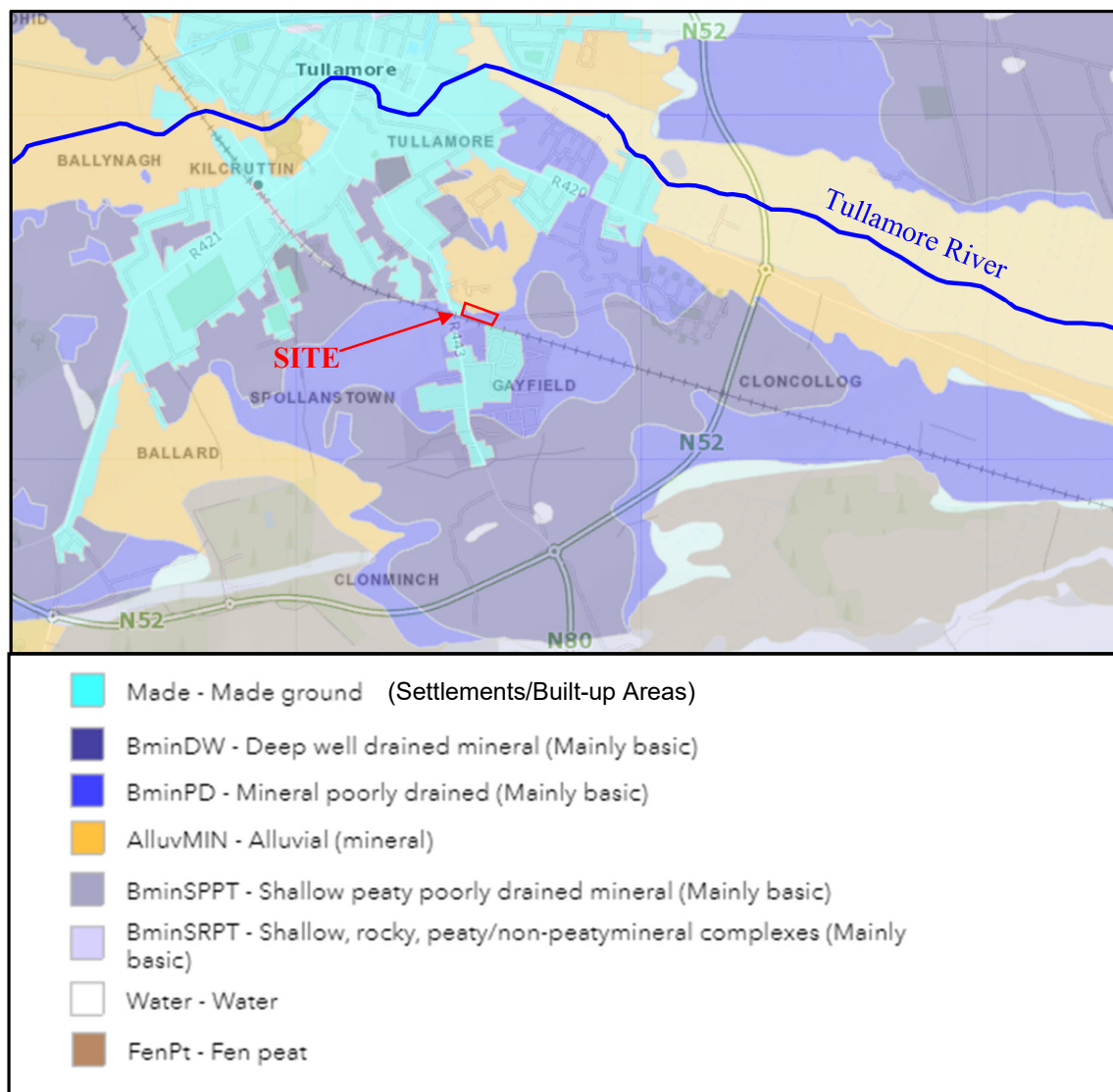


Source: OCC Housing

## 2.4. Historical Flooding

There is a history of flooding in Tullamore along the Tullamore River catchment area, however there is no recorded flooding at the site at Chancery Lane, Tullamore.

