

## **Appendix**

### **18.3 Underwater Archaeology Impact Assessment**

PROJECT:

# Ballina Flood Relief Scheme Underwater Archaeological Impact Assessment (UAIA)

Licence No.: 22D0081, 22R030

Townlands: Carrowcushlaun West, Ballina, Mullauns and Abbeyhalfquarter, Quignamanger, Rathmeel, Knocknalyre Quignashee, Quignalecka, Rathkip, Ardnaree/Shanagh, Abbeyhalfquarter, Commons, Rathans, Kilmoremoy, Ardoughan and Laghtadawanagh

Site type: River (including river bank and underwater)

Location: E 524565.13m, N 818673.99m

Archaeological Director: Julianna O'Donoghue

Report Author: Caitlyn Haskins and Julianna O'Donoghue

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## Abstract

RPS Consultants Ltd. engaged *Mizen Archaeology* to undertake an underwater archaeological impact assessment (UAIA) of a proposed OPW flood relief scheme that will run through the town of Ballina in Co. Mayo. There are a number of recorded archaeological monuments and architectural heritage sites within close proximity to the proposed development, and the Moy River has produced a quantity of prehistoric artefacts. *Mizen Archaeology* completed a desktop study supported by a site inspection and detailed underwater survey.

## Summary

There is a long history of flooding in Ballina town primarily when water levels are high during tidal extremes and when weather events, such that are now occurring more frequently, also increase water levels and water flow. The consultants employed by Mayo County Council have identified that there is an inadequate conveyance capacity in the small stream channels and associated culverts, along with their discharge capacities into the River Moy during times when the river is in flood. A number of potential flood relief/protection measures were considered and assessed for Ballina Town and these are now being proposed for a programme of works.

Through the planning consultation process, the National Monuments Service recommended that an Underwater Archaeological Impact Assessment (UAIA) of the riverbed be undertaken as part of the overall cultural heritage assessment of the proposed works. The UAIA involved in-river dive survey, wading survey and walk-over surveys of the shallow streams and accompanying metal detection survey of the river channel of the River Moy.

The results of the survey confirmed known cultural heritage features, such as the historic quays, weir and bridges, potential for wreck material based on known records, while also identifying previously unknown underwater heritage including a possible weir and archaeological objects. The identifiable impacts have been addressed with recommendations made for archaeological mitigation relevant to the scale of those impacts.

## Acknowledgements

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# 1. Introduction

## 1.1 General

This report details the results of an Underwater Archaeological Impact Assessment (UAIA) of Ballina Flood Relief Scheme in Ballina town, Co. Mayo (Figure 1). RPS Consulting Engineers engaged *Mizen Archaeology* to undertake the UAIA. *John Cronin and Associates* carried out the terrestrial aspects of the archaeological impact assessment (AIA).

An Underwater Archaeological Impact Assessment (UAIA) of the riverbed covering the areas where impact will take place and those where there is a potential for impact by the proposed development as identified in Figure 2 was undertaken. The UAIA comprised a riverine dive survey and metal detection survey of the river channel of the River Moy as well as a visual and in-stream survey of the relevant tributaries of the Moy. The UAIA was licenced by the National Monuments Service (NMS), Department of Housing, Local Government, and Heritage under the National Monuments Acts 1987-2014:

- 22D0081 Dive Licence that covered the underwater survey;
- 22R030 Detection Device Consent that covered the use of the hand-held metal detector for that survey.

## 1.2 Description of Scheme

Ballina town has a long history of flooding. The main sources of flooding are high-water levels from the River Moy and the inadequate conveyance capacities of the small stream channels and associated culverts, along with their limited discharge capacities into the River Moy during times when the river is in spate.

The aim of the Proposed Scheme is to protect the community of Ballina from flooding. The preferred design option includes in-stream works in four watercourses: River Moy, Quignamanger Stream, Bunree Stream, Brusna River, and Tullyegan Stream.

Work has also been planned for the Knockanelo Stream, which empties into the River Moy both upstream and downstream of Lower Bridge. At present, these works have been decoupled from the scheme and will be pursued at a later date. As such, they were not included in the range of the UAIA.

Watercourse	Location	Description of works
River Moy	Pedestrian Bridge to Salmon Weir	New flood walls
	Barretts Street	Proposed storm water pumping station
	Ridge Pool	New flood walls Tanking of the Weir Building Additional access to the river Repairs to the quay wall as necessary Proposed storm water pumping station
	Cathedral Road	Raised plaza to act as flood defence incorporating public realm elements.
	Emmet Street	Rebuild existing wall Replace existing railings with combination of new flood wall and glass wall
	Clare Street/Howley Terrace	New flood walls Accessible access at existing angling area Proposed storm water pumping station
	Bachelors Walk	New flood walls Proposed storm water pumping station
Quignamanger Stream	Existing diversion culvert	New culvert
	Existing open reach	New flood walls Lowering of existing LBW Baffle/stepped pool at D/S reach of drainage channel
	Outfall to River Moy	New culvert crossing of Quay Road and replacement of downstream culvert with open channel



Bunree Stream	Existing culverts and open reaches along Behy Road from Behy Business Park to N59	New culvert
	Existing culvert downstream of N59 I public open space	Replace existing culvert with open channel  Regrade channel bank where possible to achieve a stepped/more gentle slope
	Field Bridge	New culvert
Brusna River	Rathkip/Shanaghy Area	Flood walls and embankments
	Bridge Crossing	Beam to act as flood defence  Replacement of scour protection including bank retaining walls as required
Tullyegan Stream	Between N26 and railway crossing	Flood walls and embankment

### 1.2.1 River Moy

#### *Ridgepool Road and Bank at Ballina Hotel/Apartments*

Instream works may be required to allow for the replacement of the quay walls that run parallel to Ridgepool Road. This will be accomplished by the installation of cofferdams constructed using 1-tonne sandbags or similar (Figure 3). The instream works footprint will extend approximately 5m from the existing quay wall on Ridgepool Road. Instream working areas will be limited to 50m lengths at any one time in this area. The maximum instream works footprint along Ridgepool Road is approximately 1,320m<sup>2</sup>. The majority of works should be able to be completed from the roadside, limiting the need for instream works.

The walls along Ridgepool Road will need to be cleaned to complete a detailed structural assessment of the walls. These works will be completed in advance of detailed design.

Instream works will be required for the opposite bank (at Ballina Manor Hotel/Apartments) to allow for the installation of flood walls (Figure 4). This will be accomplished by the installation of a stone ramp in front of the Weir building and warehouse to provide access to the Otters Lodge apartment building upstream of the warehouse. A cofferdam will also be constructed upstream of the ramp to allow for safe working conditions in this area. The stone ramp will be

constructed from large rock or rock filled bags (filled with washed stone). Access to this area will be via the area in front of the Ballina Manor Hotel/Apartments and through to the front of the IFI building. Machinery and material will need to be craned in from the Upper Bridge. The maximum instream works footprint along this bank of the river is approximately 2,300m<sup>2</sup>.

Additional channel improvements were identified through consultation with IFI (Figure 5). IFI habitat specialists provided a preliminary proposed plan for the instream enhancement within Ridgepool. This will involve the reshaping of the existing deflector (or 'groyne') located near the Ballina Arts Centre to promote habitat improvement in this area.

#### *Emmet Street*

There are no instream works proposed along Emmet Street. All works will be done along the roadside. A containment area by way of hanging or standing scaffold will be placed along the river side of the existing wall during the works.

#### *Bachelors Walk*

The majority of works along Bachelors Walk will be completed without the need for instream works, with exception of section from the Lower Bridge to Rope Walk Lane (approximately 100m) (Figure 6). Historical modifications have resulted in a line of large boulder rip-rap reinforcement, set a distance up to 2.5-3.5m out from the wall, which has developed into a wild riparian flood berm. This berm area will be utilised for construction works with a cofferdam installed outside the berm to facilitate works. The instream works footprint will be a maximum of 500m<sup>2</sup>.

Temporary sandbag cofferdams may be used to dry out the berm area for flood wall construction on the berms.

Further along the berm widens and, as such, no instream works are anticipated to be required for works in the section from Rope Walk Lane to Arbuckle Row.

#### *Cathedral Road*

There are no instream works proposed along Cathedral Road. All works will be carried out from the riverbank.

### *Clare Street*

There are no instream works proposed along Clare Street. All works will be done within the riverbank.

### 1.2.2 Quignamanger Stream

The majority of works in the Quignamanger consist of the replacement of the existing diversion culvert and as such are not instream works (Figure 7). Any instream works will be undertaken during low flow conditions and water will either be diverted, or over-pumped.

Some regrading of the existing streambed will be required to allow the installation of the diversion culvert and the upgraded culvert crossing Quay Road. The instream works footprint is approximately 200m<sup>2</sup>.

The proposed instream works for the Quignamanger Stream are as follows:

- In stream works at the head of the diversion culvert to facilitate tie in to the Quignamanger Stream and existing main channel culvert.
- Instream works to facilitate the tie in of the upgraded diversion culvert to the drainage area. Instream works will be minimal to facilitate the tie-in and will include minimal regrading of the stream bed.
- Lowering of the inner wall running along the open channel within the drainage area to facilitate the flooding along the left bank of the stream. Works can be done during the diversion culvert tie-in and can be accessed from the left bank to avoid instream works.
- Replacement of culvert under Quay Rd to a box culvert, including some regrading to accommodate a stepped structure (baffling) to improve fish passage).

Existing culvert downstream of Quay Rd will be removed to allow for open channel discharge to River Moy.

### 1.2.3 Bunree/Behy Rd. Stream

Along the Bunree/Behy Road Stream existing open channels will be culverted as part of the Proposed Scheme (Figure 8). The culvert downstream of the N59 at Moyvale Park, which causes a constriction to flood flows, will be removed and the open channel in this section reinstated. Instream works will be undertaken during low conditions and water will either be diverted, or over-pumped. The instream works footprint in 900m<sup>2</sup>.

#### 1.2.4 Brusna River

The majority of works along the Brusna River will be completed without the need for instream works (Figure 9).

The existing bridge has bank and bed scour protection extending 6m upstream and downstream of the respective bridge parapet faces. The existing bed scour protection is comprised of a conglomerate of concrete and cobble/gravel, which has eroded in the mid-channel.

The existing protection will be replaced in a like for like manner. In stream works will be restricted to July through September. The instream works footprint is 300m<sup>2</sup>.

#### 1.2.5 Tullyegan Stream

Construction of the walls along the Tullyegan Stream will require some instream works (Figure 10). A temporary cofferdam or piped flume may be required. The instream works footprint is 900m<sup>2</sup>.

### 1.3 Topography, geology, and hydrology<sup>1</sup>

Soils and subsoils comprise man-made ground, deep and well-drained mineral soil derived from mainly basic parent material, Limestone Till (Carboniferous) (TLs) and Mineral Alluvium soils adjacent to waterbodies. These dominate the area of the proposed flood relief scheme.

The bedrock geology of the scheme area is composed entirely of Ballina Limestone Formation. The entirety of the scheme area is located within a Regionally Important Aquifer-Karstified (RK) plain. High groundwater vulnerability dominates the area as a whole, though an area of moderate groundwater vulnerability covers the southeast.

The main surface waterbodies within the scheme area are the River Moy and Moy Estuary. The Tullyegan, Garrankeel, Brusna and Quignamanger watercourses all flow into the River Moy (SAC) in the scheme area. The River Moy flows in a northwardly direction joining the Moy Estuary within the scheme area. The waters of the Moy Estuary then flow northwards into Killala Bay.

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<sup>1</sup> Please refer to Ballina Flood Relief Scheme Constraints Study (pgs. 14, 45-58) for more detailed discussions on the natural characteristics of the area.

## 2. Archaeological and Historical Background

Ballina is considered a seaport town and, though some 15.2km from Killala Bay to the north, it has relied on the River Moy to link it in trade and commercial riverine activity throughout the centuries. It was expanded as a garrison town in 1723 by O'Hara- Lord Tyrawley, and Irish officer in the British Army. It has, however, a much longer history, as attested to by its ancient monuments dating back to the prehistoric period, as well as continuous settlement evidence up to the later post-medieval period. Sites include Belleek Castle, which has its foundation in the 13<sup>th</sup> century but was held by the Gaelic O'Bourke lords in the 16<sup>th</sup> and 17<sup>th</sup> centuries. From the Medieval period, both the early castle foundation as well as the Augustinian Friary, built around the same time, indicate a significant focus on their location beside the Moy and its importance to settlement, trade and transport. Certainly, the preponderance of historic buildings and protected structures within the town proper and its surrounding landscape, which includes large demesnes like Belleek Estate on the left- or western- bank of the Moy, provides the evidence for the expansion and industrial development of Ballina from the 18<sup>th</sup> century onwards, when the quays, mills and bridges were built. Central to Ballina's importance through time was the River Moy and its tributaries. The Moy enabled Ballina to become a thriving market town from the 16<sup>th</sup> century onwards.

### 2.1 Prehistory

There is evidence for human presence and water usage along the courses of the Moy River since prehistoric times. The Irish Mesolithic (8000BC - 3900BC) is characterised by fishing and other resource usage within coastal, estuarine and riverine environments. The rich riverine and lacustrine resources around and along the Moy would have provided a wealth of fish, wild fowl, and wild boar, as well as a plethora of seasonal fruits, edible roots and plants. Archaeological evidence for Mesolithic hunter- gatherer-fisher groups is meagre but, significantly, a single flint microlith, recovered during an archaeological excavation in Tonybaun townland, Ballynahaglish parish in Mayo (south of Ballina), close to the western bank of the River Moy, attests to the presence of humans and riverine activity at that time.

Further evidence for early human activity along the River Moy came from an area near Foxford, to the southwest of Ballina, with the recovery of stone axeheads. The Topographical Files in the National Museum of Ireland (NMI) record at least seven stone axeheads from that area, the majority of which were found in the River Moy. At least four of these had their provenance upstream of Foxford Bridge. Stone axeheads were in use in Ireland from the Mesolithic through

to the Bronze Age. Large quantities of axeheads have been found in Irish rivers especially at former fording points, where at least some are thought to have been ritually deposited. Ballina itself hints at this potential for retaining riverine archaeology – its name in Irish being *Béal an Átha* or ‘Mouth of the Ford’, clearly referring to a major crossing point and one of such importance that it gave its name to the town itself. The bridge crossings in the Moy at Ballina therefore, or the stepping stones as indicated on the OS 1<sup>st</sup> Ed map across the River Brusna, (Figure 26) would be high priority locations for further finds such as those near Foxford.

The first people to settle and farm the general area date to the Neolithic period, some 6000 years ago. These first farmers cleared space in the forests, built houses, shaped the land, fished and migrated along rivers using dugout canoes as their means of travel, with the rivers being the main conduits for such movement. There are three megalithic tombs (MA030-052001 unclassified Megalithic tomb; MA030-059... Court Tomb and the national monument site of the unclassified Megalithic Tomb MA030-073) within a 2 km radius of the proposed development from this period. Several enclosures may also date to this period.

Bronze objects recovered from the River Moy, again near Foxford- including a sword, axe heads, palstaves, and a knife- provide evidence for continued settlement activity during the Bronze Age (2500BC – 700BC) in the wider area. The presence of four fullachta fiadh sites (MA030-098; MA030-099; MA030-101 and MA030-105) to the immediate northwest of the town of Ballina are indicative of the presence of our human ancestors in the area during the Bronze Age, and further evidence for this provided by a monument to the northeast of Ballina – which is a ring barrow (MA030-093).

## 2.2 Medieval Period

The archaeology of the Early Medieval Period in Ballina and its environs is exemplified by ecclesiastical enclosures (including churches and graveyards/burial grounds) and ringforts. The Augustinian friary and graveyard (MA030-0074001; MA030-074003), immediate to the Upper Bridge within the town and which lies beside St Muredach’s Cathedral, is perhaps the site in closest proximity to the proposed works within the Moy River itself. Remains of Belleek/Belleek-Moy Castle (MA030-055), on the western bank of the Moy to the north of the town centre, are, for the most part, now gone, though some upstanding remains may be incorporated into a later brick building. Constructed on the hill overlooking the Moy and directly opposite its confluence with the Brusna River (the castle commanded the location on the bend of the river), the fortification dates to the 13<sup>th</sup> century and was a Barrett stronghold. It was taken by the Bourkes

in the 15<sup>th</sup> century, fell to the English and was used as a garrison for a short while, but was regained by the Bourkes in the late 16<sup>th</sup> century. It finally fell to Sir William Fenton in 1630 (Figures 11, 13-16 provide locational details for the RMP and SMR sites)

## 2.3 Post-Medieval Period

The Post-Medieval period is well represented within the proposed FRS area. Recorded monuments include bridges and a gatehouse (MA030-056001 Bridge and MA030-056002 Gatehouse at Bridge, these being Lower Bridge within the town) and St Muredach's Cathedral, built in the early 19<sup>th</sup> century, along with Belleek Manor and Ballina House. The latter two encompass two of several estates within the immediate environs of Ballina with significant demesne features, registered as Protected Structures, along with associated weirs and salmon fishery infrastructure (e.g. icehouse).

*Table 1: RMPs within 500m of site boundary for the River Moy survey area. See Figures 11, 13-16 for map locations.*

RMP Record No.	Type	Townland	Approx. distance from Site boundary
MA030-038---	Enclosure	Quignalecka/Quignamanger	20m E
MA030-039---	Enclosure	Quignalecka/Quignamanger	30m E
MA030-055	Castle - unclassified	Ballina	800m NNE c 70m NW
MA030-056001	Bridge	Abbeyhalfquarter-Ballina	0
MA030-056002	Gatehouse	Abbeyhalfquarter-Ballina	0
MA030-074001	Religious house-Augustinian Friars	Abbeyhalfquarter	60m E
MA030-074003	Graveyard	Abbeyhalfquarter	60m E
MA030-074002	Building (within Abbey)		50m E

*More expansive details are given in Appendix 1.*

*Table 2: NIAH entries within the site boundary for River Moy survey area (see Figure 12).*

NIAH Reg. No.	Description	Approx. distance from Site boundary
31204105	Bridge Lower Bridge (1830 – 1840)	0
31204106	Quay/wharf Emmet Street quay (1830 – 1840)	0
31204104	Bridge Upper Bridge (1830 – 1840)	0
31204103	Weir (1807 – 1838)	0

## 2.4 The Moy and its fisheries

The River Moy's rich fishing resources have been recorded over many centuries. A map dating to 1584 of County Mayo states clearly that '... in the river of Moyne [Moy] ther is plenty of salmons' (Blake, 1908, p. 148). This resource was capitalized on by the many landlords by way of their estates, particularly that of Belleek, where fishing in the river and its tributaries was strictly patrolled. Fishing rights could be leased, with dues paid to the landlord and, in this way, they exacted extensive revenue from the fisheries in the river. From the 18<sup>th</sup> century, reports on the rich salmon stocks in the Moy were particularly noted, with 1,500 salmon caught in just one fishing expedition at the bridge and weir. On the Robert Jones estate, salmon and eel were caught along the full stretch from the castle at Belleek to the sea. Central to this was the icehouse and fishhouse at Belleek, at the fall of the River Moy, and on the River Bunree where another fish house was located. A Mr Little, of Derry, leased the fishing rights in the River Moy in 1815 where 70,000 salmon were then caught and shipped to Glasgow, Liverpool and London and which formed part of a large fishing enterprise run by Little in the northwest. The Moy at the time was noted as one of the best and most productive salmon fisheries in Ireland. (Lane, pp.144-146, 148-149).

A.E. Went, whose extensive work on the history of fishing and methods of fishing is well recognized, describes the several methods of fishing in the River Moy during the 19<sup>th</sup> and 20<sup>th</sup> centuries. This included spear fishing for salmon using a pronged and barbed fork or spearhead, and with larger forks used on the Moy compared to smaller ones within the tributaries. Bag netting were also in use, comprising a frame structure within the river from which vertical walls of netting or mesh was strung. The outer part was called a *leader*, and which directed the fish into the main body of the bag net (the *funnel*) and finally into the *head* or *trap* and could have several 'doors' through which the fish had to pass before being trapped. The structure is kept floating by means of anchors and buoys. Fly nets (also called stake nets) were also used in the Moy, but were illegal, as set out in the 1842 *Fisheries Act*. Went provides a sketch of one fly net confiscated by the Ballina Board of Conservators in 1951.

Drift nets too were in use on the Moy from the mid-19<sup>th</sup> century, being usually less than 250 yards long and were, like the other fishing methods, subject to licensing requirements from the Ballina Fisheries District. Went notes that a large portion of fish taken at his time of writing were by way of drift netting within the River Moy. Fish weirs were also used extensively during earlier



centuries, placed within the river as more permanent structures, but their use had decreased by 1930. Went notes that the weir was still in use in the River Moy, being one of only fourteen weirs then in operation across the country. Sources trace at least one weir in operation in the Moy at Ballina as early as 1633, being mentioned in the Lismore Papers of the Duke of Devonshire, but as Went states, it may well have been in use earlier than the date shown. Reports from the year 1865 list the weir in the Moy as a stone weir, 341.7 feet across the width of the river and with a gap opened of 34 feet 2 inches (Went, pp 197, 214, 229, 238-240).

## 2.5 The Moy and its wrecks

The Wreck Inventory of Ireland Database (WIID) compiled by the National Monuments Service lists 34 wrecking events for the Moy River and general Ballina area, highlighting the use of this important river through time. A full list of wrecks is given in Appendix 1, with the vessels lost ranging from fishing boats, to brigs, schooners, steamers and concrete tugboats and most dating to the 19<sup>th</sup> century. Many are recorded as lost to the seaward side of the Moy, at the bar or entrance from the sea but several were lost at Ballina. One is that of the SS *Olive* (Wreck no. W16206) a steamship wrecked in August 1900 at the quayside. As the wreck was quayside, it was likely fully removed shortly after wrecking, to prevent obstruction of the quay and there is no reason to believe that any of the wreck remains quayside. The *Fern*, a screw steamer was lost near Ballina in December of 1881 (Wreck no. W17458).

As part of navigation improvements in 1937 Ballina Harbour Commissioners purchased a number of derelict vessels intending on sinking them to act as groynes as an aid to navigation and ensure the mouth of the River Moy remained clear. The *Floweret* (*Flowerette*; wreck no. W06731) was one of the derelict vessels purposefully sunk. The English wooden sailing boat had sailed from the UK and was either abandoned in the navigation channel or caught fire. The second record of a derelict subsequently sunk is that of the SS *Creteboom* (wreck no. W06704; Plate 1). Unlike the *Floweret*, which is located parallel to it, the *Creteboom* was an experimental concrete 270-ton steam tugboat when active, built in 1920 for the UK Admiralty. The ferro-concrete construction was due to a steel shortage during World War I. Subsequently sold to various owners including the South Stockton Shipbreaking Company in 1935, who sold it as a derelict to Ballina Harbour Commissioners two years later.

Due to its construction, it is visually impacting, standing proud of the river's surface, whereas the wooden wreck is eroded, degraded and barely visible (pl. 1). Both wrecks can be seen at low water from the quay in Ballina and Belleek Woods. When being put into position by the Harbour

Commissioners, it collided with another vessel and sank mid-channel. The Office of Public Works raised the wreck successfully in 1974 and towed to its position now opposite the woods at Belleek (Murphy 2020, p. 35).

*Table 3: NMS Wreck Viewer and Wreck Inventory data on wrecks with locations known within the River Moy within or near to the survey areas (refer to Appendix 2 for full listing of wrecks).*

Wreck No.	Description	Approx. distance from Site boundary
W06731	<i>Floweret</i> : Wooden sail boat	240m NW
W06704	<i>Creteboom</i> : ferro-concrete steam tug	240m NW
W16206	<i>Olive</i> : Steam ship	0
W17458	<i>Fern</i> : steamship	unknown

## 2.6 The Moy illustrated

Reviewing old photographs and other illustrative material can be informative on activities in the river, sites along the river and changes in the course of the river through time. In the examples presented here, the first – a view of the Moy looking towards Lower Bridge (Plate 2) – shows a small wooden clinker-built boat with two occupants within the shallows of the river, carrying pots or some similar fishing gear, loaded at the stern. Another individual stands on edge of the shingle bank. It is clear that water levels are low in the image. Two oars are visible but the person standing at the bow of the vessel is clearly using a pole to shunt the craft along the water. Depicted is a riverine scene with exploitation of the river’s resources denoted by the boat and its cargo.

The second image (Plate 3) is taken from the landward side, from the southeast looking across Ridge Pool towards the river and western bank and town of Ballina. Substantial stone-build garden walls with gateways are clearly seen on the eastern bank leading down to the shallows of the Pool and where a wooden structure is located crossing the river, either a fishtrap or possible footbridge. Upstream from that can be seen, through the trees, the weir below Lower Bridge, and with the bridge itself seen in the distance. The quays on the western bank are well-developed below the warehouses.

The third image (Figure 17) is the evocative engraving by William Henry Bartlett as published in volume II of the *Scenery and Antiquities of Ireland* (Coyne & Willis 1860, 44). This is a striking illustrative source, with the two bridges drawn and the swerving quays below Upper Bridge. The slipway and stone steps, being used by the women to wash their clothes in the river, are a social study in themselves. It can equally be considered a fishing scene, with a small wooden boat, oarsman using a pole and net case off one side, suggesting they are drifting down river. The indicated wake behind the boat and disturbance to the ducks in the river supports this. The variation in buildings is interesting, with both Irish cabin (thatched) and more formal structures shown, as well as St Muredach's cathedral without its spire, while the spire of the Abbey Church can be seen in the distance in what was then known as Old Chapel. The cathedral is without its spire. Though engraved with artistic licence this image is nevertheless informative when considering the cultural potential that it suggests – possible boat remains, fishing remains, domestic remains etc.

## 2.7 The OPW's Piers and Harbours Archive

The Office of Public Works' (OPW) unpublished archive on pier and harbour works that they scheduled or undertook from the 19<sup>th</sup> century onwards is an informative source when considering quays, jetties, ports and harbour infrastructure and how it may have been improved or changed over the last century. The following covers the River Moy:

### **Site Name** Moy Valley

1846: Memorial to improve the estuary by making suitable dykes and jetties for the contraction of the water surface, to make cuts through the shoals and crooked parts of the channel thereby strengthening and deepening the channel.

Item No. 257; reference No. OPW8/

1872: Series of dykes and training walls along River Moy.

Ref: 1712 Board of Trade, Black Series, Navigation.

1877: River Moy - Extension to private quay.

Ref: 2239A.1-3 Board of Trade; Black Series; Harbour Improvements

1891: Training walls along river.

Ref: 0676.1 Board of Trade, Black Series, Navigation.

1891: Location of salmon fishing stations along River Moy.

Ref. 4363 Board of Trade, Black Series, Fishing.

## 2.8 Cartographic Evidence

As discussed above, a map of 1584 refers specifically to the River Moy and its fisheries, with such an early source clearly highlighting the importance of the river to the local populace and as a source of economic return for those controlling its use (Blake 1908, p. 148). Ballina is depicted clearly on Taylor and Skinner's 1777 roadmaps, on routes from Dublin to Killala to Roscommon (map no. 70; Figure 18) and from Sligo to Castlebar (map no. 225; Figure 19). These maps show the town of Ballina through which runs the River Moy, with a bridge crossing the river. On the 225 map the Bunree tributary river, shown to the NE of Ballina, flows into the Moy from the east and with another bridge, Bunree Bridge, crossing it. Its depiction suggests the Bunree tributary was far more substantial than it is today, shown more open, wider and with great flow capacity and this is supported by its depiction on the OS 1<sup>st</sup> ed map of the 1830s, where the bridge is drawn as a multi-arch bridge structure. A mill is depicted on the 1770s road map, and is also on the Ordnance Survey 6-inch edition map as 'Corn Mill' and 25-inch 1880s OS map as 'Bunree Corn Mills'. It is clear with the presence of a depicted sluice that the mill relied on the Bunree River to power its operation.

