



Celbridge
Pedestrian Bridge

NIAH Ref: 11805054
RPS Ref: B11 - 103

Stage 2A:
Bridge Report

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1.0 INTRODUCTION

Background

Clifton Scannell Emerson Associates and dhb Architects have been engaged by the National Transport Authority (NTA) to prepare Part 8 planning documentation, on behalf of Kildare County Council, for a proposed pedestrian and cycle bridge adjacent the existing roadbridge in Celbridge.

Celbridge is a historic town located approximately 15 miles west of Dublin and bisected by the River Liffey with a population of approximately twenty thousand people, and a number of distinct features and buildings of national importance. There are numerous residences, businesses and areas of historical importance in and around the town, which all generate a significant volume of vehicular, pedestrian and cyclist movements.



Main Street, Celbridge, 1880-1900



Aerial View, Celbridge, 2010

Need for the Scheme

At present, there is a single vehicular crossing point over the River Liffey within Celbridge town with a narrow footpath and a second pedestrian bridge, also used by cyclists, to the south west of the vehicular bridge (see aerial photograph). These limited crossing points are a significant constraint to the efficient movement of private and commercial road users, and public transport, within the town. The town suffers from significant traffic congestion, particularly during peak travel periods, associated, to a significant degree, with the fact that the town has only this single bridge. This bridge is a multi-arch stone bridge with two narrow traffic lanes and a footpath of limited width on one side only. Delays to vehicles accessing the bridge crossing is a regular occurrence in Celbridge.

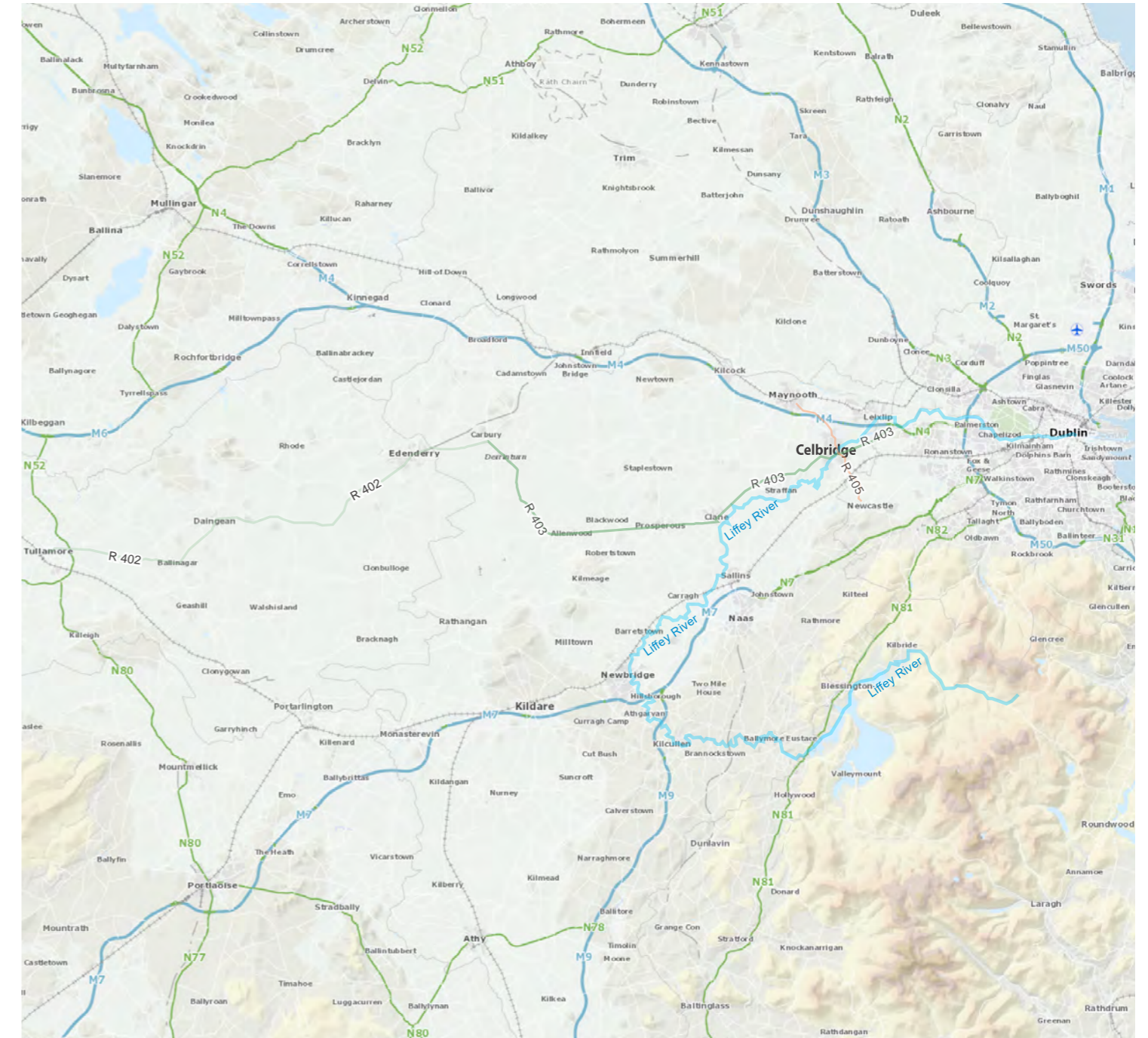
Problems also arise for other road users. In particular, the narrow footpath, in such close proximity to narrow traffic lanes subject to high traffic flows, creates safety issues for pedestrians using the bridge. For cyclists, no facilities are provided at the crossing over the Liffey and cyclists are required to share the traffic lanes. In order to increase the capacity of the street space within Celbridge it is crucial that the use of sustainable transportation modes is promoted, and, in order to do this, improved provisions for pedestrians, cyclists, and public transport services must be provided.

Provisions need to be made for the safe and efficient movement of people within Celbridge Town, and a pedestrian and cycle bridge is proposed to achieve this. This provision would be an investment in Celbridge Town, developing its economy, environment and public realm. This investment would facilitate increased pedestrian, cycle movement across the town significantly improving connectivity between businesses, schools, housing, places of worship, to name a few and generally provide better urban connectivity for the town.

GEOGRAPHIC LOCATION



Current Ordnance Survey view, Ireland [1]



Current Ordnance Survey view, Kildare county

[1]-Maps: geohive.ie, January 07th 2020



Current Ordnance Survey view, Celbridge [1]

Celbridge is located in County Kildare within 20km of Dublin. The town is 3 km from exit 6 of the M4 motorway and 2 km from Hazelhatch train station, the town of Celbridge is ideally located and easily accessible for all kinds of mobility. The Celbridge bridge is at the crossroads of two important national roads: R403 and R405. The bridge is therefore heavily used by motorists who wish to take an alternative route, avoiding the motorways which can be overloaded around The capital.

In addition Celbridge is located along the Liffey River. This location brings a lot of diverse activities. For example, international canoe competitions took Celbridge as their starting point in order to join Dublin. The different castles and old houses along the Liffey River provide an ideal setting for this type of activity.

2.0 NIAH Survey

NIAH REF: 11805054

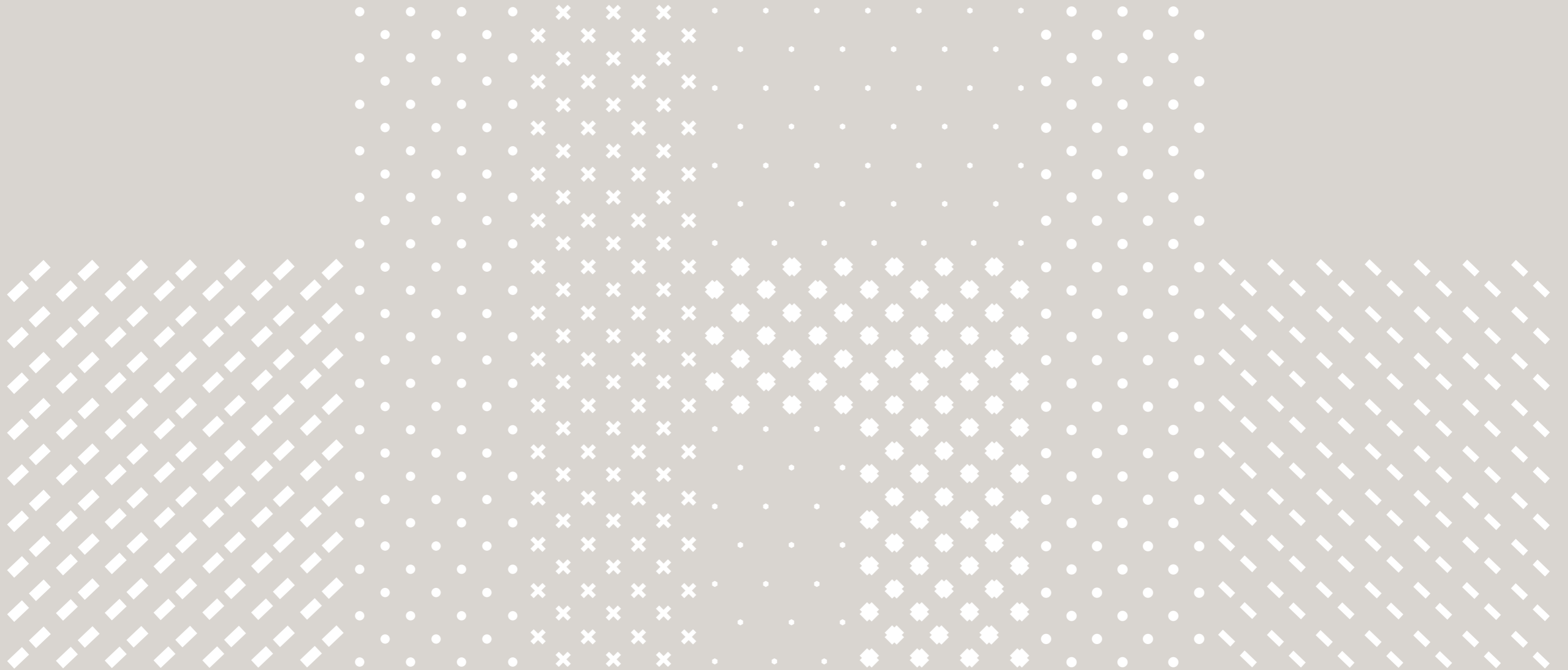
Six-arch rubble stone road bridge over river, c.1800, with triangular cut-waters and cut-stone voussoirs. Renovated, c.1985. Random rubble stone walls. Repointed, c.1985. Random rubble stone triangular cut-waters to piers. Rubble stone parapet walls with rendered coping. Six segmental arches. Cut-stone voussoirs. Rendered soffits. Sited spanning River Liffey with grass banks to river.

Celbridge Bridge is a fine stone bridge that forms an imposing feature on the River Liffey and is one of a group of bridges on the section of that river that passes through County Kildare. The construction of the arches that have retained their original shape is of technical and engineering merit. The bridge exhibits good quality stone masonry, although the modern repointing is too prominent and has obscured the joints. The bridge is of considerable historical and social significance as a reminder of the road network development in Ireland in the late eighteenth/early nineteenth centuries.

Survey carried out on 21.01.2003



3.0 History and Evolution



3.0 HISTORY AND EVOLUTION

The old Irish name Cill Droichid (Kildrought or Kildroighid), traslating to the 'church of the bridge', was anglicised to Cellbridge after 1714. The city of Kildrought or Kildroighid developed around the castle of Leixlip, the old stone Church and the Kildrought Mill that Thomas of Hereford, the Norman lord of Kildrought erected at the beginning of the 13th century. In 1210 The town is mentioned in the register of the abbey of St Thomas, Dublin under the name of "Kildroch".

Killdrough features on the 1655 Down survey shown with a bridge. The iconographic nature of the record does not provide any detail of the structure, however it marks Killdrough (now Celbridge) as a known crossing point along the Liffey in County Kildare.

Celbridge really started to grow when William Conolly (1662-1729) took possession of the town in 1709. A lawyer and politician (Speaker of the Irish House of Commons in 1715), during this acquisition he began the construction of the largest private house in Ireland in Castletown, just north of Celbridge



Main Street, Celbridge, 1865-1914

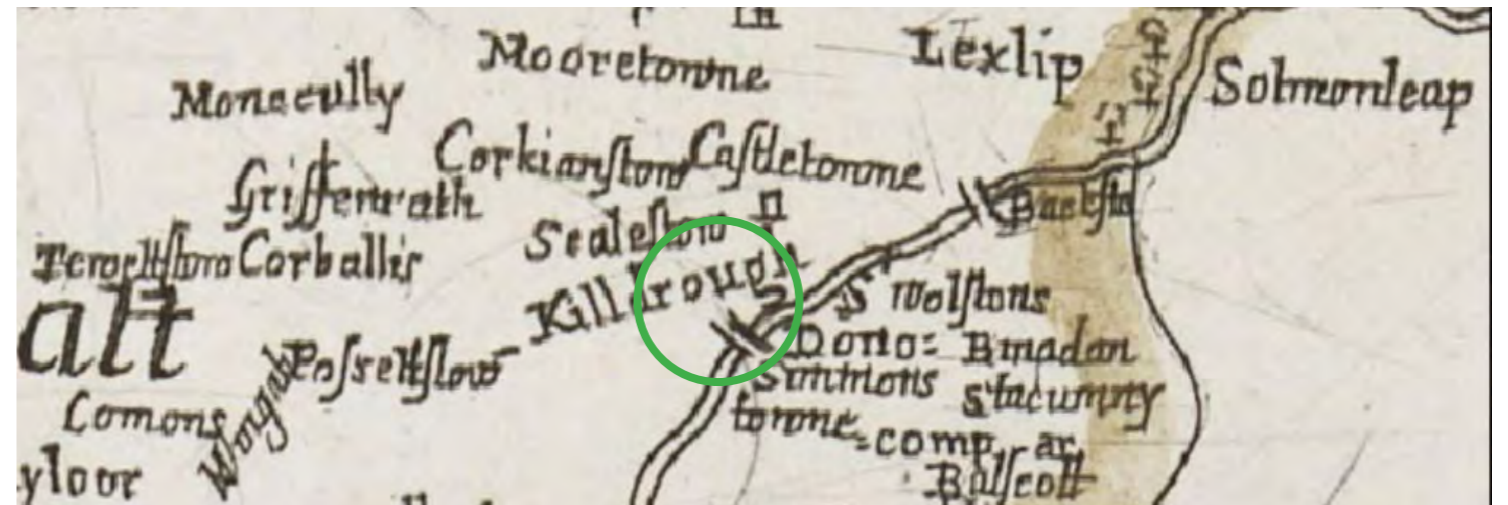
(Castletown House, 1722). As part of this development he also reshaped the town of Celbridge. The link between these two places are still seen on the site today He established the axis of Main Street, lining it up with the entrance to Castletown house.

In John Rocque's 1760 survey of Celbridge, a bridge is shown in a similar location to the current bridge on site. Castletown House grounds are also recorded on this map and an early version of Main Street's alignment is shown. Rocque's map also outlines the planned landscape of the Liffey valley with planted tree allées in Castletown House's grounds. On the eastern side of the river is an aligned road approaching the bridge from the North-East.

Some thirty years later, Alexander Taylor records Celbridge on the 1783 map. This map sees the area as a picturesque landscape with two major crossing points along the liffey, one at Celbridge and the other further downstream at Newbridge (now Parsonstown). A mill is recorded in the area, along with a Chapel School west of Celbridge and some buildings along Main Street.



English Row, Celbridge, 1865-1914



Extract from 1655 'Down Survey' of County Kildare. Celbridge, previously Killdrough, circled in green.



Extract from John Rocque's map showing Castletown grounds and Celbridge Main Street 1760



Extract from Alexander Taylor's Map from 1738 [1]

The Celbridge mill was first mentioned in 1217 built by Thomas of Hereford, functioning as a corn mill. At the end of the 17th century it was converted into a flour mill, then a brewery and subsequently a textile mill. The mill was a major factor in Celbridge's economic development, and the working population increased and decreased subject to the various changes in the Mill's financial situation.

The first reference to the textile industry in the factory was in 1782, when John Gregg, a wire manufacturer, leased the premises. In 1804 Laurence Atkinson opened "The largest wool manufacturing in Ireland," and according to Samuel Lewis, this structure had the capacity to hold 600 workers. In this backdrop, the bridge retains its significance on the map, acting as the primary route to cross the Liffey from Celbridge to Dublin.

Lewis, (1847), describes Celbridge as a 'town is pleasantly situated on the left bank of the river Liffey, over which is a handsome stone bridge, and on the turnpike-road from Dublin to Prosperous.' The road referred to by Lewis is a prominent feature in the landscape, leading from the Celbridge bridge to Dublin via Leixlip, Lucan and Chepelizod.

The first reference to a bridge built in the town of Celbridge was during the reign of Henry VIII (Archdall's Monasticon) 1491-1547, where "some pasture-ground at the foot of the Bridge of Kildrought" is noted. The bridge mentioned here is one that precedes the extant structure on the site. We have very little information on this ancient bridge. It was apparently destroyed in 1802 during a flood. A new bridge, was built between 1802 and 1820.[2]

The first edition OS Map shows a bridge along the Liffey, with four starlings in a similar location to the current structure on the site. This is possibly the 'handsome stone bridge referred to in Lewis' description of Celbridge. Further upstream, south of this bridge, is a Mill Race infrastructure associated with the Woollen Factory.

