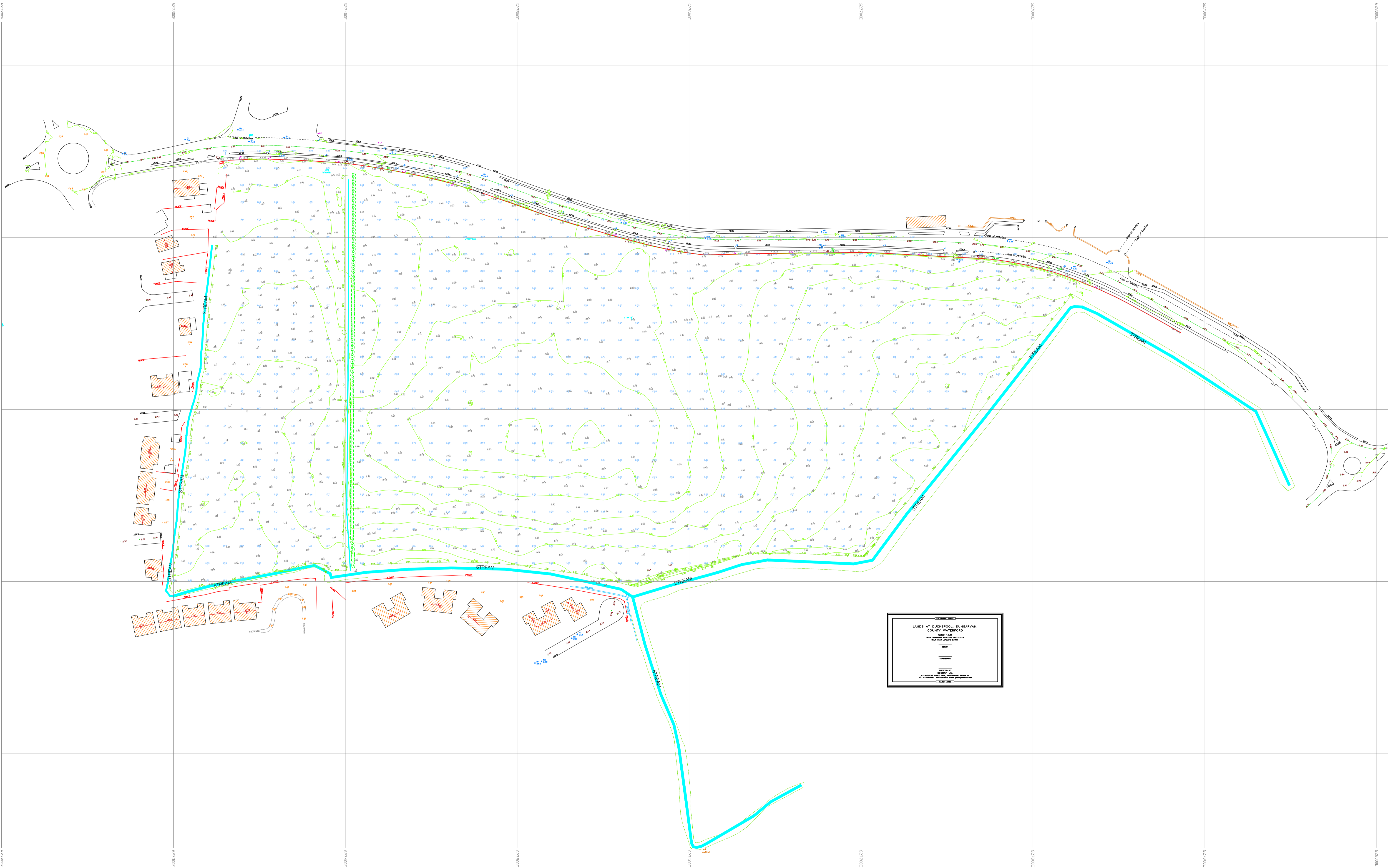


## **APPENDIX B**

### **Topographical Survey**



LANDS AT DUCKSPOOL, DUNGARVAN,  
COUNTY WATERFORD.  
SCALE 1:5000  
DATE 1988  
BY [Name]  
[Address]  
[City]

## **APPENDIX C**

**OPW Floodmaps.ie MapReport**

**Summary Local Area Report**

This Flood Report summarises all flood events within 2.5 kilometres of the map centre.

The map centre is in:

County: Waterford

NGR: X 275 941

This Flood Report has been downloaded from the Web site [www.floodmaps.ie](http://www.floodmaps.ie). The users should take account of the restrictions and limitations relating to the content and use of this Web site that are explained in the Disclaimer box when entering the site. It is a condition of use of the Web site that you accept the User Declaration and the Disclaimer.



Map Scale 1:29,782

Map Legend	
	Flood Points
	Multiple / Recurring Flood Points
	Areas Flooded
	Hydrometric Stations
	Rivers
	Lakes
	River Catchment Areas
	Land Commission *
	Drainage Districts *
	Benefiting Lands *

\* Important: These maps do not indicate flood hazard or flood extent. Thier purpose and scope is explained in the Glossary.

**14 Results**

	1. Dungarvan Strandside South Dec 1989 County: Waterford Additional Information: Reports (1) More Mapped Information	Start Date: 16/Dec/1989 Flood Quality Code:3
	2. Dungarvan Sea Park Dec 1989 County: Waterford Additional Information: Reports (1) More Mapped Information	Start Date: 16/Dec/1989 Flood Quality Code:3
	3. Dungarvan Davitts Quay Upper recurring County: Waterford Additional Information: Reports (4) More Mapped Information	Start Date: Flood Quality Code:3
	4. Dungarvan Strandside South Oct 2004 County: Waterford Additional Information: Reports (5) More Mapped Information	Start Date: 28/Oct/2004 Flood Quality Code:3
	5. Dungarvan Davitts Quay Lower Oct 2004 County: Waterford	Start Date: 27/Oct/2004 Flood Quality Code:3

Additional Information: Reports (5) More Mapped Information



6. Dungarvan Clonea Road Oct 2004

County: Waterford

Start Date: 27/Oct/2004

Flood Quality Code:3

Additional Information: Reports (5) More Mapped Information



7. Dungarvan Sea Park area Oct 2004

County: Waterford

Start Date: 27/Oct/2004

Flood Quality Code:3

Additional Information: Reports (2) More Mapped Information



8. Dungarvan Davitts Quay Upper Oct 2004

County: Waterford

Start Date: 27/Oct/2004

Flood Quality Code:3

Additional Information: Reports (6) More Mapped Information



9. Dungarvan Strandside South recurring

County: Waterford

Start Date:

Flood Quality Code:3

Additional Information: Reports (4) Press Archive (1) More Mapped Information



10. Dungarvan Clonea Road Sallybrook recurring

County: Waterford

Start Date:

Flood Quality Code:3

Additional Information: Reports (4) Press Archive (1) More Mapped Information



11. Dungarvan Davitts Quay Lower recurring

County: Waterford

Start Date:

Flood Quality Code:3

Additional Information: Reports (5) More Mapped Information



12. Glendine Kilminnin recurring

County: Waterford

Start Date:

Flood Quality Code:4

Additional Information: Reports (1) More Mapped Information



13. Glendine Ballynalahessery recurring

County: Waterford

Start Date:

Flood Quality Code:4

Additional Information: Reports (1) More Mapped Information



14. Colligan Ballynamuck recurring

County:

Start Date:

Flood Quality Code:4

Additional Information: Reports (1) Press Archive (3) More Mapped Information

**MINUTES OF MEETING**

<b>Reference:</b>	<b>P4D403A – F310 – 033 – 004 – 2604</b>	
<b>Project No.:</b>	<b>P4D403A</b>	
<b>Project Title:</b>	<b>OPW Flood Hazard Mapping – Phase 1</b>	
<b>Purpose of Meeting:</b>	<b>Oral Report of Areas prone to flooding – Dungarvan Area, Co. Waterford</b>	
<b>Participating:</b>	<b>Area Engineer, Dungarvan General Services Supervisors</b>	<b>Waterford County Council Waterford County Council</b>
	<b>Search Manager</b>	<b>ESBI</b>
<b>Venue:</b>	<b>Waterford County Council, Dungarvan, Waterford</b>	
<b>Date of Meeting:</b>	<b>13/01/2006</b>	
<b>Copies to:</b>	<b>WCC</b>	
<b>Compiled by:</b>	<b>Search Manager</b>	
<b>Status</b>	<b>Approved</b>	
<b>Approved for ESBI:</b>	<b>Search Manager</b>	
<b>Approved for Waterford County Council</b>	<b>Area Engineer,</b>	
<b>Date:</b>	<b>27/02/2006</b>	

ITEM NO.	MINUTE	ACTION BY
1.	<b>Flood Locations</b>	
1.1	<p>At the meeting, locations vulnerable to regular or historic flooding in the Dungarvan district were identified by the Waterford County Council (WCC) Area Engineer and District Overseers.</p> <p>These places were geolocated digitally by ESBI in conjunction with WCC on OSI mapping using the MapInfo GIS package. The GIS mapping prepared has been printed onto 5 separate sheets.</p> <p>The flood locations are listed and described below under Heading 1.2.</p>	
1.2	<ol style="list-style-type: none"> <li>1. Cleary's Cross – recurring flooding of the N25 National Primary Road. Flood ID 3801</li> <li>2. Sluggera Cross – recurring flooding of the R673 regional road near Ardmore. The road is periodically impassable. Flood ID 3802</li> <li>3. Monea Ardmore - severe recurring flooding at a low point of the R673. Road periodically impassable. Flood ID 3803</li> <li>4. Ballyheeny Bridge - severe recurring flooding. Road periodically impassable. Flood caused by a combination of high tides and heavy rain increasing flow in the River Licky. Flood ID 3804</li> <li>5. Coolbooa Bridge at Clashmore – recurring flooding of Regional road R671 due to high flows in river. One house adjacent to river affected. Flood ID 3805</li> <li>6. Clashmore Bridge - recurring flooding of Regional road R671 due to high flows in river. Properties at lower end of street affected. Flood ID 3806</li> <li>7. Ballynaparka Bridge at Aglish – recurring flooding. Properties affected Flood ID 3807</li> <li>8. Aglish village – village can flood under severe rainfall events. Flood ID 3808</li> <li>9. Coolnagour to Lackenfune area – recurring flooding of the road. A low lying stretch up to 700m in length becomes flooded causing the road to be periodically impassable. Flood ID 3809</li> <li>10. Ballygagin Mapestown area - recurring flooding of the road. The road is periodically impassable. Flooding due to overflow from a sluggeragh and a stream following heavy rainfall. Runoff from this area of flooding affects the Coolnagour to Lackenfune area. Flood ID 3810</li> <li>11. Killosseragh – approximately 1 mile of road is flooded on a recurring basis and is periodically impassable following overflow from the adjacent canal. Flood ID 3811</li> <li>12. Colligan River at Kildangan Bridge. A combination of heavy rain and high tides causes overbank flow from the Colligan on a recurring basis. A factory and the N72 road are flooded periodically. Flood ID 3812</li> <li>13. Ballymacmague. The flood described at Kildangan bridge extends to Ballymacmague on the R672 Regional Road. One house is periodically flooded. Flood ID 3813</li> </ol>	

ITEM NO.	MINUTE	ACTION BY
	<p>14. Ballynamuck in Dungarvan on the Colligan River. The road is blocked on a recurring basis due to high tides. Flood ID 3814</p> <p>15. Dungarvan Clonea Road in the Sallybrook area. The road is flooded periodically due to high tides. Flood ID 3815</p> <p>16. Glendine Estuary at Kilminnin. The road is flooded periodically due to high tides. Flood ID 3816</p> <p>17. Glendine Estuary at Ballynalahessery. The road is flooded periodically due to high tides where there are low points in the coastal defences. Flood ID 3817</p> <p>18. Dungarvan on Fr Twomeys Road The road has been flooded periodically.. Flood ID 3818</p> <p>19. Dungarvan at Davitts Quay Lower. Flooding of the Quay and a number of premises occurred from the Colligan River in October 2004 due to a combination of high tides, rainfall and winds. Flood ID 3819</p> <p>20. Dungarvan at Davitts Quay Upper. Flooding of the Quay and a number of premises occurred from the Colligan River in October 2004 due to a combination of high tides, rainfall and winds. Flood ID 3820</p> <p>21. Dungarvan at Strandside South. Recurring flooding of this area occurs following high tides. Flood ID 3821</p> <p>22. Dungarvan in the Kilrush area. Flooding occurs regularly following heavy rainfall. Flood ID 3822</p> <p>23. Dungarvan in the Kilrush Boreen Rua area. Flooding occurs regularly following heavy rainfall. One house has flooded. Flood ID 3823</p>	
2.	<b>Processing of Data</b>	
2.1	The locations listed under Heading 1.2 above will be incorporated into the project database as Flood Events. The unique ID number assigned by the project database is indicated for each flood event. They will then be mapped in the project GIS as points in accordance with the locations indicated on the attached mapping.	
3.	<b>Defence Asset</b>	
3.1	It was noted that the Cunnigar Spit which is a natural formation offers significant flood protection to Dungarvan.	