The Ordnance Survey maps are also key sources when considering sites within their given landscape, and how rivers can change course through time. Earlier features can be depicted as well as how such features have also changed over the decades. The 6-inch Ordnance Survey maps, drafted in the 1830s clearly depicts the two bridges, brewery building, corn mill and salmon weir. The developing quays are also drawn on the northern bank, above the weir (Figure 20). The main town of Ballina can be seen expanding from the western bank, while Ardnaree and Abbey Old Quarter are shown on the eastern bank. The 25-inch edition informs further on features, with the mill race depicted now associated with a saw mill, the gas works and Upper Bridge named as Arran Bridge. The salmon weir is more substantial, with a foot bridge serving it

leading to Fair Green on the southern bank. Bridge House is now also shown immediate to the Lower or New Bridge on the south bank (Figure 21).

Of the other areas within the tributaries of the Moy, the 1<sup>st</sup> edition showing Quignamanger (Figure 22) is quite void of features apart from a large house and buildings, with landscaping. Quays are indicated, while the later 25-inch OS map suggests the development of the quays, with 'Quay House' indicated (Figure 23). Bunree shows a scatter of isolated houses that run along the townland boundary on the 1<sup>st</sup> edition OS map. The 2<sup>nd</sup> edition does not reveal any further development apart from a gravel pit and quarry to the south of the roadway (Figures 24 & 25).

White Bridge and a tuck mill mark the two extremes on the 1<sup>st</sup> edition OS map of the area surveys along the course of the Brusna River. Two small islands are shown within the river course north of the bridge (Figure 26). Interestingly, in the 25-inch OS map white bridge is not named and instead stepping stones are shown nearby leading to a weir. At the southern end of the survey area two fording points are drawn, connected by a path suggested by dots along the map, and the southern ford has an adjacent set of stepping stones. The possible tuck mill is still extant, though it is not named on the map (Figure 27).

The 1<sup>st</sup> and 2<sup>nd</sup> edition OS maps show little by way of change in the landscape for the Tullyegan tributary, which runs along the townland boundary, apart from the building of the railway line that runs across the watercourse from the 1880s (Figure 28 & 29).

## 2.9 Townlands and Townland Boundaries

Townlands were the smallest units of land established in the Irish administrative system in the first half of the 19<sup>th</sup> century, though most date to much earlier times and represent Gaelic-Irish land divisions, forming part of the 'Tuath' or tribal boundary set up ([www.logainm.ie](http://www.logainm.ie)). This explains their origin names in Irish, many of which are based on the early tribes in a particular area or on actions/events that took place within a given location.

There are 7 townland boundaries crossed by the proposed works. In all of these cases, the waterway within the assessment area functions as a portion of the townland boundary, with no further structural elements to define it.

## 2.10 Recorded of Protected Structures

Protected Structures are buildings, features and structures within County Mayo that are protected due to their categories of special interest as set out in Section 51 (1) of the Planning & Development Act 2000 (as amended) and Section 2.5.5 of the Architectural Heritage Protection Guidelines. Categories of special interest are defined as archaeological, architectural, artistic, cultural, scientific, social and technical.

The Record of Protected Structures (RPS) lists all protected structures and buildings in Mayo. Ballina is striking in its many protected structures, several of which are located within the footprint of the proposed works, including Upper Bridge (RPS 31204104) and weir (RPS 31204103). Lower Bridge, too, is a protected structure (RPS 31204105), as are the quays along the northwestern bank between Ballina's two main bridges (RPS 31204106) (Figure 12). All of these are within the River Moy.

## 3. Site Description

### 3.1 Location

The proposed Flood Relief Scheme (FRS) will be located primarily within the town of Ballina, Co. Mayo (Figures 2-10), and the town itself is located c. 43km northeast of Westport and c. 50km west of Sligo, on the River Moy. The proposed scheme involves several in-stream flood relief measures along the Moy and its tributaries, the primary ones being the Brusna and Bunree rivers flowing east from the Moy (Tables 4 & 5 below).

The survey area in the Moy River has a maximum length of 230m and width of 80m, and the ITM co-ordinates are tabulated below (Table 4). The Moy survey area is located in the townlands of Carrowcushlaun West, Ballina, Mullauns, Abbeyhalfquarter and the Commons.

Four tributaries of the Moy were also included in the survey (Table 5): Quignamanger, Bunree/Behy Rd., Brusna, and Tullyegan. Overall, the survey and assessment touched on the following townland areas within which were features that warranted assessment (i.e. rivers and tributaries):

Quignamanger; Quignashee; Quignalecka; Bunree; Ballina; Abbeyhalfquarter; Glebe; Commons; Carrowcushlaun West; Tullyegan; Knocknalyre; Rathkip; Behybaun; Ardnaree/Shanaghy; Mullauns; Rathmeel; Rathans (Table 5).

*Table 4: ITM co-ordinates of extent of survey area for River Moy.*

LIMIT	ITM E	ITM N
NW limit	524583.84	818780.97
NE limit	524638.31	818749.82
SW limit	524446.50	818599.08
SE limit	524539.45	818583.14
Centre	524565.13	818673.99

Table 5: Additional or secondary tributary survey locations.

Tributary	Townland	Survey start point (ITM)	Survey end point (ITM)	Approx. length of survey
Quignamanger	Quignamanger Rathmeel	525741 821174	526658 820704	1.6km
Bunree/Behy Rd.	Knocknalyre Quignashee Quignalecka	525513 819688	527229 819664	2.3km
Brusna	Rathkip Ardnaree/Shanagh Abbeyhalfquater follows townland boundary	525876 818816	526716 817836	1.6km
Tullyegan	Commons Rathans/Mullauns; follows townland boundary	523774 817621		150m

### 3.2 Statutory protections and requirements

The UAIA carried out by *Mizen Archaeology* has regard to the following national and international legislative and other protection policies and conventions:

- National Monument Act, 1930-2014, as amended
- Heritage Act, 1995
- National Cultural Institutions Act, 1997

- The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous) Provisions Act, 1999
- *Frameworks and Principles for the Protection of Archaeological Heritage*, 1999, Department of Arts, Heritage, Gaeltacht and the Islands
- *Local Government (Planning and Development) Act, 2000*
- European Convention on the Protection of the Archaeological Heritage (the 'Valletta Convention') ratified by Ireland in 1997
- Council of Europe Convention on the Protection of Architectural Heritage of Europe (the 'Granada Convention') ratified by Ireland in 1997
- International Council of Monuments and Sites (ICOMOS), advisory body to UNESCO concerning protection of sites and recommendation of World Heritage sites ratified by Ireland in 1992
- 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage, Annex Rules for best practice.

### 3.3 Sources consulted

*Mizen Archaeology* consulted the following sources for the desktop study:

- **The Record of Monuments and Places (RMP)** compiled by the Archaeological Survey of Ireland; comprises lists, classifications of monuments, and maps of all recorded monuments which are entered in the register, with known locations and zones of archaeological potential (ZAPs). The latter is an indication of the potential for further archaeology to be present around the registered monument, but is not fixed in extent. The monument records are accessible online from the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage at [www.archaeology.ie](http://www.archaeology.ie). All monuments listed in the RMP are afforded statutory protection under the National Monuments Acts 1930-2014. These were used to establish the wider archaeological context of the sites.
- **The Sites and Monuments Record (SMR)** compiled by the Archaeological Survey of Ireland; comprises lists, classifications of monuments, and maps of all recorded monuments with known locations and they too have zones of notification (ZONs) around them. The ZONs are again indicative, not just of the potential for archaeology but that require notification to be given to the National Monuments Service (NMS) under Section 12 of the National Monuments Amendment Act 1994. The SMR, similar to the RMP, is accessible online from the National Monuments Service (NMS) of the



Department of Housing, Local Government and Heritage at [www.archaeology.ie](http://www.archaeology.ie). Unlike the RMP, monuments listed on the SMR only are not afforded statutory protection under the National Monuments Acts 1930-2014 as they have not been registered but are scheduled to be so in the future.

- **Ordnance Survey Ireland (OSI)**, historic and contemporary maps, to measure the changing landscape of the River Moy, its tributaries, and the town.
- **The Excavations Bulletin** online database ([www.excavations.ie](http://www.excavations.ie)), which contains summaries of all archaeological excavations in Ireland, to review previous archaeological investigations in the area.
- **Wreck Inventory of Ireland Database (WIID)** and **Wreck Viewer**: The information contained within the WIID was gathered from a broad range of cartographic, archaeological, and documentary sources, and each entry in the Database gives information on the ship's name, type of vessel, port of origin, owner's name, cargo, date of loss, and other relevant information where available. The WIID contains some 18,000-wreck entries while the online Wreck Viewer (see [www.archaeology.ie](http://www.archaeology.ie)) contains some 4,000 entries for wrecks with known locations, both from marine and freshwater environments.
- **Piers and Harbour Works Archive** is an unpublished Office of Public Works' (OPW) archive that provides information on works to piers and harbours by the then Commissioners of Works in the late-19<sup>th</sup> and early 20<sup>th</sup> centuries in Ireland.
- **Cartography**: Examination of a number of relevant historic maps and charts (see references below for a full list).
- **Documentary sources**: Key sources ranging from journals to newspaper, published documents and books to unpublished references. For a full list of all sources, see Bibliography below.
- **Topographical files of the NMI**: This is a list with discovery details held by the National Museum of archaeological objects identified and recovered (with townland details) within the Republic of Ireland.

### 3.4 Previous archaeological work in assessment area

#### **2015:140- Cathedral Road, Ballina, Mayo**

Sites and Monuments Record No.: MA030-091

Licence No.: 15E0376

Author: Richard Crumlish

Site type: No archaeology found

ITM: E 524791m, N 818816m

Monitoring of groundworks at St Muiredach's Cathedral, Ballina, County Mayo, undertaken on 31 August 2015. The project consisted of the examination of a crypt located below the sanctuary at the east end of the cathedral. Conservation and repair works were underway on the roof and ceiling of the cathedral. The purpose of the examination of the crypt was to assess the weight-bearing capacity of this area of the cathedral to support scaffolding necessary to erect within the church for the conservation works.

The monitoring was a recommendation of Gerry Walsh, Archaeologist, Forward Planning, Mayo County Council and was deemed necessary due to the site being adjacent to a now redundant record (MA030-091) within an Augustinian Abbey (MA030-074001), an associated building (MA030-074002) and a graveyard (MA030-074003) located nearby. The redundant record referred to the present location of an inscribed stone fragment within the cathedral. It was referred to in the OS Letters as having been removed from Kilcummin graveyard (MA008-006007) and brought to 'the new Roman Catholic Chapel of Ballina'. It is believed to have been a cursing stone, known as 'Leac Cuimin', which was removed by a Father Lyons, P.P. of Kilmore-Erris.

St Muiredach's is the cathedral for the Diocese of Killala and was built by Bishop McHale, later Archbishop of Tuam, in 1829. The crypt is located below the altar at the east end of the cathedral. The car park surrounding the cathedral was constructed in 2000, while the crypt (which was not accessible) was opened in 2009. The 2009 works were carried out as there was evidence of water having seeped into the crypt and it was decided to remove the remains of a number of clerics, including a former Bishop of Killala, Thomas Feeny, who reposed there. An exhumation licence was sought and the remains were removed under the supervision of HSE officials. No archaeologist was present during these works.

An area of the car park, centrally located along the east gable of the cathedral, measuring 3.1m north-south, 1.5m wide and 1.25m deep, was excavated in order to access the crypt. Below the tarmac on the surface, was quarried stone. Below the quarried stone was fill. Below the fill was peat, which was just visible at the base of the excavated area. The fill contained modern artefacts, two service ducts and one cut and dressed block.

The crypt was blocked up with concrete blocks, which were removed to allow access. The crypt measured 8.2m north-south, 1.4m wide and 0.62-1.3m high. Three east-west orientated metal

bars, used to hold coffins, were visible just inside the opening with one (empty) metal coffin located just south of the opening, resting on one of the metal bars. No human remains were in evidence.

Nothing of archaeological significance was uncovered. Nothing visible during the groundworks pre-dated the construction of the cathedral in the early 19th century.

**2008:867- Ballina-Crossmolina, Mayo**

Sites and Monuments Record No.: N/A

Licence No.: 07E0796

Author: Terry Connell, Archaeological Consultancy Services

Site type: No archaeological significance

ITM: E 524855m, N 818888m

Monitoring of trenching associated with the installation of a gas pipeline by Bord Gáis Éireann was carried out from and including the town of Ballina to the south-western outskirts of the town of Crossmolina from August 2007 (Excavations 2007, No. 1214) and is ongoing. The pipeline extends through the townlands of Rahans, Commons, Ballina, Abbeyhalfquarter, Ardoughan, Laghtadawannagh, Gorteen, Coolcran, Cloonglasney, Knockanillaun, Ballymanagh, Fairgreen, Knockadangan, Garraunard and Gortnalyer. The pipeline is located within the zones of archaeological potential associated with several monuments. The trench ranges from 0.45-0.95m in width and has a maximum depth of 1.2m. All works to date were carried out along public roads within previously disturbed areas. Trench fills included sands and gravels and other construction fills. Undisturbed subsoil was also occasionally encountered. No archaeological features were exposed during monitoring of this section of pipeline.

**2006:1402- Ballina, Mayo**

Sites and Monuments Record No.: N/A

Licence No.: C127, E2019

Author: Sue Zajac, Ballina Civic Offices

Site type: No Archaeological Significance

ITM: E 524479m, N 819049m

Monitoring for the Ballina main drainage scheme took place adjacent to a national monument, a megalithic tomb (unclassified), in the south-east sector of Ballina town. A sewage pipe was placed in the road beside the monument, though at a much lower level than the archaeological

remains. All soil levels above subsoil had been previously removed by road construction and nothing of archaeological significance was uncovered.

**2008:866- Station Road, Balla, Mayo**

Sites and Monuments Record No.: N/A

Licence No.: 08E0584

Author: Dominic Delaney

Site type: Possible fulacht fiadh

ITM: E 524084m, N 818347m

Pre-development testing was carried out as part of an assessment for proposed works at Station Road, Balla, Co. Mayo. Six parallel test-trenches were excavated throughout the site. Towards the west end of Trench 2 a spread of burnt stone and charcoal was encountered within a peat layer. This deposit extended for 8m along the line of the excavated trench. It was truncated by a later linear feature which ran east–west and was backfilled with sand. Immediately to the west of this area there was a concentration of unburnt, well-rounded stones.

**1998:489- Garrankeel**

Sites and Monuments Record No.: N/A

Licence No.: 98E0214

Author: Donald Murphy, Archaeology Consultancy Services Ltd

Site type: 19<sup>th</sup>-century tree ring

ITM: E 525868m, N 821188m

Archaeological assessment was carried out at Garrankeel, Ballina, Co. Mayo, in advance of a proposed industrial development. The site consisted of two low banks at right angles to each other, identified in the course of an Environmental Impact Statement.

Two trenches were excavated. Trench 1, 3.5m x 1m, was placed across the eastern bank. Sod was found to overlie naturally derived gravel, which overlay natural, yellow/brown boulder clay. No trace of a ditch was recovered, and the interior contained a layer of stony, brown clay in which were two iron handles of a bucket of probable 19<sup>th</sup>-century date. The feature appears to be a 19<sup>th</sup>-century tree ring, built as part of Belleek Castle demesne.

**2007:1244- Quignalecka**

Sites and Monuments Record No.: N/A

Licence No.: 07E0627

Author: Martin Fitzpatrick, Arch Consultancy Ltd

Site type: Mound

ITM: E 525767m, N 819774m

Testing was undertaken for the National Monuments Division, Department of Environment, Heritage and Local Government, on the site of a possible archaeological monument at Quignalecka on the outskirts of Ballina town in Co. Mayo. It came to the attention of National Monuments that a possible archaeological feature was located in the area of a proposed residential development for which planning permission had been granted. The feature consisted of a roughly circular, flat-topped mound (13m in diameter) located on high ground to the immediate west of the N59 Sligo–Ballina roadway. Prior to testing, in June 2007, the land to the immediate north, south and west of the mound had been reduced in level by some 3–4m as part of the construction work associated with the development.

Testing at the site involved the manual excavation of two trenches through the mound. Trench A was orientated roughly east–west and measured 13m in length and 1.5m wide. Trench B was orientated north–south and measured 6m in length. Testing uncovered stones on top of what appeared to be a natural rise. The removal of these stones in the centre and east revealed a centrally placed large flat stone surrounded by a mixed layer with much charcoal. The presence of the large flat stone and associated charcoal indicated that the mound was of archaeological interest. Testing also revealed a ditch feature in the north which may have circled the mound. Finds from the topsoil included glass, modern ceramic fragments and iron nails; however, a flint fragment and a scraper were discovered from the area of the ditch. The testing concluded that the mound represented an archaeological monument.

#### **2008:926- Rathkip, Mayo**

Sites and Monuments Record No.: N/A

Licence No.: 08E0305

Author: Angela Walla, Connacht Archaeological Services

Site type: No archaeological significance

ITM: E 526891m, N 818209m

Testing was carried out in advance of development for a single dwelling and associated services at Rathkip, Ballina. The site lies in close proximity to the marked location for MA030–076, an enclosure. The enclosure is no longer clearly visible on the ground and it would seem from cartographic evidence and site inspection that the site has been levelled during construction of

an adjacent dwelling. There was a possibility that a portion of the enclosure survived within the footprint of the eastern portion of the proposed development. Eleven test-trenches were excavated within the footprint of this development. No archaeological finds or features were uncovered during testing on this site.

**2003:1298- Ballina-Foxford Road, Stage 1 (Rathconeen/ Ballynaraha/ Carrowntreila/ Ballynahaglish/ Drumreevagh/ Tonybaun)**

Sites and Monuments Record No.: N/A

Licence No.: 03E0271

Author: Richard Gillespie

Site type: Monitoring

ITM: E 523940m, N 817912m

Full topsoil removal in advance of the construction of the N26, Ballina-Bohola road, Stage I, at Carrowntreila, was monitored for Mayo County Council. This section of the road consisted of a 4.5km-long corridor located immediately south of Ballina town. Two main archaeological sites, a fulacht fiadh (No. 1310 below, 03E0802) and a corn-drying kiln, were newly identified and excavated during the course of the scheme.

The kiln was situated on the south-east-facing slope of a large drumlin less than 100m to the south-east of the enclosure SMR 39:79 (No. 1324 below, 03E0896). It consisted of a stone-lined keyhole-shaped cut which had five distinct fills. Collapsed elements of the stone lining were interspersed through these fills. The kiln was orientated north-west/south-east. The north-western extent of the structure, the bowl, was virtually complete, while the south-eastern limit was disturbed. The bowl was subcircular in plan, measuring 0.7-0.8m in internal diameter at its base, widening to 1m internal diameter at the top, with a maximum depth of 0.58m. The flue extended from the bowl in an east-south-east direction. The flue lining survived to a length of 1.4m, culminating at the fire-spot. Samples from the kiln have been submitted for radiocarbon and palaeoenvironmental analysis. For additional areas tested as part of this scheme, see licence numbers 03E0650 and 03E0895 (Nos 1304 and 1323 below).

**2020:001- Abbey Street, Ballina, Mayo**

Sites and Monuments Record No.: N/A

Licence No.: 20E0006

Author: Richard Crumlish

Site type: No archaeology found

ITM: E 524752m, N 818732m

The test excavation of a site in advance of its development at Abbey Street in Ballina, County Mayo, was carried out on 20 January 2020. The project consists of the demolition of three terraced two-storey dwellings and the construction of three new dwellings and associated site works. Testing was carried out in response to a Request for Further Information by Mayo County Council and was necessary as the proposed development was located within the constraint for a medieval abbey (MA030-074001).

The site contains a number of derelict two-storey dwellings at the end of a terrace to the rear of which is a line of derelict outbuildings and an overgrown yard. No features of archaeological significance were visible within or in the immediate vicinity of the site. Two test trenches were excavated in the one area of the site which was accessible, i.e, the yard. The trenches measured 7m and 2.5m long respectively, 1.6-2m wide and 2-2.55m deep.

Testing revealed evidence of 19th/20th-century activity at the site, in the form of topsoil, which had accumulated naturally over the past few decades. This overlay modern fill, which appeared to have been laid down earlier in the 20th century, above cobbles and a mortared rubble and red brick wall, which probably dated to the 19th century, above peat, above natural subsoil. A scan of the spoil from the trenches with a metal detector revealed modern artefacts only, none of which were retained. Nothing of archaeological significance was in evidence. Due to the small area tested compared to the entire site area it was recommended that all groundworks associated with the development be monitored.

## 4. Assessment Methodology

*Mizen Archaeology* carried out the underwater archaeological impact assessment of the riverbed and areas within the tributaries due for impact or with the potential for impact by the proposed development. The survey methodology comprised archaeological wade and dive survey (visual and search) and hand-held metal detection. Both were under licence as approved by the National Monuments Service, Department of Housing, Local Government and Heritage.

### 4.1 Objective

The objectives of the UAIA are:

- to ascertain the character, condition and extent of any archaeological areas, features or objects likely to be affected by the proposed works, including any associated temporary works, and the likely impact of the proposed works on these remains;
- to accurately locate these archaeological areas, features or objects and document the findings in documented and map/digital format;
- to describe same and discuss their likely provenance;
- to recommend appropriate measures for the avoidance of these remains or, where this cannot be achieved;
- to recommend measures to mitigate the impact of the works;
- to incorporate all the above into a report to inform the flood relief project.

#### 4.2 Dive/Wade survey and inspection methodology

As identified in the Constraints Study<sup>2</sup>, the known and potential impacts on the underwater heritage may include the following:

- Impacts from the construction of new quay walls on earlier river banks, earlier quay structures, etc.;
- Downstream of Bachelor's Walk in-river works will be needed temporarily to enable the construction of the quay walls;
- Certain in-river works may be required to assist with the reinforcement of the walls at Ridge Pool Road.

In the River Moy,, a survey was carried out the riverbed from the weir to immediately downstream of Upper Bridge, as in-river works will likely be required in this area. Furthermore, this particular stretch of water is hazardous following spells of heavy rainfall. Therefore, it was decided to advance this element of the assessment while the river levels were low. Further areas of survey may be required in the Moy River and its tributaries after completion of additional modelling by the design team.

*Mizen Archaeology's* four-person dive team comprised Julianna O'Donoghue, Caitlyn Haskins, Sarah Madden, and one support diver. The archaeological team undertook the underwater dive survey from the riverbank. All of the divers are qualified to HSE accredited diving parts III and IV and hold HSA-accredited dive medical certification. Diving operations complied with SI No 254

<sup>2</sup> Ballina Flood Relief Scheme Constraints Study (pg. 1; RPS Group).



of 2018 *Safety, Health and Welfare at Work (Diving) Regulations 2018/2019*. In order to maximise coverage of the site weighted lines were laid on the riverbed at 3m intervals and the dive survey was conducted along 1.5m transects.

Underwater metal detection, using a Minelab Excalibur II device, formed a specific part of the survey within the outlined area of the Moy River (Figure 30). The survey covered the entire area and the assessment provided a quantitative estimation of the amounts of ferrous and non-ferrous objects in the area that have potential for impact by works for the scheme. The channel along the eastern side of the survey area was too swift-moving to permit safe diving

The UAIA recorded all features and objects of archaeological/cultural heritage significance and potential, and included a description, photographic record and GPS position. A Trimble GPS with mm accuracy and Canon DSLR camera with underwater housing were also utilised. The survey recorded a number of aspects relating to the general setting, including river width, depth, flow direction and visibility, bottom type and height of banks.

Wading surveys were undertaken in the other tributaries of the Moy apart from the Brusna, where in-water survey was carried out.

## 5. Results

### 5.1. River Moy

The Moy River flows roughly southwest to northeast through the survey areas. The current was swift throughout, but especially so within the channels. The waterway was 0.6m to 1m deep along its western side at the time of survey. The channel along the eastern side of the survey area was too swift-moving to permit safe diving. The riverbed comprised small to medium cobbles with coarse sand, with occasional bedrock ridges (Plate 25). An array of objects were identified, including: cans, broken glass bottles, sherds of post-medieval pottery, fishing debris, animal bone and modern metal debris (Plates 13-15; UCH016; Appendix 4). Cultural heritage assets identified within the Moy are listed below in Table 7. These are the sites listed in the NIAH register of protected structures, including the weir (UCH013), bridges (UCH012 & UCH015) and quays (UCH014). Also noted in the cartographic sources and of heritage interest is the townland boundary UCH011.

### 5.2 Ridge Pool

The Ridge Pool is bounded to the southwest by the weir spanning the river (UCH013; Plates 5 & 10), and to the north by Upper Bridge (UCH012; Plates 7, 8, 21 & 22). Upper Bridge comprises

five elliptical arches of equal size, with 34 voussoirs and a keystone with no distinguishing features (Plates 7 & 21). The piers display rounded cutwaters. It is constructed of coursed dressed stone blocks, with eleven visible courses. The parapet coping comprises large, horizontally laid stones, with 2 iron lamps set on top of it on either side of the bridge. The south-eastern bridge abutment joins the bridge and the quay wall at a roughly 45° angle (Plate 8). The abutment comprises ashlar blocks, with a notable batter. There is a rounded cutwater where the abutment wall meets the eastern arch of the bridge.

The western bank of Ridge Pool is a modern embankment. A stone wall, c. 0.40m high runs from the bridge to the first set of steps, with a moderately sloped grass bank rising away from it. From there are several sets of stone steps, the first southward set being located at a steep stone and concrete embankment, rising to c. 1.2m above the waterline at the time of survey. Southward of a second set of steps, the embankment gradually slopes down into the water, towards the weir. From this point onward, buildings form the line of the western bank. All of these set of stone steps are modern editions of the late 20<sup>th</sup>/early 21<sup>st</sup> century.

The south-western extreme of the survey area ends along the line of the Salmon Weir. The riverbed in this location was uneven with frequent medium to large sub-rounded boulders. There were no remains of the mill race shown on the OS 25-inch edition map within the water.

At the south-eastern extreme of the survey area, the bank is comprised of boulders, rising up to road level. This boulder bank is covered in vegetation, and has outfall pipes visible at its lower extremes (Plate 10). It is surmised that the large boulders were put in place to address erosion in this area and to augment the bank area where it rises to road level. Above road level, the eastern quay wall alternates between sections of stone wall and iron railing. These sections of stone wall are 1.25m high with rounded concrete coping. The stone sections are generally c. 3m long, while the railing sections are between 5-10m in length. Generally, below this stone wall (at 0.30m below road level), the quay wall is formed by concrete with re-bar reinforcements, measuring from about 1m-1.4m high. However, at the southern end of the survey area, the same stone construction at the upper portion of the quay wall extends downwards to the base.