The 25 inch map (surveyed in 1908), notes the bridge in the same location. The 25 inch map however records a different profile of the bridge, particularly on the downstream side of the bridge. A slight crescent is noted along the northern side of the bridge, notably different than what is shown on the 1837 survey.

[1]Maps: geohive.ie, January 07th 2020

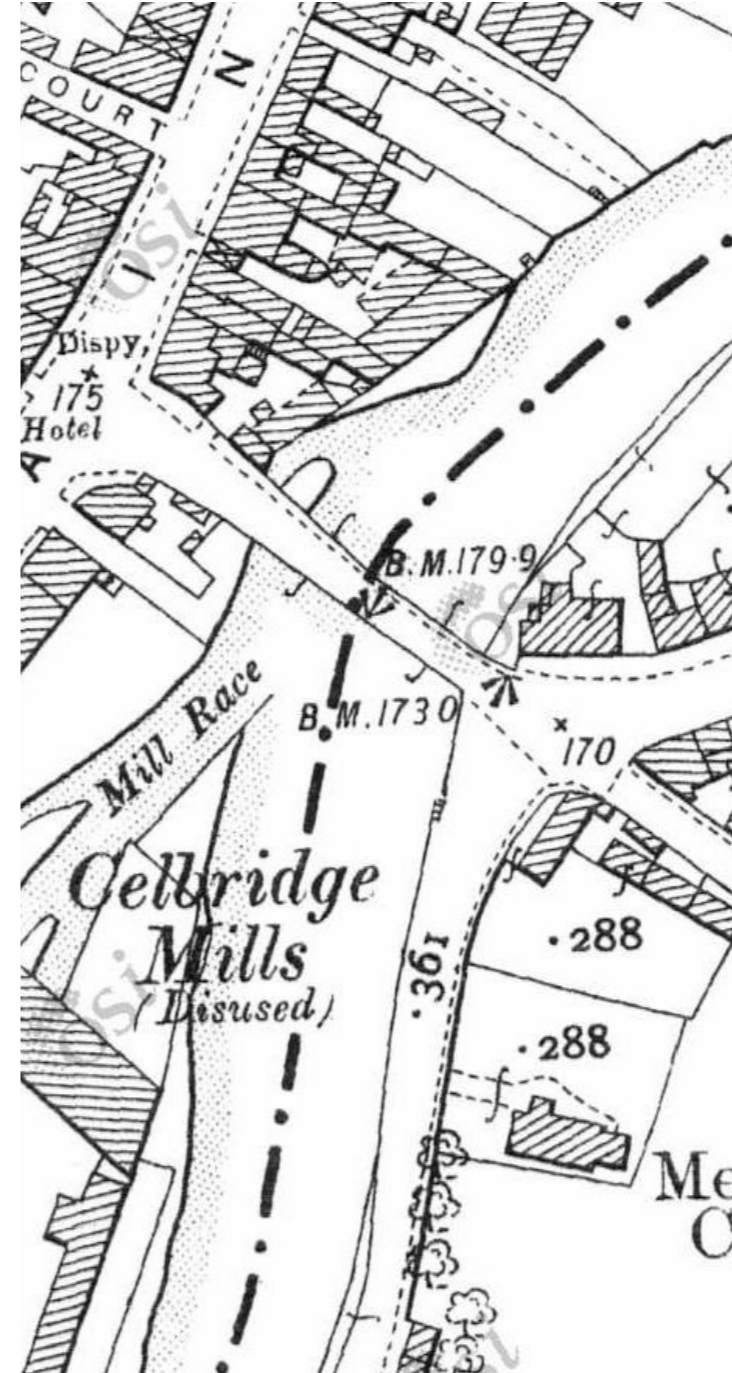
[2]Archaeology: ardcloagh.wordpress.com, January 13th 2020

The starlings are also not recorded on the 25 inch map. A further difference is a small spit of land on the river, at the northwestern corner of the bridge. This would suggest a confluence at this point of stormwater possibly, and its location corresponds with the smallest arch on the bridge (arch 6 on the current elevation drawings). The Mill Race south of the bridge is still present but the factory is noted as being disused in 1908.

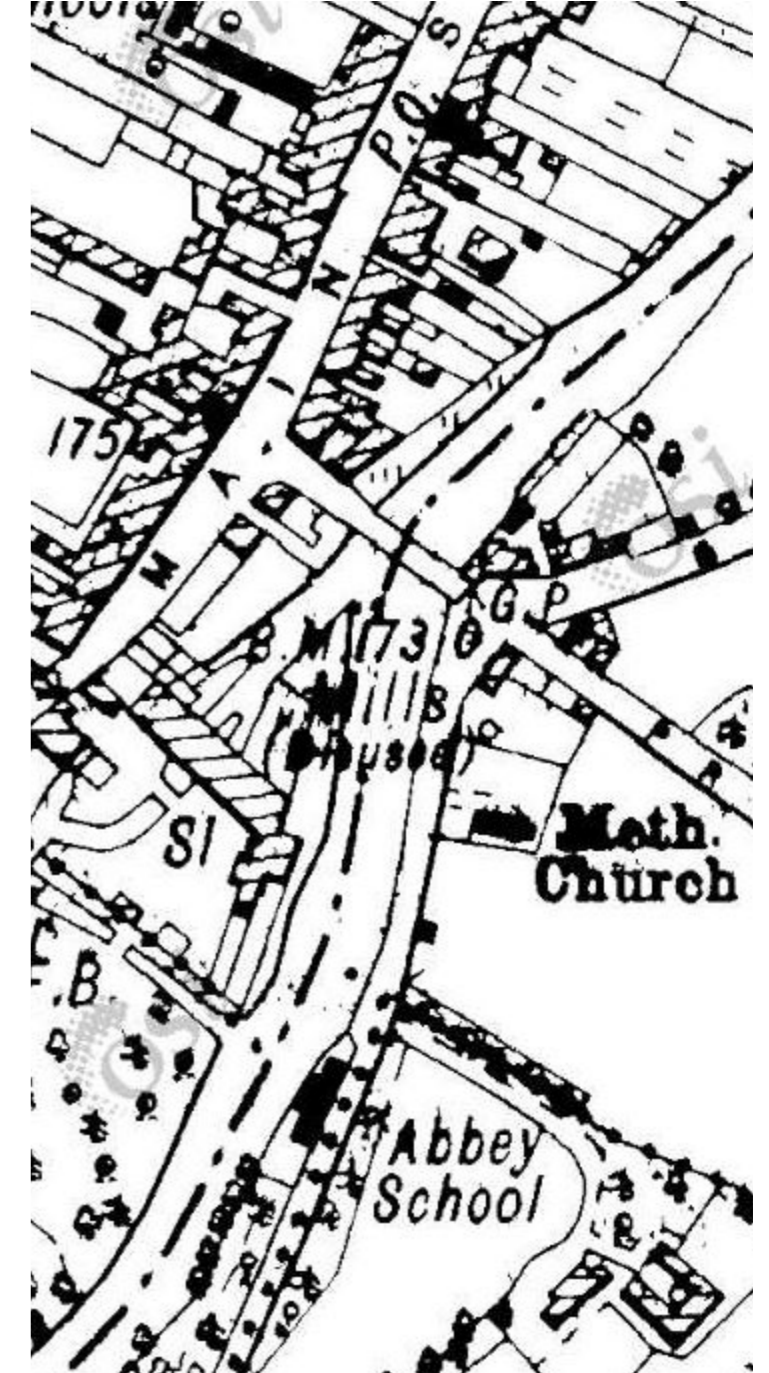
In 1921, Celbridge bridge was badly damaged during the War of Independence. It was subsequently renovated in 1985, and the town experienced an unprecedented demographic boom. [3]. At this period, another bridge further downstream along the Liffey, Newbridge, was built (now Parsonstown). It took the place of the earlier bridge, which at 2.8m carriageway width, could not accommodate contemporary car widths.



Extract from the first edition Ordnance Survey Map Surveyed in 1837



Extract from the updated 25 inch Ordnance Survey Map surveyed in 1908



Extract from the last edition of the Ordnance Survey Cassini Map published in 1942.

[3]History: kildarelocalhistory.ie, January 10th 2020

AERIAL PHOTOGRAPHY



Aerial View, Celbridge, 1950 [4]



Aerial View, Celbridge, 1956 [4]



Aerial View, Celbridge, 1990 [4]



Aerial View, Celbridge, 2010

[4]Photography:catalogue.nli.ie, January 07th 2020

LIFFEY RIVER BRIDGES, KILDARE COUNTY



1. Leixlip Bridge, Leixlip, 1860-1890

The Leixlip Bridge is a fine rubble stone road bridge with three arches. Built around 1880, it is part of the fabric of a previous bridge (around 1740). Today it forms a harmonious group with with the associated former toll house to North-East. The arches have kept their original shape.[5]



2. Rock Bridge, Celbridge Abbey, 1725-1775

Rock Bridge is an attractive and unusual pedestrian bridge. It is made of rubble stone, it has four arches and was built around 1750. This bridge also includes a triangular opening to the southeast. The bridge is reputed to be one of the earliest surviving bridges on the River Liffey built during this period.[5]



3. Celbridge Bridge, Celbridge, 1800-1820

The Celbridge Bridge is six-arch rubble stone road bridge, that forms an imposing feature on the River Liffey. Built around 1800, the bridge exhibits good quality stone masonry, although the modern repointing is too prominent and has obscured the joints. The recent addition of a (watermain) through the cut-waters is unbecoming.[5]



4. Straffan Bridge, Straffan, 1830-1870

Straffan Bridge is a fine stone road bridge. It has three stone arches of stone humpback. Built in 1850, it is distinguished from other bridges by its rounded and not triangular cut-water. [5]



5. Alexandra Bridge, Clane, 1860-1865

Alexandra Bridge is a cut stone road bridge. It is a three-arched bridge built in 1864 and replaced a medieval stone bridge which was constructed in the 1390s. The county surveyor who supervised the design an construction of the new bridge was John Yeats from Drumcliffe, Co. Sligo.[5] [6]



6. Carragh Bridge, Gingerstown, 1820-1860

Carragh Bridge is a rubble stone road bridge. It is a bridge with six arches built in 1840. As for the Celbridge Bridge, modern work has had a significant impact on its aesthetics. [5]

[5]Building search: buildingsofireland.ie, January 07th 2020

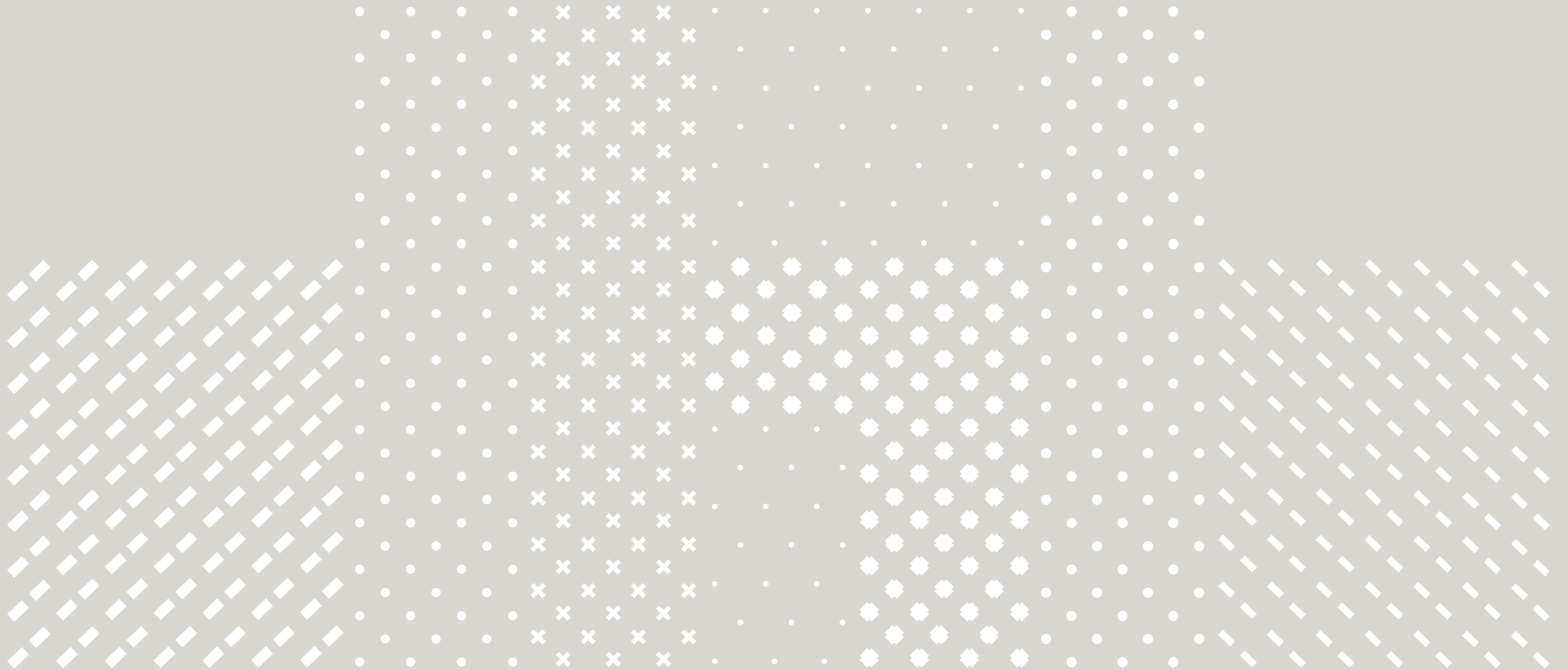
[6]Maps: geohive.ie, January 07th 2020



NorthEast Kildare County Plan [6]

Key map denoting similar bridges in County Kildare, have the same aesthetic and material language, i.e stone bridges, made of several arches, dating from a similar period. These bridges were all built with the same purpose which was to develop the road network between the mid eighteenth and late nineteenth century. These are important social and historical markers. These are also tangible markers of Ireland's technical progress of that time. [5]

