# Baseline aquatics report for flood relief scheme Dundalk-Blackrock, Co. Louth

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# STATEMENT OF AUTHORITY

This report was compiled by Patrick Quinn (who also undertook the aquatic assessments) and has been reviewed by Mike Trewby.

This report is written by Patrick Quinn. Patrick is an Ecologist with Woodrow Sustainable Solutions. He has completed an honours B.Sc. in Environmental Science, a degree in Environmental Protection and a Higher Certificate in Science in Fisheries Management. Patrick is an Associate member of the Chartered Institute of Ecology and Environmental Management and the Institute of Fisheries Management. He regularly carries out ecological assessment reports including Screening for Appropriate Assessment, Natura Impact Statements and inputs into Ecological Impact Assessments. Furthermore, the author has experience in habitat surveys, bird surveys for a number of large infrastructure schemes, commercial and residential projects. Patrick is also an experienced Ecological Clerk of Works (ECoW) for transmission line and wind farms construction and is a full member of the Association of Environmental and Ecological Clerks of Works.

Mike Trewby is Senior Ecologist with Woodrow and is the company's field work manager. He is an experienced ecologist with over 20 year's fieldwork and research experience. He is a full member of the CIEEM and conducts detailed, technical ecological assessments of projects including for wind farm and quarry developments, as well as for other large and smaller scale infrastructure and development projects, delivering ecological reporting to a high standard. He has developed his technical expertise in conducting faunal surveys to inform detailed impact assessment and compliance monitoring reports. As a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), he employs a high degree of competence and professional standard in his approach to environmental assessment

# 1. OVERVIEW

Woodrow Sustainable Solutions Ltd (Woodrow) were engaged by Binnies on behalf of their client Louth County Council to undertake an ecological scoping exercise for a flood relief scheme which encompasses a number of locations from Dundalk to Blackrock, Co. Louth. There are several elements to the proposed project including:

- upgrades to existing hard defences
- construction of new hard defences
- creation of areas for water/habitat
- public amenity features, including viewpoints and upgrade/extension of existing trials to a create coastal greenway leading from north of Dundalk and south through Blackrock village

Aquatic assessments will determine baseline values for the receiving aquatic environment and also survey for protected aquatic species and their habitats.

The ecological scoping report (Woodrow, 2021. *Ecological scoping report flood relief scheme, Dundalk, Co. Louth*) states in relation to aquatic ecology (Section 3.2.2) that following surveys are required:

- *A macro-invertebrate survey indicating the Q value and associated chemical rating of streams within and draining the site in order to form an appropriate baseline.*
- *An ecological assessment of the streams/rivers within and draining the site (notability with respect to Salmonid suitability and possibly lamprey spawning beds).*

**Figure 1** and **Figure 2** provide maps showing the proposed features for the flood relief scheme, including recreational features.

# 2. METHODOLOGIES

Methods to obtain information such as instream and visual surveys are described below. Desktop surveys were also used to gather information on watercourses.

## 2.1 Field survey methodologies

Aquatic assessments for Q-value assessments, salmonid and lamprey suitability surveys were carried out in November and December 2021, with three sample points undertaken in February 2022. The location of sample points are shown in **Figure 3**.

The methodology for aquatic assessments of the watercourses potentially affected by the scheme include:

- An ecological assessment of the streams/rivers within the site (notability with respect to salmonid/lamprey suitability).
- A macro-invertebrate survey indicating the Q-value and associated chemical rating of streams within the site in order to form an appropriate baseline.

Streams were assessed for salmonid and lamprey suitability following the Life Cycle Unit Approach (LCU) and guidance from Maitland (2003) within the site boundary.

Biological scoring of the streams within the site was carried out to provide for Q-values of each watercourse. This was undertaken using macro-invertebrate sampling (kick-sampling), a standard assessment methodology at locations within the survey area to form a baseline for appropriate monitoring. Basic water quality parameters were measured using a portable water meter to provide a baseline profile of chemical quality in the watercourses. These included temperature, pH, dissolved oxygen and conductivity.

The following guidance documents were used to inform the aquatic assessments:

- Toner, P., Bowman, K., Clabby, K., Lucey, J., McGarrigle, M, Concannon, C., Clenaghan, C., Cunningham, P., Delaney, J., O'Boyle, S., MaCarthaigh, M., Craig, M., & Quinn, R. (2005). Water Quality in Ireland 2001-2003. Environmental Protection Agency, Wexford

- Dept. of Agriculture, Environment & Rural Affairs (2005). The Evaluation of Habitat for Salmon and Trout. Advisory Leaflet No. 1, Department of Agriculture for Northern Ireland. Available at: https://www.daera-ni.gov.uk/publications/evaluation-habitat-salmon-and-trout-advisory-leaflet

- Maitland, P.S. (2003). Ecology of the river, brook and sea lamprey. Conserving Natura 2000 Rivers Ecology Series No. 4. English Nature, Peterborough.

## 2.2 Desktop study

A desktop study of the watercourses within the project area was undertaken to determine information on rivers/streams and any known protected water dependent species that may be recorded in these areas.

Information was obtained from sources such as the National Parks and Wildlife (NPWS), Environmental Protection Agency (EPA), National Biodiversity Data Centre (NBDC) and Inland Fisheries Ireland (IFI).