Below the concrete (at 1.4m below the road level), the quay wall comprises stone blocks and is in a poor state of repair, missing stone, heavily covered by vegetation, and bulging outward in places, notably downstream of the metal culvert cover. At the time of the survey, the waterline

was at 2.25m below the road level. A large metal culvert (c. 1.5m across) cover is visible in this lower portion of the wall up to 0.80m above the water line, while further drains enter at the southern end, close to the weir. These two drains enter from an angle to the southwest, extending c. 2m into the stream, and are constructed of concrete.

The overall construction of the quay wall changes c. 30m upstream of the bridge, where a stone wall of apparent earlier construction leads up to the bridge abutment (Plates 4 & 12). This wall section comprises roughly squared, dressed stone and topped with a rounded concrete and stone coping (0.30m high). The stone wall is 0.15m wider than the coping, stepping out from it to the west. The wall is highly vegetated and is bonded with eroded lime mortar. It rises towards the north to reach the height of the bridge abutment (3.55m above the water line). A modern pipe is visible in the wall face. A culvert (c. 1m x 1m) empties into the Moy at the base of this wall section, currently sitting atop a narrow, vegetated bank.

### 5.3 Bachelors Walk

Lower Bridge bounds Bachelors Walk to the south. The western downstream abutment of Lower Bridge is set at an oblique angle to the bridge. It comprises ashlar blocks set to courses, with nine courses visible at the time of survey. The parapet wall comprises larger ashlar blocks in three courses, with large, flat rectangular stone blocks used as coping. Both the abutment and the parapet utilise concrete mortar. The stringcourse between the two is raised to a slight relief. The arches of the bridge are constructed of red brick, without distinct voussoirs. The abutment slopes downward to the northwest and contains the exit to the Knockanelo culvert, as described below (UCH010; Plate 16).

Knockanelo stream enters the Moy through two culverts, located upstream and downstream of Lower Bridge. The culvert upstream of Lower Bridge is located c. 20m from the bridge and outside of the assessment area. The downstream culvert enters the Moy through a small arch in the north-western abutment of Lower Bridge (UCH010). The archway was visible to c. 1m above the waterline at the time of survey, and was c. 3m wide. The top of the archway was 2m below the coping of the parapet, while the springing of the arch was 0.40m above the water line. The arch was defined by 22 voussoirs of dressed stone, with a central keystone with no distinguishing features.

The western bank, along Bachelor's Walk, is a gently sloping vegetated silt bank, rising up to 0.80m above the water line and being up to 2m wide (Plates 18 & 19). The stone quay wall over the bank is in poor condition, being highly vegetated with stones missing along its length. It comprises roughly squared stones, which have not been set to courses. The coping comprises large, squared stones averaging 0.35m wide x 0.48m long x 0.25m thick. The mortar is concrete. The quay wall slopes down from where it meets the bridge abutment to the south (3.24m high) towards the bank (2.42m high), and has a slight batter.

Located c. 120m northwest of Lower Bridge, there is a set of stone steps (UCH20; Plate 20)) providing access to the bank. The walling around the steps (to the southwest and southeast) is of the same construction as the quay wall. The steps themselves comprise single stone slabs, which are worn and in a poor state of repair, with several having fallen from their original position. The steps, as with the wall elsewhere, are overgrown.

## 5.4 Moy River Tributaries

### 5.3.1 Quignalecka/Quignamanger stream

The stream is culverted for the majority of its length. It enters a concrete culvert at the southeast, where the entrance was not accessible due to rough vegetation and over-growth (Plate 26-32). Towards the northwest end of the survey area, the open stream is visible for c.100m. Here the water level was extremely low at the time of the survey, with parts of the streambed more or less dried out. A stone-built wall follows the majority of the southern bank. It is 3.5m high, covered in vegetation, and comprises roughly squared stones set to courses with concrete mortar (Plate 29-31). Where the stone-built wall ends, the south bank is gently sloping and highly vegetated, rising to 0.40m high and continuing as the river bends towards the south. The northern side comprised a modern stone retaining wall, measuring 1.4-1.6m high, for the entirety of the open stream. The open stream is 0.90m wide and 0.40m deep on average. The streambed comprised silt over large boulders. The stream passes through a culvert under a road to the west, before exiting into the Moy River (Plate 32). No features or objects of archaeological potential were identified during the wade survey, though the townland boundary intersects the confluence of the Moy with the Quignamanger stream (UCH001).

### 5.3.2 Bunree/Behy Road stream

The stream in this survey area is mostly culverted with some open sections (Plates 33-39), though two culverts identified were of earlier stone construct and thus are being attributed a

heritage value (UCH005 & UCH006; Plates 40 & 41). At the western end, the stream exits the culvert beyond the end of the survey area. In total there are nine culverted areas, between 5.5m and 415m in length, and eight open sections of stream, between 10m and 135m in length. Where the stream enters the survey area at the eastern end, it enters a concrete culvert entrance. About 155m to the west, the stream exits the culvert through an intact stone culvert (UCH005).

The stone culvert (UCH005; Plate 41) comprises rough squares stones (0.20 x 0.23m to 0.30 x 0.45m) with a lintel stone (0.64m x 0.09m) and a single red brick (0.06 x 0.11m), possibly from a repair. At least three types of mortar are present, indicating multiple repairs or alterations to the culvert, though all types contain cement. The interior width is 0.33m and height is 0.37m. The stream depth as it exits the culvert is 0.07m. The banks to the west of the culvert appear reinforced with stones, possibly taken from the culvert itself, and are visible in the bank up to 4m away, where a field drain empties into the stream from the south bank.

As the stream continues to the west there are frequent open sections of stream, with smaller culverted sections. There are possible stone lintels from stone drains visible by the entrance to a house.

Prior to the westernmost, culverted end of the survey area, there is a 20m stretch of open stream with steep to vertical, straight banks, 1.3m high, which are undercut in places. It contained a significant amount of modern rubbish. The stream enters this section from a concrete culvert, with a 0.60m diameter, from the east and exits through a concrete drop culvert with a concrete apron surrounding the opening. Boulders cross the stream c. 2m from the west end and may have been placed to function as a trash screen. The streambed comprises coarse sand and gravel. The watercourse is 0.50m wide and 0.25m deep at a maximum.

The western c. 415m of the survey area is entirely culverted, entering through the aforementioned concrete drop culvert and exiting beyond the western end of the survey area through a large concrete culvert.

Between the long stretches of culverted areas at the eastern and western ends of the survey area, the open stream passes through several modern culverts of shorter lengths (5.5-50m long) to provide access and frontage for fields, as well as commercial and domestic properties. The open sections of stream have steep to vertical, straight banks, averaging 1.3m high, undercut in

places and were generally overgrown. The stream contains a significant amount of modern rubbish and the streambed itself generally comprises coarse sand and gravel. The watercourse averages 0.50m and 0.25m deep a maximum, at the time of survey.

All of the culverts in this middle section are of modern construction. However, possible stone lintels from an earlier stone culvert are visible along the bank to the immediate west of one of the domestic access roads (UCH006). At least three possible collapsed lintels were visible under a covering of vegetation, measuring an average of 0.40m long x 0.60m wide x 0.04m thick. No lintels were identified to the east of the domestic access. It is possible these stones are the remains of an earlier access at the location, which was damaged and mostly removed to accommodate the present access.

### 5.3.3 Brusna River

The river runs through the area from southeast to northwest with a moderate to strong current. The bed comprised river-rolled cobbles and coarse sand with occasional large sub-rounded stones, with riverweed throughout (Plate 42). There were inclusions of modern debris (camping chair, aluminium cans) and construction debris (brick, tiles; Plate 43). The banks were undercut, with the north-eastern bank rising 0.60m and sloping away steeply, and the southwestern bank rising to about the same height before sloping away moderately. The slope of the southwest bank increases to near vertical in the northern end of the survey area (Plate 44).

At the southeast end of the survey area was an unnamed modern road bridge, which appears to be located at the site of a ford shown on the 25-inch edition map. It is supported by a single concrete pier. The 25-inch edition map shows another fording point and stepping stones c. 15m upstream from the location of this bridge, beyond the survey area. A modern concrete culvert opened into the river from the north-eastern bank, 47m downstream of the bridge.

The average depth of this section of river was 0.5m. The river remained shallow until c. 20m downstream of the bridge where there was a man-made drop of c. 0.30m and 0.12m in width. There was re-bar visible in the construction of the drop, indicating this as a feature of relatively recent construction.

Downstream of the slipway, towards the Shanaghy Heights Bridge, the river is an average of 0.40m deep, with a central channel of 0.80m deep. There were the remains of a possible weir located c. 15m upstream of the bridge (UCH007). The remains comprised large boulders roughly aligned across the stream, creating a drop of c. 0.30m. There was no evidence that any more

formal weir structure was located there. It is likely that this feature was put in place in the mid-to late-20<sup>th</sup> century, as it does not correspond with the 25-inch edition map, and may have been an attempt to control water flow associated with fisheries or with the construction of the Shanaghy Heights Bridge.

The 25-inch edition map shows a weir c. 25m downstream, which would have crossed the river at a west-northwest to east-southeast angle, with a set of stepping stones c. 20m further upstream. However, the remains of both of these seem to have been cleared after the release of the 25-inch OS map, possibly at the time of the construction of the Shanaghy Heights Bridge.

No other features were noted within the Brusna river within the survey area running between both bridges. Some very modern debris was encountered but not retained, including part of a number plate, modern tiles and iron gate fixing (Plate 43).

*Table 6: Main structures in the River Brusna*

Feature	Location (ITM)	Description
Shanaghy Heights Road Bridge	526512m, 818402m	Modern construction, largely concrete. No piers.
Road Bridge	526815m, 818069m	Modern bridge, supported by a single concrete pier.
Modern Drop	526802m, 818088m	Man-made drop located c. 20m downstream of bridge. 0.30cm high. Constructed of concrete and re-bar.
Slip	526706m, 818203m	Modern slipway of cobble and concrete construction. Not visible on either OS maps.
Possible Weir remains UCH007	526519m, 818389m	Located c. 15m upstream of Shanaghy Heights Bridge. Rough alignment of large boulders across the stream with a drop of 0.30m.

#### 5.3.4 Tullyegan

This survey area is defined by a railway bridge to the west and road bridge to the east. The eastern end of the survey has near vertical banks, c. 3m high, which are heavily overgrown. The stream is 0.35m deep on average and 3-3.5m wide. The streambed is silty, with a slow flow from west to east. Inclusions of modern rubbish are visible along the streambed (Plates 45 & 46). The townland boundary (UCH009) runs parallel to the survey areas in Tullyegan.

Table 7: Underwater Cultural Heritage (UCH) identified within the survey areas.

Underwater Cultural Heritage (UCH) No.	Waterway	Townland	ITM	Description
001	Moy River/ Quignamanger stream	Quignamanger	525729m, 821173m	Quignamanger townland boundary with Moy River
002	Bunree/ Behy Rd.	Quignalecka/ Knocknalyre or Downhill	525709m, 819618m to 525952m, 819585m	Quignalecka/Knocknalyre or Downhill townland boundary
003	Bunree/ Behy Rd.	Quignalecka/ Ballyholan	526282m, 819551m to 526369m, 819559m	Quignalecka/Ballyholan townland boundary
004	Bunree/ Behy Rd.	Ballyholan/ Quignashee	526369m, 819559m to 526700m, 819556m	Ballyholan/Quignashee townland boundary
005	Bunree/ Behy Rd.	Ballyholan	526545m, 819550m	Stone culvert
006	Bunree/ Behy Rd.	Ballyholan	526295m, 819549m	Possible remains of stone culvert
007	Brusna River	Abbeyhalfquarter / Rathkip	526455m, 818680m to 526543m, 818349m	Abbeyhalfquarter/Rathkip townland boundary
008	Brusna River	Rathkip	526519m, 818389m	Possible remains of weir



009	Tullyegan	Commons/ Behybaun	523710m, 817636m to 523871m, 817648m	Commons/Behybaun townland boundary
010	Moy River	Ballina	524819m, 819029m	Stone culvert
011	Moy River	Ballina	524818m, 819029m	Ballina townland boundary with Moy River
012	Moy River	Ballina/ Abbeyhalfquarter	524611m, 818770m	MA030-056001 Bridge NIAH Reg. No. 31204104
013	Moy River	Ballina/ Abbeyhalfquarter	524512m, 818600m	NIAH Reg. No. 31204103 Weir
014	Moy River	Ballina	524676m, 818887m	NIAH Reg. No. 31204106 Quay (Emmet St.) and Lower Bridge St. Quay
015	Moy River	Ballina/ Abbeyhalfquarter	524833m, 819002m	NIAH Reg. No. 31204105 Bridge
016	Moy River	Ballina	Across Survey area	Misc. objects of bone, pottery, glass.
017	Moy River	Ballina/ Bachelor's Walk	Survey area	Stone steps; 120m NE of Lower Bridge

## 6. Catalogue of Archaeological Objects

The majority of material identified during the surveys was modern debris, including cans, folding chairs, and a number plate. The Brusna River site produced a concentration of modern construction material, including tiles and metal nosing.

The majority of the material was identified in the Moy River at Ridge Pool, where finds included post-medieval pottery sherds (including ironware, stoneware, and transfer-printed ware), sherds of glass bottles, a modern composite hinge, an animal long-bone, and a shaped wooden stick. Based on personal communication with local fisheries, the last was of the type frequently in use by local fishermen.

## 7. Discussion

The underwater archaeological assessment of the River Moy and its tributaries was successful in assessing fully via visual, metal detection, recording and analysis, the known features and identifying previously unknown cultural heritage assets within the riverine context of the survey areas. The Moy River is a substantial waterway, fast-flowing and not lending itself readily to underwater dive survey outside of the Summer season. The Brusna River too is wider and relatively deep in places but unlike the Moy, is accessible for the most part. The remaining tributaries of the Quignamanger, Bunree/Behy, and Tullyegan are streams, culverted along much of their courses, and therefore were easily surveyed by way of on-foot and in-stream wading survey.

Through a detailed desktop study, it was clear that the Moy in particular has a long history of riverine activity the cultural evidence for which can be seen by way of its weirs, quays, steps, bridges and even wrecks. Of the smaller tributaries, early mapping sources show the potential for sites such as crossing points, stepping stones and earlier bridges, though culverting of several of the tributaries has reduced the potential for such sites to be present. Cultural material in the form of post-medieval objects denoting predominantly utilitarian wares (pottery, glass bottles etc.) were identified, as was discarded material including modern metal debris and number plates. Animal bone could denote domestic usage, such as butchery, but may also simply provide evidence for natural animal loss during times of flooding events, and which have now formed part of the natural heritage within the riverine system.

The surveys informed on the potential level of impact that in-river or in-stream works will have on underwater heritage. In turn, it was possible to attribute a low, medium and high attribution to the level of perceived impact. This is set out below in Table 9 below that lists the cultural heritage assets (UCH01-UCH17) alongside the known and potential impacts for the programme of works as currently known and recommendations made based on those perceived levels of impacts.

## 8. Significance

The River Moy forms the central feature of Ballina in County Mayo. This tidal river runs through the town, defining its layout, informing on its development along its course and connecting via its historic bridges both sides of what has become a substantial thriving town, the second to Mayo's capital town of Castlebar, and with a population of some 10,000 residents in Ballina.

Perhaps the primary significant element of the River Moy is its fish resources, the focus of which continues into the present day. Unlike the fishing activity common now – primarily recreationally/tourist-based, both individually and as competitive fishing - the Moy has a historic focus on its fish reserves. Hailed as the most prolific salmon river in Ireland, its resources had very much a local use and commercial use, from the early historic period but particularly in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Under the rule of landlordism there was close regulation of the rights to fish on the River Moy, to ensure protection but also patrol the profitable exploitation of its rich salmon stocks. This activity has left its mark with fish weirs in particular indicating the manipulation of the river to manage and maximise fish numbers and passage along the course of the river.

The development of its historic quays similarly denoted the need to facilitate boating activity on the river, with trade-induced expansion beginning from the 18<sup>th</sup> century. The establishment of a cotton industry by Lord Trawley reflected a need to have riverine infrastructure in place to service the trade. This became even more so in the 19<sup>th</sup> century with goods like tobacco and snuff packaged locally, along with a general expansion of the provision trade. In particular, the processing of up to 10,000 pigs annually, along with mills to service trade in oatmeal and flour. All resulted in Ballina becoming a major port at that time and the Moy strategic to these merchant businesses.

The tributaries also fed into this domestic and commercial trade, with quays in place along the confluence of the River Brusna, and tuck mills, corn mills etc. lining the banks of several others. It is clear, from a cultural heritage perspective, that the significance of these waterways in the past is now reflected in the upstanding remains and in the potential for underwater cultural heritage remains to lie within the rivers awaiting discovery.

*Table 8 Relative significance of identified UCH.*

UCH No.	Type	In situ remains (Yes/No)	Relative significance (High/ Medium/ Low)
001	Quignamanger townland boundary with Moy River	No structural remains	Low

002	Quignalecka/Knocknalyre or Downhill townland boundary	No structural remains	Low
003	Quignalecka/Ballyholan townland boundary	No structural remains	Low
004	Ballyholan/Quignashee townland boundary	No structural remains	Low
005	Stone culvert	Yes	Medium
006	Possible remains of stone culvert	Yes	Medium
007	Abbeyhalfquarter/Rathkip townland boundary	No structural remains	Low
008	Possible remains of weir	Yes	Medium
009	Commons/Behybaun townland boundary	No structural remains	Low
010	Stone culvert	Yes	Medium
011	Ballina townland boundary with Moy River	No structural remains	Low
012	MA030-056001 Bridge NIAH Reg. No. 31204104	Yes	High
013	NIAH Reg. No. 31204103 Weir	Yes	High
014	NIAH Reg. No. 31204106 Quay (Emmet St.) and Lower Bridge St. Quay	Yes	High
015	NIAH Reg. No. 31204105 Bridge	Yes	High
016	Misc. objects of bone, pottery, glass.	Some objects were recorded by survey, but similar material may remain in situ	Medium
017	Stone steps; 120m NE of Lower Bridge	Yes	Medium

## 9. Predicted impacts and recommendations

The predicted impacts on underwater cultural heritage are primarily associated with the construction of flood defences on the quay walls at Bachelor's Walk, Clare Street, Cathedral Road and Ridge Pool Road and its opposite bank.

Similarly, in-stream works in the River Moy and the River Brusna, along with works to the culverted streams may result in impact on underwater cultural heritage.

These impacts as currently anticipated will have direct negative impacts on upstanding remains such as the quays, but could also impact earlier archaeology located behind the quays on the landward side, should works be undertaken there.

Intra-riverine works have a high potential to negatively impact through both direct and indirect influence on underwater archaeology. This could be by way of direct impact and damage to potential sites like weirs, wrecks, etc. or indirect through scouring, erosion or hydrological changes in water depths or flow intensity. This in turn can lead to erosion of features and sites or movement of archaeological objects.

Table 9 presents the known and newly identified cultural heritage assets, currently known impacts and level of perceived impacts. Also presented are the proposed recommended mitigation measures required to address considered impacts.

Table 9: List of perceived impacts and recommended archaeological mitigation.

UCH	Location	Works	Impact Description	Impact Type and Significance	Pre-construction stage <sup>3</sup>	Construction Stage <sup>4</sup>	Residual Impact and Significant after Mitigation
UCH12	Moy River-Ridge Pool; Cathedral Pool	Construction of flood wall- including cofferdam along quay wall and cleaning of quay wall for structural assessment.  Extension of accretion by 4.5m along left bank upstream of bridge.	There is the potential for a hydrological impact from the cofferdam (temporary) and accretion extension (permanent) in the river upstream of UCH12. Scour damage could be indirectly caused to the bridge piers.	Negative Indirect Moderate	Full photogrammetry record of the areas of the quay wall, including bridge abutment, which will be impacted.  Hydrological impact of accretion extension on the water flow should be considered. Design should avoid scouring impact to bridge.	Programme of archaeological monitoring	Negative Indirect Slight
UCH13	Moy River-Ridge Pool	Construction of cofferdam and works instream immediately downstream of weir. Reducing size of existing deflector alongside weir.	The instream works immediately downstream of the weir have the potential to reveal buried archaeological remains associated with the weir.	Negative Indirect Significant		Programme of archaeological monitoring	Negative Indirect Slight
UCH14	Moy River-Ridge Pool; Cathedral Pool	Construction of flood wall- including cofferdam along quay wall and cleaning of quay wall for	Cofferdam and flood wall construction works have the potential to impact on foundations of the quay	Negative Direct Significant	Full photogrammetry record of the areas of the Ridge Pool Road quay wall which will be impacted.	Programme of archaeological monitoring	Negative Direct Slight

<sup>3</sup> All proposed recommendations are subject to approval by the Office of Public Works' Project Archaeologist and the National Monuments Service.

<sup>4</sup> Ditto.

		structural assessment.	<p>wall, as works are to be carried out alongside.</p> <p>Cleaning of the quay wall has the potential to negatively impact the structure where it may already be in fragile condition.</p>				
UCH15	Moy River-Bachelor's Walk; Cathedral Pool	Construction of flood defences- facilitated by cofferdam along southern berm from Lower Bridge to Rope Walk Lane (approx. 100m)	The construction of a cofferdam to facilitate works along the berm has the potential to impact UCH15 by temporarily changing the flow of water immediately downstream of it, which may result in scouring.	Negative Indirect Moderate		Programme of archaeological monitoring	Negative Indirect Slight
UCH16	Moy River-Ridge Pool	<p>Construction cofferdam along Ridge Pool road quay wall.</p> <p>Installation of stone ramp in front of IFI building and warehouse.</p> <p>Construction of cofferdam upstream of ramp.</p> <p>Reducing size of existing reflector upstream of cofferdam.</p>	All works to the riverbed have the potential to directly impact objects similar to those found during the survey, which may be preserved within the riverbed sediment. Excavation works may damage them or remove them from their context, while works carried out above the riverbed may compress such material.	Negative Direct Significant		Programme of archaeological monitoring	Negative Direct Slight

UCH17	Moy River-Bachelor's Walk	Construction of flood defences- facilitated by cofferdam along southern berm from Lower Bridge to Rope Walk Lane (approx. 100m).  Access to works will be along the berm.	Access to the works along the berm has the potential to directly damage the steps, if they are not appropriately avoided by the site access traffic.	Negative  Direct  Moderate		Temporary fencing or barrier to be erected around the steps to avoid damage from access along the berm.	Negative  Direct  Slight
UCH07	River Brusna	Replacement of damaged bank and bed scour protection, extending 6m upstream and downstream of Shanaghy Heights Bridge.	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative  Direct  Moderate	Archaeological recording of identified features and any revealed features following clearance of vegetation.	Programme of archaeological monitoring	Negative  Direct  Slight
UCH08	River Brusna	Replacement of damaged bank and bed scour protection, extending 6m upstream and downstream of Shanaghy Heights Bridge.	There is the potential for a hydrological impact caused by the proposed changes to the riverbed and banks, which may result in scour to UCH08.	Negative  Indirect  Moderate		Programme of archaeological monitoring	Negative  Indirect  Slight
Potential for UCH16-like material	River Brusna	Replacement of damaged bank and bed scour protection, extending 6m upstream and downstream of Shanaghy Heights Bridge.	There is the potential for UCH16-like material to be preserved in the riverbed, which could be directly damaged, displaced, or works within the riverbed.	Negative  Direct  Significant		Programme of archaeological monitoring	Negative  Direct  Slight



UCH01	Quignamanger stream	Regrading of existing streambed to allow installation of diversion culvert and new road crossing.	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative Direct Moderate	Archaeological recording of identified features and any revealed features following clearance of vegetation.	Programme of archaeological monitoring	Negative Direct Slight
Potential for UCH16-like material	Quignamanger stream	Regrading of existing streambed to allow installation of diversion culvert and new road crossing.	There is the potential for UCH16-like material to be preserved in the riverbed, which could be directly damaged, displaced, or works within the riverbed.	Negative Direct Significant	Archaeological recording of identified features and any revealed features following clearance of vegetation.	Programme of archaeological monitoring	Negative Direct Slight
UCH02	Bunree stream	Existing open channels to be culverted.  Culvert downstream of N59 at Moyvale Park, to be removed and open channel reinstated.	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative Direct Moderate	Archaeological recording of identified features and any revealed features following clearance of vegetation.	Programme of archaeological monitoring	Negative Direct Slight
UCH03	Bunree stream	Existing open channels to be culverted.  Culvert downstream of N59 at Moyvale Park, to be removed and open channel reinstated.	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative Direct Moderate	Archaeological recording of identified features and any revealed features following clearance of vegetation.	Programme of archaeological monitoring	Negative Direct Slight

UCH04	Bunree/Behy Stream	Existing open channels to be culverted.  Culvert downstream of N59 at Moyvale Park, to be removed and open channel reinstated.	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative  Direct  Moderate	Archaeological recording of identified features & any revealed features following clearance of vegetation	Programme of archaeological monitoring	Negative  Direct  Slight
UCH05	Bunree/Behy Stream	Existing open channels to be culverted.  Culvert downstream of N59 at Moyvale Park, to be removed and open channel reinstated.	Culverting the open channel has the potential to impact the in-situ UCH05, which is currently located at the transition from a culvert to an open channel. It is possible that works will require the partial removal of the stone culvert.	Negative  Direct  Significant		Programme of archaeological monitoring	Negative  Direct  Slight
UCH06	Bunree/Behy Stream	Existing open channels to be culverted.  Culvert downstream of N59 at Moyvale Park, to be removed and open channel reinstated.	The open channel at this location will be culverted, which has the potential to remove any stone culvert remains.	Negative  Direct  Significant		Programme of archaeological monitoring	Negative  Direct  Slight
Potential for UCH16-like material	Bunree/Behy Stream	Existing open channels to be culverted.  Culvert downstream of N59 at Moyvale Park, to be removed	There is the potential for UCH16-like material to be preserved in the riverbed, which could be directly damaged, displaced, or works within the riverbed.	Negative  Direct  Significant		Programme of archaeological monitoring	Negative  Direct  Slight

		and open channel reinstated.					
UCH09	Tullyegan stream	Construction of flood walls, possibly requiring a temporary cofferdam.	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative Direct Slight	Archaeological recording of any revealed features following clearance of vegetation	Programme of archaeological monitoring	Negative Direct Slight
Potential for UCH16-like material	Tullyegan stream	Construction of flood walls, possibly requiring a temporary cofferdam.	There is the potential for UCH16-like material to be preserved in the riverbed, which could be directly damaged, displaced, or works within the riverbed.	Negative Direct Moderate		Programme of archaeological monitoring	Negative Direct Slight
UCH10	Moy River-Bachelors Walk	Construction of flood defences- facilitated by cofferdam along southern berm from Lower Bridge to Rope Walk Lane (approx. 100m).	The works are to be carried out immediately alongside UCH10, and may result in incidental damage.	Negative Indirect Moderate		Buffer zone of 5m recommended between UCH10 and in-stream works along Bachelors Walk. If not possible, then a temporary fence/barrier should be in place for the duration of works to prevent direct impacts.	Negative Indirect Slight

UCH 11	Moy River-Bachelors Walk	Construction of flood defences- facilitated by cofferdam along southern berm from Lower Bridge to Rope Walk Lane (approx. 100m).	There is the potential for structural remains associated with the townland boundary to exist below vegetation on the banks, which may be directly impacted by the works.	Negative Direct Moderate	Archaeological recording of any revealed features following clearance of vegetation.	Programme of archaeological monitoring	Negative Direct Slight
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## 10. Bibliography

### 10.1 Sources

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<https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=89e50518e5f4437abfa6284ff39fd640>

## 11. Illustrations

### 11.1 Site location maps



Figure 1: Geographical location of Ballina, Co. Mayo.