4.0 Current State

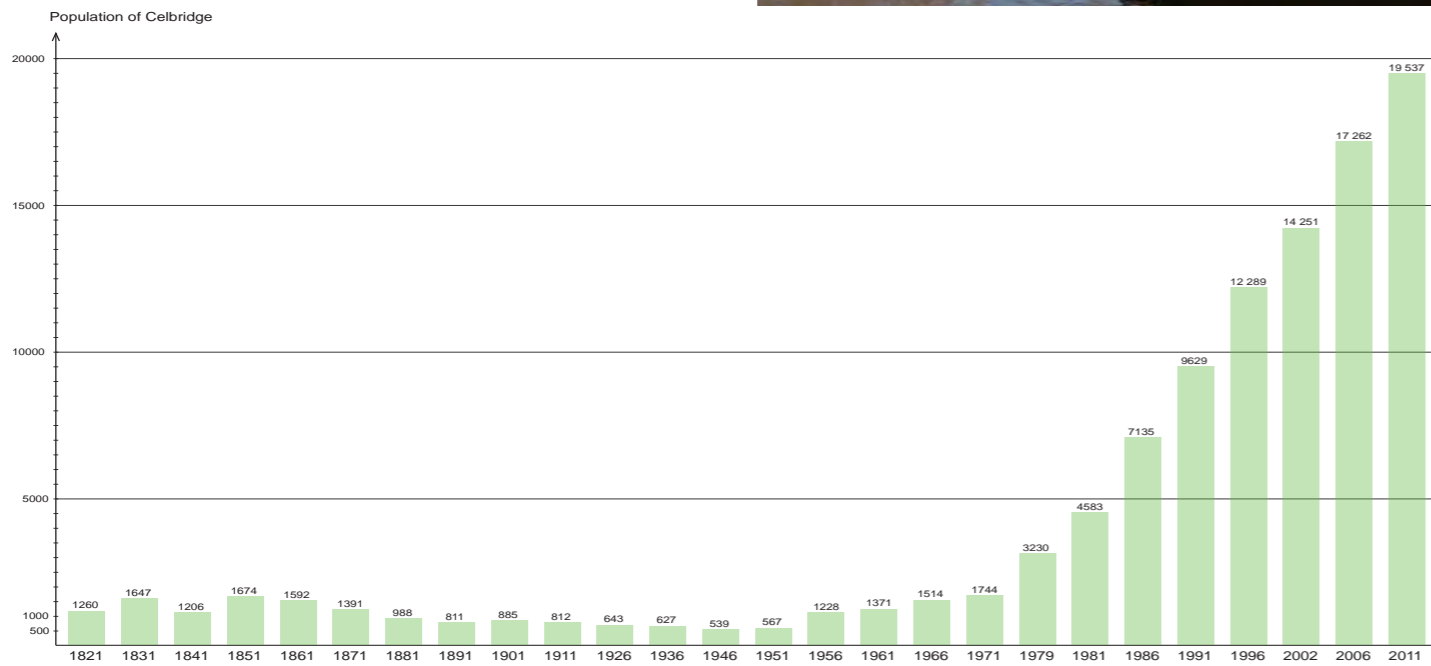


4.1 Context

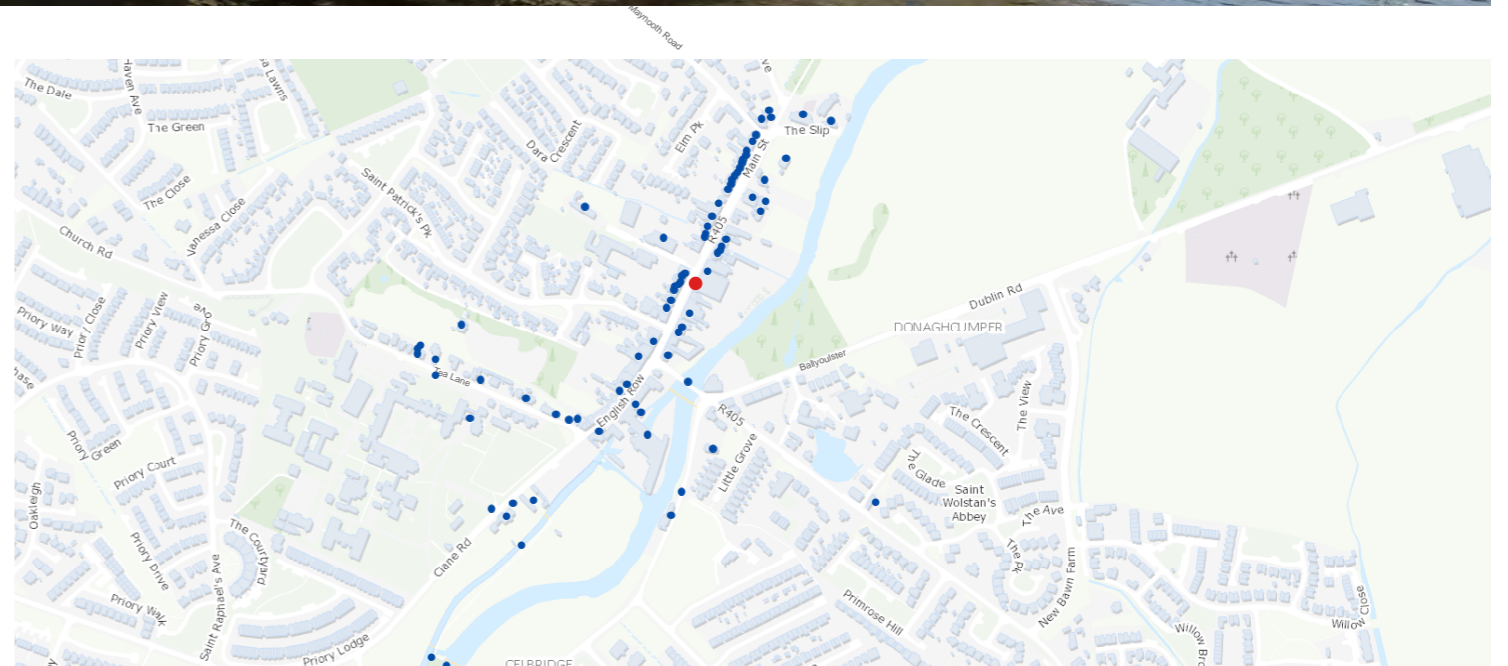
Today Celbridge's urban footprint has grown considerably east of the river as a result of the population increase in the area and its proximity to Dublin. Resultingly, vehicular and pedestrian traffic has increased and adjustments have been made to improve mobility across the river.

A smaller footbridge was added, approximately 15m upstream between the historic bridge and the Mill Race, built about twenty years ago to cater for the pedestrian movement across the Liffey. This pedestrian bridge was designed to take the footfall away from the historic bridge which is now primarily a vehicular carriageway.

The historic bridge served the two sides of the village of Celbridge as well as the demesne of Castletown house, although it was not designed an element of the Estate landscape, unlike for example the bridge at Lucan which is one of the finest cut-stone single-arch bridges in the country and formed a backdrop to Lucan House.



Evolution of the population (Source: CSO 2011) [1]



Map showing NIAH Recorded buildings on the current OS map of Celbridge. [2]

[1] Planning Department Kildare County Council, *Celbridge Draft Local Area Plan 2017-2023*, September 2017

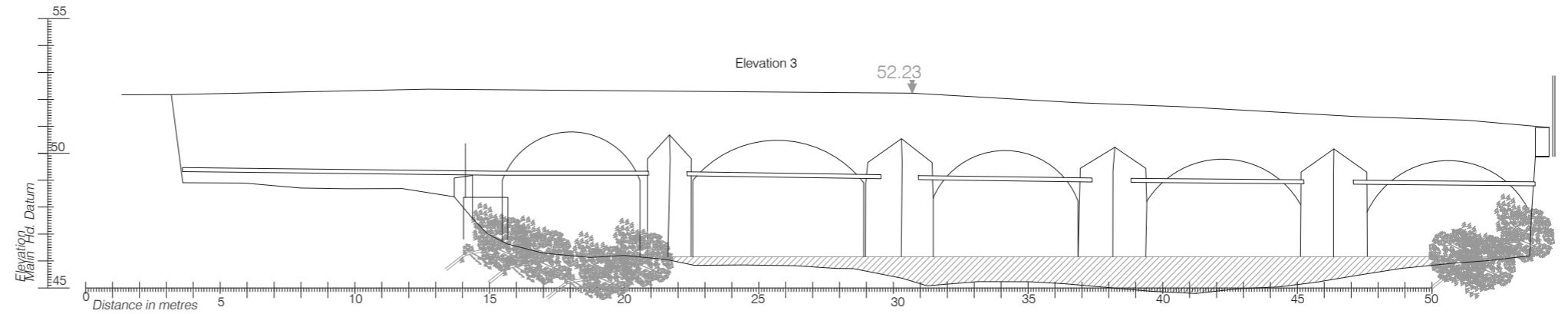
[2] Building search: buildingsofireland.ie, January 07th 2020

4.2 Bridge Description

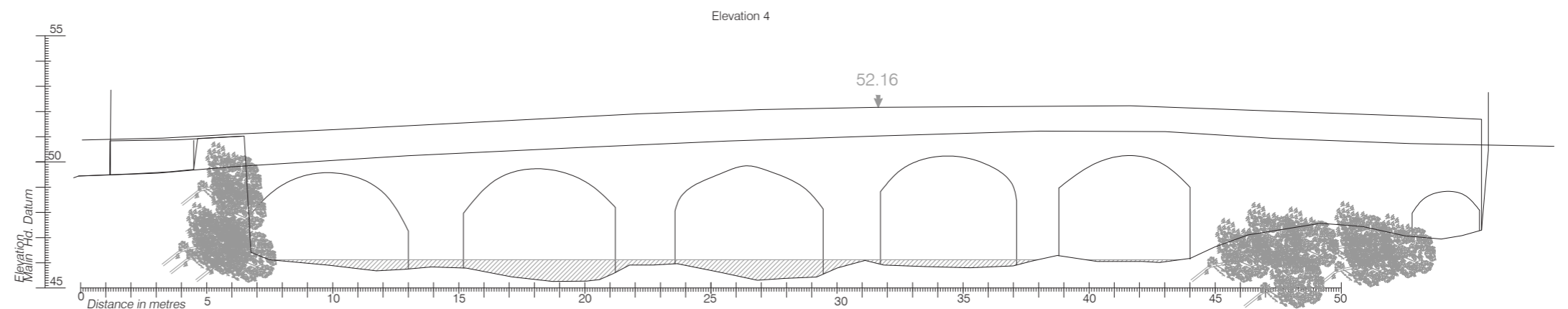
Six-arched stone bridge in squared rubble masonry with angled cutwaters on the upstream side. There are five principal arches forming the river crossing and a smaller sixth one visible below the southern bank on the upstream side but silted up and overgrown on the downstream side. The bridge arches piers and parapet wall are of the same, consistent squared rubble masonry, including the arch voussoirs. In places such as the inner face of the parapet walls, the roughly coursed masonry gives way to random rubble work of less consistent quality. On the upstream face a 6" cast-iron sewer or drainage pipe crosses the arches and passes through the cutwaters as it falls from the south to north bank.

The bridge's deck consists of a tarmac road surface two lanes wide and a narrow footpath and kerb on the upstream side. The rubble stone parapet wall is capped with a level concrete finish on each side.

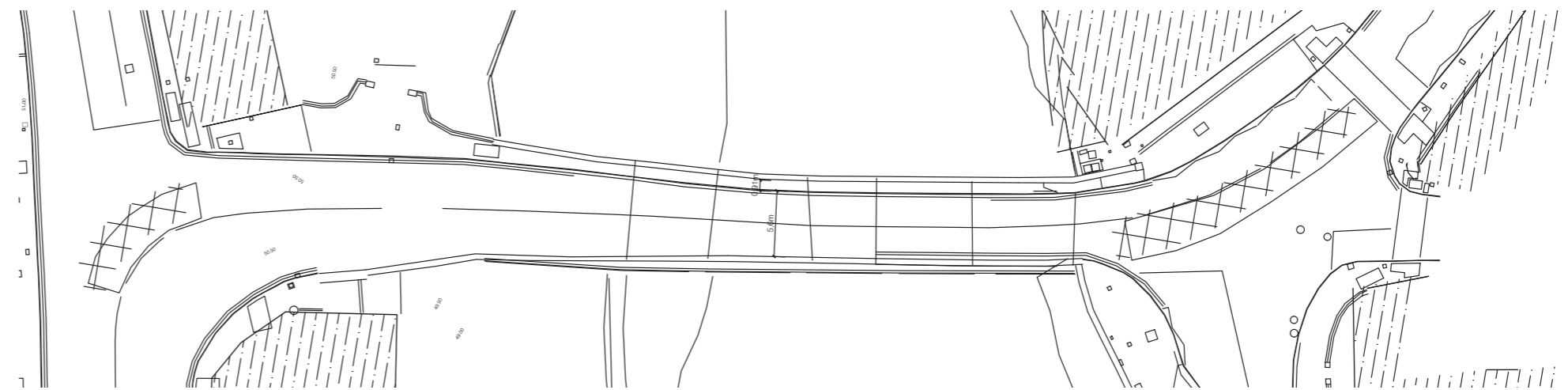
The bridge's setting is both urban and natural: Urban by virtue of its direct connection to the townscape at each end of the bridge and natural through the profusion of trees and planting to the river banks on each side, particularly on the upstream side.



South West Elevation (upstream side) scale:1/200



North East Elevation (Downstream side), scale:1/200



Extract from Topographical Survey

5.0 Statement of Significance

The Bridge's qualities of interest under Section 51(1) of the Planning and Development Act are as follows:

This bridge has significance under the following qualities of interest: *Architectural, historical, technical and social*

Architectural; for its material presence as an essential element of the urban fabric of Celbridge; for its built quality in stone and its fitness for purpose since its inception; for its volumetric and spatial qualities from above and below and as an iconic built presence within the town; for its qualities as an element of setting linking the man-made and natural environments of the place.

Historical; for its presence as the latest representative of a long line of bridges at this location from which the town derives its name; for its own historical value as a two-century-old structure.

Technical; for its witness to the historical period when stone was the primary building material and to the quality of that stonework as embodied in the bridge.

Social; to the importance of the bridge as a physical link over the river Liffey and to its equally important intangible qualities as a facilitator of movement between people for trade, commerce and social exchanges; for its contribution to the development of the town and region over its lifespan.

The Bridge's heritage value is further underlined by its inclusion on Kildare County Council's RPS (Record of Protected Structures), ref. B11-103. It has been recorded on the National Inventory of architectural Heritage's survey, ref. 11805054 with a rating of regional importance. It is included too in Celbridge's Architectural Conservation Aea.



North Side Celbridge Bridge, 1870-1890



North Side Celbridge Bridge, Current

6.0 Assessment of the design proposals in the conservation context

6.1 Character appraisal

The bridge's character, in reference to the qualities of interest outlined above, can be defined by its solid, consistent presence as a historic stone structure, continuing the town's material presence over the natural world of the river below and its leafy banks. The Bridge's visual character has changed little since photographic records began as the historic and contemporary views on page 19 show. The bridge acts as a mediator between the natural and constructed worlds and in this instance sits very comfortably within these two contrasting environments. A bridge's intangible qualities can be summarized by Martin Heidegger's view on the importance of a bridge as an expression of 'the fourfold'. According to Heidegger the bridge and the dwelling are synonymous because both are capable of gathering and uniting the four elements of earth, sky, mortals and divinities into a 'thing', as a perfect expression of place. A bridge is therefore a place in which people can 'dwell' in Heidegger's sense, as much as a building or a public space. However, from the user's point of view, these qualities are not immediately obvious at present, particularly for the pedestrian and cyclist. The narrowness of the footpath is uncomfortable, and at times dangerous, particularly where heavy traffic is present, and there is not always the time or the inclination to pause midstream and appreciate the Bridge's inherent qualities and the beauty of the setting. At times the bridge itself can seem like a restrictor rather than a facilitator of movement between the two banks. The pedestrian connections across the roads to the rest of the town at each end of the bridge are awkward and prioritise vehicular traffic.



6.2 Rationale for the design proposals in the context of the protected structure and its setting

The most important considerations in formulating the design responses to the requirement for a pedestrian extension to the bridge were:

- The presence of the protected structure and respecting its character (as described above),
- The ecological sensitivity of the site and its setting
- The facilitation of safe connections for the users of the bridge to both sides of the village,
- A sustainable design that achieves the best outcomes with the minimum of means.

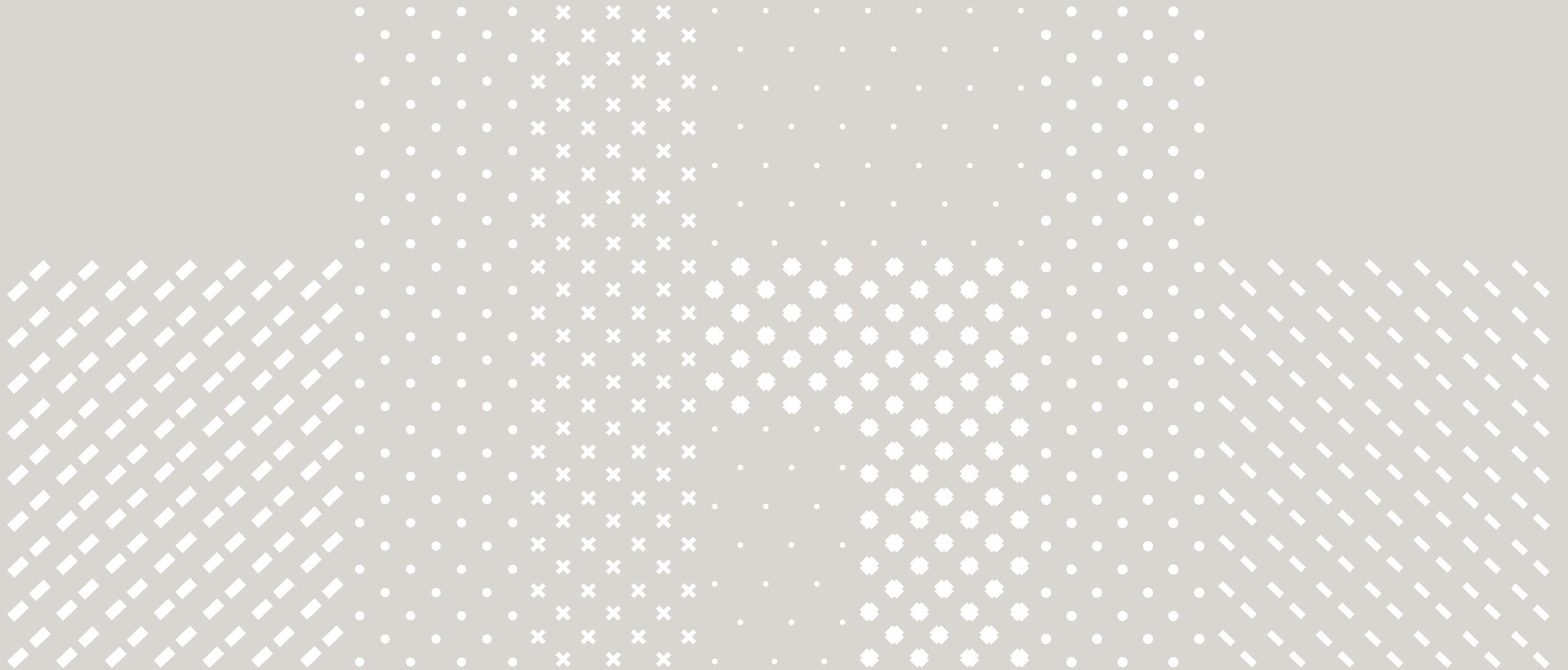
Our primary consideration was to respect presence of the current bridge as the primary element of any new composition. The additional bridge, with its exclusively 'non-vehicular' function and its lighter loading requirements is functionally and metaphorically subservient to the historic bridge and this is expressed through its more insubstantial material presence. Of note too is the nature of the two landings available for the ends of the bridge; the former Bank of Ireland carpark area on the northern side and a narrow space between the bridge parapet wall and the Abbey Lodge on the southern bank, both on the downstream side. These are immediately adjacent to the line of the current bridge and are the only available usable areas for landings in the vicinity of the bridge.