My Reference:  
Mo Thag:Your Reference:  
Do Thag:Date:  
Dáta:8<sup>th</sup> November, 2004**CHUIG AN MÉARA AGUS GACH BALL DE  
CHOMAIRLE CHONTAE PHORTLÁIRGE****STORM AND FLOOD DAMAGE – 27<sup>TH</sup> – 31<sup>ST</sup> OCTOBER 2004****A Mhéara agus a Chomhairleoirí**

A combination of extremely low pressure, heavy day-long rain, spring tides which exceeded predicted levels by more than 0.5m and strong to gale force south to south easterly winds resulted in extensive flooding and other damage on the evening of Wednesday 27<sup>th</sup> October, 2004 in many areas, particularly coastal areas. Having received advance warning of severe weather from the Met Office, the Councils Fire, Civil Defence and Outdoor Staff were put on alert. As many Elected Members as possible were advised of the Council's arrangements for Emergency Callouts.

**FLOODING**

By Friday 29<sup>th</sup> October, following the Rivers Blackwater and Suir bursting their banks, resulting in extensive flooding in the areas of Cappoquin, Lismore, Ballyduff and Clonmel, to the extent that the N72 was impassable between Cappoquin and Lismore, at Salterbridge, and at the Canal. Regional Road R666 was impassable due to flooding of sections between Lismore Bridge and Ballyduff and between Ballyduff and the County Boundary. All roads entering Clonmel from County Waterford were impassable. It was not until Monday, 1<sup>st</sup> November that all these roads were again passable.

Dungarvan town and surrounding areas were the worst affected. Flooding occurred in many areas of the town, including Davitts Quay, Shandon, Strandside North, Strandside South, Home Rule Street, The Pond, Walton Park, Clonea Road, Sallybrook, Sea Park, Youghal Road, Western Bay and the Lookout, resulting in flood damage to both public and private property and business premises.

Other locations experiencing flooding included Bonmahon, Ardmore, Curragh, Tramore, Ballymacarbery, Tourin and Portlaw. Some houses were flooded at Portlaw.

The principal areas of damage affecting Council property and staff were as follows:

### Motor Tax Office.

Entire floor area of Motor Tax Office flooded overnight on 27<sup>th</sup>, resulting in damage to telephone networks, internet, electrical systems and computer equipment. The link to Shannon no longer existed. The office was effectively closed, with only items for processing at the Tramore Office being accepted. All systems were restored by Friday evening, 5<sup>th</sup> November. The mobile filing system was also seriously damaged, as were records stored in the Archive.

### County Archives.

Archive boxes and transfer cases were flood damaged in the County Archive located to the rear of the staff car park. The damaged records are to be assessed to establish priorities for restoration. A quotation has been received from Harwell in the UK for Freeze-vacuum drying of the damaged records. The records that have not been damaged have been moved to the Councils Stores at the Machinery Yard for temporary storage.

### Staff Car Park

Flooding of the Staff Car Park at Davitt's Quay resulted in staff members cars being flooded.

Fire Service and Civil Defence personnel as well as Council Outdoor Staff assisted the public in retrieving flooded cars, rescuing stranded people, relieving flooding, distributing sand bags and providing security and signposting and manning of blocked roads.

### Storm Damage.

Serious and widespread storm damage occurred on the evening and night of Wednesday 27<sup>th</sup> October, 2004, the most significant of which was as follows:

Dungarvan and Environs Sewerage Scheme.

#### *(a) Collection System Contract (Roadbridge Ltd)*

As a result of storm damage to and the collapse of about 150 lin.m. of the storm wall on the seaward side of the Railway Walk, Dungarvan, the Causeway Walk was eroded and some 150 lin. Metres of the twin 450 mm. diameter rising mains laid therein were seriously damaged. A structural assessment of the integrity of the remaining sea wall is being prepared by the Consultants.

#### *(b) Wastewater Treatment Plant Contract (ABV Consortium)*

Prior to the storm approximately 590 lin. m. of the 700 mm. outfall pipe from the new Wastewater Treatment Plant had been laid on the seabed at Ballinacourty. 280 lin. m. were covered with concrete matting, and 310 metres were anchored with chains every 50 metres, awaiting matting. None of the pipeline had yet received the final rock armour covering. All but 78 lin. metres have been dislodged and seriously damaged, and even the short length remaining may be a write off.

The Council's Consultants are currently preparing a detailed assessment of the damage in respect of both Contracts (a) and (b) above.

**Coastal Damage.**

Coastal erosion and damage was caused by the storm at many locations along the coast, notably as follows:

- Damage to Car Parks at Anestown, Clonea, Ardmore, Curragh, Glencorran, Whiting Bay.
- Damage to Sea Wall at Ardmore.
- Damage to Pier Roadway at Boatstrand and slipway at Kilgarrassy.
- Damage and erosion to Bonmahon Dunes, steps and slipway.

**Miscellaneous.**

Road damage, mostly minor at various locations.

- Fallen trees blocking roads, various locations.
- Damage to property boundary walls at Sea Park, Abbeyside.
- Fallen wires at Lismore.
- Sea borne debris (rocks, stones, timber, seaweed etc.) cleared off roads, car parks.

The Councils Outdoor Staff, Fire Service Staff and Civil Defence responded immediately on Wednesday evening (27<sup>th</sup> October) to the developing emergency situation, and worked tirelessly for long hours in hostile and hazardous weather conditions, in assisting the public, clearing roads etc. The work continued on Thursday 28<sup>th</sup> October. I would like to record thanks and appreciation for their efforts.

Mise le meas,

---

***Director of Service & Co. Engineer.***

# Dungarvan Town Council

Comhairle Baile Dhún Garbhán

Civic Offices,  
Dungarvan,  
Co. Waterford.



Oifigí Carthartha,  
Dún Garbhán,  
Co. Phortláirge.

20 December 2004

## TO THE MAYOR AND EACH MEMBER OF DUNGARVAN TOWN COUNCIL

Dear Councillor,

Following is a brief summary of the areas recently flooded in the town.

1. The flooding was caused by a combination of a very high spring tide with a low pressure system and strong south easterly gales.
2. The tide reached a height of approximately 4.6 to 4.7 metres OD and the flooding was generally caused by tidal waters and not rainwater.
3. The main areas flooded were as follows:
  - Davitts Quay
  - The area along Strandside South, the Lookout and Home Rule Street.
  - The Youghal Road in the region of the Nissan garage
  - The Clonea Road in the region of Sallybrook.
  - The area at Landsend and Glendine.
  - The area between the Civic Offices and the N25
4. There was damage to the rear garden walls of two houses in Glendine. The houses themselves were not flooded.
5. There was significant damage to the old railway track and main drainage works along the track. This is being dealt with by the County Council.

A number of factors should be noted in respect of the flooding.

1. A small number of houses were flooded in the Strandside South / Home Rule Street area. The houses in question are prone to flooding. In general no permanent flood protection has been undertaken by the households.
2. The Tax Offices, public and staff carparks, Co. Co. archive area, Telecom Eireann and parts of the Glanbia Shop complex were all flooded by tidal waters.
3. Cars, in particular 4 wheel drive vehicles, caused washes that added to the maximum water level on all roads that were flooded.
4. There was additional coastal erosion in the Landsend area.

The floods were purely caused by the high tides. The Flood Impact Study does not outline any actions that would prevent flooding of the areas flooded by similar tides in the future. In the case of Davitts Quay and Strandside the only actions that would be

possible would be to significantly raise the road level and provide storage for storm water. This is neither practical or economical. I have completed an estimate for coastal protection works to the Landsend / Glendine area. The total cost of the works is Euro 2,099,100. This is based on a previous estimate for the works by consultants for the Council for a portion of the works and is calculated as follows:

1. New coastal protection works consists of 290 metres at Euro 4,390 per metre totalling Euro 1,273,100.
2. Reinforcement of existing works consists of 280 metres at Euro 2,950 per metre totalling Euro 826,000. This includes for the provision of a new footpath along the top of the works but does not include any works to the existing private walls along the works.



The attached map indicates the extent of the proposed works.

I would recommend the following actions to minimise the impact of any such high tides in the future.

1. The Town Council circulate a brochure to houses in areas that are prone to flooding indicating the actions that they can take to protect their property. These would include the provision details of commercially available flood barriers for small buildings.
2. In future roads that are flooded and have buildings adjoining them would be closed to traffic in order to avoid the additional flooding caused by vehicles passing.
3. The Town Council provides funding in the coming years for the improvement of coastal protection in the Landsend area. Specialist consultants should be appointed to undertake a detailed design of the works, particularly in the Glendine area. I would recommend that the detailed design is carried out in 2005 with a view to commencing the works in 2006.

Regards,



-  New protection works
-  Upgrade of existing protection works
- Public property
- Private property

# Waterford County Council

## *InterOffice Memo*

29/10/04



**To:** Dir. of Services and  
County Engineer

**From:** SE, Roads

**Date:** 29<sup>th</sup> October 2004

**Subject** *Flooding*

---

**Clonmel Environs** - All roads entering Clonmel from County Waterford are impassable.

**N72** – Road impassable due to flooding between Cappoquin and Lismore at Salterbridge and Canal

**R666** – Road impassable due to flooding between Lismore Bridge and Ballyduff, and also between Ballyduff and County bounds.



# Waterford County Council

## *InterOffice Memo*



**To:**

**From:**

**Date:** 28/10/2004

**Subject:** Flooding on 27/10/2004 in Dungarvan and around the County

---

Further to our conversation last night in connection with the above and your request for the incidents attended I outline as follows:

### **Dungarvan:**

We attended our first incidence at 17.40 to Seapark in connection with a wall knocked a woman trapped and flooding. (Four separate calls received)  
On arrival the woman had been removed to a neighbours house. We proceeded to free a path for the flood water through a rear garden wall and provide sand bags.

The second incident was also in Seapark but was far less serious than the first incident and was dealt with by providing sand bags to the householder.

The third incident was to Strand Side but as no houses were involved we did not attend.

The fourth incident was to Sallybrook at 18.41 in connection with flooding and a person trapped in a car. On arrival the person had been removed from the car but we found significant flooding which threatened the houses. A manhole cover had also been dislodged. We provide sand bags and security to the area.

At 18.53 while attending the above incident we were notified to a fifth incident of a person trapped in Home Rule St., Abbeyside and consequently Dungarvan were directed to this incident and Kilmacthomas called to support Dungarvan.  
On arrival at the Pond Area we found significant flooding and we continued to assist in protecting property.

At 21.00 a sixth call was received in connection with a tree on the road at Cusham and Dungarvan attended this incident however this incident was quickly dealt with.

At 21.17 a seventh call was received in connection with assistance required at Tierney's (adjacent to Abbeyside church) and Dungarvan also attended this.

At 21.53 an eight call was received for flooding to the Dungarvan Observer and Kilmacthomas attended this incident



A decision had been made earlier in the evening to distribute sand bags to the houses most likely to be at risk in the morning and at 22.32 Dungarvan did a complete tour of the worst effected areas (Seapark, Sallybrook, The pond area of Abbeyside, Western Bay, The Lookout)

At 22.33 Kilmacthomas left Dungarvan to assist at a further incident in Bonmahon.

While attending the above fire-fighters were also fed and given an opportunity to change from wet clothing.

The forecast for the following morning as provided by Met Eireann was a similar disturbance at high tide this morning.

I provided the above outline for Dungarvan as it was the area worst effected by the storm.

Other incidents attended by other brigades I list as follows:

<b>Brigade</b>	<b>Time</b>	<b>Incident Type</b>
Cappoquin	13.08	Road Hazard
Cappoquin	13.28	Tree On Road
Cappoquin	16.23	Tree On Road
Lismore	16.56	Tree On Road
Cappoquin	17.25	Tree On Road
Cappoquin	18.14	Rescue / Assistance
Lismore	18.28	Tree On Road
Cappoquin	18.52	Flooding
Tallow	18.56	RTA
Dunmore East	20.03	Tree on Road
Tallow	22.01	Tree On Road
Cappoquin	22.53	Tree On road
Lismore	23.18	Fallen Wires

- Co. Cork.

