

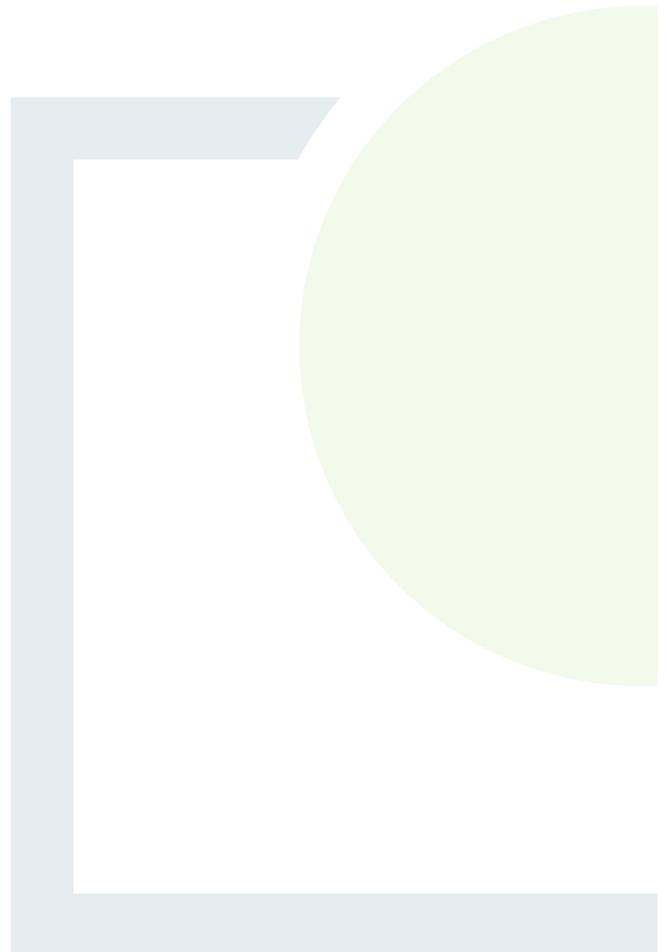


**FEHILY  
TIMONEY**

**CONSULTANTS IN ENGINEERING,  
ENVIRONMENTAL SCIENCE  
& PLANNING**

# **APPENDIX 5.5**

Freshwater Pearl Mussel  
Report





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**A Survey for the Potential Presence of the Freshwater  
Pearl Mussel (*Margaritifera margaritifera*) in  
Watercourses Downstream of a Proposed Wind Farm and  
Substation Development at Barnadivane**