A final consideration but by no means the least is the bridge's

quality of place both in terms of the Burra charter definition of place as the repository of fabric and setting, and in the Heideggerian sense as the manifestation of 'dwelling', where earth, sky, community and nature can be experienced as one. As well as its functional requirements of providing safe passage while respecting its setting, the bridge must become an element of public realm in its own right, suspended over the river while sheltered and protected by the venerable existing structure. A number of design options elaborated within this context are outlined below, along with our assessment of the advantages and disadvantages of each. In all the cases outlined the new structure is completely independent of the existing bridge with no physical contact between the two structures.

An assessment of the impacts of the Part 8 proposals on the fabric and setting of the historic bridge has been independently prepared by John Cronin and Associates as part of the archaeological and Heritage Impact Assessment included with this Part 8 submission.

07 Proposals



7.1 Option 1: Twin-arches from same springing points within the river

This construction system works as a double arch. The ends of the arches are founded at the same two points in the river bed and then rise more than 10m. These two arches tilt and separate to support the deck. A canopy is then put between them. This light roof provides comfortable public space on this pedestrian bridge. The handrail is supported on the bridge deck and is placed behind the primary structure. Circulation space is not reduced as the benches are placed between the suspension cables of the deck.

ADVANTAGES:

Structure:

- The structure is symmetrical, the two arches have the same dimension
- The two arches reduce the foundations at the two ends of the deck (from Abbey Lodge, Bank of Ireland)

Foundation:

- Only two foundations are needed at the river banks and at the riverbed.

Public space:

- The public space is improved by the presence of a canopy

Visual impact:

- The bridge becomes a landmark
- The existing stone bridge is not eclipsed

DISADVANTAGES:

Structure:

- The two arches must be brought to the site, already built, which requires closing traffic from the nearby road bridge for a few days.

Foundation:

- The two foundations must be important to respond to lateral forces. The work in the riverbed will be important.

Public space:

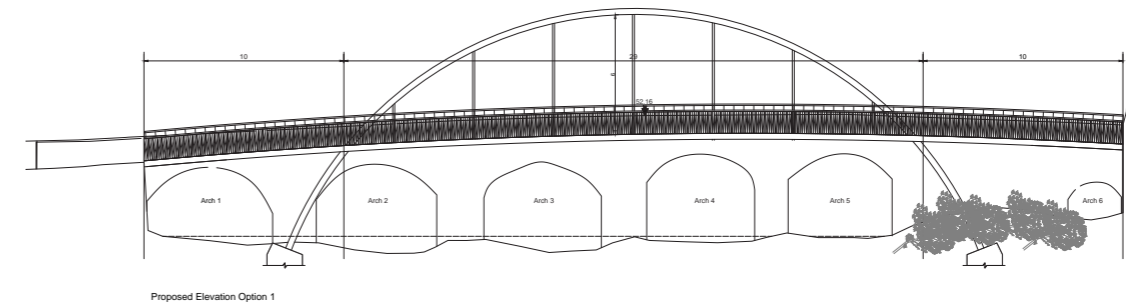
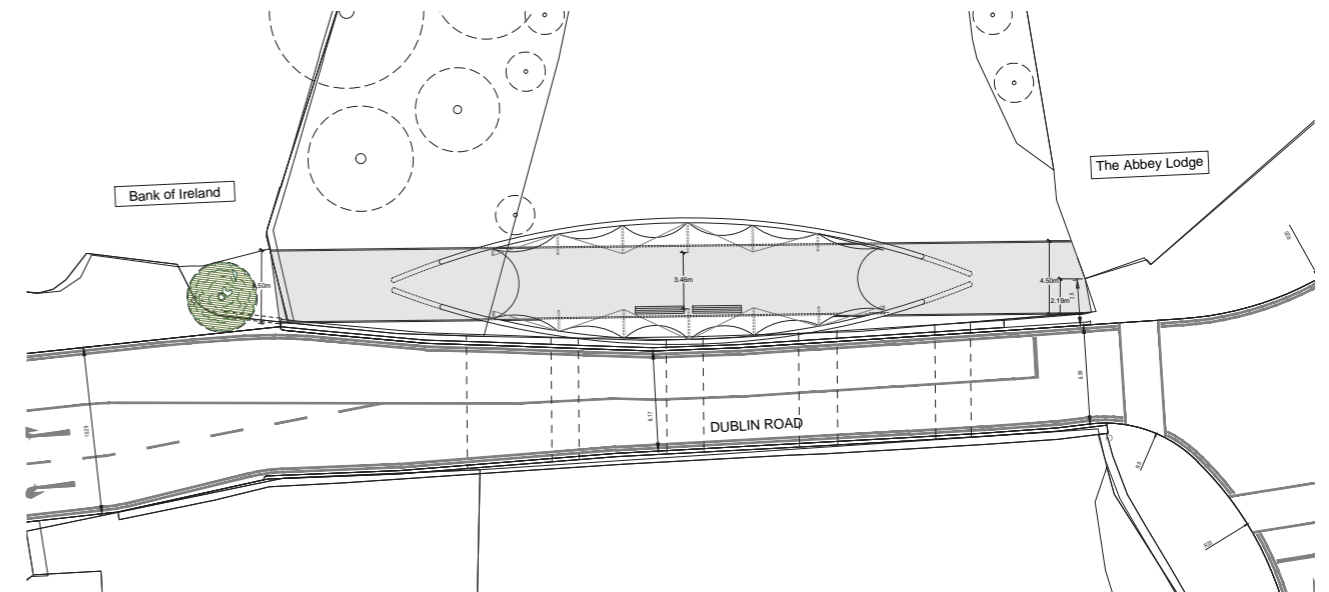
- The circulation space is reduced by the arch structure

Visual impact:

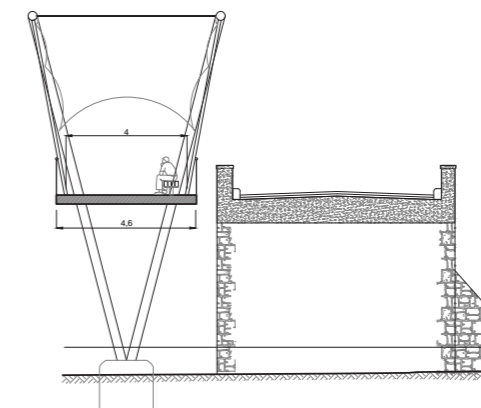
- These two 6 meter high arches have a very strong visual impact.

Response to the conservation context:

The reason for the very visible arch profile proposed here was to study an approach that provided some level of protection from the elements for the users of the bridge. However the visual impact of this canopy and structure are not sufficiently appropriate to the setting of the old bridge and would detract from the new structure's vocation as the servant rather than the served element. The new structure's 'two toes' in the river bed suggests a level of negative impact on the natural environment.



Proposed Elevation Option 1



Proposed Section Option 1



7.2. Option 2A: Array of symmetrical twin-arches with shared springing points from single piers within the river bed.

This constructive system is made up of 7 twin-arches. These follow the rhythm of the existing arches of the stone bridge. However these existing arches are not on a regular frame. Consequently, the 7 new arch-pairs are unique to the existing arch dimensions. In this proposal, the pedestrian bridge adapts perfectly to its environment and respects the identity of the stone bridge. This device requires seven foundation points in the river bed. All of these arches are higher

than the bridge deck. They therefore also serve as a support for the handrail. The symmetrical arches share common foundations but they tilt and separate as they rise. The arches in the middle of the bridge separate more than those at the ends. This has the effect of widening the deck and thus creating a more generous public space in the centre of the bridge. Thus, the benches can be placed without obstructing the flow of people.

ADVANTAGES:

Structure:

- The Structure works in symmetry with the center of the bridge
- The structure is composed of several arches which can be assembled on site. Bridge traffic will not be stopped.
- The several arches reduce the foundations at the two ends of the deck (from Abbey Lodge, Bank of Ireland)

Foundation:

- The river banks are not impacted

Public space:

- The circulation space is very generous.

Visual impact:

- The arches respect the framework of the arches of the stone bridge. This structure fits perfectly into its environment.

DISADVANTAGES:

Structure:

- The arches are not regular because they respect the frame of the arches of the stone bridge.

Foundation:

- Many very precise foundations are necessary. Work in the riverbed will be important.

Public space:

- The second row of arches on the side of the stone bridge blocks the circulation.

Visual impact:

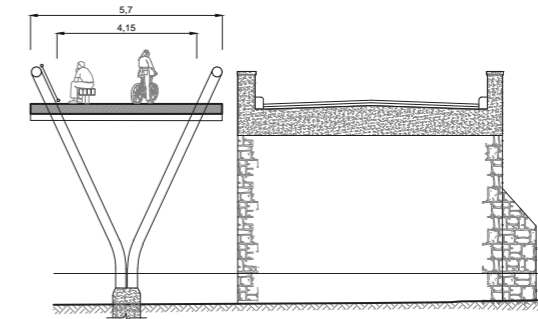
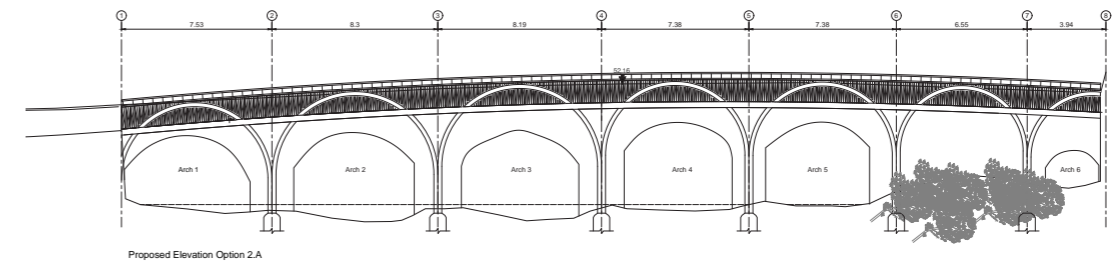
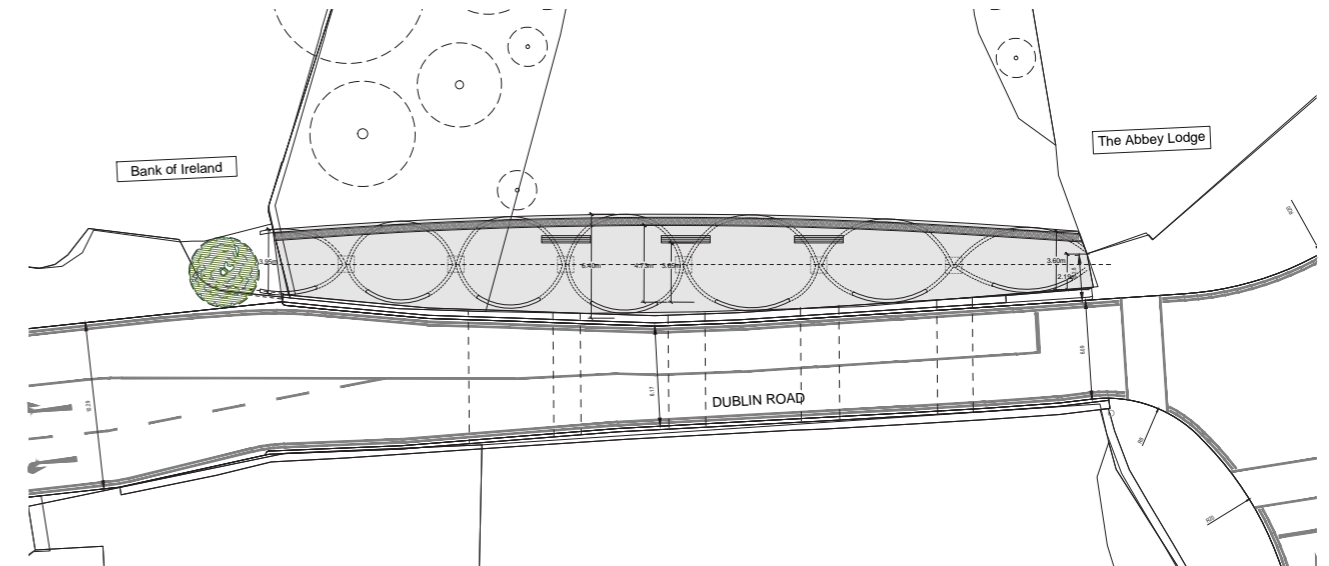
- None

Response to the conservation context:

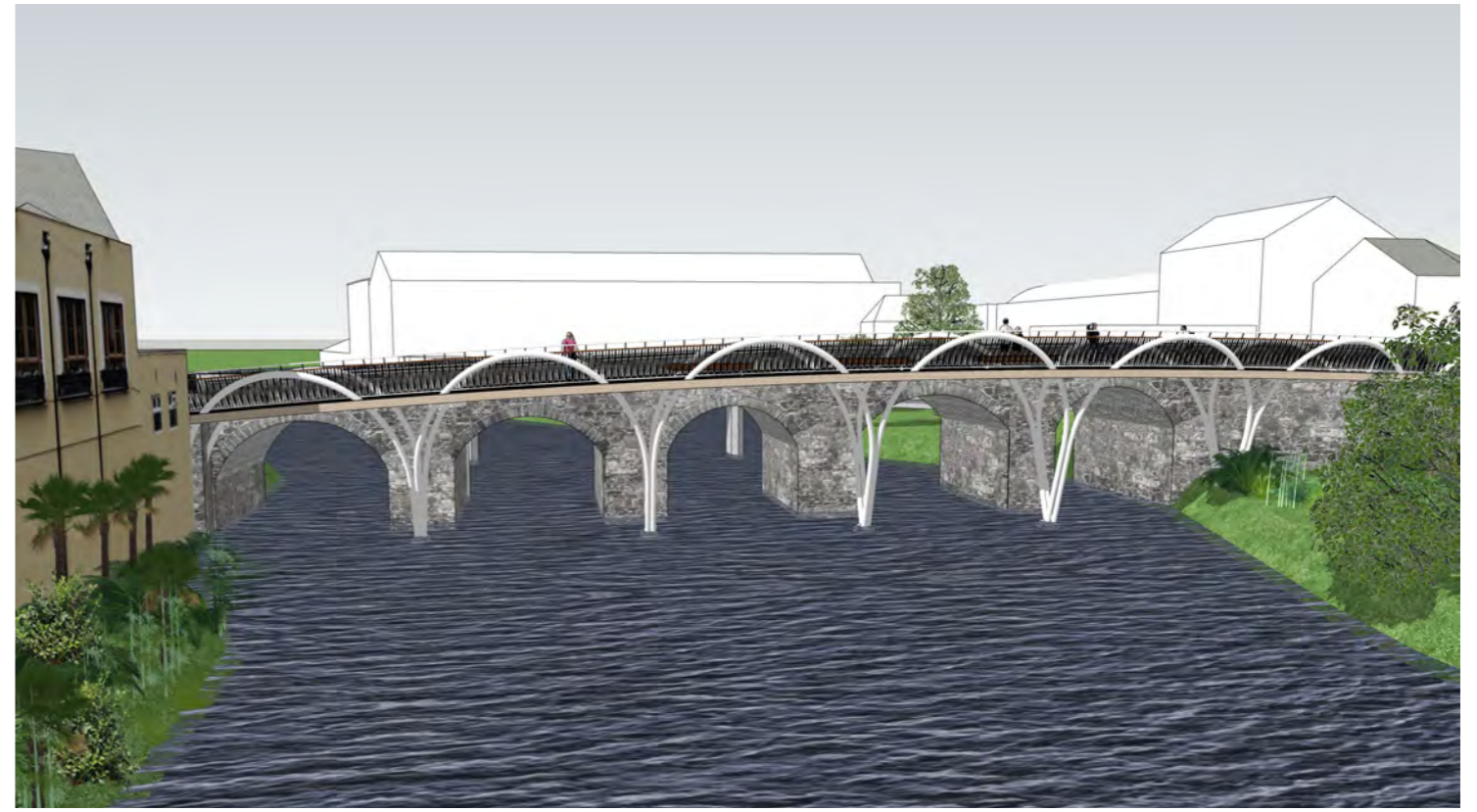
This design proposal uses the rhythms and dimensions of the existing bridge as the generator of the new one. The slight hump in the existing bridge combined with a slight curve to its footprint in plan means that by making bespoke metal arches to the same dimensions as the existing ones i.e. getting higher towards the centre of the span, the new bridge fits snugly against the existing parapet line, and this line is mirrored on the new, downstream side. The lighter metal structure, on its minimal pier foundations which would be vulnerable to flood damage on their own, is protected by the 'water shadow' of the existing arch piers so that the survival of the lighter, newer element is dependent on the solid presence of the existing bridge. The old and the new enter into a symbiotic relationship with the new presenting a brave new face to the downstream side but being bounded by the existing old stone parapet wall on the 'town' side. The heights of the arches above the deck on both sides is less than the height of the bridge parapet wall capping level.

The visual impact of this proposal from the bridge and town directions is minimal.

The new structure requires six river-bed foundations and two lighter ones on each bank. The requirement for piers in the river bed suggests a level of negative impact on the natural environment, although these piers will be smaller and lighter than the foundation points in Option 1.



Proposed Section 2.A



7.3. Option 2B: Array of asymmetrical twin-arches with shared springing points form single piers within the river bed.

Similar to option 2A, this constructive system is made up of 7 twin-arches, but each arch-pair has a different height. The first set of arches rises above the deck to allow the handrail to be fixed. However, the second (the one near the stone bridge) stops at the height of the deck. There is no need to add a handrail on this side of the pedestrian bridge as the deck extends to the outside of the existing parapet wall.