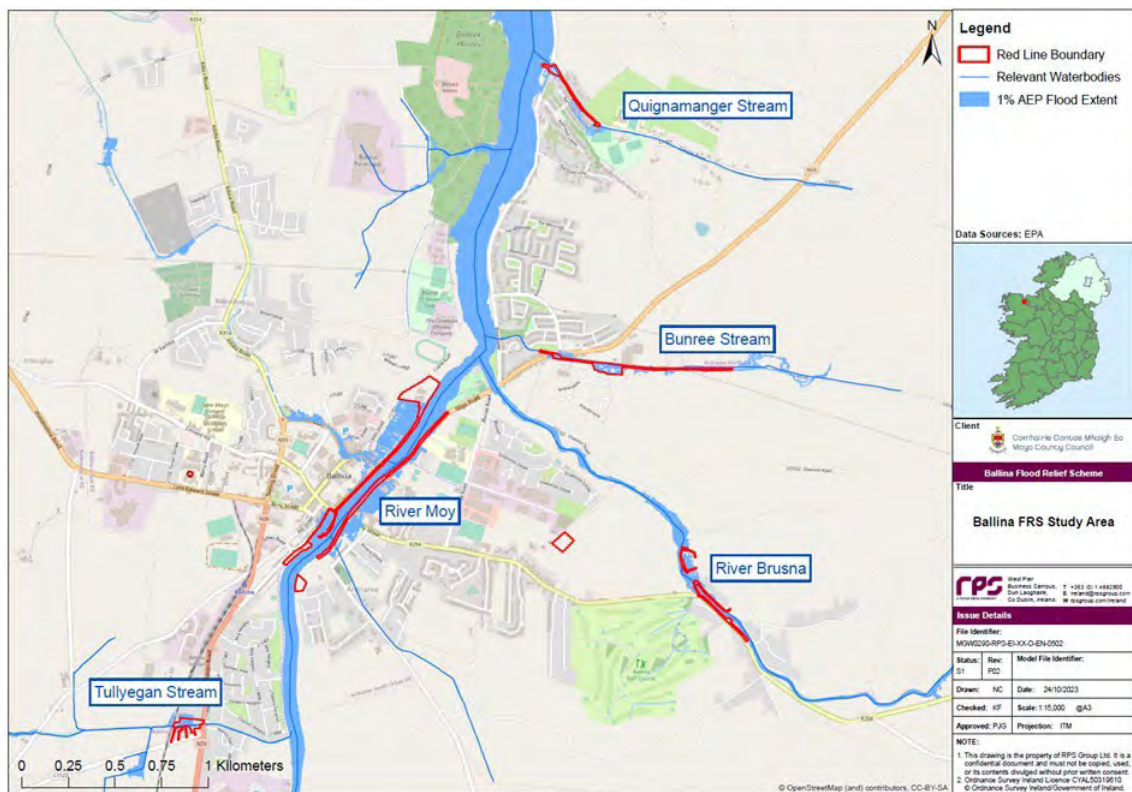


Figure 2: General location of proposed works with the River Moy and its tributaries (Courtesy of RPS).

## 11.2 Scope of Works

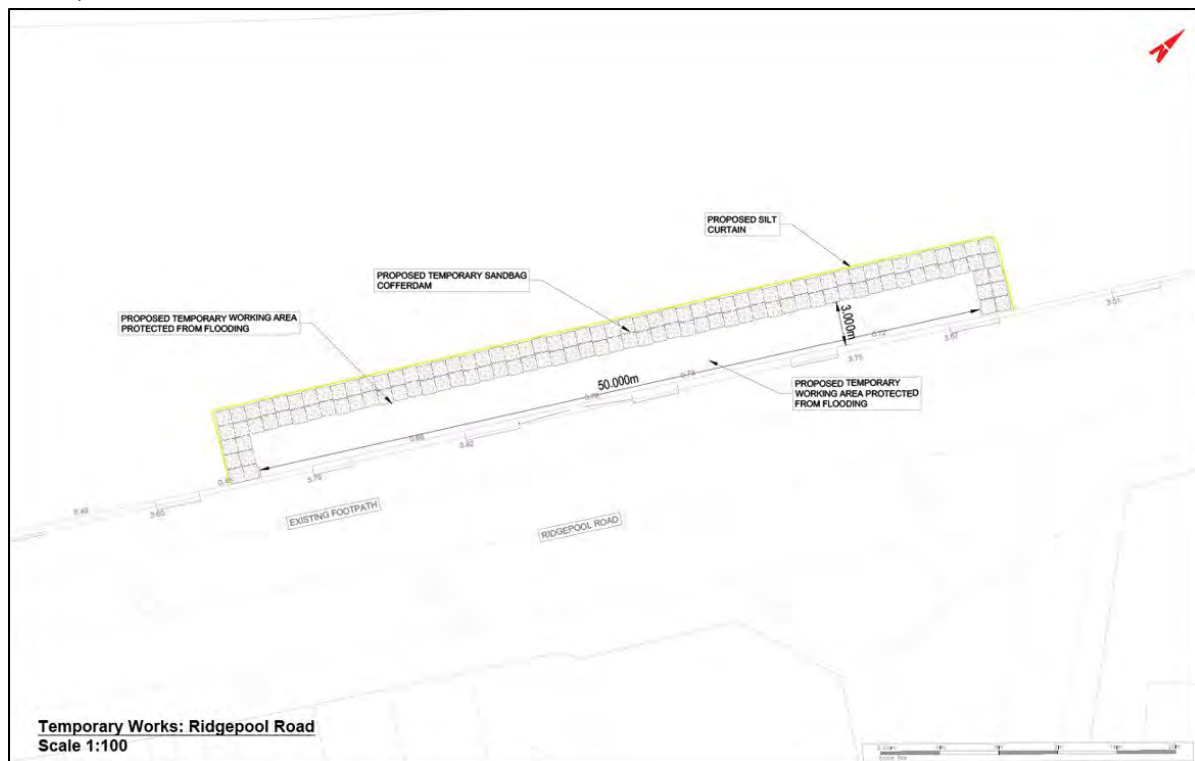


Figure 3: Proposed instream works at Ridgepool Road (Courtesy of RPS).

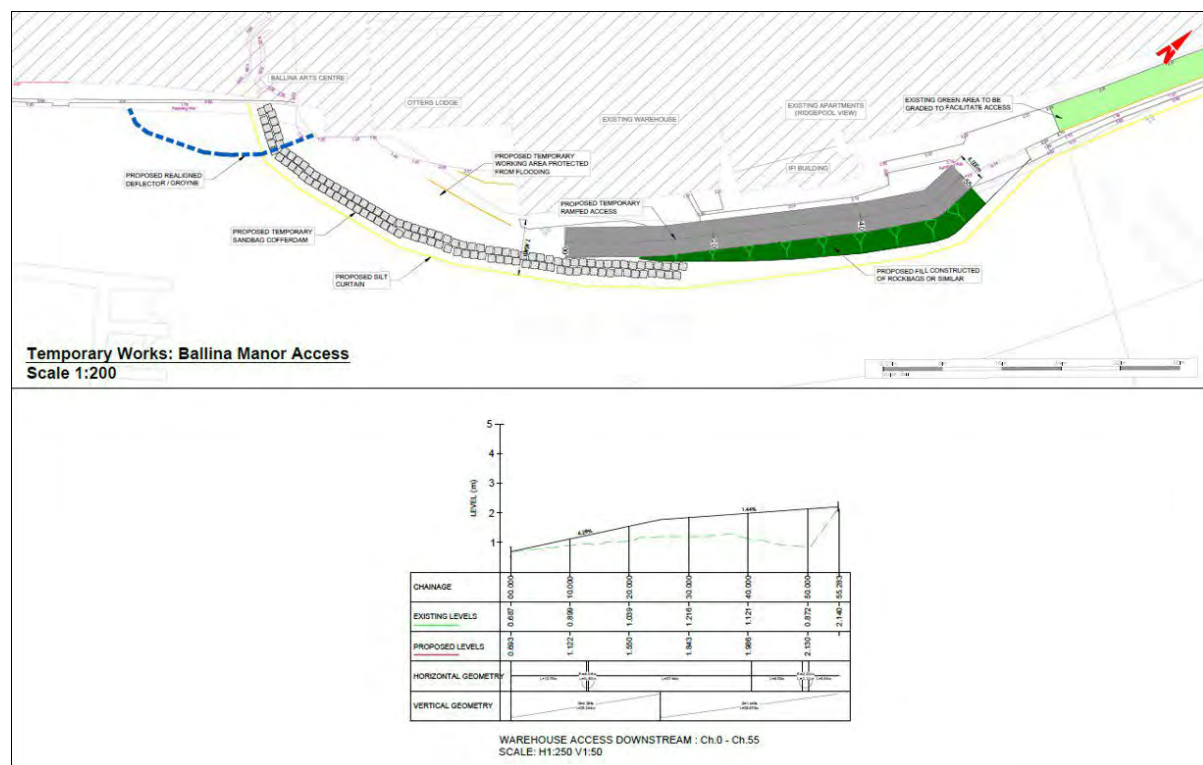


Figure 4: Proposed instream works at Ballina Manor Hotel/Apartments bank of Ridge Pool (Courtesy of RPS).





Figure 5: Proposed instream enhancement of Ridge Pool, showing reshaping of 'groyne' (Courtesy of RPS).

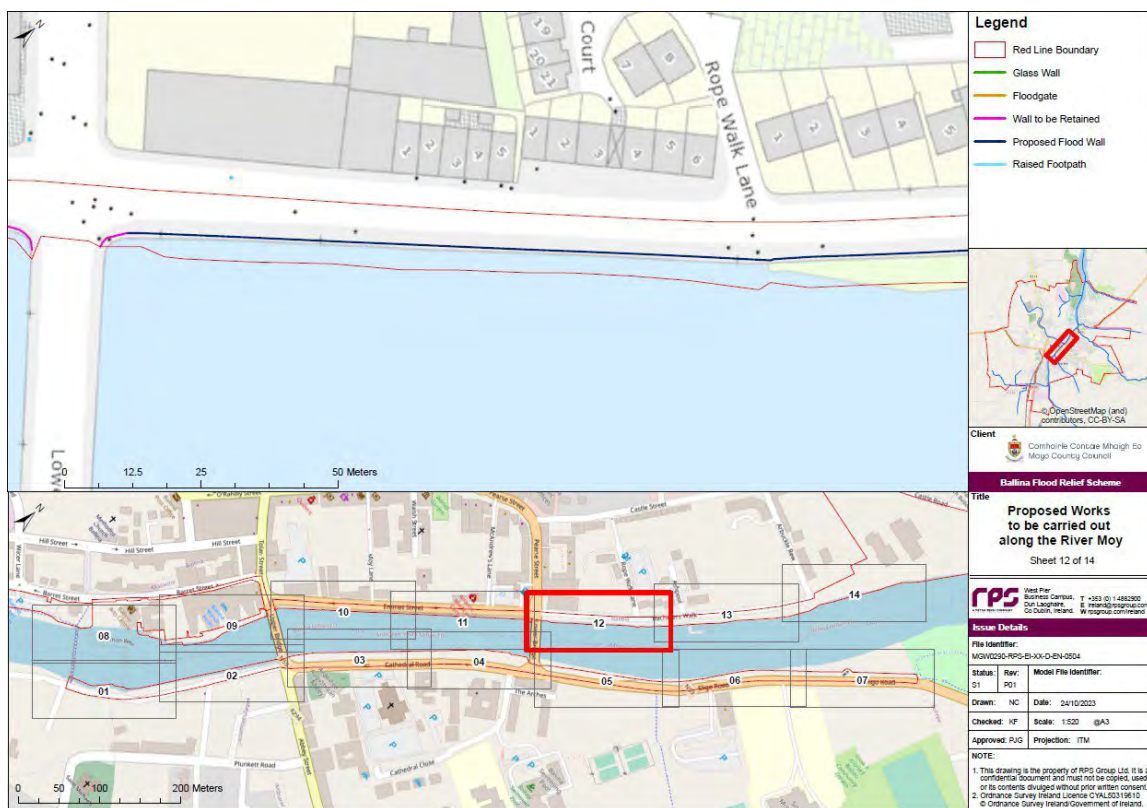


Figure 6: Proposed scope of works for Bachelor's Walk. (Courtesy of RPS).



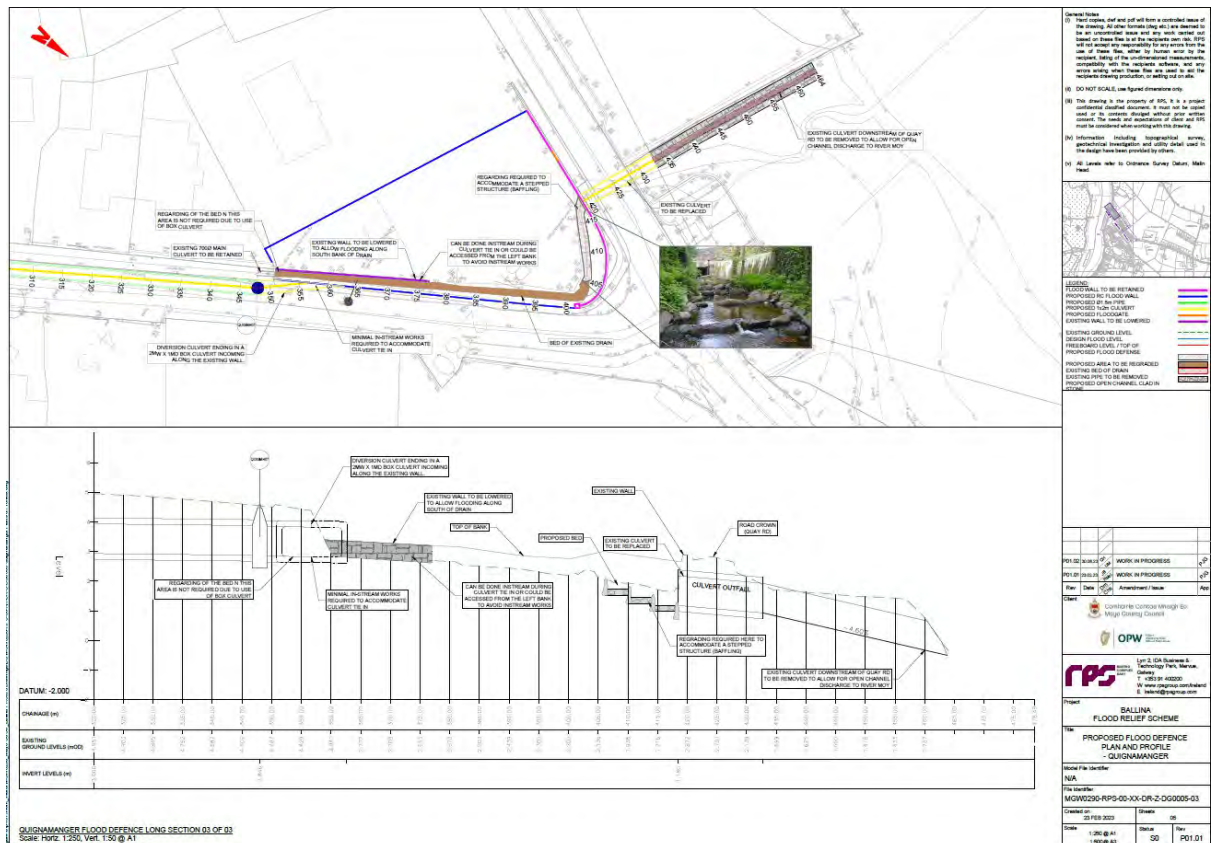


Figure 7: Proposed instream works for Quignamanger. (Courtesy of RPS).

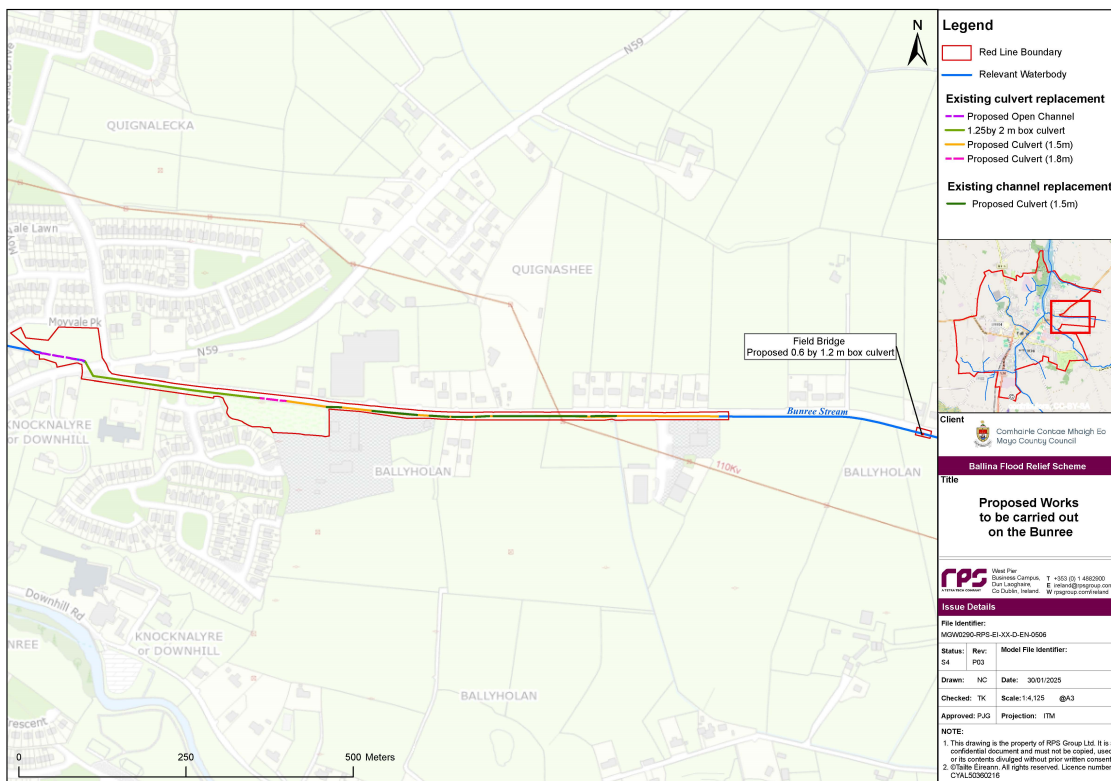


Figure 8: Proposed scope of works for Bunree/Behy Rd. stream. (Courtesy of RPS).

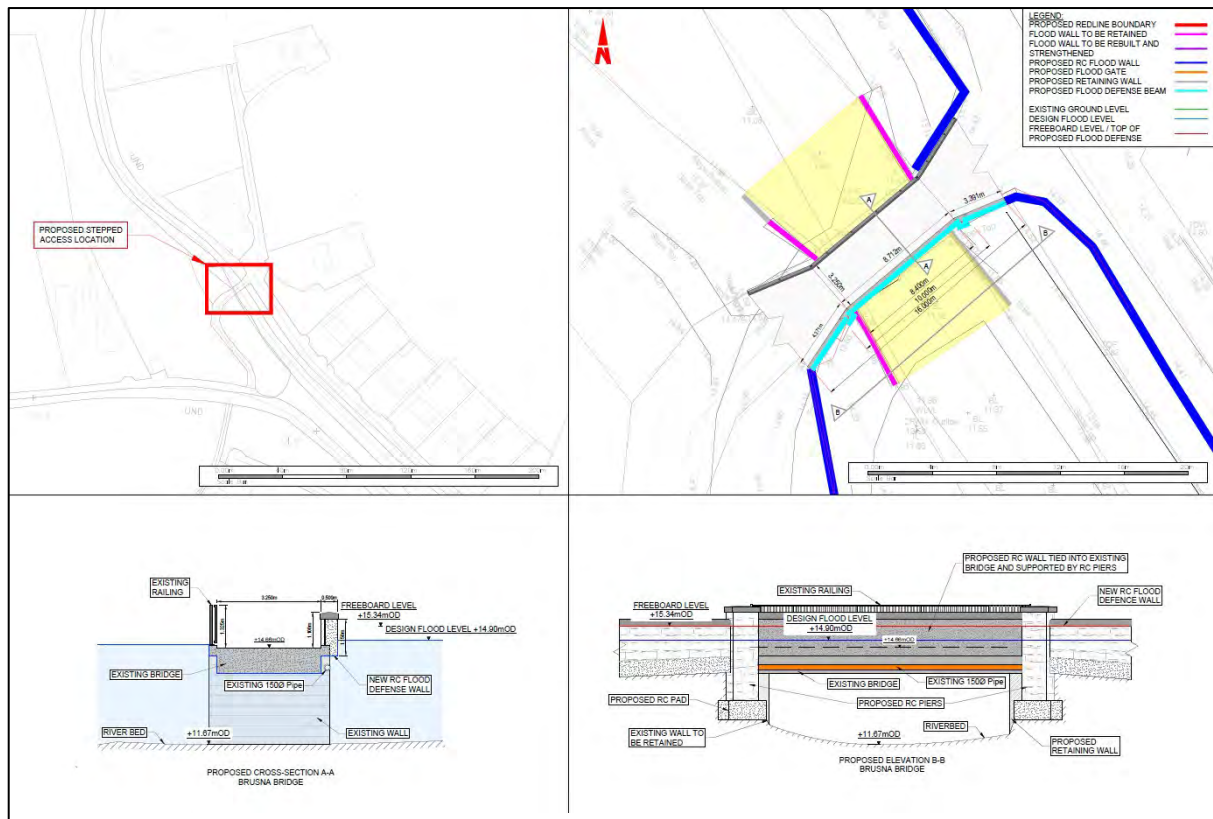


Figure 9: Proposed instream works for Brusna River. (Courtesy of RPS).



Figure 10: Proposed instream works for Tullyegan stream. (Courtesy of RPS).

### 11.3 Assessment area locations limits and adjacent cultural/topographic features



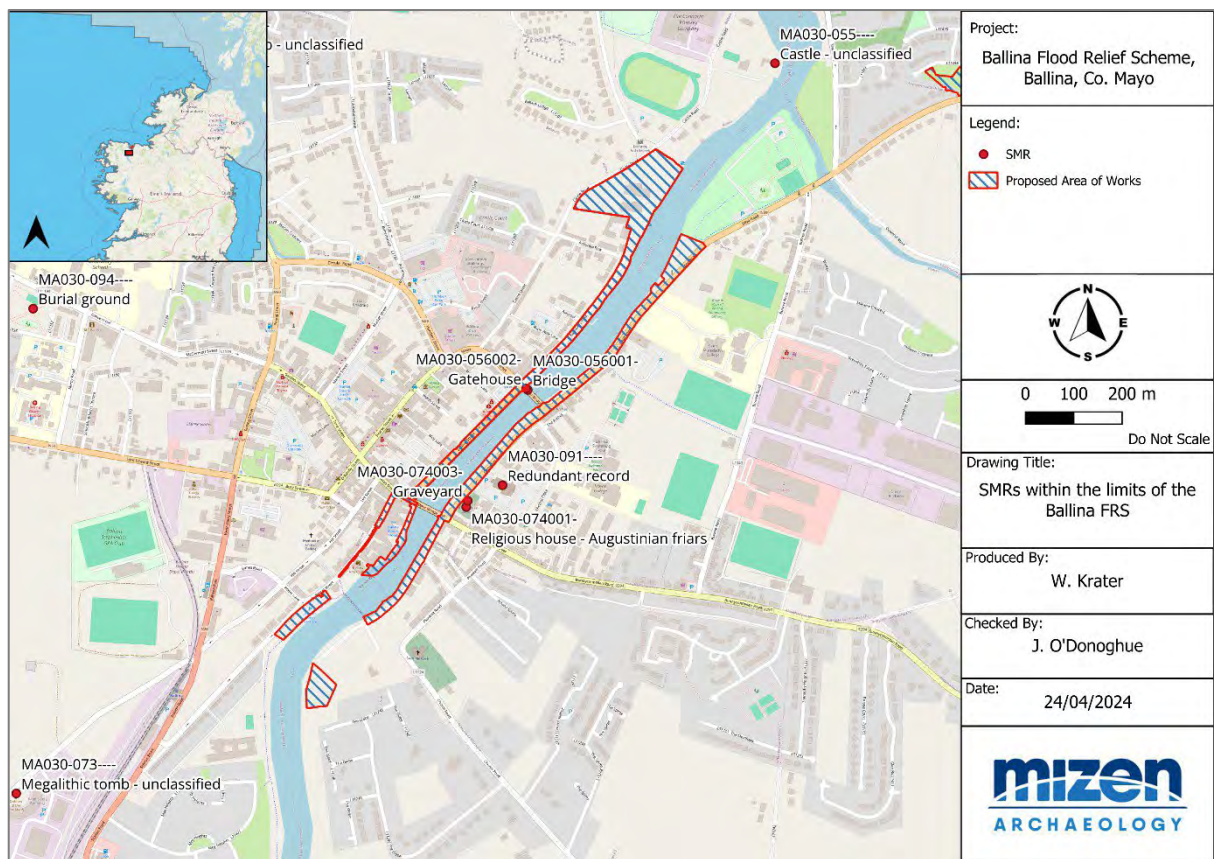


Figure 11: Monuments in the vicinity of proposed works along the River Moy.

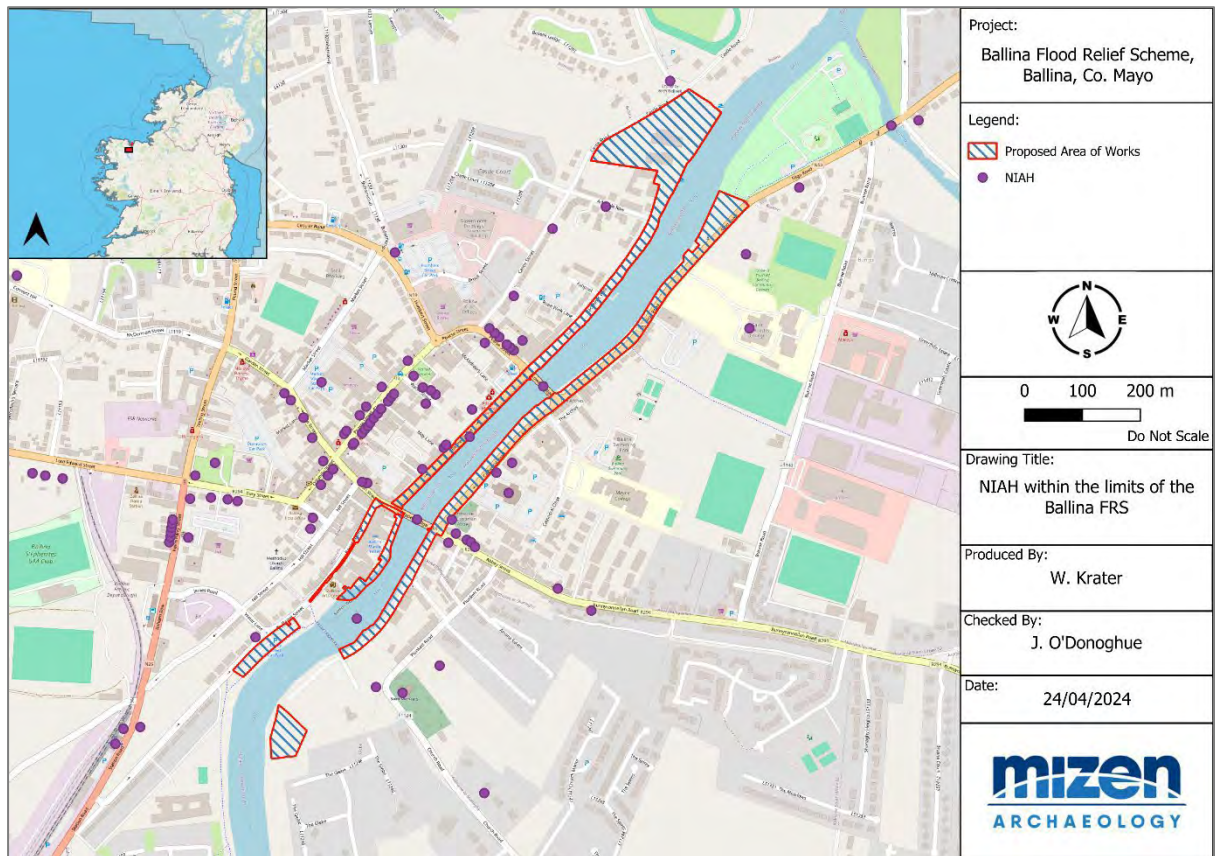


Figure 12: NIAH in the vicinity of proposed works along the River Moy.