Ardmore - assisted in Youghal

# Waterford County Council

## InterOffice Memo

28/10/04



**To:** Dir. of Services and  
County Engineer

**From:** SE, Roads

**Date:** 28<sup>th</sup> October 2004

**Subject** *Storm Damage*

---

### Dungarvan Area

#### Dungarvan –

Extensive flooding in Dungarvan – Quays, Clonea Road  
Serious damage to both ends of Gold Coast Road, including wall damage;  
Railway Bridge (+ sewer pipeline) damaged;  
Pot-holes in Davitts Quay;

#### Ardmore

Flooding in Ardmore – Road to Car Park and Car Park damaged;  
Road likely to be undermined by hole (4mx1.5mx1.2m) in sea wall near Boat Cove;  
Road to Whiting Bay and Whiting Bay Car Park damaged;  
Curragh Car Park damaged;

#### Aglish

Some tree branches down

#### Colligan

No reported damage

#### Ring

No reported damage

### Tramore Area

#### Tramore

Some damage to construction work at sewage treatment plant;  
No major damage otherwise.

Dunmore East

Some trees down; no major damage.

Kilmeaden

Some trees down; No major damage.

**Kilmacthomas Area**

Kilmacthomas

Serious flooding on Coast Road in Bonmahon – road blocked.  
Some trees down; no major damage

Lemybrien

Some trees down – no major damage

Kildermody

Some trees down – no major damage to roads;  
Serious damage to car park at Annewstown;  
Damage to pier at Boatstrand

**Lismore Area**

Tallow

Some flooding last evening and trees down.

Lismore

Trees down on N72 and Vee Road last evening – now cleared.

Ballyduff

Some flooding at Glen Road Ballyduff last evening;  
Trees down – now cleared

Cappoquin

Trees down last evening on N72 at Salterbridge and at Belleville;  
Some flooding on N72 at Salterbridge, but passable;  
Flooding on Tourin road near Cappoquin.

Tooraneena

Some trees down at Ballinameala and Tooraneena – cleared.

## Suir Area

### Portlaw

Some flooding and pot-holes in Portlaw

Some trees down – no major damage

### Rathgormack

Minor damage to roads at Clonagam and at Kilgeaney;

Some trees down – no major problem

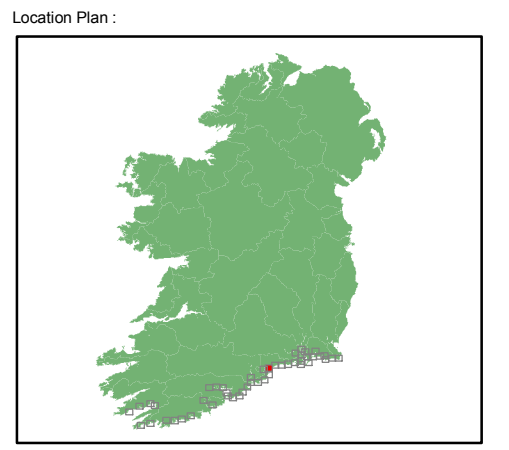
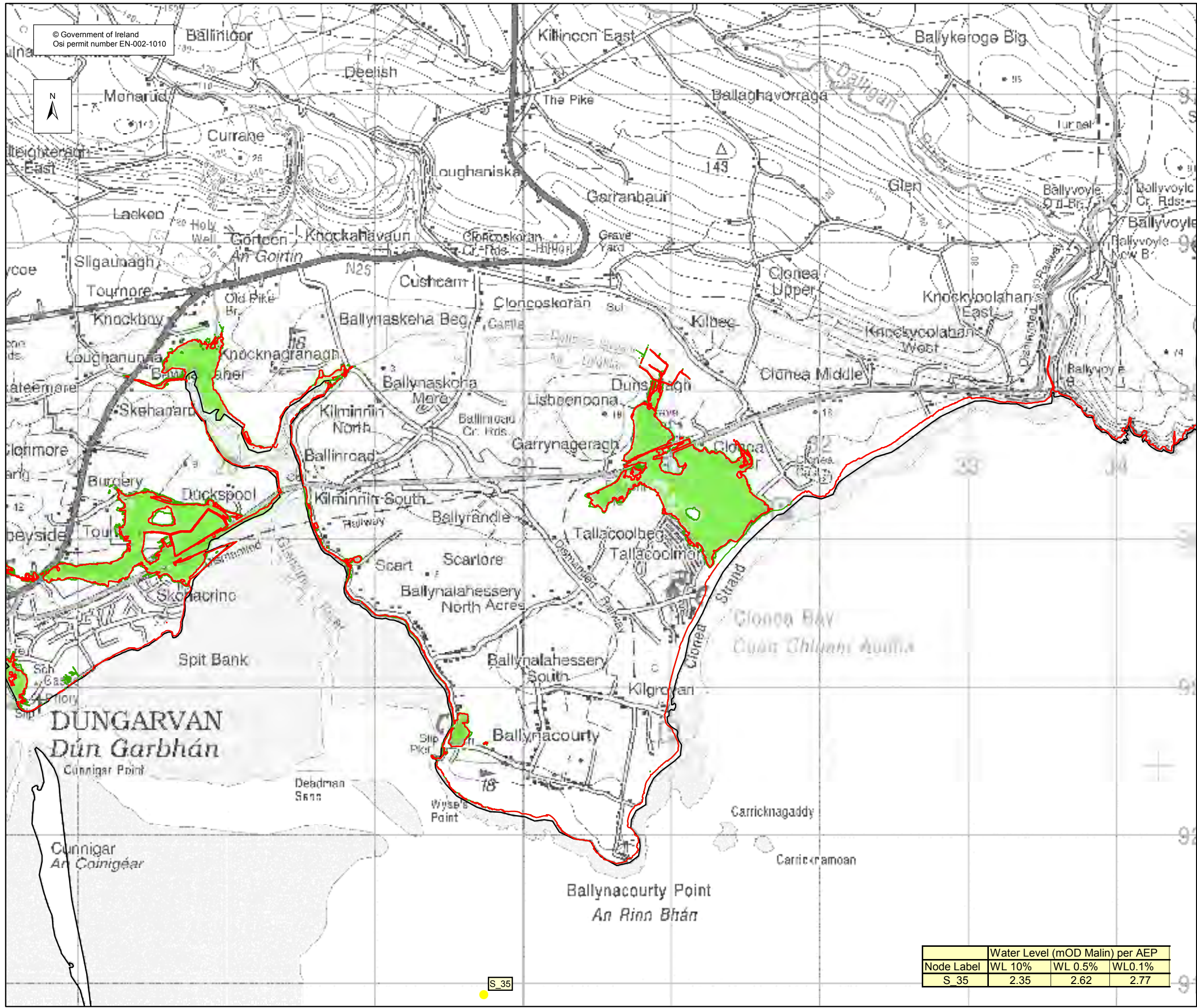
### Ballymacarbray

Some damage to road at Knockalisheen.

## **APPENDIX D**

### **Irish Coastal Protection Strategy Study – Current**

© Government of Ireland  
Osi permit number EN-002-1010



**EXTENT MAP**

Legend:

- 0.5% AEP FLOOD EXTENT (1 in 200 chance in any given year)
- 0.1% AEP FLOOD EXTENT (1 in 1000 chance in any given year)
- Very High Confidence (0.1% AEP)
- High Confidence (0.1% AEP)
- Medium Confidence (0.1% AEP)
- Low Confidence (0.1% AEP)
- Very Low Confidence (0.1% AEP)
- Very High Confidence (0.5% AEP)
- High Confidence (0.5% AEP)
- Medium Confidence (0.5% AEP)
- Low Confidence (0.5% AEP)
- Very Low Confidence (0.5% AEP)
- High Water Mark (HWM)
- Node Point
- Point 34 Node Label (refer to table)

USER NOTE :

USERS OF THESE MAPS SHOULD REFER TO THE DETAILED DESCRIPTION OF THEIR DERIVATION, LIMITATIONS IN ACCURACY AND GUIDANCE AND CONDITIONS OF USE PROVIDED AT THE FRONT OF THIS BOUND VOLUME. IF THIS MAP DOES NOT FORM PART OF A BOUND VOLUME, IT SHOULD NOT BE USED FOR ANY PURPOSE.

RPS

Elmwood House  
74 Boucher Road  
Belfast  
BT 12 6RZ  
Northern Ireland

OPW

Office of Public Works  
17-19 Lower Hatch Street  
Dublin 2  
Ireland

Project :  
**IRISH COASTAL PROTECTION STRATEGY STUDY - PHASE III**

Map :  
**SOUTH COAST FLOOD EXTENT MAP**

Map Type : FLOOD EXTENT  
Source : TIDAL FLOODING  
Map area : RURAL AREA  
Scenario : CURRENT

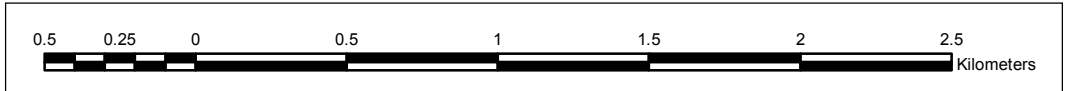
Figure By : PJW Date : FEB 2010  
Checked By : JMC Date : FEB 2010

Node Label	Water Level (mOD Malin) per AEP		
	WL 10%	WL 0.5%	WL 0.1%
S 35	2.35	2.62	2.77