ADVANTAGES:

Structure:

- The structure is composed of several arches which can be assembled on site. Bridge traffic will not be stopped.
- The several arches reduce the foundations at the two ends of the deck (from Abbey Lodge, Bank of Ireland)

Foundation:

- The river banks are not impacted

Public space:

- The circulation space is very generous.

Visual impact:

- The arches respect the framework of the arches of the stone bridge. This structure fits perfectly into its environment.

Response to the conservation context:

This design proposal is similar to Option 2A above; the arch dimensions mimic the existing ones and the deck fits snugly into the 'palm' of the old bridge which also protects the new piers and foundations. It has been refined however by shortening the arches on the bridge side so as to obviate any clash between the inclined metal arches and the existing stone parapet wall. By keeping the structure under the deck on this side, the new bridge surface runs up to the edge of the wall allowing the tactile presence of historic fabric to compliment the otherwise modern materials and finishes.

The visual impact of this proposal from the bridge and town directions is minimal.

The new structure requires six river-bed foundations and two lighter ones on each bank. The requirement for piers in the river bed suggests a level of negative impact on the natural environment, although these piers will be smaller and lighter than the foundation points in Option 1.

DISADVANTAGES:

Structure:

- The arches are not regular because they respect the frame of the arches of the stone bridge.

Foundation:

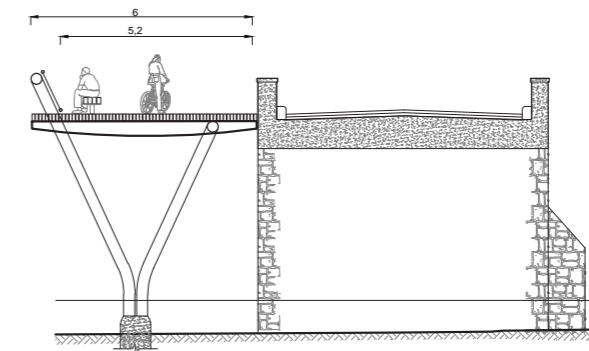
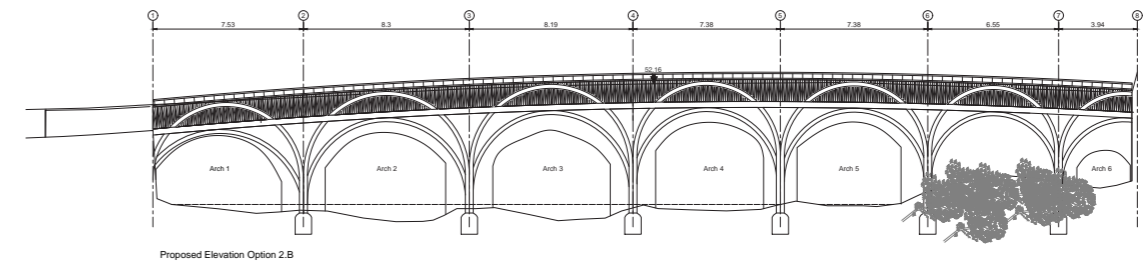
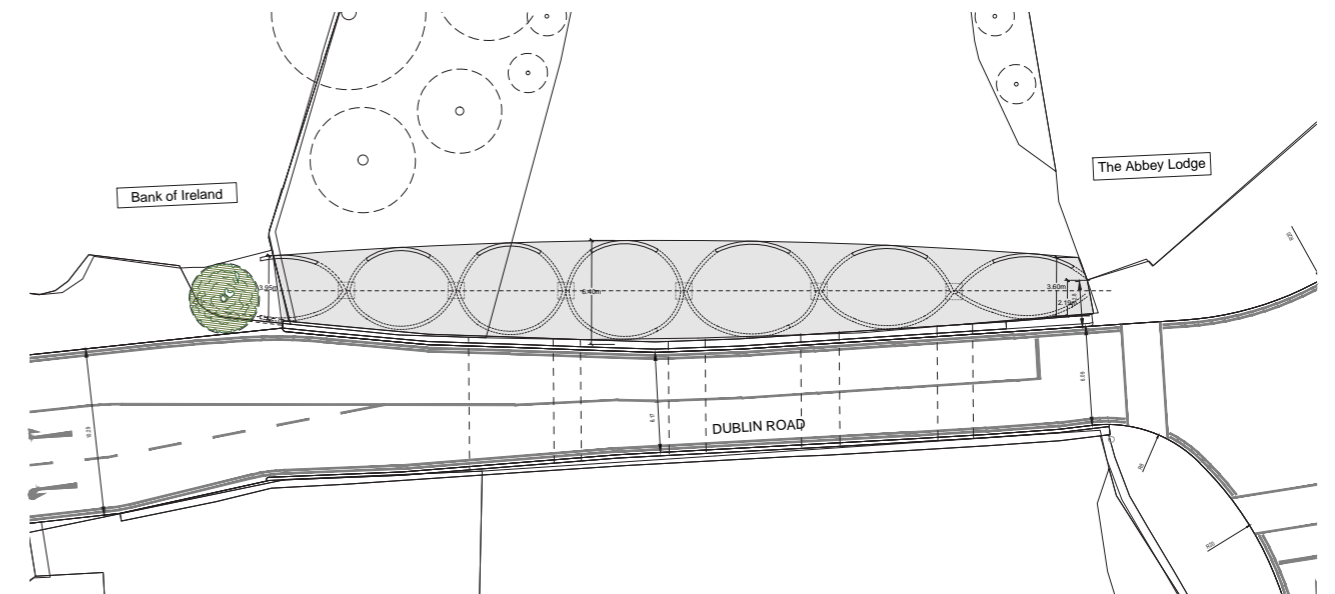
- Many very precise foundations are necessary. Work in the river-bed will be important.

Public space:

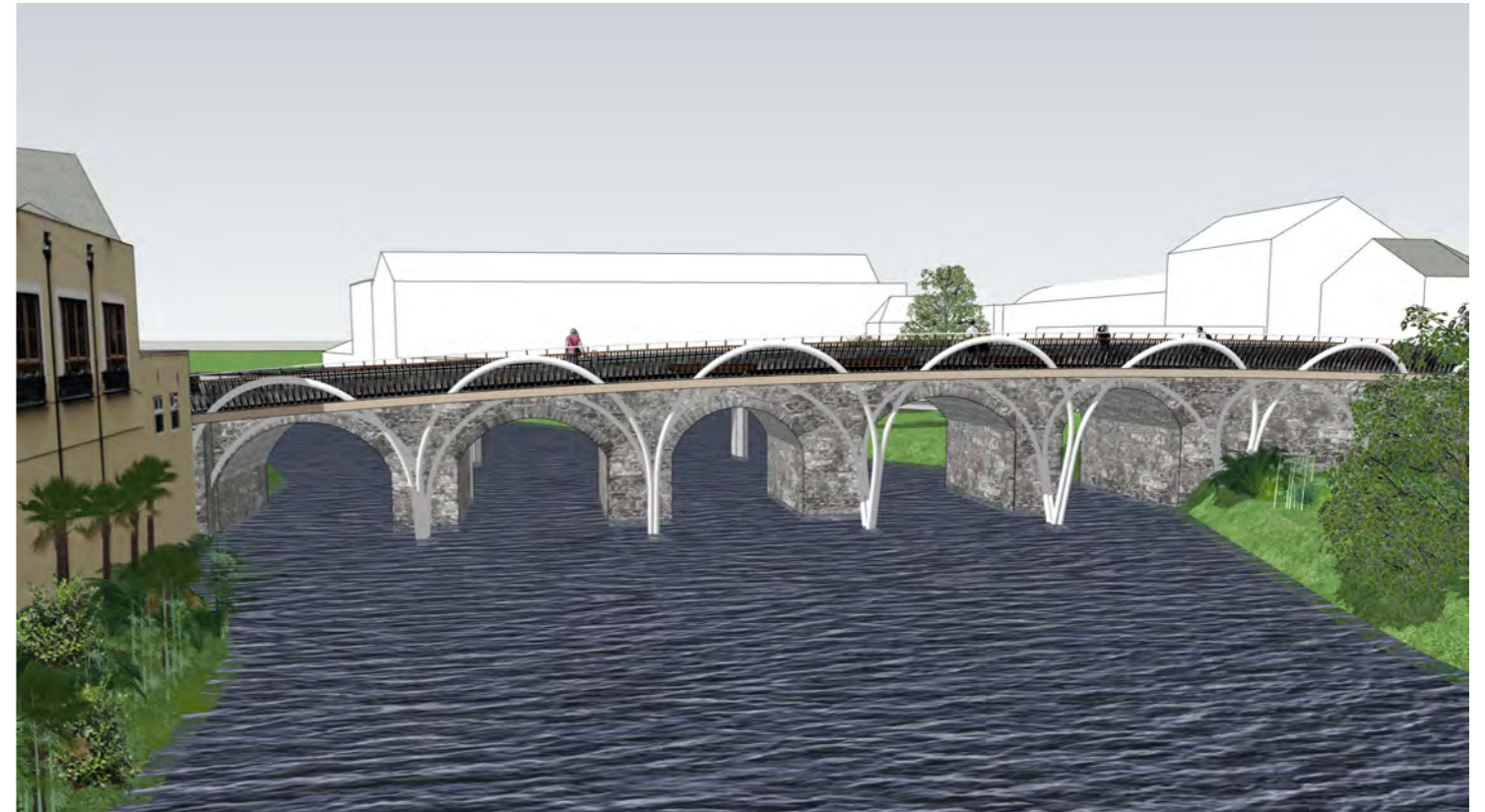
- None

Visual impact:

- None



Proposed Section Option 2.B



7.4. Option 3A: Single span, triangular, twin open-web truss; asymmetrical

This constructive system is supported on each bank, with no intermediate support. The supports at the ends of the pedestrian bridge, however, will be significant (Abbey Lodge / Bank of Ireland). The deck serves to brace the triangulated truss and gives it lateral rigidity. The depth of the structure (from top to bottom chord) must be kept as shallow as possible to avoid obstructing the arches of the stone bridge in the event of a flood. The handrail is fixed inside the primary structure in order to protect it. Benches are placed where the bridge is the widest. Thus the circulation spaces are not obstructed. The structure is asymmetrical, this improves the public space. This solution seeks to have the least visual impact possible to respect the strong identity of the stone bridge.

ADVANTAGES:

- Structure:
- The structure is simple.
- Foundation:
- The riverbed is not impacted by the foundations.
- Public space:
- Benches are not obstructing people.
- Visual impact:
- The structure does not hide the arches of the stone bridge

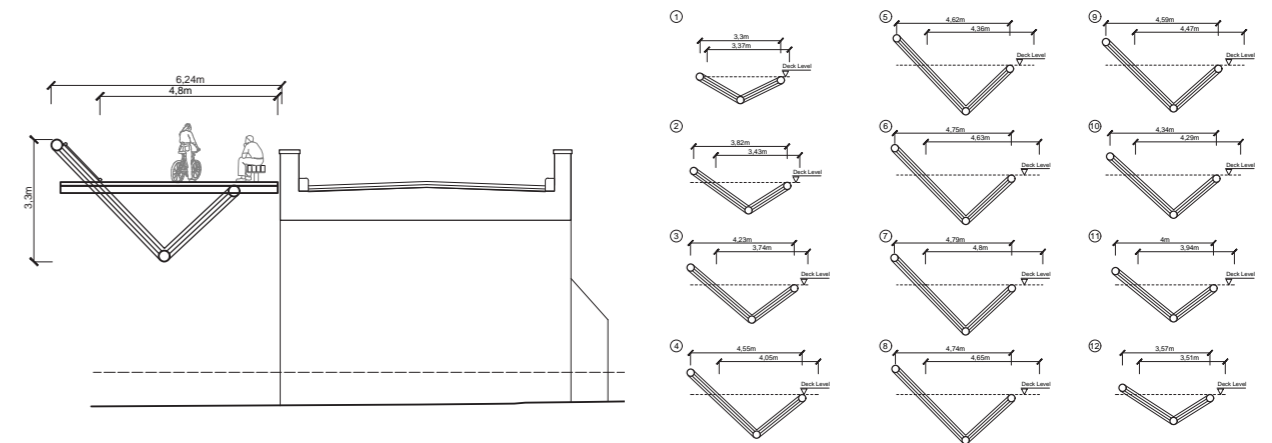
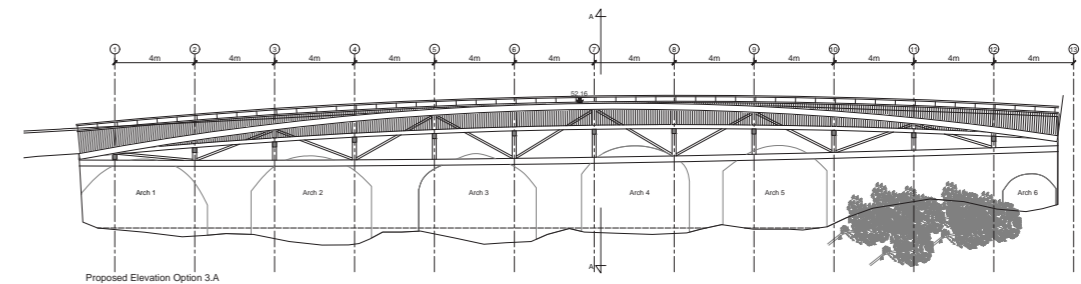
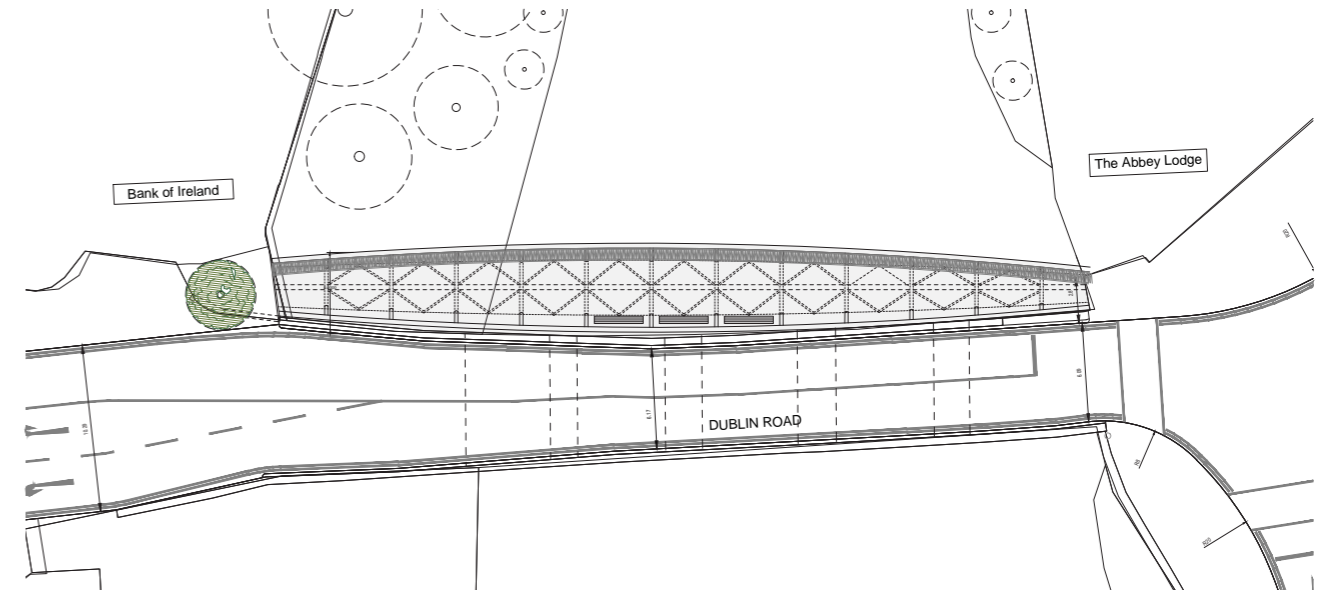
DISADVANTAGES:

- Structure:
- The structure could be endangered during a flood episode.
- Foundation:
- The foundations at the ends of the deck will be important (Abbey lodge and bank of Ireland)
- Public space:
- The circulation space of the bridge is reduced by the size of the structure.
- Visual impact:
- None

