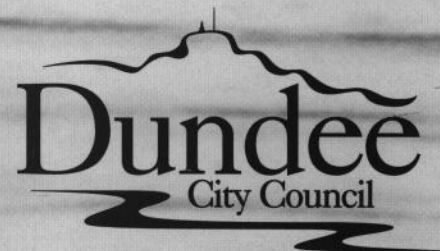


# Flood Prevention Report 1997



**Dundee**  
City Council

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## REPORT IN TERMS OF SECTION 3 OF THE

### FLOOD PREVENTION AND LAND DRAINAGE (SCOTLAND) ACT 1997

#### 1 BACKGROUND

1.1 On 26 May 1997 the Flood Prevention and Land Drainage (Scotland) Act 1997 came into force. This places a duty on local authorities to:

- assess watercourses in their area from time to time to determine whether their condition is likely to cause flooding;
- carry out maintenance works on watercourses which would significantly prevent or mitigate the likelihood of flooding; and
- to prepare and publish reports.

The 1997 Act limits Local Authorities responsibilities to the flooding of non-agricultural land. Where any flood prevention works would benefit only one person or organisation, then the Local Authority is not required to carry out such works.

1.2 Each Local Authority is required to prepare and publish a report within six months of the enactment coming into force. This places a duty on the Council to specify the measures which they require to take which will significantly prevent or mitigate the effect of flooding of non-agricultural land in their areas.

Every two years the Council is required to publish a further report setting out:

- the measures that are required to prevent or mitigate the flooding of non-agricultural land in their area;
- the measures which have been taken since the date of publication of their previous report; and
- all occurrences of such flooding since that date.

1.3 The purpose of publishing these reports is to ensure that local people and other interested parties have ready access to local authority records and information with regard to flooding in their area. This report is the first to be published.

1.4 The City Council seeks the participation of the citizens of Dundee in providing information on flooding within the City. This report sets out the current position as far as it is known and proposes appropriate future action.

Anyone who has additional information on known flooding risk areas which have not been identified in this report is invited to bring it to the attention of:

The City Engineer  
Planning and Transportation Department  
Dundee City Council  
Floor 15, Tayside House  
Crichton Street  
Dundee DD1 3RB

## **2 THE CURRENT SITUATION**

### **2.1 Identification of Watercourses**

A desk study has been carried out to identify all known watercourses which exist within the boundaries of Dundee City Council including those which flow into or out of the Council's boundaries from or into a neighbouring authority.

A schedule of all such watercourses has been prepared and is set out in Appendix 1. The map in Figure 1 shows the location of all known watercourses and is based on information gathered from historical records. Many of the watercourses have been culverted or piped below ground level at some time in the past and have subsequently been either diverted for industrial purposes in earlier times or more recently moved to make way for development works. Accordingly, precise records have been difficult to obtain. Where there is doubt over the exact line of a watercourse, the anticipated line has been shown as a broken line on the plan.

The main watercourses which affect the city are:

- River Tay;
- Dighty Water and its tributaries, the Gelly, Fithie and Murroes Burns;
- The Logie Spout/Scourin' Burn;
- Lochee Burn; and
- Dens Burn.

Further research is required to build up a more accurate picture of all watercourse routes within the city boundaries, particularly within the city centre area.

### **2.2 Review of Flooding Events**

In order to assess the extent of the current problems being faced in Dundee with regard to flooding and flooding risk, a desk study has been conducted. To build up a picture of areas prone to flooding, the study used the records obtained from North of Scotland Water Authority (NOSWA), the successors to Tayside Regional Council whom as Water Authority, were previously responsible for assessing flooding and flooding risks. In addition, the local knowledge of individual members of the Planning & Transportation Department was used to augment and add to this information.

The known flooding risk points have now been identified and are listed in Appendix 2 and illustrated in Figure 2. These have been categorised according to the consequential seriousness of flooding events at the locations noted.

It is recognised that the flooding risk points identified may not be a comprehensive record of all areas known to flood. The City Council would therefore be interested in hearing from any individual or organisation which has knowledge of any other known areas of flood risk within or immediately outwith the City boundaries.