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## 1. INTRODUCTION

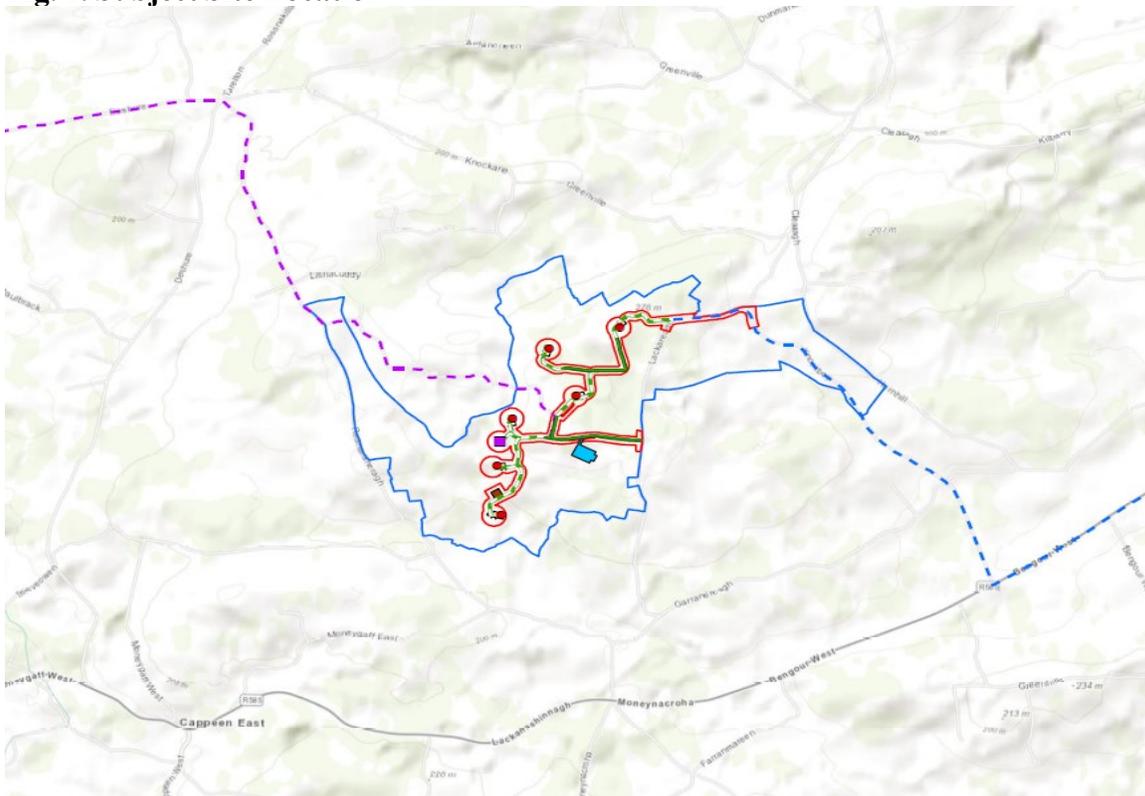
### 1.1 Background

Sweeney Consultancy was commissioned by Fehily Timoney & Company Consultants, to undertake a survey of the protected Freshwater Pearl Mussel (*Margaritifera margaritifera*) (FPM) in watercourses downstream of a Proposed Wind Farm and Substation development at Barnadivane, Co. Cork.

### 1.2 Subject Site and Watercourses

The subject site is in the townlands of Barnadivane (Kneevies) and Lackareagh (Figure 1) located SE of Teerelton village and c. SW of Kilmurry. The subject site drains to the headwaters of the Cummer River on the northwestern side and to the headwaters of the River Bride and western and southern sides (Figure 2). There are no records of FPM in either of these rivers. However, it is not known whether either of these rivers have previously been surveyed for FPM. As the first 5km is the aquatic zone of potentially highest impact from the location of the proposed development (Escauriaza *et. al.*, 2017), the main focus of the current study is on these river sections.

**Fig. 1. Subject Site Location**





## 2. METHODOLOGY

### 2.1 Desktop study

Prior to fieldwork being undertaken, satellite images were viewed to assess the terrain and bankside cover for the habitat most likely to support freshwater pearl mussel (FPM). As FPM require high dissolved oxygen levels and virtually silt-free conditions for the maintenance of a viable population, recent biological water quality results, available on the EPA website (<https://epawebapp.epa.ie/qvalue/webusers/>) were viewed. Previous records of FPM in the Rivers Cumber and Bride were sought via a Protected Species Data Request to the National Parks and Wildlife Service.

### 2.2 Field survey for FPM

Field surveys were undertaken on 29 September, 2022. Based on satellite imagery, past water quality records and accessibility, sections of the Cumber down to Warrenscourt Forest Park (ITM 53107 567239) and sections of the Bride down to the tributary confluence at the eastern corner of Knocknaneirk townland (ITM 538658 563028) were surveyed in detail (Figure 3). Grid reference of photographs were recorded using a hand-held GPS device and photographs were taken with a digital camera. The habitat quality for freshwater pearl mussels was visually assessed, based on the criteria outlined by Hastie et al. (2000) and by Skinner et al. (2003). Substrate type, degree of siltation, type of bankside vegetation and degree of shading were noted, as these factors influence the suitability of the habitat for FPM. As FPM are dependent on salmonids, particularly salmon for their life cycle, the habitat quality for salmonids was assessed, based on the criteria outlined by Kennedy (1984), Crisp (2000), Hendry *et al.* (2003) and by Bardonnnet and Baglinière (2000) for the physical instream requirements of these species for spawning, nursery and adult habitat. Direct visual observations of fish in the stream were also recorded. Licensed surveys (Licence No C56/2022) were carried out in accordance with the standard methodology (Anon 2004), by viewing the riverbed with a bathyscope while wading.



### 3. RESULTS

#### 3.1. Habitat Quality

3.1.1 Cummer R. Along the boundary between the townlands of Lackareagh and Greenville (Photo 1), the Cummer River is too small to support FPM, but trout could spawn here.

**Photo 1. Cummer River - upper section at ITM 534402 564693**



Downstream of the confluence of the tributary from the east side of Lackareagh, the Cummer becomes wider, with some open sections and access to livestock in places (Photo 2). The cobble, covered in trailing diatom masses dominate the riverbed, with some exposed bedrock. The diatom masses trap silt from livestock trampling, making open areas unsuitable for FPM.