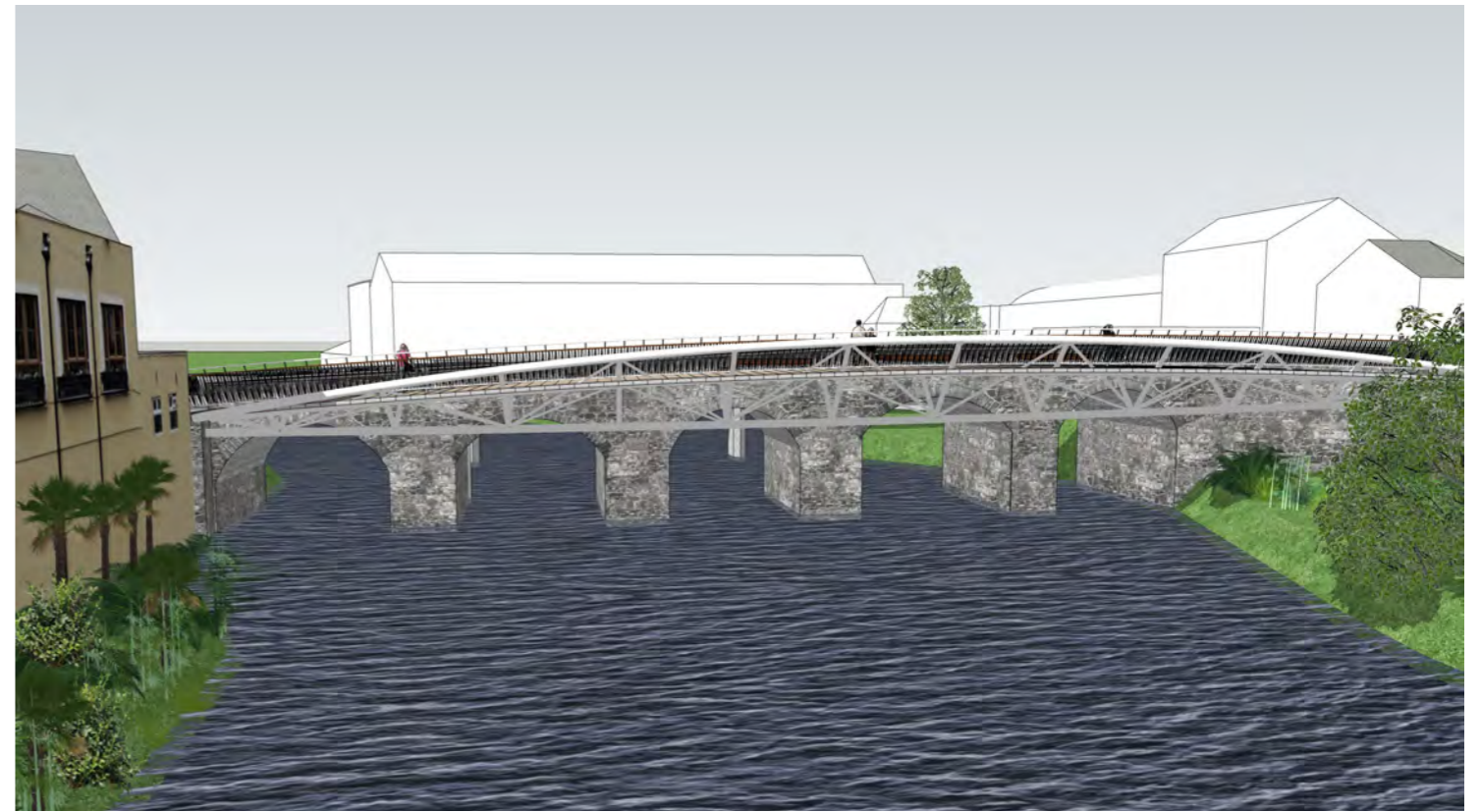
Response to the conservation context:

The truss depth has been calculated so that the highest point of the top chord remains below the bridge parapet wall capping level. In this sense, it is not markedly different to Options 2A and B. The new bridge plan form follows the gentle curve in plan of the existing bridge, and its slight hump in section, just like the others.

The single span structure, while requiring much larger foundations on each bank than the previous solutions, will have little or no impact on the river bed and its ecology.



Proposed Section AA Option 3.A



7.5 Option 3B: Single span, triangular, twin open-web truss; symmetrical

This constructive system is supported on each bank, with no intermediate support. The supports at the ends of the pedestrian bridge, however, will be significant (Abbey Lodge / Bank of Ireland). The deck serves to brace the triangulated truss and gives it lateral rigidity. The depth of the structure (from top to bottom chord) must be kept as shallow as possible to avoid obstructing the arches of the stone bridge in the event of a flood. The hand-rail (glass guarding) is fixed on the top of the deck. Benches are placed where the bridge is the widest. Thus the circulation spaces are not obstructed. The structure is symmetrical but the deck is asymmetrical. This solution seeks to have the least visual impact possible to respect the strong identity of the stone bridge.

ADVANTAGES:

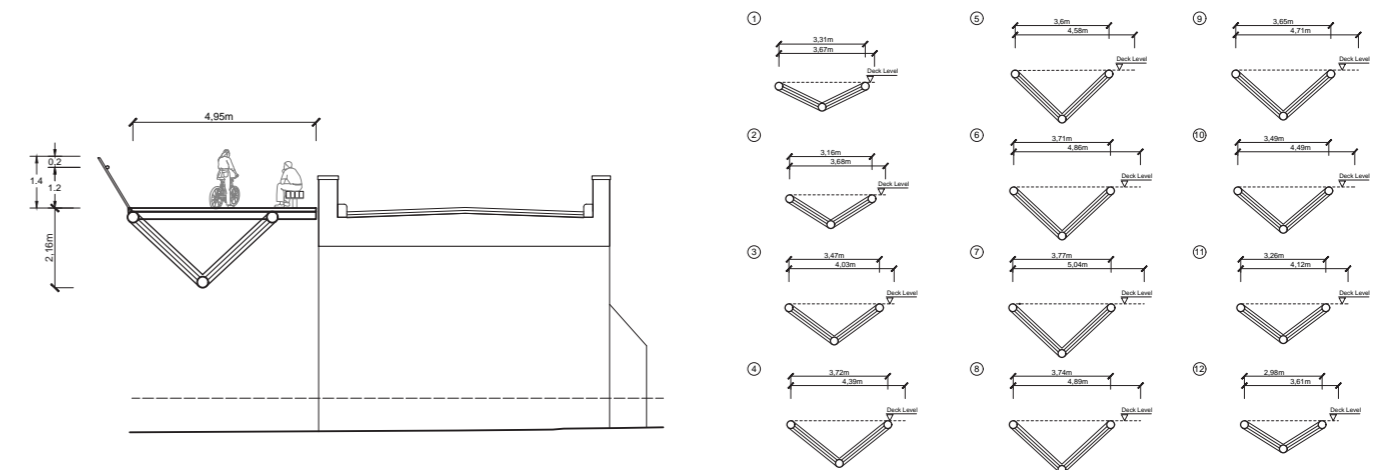
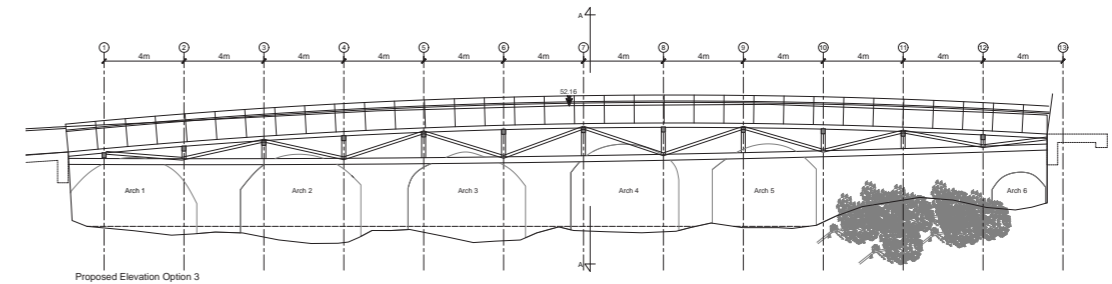
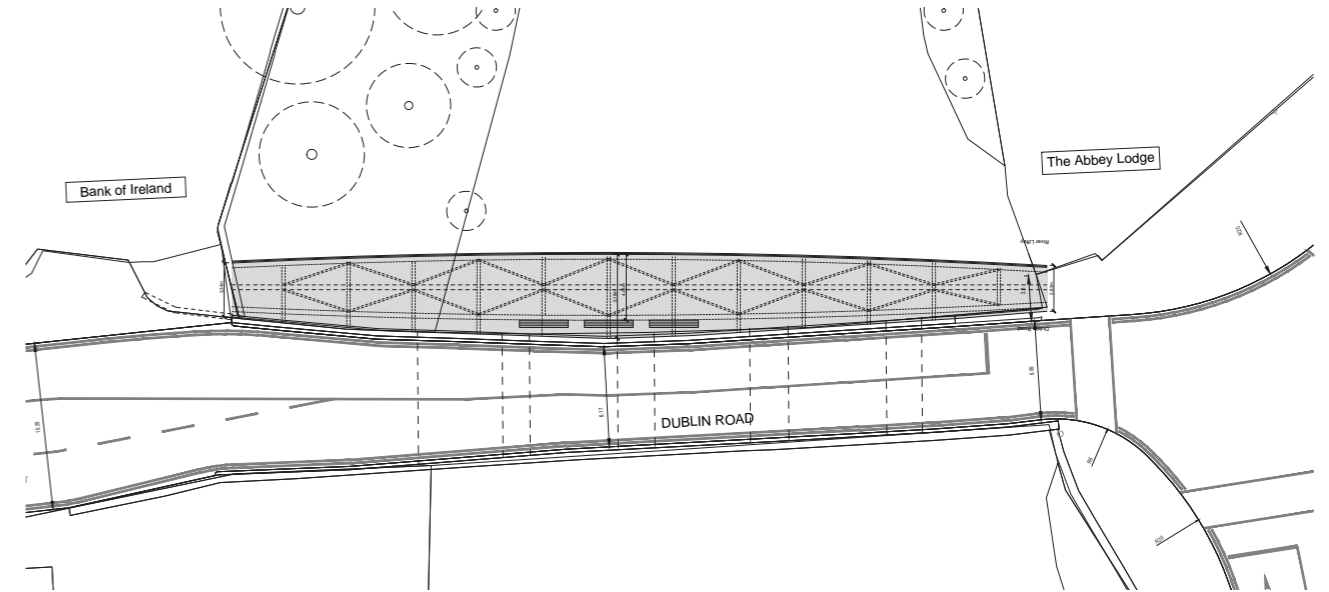
- Structure:
- The structure is simple.
- Foundation:
- The riverbed is not impacted by the foundations.
- Public space:
- Benches are not obstructing people.
- Visual impact:
- The structure does not hide the arches of the stone bridge

DISADVANTAGES:

- Structure:
- The structure could be endangered during a flood episode.
- Foundation:
- The foundations at the ends of the deck will be important (Abbey lodge and bank of Ireland)
- Public space:
- None
- Visual impact:
- None

Response to the conservation context:

This is similar to 3A except the structure does not exceed the level of the Deck. The single span structure, while requiring much larger foundations on each bank than the previous solutions, will have little or no impact on the river bed and its ecology. The requirement for proximity to the existing structure as proposed above means that the deck of the structure will have to have a demountable area along the bridge edge of, say 600mm width minimum, in order to allow inspection and maintenance (such as repointing). This will be designed as part of the decking requirements. The structure itself will also have to provide maintenance 'space' wherever it approaches the surface of the bridge. These requirements will be risk-assessed and designed as part of the detailed design stage.



Proposed Section AA Option 3



7.6 Option 6: Curved Single span Trapezoidal Truss

This constructive system is supported on each bank, with no intermediate support. The supports at the ends of the pedestrian bridge, however, will be more significant (Abbey Lodge / Bank of Ireland) due to the curved structure. The deck serves to brace the triangulated truss and gives it lateral rigidity. The depth of the structure (from top to bottom chord) must be kept as shallow as possible to avoid obstructing the arches of the stone bridge in the event of a flood. The handrail is fixed on the top of the deck. Benches are placed where the bridge is the widest. Thus the circulation spaces are not obstructed. The structure is asymmetrical, this improves the public space. This solution seeks to have the least visual impact possible to respect the strong identity of the stone bridge. The curved structure also allows the new bridge to stay away from the existing stone bridge (in order not to impact it).

ADVANTAGES:

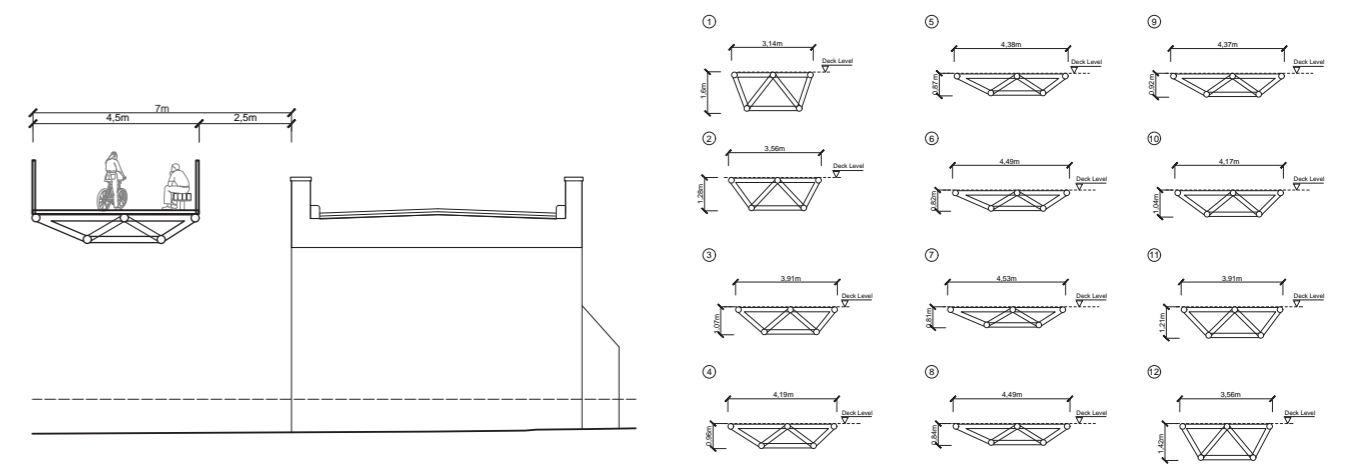
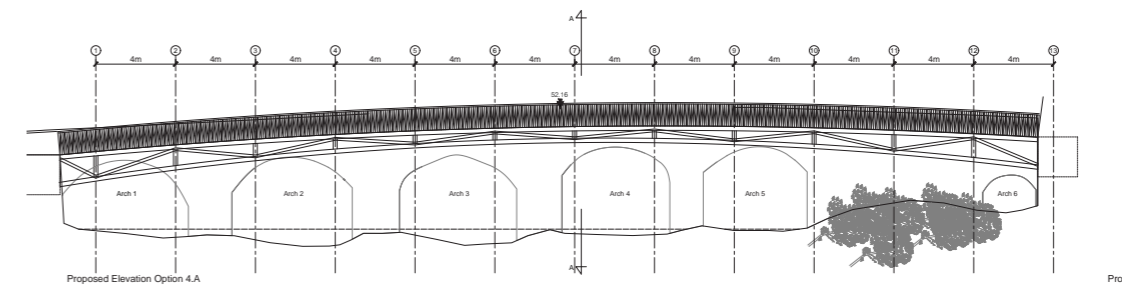
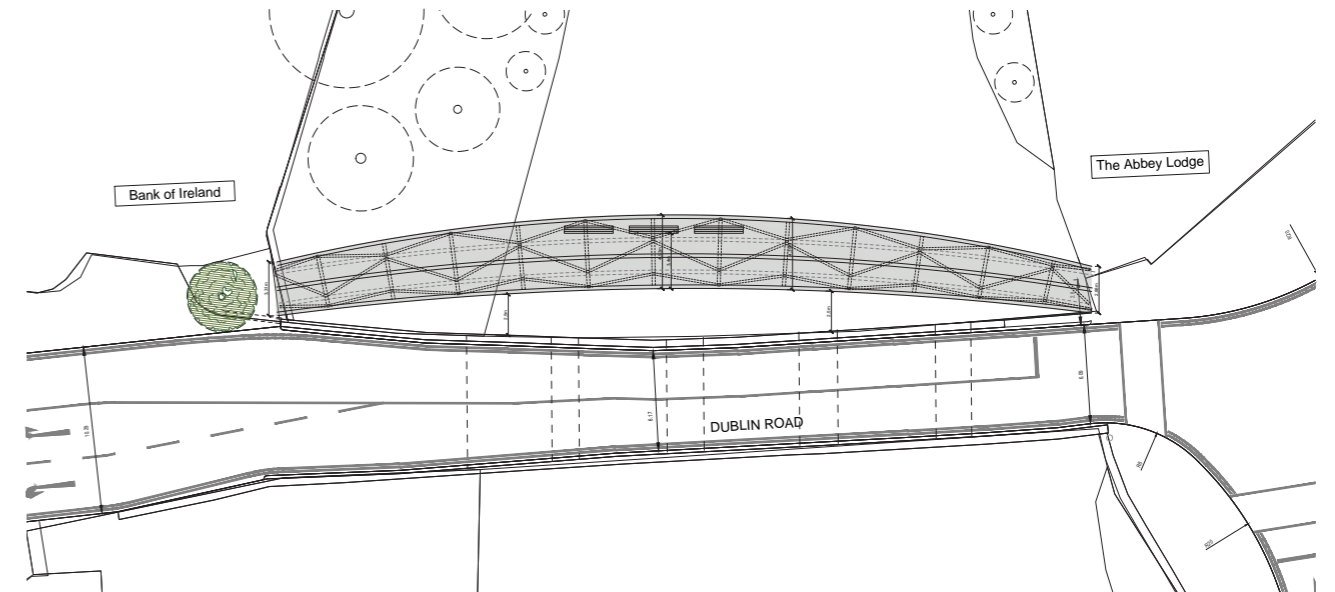
- Structure:
- The structure is simple.
- Foundation:
- The riverbed is not impacted by the foundations.
- Public space:
- Benches are not obstructing people.
- Visual impact:
- The structure does not hide the arches of the stone bridge