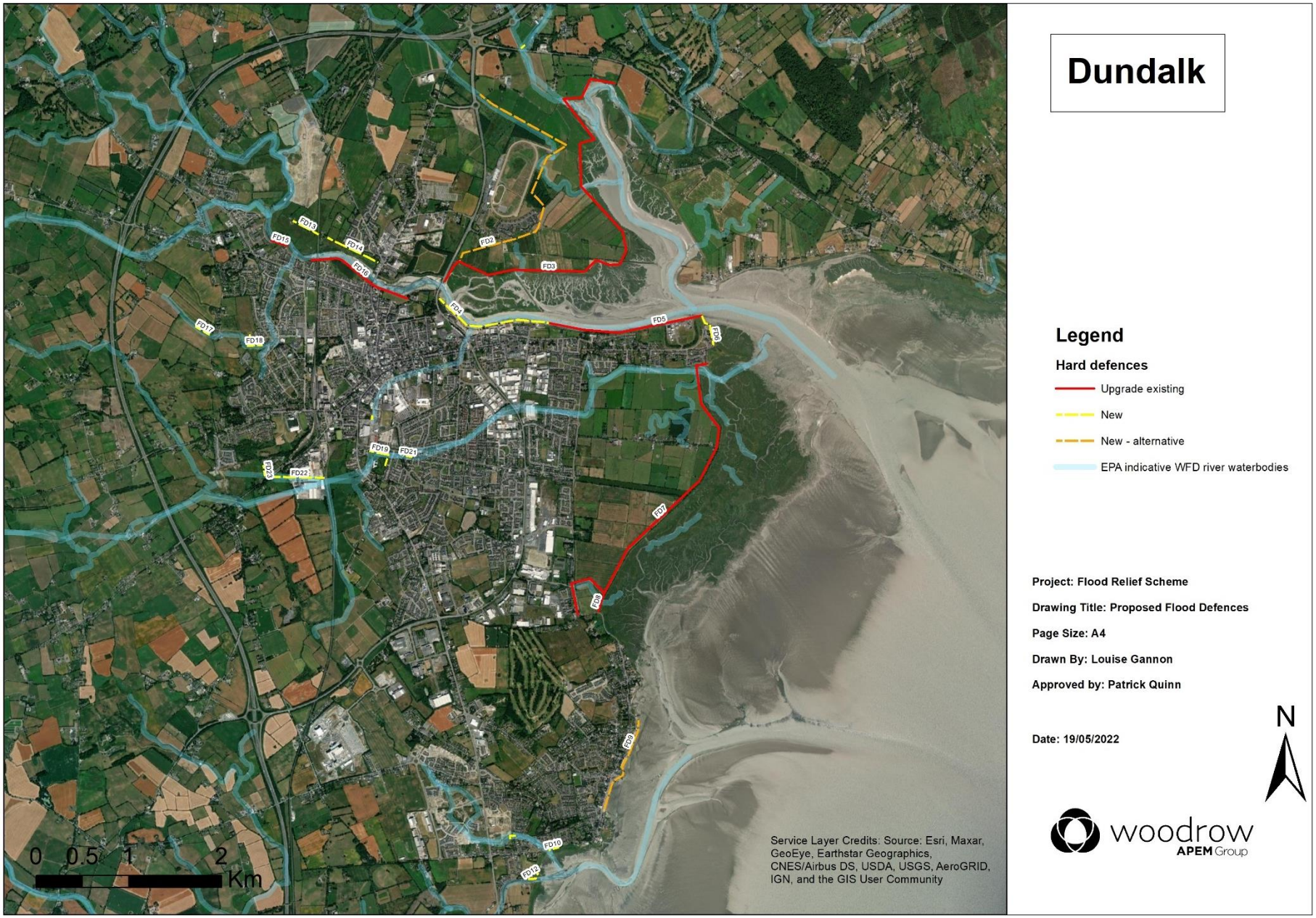


**Figure 1**. Dundalk-Blackrock: Locations of proposed flood defences and where existing feature will be upgraded

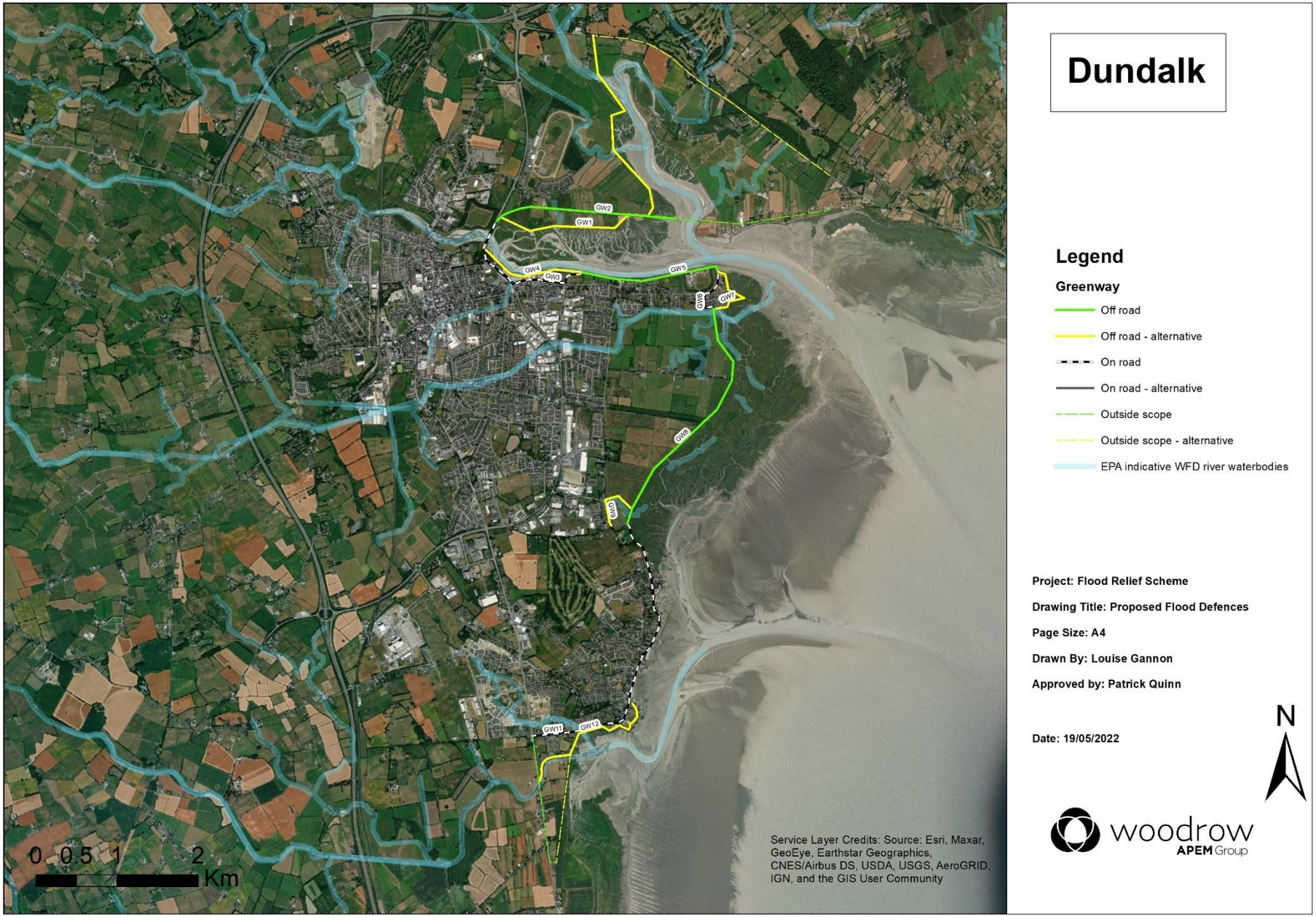


**Figure 2**. Dundalk-Blackrock: Proposed greenway walking/cycling route

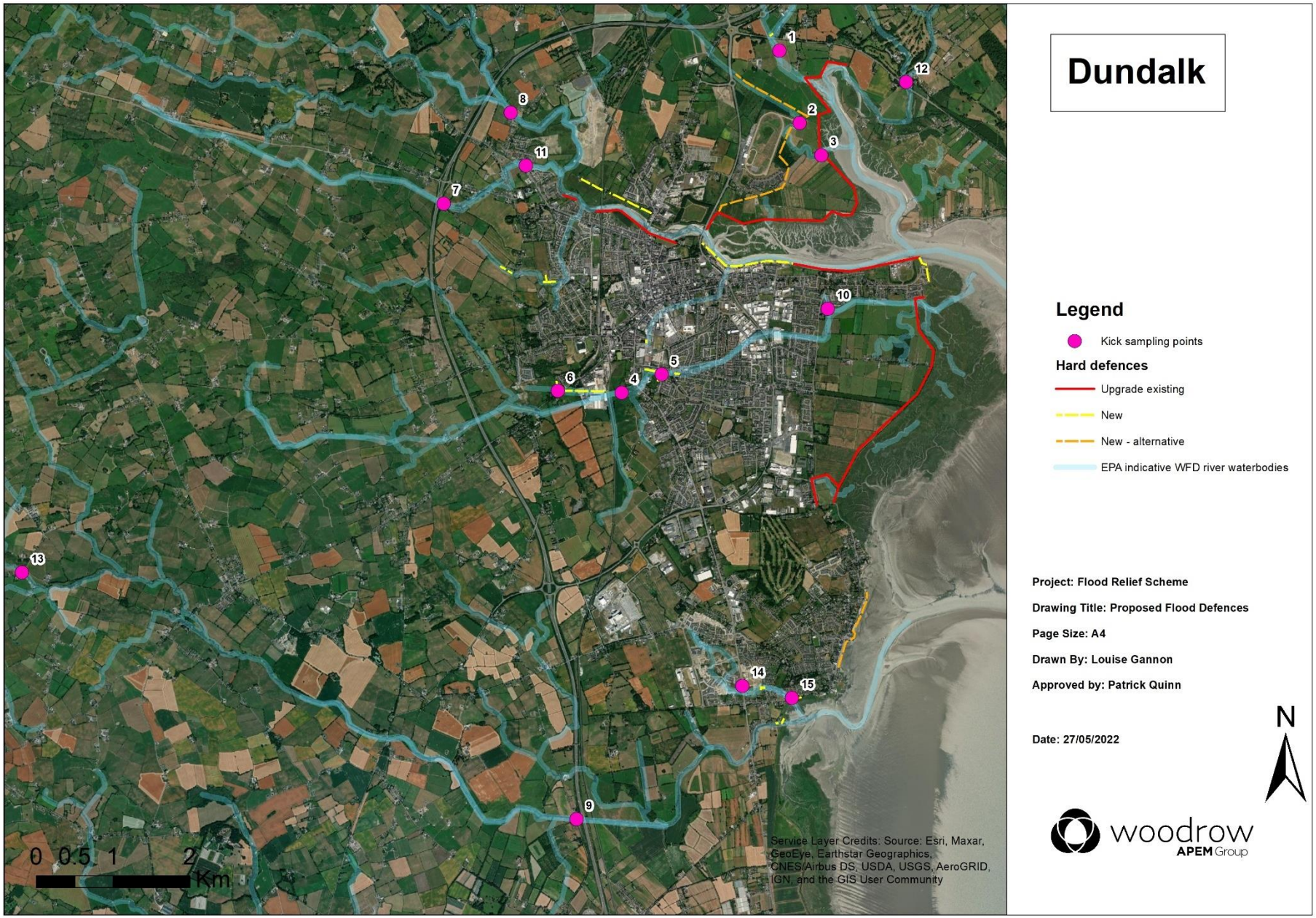


**Figure 3**. Q-value sampling sites

# 3. DESKTOP

## 3.1 Castletown River and tributaries

The Castletown River (EPA Code:06C01) at Dundalk is a 5th order river and is located within the Castletown_SC_020 sub catchment which is within the Newry, Fane, Glyde and Dee (06) catchment. The EPA has classified the water quality within the Castletown River as 'Moderate' within the project footprint during the 2013-2018 monitoring cycle. The latest round of Q-value sampling which took place in 2020 and assigns a value of Q3-4 (Moderate water quality) and Q4 (Good water quality) for the Castletown River in and around the Dundalk area. The EPA have also assigned a risk rating for the Castletown River as 'At Risk', this means that the watercourse is at risk of deteriorating further or failing to meet 'Good' water quality status in the future.