Whilst historical information is a vital part of building up a picture of the flood potential of the area, it also has to be recognised that significant urban redevelopment can take place between major flood events. This can change the flood potential of an area either for the better or the worse.

### **3 MEASURES BEING TAKEN AT PRESENT**

#### **3.1 Hydrological Studies**

The Council in conjunction with University of Abertay, Dundee is currently involved in carrying out detailed hydrological studies of two of the main watercourses which run through the Council's boundaries. These are the Dighty Water and its tributary, the Gelly Burn. The areas covered by the current studies are illustrated in Figure 3.

The aim of these studies is to build up a detailed computer model of the watercourses and their catchment areas to enable predictions to be made on the likely consequences of future developments on the watercourses. The computer model shall also enable predictions to be made on the effects of carrying out maintenance or flood protection works in specific locations.

The Dighty element of the hydrological study is nearing completion and has already been used to look at problems associated with proposed development sites. The Gelly Burn study was started earlier this year and is likely to be completed in early 1998.

#### **3.2 Flood Warning and Emergency Planning**

In the event of a major emergency involving flooding, the City Council has in place an integrated emergency management procedure which has four main aims:

- To clarify the roles of the organisations involved in dealing with emergencies;
- To ensure that the City Council are able to provide the resources at its disposal in dealing with the emergency;
- To provide information on the support and assistance available from the City Council and all other agencies and organisations; and
- To ensure that appropriate arrangements are in place to co-ordinate the City Council's response to such an emergency.

As part of this procedure, the City Council has access to information from various sources to assist in the warning of potential flooding occurrences. Information on severe weather conditions, atmospheric surge conditions in the Tay estuary and predicted tide levels is collated. In addition, contacts have been made with the Scottish Environment Protection Agency (SEPA) who can provide information on flow levels due to extreme events such as snow melt combined with heavy rainfall within the Tay catchment area.

The information obtained from these various sources is analysed and used to predict the likelihood of flooding in low lying areas adjoining the estuary such as the Broughty Ferry area at Fisher Street where a combination of adverse conditions occasionally results in local flooding events. Similarly, for the other watercourses, meteorological information is used to assess the risk of flood events occurring.

#### **3.3 Policy Planning**

The City Council's Planning and Transportation Department, as the planning authority, also incorporates the City Engineer's and Road Network Divisions and is well placed to consider the effects on the local watercourses of sites suitable for development.

Close internal links have been developed with other relevant Council Departments and proposals are well advanced in establishing a Flood Appraisal Group which will incorporate representatives from the City Council, the Scottish Environment Protection Agency and the North of Scotland Water Authority.

## **4 FURTHER MEASURES TO BE TAKEN**

### **4.1 Identification Of Watercourses and Flood Risk Areas**

Although much work has been carried out in identifying the watercourses which exist within the boundaries of Dundee City Council, there still remains some work left to do in identifying precise routes of all watercourses, particularly within the city centre area.

All of the information currently known about watercourses will be transferred onto a computerised datamap system. This database will be regularly updated as further information becomes available.

Similarly, the areas of potential flood risk will be added to the datamap and again regularly updated. It is envisaged that updates on this information will come from various sources including:

- elected members and individual officers working within the City Council;
- external agencies and organisations;
- members of the public; and
- press reports.

### **4.2 Maintenance Inspection and Remedial Works**

It is proposed to initiate a regular inspection regime to monitor the condition of watercourses within the city boundaries. These inspections shall be carried out on a rolling programme and shall be prioritised with the areas of highest risk being targeted as requiring the greatest use of resources.

The precise format for the inspections has yet to be established although it is likely that areas of known flooding will be inspected on at least a biannual basis. Greater emphasis shall be placed on areas featuring the highest concentrations of population and property. The welfare of people shall be given precedence over property.