Figure No. :  
**S / RA / EXT / 20**

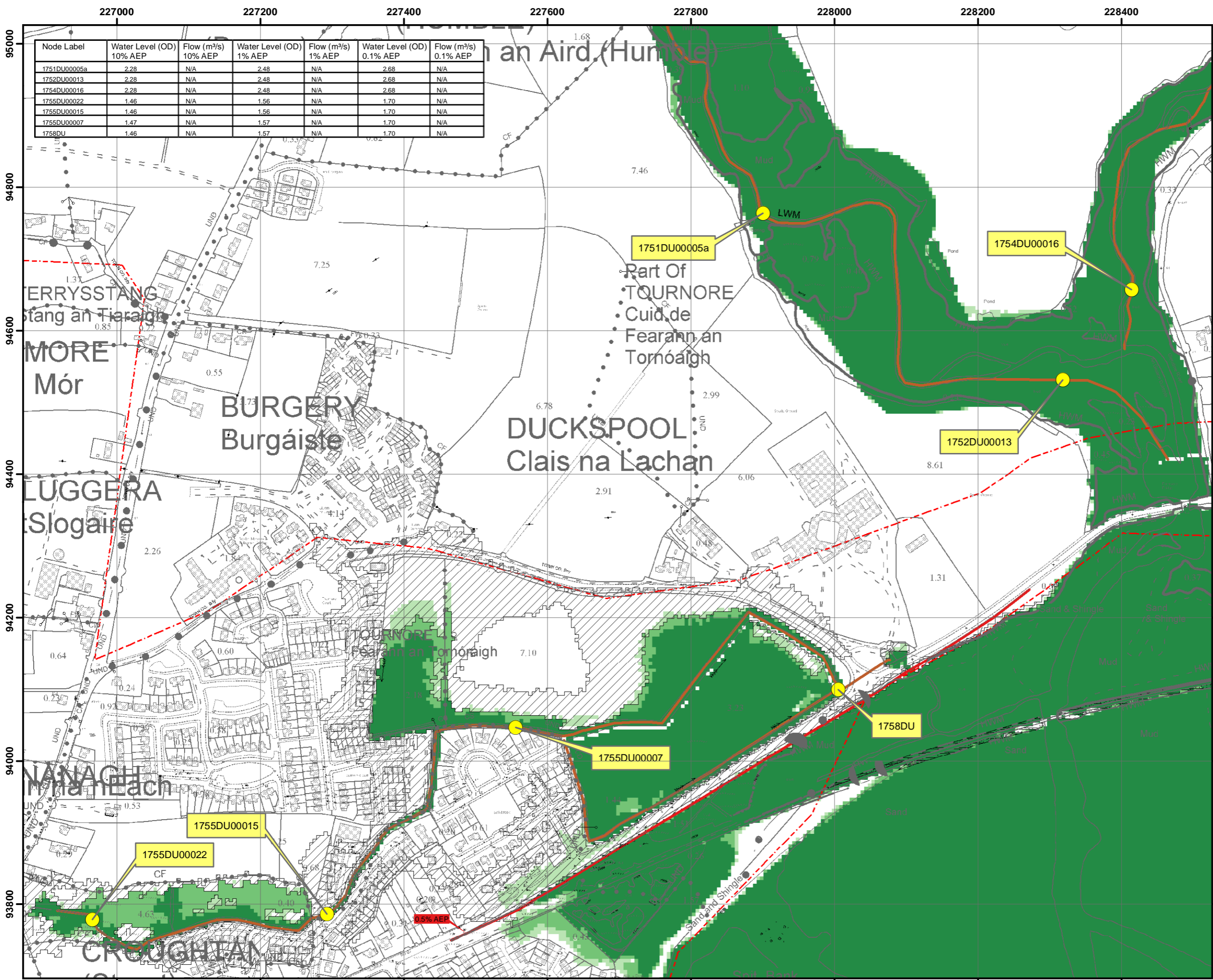
Revision :  
**1**

Drawing Scale : 1:25,000 Plot Scale : 1:1 @ A3

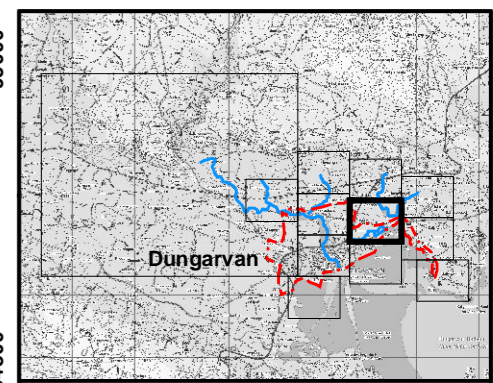


## **APPENDIX E**

### **OPW South Eastern CFRAM Study – Tidal**



Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
1751DU00005a	2.28	N/A	2.48	N/A	2.68	N/A
1752DU00013	2.28	N/A	2.48	N/A	2.68	N/A
1754DU00016	2.28	N/A	2.48	N/A	2.68	N/A
1755DU00022	1.46	N/A	1.56	N/A	1.70	N/A
1755DU00015	1.46	N/A	1.56	N/A	1.70	N/A
1755DU00007	1.47	N/A	1.57	N/A	1.70	N/A
1758DU	1.46	N/A	1.57	N/A	1.70	N/A



**IMPORTANT USER NOTE:**  
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

- Legend**
- 10% Tidal AEP Event
  - 0.5% Tidal AEP Event
  - 0.1% Tidal AEP Event
  - Modelled River Centreline
  - AFA Extents
  - Embankment
  - Wall
  - Defended Area
  - 1% AEP Standard of Protection of Flood Defence (Walls / Embankments)
  - Node Point
  - Node ID Node Label

**FINAL**

REV: 01	NOTE: Amendments to defended area.	DATE: 14/11/16
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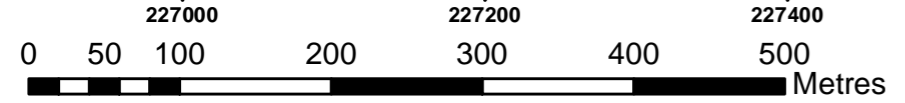


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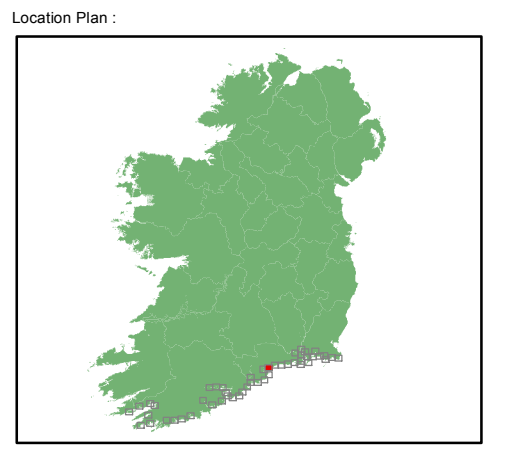
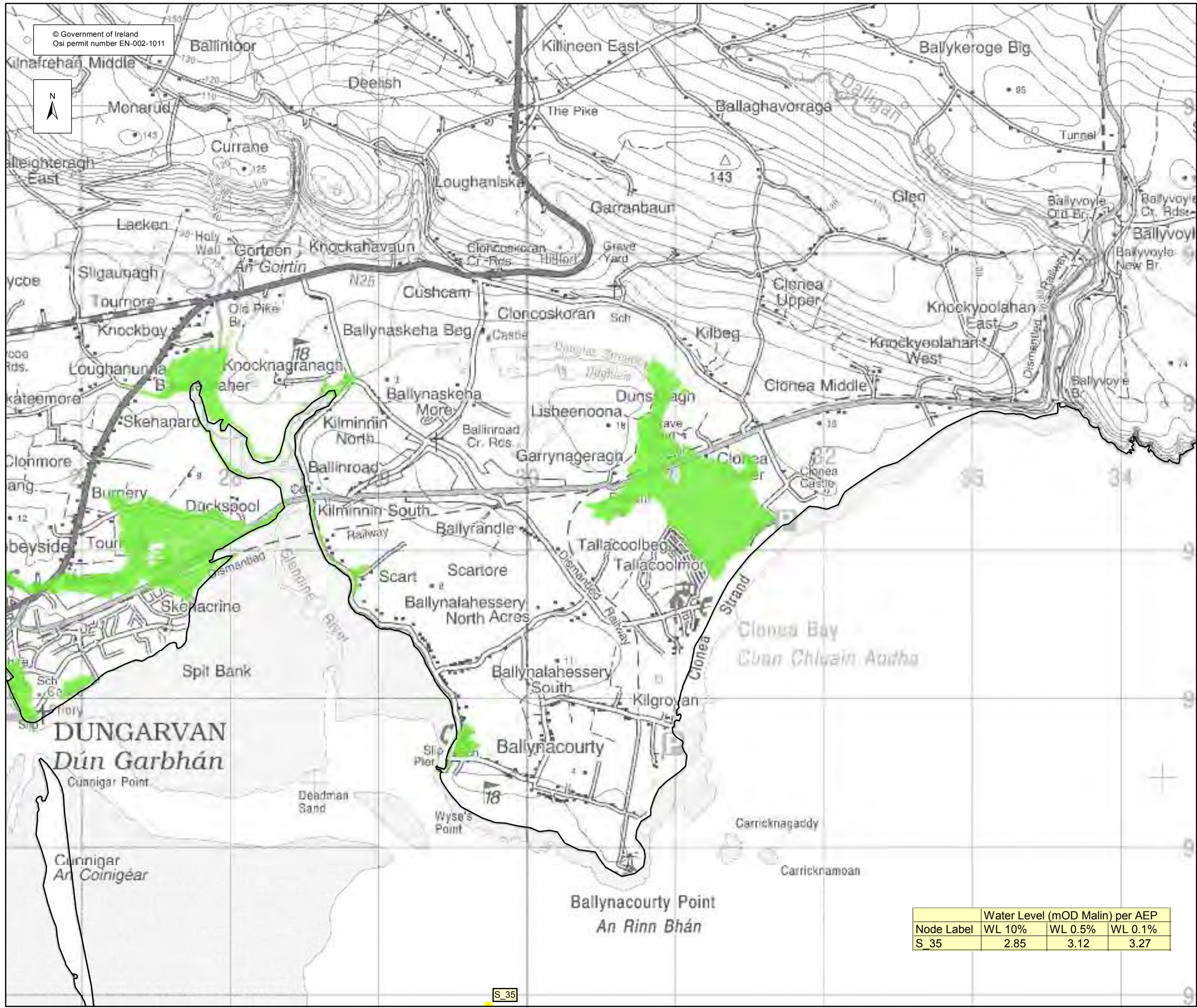
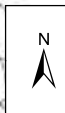
<b>Map:</b>	
Ringphuca Tidal Flood Extents	
Map Type: EXTENT	
Source: TIDAL	
Map Area: COASTAL	
Scenario: CURRENT	
Drawn By : C.C.	Date : 14 November 2016
Checked By : E.H.	Date : 14 November 2016
Approved By : G.G.	Date : 14 November 2016
Drawing No. : O17DGN_EXCCD_F0_09	
Map Series : Page 9 of 12	
Drawing Scale : 1:5,000 @ A3	





## **APPENDIX F**

### **Irish Coastal Protection Strategy Study – MRFS**



**EXTENT MAP**

Legend:

- 0.5% AEP FLOOD EXTENT (1 in 200 chance in any given year)
- 0.1% AEP FLOOD EXTENT (1 in 1000 chance in any given year)
- High Water Mark (HWM)
- Node Point
- S 34 Node Label (refer to table)

USER NOTE :

USERS OF THESE MAPS SHOULD REFER TO THE DETAILED DESCRIPTION OF THEIR DERIVATION, LIMITATIONS IN ACCURACY AND GUIDANCE AND CONDITIONS OF USE PROVIDED AT THE FRONT OF THIS BOUND VOLUME. IF THIS MAP DOES NOT FORM PART OF A BOUND VOLUME, IT SHOULD NOT BE USED FOR ANY PURPOSE.

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Northern Ireland

Office of Public Works  
17-19 Lower Hatch Street  
Dublin 2  
Ireland

Project :  
**IRISH COASTAL PROTECTION STRATEGY STUDY - PHASE III**

Map :  
**SOUTH COAST FLOOD EXTENT MAP**

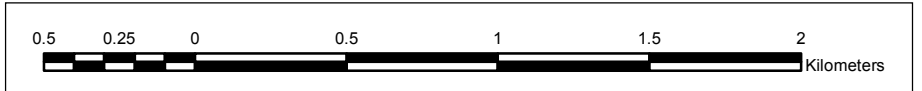
Map Type : FLOOD EXTENT  
Source : TIDAL FLOODING  
Map area : RURAL AREA  
Scenario : MID RANGE FUTURE SCENARIO

Figure By : PJW Date : Aug 2011  
Checked By : JMC & JR Date : Aug 2011

Node Label	Water Level (mOD Main) per AEP		
	WL 10%	WL 0.5%	WL 0.1%
S_35	2.85	3.12	3.27

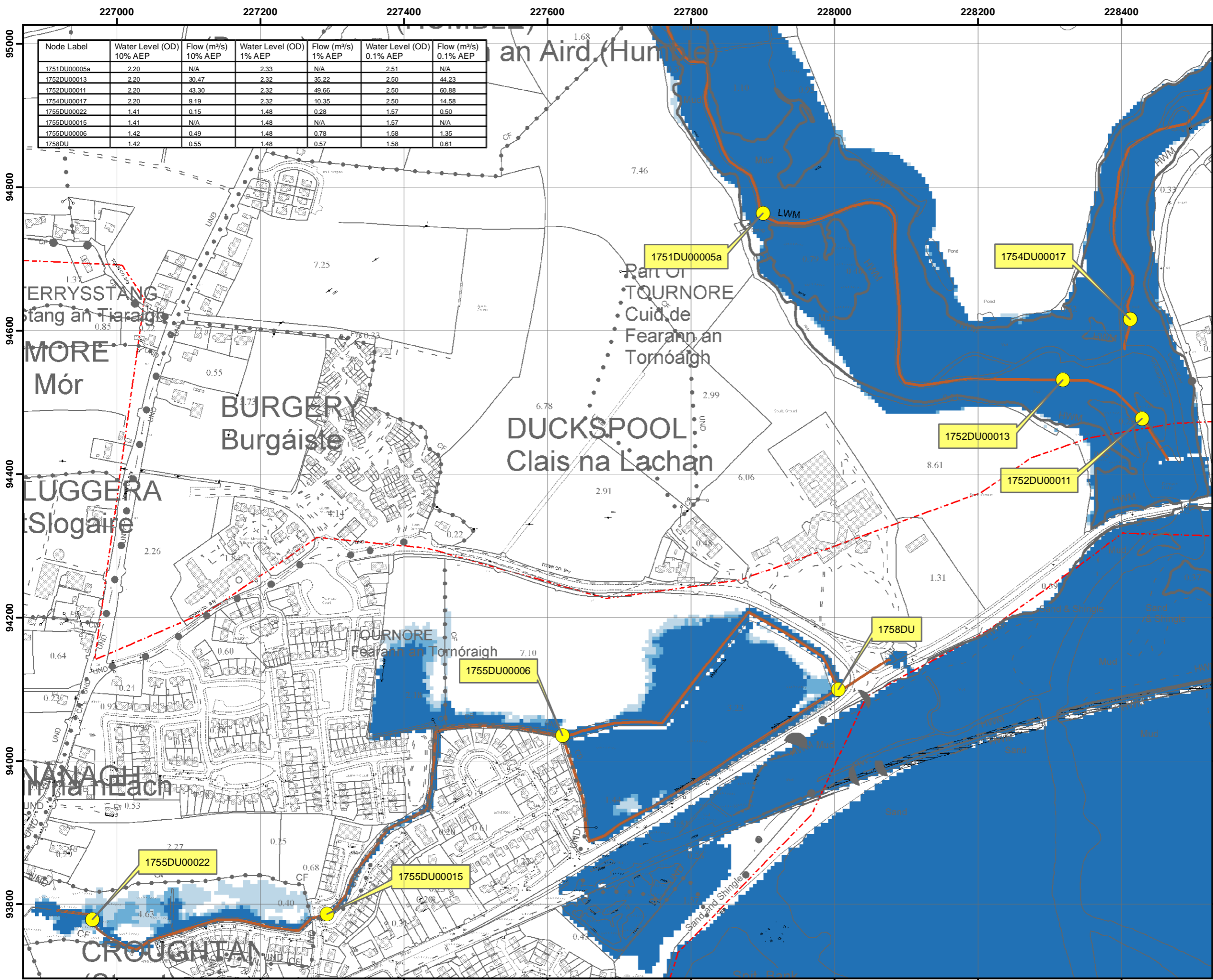
Figure No. :  
**S / RA / EXT / MRFS / 20** Revision **0**