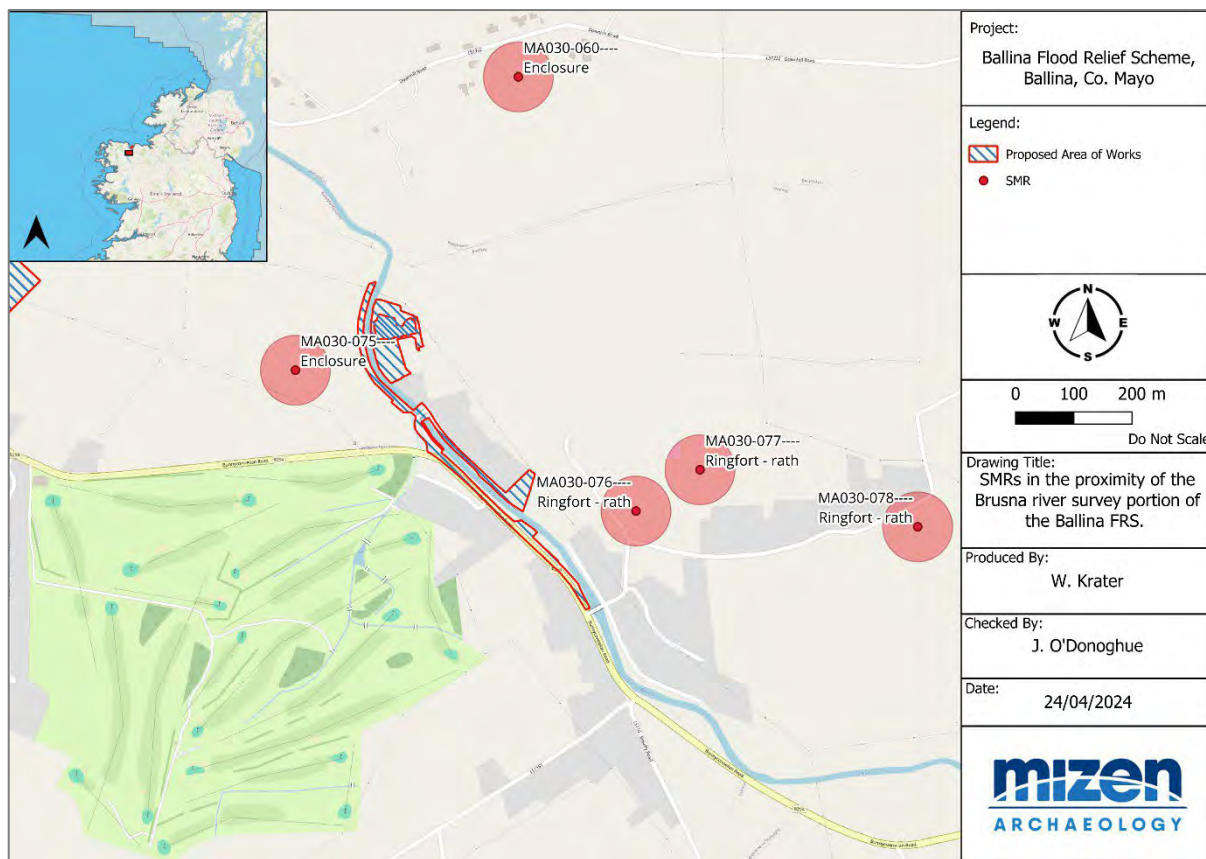


Figure 13: Monuments in the vicinity of proposed works along Brusna River.

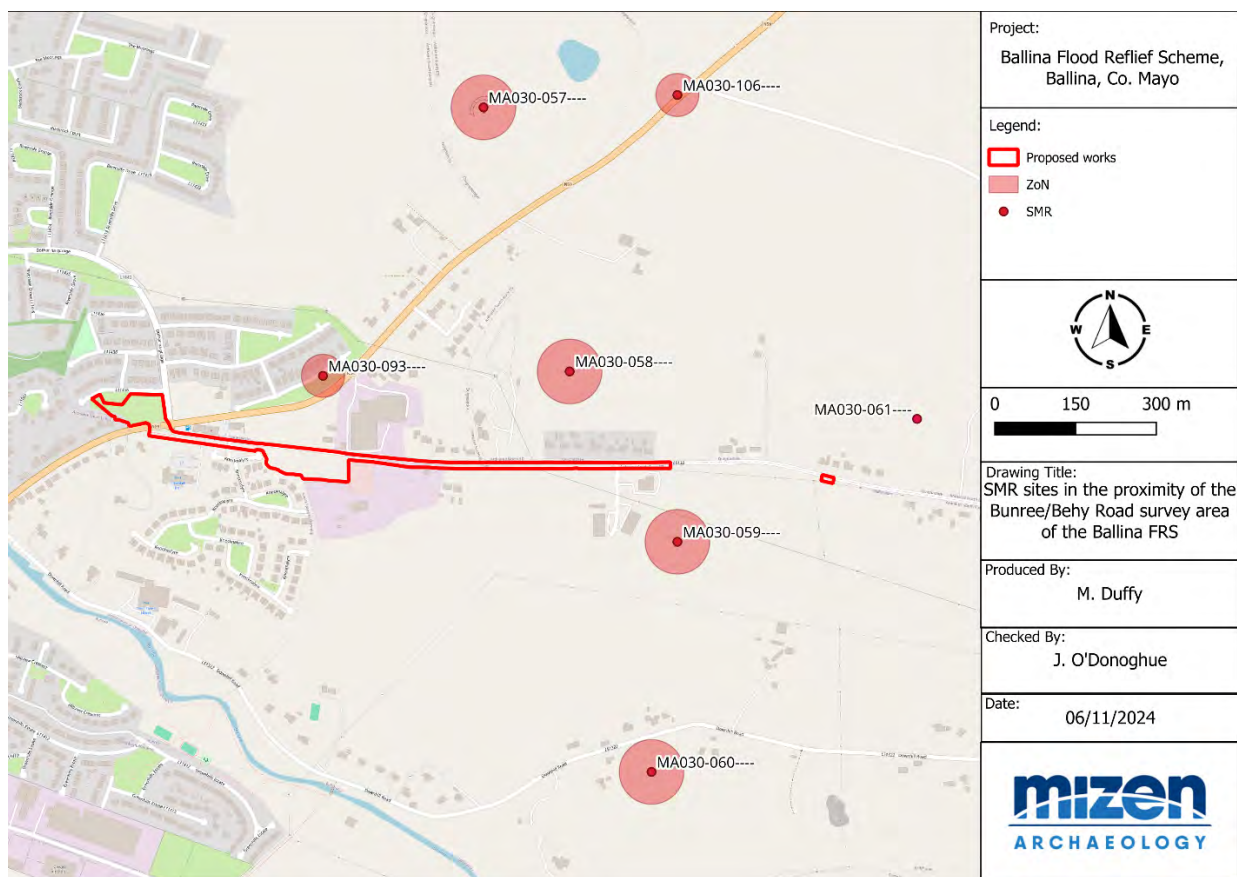


Figure 14: Monuments in the vicinity of proposed works along Bunree/Behy Road stream.

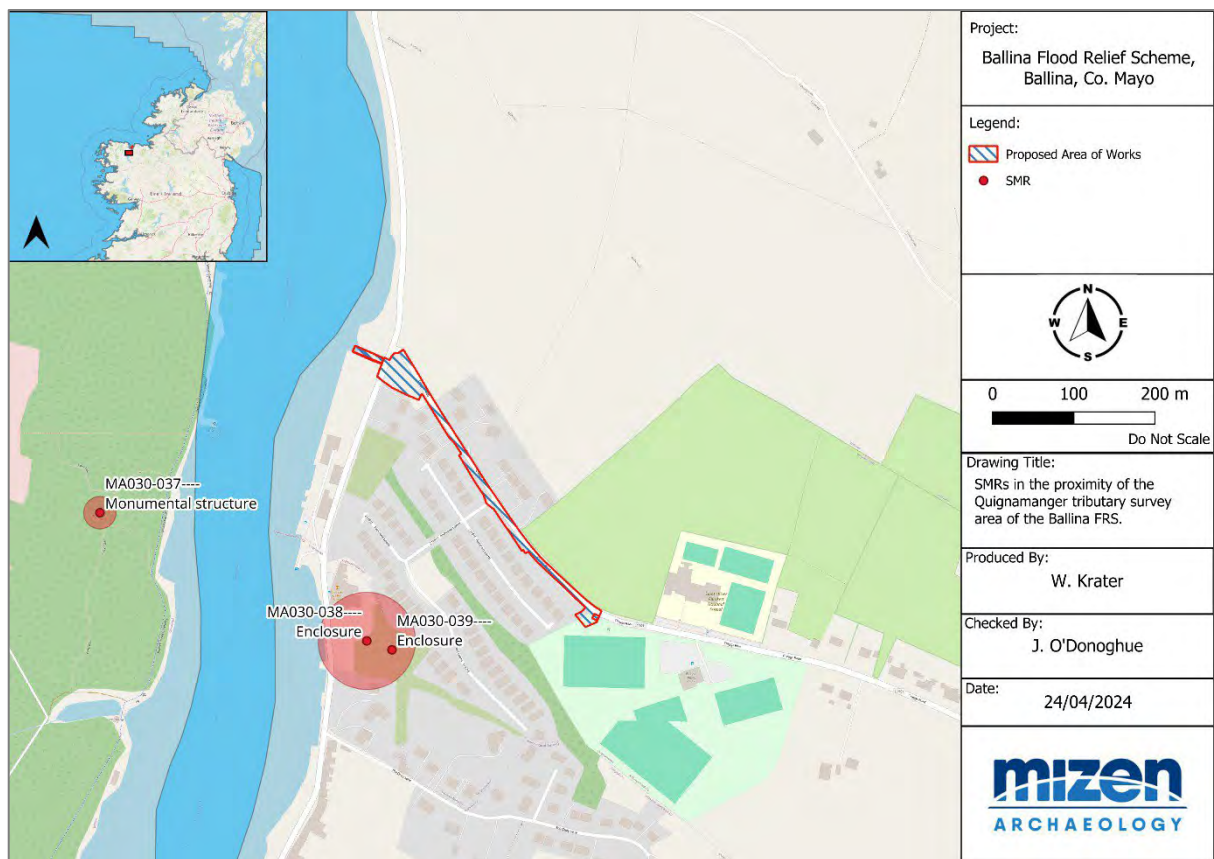


Figure 15: Monuments in the vicinity of proposed works along Quignamanger tributary.

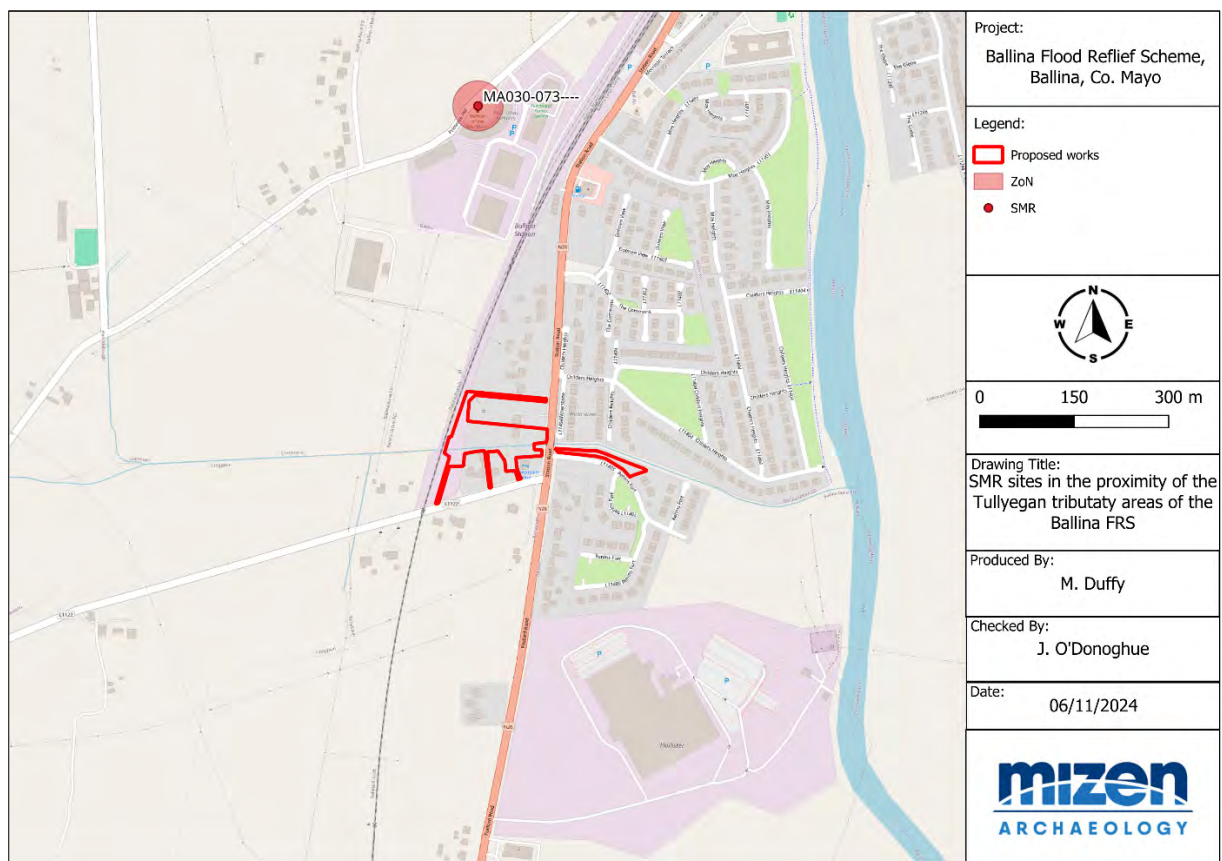


Figure 16: Monuments in the vicinity of proposed works along Tullyegan tributary.



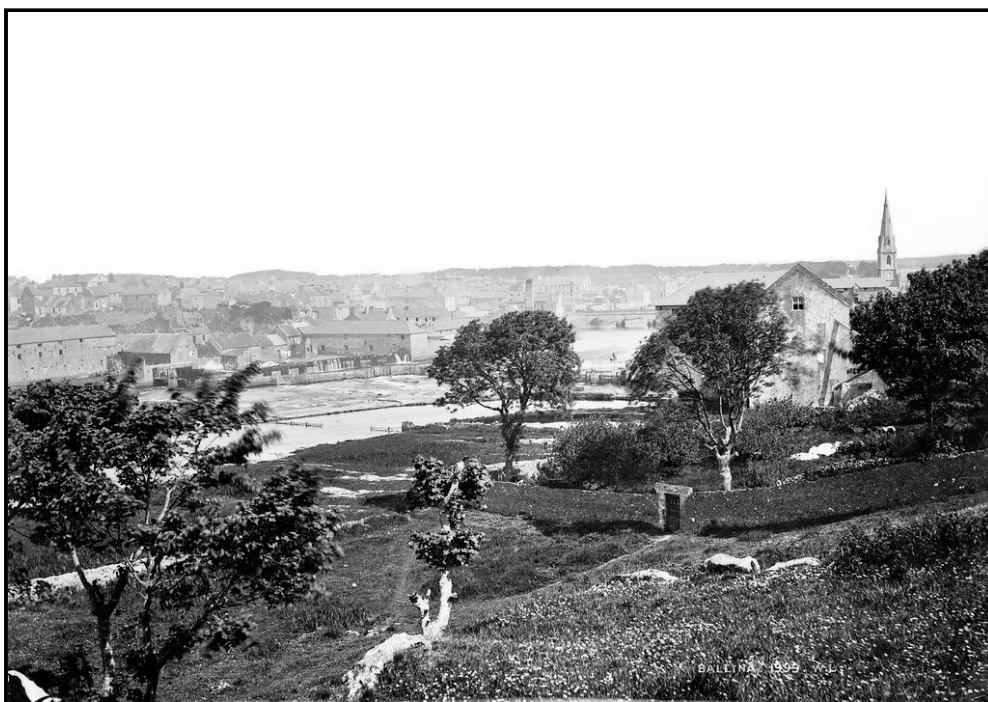
#### 11.4 Photographs of sites and early imagery



*Plate 1: View of SS Creteboom in the River Moy at Ballina (James Fraber).*



*Plate 2: View of the Moy looking towards Lower Bridge (NIAH).*



*Plate 3: Ridge Pool viewed from southeast (National Library of Ireland).*



*Figure 17: Ballina by William Henry Bartlett painted in the mid-1800s (Coyne & Willis, 1860, 44).*



## 11.5 Cartographic Imagery

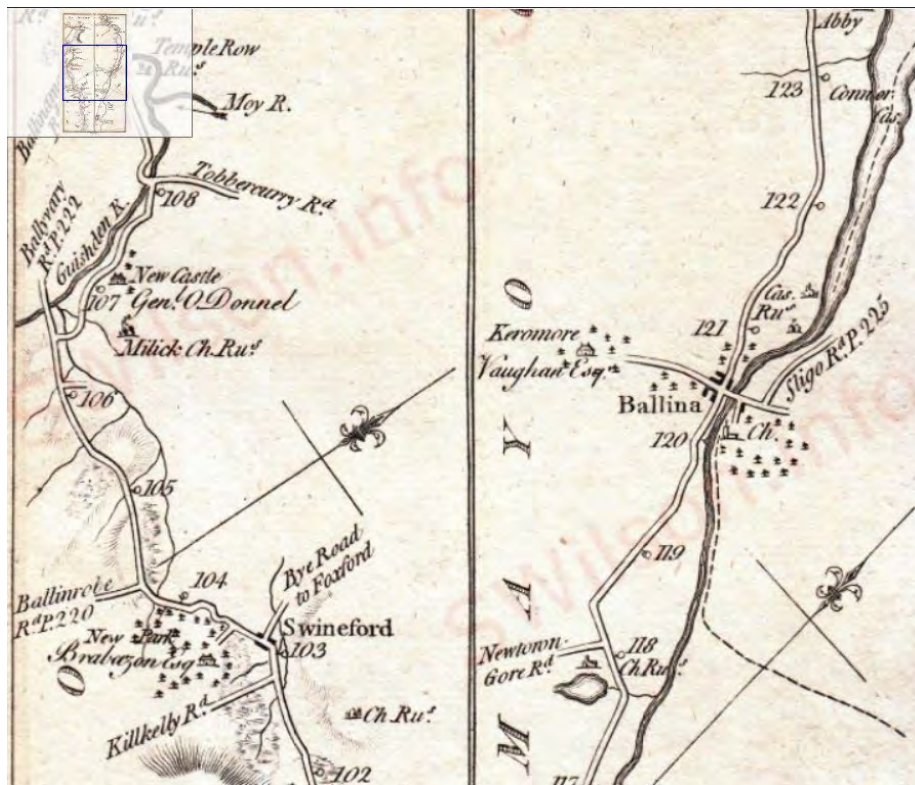


Figure 18: Extract of Taylor and Skinner, Map 70 (1777).



Figure 19: Extract of Taylor and Skinner, Map 225 (1777).



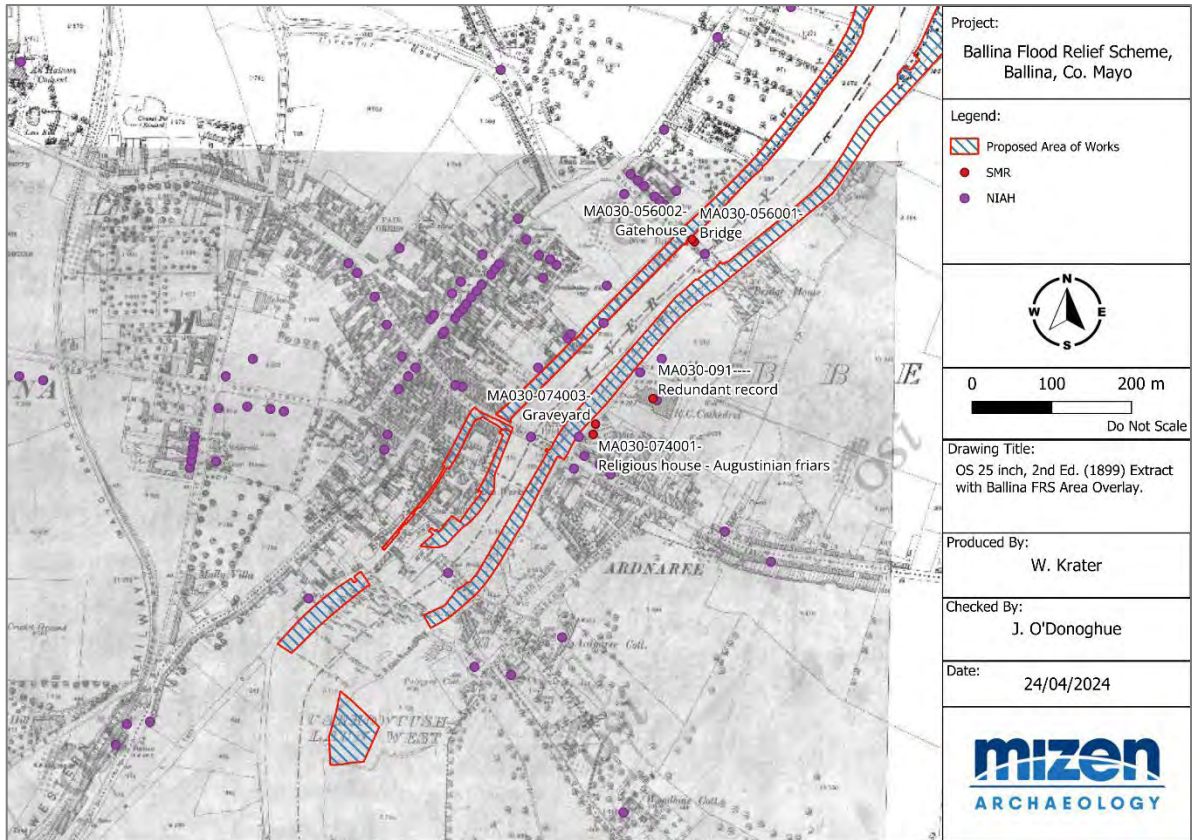


Figure 20: Extract from OS 1st edition map of 1830s showing Moy River survey area.

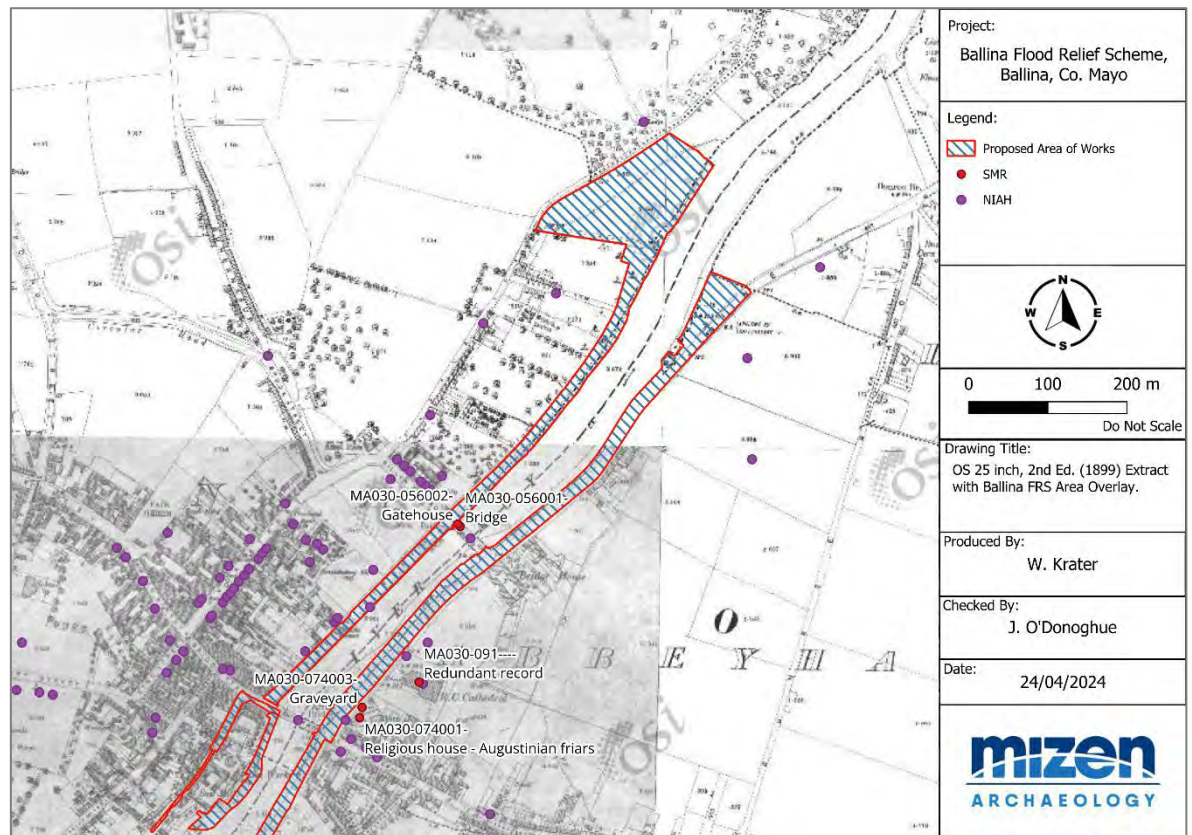


Figure 21: Extract from OS 2nd edition map of 1880s showing River Moy survey area.