As a result of the routine inspections it may be necessary for the City Council to use its powers under the Flood Prevention (Scotland) Act 1961 to instruct maintenance works to be carried out. These powers would only be used where the maintenance works would substantially reduce the likelihood of flooding occurring and where the flooding is likely to affect more than one owner.

### **4.3 Identification of Capital Works**

Where the inspections show that there is a requirement for more substantial works, other than routine maintenance, then consideration would be given to promoting a flood prevention scheme. Should such a scheme be required and funded from Capital then the Council would have to exercise its powers under 1961 Act to promote such works.

### **4.4 Continuing Liaison**

In order to help reduce the risk of flooding occurring in the future, it is vital that the City Council maintains and builds on its current links with other organisations and bodies. In order to achieve this, the City Council shall seek to develop closer links in this regard with the following organisations:

- Perth and Kinross Council;
- Angus Council;
- Scottish Environment Protection Agency;
- North of Scotland Water Authority;
- Scottish Natural Heritage; and
- Scottish Office Agriculture, Environment and Fisheries Department

#### **4.5 Control of Future Development**

Existing planning legislation already provides for the possibility of new development and in general does not permit any such development in areas identified as being prone to flooding. In addition the national planning policy guidance No 7 "Planning and Flooding" contains further detailed guidance on the inter-relationships between planning and flood risk issues.

Future development within the City shall be controlled in line with the National Planning Guidelines given in NPPG 7 and where appropriate, by using 'Best Management Practices' to deal with the disposal of surface water from development sites. To allow new development to proceed, a balance has to be achieved between improving surface water disposal through the use of Best Management Practices as recommended by SEPA and the requirement to reduce the risk of flooding. Such best management practices have the combined benefit of improving water quality and attenuating surface water discharges in order to minimise the risk of flooding downstream of the development.

Finally, it is the City Council's policy to pro-actively identify potential development sites which might have flood risk problems and to look for methods of overcoming these through the local planning process.

#### **4.6 Publish Reports**

In accordance with the requirements of the Flood Prevention and Land Drainage (Scotland) Act 1997, the City Council is required to prepare and publish reports every second year. These reports have to specify:

- the measures which are considered necessary by the City Council to significantly prevent or mitigate the flooding of non-agricultural land in the area;
- the measures which have been taken since the date of publication of the previous report to prevent or mitigate such flooding; and
- all occurrences of such flooding since that date.

These reports shall be published in December of years with odd numbers ie 1999, 2001, 2003 etc and shall be made available in all public libraries and at Council Reception points.

## BIBLIOGRAPHY

The Flood Prevention and Land Drainage (Scotland) Act 1997

The Flood Prevention (Scotland) Act 1961

National Planning Policy Guideline No 7 - "Planning and Flooding"  
Scottish Office Environment Department

A Guide to Surface Water Best Management Practices - SEPA 1996



## Watercourses and Culverts

## Appendix 1

Name	Length (m)	Watercourse Location
Dighty (open)	12192	Bridge at Baldovan to Estuary
Gelly Burn (open)	1219	Old Glamis Road to Claverhouse Road
Gelly Burn	3048	Macalpine Road / Dalmahoy Drive Old Glamis Road / Macalpine Road
Whitfield Burn (open)	2286	Berwick Drive to Fithie Burn
Whitfield	762	Berwick Drive
Fithie Burn (open)	1097	Rear of Pitkerro Mill to Dighty
Gorrie Burn (open)	1096	Pitempton Farm and west from Strathmartine Road parallel to Sidlaw Avenue
Gorrie	365	Bridge at Baldovan / Pitempton Farm and Strathmartine Road / Pitempton Farm
Invergowrie (open)	1676	Rear Swallow Hotel to Estuary
Murroes (open)	1036	Pitkerro House to Dighty
Lochee (open)	1341	Gourdie Industrial to Invergowrie Burn
Lochee	3047	Burnside Street / Gourdie Industrial Estate
Camperdown Park (open)	792	Through park
Camperdown	396	Liff Road / Kingsway
Clive Road (open)	152	Rear of houses at Clive Road at right angles to Gelly Burn
Back Burn (open)	243	Rear of sub-station at Macalpine Road parallel to Birkdale Place
Back Burn	2090	Macalpine Road / Strathmartine Road and Kirkton High / Dighty
Mause Burn	396	Commercial Street / Dock Street
Dens Burn	2636	Glenogil Avenue / Arthurstone Terrace and St.Roques / East Dock Street
Logie Spout	1036	Victoria Park / Edward Street
Scouring Burn	1179	Edward Street / Ward Road
Ward Road	481	Length of Ward Road
Perth Road	198	Perth Road / Foreshore
Perth Road	182	Foreshore at 590 Perth Road
Foster Road	243	Foster Road / Gelly Burn
Kingsway	610	Tesco / Clive Road
Craigiebank	631	Arbroath Road / Craigie Avenue to Strips of Craigie
Claypotts	1829	Ferndale Drive / Church Street
Barnhill	1432	Strathmore Street / Monifieth Road
Tay (open)		Invergowrie / Barnhill