Drawing Scale : 1:25,000 Plot Scale : 1:1 @ A3

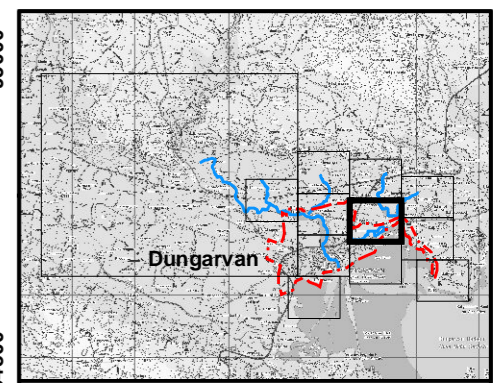


## **APPENDIX G**

### **OPW South Eastern CFRAM Study – Fluvial**



Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
1751DU00005a	2.20	N/A	2.33	N/A	2.51	N/A
1752DU00013	2.20	30.47	2.32	35.22	2.50	44.23
1752DU00011	2.20	43.30	2.32	49.66	2.50	60.88
1754DU00017	2.20	9.19	2.32	10.35	2.50	14.58
1755DU00022	1.41	0.15	1.48	0.28	1.57	0.50
1755DU00015	1.41	N/A	1.48	N/A	1.57	N/A
1755DU00006	1.42	0.49	1.48	0.78	1.58	1.35
1758DU	1.42	0.55	1.48	0.57	1.58	0.61



**IMPORTANT USER NOTE:**  
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- Legend**
- 10% Fluvial AEP Event
  - 1% Fluvial AEP Event
  - 0.1% Fluvial AEP Event
  - Modelled River Centreline
  - AFA Extents
  - Node Point
  - Node ID
  - Node Label

FINAL

<b>REV:</b> 01	<b>NOTE:</b> Amendments to extents and water levels.	<b>DATE:</b> 14/11/16
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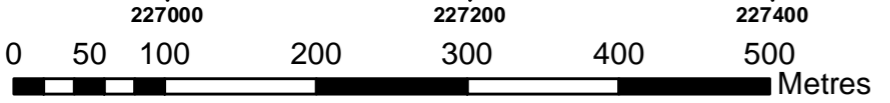
**Map:**  
Dungarvan Fluvial Flood Extents

<b>Map Type:</b> EXTENT
<b>Source:</b> FLUVIAL
<b>Map Area:</b> HPW
<b>Scenario:</b> CURRENT
<b>Drawn By:</b> C.C. <b>Date:</b> 14 November 2016
<b>Checked By:</b> E.H. <b>Date:</b> 14 November 2016
<b>Approved By:</b> G.G. <b>Date:</b> 14 November 2016

**Drawing No.:**  
O17DGN\_EXFCD\_F0\_09

**Map Series:** Page 9 of 12

**Drawing Scale:** 1:5,000 @ A3



## **APPENDIX H**

### **Wastewater Sewerage and Watermain Records**

# Irish Water Web Map



**UISCE**  
EIREANN : IRISH  
WATER

Print Date: 09/04/2020

Printed by: Irish Water

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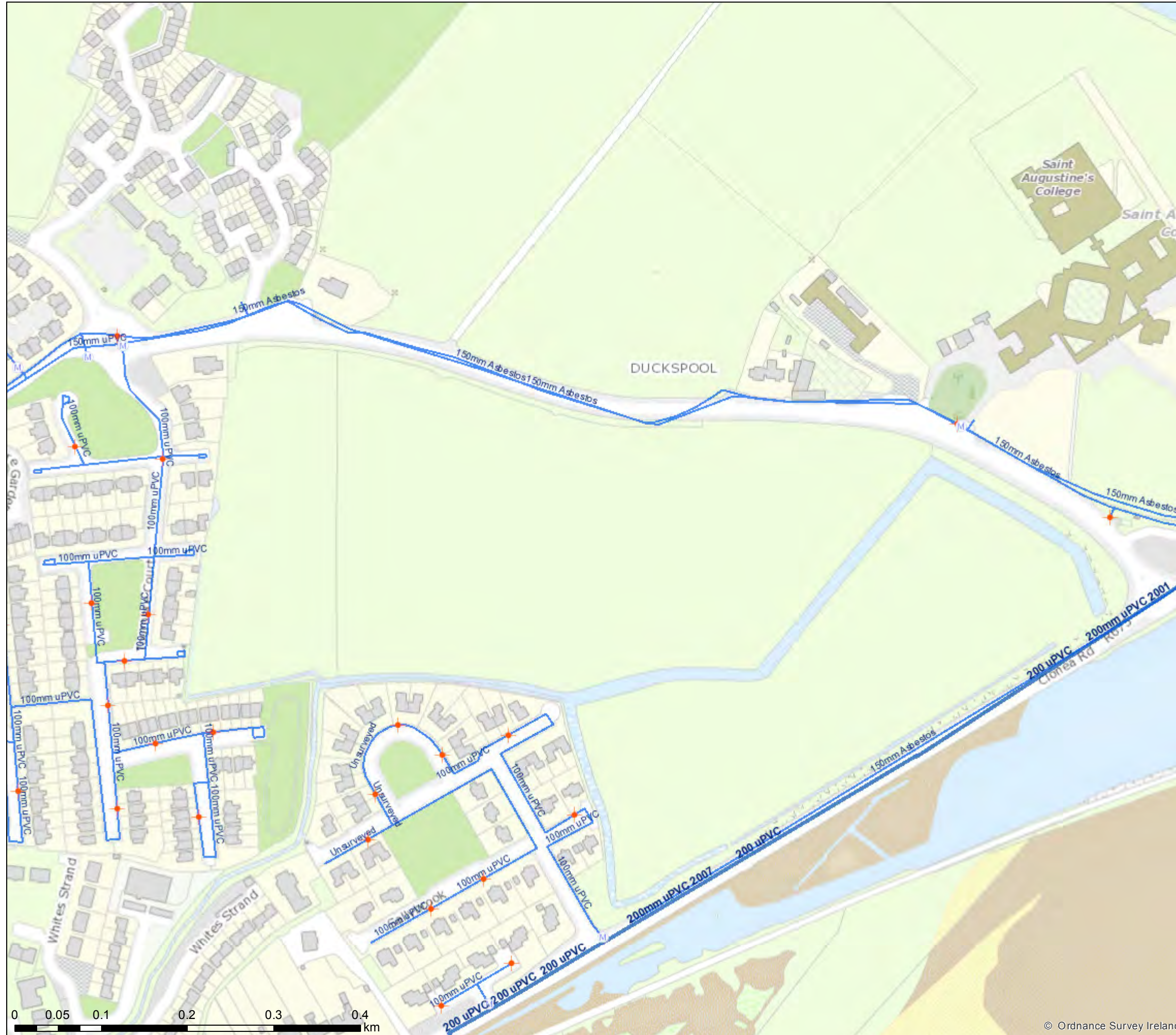
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<b>Water Distribution Network</b> <ul style="list-style-type: none"> <li>Water Treatment Plant</li> <li>Water Pump Station</li> <li>Storage Cell/Tower</li> <li>Dosing Point</li> <li>Meter Station</li> <li>Abstraction Point</li> <li>Telemetry Kiosk</li> </ul>	<b>Sewer Foul Combined Network</b> <ul style="list-style-type: none"> <li>Waste Water Treatment Plant</li> <li>Waste Water Pump station</li> </ul>	<b>Storm Water Network</b> <ul style="list-style-type: none"> <li>Surface Water Mains</li> <li>Surface Gravity Mains Private</li> <li>Surface Water Pressurised Mains</li> <li>Surface Water Pressurised Mains Private</li> </ul>
<b>Reservoir</b> <ul style="list-style-type: none"> <li>Potable</li> <li>Raw Water</li> </ul>	<b>Sewer Mains Irish Water</b> <ul style="list-style-type: none"> <li>Gravity - Combined</li> <li>Gravity - Foul</li> <li>Gravity - Unknown</li> <li>Pumping - Combined</li> <li>Pumping - Foul</li> <li>Pumping - Unknown</li> <li>Syphon - Combined</li> <li>Syphon - Foul</li> <li>Overflow</li> </ul>	<b>Inlet Type</b> <ul style="list-style-type: none"> <li>Gully</li> <li>Standard</li> <li>Other Unknown</li> </ul>
<b>Water Distribution Mains</b> <ul style="list-style-type: none"> <li>Irish Water</li> <li>Private</li> </ul>	<b>Sewer Mains Private</b> <ul style="list-style-type: none"> <li>Gravity - Combined</li> <li>Gravity - Foul</li> <li>Gravity - Unknown</li> <li>Pumping - Combined</li> <li>Pumping - Foul</li> <li>Pumping - Unknown</li> <li>Syphon - Combined</li> <li>Syphon - Foul</li> <li>Overflow</li> </ul>	<b>Storm Manholes</b> <ul style="list-style-type: none"> <li>Standard</li> <li>Backdrop</li> <li>Cascade</li> <li>Catchpit</li> <li>Bifurcation</li> <li>Hatchbox</li> <li>Lampole</li> <li>Hydrobrake</li> <li>Other Unknown</li> <li>Storm Culverts</li> <li>Storm Clean Outs</li> <li>Stormwater Chambers</li> </ul>
<b>Trunk Water Mains</b> <ul style="list-style-type: none"> <li>Irish Water</li> <li>Private</li> </ul>	<b>Water Lateral Lines</b> <ul style="list-style-type: none"> <li>Irish Water</li> <li>Non IW</li> <li>Water Casings</li> <li>Water Abandoned Lines</li> <li>Boundary Meter</li> <li>Bulk/Check Meter</li> <li>Group Scheme</li> <li>Source Meter</li> <li>Waste Meter</li> <li>Unknown Meter ; Other Meter</li> <li>Non-Return</li> <li>PRV</li> <li>PSV</li> <li>Sluice Line Valve Open/Closed</li> <li>Butterfly Line Valve Open/Closed</li> <li>Sluice Boundary Valve Open/Closed</li> <li>Butterfly Boundary Valve Open/Closed</li> <li>Scour Valves</li> <li>Single Air Control Valve</li> <li>Double Air Control Valve</li> <li>Water Stop Valves</li> <li>Water Service Connections</li> <li>Water Distribution Chambers</li> <li>Water Network Junctions</li> <li>Pressure Monitoring Point</li> <li>Fire Hydrant</li> <li>Fire Hydrant/Washout</li> </ul>	<b>Sewer Lateral Lines</b> <ul style="list-style-type: none"> <li>Gravity - Combined</li> <li>Gravity - Foul</li> <li>Gravity - Unknown</li> <li>Pumping - Combined</li> <li>Pumping - Foul</li> <li>Pumping - Unknown</li> <li>Syphon - Combined</li> <li>Syphon - Foul</li> <li>Overflow</li> </ul>
<b>Water Fittings</b> <ul style="list-style-type: none"> <li>Cap</li> <li>Reducer</li> <li>Tap</li> <li>Other Fittings</li> </ul>	<b>Sewer Manholes</b> <ul style="list-style-type: none"> <li>Standard</li> <li>Backdrop</li> <li>Cascade</li> <li>Catchpit</li> <li>Bifurcation</li> <li>Hatchbox</li> <li>Lampole</li> <li>Hydrobrake</li> <li>Other Unknown</li> </ul>	<b>Discharge Type</b> <ul style="list-style-type: none"> <li>Outfall</li> <li>Overflow</li> <li>Soakaway</li> <li>Other Unknown</li> </ul>
	<b>Gas Networks Ireland</b> <ul style="list-style-type: none"> <li>Transmission High Pressure Gasline</li> <li>Distribution Medium Pressure Gasline</li> <li>Distribution Low Pressure Gasline</li> </ul>	<b>ESB Networks</b> <ul style="list-style-type: none"> <li>ESB HV Lines</li> <li>HV Underground</li> <li>HV Overhead</li> <li>HV Abandoned</li> <li>ESB MV/LV Lines</li> <li>MV Overhead Three Phase</li> <li>MV Overhead Single Phase</li> <li>LV Overhead Three Phase</li> <li>LV Overhead Single Phase</li> <li>MV/LV Underground</li> <li>Abandoned</li> </ul>
	<b>Cleanout Type</b> <ul style="list-style-type: none"> <li>Flushing Structure</li> <li>Pressure Monitoring Point</li> <li>Other Unknown</li> </ul>	<b>Non Service Categories</b> <ul style="list-style-type: none"> <li>Proposed</li> <li>Under Construction</li> <li>Out of Service</li> <li>Decommissioned</li> </ul>
	<b>Sewer Inlets</b> <ul style="list-style-type: none"> <li>Catchpit</li> <li>Gully</li> <li>Standard</li> <li>Other Unknown</li> </ul>	<b>Water Non Service Assets</b> <ul style="list-style-type: none"> <li>Water Point Feature</li> <li>Water Pipe</li> <li>Water Structure</li> </ul>
	<b>Sewer Fittings</b> <ul style="list-style-type: none"> <li>Vent/Cop</li> <li>Other Unknown</li> </ul>	<b>Waste Non Service Assets</b> <ul style="list-style-type: none"> <li>Waste Point Feature</li> <li>Waste Sewer</li> <li>Waste Structure</li> </ul>