Tributaries of the Castletown River located within the project boundary include:

- According to EPA indicative mapping the Ramparts stream (3rd order stream) flows through the centre of Dundalk and joins the Castletown River at the mouth of the Dundalk Harbour. Rath06 (1st order stream) is an adjoining section of channelised stream flowing through The Brewery Business Park. There is a highly modified channel (unnamed stream 06_318) that flows east adjacent to Rampart Lane before veering north to join the estuary at Dundalk Port. Historically this was the channel taken by the Ramparts stream, which has been culverted to the south and north of the Tesco supermarket. The open section of 06_318 may still be fed by the Ramparts stream or as shown by the EPA mapping, the Ramparts stream may have been redirected, underground to join with stream originally called the Blackwater River (now called Ramparts). Before the Ramparts stream (Blackwater River) reaches the coast there is a flood gate, where it is joined by a stream network (Marsh_South) that flows through coastal farmland (formally marshland) and a drain that backs the coastal embankment.
- Cunnicar stream (1st order stream) flowing through in the Castletown suburb of Dundalk (north-eastern part of Dundalk) and joins the Casltetown River at the upper reaches of the estuary.
- The majority of tributary Castletown06_1052 flowing into 06_1089 (1st & 2nd order stream) flows under housing estates in the Farranderg part of Dundalk and joins the Castletown River just west of the Castletown Bridge. Upper sections of the tributary 06_1052 has limited flow under normal conditions.
- Both the Raskeagh (3rd order stream) and Culfore (1st order stream) flow into the Ballymascanlan River estuary, which joins the estuarine water of Dundalk Harbour along the old railway line.
- Dowdalls_Hill watercourse (1st order stream) is formed by two short streams that flow through Marsh North (south of Dundalk Racecourse) that cross under the old railway line and flow into the estuarine waters of Dundalk Harbour.

These streams have been assigned a risk rating for water quality as 'At Risk' or under 'Review'. Q-value assessments by the EPA have been carried out on these streams according to EPA mapping and are assigned values of 'Moderate' to 'Poor'.

## 3.2 River Fane

The River Fane (EPA Code: 06F01) is a 4th order river and is located within the Fane_SC_020 sub catchment, which is within the Newry, Fane, Glyde and Dee (06) catchment. The River Fane flows into Dundalk Bay south of Blackrock. The EPA has classified the water quality within the River Fane as 'Good' within the project footprint during the 2013-2018 monitoring cycle. The latest round of Q-value sampling which took place in 2020 and assigns a value of Q3-4 (Moderate water quality) and Q4 (Good water quality) for the River Fane in and around the Dundalk area. The EPA have also assigned a risk rating for the River Fane as 'At Risk, this means that the River Fane is at risk of deteriorating or being at less than Good status in the future.

## 3.3 Haggardstown stream

The Haggardstown stream (EPA Code: 06H08) is a 1st order stream and is located within the Castletown_SC_020 sub catchment which is within the Newry, Fane, Glyde and Dee (06) catchment. This stream runs along the western suburbs of Blackrock and flows into Dundalk Bay at the southern part of the village. The EPA has classified the water quality within the Haggardstown stream as 'Unassigned' within the project footprint during the 2013-2018 monitoring cycle. No Q- value assessments have been carried out on this stream by the EPA and so no Q-value score is available. The EPA have assigned a risk rating for the Haggardstown stream as 'Not at Risk'.

## 3.4 Protected Species

The proposed Dundalk flood relief works is within 1 no.10km grid square (J00). **Table 1** shows the results of Article 17 reporting from the NPWS[1] and the NBDC[2] grid search for protected species within this area.

**Table 1**. Protected species table

| Species | 10-km grid square J00 | |
|---|---|---|
| | NBDC | NPWS |
| Salmon | No | Yes* |
| Freshwater pearl mussel | No | No |
| White-clawed crayfish | No | No |
| Brook lamprey | No | Yes* |
| River lamprey | No | Yes* |
| Sea lamprey | No | Yes* |

*Current distribution and range of species[3]

Inland Fisheries Ireland research and monitoring of the Castletown River[4] and River Fane[5] has recorded salmon, trout, lamprey and eel during fish population surveys conducted in 2017 and 2018 as part of the Eastern River Basin District River surveys.

The National Biodiversity Data Centre notes European eel (*Anguilla anguilla*) in the project area (10km Grid J00), as recorded during the eastern river basin district river surveys. European eel is listed on the International Union for Conservation of Nature (IUCN) red list of species being of critically endangered and threatened with extinction[6].

## 3.5 Consultation

Inland Fisheries Ireland during informal consultation had no response at the time of writing.

[1] NPWS (2019) Article 17 Reporting https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol3_Species_Article17.pdf
[2] NBDC https://maps.biodiversityireland.ie/Map
[3] NPWS (2019) Article 17 Reporting https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol3_Species_Article17.pdf
[4] IFI (2017) http://wfdfish.ie/wp-content/uploads/2019/03/ERBD_Castletown_2017.pdf
[5] IFI (2019) http://wfdfish.ie/wp-content/uploads/2019/10/ERBD_Fane_2018-2.pdf
[6] IUCN https://www.iucnredlist.org/species/60344/152845178

# 4. FIELD SURVEY RESULTS

## 4.1 Salmonid suitability survey

### 4.1.1 Castletown River

The entire section of the Castletown River within the project footprint is tidal, this habitat is not suitable for spawning or juvenile salmon to inhabit. Adult salmon migrating to spawning grounds further upstream in the catchment will use this river in the spring and summer runs. Smolts, which have lived their juvenile life in freshwater will also use the Castletown River in the spring smolt runs heading to sea. **Figure 4** shows salmon habitat suitability mapping and the Castletown River is illustrated in Plate 1 in Appendix I.

### 4.1.2 Castletown River tributaries

The tributaries of the Castletown River (Ramparts, Rath06, 06_318, 06_1052 flowing into 06_1089, Cunnicar, Dowdalls Hill, Raskeagh and Culfore) within the project area are not suitable for salmonids to exist. These streams are urbanised with artificial stone banks, litter grills, which prevent passage and there are also subterrain sections, including the Castletown_06_1089 and Rampart streams. There were sections noted as silt laden or choked with vegetation, including the Rath06 stream - see Plate 3 in Appendix I. Sections of these streams at the coast are subject to tidal influence, in particular Dowdalls Hill and Culfore, which does not provide suitable habitat for spawning or juvenile salmon.

As shown in **Figure 4**, these streams were assessed as offering sub-optimal habitat for salmonids to use. The tributaries are illustrated in Plates 2-6 in Appendix I.

### 4.1.3 Haggardstown stream

The Haggardstown stream is within the project area and flows into Dundalk Bay at Blackrock. This stream is urbanised, silt laden and choked with vegetation and, as shown in **Figure 4**, the entire watercourse offers sub-optimal habitat for salmonids to use. Sections of the stream are illustrated Plates 9-10.

### 4.1.4 River Fane

As shown in **Figure 4**, the River Fane has suitable habitat for all life stages of Salmonids to exist. Spawning, juvenile and adult salmonids have the potential to exist within the River Fane. The area where works are proposed is tidal and no spawning or juvenile habitat exists at this location, however migrating salmonids heading and coming back from migrations will pass this point of the river during these life cycle stages. Sections of the River Fane are illustrated in Plates 7-8.

## 4.2 Lamprey suitability survey

### 4.2.1 Castletown River

As indicated by **Figure 5**, the Castletown River is suitable for lamprey to exist on passage during its adult life stage. Sea and River lamprey will enter the river to spawn and also once juveniles metamorphose into adults, they themselves will travel down the Castletown River and head to the estuary or sea. See Plate 1 for example of silt deposits in river.

### 4.2.2 Castletown River tributaries

Lamprey use habitat similar to salmon to spawn. Due to the lack of passage and the urbanised setting of these streams within Dundalk, there is no optimal lamprey habitat available, which is shown by habitat suitability mapping in **Figure 5**. Images of the streams are provided in Appendix I - see Plates 2-6.

### 4.2.3 River Fane

As indicated by **Figure 5**, the River Fane is suitable for lamprey to exist on passage during its adult life stage. Sea and River lamprey will enter the river to spawn and also once juveniles metamorphose into adults, they themselves will travel down the River Fane and head to the estuary or sea. Sections of the river are shown in Plates 7-8 in Appendix I.

### 4.2.4 Haggardstown stream

The Haggardstown stream within the project area is not suitable for lamprey to exist. As illustrated by Plates 9-10 in Appendix I, this stream is urbanised, silt laden and choked with vegetation and as shown in **Figure 5** this stream is sub-optimal habitat for lamprey to use.