Geological data shows that the soil around the site to be poorly drained and includes some deposits of alluvial soil. Alluvial soils are soils deposited by surface water and are usually found along rivers and floodplains. The map below shows alluvial soil (coloured yellow) adjacent to the river, and there is some at the proposed site. The site can be wet at times but this is mainly due to lack of maintenance of existing open drains. However, there is no recorded flooding in the vicinity of the site as these lands are now drained.



Source: Geological Survey of Ireland: Teagasc Soils Mapping





## 2.5. Offaly County Development Plan – Strategic Flood Risk Assessment

Tullamore town is included in the Offaly County Development Plan (2014-2020) – Strategic Flood Risk Assessment (OCDP-SFRA), however being a largest settlement in Offaly; Tullamore had once it's own Town Council and subsequently had its own Development Plan for the Town and its Environs has its own Local Area Plan (2017 – 2023) which also has its own Strategic Flood Risk Assessment.

Table 6.1 of the OCDP-SFRA identifies flood risk in the settlement areas in County Offaly. It indicates the following about Tullamore town:

- Parts of Tullamore are in Flood Zone A or B,
- There is a risk of flooding from other sources,
- Tullamore and its Environs have been identified as an 'Area for Further Assessment' (AFA) under the National Preliminary Flood Risk Assessment (PFRA) carried out by the OPW.

For information purposes see extract from Table 6.1 of the OCDP-SFRA below as follows:

**Table 6.1**

<b>Tier 2: Key Service Town</b>	<b>Settlement land in Flood Zone A or B</b>	<b>Land at risk of flooding from other sources</b>	<b>Comment</b>
<b>Tullamore</b>	Yes	Yes	<p>Area assessed previously by FRAM study (2008) and is subject to further flood risk assessment as an AFA. (Map indicating Flood Zone A shown overleaf). Area covered by Tullamore Town and Environs Development Plan 2010-2016 (now extended to 2020). Flood risk is subject to examination and review under the scope of the Tullamore and Environs development plan. Precautionary approach to zoning of land recommended during review period or any variation to the Tullamore and Environs Development Plan.</p> <p>Sequential approach to be applied to avoid development in areas at risk of flooding through Development Management process. Justification test to be applied in appropriate cases during assessment of planning application and site specific flood risk assessments required to determine appropriateness of development in areas at risk of flooding.</p>

Table 6.1 above should be read in conjunction with the settlement flood map drafted for Tullamore. This map is copied from the OCDP-SFRA and is shown immediately below.