# Irish Water Web Map



**UISCE**  
EIREANN : IRISH  
**WATER**

Print Date: 09/04/2020

Printed by: Irish Water

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<p><b>Water Distribution Network</b></p> <ul style="list-style-type: none"> <li>Water Treatment Plant</li> <li>Water Pump Station</li> <li>Storage Cell/Tower</li> <li>Dosing Point</li> <li>Meter Station</li> <li>Abstraction Point</li> <li>Telemetry Kiosk</li> </ul> <p><b>Reservoir</b></p> <ul style="list-style-type: none"> <li>Potable</li> <li>Raw Water</li> </ul> <p><b>Water Distribution Mains</b></p> <ul style="list-style-type: none"> <li>Irish Water</li> <li>Private</li> </ul> <p><b>Trunk Water Mains</b></p> <ul style="list-style-type: none"> <li>Irish Water</li> <li>Private</li> </ul> <p><b>Water Lateral Lines</b></p> <ul style="list-style-type: none"> <li>Irish Water</li> <li>Non IW</li> <li>Water Casings</li> <li>Water Abandoned Lines</li> </ul> <p><b>Water Fittings</b></p> <ul style="list-style-type: none"> <li>Boundary Meter</li> <li>Bulk/Check Meter</li> <li>Group Scheme</li> <li>Source Meter</li> <li>Waste Meter</li> <li>Unknown Meter ; Other Meter</li> <li>Non-Return</li> <li>PSV</li> <li>Sluice Line Valve Open/Closed</li> <li>Butterfly Line Valve Open/Closed</li> <li>Sluice Boundary Valve Open/Closed</li> <li>Butterfly Boundary Valve Open/Closed</li> <li>Scour Valves</li> <li>Single Air Control Valve</li> <li>Double Air Control Valve</li> <li>Water Stop Valves</li> <li>Water Service Connections</li> <li>Water Distribution Chambers</li> <li>Water Network Junctions</li> <li>Pressure Monitoring Point</li> <li>Fire Hydrant</li> <li>Fire Hydrant/Washout</li> <li>Cap</li> <li>Reducer</li> <li>Tap</li> <li>Other Fittings</li> </ul>	<p><b>Sewer Foul Combined Network</b></p> <ul style="list-style-type: none"> <li>Waste Water Treatment Plant</li> <li>Waste Water Pump station</li> </ul> <p><b>Sewer Mains Irish Water</b></p> <ul style="list-style-type: none"> <li>Gravity - Combined</li> <li>Gravity - Foul</li> <li>Gravity - Unknown</li> <li>Pumping - Combined</li> <li>Pumping - Foul</li> <li>Pumping - Unknown</li> <li>Syphon - Combined</li> <li>Syphon - Foul</li> <li>Overflow</li> </ul> <p><b>Sewer Mains Private</b></p> <ul style="list-style-type: none"> <li>Gravity - Combined</li> <li>Gravity - Foul</li> <li>Gravity - Unknown</li> <li>Pumping - Combined</li> <li>Pumping - Foul</li> <li>Pumping - Unknown</li> <li>Syphon - Combined</li> <li>Syphon - Foul</li> <li>Overflow</li> </ul> <p><b>Sewer Lateral Lines</b></p> <ul style="list-style-type: none"> <li>Sewer Lateral Lines</li> <li>Sewer Casings</li> </ul> <p><b>Sewer Manholes</b></p> <ul style="list-style-type: none"> <li>Standard</li> <li>Backdrop</li> <li>Cascade</li> <li>Catchpit</li> <li>Bifurcation</li> <li>Hatchbox</li> <li>Lampole</li> <li>Hydrobrake</li> <li>Other, Unknown</li> </ul> <p><b>Discharge Type</b></p> <ul style="list-style-type: none"> <li>Outfall</li> <li>Overflow</li> <li>Soakaway</li> <li>Cascade</li> <li>Other, Unknown</li> </ul> <p><b>Cleanout Type</b></p> <ul style="list-style-type: none"> <li>Rodding Eye</li> <li>Flushing Structure</li> <li>Other, Unknown</li> </ul> <p><b>Sewer Inlets</b></p> <ul style="list-style-type: none"> <li>Catchpit</li> <li>Gully</li> <li>Standard</li> <li>Other, Unknown</li> </ul> <p><b>Sewer Fittings</b></p> <ul style="list-style-type: none"> <li>Vent/Col</li> <li>Other, Unknown</li> </ul>	<p><b>Storm Water Network</b></p> <p><b>Surface Water Mains</b></p> <ul style="list-style-type: none"> <li>Surface Gravity Mains</li> <li>Surface Gravity Mains Private</li> <li>Surface Water Pressurised Mains</li> <li>Surface Water Pressurised Mains Private</li> </ul> <p><b>Inlet Type</b></p> <ul style="list-style-type: none"> <li>Gully</li> <li>Standard</li> <li>Other, Unknown</li> </ul> <p><b>Storm Manholes</b></p> <ul style="list-style-type: none"> <li>Standard</li> <li>Backdrop</li> <li>Cascade</li> <li>Catchpit</li> <li>Bifurcation</li> <li>Hatchbox</li> <li>Lampole</li> <li>Hydrobrake</li> <li>Other, Unknown</li> <li>Storm Culverts</li> <li>Storm Clean Outs</li> <li>Stormwater Chambers</li> </ul> <p><b>Discharge Type</b></p> <ul style="list-style-type: none"> <li>Outfall</li> <li>Overflow</li> <li>Soakaway</li> <li>Other, Unknown</li> </ul> <p><b>Gas Networks Ireland</b></p> <ul style="list-style-type: none"> <li>Transmission High Pressure Gasline</li> <li>Distribution Medium Pressure Gasline</li> <li>Distribution Low Pressure Gasline</li> </ul> <p><b>ESB Networks</b></p> <p><b>ESB HV Lines</b></p> <ul style="list-style-type: none"> <li>HV Underground</li> <li>HV Overhead</li> <li>HV Abandoned</li> </ul> <p><b>ESB MV/LV Lines</b></p> <ul style="list-style-type: none"> <li>MV Overhead Three Phase</li> <li>MV Overhead Single Phase</li> <li>LV Overhead Three Phase</li> <li>LV Overhead Single Phase</li> <li>MV/LV Underground</li> <li>Abandoned</li> </ul> <p><b>Non Service Categories</b></p> <ul style="list-style-type: none"> <li>Proposed</li> <li>Under Construction</li> <li>Out of Service</li> <li>Decommissioned</li> </ul> <p><b>Water Non Service Assets</b></p> <ul style="list-style-type: none"> <li>Water Point Feature</li> <li>Water Pipe</li> <li>Water Structure</li> </ul> <p><b>Waste Non Service Assets</b></p> <ul style="list-style-type: none"> <li>Waste Point Feature</li> <li>Sewer</li> <li>Waste Structure</li> </ul>
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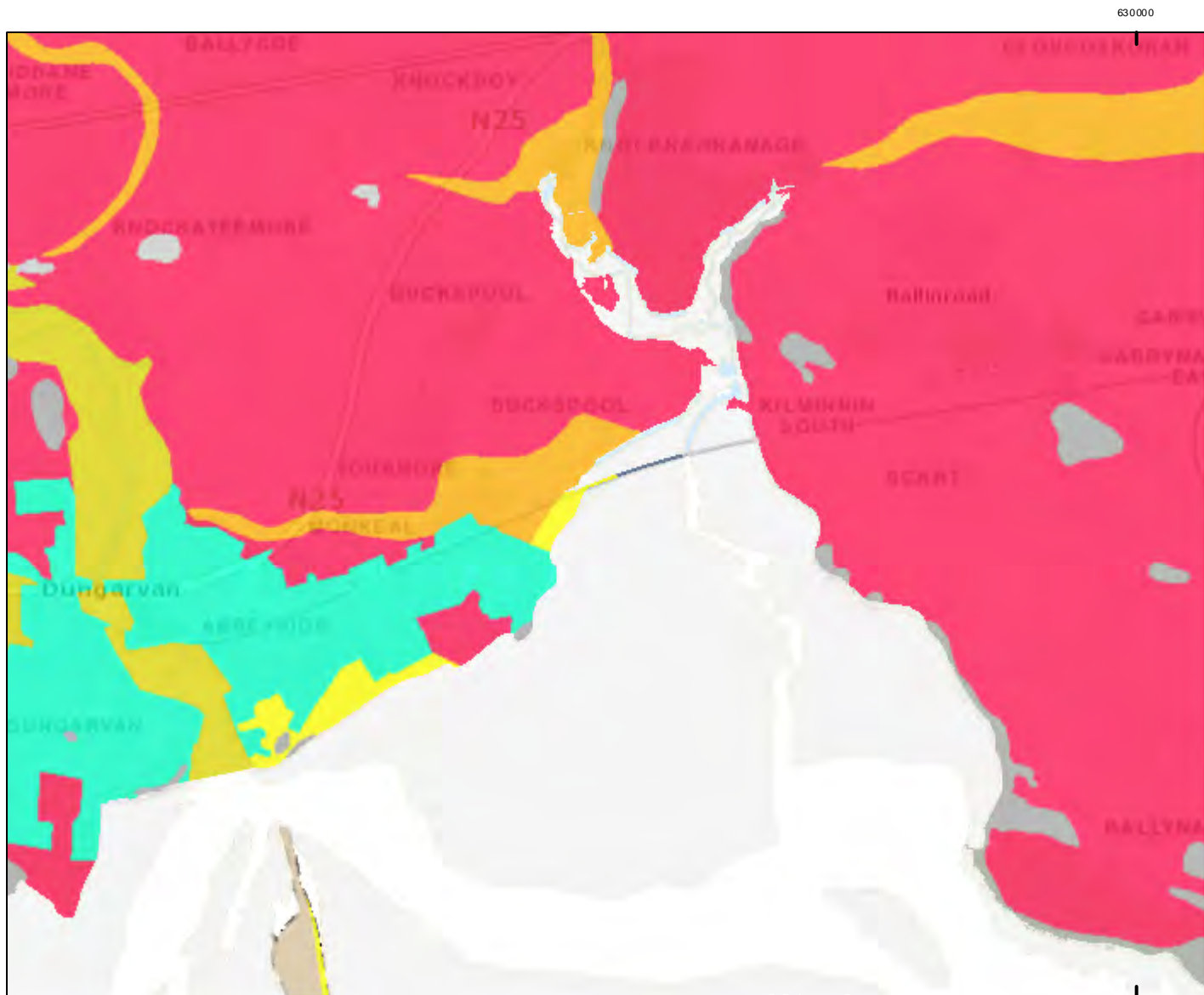
## **APPENDIX I**

