# Appendix A21.6 Castleknock Bridge - Architectural Heritage Impact Assessment

**BLACKWOOD ASSOCIATES**
ARCHITECTS
AND
BUILDING CONSERVATION CONSULTANTS
20, STEPHEN STREET LOWER, DUBLIN 2.
PH: (01) 478 4590 FAX: (01) 478 4561
email:studio@blackwood.ie

# DART+ West

## Proposed works at Castleknock Bridge, Castleknock, Co. Dublin

## Architectural Heritage Impact Assessment

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## 1.0 INTRODUCTION

This report has been prepared by Blackwood Associates Architects to accompany the Railway Order application for the DART+ West project. The report will assess the impact of the proposed works on the existing structure and setting at Castleknock Bridge. The proposed works referred to in this document have been designed by IDOM, the design team lead, for the client, Iarnród Éireann.

## 2.0 DESCRIPTION OF STRUCTURE

Note: Much of the information below is based on the report provided by Rob Goodbody in the appendices to Chapter 21 – Architectural Heritage (Appendix A21.4 in Volume 4 of this EIAR).

As with other bridges on the Royal Canal, the introduction of the Great Western Railway in c.1846-47 required a new road bridge to provide passage over the railway line. In some cases, this was an extension of the bridge already on the Royal Canal. In this case, a second bridge, was built in close proximity due to the embankment of land between the canal and the railway line.

Castleknock Bridge was constructed to span over the railway line. It is a masonry road bridge which spans across two train tracks below.

In close proximity to the north is Granard Bridge, a road bridge of limestone and granite dating from 1790-1820 and spanning over the royal canal. The bridges are physically separated by a raised embankment of land but are connected on their surface by the R806 road, running over the embankment.

Immediately to the west is the relatively modern Castleknock Train station. The roads leading to Granard Bridge from the north and Castleknock Bridge from the south are at slightly different angles to one another. This is corrected by Castleknock Bridge and the embankment.

Castleknock Bridge has a single elliptical arch and is bookended with engaged piers north and south. The bridge is primarily constructed with squared limestone, laid in courses. The station platforms extend nearby to the west, but do not touch the bridge. The aforementioned difference in angle is corrected by the bridge which itself is built at an angle. This is reflected in its skewed arch construction, visible in the masonry of the vault.

**Figure 1 –** West elevation of Castleknock Bridge over the railway line.

**Figure 2 –** East elevation of Castleknock Bridge, access restricted.

On the south side the bridge ends with the piers before meeting the historic boundary walls to the south, on either side of the road. On the west side the boundary wall is historic and comprises a large buttressed retaining wall upholding the road, as it rises to bridge level. It is built of limestone rubble and capped with vertical limestone slabs in the style of 'cow and calf'. On the east side, the boundary wall is shorter in length and continues on as a timber fence. The east side seems to have been recently re-built in a similar traditional style.

**Figure 3 –** West parapet ending with pier and historic boundary wall abutting.

**Figure 4 –** Junction between pier and boundary wall on left side of image. Ivy growth covering modern fencing.

On the north side, the bridge has two wing walls, one either side which curve away in the direction of the railway line. The north west wing wall runs alongside a ramp to the train station and is faced with squared limestone rubble, laid in courses. The copings are large limestone blocks. The outer face of north east wing parapet, facing the railway line, has been largely rebuilt in blockwork.

**Figure 5 –** North west wing wall.

**Figure 6 –** North east wing wall with substantial block repairs.

The bridge is decorated with a string course on both faces, and an arch ring of chamfered dressed limestone voussoirs. At the base of the bridge, below the spring, the voussoirs become quoins which meet engaged piers either side. The parapets of the bridge are built of squared, rubble limestone laid in courses and are topped with large limestone copings, also extending over the piers.

The north east parapet wall curves away and slopes down alongside a set of steps which give access to the Royal Canal Way. The copings are of modern blockwork on the curve.

**Figure 7** – North east parapet with modern blockwork.

**Figure 8** – North west parapet.

A service pipe travels alongside the external face of the bridge on both elevations. The pipe travels above the crown of the arch, supported by small I beams fixed back to masonry on the west and east faces. On both elevations the pipe penetrates the masonry of the wing walls to the north. On the west face the pipe also penetrates the historic boundary wall to the south as it changes direction.