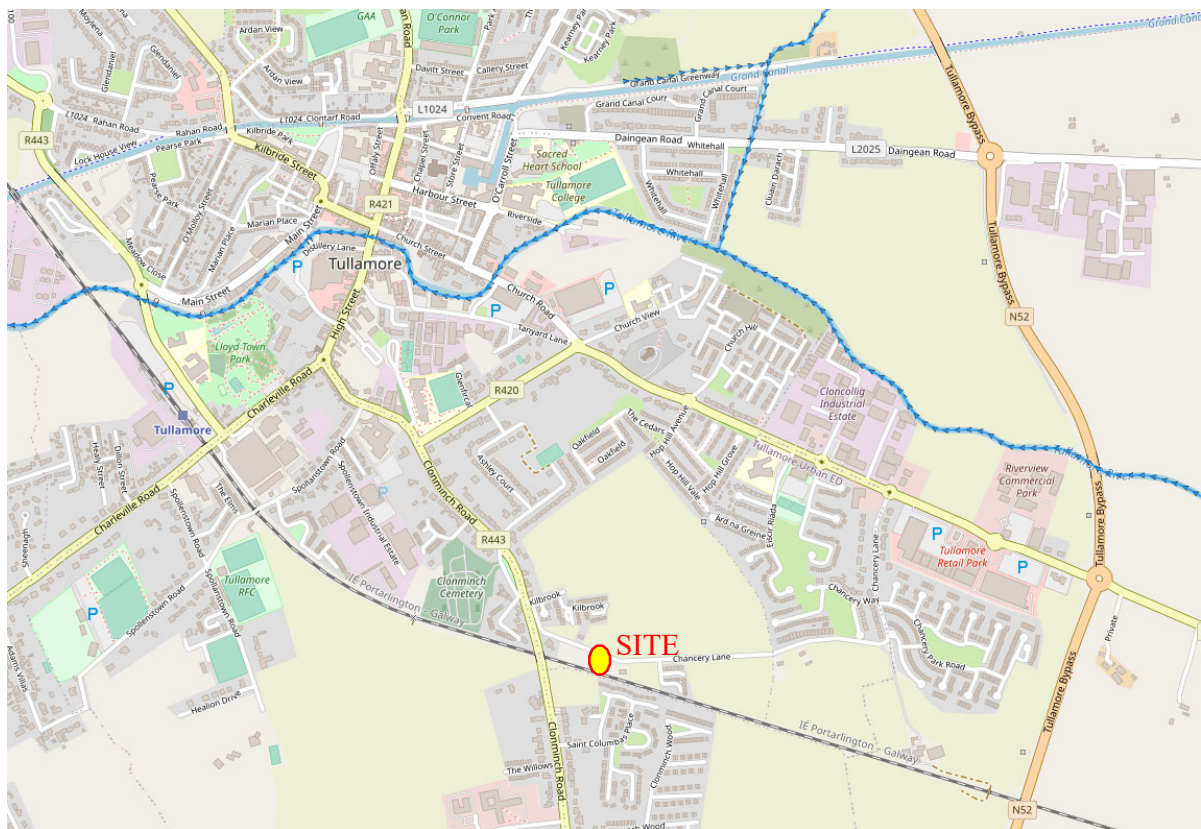
<b>Area: Tullamore</b>	
<b>Comment:</b>	
<b>Flood Zones A and B: Yes</b>	
<p><b>Flood events reported:</b> Part of Tullamore urban area is located on the Tullamore River Floodplain (inclusive of Barony River Tributary). Historically subject to inundation subjecting residential, commercial and industrial properties to ongoing flood risk. Flood points widely dispersed throughout urban area.</p> <p><b>Flood Study undertaken:</b> FRAM study undertaken on account of urban development pressure on Tullamore River floodplain upstream and downstream of existing urban area.</p> <p><b>AFA:</b> Tullamore has been identified as an 'Area for Further Assessment' (AFA) under the National Preliminary Flood Risk Assessment (PFRA) carried out by the OPW. More detailed assessment will be undertaken to more accurately assess the extent and degree of flood risk. Where significant risk is confirmed, possible mitigation measures will be developed to manage and reduce the risk. AFAs will be undertaken through Catchment Flood Risk Assessment and Management Studies (CFRAMs).</p> <p><b>Other:</b> The detailed mapping produced through the Tullamore Flood Study is based on more detailed modelling and analysis (and is similar to those that will be produced for the AFAs through the CFRAM Studies). The FRAM maps should be used in preference to the PFRA maps (OPW).</p>	
<b>Source of data:</b>	<b>Estimated Severity:</b>
National Flood Hazard Mapping and reports.	Extreme.