### **Geological Survey of Ireland Maps**



# Quarternary Deposits

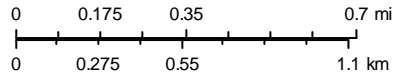
Legend



Scale: 1:25,000  
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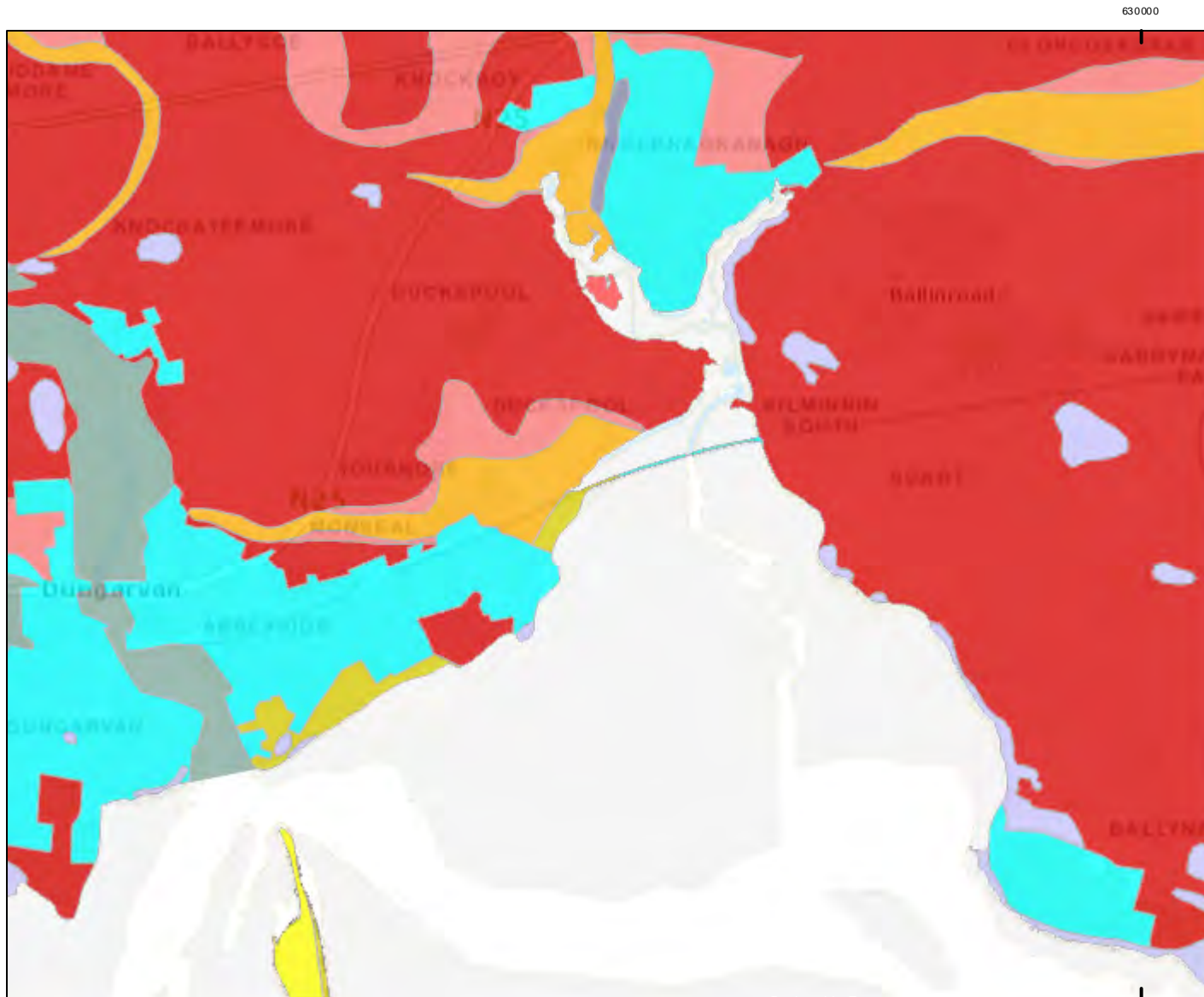
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22/06/2020, 15:31:06

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# Teagasc Soils



## Legend

### Teagasc Soils

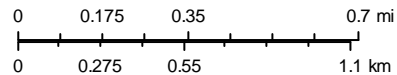
- AminDW - Deep well drained mineral (Mainly acidic)
- AminPD - Mineral poorly drained (Mainly acidic)
- AminPDPT - Peaty poorly drained mineral (Mainly acidic)
- AminSW - Shallow well drained mineral (Mainly acidic)
- AminSP - Shallow poorly drained mineral (Mainly acidic)
- AminSPPT - Shallow peaty poorly drained mineral (Mainly acidic)
- AminSRPT - Shallow, rocky, peaty/non-peatymi... complexes (Mainly acidic)
- BminDW - Deep well drained mineral (Mainly basic)
- BminPD - Mineral poorly drained (Mainly basic)
- BminPDPT - Peaty poorly drained mineral (Mainly basic)
- BminSW - Shallow well drained mineral (Mainly basic)
- BminSP - Shallow poorly drained mineral (Mainly basic)
- BminSPPT - Shallow peaty poorly drained mineral (Mainly basic)
- BminSRPT - Shallow, rocky, peaty/non-peatymi... complexes (Mainly basic)
- BktPt - Blanket peat
- FenPt - Fen peat
- RsPt - Raised Peat
- Cut - Cutover/cutaway peat
- AlluvMIN - Alluvial (mineral)
- AlluvMRL - Alluvial (marl)
- Lac - Lacustrine type soils
- Scree - Scree
- AeOUND - Aeolian undifferentiated
- MarSands - Marine sand and gravel
- MarSed - Marine/estuarine sediments
- Made - Made ground
- Water - Water
- Unclass

Scale: 1:25,000

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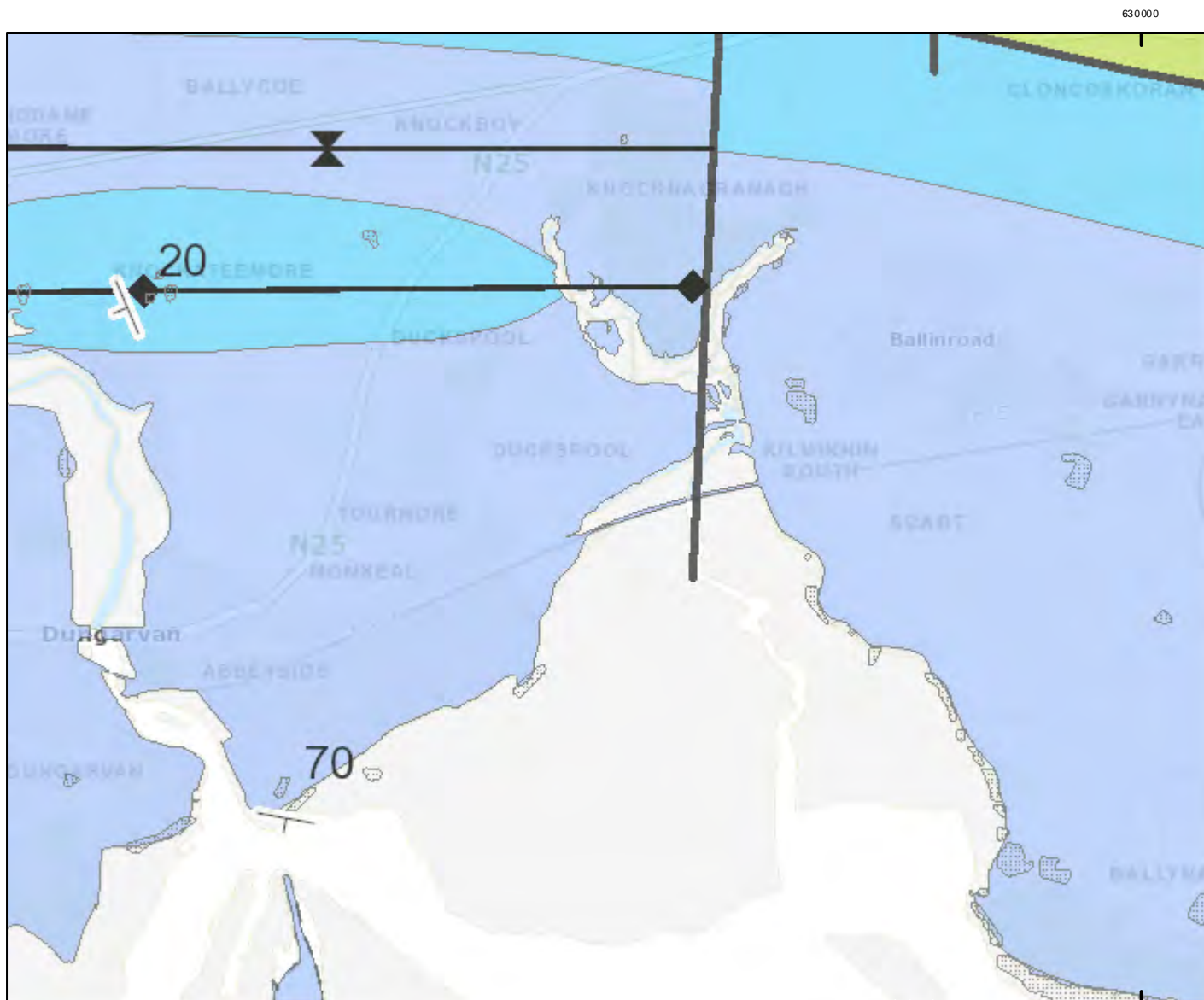
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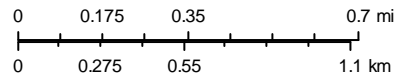
# Bedrock



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## Legend

### Structural Symbols 100K ITM 2018

- <all other values> Dip of bedding or main foliation, old GSI data
- ↑ First foliation parallel to bedding
- ⊥ Foliation trend, Thorr and Rosses Granites
- ⊕ Horizontal Bedding
- ↖ Strike and dip of bedding, right way up
- ↗ Strike and dip of bedding, way up
- ↘ Strike and dip of first foliation
- ↙ Strike and dip of overturned bedding
- ↖ Strike and dip of second foliation
- ↗ Strike and dip of third foliation
- ↘ Strike and plunge of first generation fold axis
- ↙ Strike and plunge of second generation fold axis
- ↖ Strike and plunge of third generation fold axis
- ⊕ Strike of vertical bedding/foliation
- ⊗ Strike of vertical first foliation