## 4.3 Q-values

Woodrow ecologists carried out Q-value assessments on the watercourses within the project footprint and to assign a Q-value to these sample sites within the watercourse. Baseline water quality parameters were also taken using a field water quality probe.

**Figure 3** shows the distribution of the kick sampling locations in relation to the potential areas of flood relief works and coordinates for each point are provided in the results tables (see Table 2).

**Table 2** shows the results of the Q-value assessments and their assigned scores and status.

**Table 3** lists the parameter valuers recorded during these surveys. **Appendix II** provides tables showing the raw data for water quality collected during surveys.

As listed in **Table 2**, for the watercourses assessed Q-value assessments range from ‘Bad’ water quality to ‘Good’. Only the Flurry River was scored as having good water quality status (see Sample Point 12 in Table 2) and this stream is out of the core study area directly affected by the proposal.

Baseline chemical parameter analysis of the watercourses are what would be expected within these systems with pH levels in the range of 7 to 8 and dissolved oxygen levels between 7 and 11mg/l. The River Fane and Haggardstown stream were not assessed for chemical water quality parameters due to equipment failure and so are not listed within

**Table 3**.

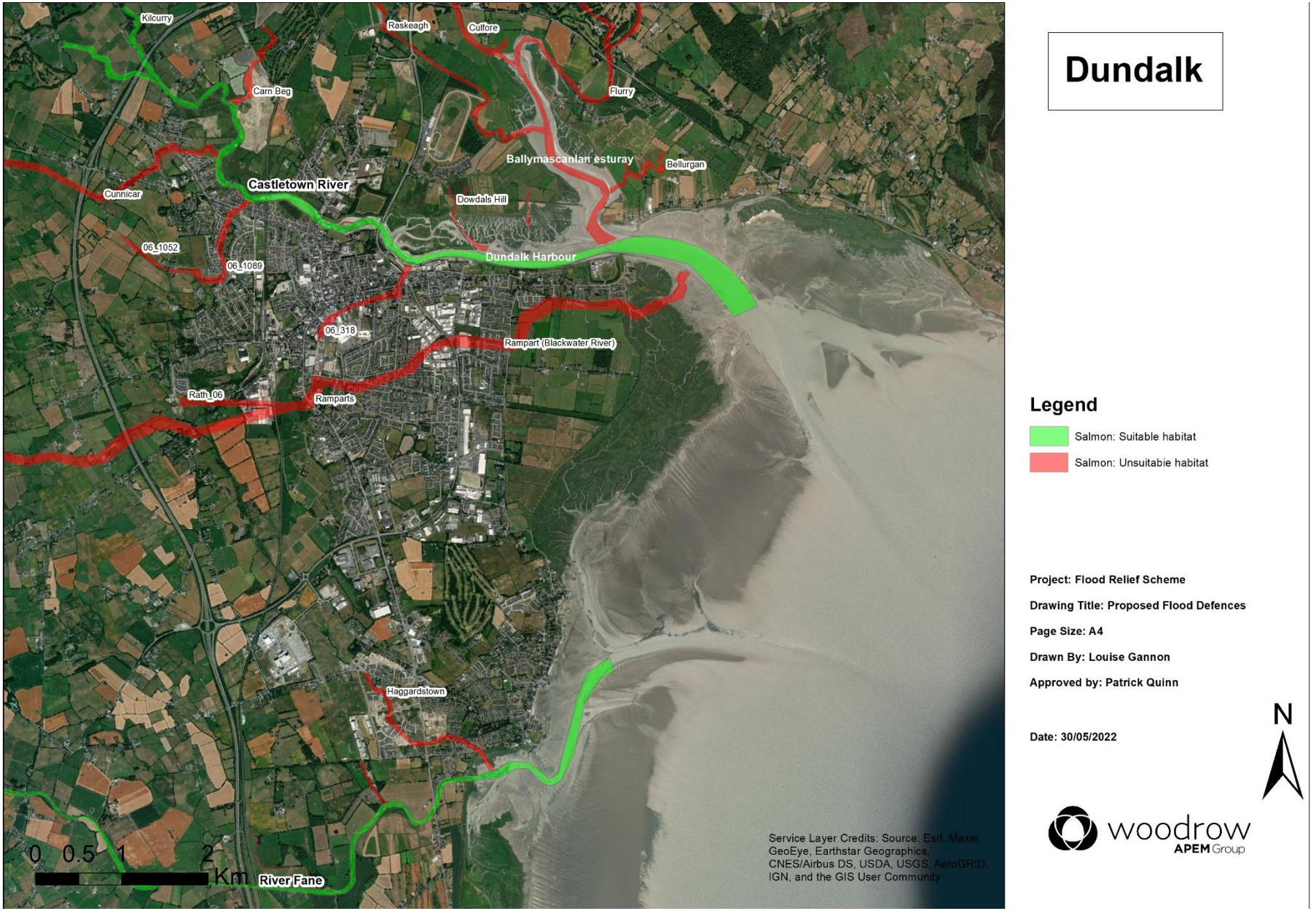


**Figure 4**. Salmonid suitability map

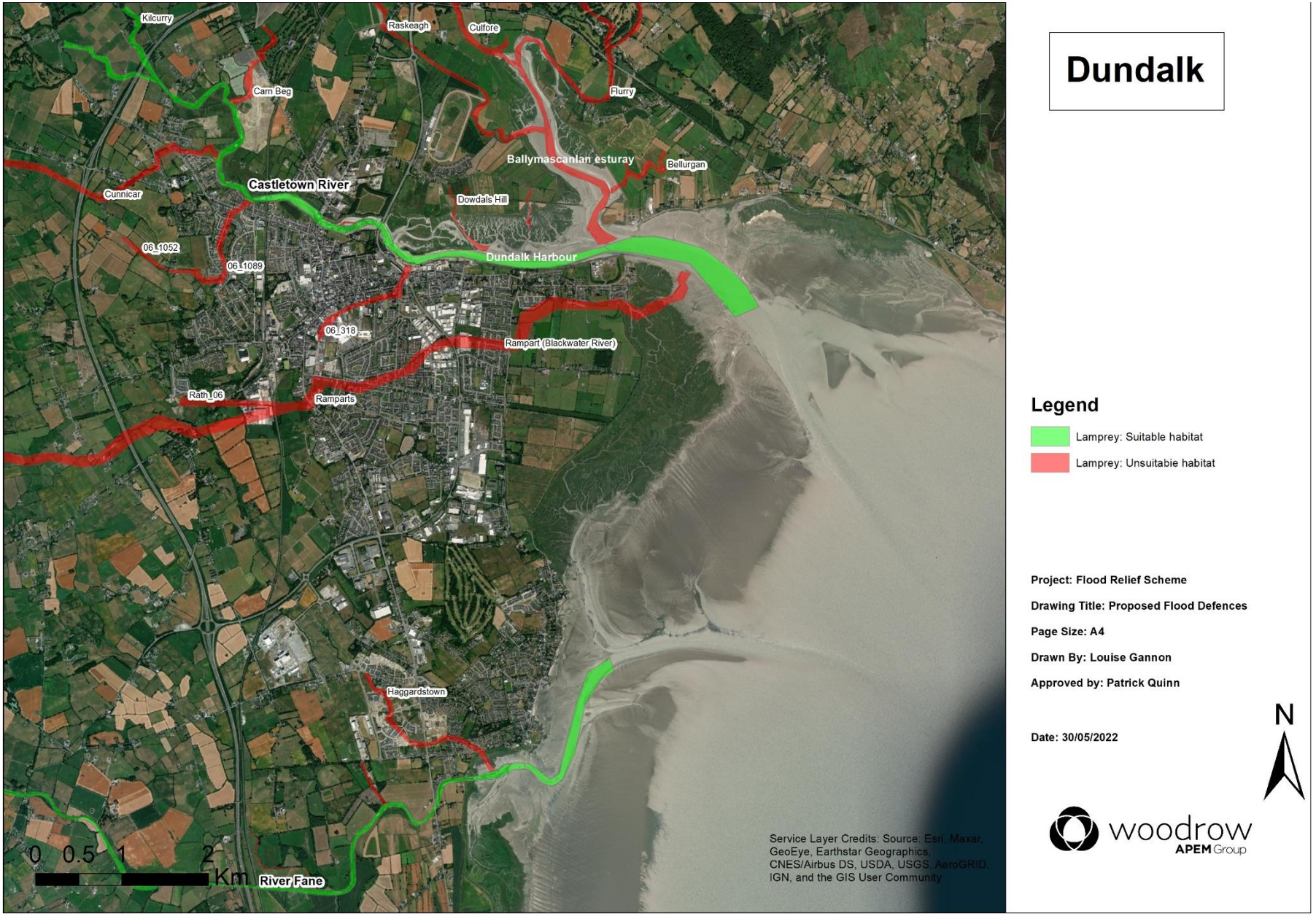


**Figure 5**. Lamprey suitability map

**Table 2.** Q-value results

| Location | x | y | Q value | Quality classes | Water Quality Status |
|---|---|---|---|---|---|
| **1** Culfore | 54.0329594 | -6.3757701 | 3 | C | Poor |
| **2** Raskeagh | 54.0244466 | -6.3720559 | 3 | C | Poor |
| **3** Raskeagh | 54.0206144 | -6.3679219 | 1 | D | Bad |
| **4** Rampart | 53.9933782 | -6.4086679 | 3 | C | Poor |
| **5** Rampart | 53.9954061 | -6.4006313 | 3 | C | Poor |
| **6** Rath-06 | 53.9937439 | -6.4213063 | 3 | C | Poor |
| **7** Cunnicar | 54.0159441 | -6.4431777 | 3 | C | Poor |
| **8** Castletown River | 54.0264130 | -6.4294693 | 3-4 | B | Moderate |
| **9** River Fane | 53.9436060 | -6.4194830 | 3-4 | B | Moderate |
| **10** Rampart | 54.0026340 | -6.3673330 | 2 | D | Bad |
| **11** Cunnicar | 54.0201700 | -6.4266530 | 3 | C | Poor |
| **12** Flurry River | 54.0289250 | -6.3507460 | 4 | A | Good |
| **13** River Fane | 53.9738700 | -6.5285200 | 3-4 | B | Moderate |
| **14** Haggartstown tributary | 53.9587600 | -6.3860200 | 2 | D | Bad |
| **15** Haggartstown tributary | 53.9572200 | -6.3762300 | 2 | D | Bad |

**Table 3**. Water quality parameter results
Note: Water quality parameters were not collected at sample points 13, 14, 15

| Location | x | y | Temp. °C | pH | Dissolved oxygen | | Conductivity[7] | ORP[8] |
|---|---|---|---|---|---|---|---|---|
| **1** Culfore | 54.0329594 | -6.3757701 | 14.1 | 7.71 | 077.8%Sat | 07.90mg/l | 0363µs/cm | 0031.2mV |
| **2** Raskeagh | 54.0244466 | -6.3720559 | 13.3 | 7.6 | 069.4%Sat | 07.16mg/l | 0644µs/cm | 0082.5mV |
| **3** Raskeagh | 54.0206144 | -6.3679219 | 13.5 | 7.67 | 074.8%Sat | 07.67mg/l | 0894µs/cm | 0048.0mV |
| **4** Rampart | 53.9933782 | -6.4086679 | 13.5 | 7.56 | 066.9%Sat | 06.72mg/l | 0402µs/cm | 0084.0mV |
| **5** Rampart | 53.9954061 | -6.4006313 | 13.5 | 7.37 | 041.9%Sat | 04.29mg/l | 0826µs/cm | 0029.0mV |
| **6** Rath-06 | 53.9937439 | -6.4213063 | 12.8 | 7.15 | 062.1%Sat | 06.30mg/l | 0382µs/cm | -0112.6mV |
| **7** Cunnicar | 54.0159441 | -6.4431777 | 13.4 | 8.02 | 088.5%Sat | 090.5mg/l | 0815µs/cm | 0080.7mV |
| **8** Castletown River | 54.0264130 | -6.4294693 | 11.2 | 7.9 | 102.5%Sat | 10.31mg/l | 0323µs/cm | 0097.3mV |
| **9** River Fane | 53.9436060 | -6.4194830 | 11.3 | 7.78 | 095.4%Sat | 10.34mg/l | 0337µs/cm | 0134.0mV |
| **10** Rampart | 54.0026340 | -6.3673330 | 11.9 | 7.04 | 012.9%Sat | 01.36mg/l | 0433µs/cm | 0099.5mv |
| **11** Cunnicar | 54.0201700 | -6.4266530 | 12.4 | 8.21 | 094.6%Sat | 09.97mg/l | 0750µs/cm | 0067.5mv |
| **12** Flurry River | 54.0289250 | -6.3507460 | 11.7 | 7.81 | 103.8%Sat | 11.11mg/l | 0229µs/cm | 0108.7mv |

[7] EPA (2001) Parameters of Water Quality: Interpretation and Standards. Environmental Protection Agency, Wexford. https://www.epa.ie/pubs/advice/water/quality/Water_Quality.pdf
[8] EPA (2001) Parameters of Water Quality: Interpretation and Standards. Environmental Protection Agency, Wexford. https://www.epa.ie/pubs/advice/water/quality/Water_Quality.pdf