Source: Offaly County Development Plan (2014 – 2020) - Strategic Flood Risk Assessment

The Strategic Flood Risk Assessment that accompanies the Tullamore Local Area Plan 2017-2023 assess the risk of flooding within Tullamore and the findings of its Stage 1 – Flood Risk Identification are as follows:

*Despite recurring flood events evidenced at the Kishawanny Bridge, much of the developed areas of Tullamore are not within the flood plain of the Silver River and are not affected or impacted by flooding. Flooding in Tullamore primarily occurs on undeveloped lands on the periphery of the town mainly as a result of flow restrictions and in an area closer to the town centre as a result of structural capacity constraints.*

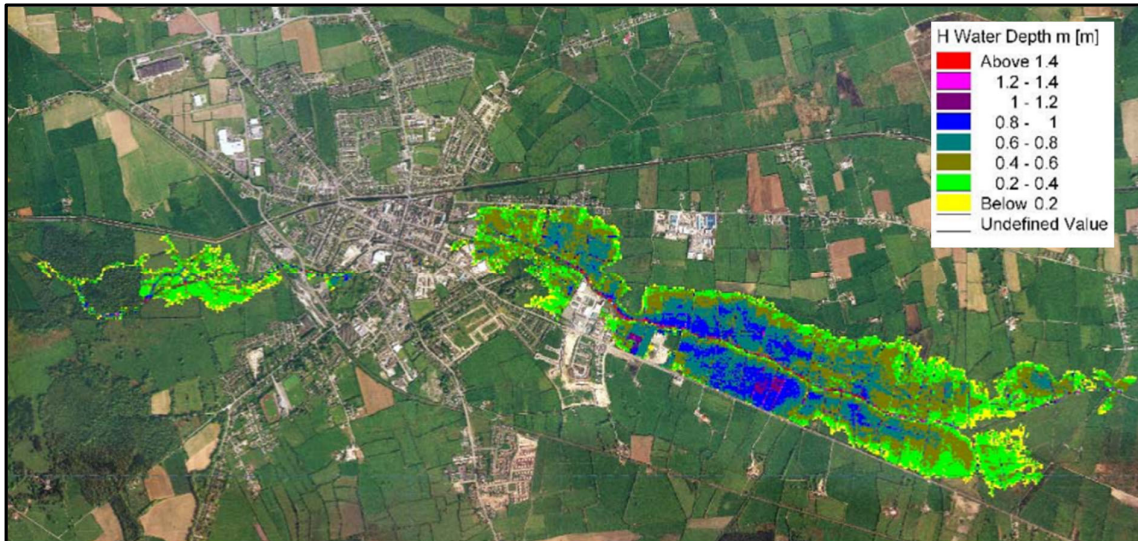
*The draft Flood Risk Management Plan identified that while fluvial flooding does occur, there are no properties at risk and as such Tullamore and its Environs are considered as very low risk. This would correspond with the precautionary approach taken to the zoning and development of lands identified as being at risk of flooding in landuse plans for the area.*



Source: EPA Maps – Water sources and direction of flow

### 3. Existing Watercourses

There are no rivers or lakes in the immediate vicinity of Chancery Lane site. However, the Tullamore River runs through the centre of Tullamore Town. The river flows from East to West and has history of fluvial flooding located mostly on the eastern side of the town. The map below shows the 1 in 100 year flood event around Tullamore. The bright colours show areas of shallow flooding, whereas the blues and purple areas show flooding that is a metre deep or more.



Source: Tullamore Town Environs Development Plan (extended to 2020)

The Tullamore River is included in the Arterial Drainage Scheme (ADS) and it is subject to periodic dredging.

The Grand Canal also passes through the centre of Tullamore town.