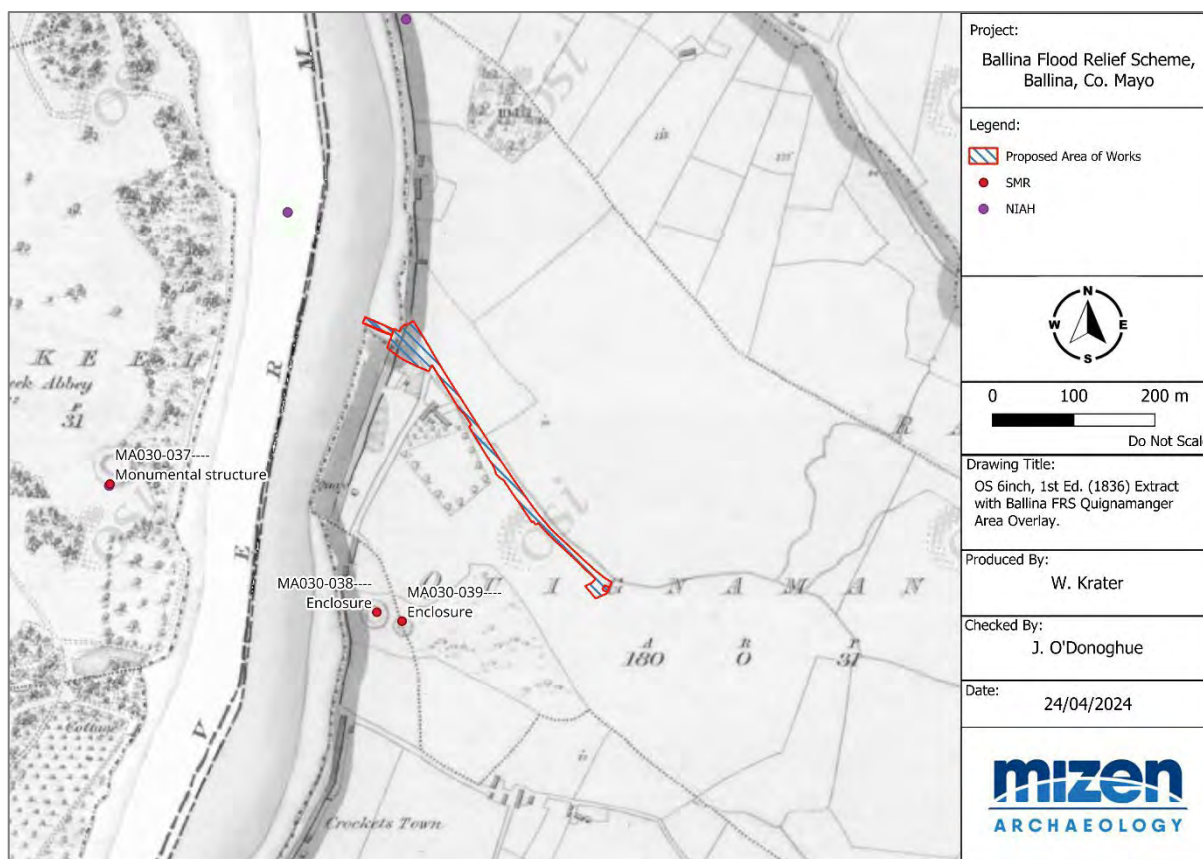


Figure 22: Extract from OS 1st edition map of 1830s showing Quignamanger survey area.

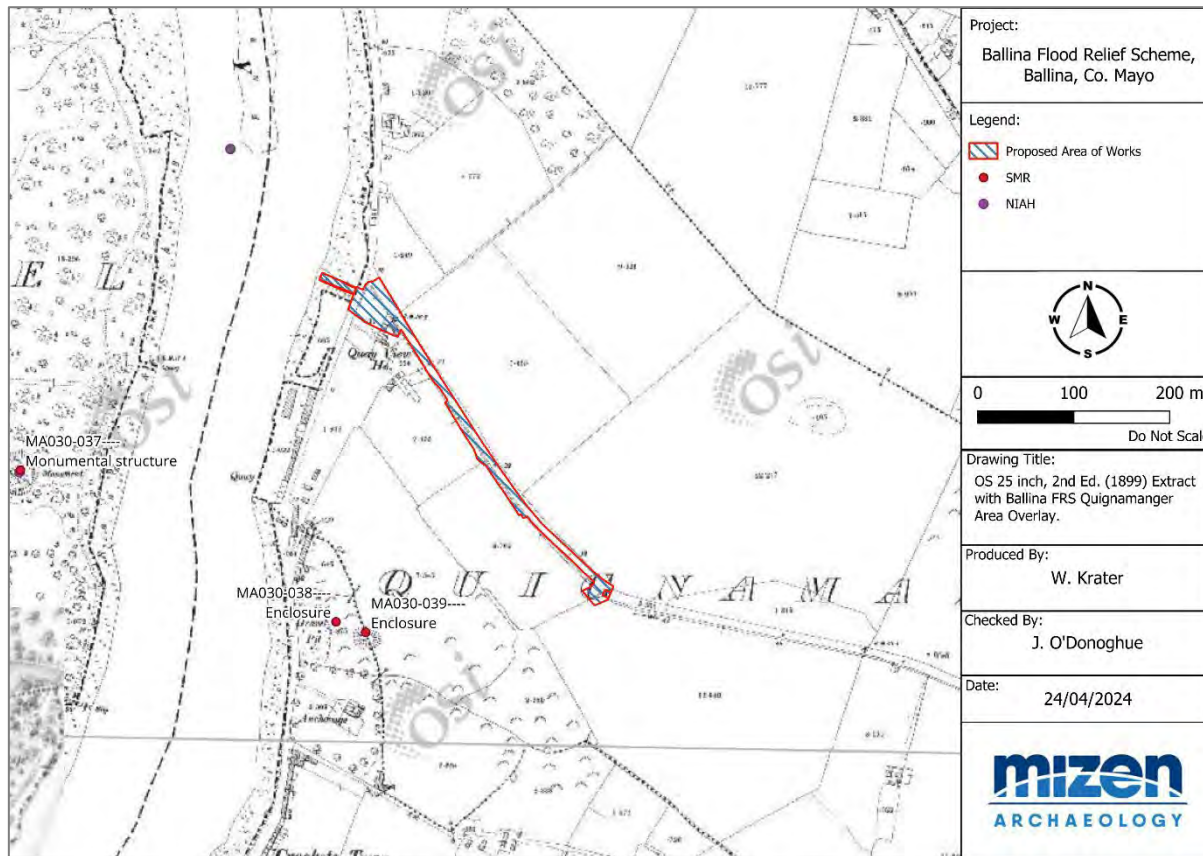


Figure 23: Extract from OS 2nd edition map of 1880s showing Quignmanger survey area.

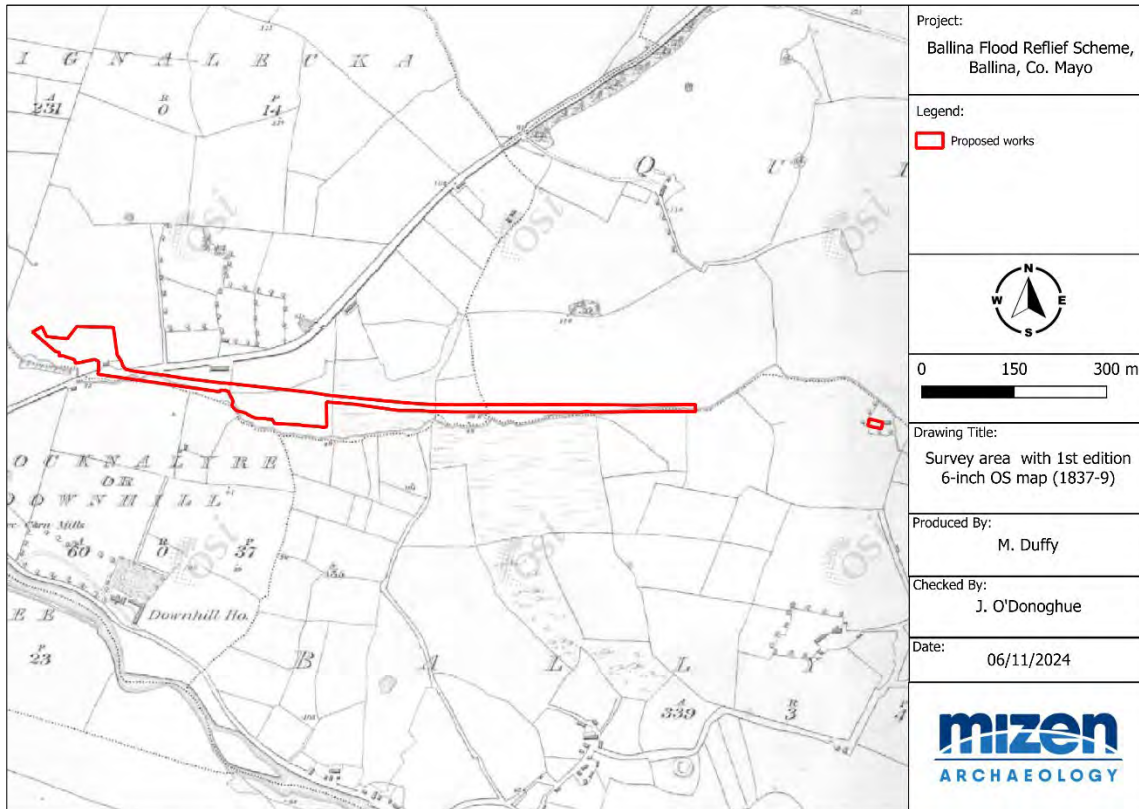


Figure 24: Extract of OS 1st edition map of 1830s showing Bunree/Behy Rd Stream survey area.

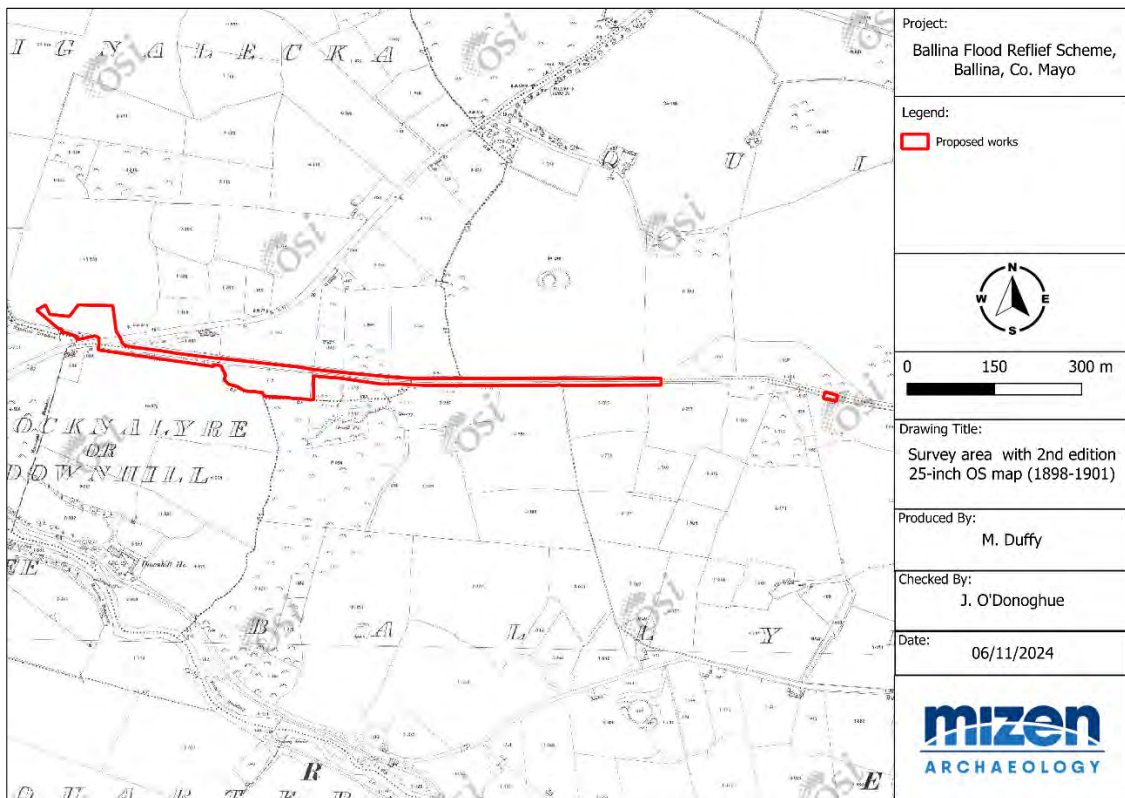


Figure 25: Extract of OS 2nd edition map of 1880s showing Bunree/Behy Rd Stream survey area.



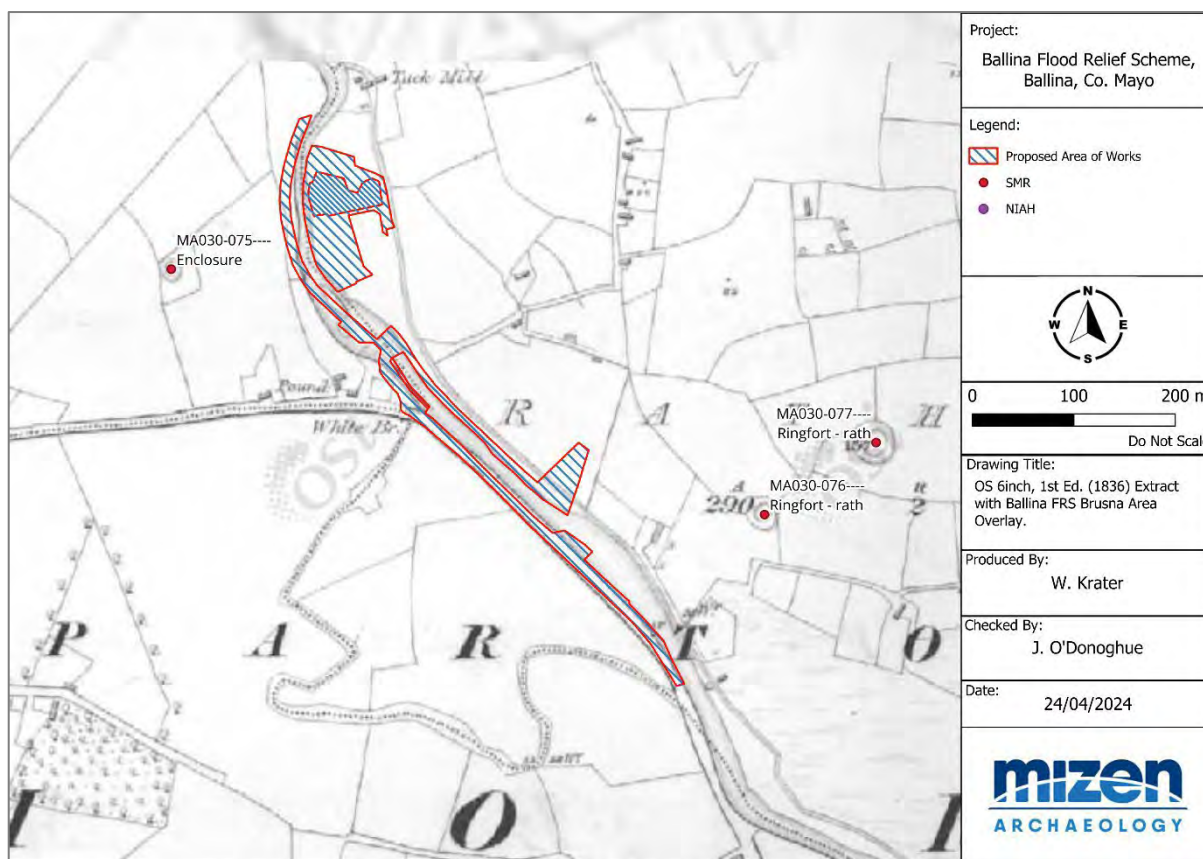


Figure 26: Extract of OS 1st edition map of 1830s showing Brusna River survey area.

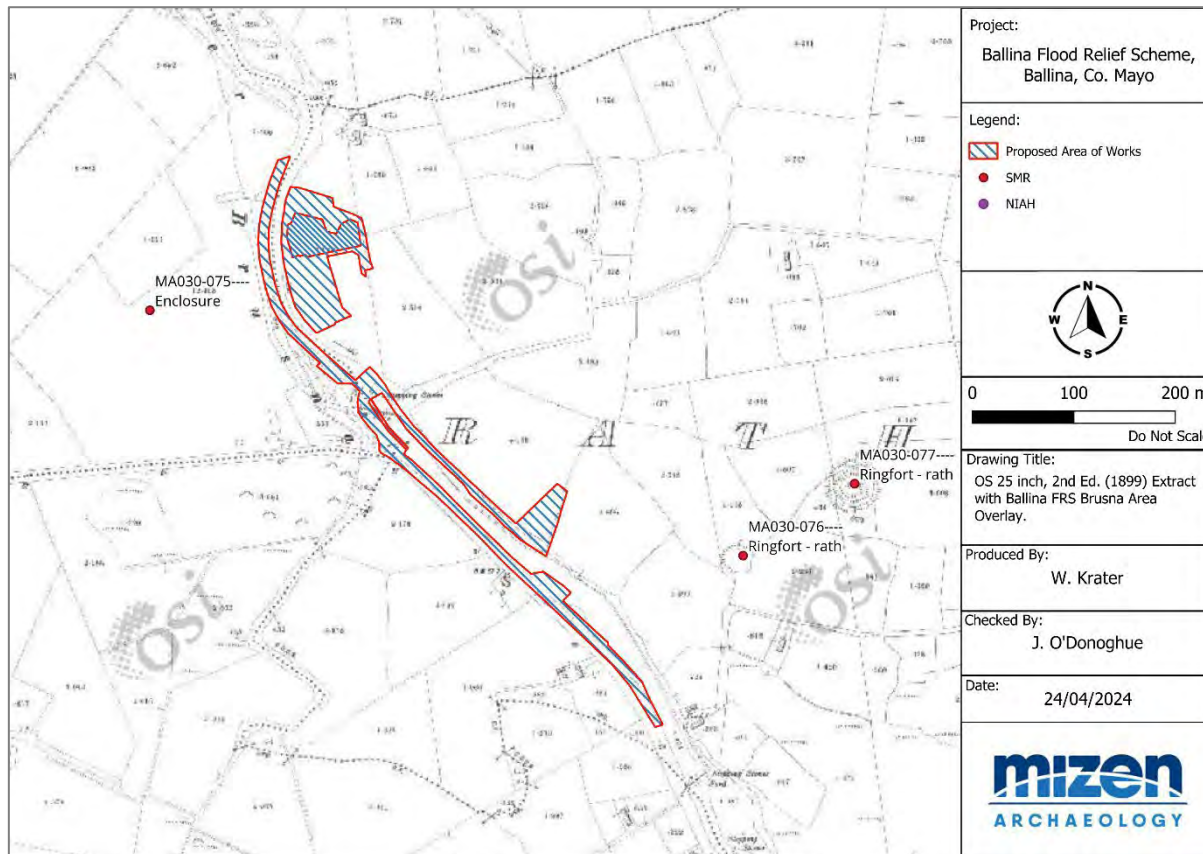


Figure 27: Extract of OS 2nd edition map of 1880s showing Brusna River survey area.

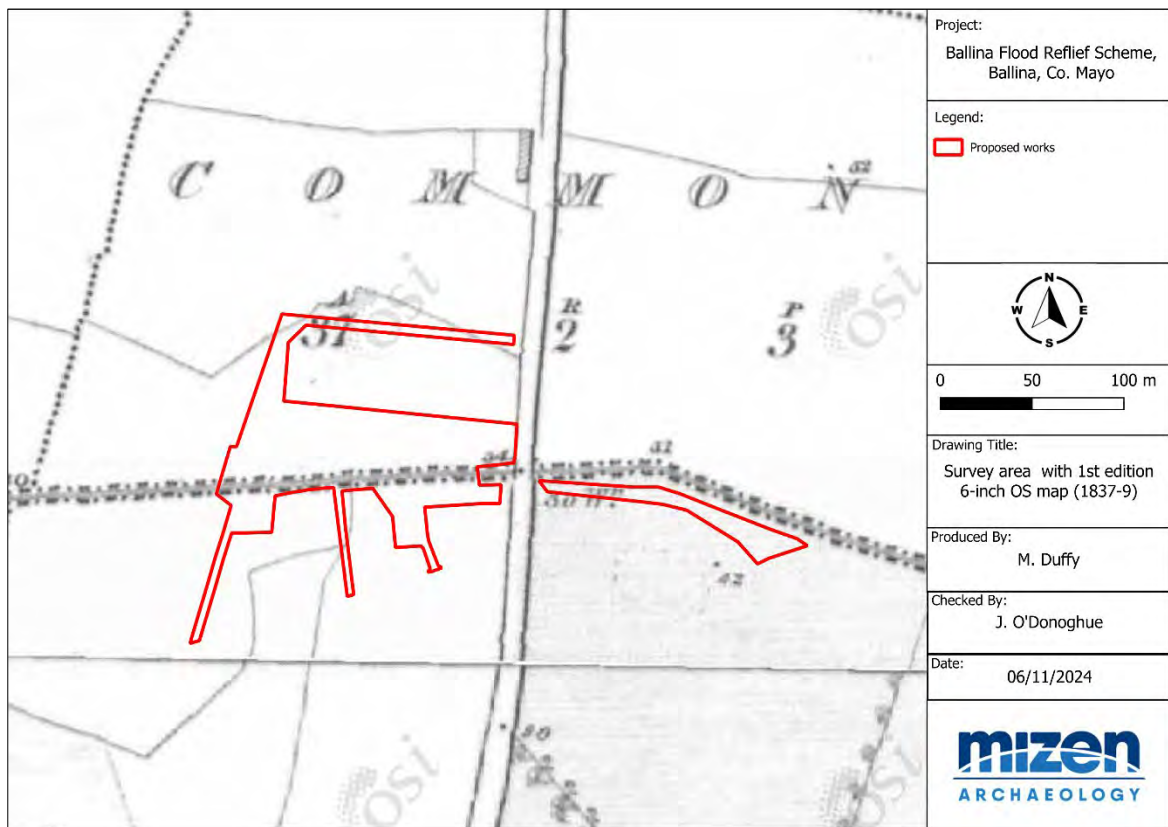


Figure 28: Extract of OS 1st edition map of 1830s showing Tullyegan stream survey area.

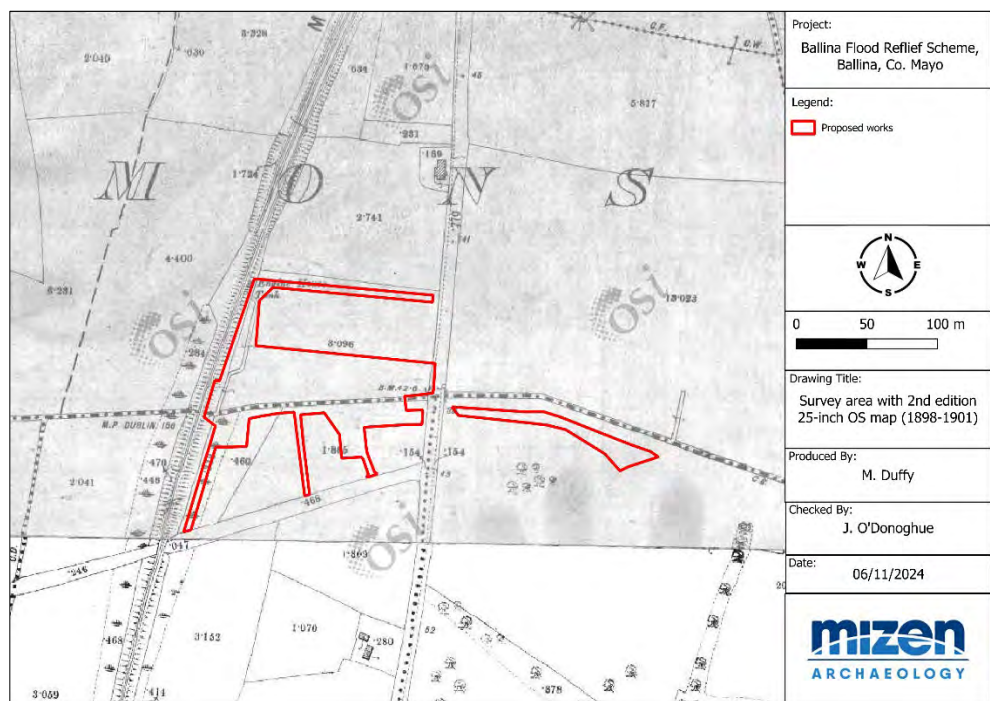


Figure 29: Extract of OS 2nd edition map of 1880s showing Tullyegan stream survey area.



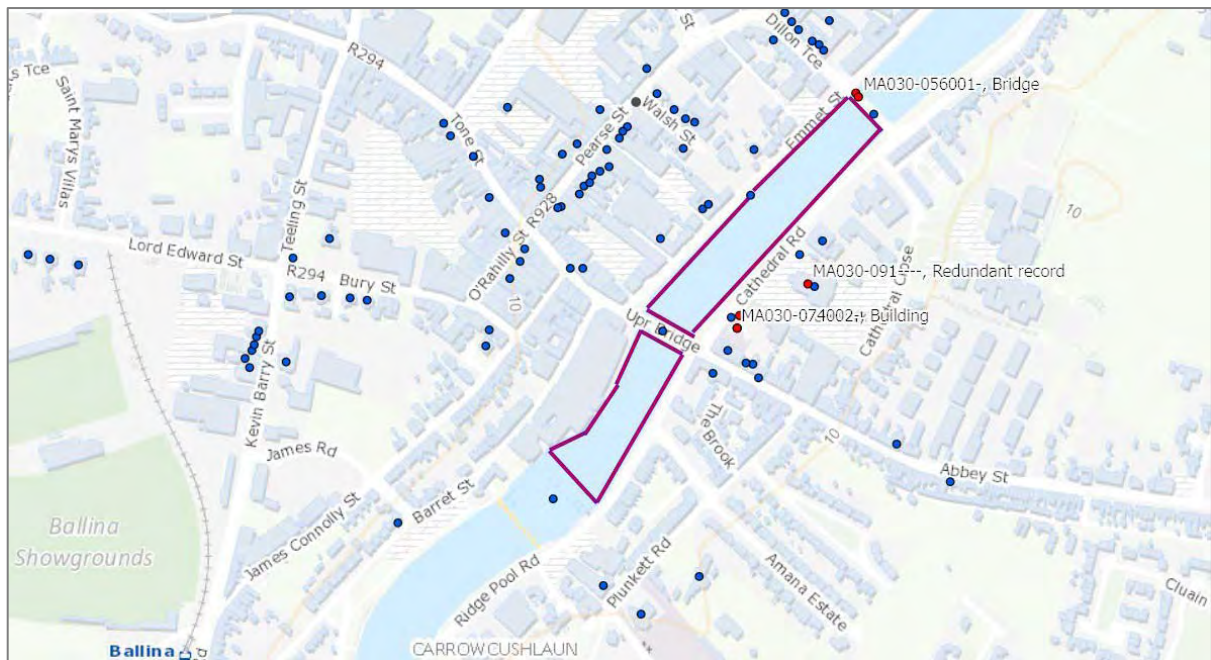


Figure 30: Location of River Moy dive survey area in red.

## 11.6 River Moy survey imagery and finds location



Plate 4: Features identified along Ridge Pool.