## Flood Risk Locations

## Appendix 2

No.	Name	Flooding Location	Flood Risk Potential	Flood Risk Category
1	Dighty (open)	Land between Harestane Road and Home Farm	Property damage and flooding of agricultural land	2
2		Dighty / Old Glamis Road junction	Flooding of local road	2
3		Land north of Trottick	Flooding of agricultural land	3
4		Land between Mill Ponds and Barns of Claverhouse Road	Recreational and property damage	1
5		Playing fields west of St Saviours school	Flooding of recreational ground only	1
6		Industrial land west of Forties Road	Property damage	2
7		Land between Pearce Avenue and Tom Johnstone Road	Flood plain	2
8		Land northwest of Lilac Cottage on A92 Arbroath Road	Flooding of agricultural land	3
9		Land west of Milton Park Monifieth	Property damage	
10	Gelly Burn	Dalmahoy Drive / Turnberry Avenue junction	Property damage	1
11		South of Primary school Turnberry Avenue	Property damage	1
12		Turnberry Avenue / Macalpine Road junction	Road flooding	2
13		Camperdown Road west of Strathmartine Road junction	Property damage	1
14		Gillburn Road south of Gillburn Primary school	Road flooding	2
15	Whitfield Burn (open)	Northwest of Berwick Drive / Ballumbie Road junction	Flooding of recreational ground	2
16	Fithie Burn (open)	Fithie / Drumgeith Road junction	Property damage	1
17	Gorrie Burn (open)	Gorrie Burn / Strathmartine Road junction	Property damage	1
18	Gorrie	Farm land between Strathmartine Road and Pitempton Road	Flooding of agricultural land	3
19	Invergowrie (open)	Southwest of Swallow Hotel	Flooding of agricultural land	3