# 5. SUMMARY

Field surveys have identified that the Castletown River within the project footprint is tidal, this habitat is not suitable for spawning or juvenile salmon to inhabit; however, adult salmon migrating to spawning grounds further upstream in the catchment will use this river in the spring and summer runs. Surveys have identified that the River Fane is a salmonid river with the potential to hold all life stages of these species, along with lamprey species. Habitats present within the river are suitable for spawning salmonids and lamprey to use. There are also juvenile and adult habitats available within the River Fane, such as boulder and stony habitat for juvenile salmonids and silt deposits for lamprey to inhabit.

Q-value assessments within the River Fane and Castletown systems have resulted in values associated with Moderate to Good water quality for the receiving watercourses.

The desktop study carried out for the River Fane and Castletown River regarding Q-value assessments resulted in similar results to the field assessments with the EPA assigning a water quality of Moderate (3-4) status for both systems.

Protected species results from the desktop study suggest Atlantic salmon and lamprey species are all present in the Castletown and Fane River systems. The critically endangered European eel has also been logged as present within these systems.

The Castletown tributaries and the Haggardstown stream are not suitable for salmonids or lampreys to inhabit, as they have sub-optimal habitats available and water quality conditions are unfavourable for these species to exist within these systems.

Surveys were carried out to inform overall baseline results of the potentially impacted watercourses in the local and wider area of the scheme. No further surveys are required based on the information to date, as no actual instream working areas have been identified as yet.

# APPENDIX I – ILLUSTRATED PLATES

**Plate 1** – Potential areas where adult salmon/lamprey would use for passage on the Castletown River estuarine waters.

**Plate 2** – Ramparts stream

**Plate 3** – Rath06 stream in Dundalk

**Plate 4** – Cunnicar stream with grills

**Plate 5** – Cunnicar stream with grills

**Plate 6** – Culfore stream with heavy vegetation within

**Plate 9** – Haggardstown stream with sub-optimal salmonid/lamprey habitat

**Plate 10** – Haggardstown stream with sub-optimal salmonid/lamprey habitat

**Plate 7** – River Fane with potential salmonid/lamprey habitats (riffle and glide areas)

**Plate 8** – River Fane with potential salmonid/lamprey habitats (riffle and boulder areas)

# APPENDIX II – SURVEY RAW DATA

## Water quality: Sample points 1 to 12

| Location | Upstream/ Downstream | X | Y | Temperature (°C) | ORP(mV) | PH | DO (% Sat) | DO (mg/L) | EC (µS/cm) | Substrate | Riparian vegetation | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Downstream FD1 | 54.0329594 | -6.3757701 | 14.1 | 0031.2 | 7.71 | 077.8 | 07.90 | 0363 | Sand/Silt | Decidous tree cover | Stream running through pastural farmland |
| 2 | Upstream FD2 | 54.0244466 | -6.3720559 | 13.3 | 0082.5 | 7.6 | 069.4 | 07.16 | 0644 | Mud/Silt | Scrub | High aquatic macrophyte density within stream. Fish present in stream |
| 3 | Downstream FD2 | 54.0206144 | -6.3679219 | 13.5 | 0048.0 | 7.67 | 074.8 | 07.67 | 0894 | Sand/Stone | Scrub | location is tidal, may be disragarded. |
| 4 | Upstream FD19, FD20, FC21 | 53.9933782 | -6.4086679 | 13.5 | 0084.0 | 7.56 | 066.9 | 06.72 | 0402 | Mud/Silt | Reed bed | High aquatic macrophyte density. Unable to access for kick sample so drift net sample taken |
| 5 | Downstream FD19 | 53.9954061 | -6.4006313 | 13.5 | 0029.0 | 7.37 | 041.9 | 04.29 | 0826 | Stone | Urban culvert/scrub | Fish present in Stream. Highly polluted with urban rubbish |
| 6 | Upstream FD22, FD23 | 53.9937439 | -6.4213063 | 12.8 | -0112.6 | 7.15 | 062.1 | 06.30 | 0382 | Mud/Silt | Decidous tree cover | Unable to access for kick sample so drift net sample taken |
| 7 | Upstream FD17, FD18 | 54.0159441 | -6.4431777 | 13.4 | 0080.7 | 8.02 | 088.5 | 090.5 | 0815 | Stone/Gravel | Decidous tree cover | Stream running through pastural farmland. Sample location near motorway |
| 8 | Upstream FD13, FD14, FD15, FD16 | 54.026413 | -6.4294693 | 11.2 | 0097.3 | 7.9 | 102.5 | 10.31 | 0323 | Stone | Decidous tree cover/Scrub | |
| 9 | Upstream FD12 | 53.943606 | -6.419483 | 11.3 | 0134.0 | 7.78 | 095.4 | 10.34 | 0337 | Sand/Stone/Gravel | Decidous tree cover | |
| 10 | Upstream FD7 | 54.002634 | -6.367333 | 11.9 | 0099.5 | 7.04 | 012.9 | 01.36 | 0433 | Mud/Silt | Decidous tree cover/Reeds | Little or no flow with a high content of organic matter on river bed, drift net sample taken |
| 11 | Upstream FD13, FD14, FD15, FD16 | 54.020170 | -6.426653 | 12.4 | 0067.5 | 8.21 | 094.6 | 09.97 | 0750 | Gravel | Urban/Scrub | Tributary stream to the Castletown river |
| 12 | Upstream FD3 | 54.028925 | -6.350746 | 11.7 | 0108.7 | 7.81 | 103.8 | 11.11 | 0229 | Stone/Gravel | Decidous tree cover | Wide river, fast flowing |
| | | | | | | | | | | | | |