*Plate 5: Weir crossing southern end of survey area, taken from the north.*



*Plate 6: Ridge pool, taken from southeast.*





*Plate 7: Upstream face of Upper Bridge, taken from southwest.*



*Plate 8: Southeastern abutment of Upper Bridge, taken from southwest.*





*Plate 9: Western bank of Ridge Pool, taken from east.*



*Plate 10: Boulder bank at southeast extreme of survey area, taken from northeast.*





*Plate 11: Eastern (Ridge Pool Road) quay wall of Ridge Pool, taken from west.*



*Plate 12: Earlier construction style of stone quay wall, taken from southwest.*





*Plate 13: Sample of post-medieval pottery found in Ridge Pool.*



*Plate 14: Sample of glass bottles found in Ridge Pool.*





*Plate 15: Bone, shaped stick (for fishing), iron fastening, and iron hinge found in Ridge Pool.*



*Plate 16: Location of identified features along Bachelor's Walk.*





*Plate 17: Downstream Knockanelo culvert exit, in abutment to Lower Bridge beside Bachelor's Walk. Taken from east (UCH010).*



*Plate 18: Bank and stonewall along Bachelor's Walk, taken from east.*





*Plate 19: Detail of stone wall along Bachelor's Walk, taken from northeast.*

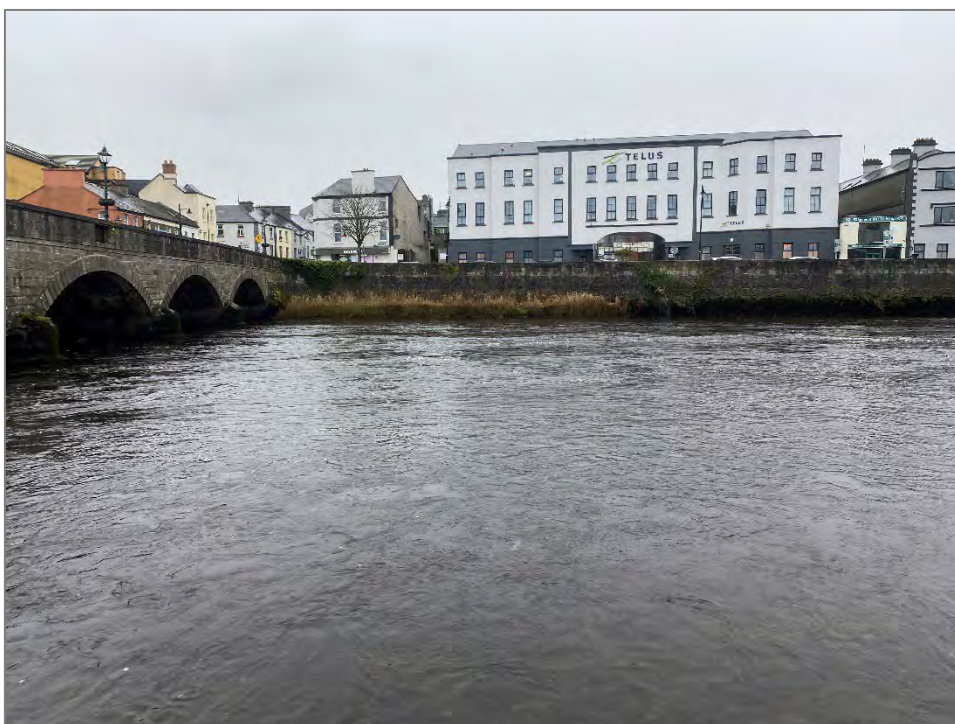


*Plate 20: Stone steps (UCH17) accessing bank from Bachelor's Walk.*





*Plate 21: Upper Bridge over Moy River, taken from northeast.*



*Plate 22: Upper Bridge and Emmet St quay wall, taken from east-southeast.*





*Plate 23: Cathedral Pool viewed from south.*



*Plate 24: Close up of Emmet St. quay wall.*





*Plate 25: View of riverbed of Moy River at Ridge Pool.*

## 11.7 Quignamanger survey area imagery



*Plate 26: View of northwest Quignamanger culvert, taken from southeast.*





*Plate 27: View of Quignamanger culvert at northwest, with thick brambles and vegetation covering entrance.*



*Plate 28: Quignamanger culvert entrance at southeast end of open stream. Taken from north.*





*Plate 29: Dry Quignamanger streambed at southeast end of open stream, taken from southeast.*



*Plate 30: Open stream at Quignamanger; taken from northwest.*





*Plate 31: Bend of Quignamanger open stream before passing into culvert under road. Taken from east.*



*Plate 32: Exit of Quignamanger culvert from stream into River Moy. Taken from west.*



## 11.8 Bunree/Behy survey area imagery



*Plate 33: Eastern Bunree entry culvert. Taken from west-southwest.*



*Plate 34: Culvert entrance at western limit of Bunree survey area, taken from west.*





*Plate 35: Full length of small section of open Bunree stream. Taken from east.*



*Plate 36: Fenced off section of open Bunree stream, entering culvert. Taken from east.*





*Plate 37: View of open Bunree stream from domestic access. Taken from east.*



*Plate 38: View of Bunree stream to the west, taken from east.*





*Plate 39: Bunree view of western section of stream close-up, taken from east.*



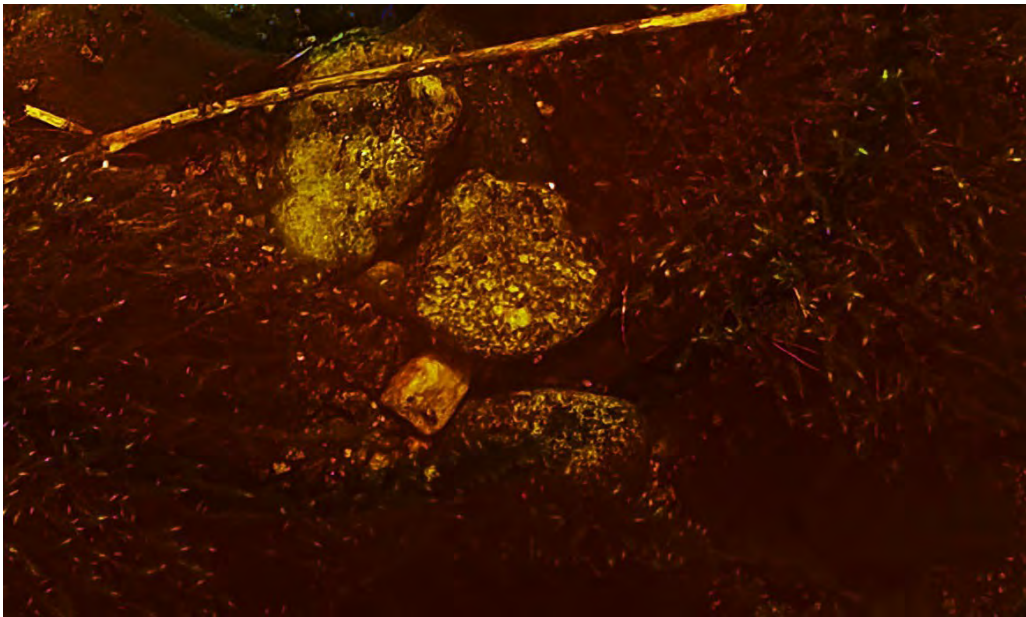
*Plate 40: Possible remains of former Bunree stream access culvert. Taken from north.*





*Plate 41: Bunree stone culvert western exit, taken from east.*

## 11.9 Brusna River survey area imagery



*Plate 42: Riverbed at Brusna River.*





*Plate 43: Material found in Brusna River, including tiles and metal debris.*



*Plate 44: Brusna River view from northern limit of survey area.*



## 11.10 Tullyegan survey area imagery



*Plate 45: Tullyegan taken from west.*



*Plate 46: Tullyegan taken from east.*



### 11.11 Cultural heritage finds locations



Figure 31: Cultural Heritage locations in Ridge Pool, Moy River.



Figure 32: Cultural Heritage along Bachelor's Walk, Moy River.



Figure 33: Cultural Heritage in Tullyegan.

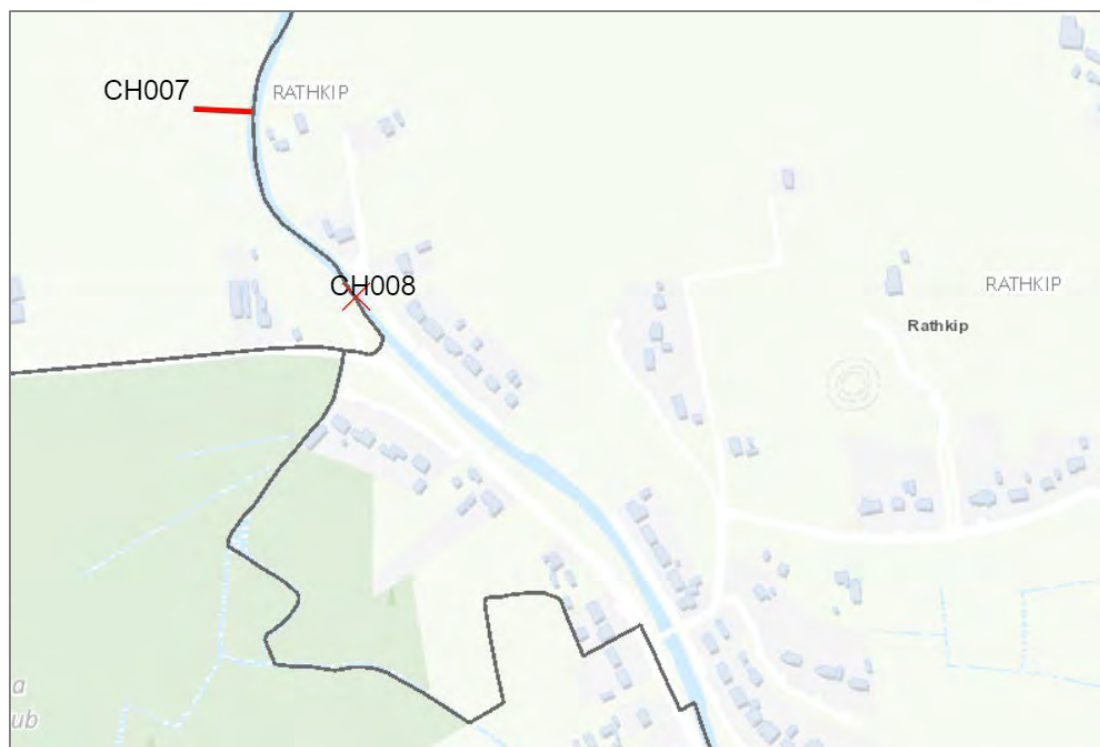


Figure 34: Cultural Heritage in Brusna River.

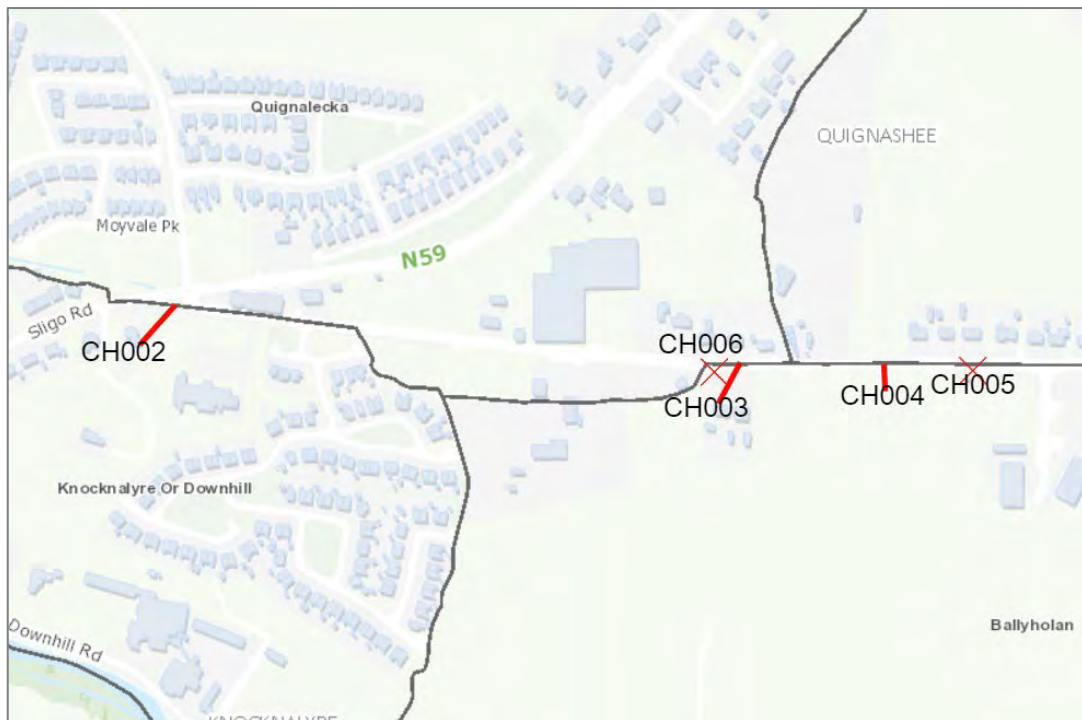


Figure 35: Cultural Heritage in Bunree/Behy Rd.

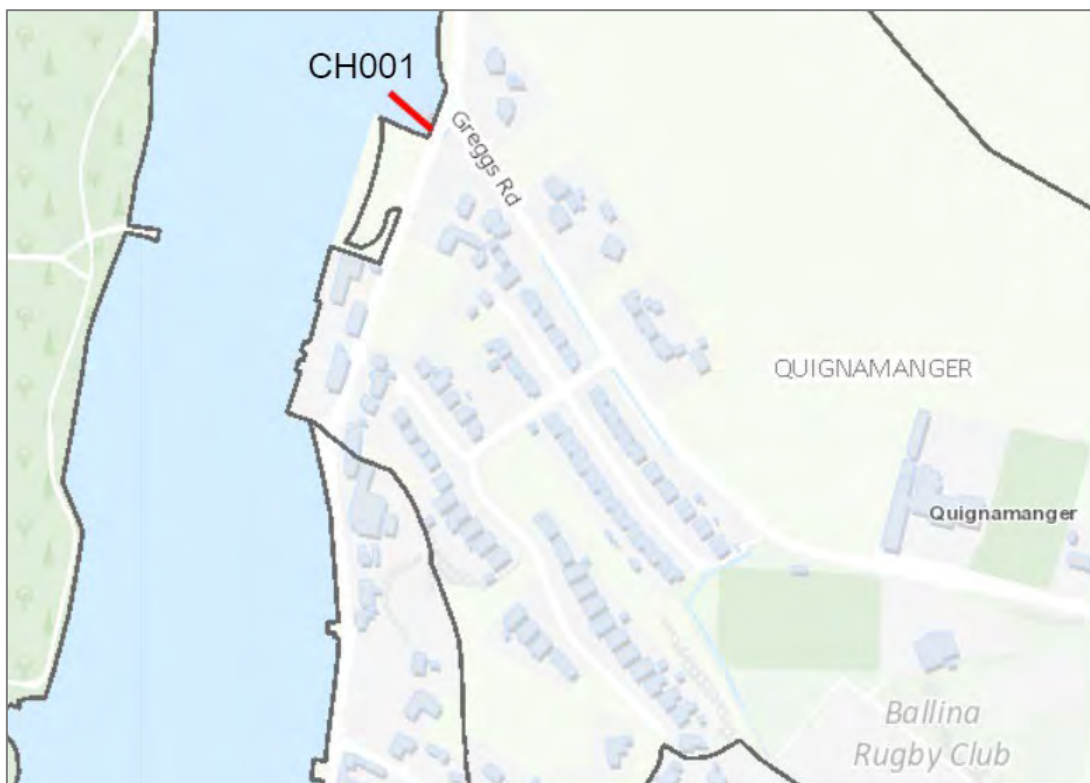


Figure 36: Cultural Heritage in Quignamanger.



## 12. Appendices

### 12.1 Appendix 1: Known sites within the study areas:

Monument No.	Type	Location (ITM)	Description
MA030-056002-	Gatehouse	524816 819019	This gatehouse is on a bridge (MA030-056001-) over the River Moy in Ballina town was still extant in the early 18th century, when it was recorded by Rev. William Henry (1739) as 'a large square tower with a gate and guard room' rising from and controlling access to the bridge. A modern bridge now stands at this location.
MA030-056001-	Bridge	524819 819016	This bridge over the River Moy in Ballina town was still extant in the early 18th century when it was recorded by Rev. William Henry (1739) as 'a stately bridge in the midst of which rises a large square tower with a gate and guard room [MA030-056002-] for defence of this pass. The tide flows up the river to this place'. A modern bridge now stands at this location.
MA030-074003-	Graveyard	524695 818787	RMP
MA030-074002-	Building	524692 818774	RMP
MA030-074001-	Religious House- Augustinian Friar	524692 818774	RMP
MA030-094---	Burial Ground	523797 819184	RMP. Located on the W side of Ballina town, in a public green area known as Mercy Park, flanked to the W and E by housing estates, bordered to the N by a road, and on the S by a road to the S of which are the grounds of Ballina Hospital. At this location is a rectangular public park (c. 100m E-W; c. 80m N-S). According to local tradition, it is the site of a Famine-era burial ground associated with a Union workhouse and fever hospital, which were located to the S at the site of the present-day hospital. The original extent of the burial ground is unclear; no above ground boundaries remain. A

			scattering of uninscribed stone grave-markers could still be seen here in the early to mid-20th century, but these no longer survive. According to local information, human burials were uncovered, but not recorded, during ground works in the late 20th-century. In January 2009 two further burials were partly exposed during exploratory trenching in the NE quadrant of the park in advance of the laying of sewage pipes. The exposed bones included the finger bones, pelvis, and leg bones of an adult individual, and, immediately adjacent at the N, the leg bones of a second adult. Both burials were aligned E-W. No traces of coffins or grave cuts were evident. The bones were recorded by an archaeologist and reburied, and the pipeline was re-routed.
MA030-105---	Burial Mound	523922 819495	SMR. In a green field site on the NW side of Ballina town. This burnt mound was discovered in 2017 during archaeological testing (Licence no. 17E0552) in advance of a proposed development (McHugh 2017). At this location the test trench extended across a slight hollow in an area of damp ground, but there was no surface indication of the burnt mound. It was exposed at a depth of c. 0.5m below the surface, and was evident as a layer (10m E-W) of charcoal-enriched soil, with frequent inclusions of fire-cracked stones. The N-S extent of the layer remains unknown as it extends beyond the limits of the test trench (Wth 1.9m N-S). A protective geotextile cover was placed over it and the trench was backfilled. (McHugh 2017, 63-65).
MA030-055---	Castle-unclassified	525330 819691	<p>RMP. Located in the grounds of Ballina House, built against an elevated terrace on the W bank of the Moy, on the N edge of Ballina town. It is sited at a slight bend and narrowing of the river, and opposite to its confluence with a tributary river, the Brusna.</p> <p>The OS Letters (1838, 74-5) record that a castle once stood in the grounds of the present-day Ballina House, which was built in the 1830's by Edward Howley, a catholic magistrate: 'In this Parish about a mile north of Ballina and on the west bank of the Moy is shewn the site of the Castle of Belleek-Moy, a considerable portion of the ruins of which was visible in the memory of the old natives, but no part of which is now traceable. It stood on the hill over the Moy between Mr. Howley's House and the river.'</p> <p>The castle was built in 13th century and held by the Barretts. In the 15th century the Burkes were in dispute with the Barrets over ownership of the castle amongst other properties. A resolution of the dispute in 1584 saw Walter Kittage Bourke gain possession of the castle. Knox (1908) records that Kittage Bourke did not hold Belleek for long, as the English gained possession of it and it became a garrison. In 1595 Bourke regained possession, but by 1630 it was owned by Sir William Fenton, and ownership continued to change in succeeding years.</p> <p>Henry (2012, 4-6) identified a possible remnant of the castle, consisting of a three storey, stone-built tower-like building, which is incorporated into the E end of a 19th-century brick and rubble-</p>

			<p>built stable block. The stable block lies c. 30m to ENE of Ballina House, and consists of a range of interconnected two-storey, slate-roofed buildings, which form the N and W sides of a rectangular walled courtyard, accessed through a cut-stone arched entrance on the S side. the rectangular, three storeys building or tower (6.10m N-S; at least 4m E-W) is built against the E-facing slope of the terrace overlooking the Moy. The base of the E wall of the building is set back c. 4-5m from the river's edge, and is now separated from the river by a trackway (Wth 3-4m). At ground level, the W wall of the building is built against the natural slope, but at first and second floor level the W wall it is incorporated into the E end of the N range of the 19th century stable block, and it is roofed by a continuation of the slated roof of the stable building. The 19th-century modification of the building makes examination and interpretation difficult. the exterior walls are rendered, but at the base of the E wall a portion of the original stone work -mortared limestone blocks- is visible. No original windows are apparent. Square windows, lined with brickwork, have been inserted into the E wall at ground and second floor levels, and into the S wall at first floor level, and a doorway has been inserted at ground level toward the E end of the N wall. The doorway opens into a small vaulted chamber (3.10m N-S; 3.10m E-W), lined and roofed with red brick, which occupies part of the ground floor level, but down not allow access to the rest of the building. It is not possible to examine the W wall of the building, which now forms the end wall of the 19th-century range of farm buildings: Entry can be gained to the ground floor of this range, which because it is built on top of the terrace brings one to first floor level of the tower, but the wall face is heavily plastered and no diagnostic features are evident. Access to the upper floor of the stable range is not possible due to the unstable condition of the building.</p> <p>The base of the E-facing slop of the terrace, immediately S of the stone building, is faced with stone (H 1-1.25m). This is rather dilapidated and partly collapsed, and largely obscured by ivy and vegetation. It extends to S for c. 14m curving to SW to meet a projection from the S wall of the courtyard of the stable range.</p>
MA030-052001-	Megalithic tomb- unclassified	524057  819710	<p>RMP. 'Fert Echtra (Site of) Princess' Grave'</p> <p>This monument has been totally obliterated and the site is now surrounded by a modern housing estate. The Ordnance Survey Letters (1838) state: "This grave is now much destroyed, but as much of it remains as will satisfy the antiquarian that it is of that class of sepulchres, which were used in Ireland in pagan times, such as the bed of Calann more near Slieve Calann in Derry...Only the east side of this grave remains, it is formed of large stones laid perpendicularly. The west side and the flags which were laid horizontally from side to side, have been removed and the interior is filled up with stones and rubbish. It is now called by tradition Leaba Liabadoir, and believed to be the grave of a giant called Liabadoir, who was killed by another called Conan, but this is a fabrication of the</p>



			<p>story tellers of modern times.” The Field Notes for the Ordnance Survey Hill Name Book describes it thus: “This grave which is locally termed a giant’s grave stands 10 by 4 yards about 2 feet above the surface.”</p> <p>Ruaidhrí de Valera and Seán Ó Nualláin, Survey of Megalithic Tombs of Ireland. Vol. II. County Mayo. (Dublin: Stationery Office, 1964)</p>
MA030-052002-	Mound	524057 819711	<p>This record is listed in the SMSR (1991) and the RMP (1997) as a possible mound. No feature resembling a mound is indicated on the 1837 or 1930 OS 6-inch maps, and there are no references in the SMR files to a mound. It seems likely to be a duplicate record for the megalithic tomb (MA030-052001-), shown as ‘Fert Echtra’ or ‘Princess Grave’ on the OS 6-inch maps, perhaps referring to a cairn or mound over that grave.</p>
MA030-052003-	Ritual site- Holy Well	524005 819744	<p>RMP. Located on the outskirts of Ballina town, on the E side of the main Ballina-Killala road.</p> <p>This holy well is named ‘St. Patrick’s Well’ on the 1837 and 1930 OS 6-inch maps. The well is mentioned in the 1838 OS Letters; it is not described, but is recorded as the location where, according to the Tripartite Life of St. Patrick, the Saint baptised a local chief, Eochodius.</p> <p>The original form of the well is unknown; in the 1960’s it was incorporated into a modern concrete surround within a walled enclosure, which also contains the Stations of the Cross.</p>
MA030-052005-	Ritual site- holy/saint’s stone	523984 819736	<p>RMP. Located on the W side of the main Ballina-Killala road, opposite a holy well (MA030-052003-).</p> <p>This holy stone is not shown on the 1837 OS 6-inch map, but is named ‘St. Patrick’s Rock’ on the 1930 edition. It consists of a boulder, on which according to local information, a granite cross (MA030-052004-) was once mounted. According to tradition a rag bush once stood nearby.</p>
MA030-052004-	Cross	523984 819736	<p>RMP. Located on the W side of the main Ballina-Killala road, opposite a holy well (MA030-052003-).</p> <p>According to local information, a granite cross (MA030-052004-) was once mounted on a boulder (MA030-052005-), known as St. Patrick’s Rock. The form, date and current whereabouts.</p>
MA030-051008-	Excavation- miscellaneous	523956 819996	<p>RMP. In pasture, located to E of Kilmoremoy church (MA030-05101-) and graveyard (MA030-051002-).</p> <p>Archaeological testing (07E0221) was carried out in 2007 in advance of a proposed housing development on a green-field site, which borders the N and E sides of Kilmoremoy graveyard</p>

			<p>(Wallace 2010, 316-7, no. 1215). The programme of testing was guided by the results of a geophysical survey carried out earlier that year (Barton 2007).</p> <p>No archaeological features were exposed in test trenches (no. 9-17) on the high ground at the N end of the field. Seven trenches (no. 1-7) opened immediately to E of the graveyard produced significant evidence of archaeological activity, including curvilinear and linear ditches, spreads incorporating charcoal or animal bones, pits containing charcoal and iron slag, and a deposit of cockle shells. Four semi-circular ditches (max. dim. 5-8m), which extend beyond the limits of the test trenches, were also uncovered.</p> <p>The exposed features were not excavated, and many features were only partly exposed within the limits of the test trenches. The date and function of the features, therefore, remains uncertain. The four semi-circular ditched features may be the remains of houses or prehistoric ring-ditches. The evidence of burning and iron-working may relate to settlement and industrial activity contemporary with the medieval ecclesiastical settlement at Kilmoremoy. (Wallace 2010, 316-7, no. 1215).</p>
MA030-051002-	Graveyard	523889 819927	<p>RMP. On a level terrace on an E and SE-facing ridge slope. League cemetery, another burial ground (MA030-051004-), occupies rising ground immediately to W.</p> <p>Kilmoremoy Graveyard is indicated on the 1837 OS 6-inch map as a rectangular area outlined by a dashed line, with a church 'in ruins' (MA030-051001-), shown in the SE quadrant; by the time of the 1930 the rectangular area (c. 65-70m N-S; c. 55m E-W, 1930 ed.) is shown enclosed by a wall.</p> <p>Mortared stone walls are extant on the E and S sides of the graveyard. The S boundary coincides with the townland boundary, and is bordered by a small access road that branches off the main Ballina-Kilalla road. Twin cut-stone entrance stiles can be seen in the S wall, flanking a flat-topped section of wall, which was probably used as a coffin-rest. The enclosing walls on the N and W sides were removed in the second half of the 20<sup>th</sup> century when the graveyard was expanded 200m to N and c. 160m to W and NW. Traces of the N wall can still be seen as a low jumble of stone and debris marked by a line of sycamore trees. A paved road now overlies the line of the W wall; it gives access to the modern section of the graveyard, and is bordered by a row of 20<sup>th</sup>-century graves. Rough grass and scrub distinguish the older graveyard from the modern extension. There are 19<sup>th</sup>-century graveslabs, table and chest tombs, and 19<sup>th</sup>- and early 20<sup>th</sup>-century headstones, interspersed with low uninscribed stone grave-markers. 19<sup>th</sup>-century tombs are also evident in the interior of the ruined medieval church.</p>
MA030-051003-	Church	523885	RMP.