**Photo 2. Cummer River downstream of bridge at ITM 535308 565898**



At ITM 535197 566166, the Cummer enters a section of heavy shade at the start of a conifer plantation (Photo 3). This level of shade is unsuitable for salmonids, but would be tolerated by FPM.

**Photo 3. Cummer River in heavy shade through conifer plantation**



In the vicinity of Ahagearagh Bridge, the habitat quality improves for both FPM and salmonids (Photo 4). EPA recorded Q4-5 (High Quality) here in 2020.

**Photo 4. Cummer River - Suitable FPM habitat downstream of Ahagearagh Br.**



At Warrencourt Forest Park (Photo 5), there is fast glide over clean cobble and gravel (Photo 6). This is the best potential FPM habitat encountered on the Cumber River. Good numbers of small trout were seen here.

**Photo 5. Cumber River - Warrencourt Forest Park**



**Photo 6. Clean cobble and gravel at Warrencourt Forest Park**



3.1.2 R. Bride. Upstream of the bridge NE of Moneynacrona X Rds. (534593 561463), there is riffle and glide over moderately silted cobble and gravel in mixed shade (Photo 7). The silt level would limit the suitability for FPM, but salmonids could spawn in faster flowing stretches.

**Photo 7. R. Bride - Upstream of the bridge NE of Moneynacrona X Rds.**



Approximately 1km farther downstream, there is less bankside cover (Photo 8). The stones here are coated in trailing diatom masses and filamentous algae (Photo 9). This fine plant material is trapping silt (some possibly from clearfelled forestry upstream) and thereby is making the habitat unsuitable for FPM and is also lowering the quality for salmonids.

**Photo 8. R. Bride – little bankside cover.**



**Photo 9. Trailing diatom masses and filamentous algae laden with silt.**



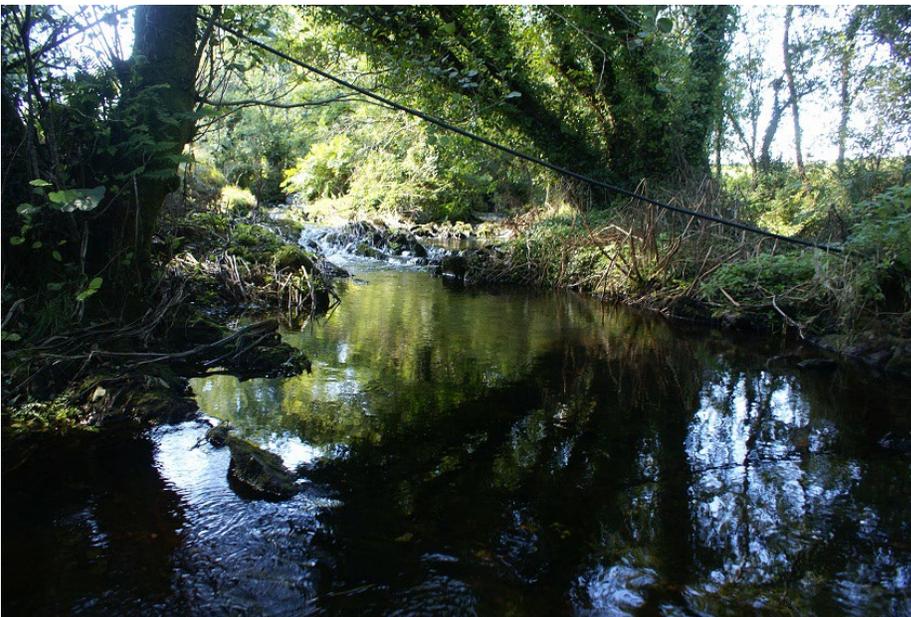
Downstream of the bridge at ITM 536920 562082, conifers along the southern bank provide shade for most of the day (Photo 10), resulting in less algal growth and improving the habitat quality for FPM and salmonids.

**Photo 10. R. Bride – shade from trees along southern bank at midday.**



From 100m upstream of Hornhill Bridge (Photo 11) to just downstream, there is mainly bedrock, with some small cascades.

**Photo 11. R. Bride – upstream of Hornhill Br.**



From c. 100m downstream of Hornhill Bridge to the eastern corner of Knocknaneirk townland, there is riffle and fast glide over cobble, gravel and some sand in mixed shade. This is the best potential FPM habitat encountered on the River Bride.

**Photo 12. R. Bride – downstream of Hornhill Br.**



### **3.2. Freshwater Pearl Mussel Population**

No mussels were found in this survey in either the Cummer or the Bride and there are no records of FPM anywhere in either of these rivers on the NPWS database.



## APPENDIX 1

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