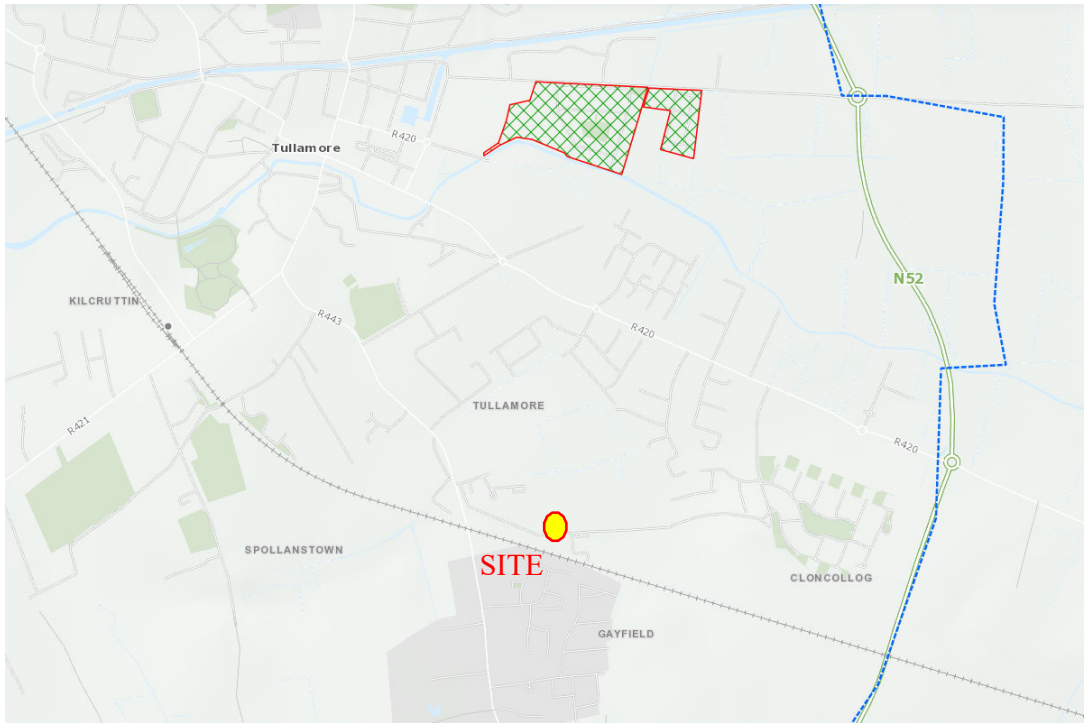
The Tullamore River and the Grand Canal are shown on the maps on page 13.

The Tullamore River presents a fluvial flood risk to Tullamore, and flooding has been recorded in 2000, 2002, & 2008. In 1989 a breach of the Grand Canal Embankment flooded a significant area of mainly agricultural land.

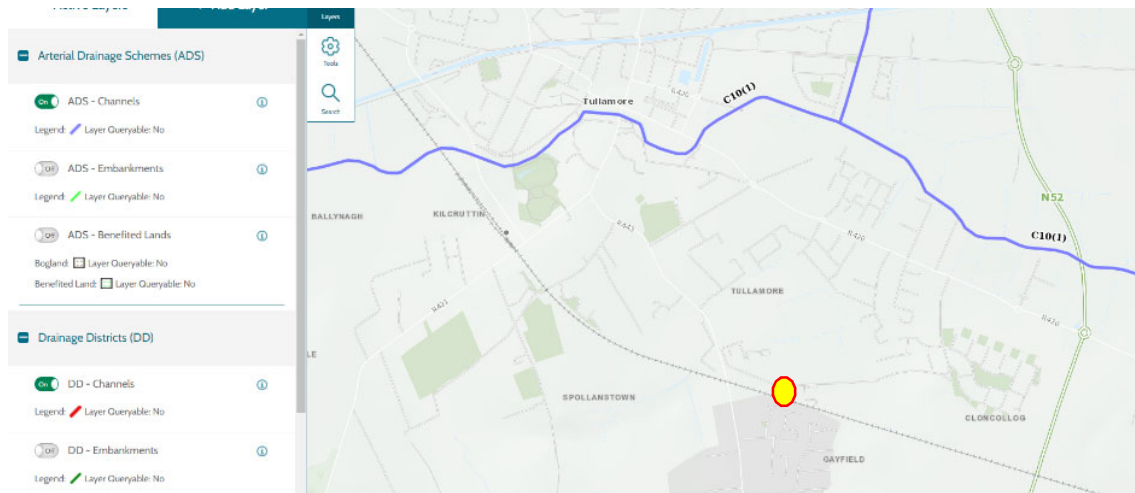
Neither of those two watercourses pose a flood risk to Chancery Lane.