		819920	
MA030-051001-	Church	523885 819920	<p>RMP. Located on a slightly raised terrace on an E-facing ridge slope, within Kilmoremoy graveyard (MA030-051002-), and 50m E of League Cemetery (MA030-051004-).</p> <p>According to tradition, Kilmoremoy can trace its origins to St. Patrick. The 7<sup>th</sup>-century Tripartite Life of St Patrick records that bishop Olcan, a disciple of St. Patrick came to reside at Kilmoremoy or Cell-mor-Uachtar-Muaide (Gwynne and Hadcock 1970, 394). The current church is much later in date; the earliest part of the building may date to the 10<sup>th</sup>- or early 11<sup>th</sup>-century in date; this is suggested by the flat-headed doorway in the W gable and the use of large squared blocks in the wall construction. It was extended and modified later in the medieval period, when the doorway in the S wall was most likely added. It was listed as a parish church in the 1306 Ecclesiastical Taxation and valued at 3 marks (McHale 1902, 12).</p> <p>The remains consist of a ruined, rectangular medieval church (c. 14m EW); 6m N-S) which retains its S, W and N walls; the E gable has collapsed. The walls (T 0.9-1m; H 1.6-1.8m) are construction of large, roughly squared limestone blocks; the NW and SW corners feature large squared quoin stones. The masonry of the E half of the N wall and section of the S wall differs in style, incorporating smaller limestone rubble, indicating that the church underwent various phases of modification, and was extended to the E in the later medieval period.</p> <p>The W gable retains one of the earliest architectural features: A blocked-up, lintelled doorway (H c. 1.2m; Wth 0.75m) can be seen in the centre of the wall, which appears to be an early trabeate doorway. The exterior of the doorway is now concealed by an 18th-century mausoleum (5.6m N-S; 4.5m E-W; H 3.6m), with crenelated mortared stone walls and a vaulted interior, which is built against the exterior face of the W gable.</p> <p>Roughly in the centre of the S wall of the church are the remains of a later doorway (W 1.62m), with a drawbar socket still visible in the W jamb. The upper portion of the doorway has collapsed, but was still intact in 1838 when it was described as follows in the OS Letters: 'The doorway which is placed in the south side wall, and the parts of the wall which are immediately on either side of it and over it, are at once recognisable as the work of later ages. The door being in the rude pointed style and the masonry around it being of inferior character.'(O'Flanagan 1927, 30-41) A broken-out gap at W end of the N wall may mark the position of a window.</p> <p>There are two 19th-century table tombs in the interior of the church, and the ground surface is strewn with rubble. Two kerbed grave plots, each containing a 19th-century box tomb, are appended to the exterior of the N wall towards its E end. Ivy now engulfs the walls of the church,</p>



			<p>obscuring architectural detail and the masonry fabric, and trees and overgrowth grow within and around the church.</p> <p>A circular enclosure (MA030-051005-), a bullaun stone (MA030-051006-) and a cross-inscribed stone (MA030-05107-) are located 150 to W, and a holy well (MA030-052003-) is 180m to SE.</p>
MA030-051002-	Graveyard	523889 819927	<p>RMP. On a level terrace on an E and SE-facing ridge slope. League cemetery, another burial ground (MA030-051004-), occupies rising ground immediately to W.</p> <p>Kilmoremoy Graveyard is indicated on the 1837 OS 6-inch map as a rectangular area outlined by a dashed line, with a church 'in ruins' (MA030-051001-), shown in the SE quadrant; by the time of the 1930 the rectangular area (c. 65-70m N-S; c. 55m E-W, 1930 ed.) is shown enclosed by a wall.</p> <p>Mortared stone walls are extant on the E and S sides of the graveyard. The S boundary coincides with the townland boundary, and is bordered by a small access road that branches off the main Ballina-Kilalla road. Twin cut-stone entrance stiles can be seen in the S wall, flanking a flat-topped section of wall, which was probably used as a coffin rest. The enclosing walls on the N and W sides were removed in the second half of the 20<sup>th</sup> century when the graveyard was expanded 200m to N and c. 160m to W and NW. Traces of the N wall can still be seen as a low jumble of stone and debris marked by a line of sycamore trees. A paved road now overlies the line of the W wall; it gives access to the modern section of the graveyard, and is bordered by a row of 20<sup>th</sup>-century graves. Rough grass and scrub distinguish the older graveyard from the modern extension. There are 19<sup>th</sup>-century graveslabs, table and chest tombs, and 19<sup>th</sup>- and early 20<sup>th</sup>- century headstones, interspersed with low uninscribed stone grave-markers. 19<sup>th</sup>-century tombs are also evident in the interior ruined medieval church.</p>
MA030-051004-	Burial ground	523717 819875	<p>RMP. Encompassing the level top and E-facing slop of a N-S ridge.</p> <p>A roughly square area (c. 30m N-S; c. 30m E-W), outlined by a dashed line, is shown on the 1837 OS 6-inch map. This may indicate the burial ground, although it is not named as such; at this date it lay within the bounds of Ardoughan townland. On the 1930 edition a much larger subrectangular walled area (c. 110m NNW-SSE; c. 145m NNE-SSW) is indicated and named 'League Cemetery'; by this date the townland boundaries have undergone an adjustment so that burial ground currently lies within Kilmoremoy townland.</p> <p>The burial ground is enclosed by a mortared stone wall. An access road, branching from the main Ballina-Killala road, leads to the entrance, which is located on the E side. The road continues into</p>

			<p>the burial ground, extending W parallel to the S wall, extending the full length of the wall. A modern graveyard no border the NE side of the burial ground.</p> <p>The enclosed space incorporates several changes of level, reflecting the natural fall of the ridge slope, with some graves on level terraces and others on sloping ground. The majority of the graves are marked by formal headstones or graveslabs, dating to the 18<sup>th</sup> and 19<sup>th</sup> century. A few simple, uninscribed stone grave-markers are also visible. Long grass, overgrowth and a scattering of yew trees cover much of the area, with an impenetrable thicket of scrub obscuring the NW corner.</p> <p>A circular enclosure (MA030-051005-) is located in the SW quadrant, at the highest point within the burial ground, which corresponds roughly with the area outlined by a dashed line on the 1838 OS 6-inch map. A bullaun stone (MA030-051006-) and cross-inscribed stone (MA030-051007-) are associated with the enclosure. A medieval church (MA030-005101-) is located 50m E of the burial ground, enclosed within Kilmoremoy graveyard (MA030-05102-).</p>
MA030-051006-	Bullaun stone	523722 819844	<p>RMP. Located on the E side of an enclosure (MA030-0051005-), within a burial ground (MA030-051004-) named League Cemetery.</p> <p>This possible bullaun stone consists of a roughly circular stone slab (diam. c. 0.98m; T c. 0.3m), which is set upright on its narrow edge. It leans against the enclosing scarp of the enclosure, and is partly embedded in the ground so that its exact dimensions are uncertain. A circular depression (diam 0.17m; D 0.008m), with vertical sides and a flat base, is located off-centre on the broad exposed face of the stone.</p> <p>The function of this stone is unclear; it superficially resembles a bullaun stone, but the form of the circular depression is somewhat unusual. According to local tradition, the stone has curative powers, especially efficacious for headaches or other problems of the head.</p>
MA030-051007-	Cross-inscribed stone	523712 819844	<p>RMP. Located in the N half of a circular enclosure (MA030-051005-), which is situated within a burial ground (MA030-051004-) named League Cemetery.</p> <p>An earth-fast, irregular-shaped elongated rock, probably bedrock (c. 4m N-S; c. 2m E-W; H 0.7m), has a cross-in-circle inscribed on the vertical W-face. The equal armed cross (H 0.23m; W 0.23m) is outlined by an incised groove, and is enclosed by two concentric circles (ext. diam. 0.4m), each outlined by a single incised groove. The shaft and arms of the cross extend the full diameter of the innermost circle (diam. 0.3m). The four quadrants between the arms of the cross are each defined by an incised arc, and there is a dimple, now barely discernible, in the centre of each quadrant. According to tradition, the stone is known as 'Lia-na-manach' (Stone of the monks).</p>

MA030-051005-	Enclosure	523712 819839	<p>RMP. Located on the level top of an E-facing slope, enclosed within a burial ground named 'League Cemetery' (MA030-051004-).</p> <p>This enclosure is not indicated on the 1837 and 1930 OS 6-inch maps. It consists of a slightly raised, roughly circular area (c. 27m N-S; c. 24m E-W) defined by a scarp. The scarp (H 1.2m at E) is well defined at NE-SE, but is difficult to trace at S where it is truncated by modern graves; it is low and poorly defined at SW-NW, and cannot be traced at NW-N, where it is engulfed by a dense thicket of overgrowth.</p> <p>There are 18th- and 19th-century headstones and grave slabs, as well as a number of low uninscribed grave-markers throughout the interior. In the NE quadrant, a cross-inscribed stone (MA030-051007-) protrudes from the ground, and a possible bullaun stone (MA030-051006-) lies against the enclosure scarp at E. Kilmoremoy graveyard (MA030-05102-), which encloses a medieval church (MA030-05101-), is located 150m down-slope to E.</p>
MA030-035----	Burial	523601 820933	<p>RMP. In pasture, located on a ridge. This monument is represented on the 1837 and 1930 OS 6-inch maps as a small oblong feature, named 'Friar's Grave' and 'Laghtadawannagh'; it would appear to be the source of the townland name.</p> <p>According to local information, there was a low heap of stones at this location, measuring 'about 8 feet [2.4m] by 4 feet [1.2m] and about 2 to 3 feet [0.6-0.9m] high'. It did not appear to have any formal structure. It was removed during land clearance in the 1970's/80's. A single stone (0.8m N-S; 0.7m E-W; T 0.2m) lies partly embedded in the ground just below the summit of the ridge, on the NW-facing slope, but it is unclear if this is a remnant of the monument.</p>
MA030-104----	Excavation- miscellaneous	523945 821408	<p>SMR. On the N outskirts of Ballina town, located at the base of the W-facing slope of a low grassy N-S ridge, on the edge of a lowlying area of reeds and scrubland, through which a small stream flows.</p> <p>This monument was discovered during monitoring of the Ballina main drainage scheme, and was subsequently fully excavated (licence no. 06E0195) in 2006 (Zajac 2009). A cluster of three stakeholes (each, diam. 0.2m; D 0.2-0.35m) was found in the vicinity of four discrete thin spreads (each c. 0.4m x 0.5m) of burnt stone and charcoal, which were confined to a relatively small area (8m N-S; 6m E-W). The fill of one of the stakeholes was almost entirely composed of charcoal. The remains as a whole were too meagre to be readily interpreted, however, given that two fulachtaí fia (MA030-095----; MA030-096----) were found 50m and 22m to S, respectively, it is possible that they represent an occupation site associated with those fulachtaí fia or perhaps the disturbed remnants of a third fulacht fia (Zajac 2009).</p>



MA030-096----	Fulacht fia	523962 821373	<p>SMR. On the N outskirts of Ballina town, located at the base of the W-facing slope of a low grassy N-S ridge, on the edge of a lowlying area of reeds and scrubland, through which a small stream flows.</p> <p>This fulacht fia was discovered during monitoring of the Ballina main drainage scheme, and it was subsequently excavated (licence no. 06E0195) in 2006 (Zajac 2009). It had been levelled in the past, and there was no surface indication prior to soil stripping. It underlay a shallow layer, and overlay subsoil. The fulacht fia consisted of the remains of a subcircular mound (5.8m N-S; 5.2m E-W; D 0.35m) of heat-shattered stones, charcoal and ash, beneath which was an unlined circular trough or boiling pit (diam. 1.3m; D 0.6m), with a flat base and steep sides. The lowermost fill of the trough was of burnt stone and angular boulders, above which was a layer of compacted peat. Two post holes were found, one 1.3m to SW of the trough, the other 6m to E. No artefacts were found in association with the fulacht fia, but three pieces of iron slag were found in an unstratified context in this area (Zajac 2009). A portion of the fulacht fia mound extended beyond the development way leave, and remains in situ. Another fulacht fia (MA030-097---), located 35m to S, was also excavated (Zajac 2009).</p>
MA030-095----	Fulacht fia	523986 821342	<p>SMR. On the N outskirts of Ballina town, located at the base of the W-facing slope of a low grassy N-S ridge, on the edge of a lowlying area of reeds and scrubland, through which a small stream flows.</p> <p>This fulacht fia was discovered during monitoring of the Ballina main drainage scheme, and was subsequently fully excavated (licence no. 06E0195) in 2006 (Zajac 2009). There was no surface indication prior to soil stripping. It underlay a shallow layer of peat, and overlay subsoil.</p> <p>The mound of burnt stone, ash and charcoal had been disturbed in the past, and was found in two discrete concentrations, the larger concentration (c. 5.2 E-W; 5.8m N-S; D 0.35m) being 1m to N of a smaller patch (3.8m NE-SW; 2.2m NW-SE; D 0.2m). On the W edge of the larger concentration of burnt stone, there was a trough (L 3.2m NW-SE; Wth 1m; max D 0.35m), oval in plan, with a flat base and almost vertical sides, except at NW where there was shallow, sloping side. A single, tangentially-split oak plank (L 2.7m; Wth 0.55m; T 0.08m) remained in situ, lining the base of the trough. A flat-based cylindrical pit (diam. 0.4m; D 0.48m) was uncovered c. 3.5m S of the trough, under the smaller patch of burnt stones; the N edge of the pit had a shallow cut sloping toward the pit opening, possibly acting as a channel to allow water to flow into it. Artefacts recovered during the excavation included a retouched chert blade, struck debitage, and a small quantity of animal bones (Zajac 2009). Another fulacht fia (MA030-096----) 35m to N was also excavated.</p>
MA030-038----	Enclosure	525709	RMP. On the N outskirts of Ballina town, located on top of a N-S ridge bordering the E bank of the River Moy.

		820827	Indicated on 1837 OS 6-inch map as a circular, rath-like enclosure (diam. 25-30m), with a smaller enclosure (MA030-039---) immediately adjacent at SE. It is not shown on later map editions. There are no visible remains at ground level. Much of the W slope of the ridge has been quarried away, and it is likely that part at least of the W half of the enclosure has been completely destroyed.
MA030-039----	Enclosure	525740 820816	RMP. Located on a N-S ridge, bordering the E bank of the River Moy.  This enclosure is shown on the 1837 and 1930 OS 6-inch maps. On the 1930 edition it is depicted as a broadly oval embanked area (c. 20m E-W; c. 15m N-S), bisected centrally on a NW-SWE axis by the townland boundary/field fence. It has been levelled. An inspection in 1995 noted a slightly raised area of rough ground (c. 12-15m N-S; c. 7-10m E-W) on the E side of the bisecting field fence, and a slight, irregular arc of raised ground could be discerned on the W side of the fence. A few meters to the W there is a steep drop where the ridge slope has been cut away; to the NE and SE there are housing estates.  On the 1837 OS 6-inch map another, larger enclosure (MA030-038---), now levelled, is shown immediately to NW.
MA030-041----	Ringfort-rath	526754 820998	RMP. Located on rise in undulating pasture. An area of poorly drained ground lies to NE-E. A farmyard lies immediately to NW.  This rath is enclosed by three banks with intervening fosses. It consists of a slightly raised circular area (37.6m E-W; 39.6m N-S) defined by an earthen bank (Wth 5.3m; int. H. 0.4m; ext. H 2.9m), and enclosed by a flat-bottomed fosse (Wth 4m) with external bank (Wth 6.9m; int. H 1.8m; ext. H 1.6m). Remnants of the second fosse (Wth 2.4m) with its outer bank (Wth 3.5m; int. H 0.4m; ext. H 1.2m) survive in an arc at SW-NW, but have been levelled elsewhere. A poorly defined gap (Wth 1.4m) in the innermost bank at the E may indicate the site of the original entrance.  The interior is level. Two areas of surface collapse in the W half of the interior mark the location a souterrain (MA030-041001-) of dry-stone construction. A slight, narrow stony rise (Wth 0.6-0.8m) traverses the W half of the interior on a roughly N-S axis, probably the remains of a field fence. An accumulation of field clearance stones tops the innermost bank. At SE-SW the second bank is incorporated into a later field fence, and has been faced with stone in parts. The banks are ringed with hawthorn and brambles. At NW-N a silage pit truncates the outer banks and fosse. There is another multivallate rath (MA030-043----) 200m to N, and a standing stone (MA030-044 ---) c. 350m to ESE, both visible from this rath.
MA030-041001-	Souterrain	526740	RMP. Located in the W half of rath (MA030-041 ----), close to the inner face of the bank.

		821003	<p>The souterrain is indicated by two areas of surface collapse, the most northerly of which appears as a shallow depression (diam. c. 1.4m). Located 5m SSW of this depression, the collapse of roofing lintels has revealed a subterranean chamber (3.2m E-W; 3.8m N-S; H c. 2m) of dry-stone construction and oval in plan. the walls of medium-large, irregular-shaped stones and boulders are slightly corbelled to support large stone lintels, some of which remain in situ at the N end. There is a possible air vent, now filled with soil, in the wall at the SW. Heaps of collapsed stone and earth obscure the S end of the chamber. At the N end, two or possibly three rough steps lead down to a narrow passage (Wth 0.6m; H 0.95m), which extends for 3.5m to the NNE, opening into the S end of a second oval chamber (3m E-W; c. 1.8m N-S; H 1.8m) of similar construction. The floor of this chamber is strewn with stones. An opening (Wth 0.78m; H c. 0.5m) in the E wall reveals a narrow passage or shaft sloping steeply upwards, and largely filled with soil; this may have been the original entrance passage.</p>
MA030-044----	Standing stone	527161 820875	<p>RMP. In an area of undulating grassland, on the outskirts of Ballina Town, prominently sited on top of a knoll, overlooking the valley of the River Moy to W, with excellent views of Nephin and the Nephin Beg range in the distance to SW. There is a spring/area of wet ground at the base of the slope to SW.</p> <p>This standing stone is not shown on the 1837 OS 6-inch map, but is indicated and named 'Standing Stone' on the 1930 edition. An upright, pillar-like stone (H 2.5m; Wth 0.7m, 0.55m at top; T 0.26-0.36m), with a rectangular cross-section. It narrows slightly towards the top, which gives it a slightly 'shouldered' appearance. It leans gently to N, and is encircled by a few small stones, and by a slight depression, probably the result of farm stock using the stone as a scratching post.</p>
MA030-042----	Earthwork	526823 820624	<p>RMP. In pasture, located on elevated ground on N side of a narrow stream valley. A field drain lies immediately to W, bordering the garden of a modern two-storey house. To SE there is a spring well in a concrete housing.</p> <p>This monument is shown on the 1837 OS 6-inch map as a small circular enclosure or earthwork, and on the 1930 edition as a roughly circular hachured feature (diam. c. 10m). It consists of a low, D-shaped earthen platform (c.7m E-W; 4.5m N-S; H 0.2-0.3m) defined on the curving N side by a slightly raised rim (Wth c. 0.5-0.7m), incorporating a few stones, and truncated on the straight side to S by modern disturbance. Its original form and function is unclear.</p> <p>According to local information, an area of disturbed ground immediately to SE-S was used in the 1940's as a pond for soaking flax, but has since been partly infilled.</p>



MA030-058----	Ringfort- rath	526527 819725	RMP. In pasture, located on a rise. Shown on the 1930 OS 6-inch map as hachured circular enclosure (diam. c. 20m) located at the W end of an irregular-shaped hachured area (c. 50m E-W; c. 25-30m N-S), most likely representing a natural rise. This enclosure has been levelled. According to local information, it consisted of a slightly raised area that was fenced around, and was removed during land reclamation in the 1930's. The field was locally known as the 'fort field'.
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## 12.2 Appendix 2. Wrecks of the River Moy and wider area taken from the Wreck Inventory of Ireland Database, National Monuments Service

Wreck ID	Name	Type	Place of Loss	Date of Loss
W06982	<i>Barbara</i>	Unknown	Ballina, Co Mayo	26/12/1806
W11763	<i>Unity</i>	Unknown	Moy river, Ballina	1835
W12891	Unknown	Steamship	Ballina	15/10/1881
W13661	<i>Express</i>	Unknown	Ballina, Moy River	18/12/1828
W13930	<i>Dumbarton Castle</i>	Unknown	Ballina	12/06/1835
W14280	<i>Briim (SS)</i>	Steamship	Ballina, river	04/01/1934
W15084	Unknown	Fishing boat	Ballina	08/01/1892
W06704	<i>Creteboom</i>	Tug	Ballina, Co Mayo, Killala Bay	22/09/1937
W06731	<i>Flowerette</i>	Sailing Ship	River Moy, Ballina, 240m NW of Quignamanger Quay	1937
W06658	<i>Agnes and William</i>	Unknown	Ballina Bar	22/10/1850
W06706	<i>Desire</i>	Unknown	Ballina, Co Mayo	10/05/1835
W06762	<i>Isabella</i>	Unknown	Ballina, Co Mayo	1827
W06772	<i>Jesina</i>	Unknown	Ballina, Co Mayo	18/10/1820
W06774	<i>Josina</i>	Schooner	Ballina, Co Mayo	18/10/1820
W06777	<i>Lady Mackenzie</i>	Unknown	Ballina, Co Mayo	1829
W06796	<i>Margaret</i>	Vessel	Ballina, Co Mayo 'whilst coming out'	23/04/1825
W06825	<i>Opriglikiden</i>	Vessel	Ballina, Co Mayo, River Moy Bar	Nov. 1825
W06834	<i>Princess Marie</i>	Schooner	Ballina, Co Mayo	30/03/1856
W06856	<i>Schwan</i>	Brig	Ballina, Co Mayo	24/03/1853
W06901	<i>Trial</i>	Unknown	Ballina, Co Mayo	1828
W06973	<i>William and Agnes</i>	Schooner	Ballina, Co Mayo	22/10/1850
W07599	<i>Schivan</i>	Brig	Ballina, Co Mayo, 4 miles NE, at Castleconner	Feb. 1853
W117722	<i>Prince Cobourg</i>	Unknown	Ballina, Co Mayo and Liverpool, between	1833
W11783	<i>Olive</i>	Unknown	Ballina, Co Mayo and Clyde between	1834
W12096	<i>Bee</i>	Schooner	Ballina and Liverpool, between	25/01/1868
W12326	<i>Ballina</i>	Steamship	Liverpool and Ballina, between	Jan. 1882

W14503	<i>Lily (SS)</i>	Steamship	Moy Bar, entrance to Ballina	10/04/1915
W15461	<i>Zeebloem</i>	Schooner	Ballina to Limerick, en route	28/06/1922
W15686	<i>Lord Byron</i>	Unknown	Ballina River	14/03/1857
W15733	<i>Alida Ikina</i>	Unknown	Ballina Bar	14/12/1859
W16206	<i>Olive (SS)</i>	Steamship	Ballina Quay	06/08/1900
W16646	<i>Dauntless</i>	Unknown	Ballina	25/01/1872
W17458	<i>Fern</i>	Screw Steamer	Moy River, near Ballina	07/12/1881
W18057	<i>Janet Taylor</i>	Smack	Ballina River, entrance to	16/05/1865

**Site Name**        *Volant*

**Date of Loss**     26 Jan. 1843

**Place of Loss**    near Ballina

This 236-ton brig was built in 1842 and classed as '4 A 1-42'. She belonged to the port of Glasgow and the master was Ducan. She was en route from the Clyde to St. Thomas when she was lost. The crew drowned.

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### 12.3 Appendix 3: Survey areas and cultural heritage (Y/N)

Site	Townland (s)	Cultural Heritage	Cultural Heritage (Y/N)
Quignamanger	Quignamanger	None  Note: The Moy River forms the townland boundary of Quignamanger	Y
Bunree/Behy Rd.	Quignalecka, Knocknalyre or Downhill, Ballyholan, Quignashee	<ul style="list-style-type: none"> <li>• Stone culvert</li> <li>• Possible remains of stone culvert</li> <li>• Townland boundaries west to east: Quignalecka/Knocknalyre or Downhill; Quignalecka/Ballyholan; Ballyholan/Quignashee</li> </ul>	Y
Brusna	Rathkip, Abbeyhalfquarter, Ardnaree or Shanaghy	<ul style="list-style-type: none"> <li>• Possible weir remains</li> <li>• Townland boundaries west to east: Abbeyhalfquarter/Rathkip</li> </ul>	Y
Tullyegan	Commons, Behybaun	<ul style="list-style-type: none"> <li>• Townland boundaries: Commons/Behybaun</li> </ul>	Y
Moy	Ballina/Abbeyhalfquarter	<ul style="list-style-type: none"> <li>• MA030-056001 Bridge</li> <li>• NIAH Reg. No. 31204103 Weir</li> <li>• NIAH Reg. No. 31204106 Quay</li> </ul>	Y



#### 12.4 Appendix 4: List of archaeological objects recovered from the River Moy.

Find No.	Material	Type	Survey Area	Location
1	Bone	Animal long bone	Moy- Ridge Pool	54.112318 -9.153339
2	Wood	Dowl - fishing implement	Moy- Ridge Pool	54.112426 -9.153085
3	Metal- iron	Corroded iron spike	Moy- Ridge Pool	54.11698
4	Composite wood/metal	Hinge	Moy- Ridge Pool	54.112359 -9.153256
5	Glass	Green glass bottle	Moy- Ridge Pool	54.112549 -9.153352
6	Glass	Green glass bottle- base	Moy- Ridge Pool	54.112568 -9.15338
7	Pottery	Stoneware marmalade jar rim sherd	Moy- Ridge Pool	54.111995 -9.153541
8	Pottery	Stoneware marmalade jar body sherd	Moy- Ridge Pool	54.111883 -9.153534
9	Pottery	Stoneware body sherd	Moy- Ridge Pool	54.112122 -9.153427
10	Pottery	Stoneware body sherd	Moy- Ridge Pool	54.112272 -9.153407
11	Pottery	Stoneware body sherd	Moy- Ridge Pool	54.112492 -9.153348
12	Pottery	Stoneware body sherd	Moy- Ridge Pool	54.111928 -9.153616
13	Pottery	Glazed red earthenware body sherd	Moy- Ridge Pool	54.112009 -9.153359
	Pottery	Transfer-printed ware body sherd	Moy- Ridge Pool	54.111708 -9.153747
14	Ceramic	Tile	Brusna	54.109723 -9.124336
15	Ceramic	Tile	Brusna	54.109786 -9.12455
16	Pottery	Red earthenware flowerpot base sherd	Brusna	54.108943 -9.1231151
17	Pottery	Red earthenware roof tile sherd	Brusna	54.108903 -9.123049
18	Metal- aluminium	Licence plate fragment	Brusna	54.108124 -9.121753
19	Metal- iron	Corroded stair nosing	Brusna	54.107132 -9.119754

Note- finds at other locations consisted of frequent aluminium cans and occasional footballs, which were not retained or recorded.