## Flood Risk Locations

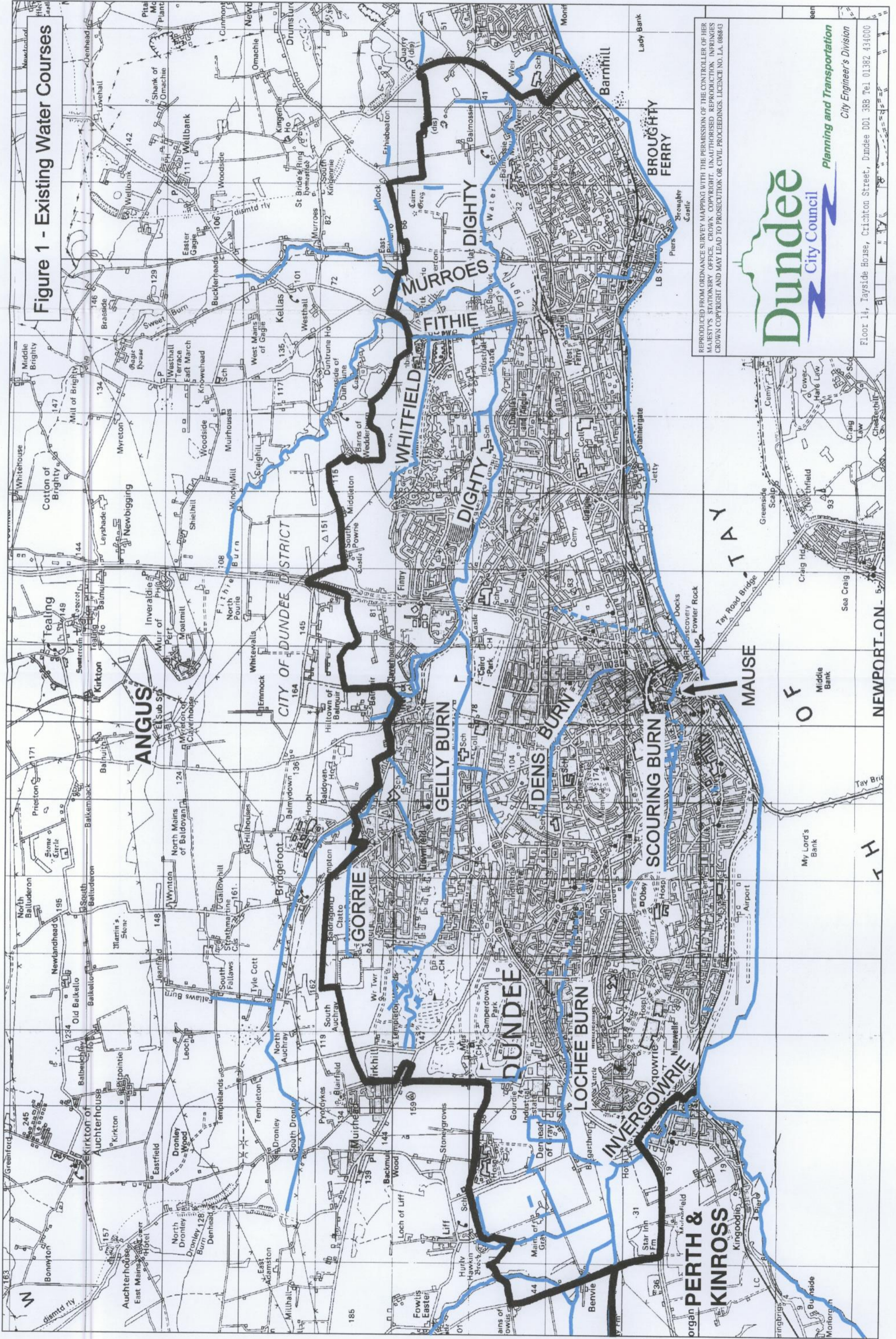
## Appendix 2

No.	Name	Flooding Location	Flood Risk Potential	Flood Risk Category
20		Pedestrian bridge and track	Pedestrian access problems	
21	Murroes (open)	East end of Barlow Avenue	Flooding of agricultural land	3
22	Lochee	Bridge at Denhead of Gray	Flooding of agricultural land	3
23	Mause Burn	Town centre shops	Flooding of roads possibly linked to tidal effects and storm water overflows	2
24	Logie Spout	Industrial Development	Property damage	2
25	Perth Road	Riverside Avenue west of Wright Avenue	Localised flooding of road	3
26	Tay (open)	Fisher Street, Broughty Ferry	Damage to property and flooding of road due to tidal effects	1
27		St.Vincent Street, Broughty Ferry underpass below railway line	Flooding of road associated with tidal effects	1
28	Back Burn	St.Leonards Road / Cox Street	Flooding on road	2

### Flood Risk Category :-

- 1 - Serious damage to property, risk of personal injury, major disruption to services and transportation links.
- 2 - Nominal damage to property, disruption of services and transportation links.
- 3 - Minor inconvenience or little disruption to members of the public.