There are no Arterial Drainage Scheme (ADS) Channels or Drainage District (DD) Channels or benefited land on the Dargan Drive site. The map below shows a series of ADS Channel (coloured blue) on the out skirts of Tullamore and their respective benefited lands.

There are no DD Channels in the vicinity.



Source: OPW Drainage Maps





## 4. Identification of Flood Risk & Potential Sources

### 4.1. Flood Risk

The Planning System and Flood Risk Management Guidelines for Planning Authorities highlights two components of flood risk that must be considered in applying this guidance in a consistent manner as follows:

- **Likelihood of flooding** is normally defined as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. For example, a 1% probability indicates the severity of a flood that is expected to be exceeded on average once in 100 years, i.e. it has a 1 in 100 (1%) chance of occurring in any one year.
- **Consequences of flooding** depend on the hazards associated with the flooding (e.g. depth of water, speed of flow, rate of onset, duration, wave action effects, water quality), and the vulnerability of people, property and the environment potentially affected by a flood (e.g. the age profile of the population, the type of development, presence and reliability of mitigation measures etc.).

Flood risk is then normally expressed in terms of the following relationship:

$$\text{Flood risk} = \text{Likelihood of flooding} \times \text{Consequences of flooding}$$

### 4.2. Potential Sources of Flooding

**Fluvial Flood Risk:** Fluvial flooding occurs when the capacity of a watercourse is exceeded or the channel is blocked or restricted, and excess water spills out from the channel onto adjacent low-lying areas (the floodplain).

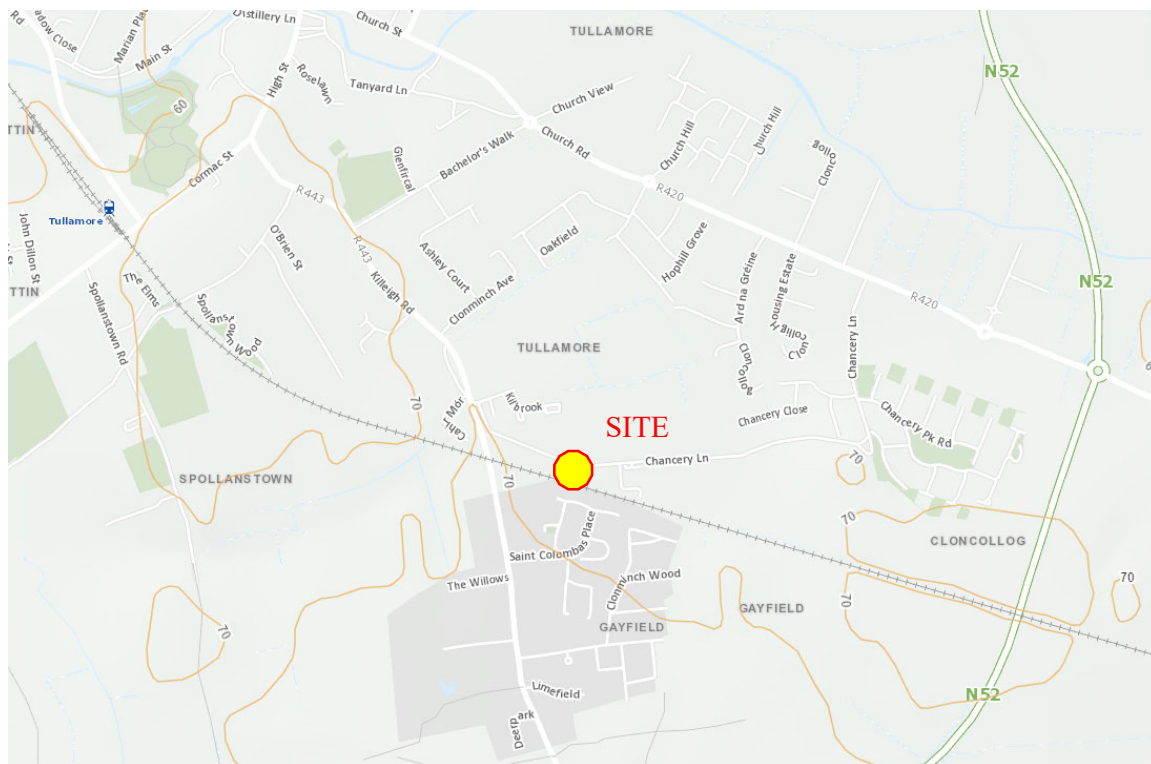
The Tullamore River passes around Tullamore and presents a risk of fluvial flooding on green lands at the edge of the town. At its nearest point, the site at Chancery Lane is over 1800m from the Tullamore River and is elevated at least 20m higher, so therefore fluvial flooding is not an issue. See contours on the maps below.