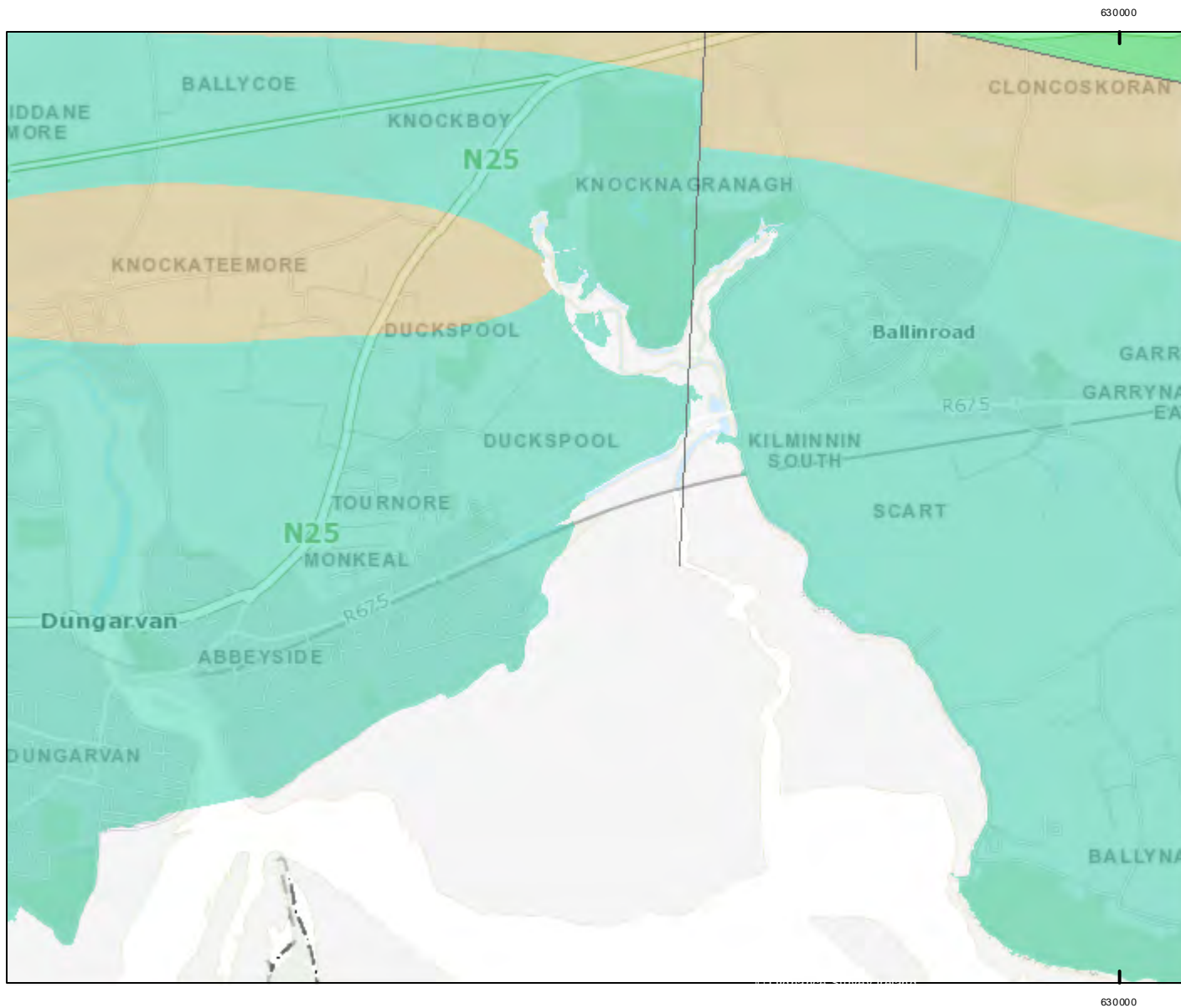
Bedrock Outcrops  
100 ITM 2018

### Bedrock Linework 100k ITM 2018

- ◆ Anticlinal Axis
- ◊ Antiformal axis
- - - Aquifer Boundary
- - - Area
- Coal seam
- Dyke
- Fault

- Ghost Line
- Goniatite marine band (R1-R4)
- Lithological boundary offshore
- Metadolerite sheet, mainly sills
- Paleogene/ Tertiary Dyke
- Synclinal Axis
- Synformal axis
- Tectonic Slide, barbs on hanging-wall
- Thin stratigraphical unit, diagrammatic
- Thrust, barbs on hanging-wall side
- Tuff band
- Unconformity, dots on younger side
- X-Section

# Aquifer



## Legend

### Gravel Aquifer

- Locally important gravel aquifer
- Regionally important gravel aquifer
- Bedrock Aquifer
- Faults

### Bedrock Aquifer

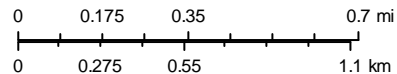
- Rkc - Regionally Important Aquifer - Karstified (conduit)
- Rkd - Regionally Important Aquifer - Karstified (diffuse)
- RK - Regionally Important Aquifer - Karstified
- RF - Regionally Important Aquifer - Fissured bedrock
- Lm - Locally Important Aquifer - Karstified
- Bedrock which is Generally Moderately Productive
- Lk - Locally Important Aquifer - Karstified
- LI - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
- PI - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive
- Lake

Scale: 1:25,000

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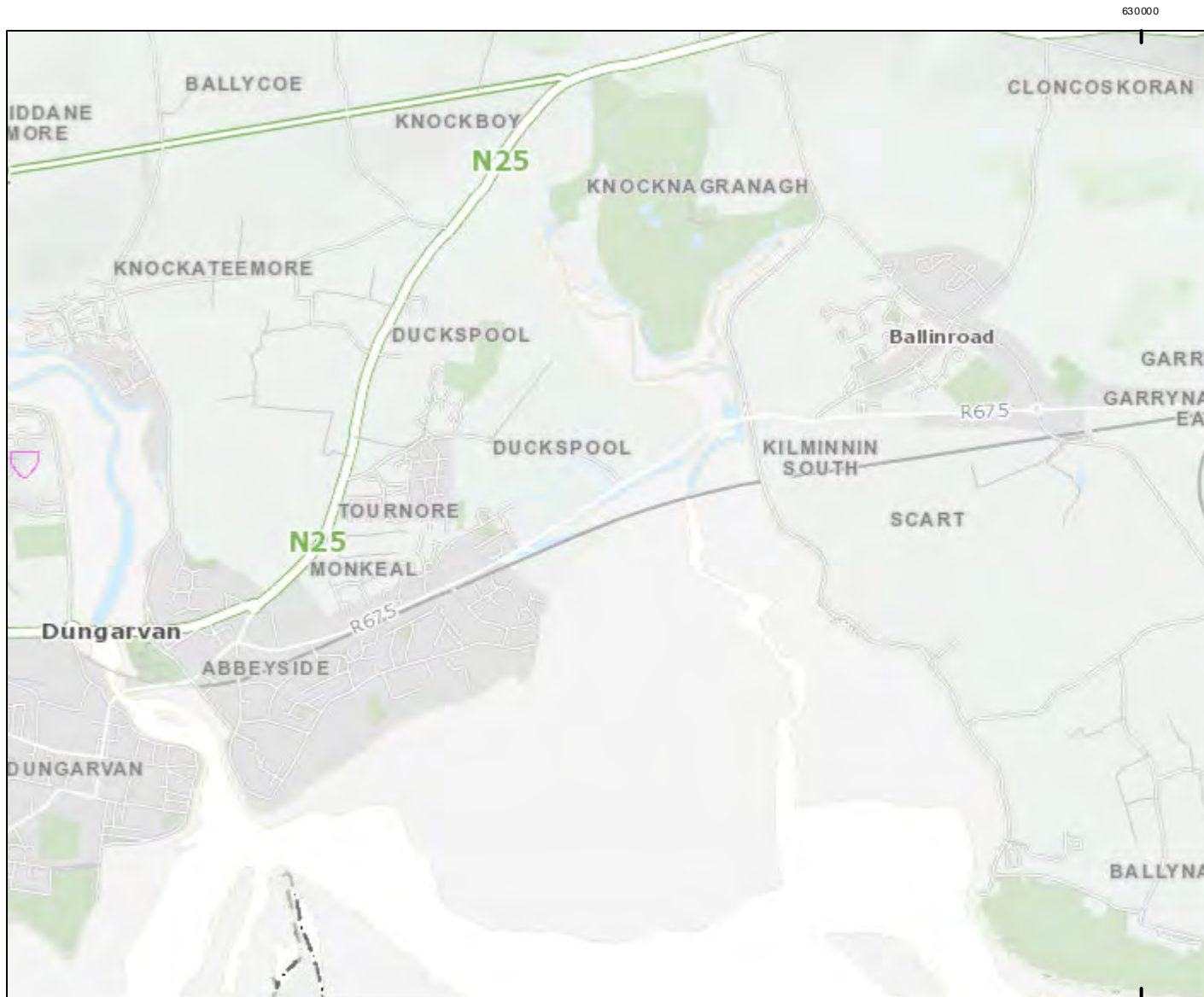
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# Karst Features



## Legend

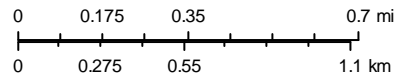
### Karst Landforms

-  Borehole
-  Cave
-  Dry Valley
-  Enclosed Depression
-  Spring
-  Superficial Solution Features
-  Swallow Hole
-  Turlough
-  Traced Underground Connections

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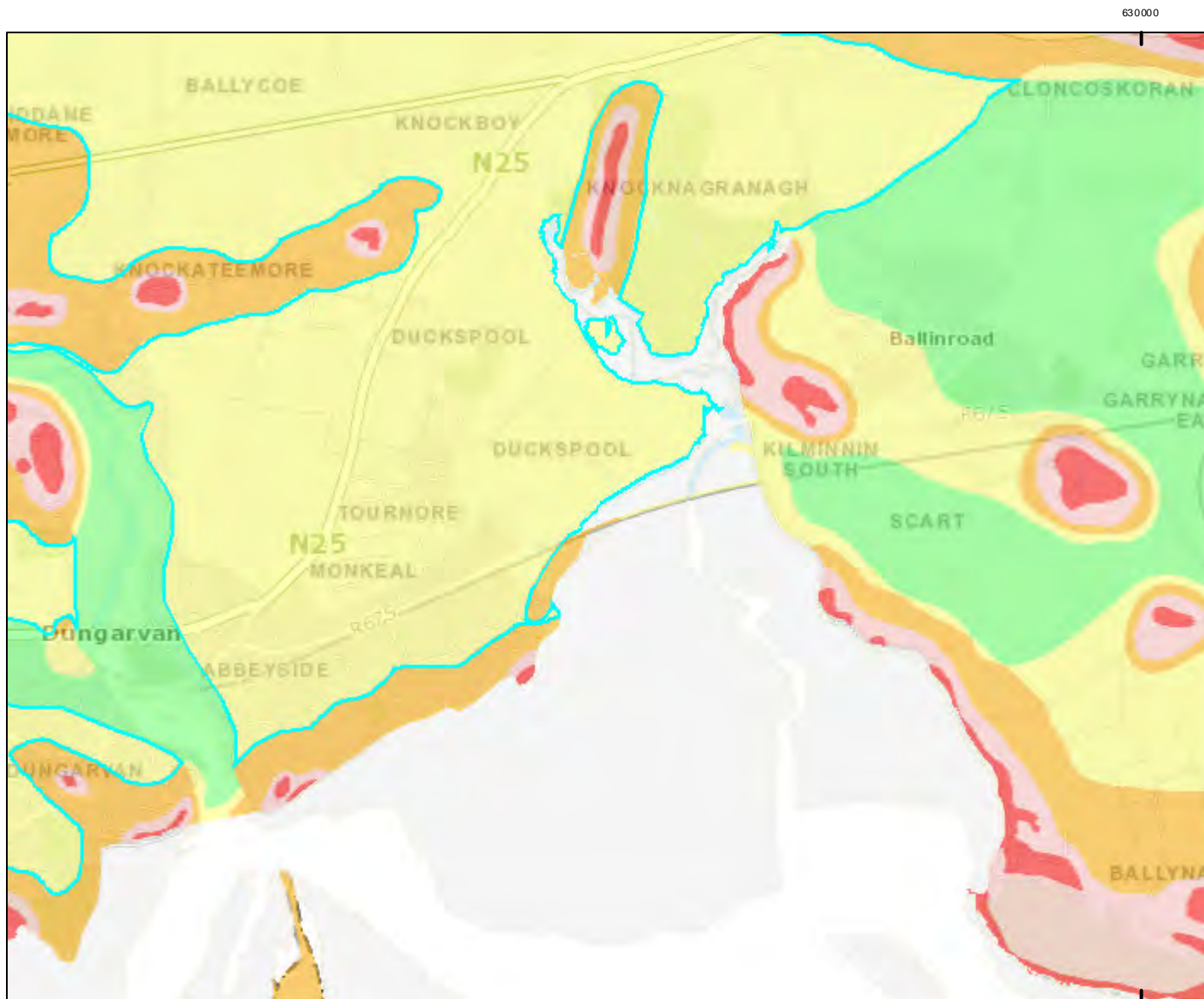
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# Groundwater Vulnerability

## Legend National Groundwater Vulnerability Ireland

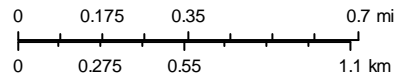
- Rock at or near Surface or Karst
- Extreme
- High
- Moderate
- Low
- Water



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## **REPORT DRAWINGS**

**R497-OCSC-XX-XX-SK-C-2801 CFRAM Flood Extents**

**R497-OCSC-XX-XX-SK-C-2802 Proposed Direct Compensatory Storage**

**R497-OCSC-XX-XX-SK-C-2803 Flood Risk Zones**



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