Figure 1 - Existing Water Courses



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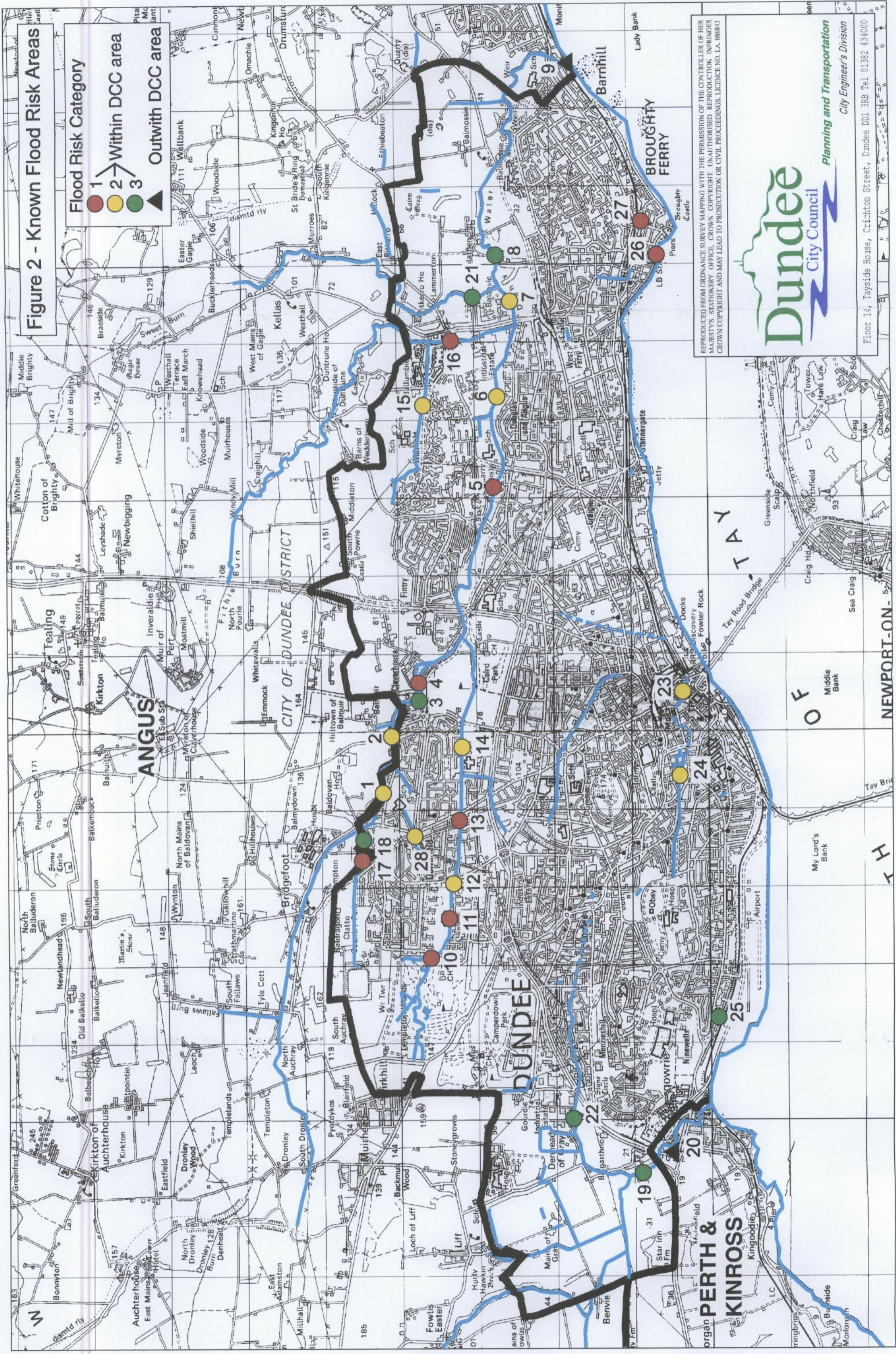
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City Engineer's Division

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**Figure 2 - Known Flood Risk Areas**

**Flood Risk Category**

- 1 ● Within DCC area
- 2 ● Within DCC area
- 3 ● Within DCC area
- ▲ Outwith DCC area