## Water quality: Sample points 13 to 15

| Date | Station | X | Y | Mesohabitat | Substrate | Stream Vegetation | Riparian Vegetation | Notes |
|---|---|---|---|---|---|---|---|---|
| 15/02/2022 | FANE - Castlering Br | 53.97387 | -6.52852 | Run, Riffle | Gravel, Cobble, Boulder | Some macrophytes, reeds | Scrub, reeds, sporadic riparian tree cover | Fast flowing site through pastural farmland |
| 15/02/2022 | Haggardstown_1 | 53.95876 | -6.38602 | Pool | Silt | Grasses, *Phragmites* , *Lemna minor* | Grasses | Could not access for kick sample, so sweep net taken. Grey water and litter |
| 15/02/2022 | Haggardstown_2 | 53.95722 | -6.37623 | Pool | Gravel, Silt | None | Overhanging trees | Combination of sweep net and kick sample. Difficult site to sample |

## Q-values: Sample points 1 to 12

| Location | Q value | Quality classes |
|---|---|---|
| 1 | 3 | C |
| 2 | 3 | C |
| 3 | 1 | D |
| 4 | 3 | C |
| 5 | 3 | C |
| 6 | 3 | C |
| 7 | 3 | C |
| 8 | 3-4 | B |
| 9 | 3-4 | B |
| 10 | 2 | D |
| 11 | 3 | C |
| 12 | 4 | A |

## Q-values: Sample points 13 to 15

| FANE - Castlering Br | Haggardstown_1 | Haggardstown_2 | | | FANE - Castlering Br | Haggardstown_1 | Haggardstown_2 |
|---|---|---|---|---|---|---|---|
| | | | | **Group A** | 8.860759494 | 0 | 0 |
| | | | | **Group B** | 8.860759494 | 0 | 1.62601626 |
| | | | | **Group C** | 81.01265823 | 17.77777778 | 40.6504065 |
| | | | | **Group D** | 0 | 73.33333333 | 0.81300813 |
| | | | | **Group E** | 1.265822785 | 8.888888889 | 56.91056911 |
| | | | | | | | |
| | | | | **Q-Value** | **3-4** | **2** | **2** |

## Macroinvertebrates: Sample points 1 to 12

| Location | Upstream/Downstream | TAXA | Abundance | Sensitivity Group |
|---|---|---|---|---|
| 1 | Upstream | Asellus spp. | 19 | D |
| 1 | Upstream | Baetis rhodani | 1 | C |
| 1 | Upstream | Chironomus ssp. | 1 | C |
| 1 | Upstream | Gammarus spp. | 11 | C |
| 1 | Upstream | Gastrapoda | 1 | C |
| 1 | Upstream | Oligochaeta | 9 | E |
| 1 | Upstream | Platyhelminthes | 2 | C |
| 1 | Upstream | Trichoptera (Cased) | 1 | B |
| 2 | Upstream | Asellus spp. | 1 | D |
| 2 | Upstream | Coleoptera | 1 | C |
| 2 | Upstream | Gammarus spp. | 1 | C |
| 2 | Upstream | Gastropoda | 13 | C |
| 2 | Upstream | Gastropoda Physa spp. | 6 | D |
| 2 | Upstream | Hirudinae | 2 | D |
| 2 | Upstream | Oligoceatha | 1 | E |
| 2 | Upstream | Platyhelminthes | 2 | C |
| 2 | Upstream | Trichoptera (Cased) | 4 | B |
| 3 | Downstream | Chironomus ssp. | 11 | E |
| 3 | Downstream | Oligochaeta | 1 | E |
| 4 | Upstream | Asellus spp. | 9 | D |
| 4 | Upstream | Coleoptera | 2 | C |
| 4 | Upstream | Gammarus spp. | 1 | C |
| 4 | Upstream | Gastropoda | 7 | C |
| 4 | Upstream | Gastropoda Physa spp. | 5 | D |
| 4 | Upstream | Oligochaeta | 4 | E |
| 4 | Upstream | Trichoptera (Cased) | 2 | B |
| 5 | Downstream | Asellus spp. | 37 | D |
| 5 | Downstream | Chironomus ssp. | 5 | E |
| 5 | Downstream | Coleoptera | 1 | C |
| 5 | Downstream | Gammarus spp. | 3 | C |
| 5 | Downstream | Gastropoda | 33 | C |
| 5 | Downstream | Gastropoda Physa spp. | 3 | D |
| 5 | Downstream | Hydracarina | 5 | C |
| 6 | Upstream | Chironomus ssp. | 1 | E |
| 6 | Upstream | Coleoptera | 1 | C |
| 6 | Downstream | Gammarus spp. | 70 | C |
| 6 | Downstream | Oligochaeta | 2 | E |
| 7 | Upstream | Baetis rhodani | 4 | C |
| 7 | Upstream | Chironomus ssp. | 2 | E |

| | | | | |
|---|---|---|---|---|
| 7 | Upstream | Coleoptera | 1 | C |
| 7 | Upstream | Gammarus spp. | 56 | C |
| 7 | Upstream | Oligochaeta | 3 | E |
| 7 | Upstream | Platyhelminthes | 8 | C |
| 7 | Upstream | Trichoptera (Cased) | 4 | B |
| 7 | Upstream | Trichoptera (Uncased) | 3 | C |
| 8 | Upstream | Asellus spp. | 7 | D |
| 8 | Upstream | Chironomus ssp. | 3 | E |
| 8 | Upstream | Gammarus spp. | 14 | C |
| 8 | Upstream | Gastropoda | 400 | C |
| 8 | Upstream | Gastropoda Physa spp. | 11 | D |
| 8 | Upstream | Heptageniidae | 2 | A |
| 8 | Upstream | Hirudinae | 8 | D |
| 8 | Upstream | Hirudinae Piscicola ssp. | 2 | C |
| 8 | Upstream | Oligochaeta | 15 | E |
| 8 | Upstream | Platyhelminthes | 3 | C |
| 8 | Upstream | Trichoptera (Cased) | 3 | B |
| 8 | Upstream | Trichoptera (Uncased) | 4 | C |
| 9 | Upstream | Gammarus spp. | 37 | C |
| 9 | Upstream | Chironomus ssp. | 2 | E |
| 9 | Upstream | Chironomidae | 9 | C |
| 9 | Upstream | Oligochaeta | 12 | E |
| 9 | Upstream | Ephemera danica | 2 | A |
| 9 | Upstream | Trichoptera (Cased) | 6 | B |
| 10 | Upstream | Asellus spp. | 8 | D |
| 10 | Upstream | Oligochaeta | 1 | E |
| 10 | Upstream | Gastropoda Physa spp. | 2 | D |
| 10 | Upstream | Gastropoda | 5 | C |
| 11 | Upstream | Gammarus spp. | 26 | C |
| 11 | Upstream | Oligochaeta | 17 | E |
| 11 | Upstream | Platyhelminthes | 1 | C |
| 11 | Upstream | Coleoptera | 1 | C |
| 11 | Upstream | Trichoptera (Cased) | 5 | B |
| 11 | Upstream | Chironomus ssp. | 1 | E |
| 12 | Upstream | Trichoptera (Uncased) | 12 | C |
| 12 | Upstream | Coleoptera | 1 | C |
| 12 | Upstream | Oligochaeta | 3 | E |
| 12 | Upstream | Heptageniidae | 20 | A |
| 12 | Upstream | Asellus spp. | 4 | D |
| 12 | Upstream | Platyhelminthes | 3 | C |
| 12 | Upstream | Hirudinea | 1 | D |
| 12 | Upstream | Gammarus spp. | 78 | C |
| 12 | Upstream | Baetis rhodani | 8 | C |
| 12 | Upstream | Trichoptera (Cased) | 7 | B |
| 12 | Upstream | Gastropoda | 1 | C |
| 12 | Upstream | Chironomidae | 1 | C |