**Pluvial Flood Risk:** Pluvial flooding refers to flooding events that are caused by extreme rainfall and the ground cannot absorb rainwater effectively. This results in overland flow and ponding in depressions in the topography, and in urban situations underground sewerage/drainage systems and surface watercourses may be completely overwhelmed by excessive water flow

The geographical topography of the Chancery Lane site and its surroundings is such that the likelihood of pluvial flooding is practically zero.

**Groundwater Flood Risk:** Groundwater flooding occurs when the natural underground drainage system cannot drain rainfall away quick enough, causing the water table to rise above the ground surface. In midland areas this tends to occur after long periods of sustained rainfall. High volumes of rainfall and subsequent infiltration to ground will result in a rising of the water table. Groundwater flooding tends to occur in low-lying areas, where with additional surface-water flowing towards these areas, the water table can rise to the surface causing groundwater flooding.

The geographical topography of the Chancery Lane site and its surroundings is such that the likelihood of groundwater flooding is practically zero.



Source: GeoHive Maps (OSi)

The maps above show 10m contour line intervals, and it can be seen that the site lies in the 60m contour area which prevails in the town of Tullamore. The lands adjacent to the Tullamore River in Tullamore are less than 70m A.O.D.



## **5. Flood Zones**

Flood Zones are classified under the Planning System and Flood Management Guidelines 2009 as geographical areas within which the likelihood of flooding is in a particular range and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning.

There are three types or levels of flood zones defined in the Guidelines:

**Flood Zone A** – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5%).

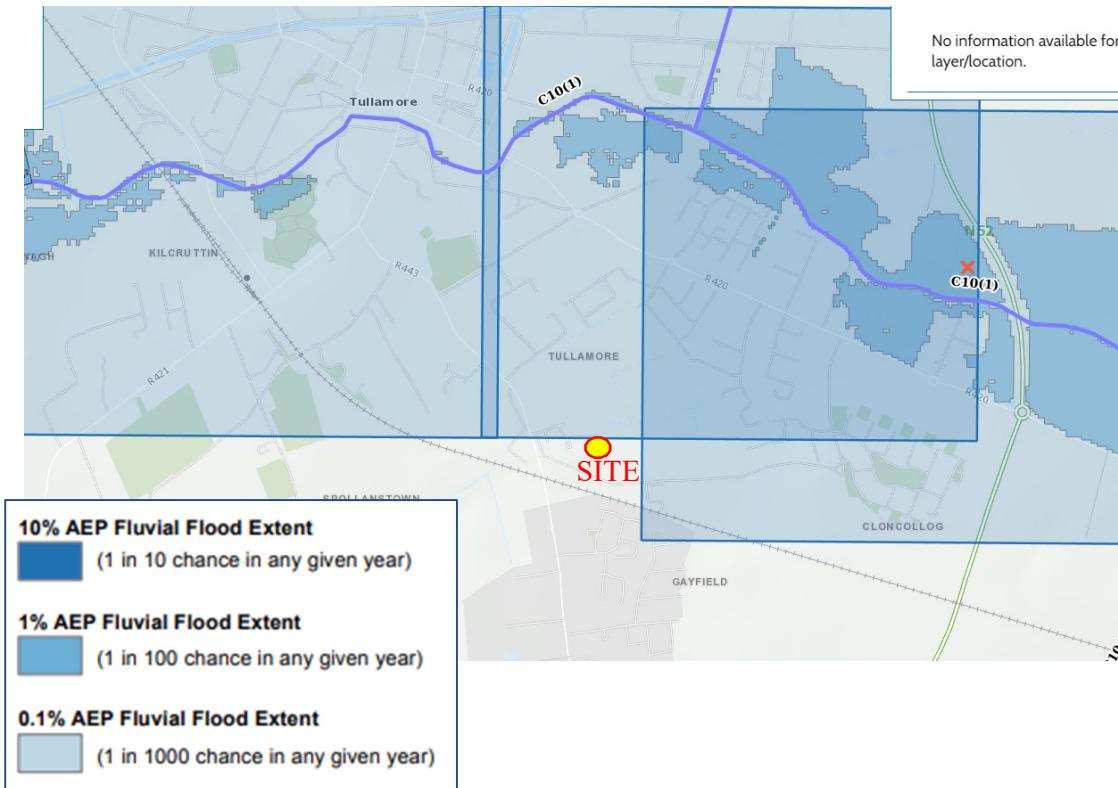
**Flood Zone B** – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5%).

**Flood Zone C** – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for river flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

Mapping produced under the Catchment Flood Risk Assessment and Management (CFRAMS) programme show Flood Zones along the Tullamore River. This programme was managed by the Office of Public Works.

The map below shows the present day flood extent of the Tullamore River.





Source: OPW Flood Maps

## 6. Conclusion

This report finds that there is no risk of fluvial, pluvial, or groundwater flooding at the site at Chancery Lane. There is no recorded evidence of historical flooding at the site, or alluvial soil deposits. Recent soil investigations conducted at the site by Site Investigation Ireland Ltd confirm this. Given the geographic location of Chancery Lane and its topographical landscape; flooding at this site should never be an issue.

As a result of the Stage 1 – Flood Risk Identification, it is not considered necessary to subject this Chancery Lane development site to a Stage 2 or Stage 3 Flood Risk Assessment.



## 7. References

Offaly County Development Plan 2014 – 2020. Offaly County Council (2014)

Offaly County Development Plan 2014 – 2020: Strategic Flood Risk Assessment. Offaly County Council (October 2014)

Tullamore Local Area Plan 2017 – 2023: Offaly County Council (October 2017)

Tullamore Local Area Plan 2017 – 2023: Strategic Flood Risk Assessment (Stage1 & Stage2): Offaly County Council (October 2017)

The Planning System and Flood Risk Management, Guidelines for Planning Authorities. Department of the Environment, Heritage & Local Government and OPW (November 2009).

The Planning System and Flood Risk Management, Guidelines for Planning Authorities. Technical Appendices. Department of the Environment, Heritage & Local Government and OPW (November 2009).

OPW's national flood informational portal. Office of Public Works.  
<https://www.floodinfo.ie/map/floodmaps/>

The EPA Unified GIS Application. Environmental Protection Agency.  
<https://gis.epa.ie/EPAMaps/>

Geological Survey Ireland, Department of Communications, Climate Action & Environment. Geological Survey Ireland Spatial Resources  
<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html>

Ordnance Survey Ireland, Phoenix Park, Dublin 8.

Note: This report includes OSi mapping and digital data in line with terms of the CCMA Agreement and are reproduced under licence number: 2020/32/CCMA/OffalyCountyCouncil.