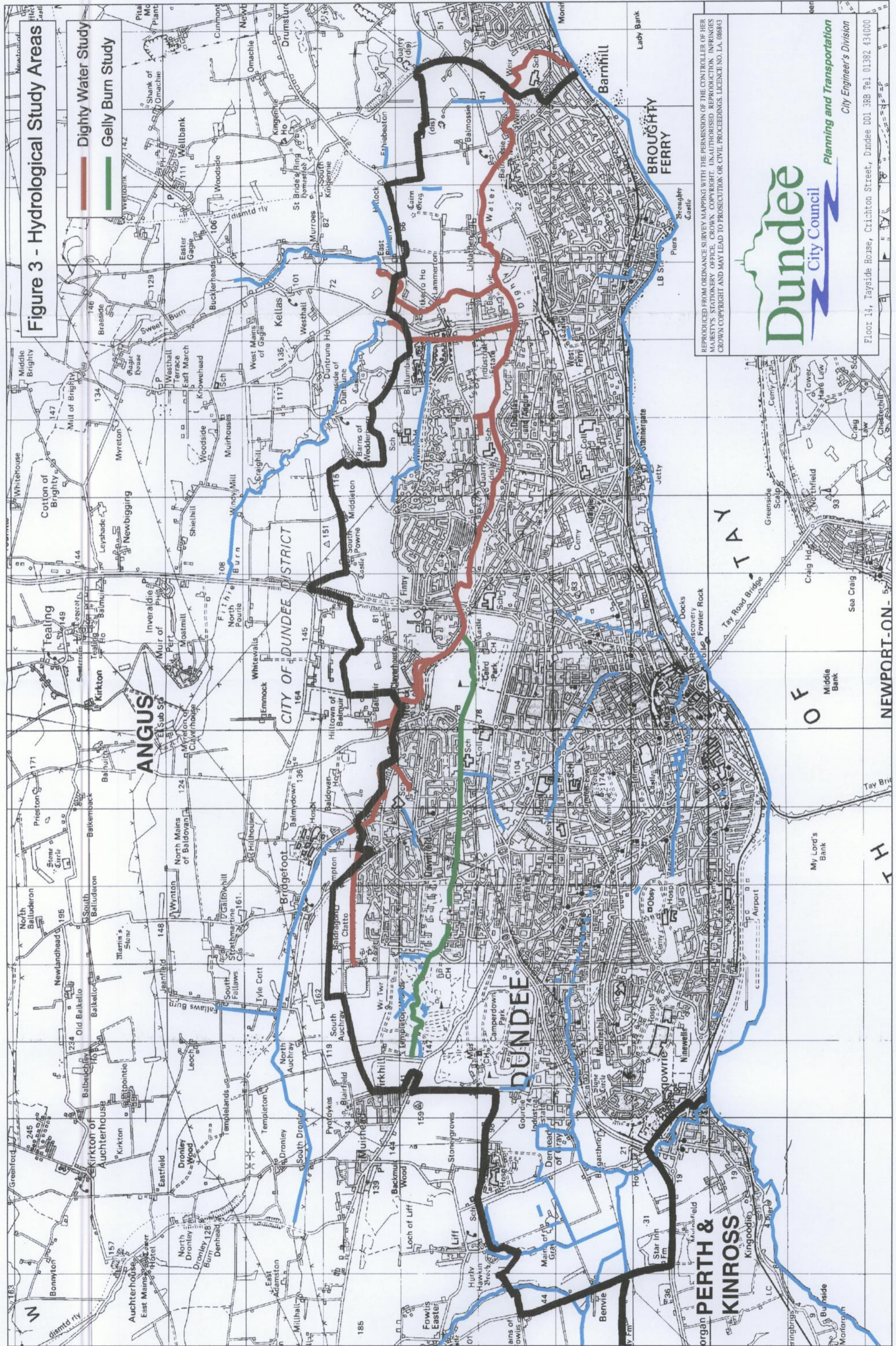
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Figure 3 - Hydrological Study Areas

- Dightly Water Study
- Gelly Burn Study



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