## Macroinvertebrates: Sample points 13 to 15

| | | FANE - Castlering Br | Haggardstown_1 | Haggardstown_2 | |
|---|---|---|---|---|---|
| Group C | Acroloxus lacustris | | | | |
| Group B | Adicella reducta | | | | |
| | Aeshnidae | | | | |
| Group C | Agabus | | | | |
| Group B | Agapetus | | | | |
| | Agapetus delicatulus | | | | |
| | Agapetus fuscipes | | | | |
| | Agapetus ochripes | | | | |
| | Agraylea | | | | |
| | Agrypnia | | | | |
| | Agrypnia obsoleta | | | | |
| | Agrypnia pagetana | | | | |
| | Agrypnia varia | | | | |
| | Allotrichia | | | | |
| | Ameletus | | | | |
| | Ameletus inopinatus | | | | |
| Group A | Amphinemura | | | | |
| | Amphinemura sulcicollis | | | | |
| Group B | Anabolia nervosa | | | | |
| Group C | Ancylidae | | | | |
| Group B | Anisoptera | | | | |
| Group C | Anodonta | | | | |
| Group C | Anodonta anatina | | | | |
| | Anodonta cygnea | | | | |
| | Anopheles | | | | |
| Group B | Apatania | | | | |
| | Apatania auricula | | | | |
| | Apatania muliebris | | | | |
| | Apatania wallengreni | | | | |
| Group B | Aphelocheridae | | | | |
| Group C | Aplexa hypnorum | | | | |
| Not Assig | Argulus foliaceus | | | | |
| Group D | Asellus | | | | |
| Group D | Asellus aquaticus | | 60 | 1 | |
| Group D | Asellus meridianus | | | | |
| Group C | Athericidae | | | | |
| | Athripsodes | | | | |
| Group C | Austropotamobius pallipes | | | | |
| Group B | Baetidae | 6 | | | |
| Group C | Baetis | | | | |
| | Baetis atrebatinus | | | | |
| | Baetis fuscatus | | | | |
| Group B | Baetis muticus | | | | |
| Group C | Baetis rhodani | | | | |
| Group B | Baetis scambus | | | | |
| | Baetis vernus | | | | |
| | Bathynellidae | | | | |
| | Beraea | | | | |
| Group B | Beraeidae | | | | |
| | Beraeodes | | | | |
| | Beraeodes minutus | | | | |
| Group C | Bithynia | | | | |
| | Brachycentridae | | | | |
| Group A | Brachyptera risi | | | | |
| | Brychius | | | | |
| Group C | Caenis | | | | |
| | Caenis horaria | | | | |
| | Caenis luctuosa | | | | |
| | Caenis macrura | | | | |
| | Caenis rivulorum | | | | |
| Group B | Calopterygidae | | | | |
| | Camptochironomus | | | | |
| | Capnia atra | | | | |
| | Capnia bifrons | | | | |
| Group A | Capniidae | | | | |
| Group B | Cased Trichoptera | | | | |
| | Centroptilum | | | | |
| Group B | Centroptilum luteolum | | | | |
| Group B | Ceraclea | | | | |
| Group C | Ceratopogonidae | | | | |
| | Chaetopteryx villosa | | | | |
| | Chaoboridae | | | | |
| Group C | Cheumatopsyche lepida | | | | |
| | Chimarra marginata | | | | |
| Group C | Chironomidae | | 2 | | |
| Group E | Chironomus | | 8 | 70 | |
| Group A | Chloroperla | | | | |
| | Chloroperla tripunctata | | | | |
| Group A | Chloroperlidae | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Chrysomelidae | | | | |
| Not Assig | Chydoridae | | | | |
| Not Assig | Cladocera | | | | |
| Group B | Cloeon | | | | |
| | Cloeon dipterum | | | | |
| | Cloeon simile | | | | |
| Group B | Coenagrionidae | | | | |
| Group C | Coleoptera | | 2 | | |
| Group C | Copepoda | | | | |
| | Corbicula | | | | |
| | Corixa | | | | |
| Group C | Corixidae | | 2 | | |
| Group C | Corophium | | | | |
| Group C | Crangonyx | | | | |
| | Crangonyx pseudogracilis | | | | |
| | Crunoecia irrorata | | | | |
| Group C | Culicidae | | | | |
| | Curculionidae | | | | |
| | Cylindrotomidae | | | | |
| | Cyrnus | | | | |
| | Cyrnus flavidus | | | | |
| | Cyrnus insolutus | | | | |
| | Cyrnus trimaculatus | | | | |
| Not Assig | Daphnia | | | | |
| Group D | Dendrocoelum | | | | |
| | Deronectes | | | | |
| Group C | Dicranota | | | | |
| | Dicrotendipes | | | | |
| Group A | Dinocras cephalotes | | | | |
| Group C | Diplectrona | | | | |
| | Diplectrona felix | | | | |
| Group C | Diptera | | | | |
| Group A | Diura bicaudata | | | | |
| | Dixa | | | | |
| | Dixella | | | | |
| Group C | Dixidae | | | | |
| | Dolichopodidae | | | | |
| Group C | Dreissena | | | | |
| Group B | Drusus annulatus | | | | |
| | Dryops | | | | |
| Group C | Dugesia | | | | |
| Group C | Dytiscidae | | 2 | | |
| Group C | Dytiscus | | | | |
| | Ecclisopteryx guttulata | | | | |
| Group A | Ecdyonurus | | | | |
| | Ecdyonurus dispar | | | | |
| | Ecdyonurus insignis | | | | |
| | Ecdyonurus torrentis | | | | |
| | Ecdyonurus venosus | | | | |
| | Ecnomidae | | | | |
| | Ecnomus tenellus | | | | |
| Group C | Eiseniella | | | | |
| Group C | Elmidae | | | | |
| Group C | Elmis aenea | | | | |
| Group C | Empididae | | | | |
| Group D | Enchytraeidae | | | | |
| Group A | Ephemera danica | | | | |
| Group A | Ephemera danica (One Generation) | | | | |
| Group A | Ephemera danica (Two generations) | | | | |
| | Ephemerella notata | | | | |
| | Ephemeroptera | | | | |
| | Ephydridae | | | | |
| Group E | Eristalis | | | | |
| Group D | Erpobdella | | | | |
| Group C | Esolus / Oulimnius aggregation | | | | |
| Group C | Esolus parallelepipedus | | | | |
| Group C | Gammarus | 30 | | 50 | |
| Group C | Gammarus duebeni | | | | |
| | Gammarus lacustris | | | | |
| | Gammarus pulex | | | | |
| | Gammarus tigrinus | | | | |
| Group C | Gammarus zaddachi | | | | |
| | Georissidae | | | | |
| Group C | Gerridae | | | | |
| Group D | Glossiphonia | | | | |
| Group D | Glossiphonia complanata | | | | |
| | Glossosoma | | | | |
| | Glossosoma boltoni | | | | |
| | Glossosoma conformis | | | | |
| Group B | Glossosomatidae | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Glyphotaelius | | | | |
| | Glyphotaelius pellucidus | | | | |
| Group B | Goera pilosa | | | | |
| Group B | Goeridae | | | | |
| Group C | Gordius | | | | |
| | Grammotaulius | | | | |
| Group C | Gyrinidae | | | | |
| Group C | Gyrinus | | | | |
| Group D | Haemopis | | | | |
| | Halesus | | | | |
| | Halesus digitatus | | | | |
| | Halesus radiatus | | | | |
| Group C | Haliplidae | | | | |
| Group C | Haliplus | | | | |
| | Hebrus | | | | |
| Group D | Helobdella | | | | |
| | Helophorus | | | | |
| Group A | Heptagenia | 6 | | | |
| | Heptagenia fuscogrisea | | | | |
| Group A | Heptagenia sulphurea | | | | |
| Group A | Heptageniidae | | | | |
| | Heteroceridae | | | | |
| Group C | Heteroptera | | | | |
| Group D | Hirudinea | | | | |
| | Holocentropus | | | | |
| | Holocentropus dubius | | | | |
| | Holocentropus picicornis | | | | |
| | Hydatophylax infumatus | | | | |
| Group C | Hydrachnidae | | | | |
| Group C | Hydraena | | | | |
| Group C | Hydraenidae | | | | |
| | Hydrobia | | | | |
| | Hydrochus | | | | |
| Group C | Hydrometridae | | | | |
| Group C | Hydrophilidae | | | | |
| Group C | Hydroporus | | | | |
| Group C | Hydropsyche | 25 | | | |
| | Hydropsyche angustipennis | | | | |
| | Hydropsyche contubernalis | | | | |
| | Hydropsyche instabilis | | | | |
| | Hydropsyche pellucidula | | | | |
| | Hydropsyche siltalai | | | | |
| Group C | Hydropsychidae | | | | |
| Group B | Hydroptila | | | | |
| Group B | Hydroptilidae | | | | |
| | Hygrobia | | | | |
| Group C | Hygrotus | | | | |
| | Ilybius | | | | |
| Group A | Isoperla | | | | |
| Group A | Isoperla grammatica | | | | |
| | Ithytrichia | | | | |
| | Laccophilus | | | | |
| | Lasiocephala basalis | | | | |
| Group B | Lepidostoma hirtum | | | | |
| Group B | Lepidostomatidae | | | | |
| Group B | Leptoceridae | | | | |
| | Leptocerus | | | | |
| Group B | Leptophlebia | | | | |
| | Leptophlebia marginata | | | | |
| | Leptophlebia vespertina | | | | |
| Group B | Leptophlebiidae | | | | |
| | Lestes | | | | |
| Group B | Leuctra | | | | |
| Group B | Leuctra fusca | | | | |
| | Leuctra hippopus | | | | |
| | Leuctra inermis | | | | |
| | Leuctra nigra | | | | |
| | Limnebius | | | | |
| Group B | Limnephilidae | 1 | | 2 | |
| Group B | Limnephilus | | | | |
| Group C | Limnius volckmari | | | | |
| Group C | Limnophora | | | | |
| | Limoniidae | | | | |
| Group C | Lumbricidae | 5 | | | |
| Group C | Lumbriculidae | | 1 | | |
| Group D | Lymnaea | | | | |
| Group D | Lymnaea peregra | | | | |
| Group D | Lymnaea stagnalis | | | | |
| | Lype | | | | |
| | Lype phaeopa | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Lype reducta | | | | |
| Group A | Margaritifera | | | | |
| | Megaloptera | | | | |
| | Mesophylax | | | | |
| | Mesophylax impunctatus | | | | |
| | Metalype fragilis | | | | |
| Group C | Micronecta | | | | |
| | Micropterna | | | | |
| | Micropterna lateralis | | | | |
| | Micropterna sequax | | | | |
| | Microtendipes | | | | |
| Group C | Microvelia | | | | |
| | Molanna albicans | | | | |
| | Muscidae | | | | |
| Group C | Mysis | | | | |
| | Mystacides | | | | |
| | Myxas glutinosa | | | | |
| Group E | Naididae | | | | |
| | Nais | | | | |
| Group C | Nebrioporus | | | | |
| Group C | Nematoda | | | | |
| Group C | Nematomorpha | | | | |
| Group A | Nemoura | | | | |
| | Nemoura avicularis | | | | |
| | Nemoura cinerea | | | | |
| Group A | Nemouridae | | | | |
| | Nemurella picteti | | | | |
| Group C | Nepa | | | | |
| Group C | Nepidae | | | | |
| | Neureclipsis bimaculata | | | | |
| | Neuroptera | | | | |
| | Niphargus | | | | |
| | Noterus | | | | |
| Group C | Notonectidae | | | | |
| | Ochthebius | | | | |
| Group B | Odonata | | | | |
| Group B | Odontoceridae | | | | |
| | Oecetis | | | | |
| Group E | Oligochaeta | 1 | | | |
| | Oligotricha striata | | | | |
| | Omphiscola glabra | | | | |
| Group C | Orectochilus | | | | |
| | Oreodytes | | | | |
| | Orthotrichia | | | | |
| Group C | Oulimnius tuberculatus | | | | |
| Group B | Oxyethira | | | | |
| Group C | Palpicornia | | | | |
| Group B | Paraleptophlebia | | | | |
| Group B | Paraleptophlebia cincta | | | | |
| Group C | Pedicidae | | | | |
| Group A | Perla | | | | |
| Group A | Perla (One generation) | | | | |
| Group A | Perla (Two generations) | | | | |
| Group A | Perlodidae | 1 | | | |
| | Phacopteryx | | | | |
| Group C | Philopotamidae | | | | |
| Group C | Philopotamus | | | | |
| | Philopotamus montanus | | | | |
| Group B | Phryganea | | | | |
| | Phryganea bipunctata | | | | |
| | Phryganea grandis | | | | |
| Group B | Phyrganeidae | | | | |
| Group D | Physa | | 6 | | |
| Group C | Piscicola | | | | |
| Group D | Pisidium | | | | |
| Group C | Planaria | | | | |
| Group C | Planorbis | 3 | 7 | | |
| | Plea leachii | | | | |
| Group A | Plecoptera | | | | |
| Group C | Plectrocnemia | | | | |
| | Plectrocnemia conspersa | | | | |
| | Plectrocnemia geniculata | | | | |
| Group C | Polycelis | | | | |
| Group C | Polycelis nigra | | | | |
| Group C | Polycentropodidae | | | | |
| Group C | Polycentropus | | | | |
| | Polycentropus flavomaculatus | | | | |
| | Polycentropus irroratus | | | | |
| | Polycentropus kingi | | | | |
| | Polypedilum | | | | |