**Figure 9 –** Canal spandrel with squared limestone.

**Figure 10 –**West spandrel of bridge and canal arch.

The nearby Granard Bridge spans over the canal and also has an elliptical arch. Its towpath runs to the south, and on its western side, a ramp provides access to the train station. On its eastern side a footpath provides access to the towpath and the Royal Canal Way. It is built of a mixture of rubble and squared limestone of varying sizes brought to courses in parts and laid randomly in others. It has a single arch with a continuous string course and parapet across a hump-back form.

**Figure 11 –**Granard Bridge west elevation.

## 3.0 STATUTORY CONTEXT

Granard Bridge is included in the Record of Protected Structures (RPS) (reference number 0696) in the Fingal County Development Plan 2017-2023. The Royal Canal is also included from locks 10 – 12 (RPS no. 944a ,b ,c and d). Lock 12 is approximately 300m eastwards along the canal.

The bridge also included in the National Inventory of Architectural Heritage (NIAH) with reference number 11354002. It has been assigned a regional significance and its categories of special interest are noted as Technical and Architectural.

Castleknock Bridge is neither a protected structure nor is it included in the NIAH.

A small portion of Castleknock centre is designated an Architectural Conservation Area (ACA) approximately 1km away. Recorded Monuments nearby include Talbot bridge and Saint Brigid's Catholic Church, approximately 0.3km east and 0.7km north east, respectively.

## 4.0 HISTORY & DEVELOPMENT

Below is an extract taken from the conservation report provided by Rob Goodbody in the Appendix A 21.4 to Chapter 21 – Architectural Heritage.

*‘’Castleknock Road was part of the main road leading from Dublin to Navan and onward toward the north. The route skirted the northern side of Phoenix Park, along Blackhorse Avenue, and passed through Castleknock and Blanchardstown on its way northward. This road was of such importance that it was one of the first in the country to be declared a turnpike by act of parliament, in 1729, with the establishment of a turnpike trust charged with the responsibility for the upkeep and improvement of the road and its bridges. Funds for this purpose were to be raised by means of tolls collected from those using the route at toll gates or turnpikes, established at intervals along the route.*

*By the end of the eighteenth century the turnpike trust was having difficulty keeping the road between the city and Castleknock in good repair and, furthermore, it was narrow and winding. This was recognised by parliament and a new act was passed in 1796 authorising the trustees of the Navan Road to construct a new alignment of the road. Due to difficulties in raising the necessary funds this project did not go ahead for more than twenty years and finally, in 1818, the present Navan Road was laid out as a more direct, straighter and wider route. The original route was not closed off and remains in use, combined with the traffic that passes along Chesterfield Avenue through the Phoenix Park and which meets the former Navan Road, now Castleknock Road, just outside the park gates.*

*At the time that the Royal Canal was constructed through the Castleknock area in the 1790s Castleknock Road was still a turnpike road. The Royal Canal Company provided a new bridge to carry the road over the canal and named it in honour of the earl of Granard, who was a major shareholder in the company and who served as director from the time that the company was founded in 1789 until 1803.*

*The construction of the Midland Great Western Railway in 1846-47 necessitated the addition of a new bridge to the south of Granard Bridge. The road did not meet the canal at a right angle, though the difference in angle was small and the resulting bend in the road on the southern side of the canal bridge was slight. The additional of the railway bridge in line with the canal bridge would have increased the bend in the road significantly and to avoid this the railway company ran the new bridge across at an angle to the railway as a skew bridge. ‘’*

**Map Comparison**

The bridges as portrayed in available historic maps generally align with construction dates of c.1790-1820 and its later extension in c.1846. In the 6inch OS Map, the railway line has not yet been constructed. Two small structures are recorded either side of Granard Bridge to the north where it meets land. The canal is shown narrowing as it passes below the bridge and an informal path is marked along the north of the canal.