DISADVANTAGES:

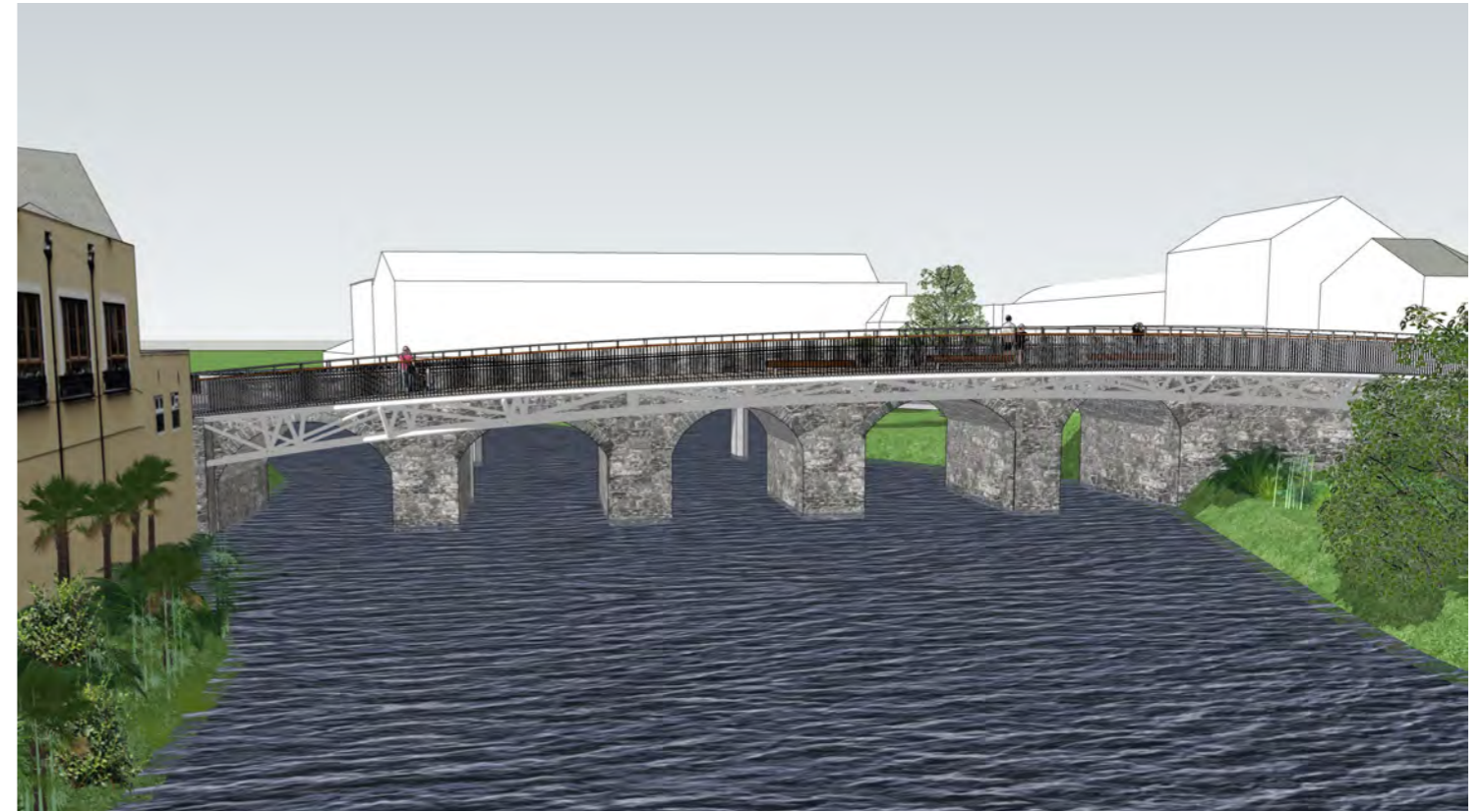
- Structure:
- The structure could be endangered during a flood episode.
- Foundation:
- The foundations at the ends of the deck will be important (Abbey lodge and bank of Ireland)
- Public space:
- None.
- Visual impact:
- None.

Response to the conservation context:

The truss depth has been calculated so that the highest point of the top chord remains below new bridge's deck. The new bridge plan is slightly curved in order to stay away from the existing stone bridge, so as not to impact it. The single span structure, while requiring much larger foundations on each bank than the previous solutions (1, 2.A and 2.3), will have little or no impact on the river bed and its ecology.



Proposed Section AA Option 4.A



7.7 Option 7: Curved Double spanning Trapezoidal Truss

This constructive system is supported on each bank, with 1 no. of intermediate support. The supports at the ends of the pedestrian bridge, however, will be less significant (Abbey Lodge / Bank of Ireland) due to the intermediate support. The deck serves to brace the triangulated truss and gives it lateral rigidity. The depth of the structure (from top to bottom chord) must be kept as shallow as possible to avoid obstructing the arches of the stone bridge in the event of a flood. The handrail is fixed on the top of the deck. Benches are placed where the bridge is the widest. Thus the circulation spaces are not obstructed. The structure is asymmetrical, this improves the public space. This solution seeks to have the least visual impact possible to respect the strong identity of the stone bridge. The curved structure also allows the new bridge to stay away from the existing stone bridge (in order not to impact it).

ADVANTAGES:

Structure:

- The structure is simple and does not obstruct the arches of the stone bridge in the event of a flood.

Foundation:

- The river banks are less impacted by the foundations. (Abbey lodge and bank of Ireland).

Public space:

- Benches are not obstructing people.

Visual impact:

- The structure does not hide the arches of the stone bridge

Response to the conservation context:

The truss depth has been calculated so that the highest point of the top chord remains below new bridge's deck.

The new bridge plan is curved in order to stay away from the existing stone bridge, so as not to impact it.

The double-span structure, although requiring a substantial foundation in the river bed (unlike solution 6), the foundations are less important on each river banks (Abbey lodge and bank of Ireland).

DISADVANTAGES:

Structure:

- The structure could be endangered during a flood episode.

Foundation:

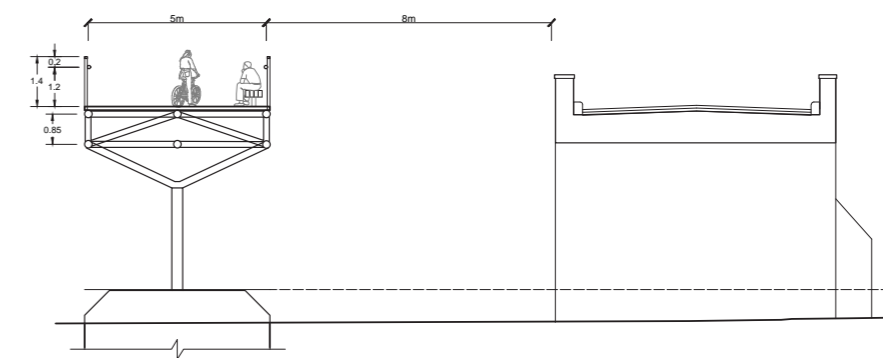
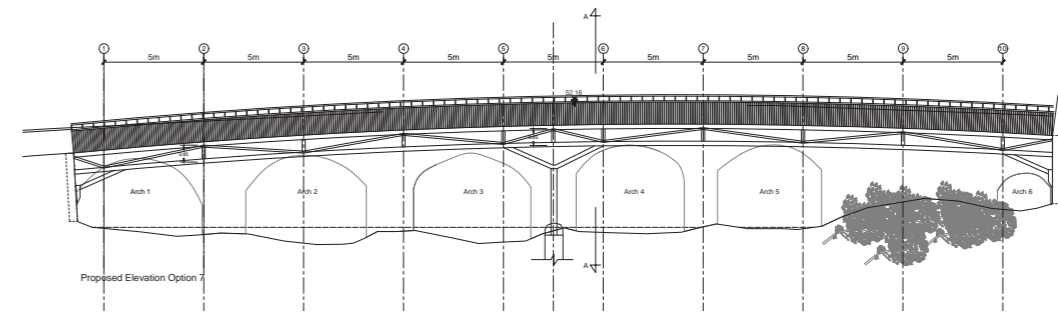
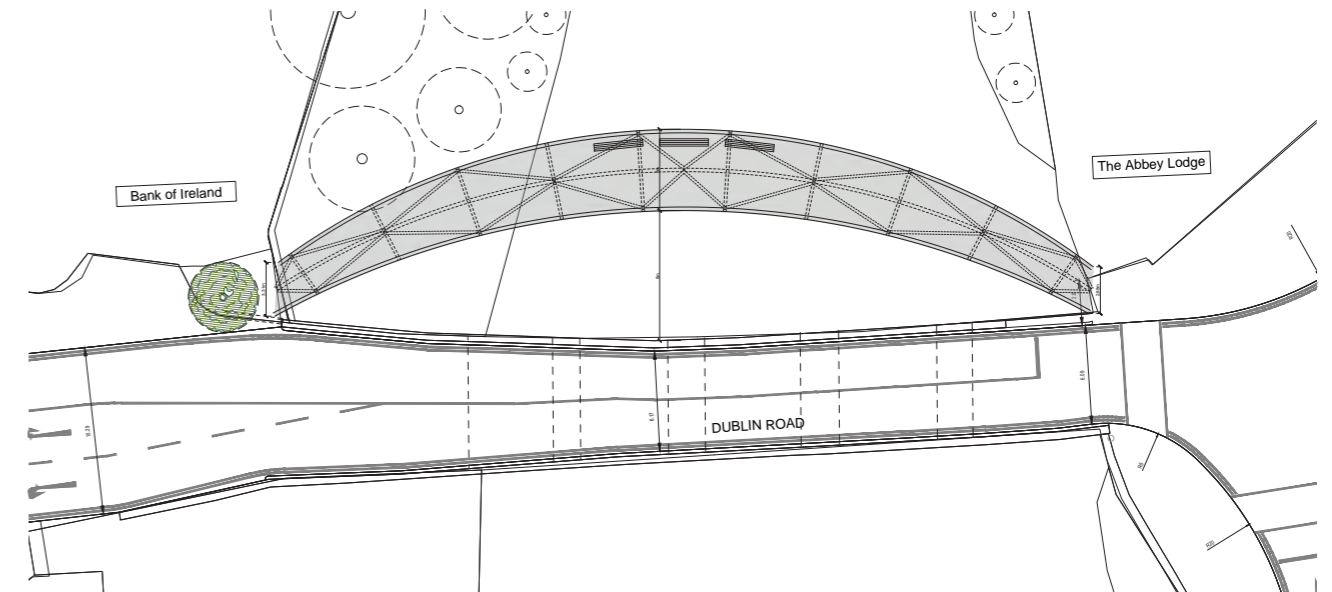
- The intermediate support impacts the river bed.

Public space:

- None.

Visual impact:

- None.





Design architects' response to concerns raised by Kildare County Council's acting Conservation Officer

Mr Michael O'Boyle, in his capacity as acting Conservation Officer recommended, responded to a presentation of the design proposals in a letter of 17/02/22. His recommendations were as follows:

a) The final design should include a minimum gap of 2.5m between the existing bridge and the new pedestrian/cycle bridge. This could be achieved in a number of ways:

- The bridge design could include a wedge-shaped boardwalk at both its east and west ends. This would allow the springing point of the new bridge to be sufficiently distant from the existing bridge that a 2.5m gap is created.
- The line of the new bridge could curve outwards (i.e. northwards) from the fixed access points to the east and west to create a gap of 2.5m with the old bridge at its centre.

b) The final bridge should be of a low-key design, with an elegant profile and a simple handrail. The design should avoid visually prominent structural components, such as arched components shown in 1, 2A and 2B. It is very important that the old bridge remains the dominant structure in the overall composition. [END]

Our response to his recommendations is as follows (this was prepared by Fintan Duffy, RIAI Grade 1 Conservation Architect):

Keeping a respectful distance from the historic fabric is a legitimate response to respecting its character.

However, the proposal here is not for an independent, stand-alone structure. The functional requirement is for a pedestrian addition to an existing bridge. The new structure's proximity to the historic structure is a mark of its dependence on its historic presence and to its quality as a 'servant' space to the existing bridge's 'served' status. This meets one of the primary conservation requirements of safeguarding the primacy of the existing structure in any new functional arrangement. By figuratively 'nestling' the new bridge within the protective setting of the existing one, the latter's primacy is restated and its

importance enhanced.

There are no options for relocating the springing points for the new bridge: we have two existing areas for the landings that are contiguous to the bridge; the Bank of Ireland carpark and a narrow strip between the footpath/bridge boundary wall and the Abbey Lodge pub. While some adjustment of the arrival point is possible on the northern bank because of the width of the carpark area, there is no such leeway on the opposite side, and the continuous presence of the Abbey Lodge along the southern bank rules out any further landing opportunities on this side for some considerable distance downstream. The provision of a minimum distance of 2.5m as recommended is not possible therefore, certainly not at each end where the bridge and landing lines converge, and the provision of a cantilevered landing to achieve this, particularly at the Abbey Lodge side would require either major foundation works to the road and footpath (thus requiring the closure of the road for the duration) or the placing of foundations within the river bed outside the rear wall of the Abbey Lodge with consequent additional impacts on the riverine ecology.

Apart from the increased functional separation that a physical separation of the two structures would represent, any moving of the new bridge's position downstream, even by 2.5m, would alter the natural views that are a quintessential part of the current bridge's setting by introducing a new object into this green (and blue) corridor. It can be argued that the upstream views, particularly the view of the Mill from the bridge, are compromised to some extent by the separate structure of the existing concrete pedestrian bridge and its lack of contextual connection to the main one. The introduction of another, structure downstream would create three separate and distinct bridge structures, further detracting from the primacy of the main bridge.

In his book *The Architecture of Additions*, Paul Spencer Byard, the American conservation architect and critic classifies the different ways we can approach 'additions' to historic structures under the three main themes of 'extension', 'derivation' and 'transformation' and cites best practice examples of each. The

placing of a new object at a respectful distance to an old one, such as Foster's high-tech Carré d'art in Nîmes facing a Roman temple but separated by a public plaza, or Renzo Piano's IRCAM building (Paris), standing between the Pompidou Centre and the sixteenth century parish church of St Merri belong to the derivative theme. The juxtaposing of the old and the new is also highlighted in the themes of extension and transformation as represented by Scarpa's Castell'vecchio museum with its layering of old stone and béton brut, and Jean Nouvel's Opéra de Lyon, where a nineteenth century beaux arts opera house is given a vaulted addition to its skyline. In both of these examples the new and old structures create a newly indefiable fusion, but one wherein their respective fabrics can be read and understood in a complementary way. The old elements however retain the dominant presence in each case.

For the reasons outlined above, and in response to Michael O'Boyle's comments, we believe that the extension approach that we propose here, where the old and the new enter into a symbiotic relationship, is an appropriate response to the conservation context that best aligns with the site characteristics and functional requirements. We are also conscious of the balance that has to be struck between the conservation, engineering and ecological requirements of the brief. The ecological screening of the various options for example rules in favour of a ground-based, as opposed to a river bed location for the foundations, which again mitigates against a structure being at any significant distance from the old bridge since all our support must be provided via a single span from each landing point.

8.0 REFERENCES

Bibliography

-Samuel Lewis, *Lewis's Topographical Dictionary of Ireland*, vol. I, published by S.Lewis and Co., 1847.

Articles

-Charles Graham, *Some Notes on the Past History of Celbridge*, Celbridge History, Septembre 17th 1896.