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|---|---|---|---|---|
| Group C | Porifera | | | |
| | Potamanthus | | | |
| | Potamophylax | | | |
| | Potamophylax cingulatus | | | |
| | Potamophylax latipennis | | | |
| Group C | Potamopyrgus antipodarum | | | |
| Group C | Procladius | | | |
| | Procloeon | | | |
| | Procloeon bifidum | | | |
| Group C | Prodiamesa | | | |
| Group A | Protonemura | | | |
| | Protonemura meyeri | | | |
| | Protonemura praecox | | | |
| Group C | Psychodidae | | | |
| | Psychomyia pusilla | | | |
| Group C | Psychomyiidae | | | |
| | Ptychopteridae | | | |
| | Rhagionidae | | | |
| | Rhantus | | | |
| Group C | Rheotanytarsus | | | |
| Group A | Rhithrogena | | | |
| | Rhithrogena germanica | | | |
| | Rhithrogena semicolorata | | | |
| Group C | Rhyacophila | | | |
| Group C | Rhyacophila dorsalis | | | |
| Group C | Rhyacophila munda | | | |
| Group C | Rhyacophilidae | 1 | | |
| | Scatophagidae | | | |
| | Sciomyzidae | | | |
| Group C | Scirtes | | | |
| Group B | Sericostomatidae | | | |
| Group C | Serratella ignita | | | |
| | Setodes | | | |
| Group D | Sialis | | | |
| | Sigara | | | |
| Group B | Silo | | | |
| Group C | Simuliidae | | | |
| Group A | Siphlonuridae | | | |
| | Siphlonurus | | | |
| | Siphlonurus alternatus | | | |

| | | | | |
|---|---|---|---|---|
| | Siphlonurus armatus | | | |
| | Siphlonurus lacustris | | | |
| Group A | Siphonoperla | | | |
| Group A | Siphonoperla torrentium | | | |
| Group D | Sphaeriidae | | | |
| Group D | Sphaerium | | | |
| | Stenochironomus | | | |
| | Stenophylax | | | |
| | Stenophylax permistus | | | |
| | Stictochironomus | | | |
| | Stictonectes | | | |
| | Stictotarsus | | | |
| | Stratiomyidae | | | |
| Group C | Tabanidae | | | |
| Group A | Taeniopterygidae | | | |
| | Tanypodinae | | | |
| | Tanytarsus | | | |
| Group C | Theodoxus | | | |
| Group C | Theodoxus fluviatilis | | | |
| Group C | Tinodes | | | |
| | Tinodes dives | | | |
| | Tinodes maclachlani | | | |
| | Tinodes maculicornis | | | |
| | Tinodes unicolor | | | |
| | Tinodes waeneri | | | |
| Group C | Tipulidae | | | |
| | Triaenodes bicolor | | | |
| | Tricholeiochiton | | | |
| Not Assig | Trichoptera | | | |
| Group C | Tricladida | | | |
| Group D | Trocheta bykowskii | | | |
| Group E | Tubificidae | | | |
| Group C | Uncased Trichoptera | | | |
| Group C | Valvata | | | |
| | Valvata cristata | | | |
| Group C | Valvata piscinalis | | | |
| Group C | Velia | | | |
| Group C | Viviparus viviparus | | | |
| | Wormaldia | | | |
| | Wormaldia mediana | | | |
| | Wormaldia occipitalis | | | |
| | Wormaldia subnigra | | | |
| | Ylodes reuteri | | | |
| Group B | Zygoptera | | | |
| | | | | |
| | Total | 79 | 90 | 123 |