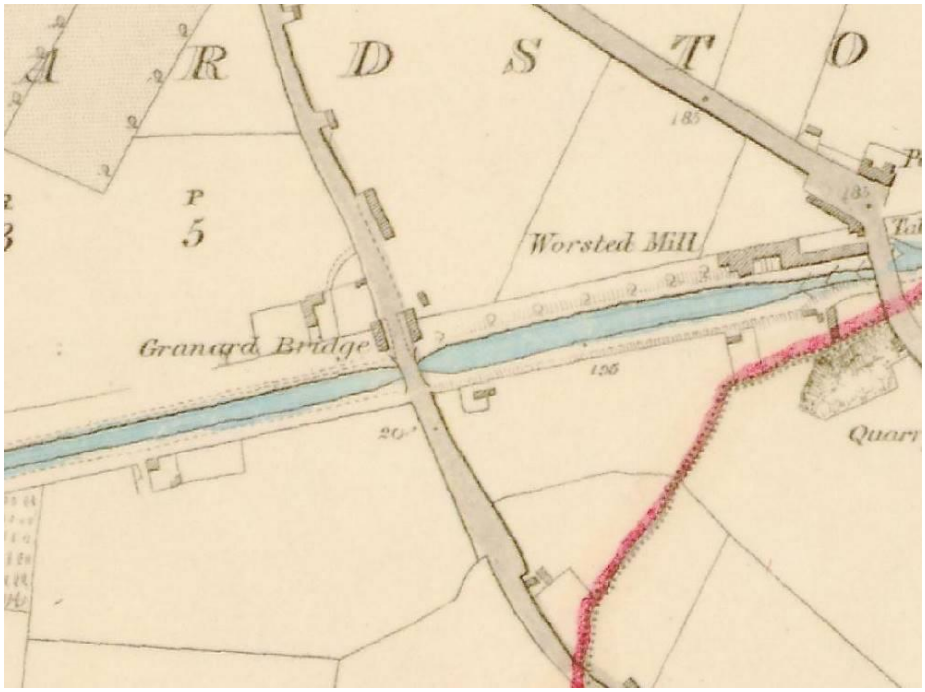


**Figure 22 –** Extract from 6inch OSI Map 1829 - 1841 showing Granard Bridge crossing the Royal Canal.

The 25inch OSI Map records the arrival of the railway line. A new bridge appears over the railway line, and a slight change in direction is shown due to the differing road angles either side. The towpath along the south of the canal remains and Laurel Lodge is now shown to the south west.

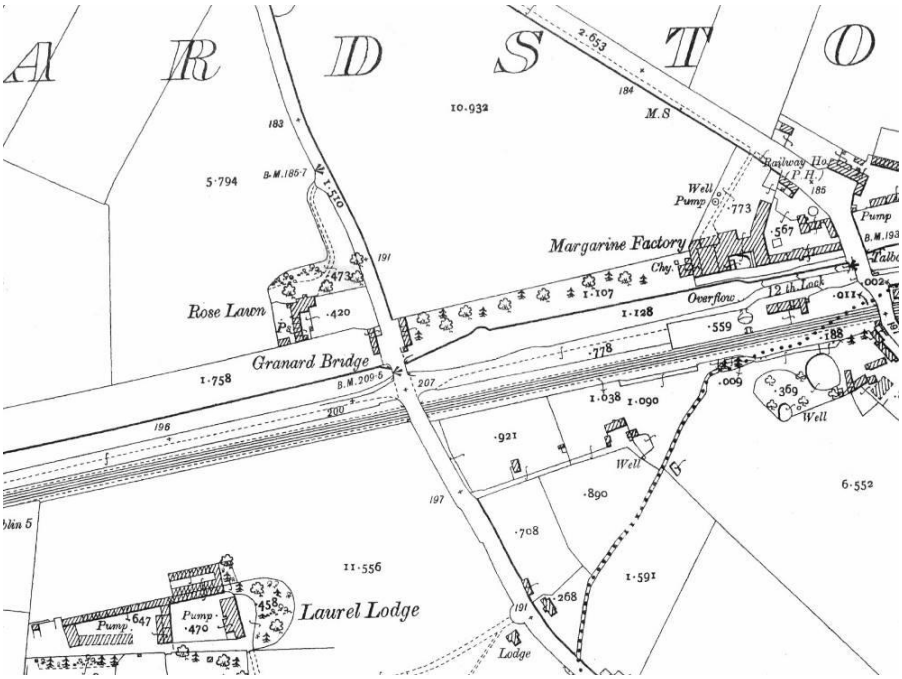


**Figure 13** - 25inch OSI Map 1888-1913 showing the addition of the rail line and bridge.

## 5.0 ASSESMENT OF SIGNIFICANCE

### Statement of Significance

The categories of special interest which define a protected structure as per the Planning and Development Act 2000 (as amended) are Architectural, Historical, Archaeological, Artistic, Cultural, Scientific, Social or Technical. These categories are not mutually exclusive, and a structure may be attributed with several of the categories. The categories identified as particular to Granard Bridge, by the NIAH, are Architectural and Technical. Castleknock Bridge has not been included in the NIAH, or Record of Protected Structures.