Brochure

-Arthur's way, *Heritage Trail Brochure*

-Kildare County Council, *Discover Celbridge Walking Guide*

Sitography

-Building search: buildingsofireland.ie, January 07th 2020

-Architectural history: castletown.ie, January 08th 2020

-Heritage: kildare.ie, January 07th 2020

-History: kildarelocalhistory.ie, January 10th 2020

-Archaeology: ardcrough.wordpress.com, January 13th 2020

-Archaeological impact: oakleymanor.ie, January 10th 2020

-Touristic information: thecelbridgehub.ie, January 09th 2020

-Photography: catalogue.nli.ie, January 07th 2020

-Maps: geohive.ie, January 07th 2020
<http://www.dublinhistoricmaps.ie/maps/1600-1799/index.html>

-Architectural history: celbridgemillcommunitycentre.ie, January 09th 2020

-Architectural history: hidden-gems.eu, January 20th 2020

-Walks: ireland.com, January 13th 2020

Report

-Seán Shanahan & Edel Barry, *Archaeological Impact Assessment Celbridge*, Co Kildare, for O'Flynn Construction Company Ltd, November 2018

-Planning Department Kildare County Council, *Celbridge Draft Local Area Plan 2017-2023*, December 2016

-Final Planning Department Kildare County Council, *Celbridge Draft Local Area Plan 2017-2023*, September 2017

-RPS group, *Celbridge Feasibility Report*, May 2015

-Kildare Services Integrated Programme, *ISP Celbridge Plan 2016-2020*, 2016

9.0 Appendix



WALKING AND CYCLING TOURS



Arthur Guinness, 1725-1803

ARTHUR'S WAY

Length: 16km
 Time: 3-3.5 hours walking
 1-1.5 hours cycling

Arthur's Way is a heritage trail that follows in the footsteps of Arthur Guinness. It links many historic sites associated with the Guinness family. It is possible to explore Celbridge where Arthur spent his childhood, after Leixlip where he opened his first brewery and Oughterard graveyard Arthur's final resting place near his ancestral home. [1]

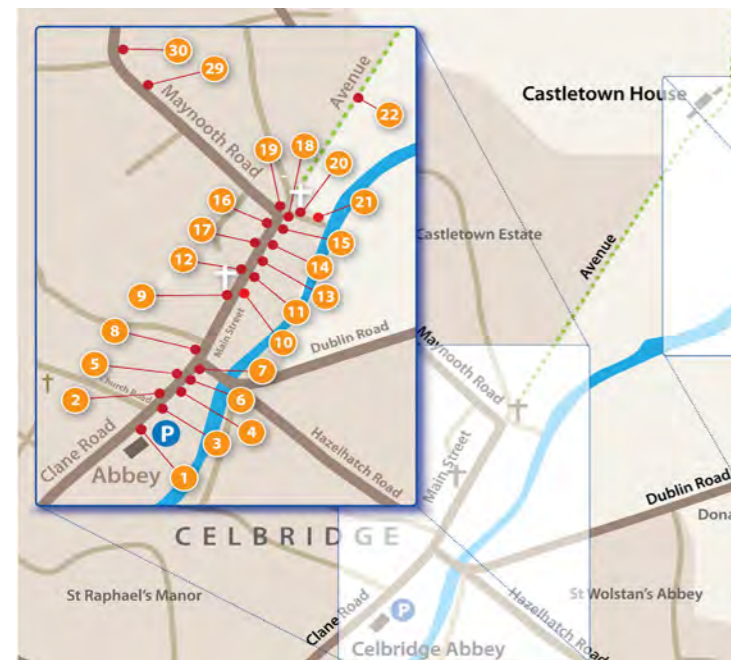


Irish Heart Foundation logo

CELBRIDGE HEWLETT PACKARD LEIXLIP SLÍ NA SLÁINTE WALK

Length: 7km
 Time: 1-1.5 hours walking

In Celbridge, the starting point is at the gates of Castletown House, where a map showing the entire route. From this point, the walk continues along Main Street to Celbridge, crosses the Celbridge road bridge, then continues on Dublin road. It then passes by Leixlip road to reach the city of Leixlip via Newbridge. The walk ends at the Salmon Leap Inn. This itinerary can be done in both directions. [3]



Celbridge Guided Walks map

CELBRIDGE GUIDED WALKS

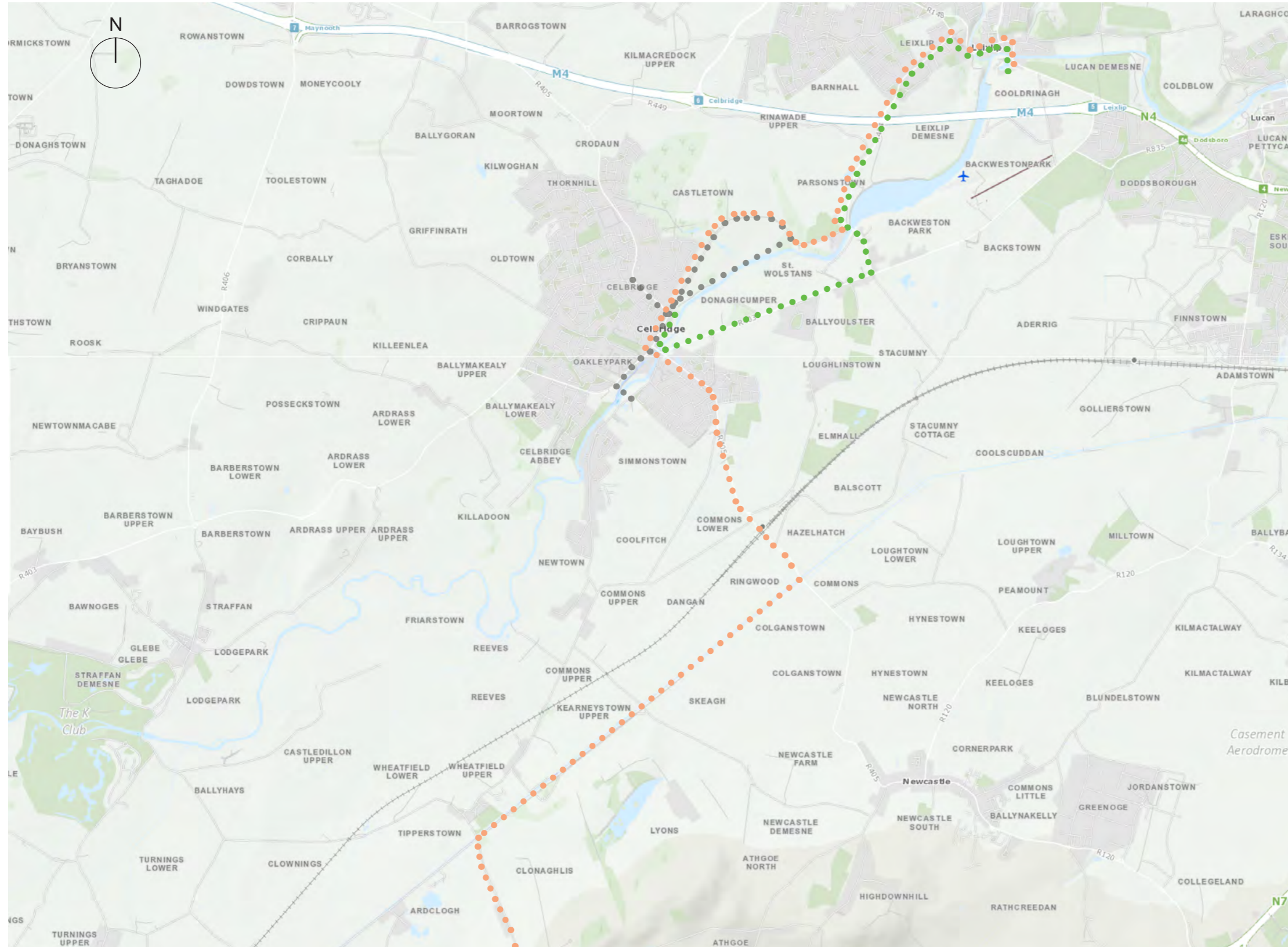
Length: 5km
 Time: 1-3 hours walking

Celbridge Walks offers free informative guided walks in Celbridge for all ages. This tour goes through all the highlights of Celbridge history; Castletown House, the birthplace of Arthur Guinness, the Mill, or the varied architecture of Main Street. [2]

[1] Arthur's way, *Heritage Trail Brochure*

[2] Kildare County Council, *Discover Celbridge Walking Guide*

[3] Walks: ireland.com, January 13th 2020



Walking and cycling tours

- Arthur's Way
16km
- Slí na Sláinte Walk
7km
- Celbridge Guided Walks
5km

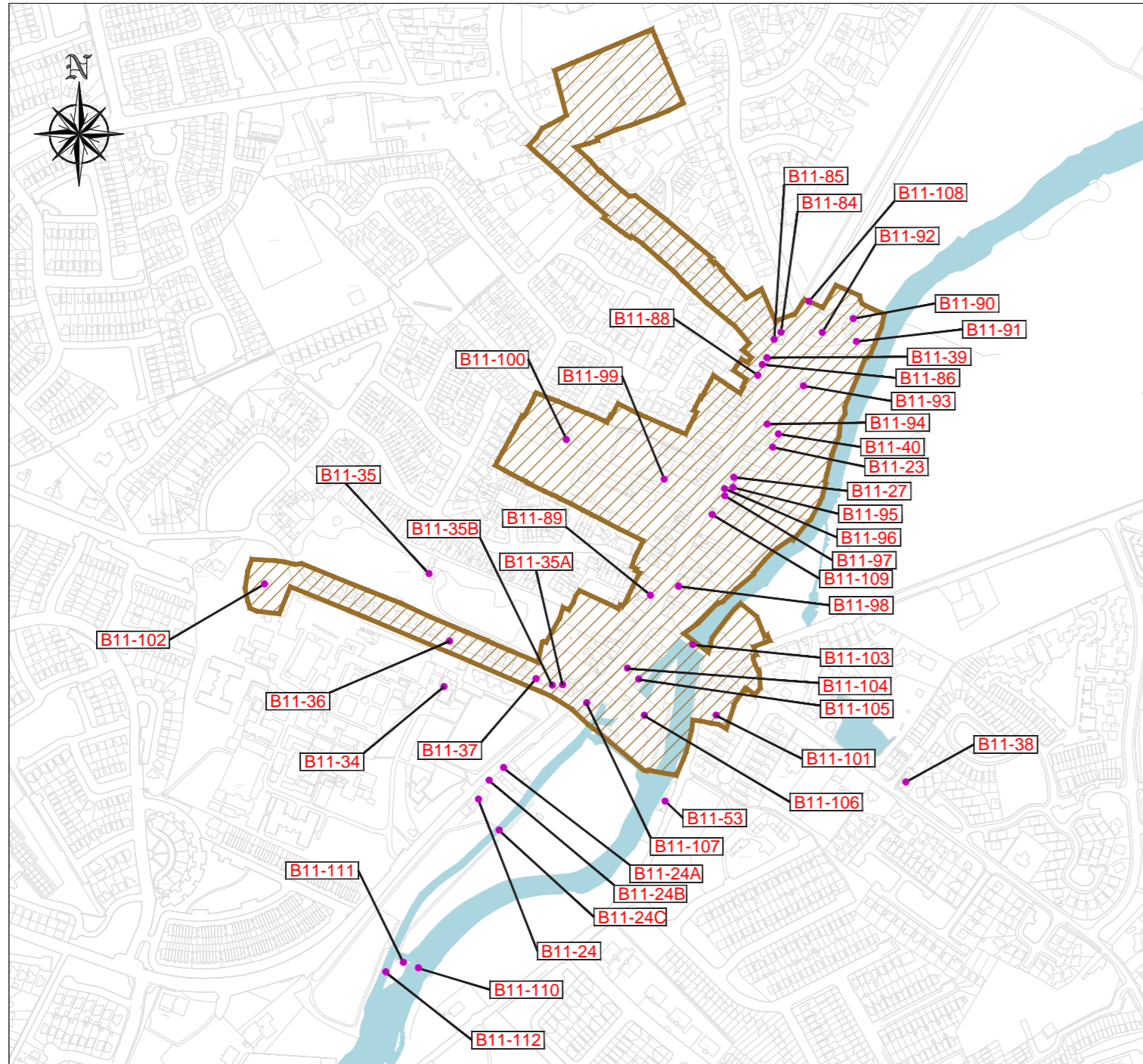
We can observe some examples of marches which are organized in Celbridge and its surroundings. Some have the sole purpose of discovering the history of these places, others are created for the purpose of public health. Whatever the motivations that push to create these walks, they bring a lot of people every year, like the annual event "Celbridge Walking Tours" which brings about 700 people [5]. Most of the routes use the Celbridge road bridge which is, for the moment, not suitable for many pedestrians. It is therefore necessary to make this crossing more suited to the needs of the town, and thus facilitate access for pedestrians and cyclists. This crossing point can become a public space.

Celbridge Walks map [4]

[4]Maps: geohive.ie, January 07th 2020

[5]Kildare Services Integrated Programme, ISP Celbridge Plan 2016-2020, 2016

CELBRIDGE PROTECTED STRUCTURES



Kildare County Council
 Planning Department
 Áras Chill Dara,
 Devoy Park, Naas,
 Co Kildare.

Celbridge Local Area Plan 2017-2023

Legend :

- Development Boundary
- Proposed Architectural Conservation Area (ACA) Boundary
- Record of Protected Structures (RPS)
- Rivers, Canal & Lakes

Built Heritage

Scale : N.T.S	Map Ref : 10.2A
Date: September 2017	Drawing No: 200/17/886
© Ordnance Survey Ireland. All rights reserved. Licence No.: 2004/07CCMA (Kildare County Council)	Drawing By: N.H. Checked By: L.C.

This drawing is to be read in conjunction with the written statement and objectives map

RPS No.	NIAH Ref.	Structure and Location	Description
B11-02		Donaghcumper Medieval Church Ruins, Donaghcumper	Medieval Church
B11-04		St. Wolstan's Abbey, St. Wolstan's	Abbey
B11-11		St. Wolstan's House, St. Wolstan's	House
B11-13		Castletown House, Temple, Batty Langley Lodge, Entrance Gates and avenue (and interiors), Castletown	House
B11-14		Castletown Walled Garden and pedimented arch and nearby temple, Castletown	Walled Garden and pedimented arch and nearby temple
B11-22 (old ref B04-26)	11901104	Former Collegiate School (Celbridge Manor Hotel), Clane Road, Celbridge	School (former)
B11-23	11805062	Kildrough House, Main Street, Celbridge	House
B11-24	11805074	Celbridge Abbey, Clane Road, Celbridge	Monastery
B11-24(a)	11805075	Celbridge Abbey, Clane Road, Celbridge	Gates/railings/walls
B11-24(b)	11805076	Celbridge Abbey, Clane Road, Celbridge	Gates/railings/walls
B11-24(c)	11805077	Celbridge Abbey, Clane Road, Celbridge	Foot Bridge
B11-26	11805061	Francis & Margaret Finlay, Dublin Road, Donaghcumper	House
B11-27	11805035	Main Street, Celbridge	House
B11-34	11805044	Oakley Park, Celbridge	House
B11-35	11805045	Celbridge Lodge, Church Rd, Celbridge	House
B11-35(a)	11805026	Celbridge Lodge, Church Road, Celbridge, Co. Kildare	Gate Lodge
B11-35(b)	11805027	Celbridge Lodge, Church Road, Celbridge, Co. Kildare	Walls/gates/railings
B11-36	11805048	150 Church Rd, Celbridge	House
B11-37	11805053	Abbey View, Church Rd, Celbridge	House
B11-38	11805055	The Forge, Primrose Hill, Celbridge	House
B11-39	11805003	Jasmine House, Main Street, Celbridge	House/Guesthouse
B11-40	11805034	Landscape House, Main Street, Celbridge	House
B11-53	11805073	Abbey National School (former), Celbridge	School (former)
B11-54		Donaghcumper House, Donaghcumper	House
B11-84	11805001	Castletown House, Celbridge, Co. Kildare	Gate Lodge
B11-85	11805002	Round House (The), Main Street, Big Lane, Celbridge	Gate Lodge
B11-86	11805004	Top of the Town Drycleaners /Murfish, Main St., Celbridge	Shop
B11-88	11805005	Michelangelo, Main Street, Celbridge, Co. Kildare	Restaurant
B11-89	11805022	Gogarty, Main Street, Celbridge, Co. Kildare	Shop
B11-90	11805028	Lady Louisa Connolly School, Celbridge, Co. Kildare	School (former)
B11-92	11805029	Castletown School of Industry, Celbridge, Co. Kildare	School (former)
B11-93	11805030	Christchurch, Celbridge, Co. Kildare	Church
B11-94	11805031	Celbridge Parochial House, Main Street, Celbridge	House
B11-94	11805033	Celbridge Town Hall (former), Main Street, Celbridge	Shop
B11-95	11805036	Blake's Pharmacy, Main Street, Celbridge, Co. Kildare	Shop
B11-96	11805037	Castletown Videos, Main Street, Celbridge, Co. Kildare	Shop
B11-97	11805038	Finey House, Main Street, Celbridge, Co. Kildare	House
B11-98	11805040	Main Street, Celbridge, Co. Kildare	House
B11-99	11805042	Saint Patrick's Catholic Church, Main Street, Celbridge	Church
B11-100	11805043	St. Brigid's (Holy Faith) Convent, Main Street (off), Celbridge	Convent
B11-101	11805047	Celbridge Methodist Church (former), Celbridge, Co. Kildare	Church
B11-102	11805051	Tea Lane Graveyard, Church Road, Celbridge	Cemetery
B11-103	11805054	Celbridge Bridge, Celbridge, Co. Kildare	Bridge
B11-104	11805056	The Mill Community Centre, Main Street, Celbridge	Community Centre
B11-105	11805057	The Mill Community Centre, Main Street (off), Celbridge	Community Centre
B11-106	11805058	The Mill Community Centre, Main Street (off), Celbridge	Community Centre
B11-107	11805059	The Mill Community Centre, Main Street (off), Celbridge	Community Centre
B11-108	11805063	Castletown House, Main Street, Celbridge, Co. Kildare	Walls/gates/railings
B11-109	11805064	Main Street, Celbridge, Co. Kildare	House
B11-110	11805078	Rock Bridge, Clane Road (off), Celbridge, Co. Kildare	Foot Bridge
B11-111	11805079	Celbridge Abbey, Clane Road, Celbridge, Co. Kildare	Foot Bridge
B11-112	11805080	Celbridge Abbey, Clane Road, Celbridge, Co. Kildare	Sluice/Sluice Gate
B11-119		Gardeners House, Castletown	Creche
B11-120		The Croft, Castletown	House

Record of Protected Structures – Extract from the County Development Plan 2017-2023

Kildare County Development Plan 2017-2023, Protected Structure Map [6]

[6]Planning Department Kildare County Council, Celbridge Draft Local Area Plan 2017-2023,September 2017

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