In many cases bridges over the Royal Canal were extended to span over the railway line when it was constructed adjacent to the canal. However, in this case an embankment of land separates Granard and Castleknock Bridge. The bridges while separate, are co-dependant and are connected over the embankment surface by Castleknock road.

Relatively few of the railway bridges remain unchanged today, highlighting the bridge's importance as part of Ireland's industrial architectural heritage.

As Castleknock Bridge is not recorded by the NIAH it has not been formally prescribed categories of special interest. However, the bridge carries significance for a number of reasons. We believe the bridge is significant under the following categories.

**Architectural**
Like other railway bridges of this typology, high quality stonework and simple decorative features in carved and dressed limestone contribute to the overall architectural expression of the bridge and testify to the skilled masonry craftsmanship employed in its construction.

**Historical**
Historically, it represents the construction of the Great Western Railway in the 1840s at a time of significant industrial development and advancement in the area of transport and trade in Ireland.
The fact that the railway was added after The Royal Canal is important as a layer of history. In this, Castleknock Bridge signifies a period in the history of transport in Ireland, when the canals were superseded by the railways, but continued to function in parallel.

**Technical**
The vault of the bridge is skewed which allowed the arch to be constructed at an angle over the railway due to the position of the approaching road. The arch is a technically impressive feat which required skilled engineering and craftsmanship to ensure the thrust of the arch was successfully transferred either side. The execution of it in slender stone sections which ties in with decorative quoins and voussoirs either side required particular craftsmanship and skill.

**Social**
The bridges of the Royal Canal and the railway line, including Castleknock Bridge, carry social significance for several reasons. Bridges act as a connection point between areas previously separated and often provide a sense of identity and place for the people and communities around them. Both the canal and the railway line formed a manmade boundary where the bridges then provided essential connection points. This is especially true for pedestrian bridges as they are more directly experienced by people. Additionally, bridges often survive development around them, as standalone independent structures further reinforcing the sense of identity provided.

Today the bridges are important architecturally as standalone features, acting as nodes of identity along the canal and railway which extends through many towns and communities into the Midlands. The canals and some railway lines around Ireland are now important places used for walking and cycling, especially in urban settings where outdoor recreational infrastructure is limited. The Royal Canal Way is one example on the Royal Canal. The canals are popularised with barge boating culture and there are several examples of disused railway infrastructure being converted into greenways around Ireland.

Taking the above into consideration we therefore recommend that Castleknock Bridge be included in the NIAH assigned with a Regional Significance and also entered into the Record of Protected Structures.

## 6.0 OUTLINE CONDITION ASSESSMENT

Due to the limited access available it was not possible to fully assess the condition of Castleknock Bridge. Inspections were carried out from the road over the bridge and from the train platform.

From a distance the stonework of the arches, buttresses and spandrels do not appear to have major structural issues. The stonework on the face generally appears to be in good condition and has not suffered excessive weathering. The stonework forming the arch could not be inspected but it is clear that all the stone has been painted at low level, presumably to cover earlier graffiti. There appears to be a number of phases of pointing on the bridge, some of which is likely to be an inappropriate cement mortar. The pointing has been washed out or fallen away in some areas.

**Figure 14 –** Painting and graffiti under the bridge.

**Figure 15 –** West elevation of bridge.

There are two wing walls of varying condition on the north side of the bridge. The wall to the north west is covered with extensive vegetation on the road side. The vegetation extends down over the parapet to the rail side. A large service pipe runs along the face of the bridge and penetrates the wing wall causing significant stone disturbance. A substantial amount of rebuilding has taken place, particularly below the pipe. This has been poorly carried out and does not match the original stone pattern. The string course has also been altered creating an odd junction where different string thicknesses meet. A lot of the internal face of the wall appears to be painted below the string course and ivy growth is starting to take hold near the base of the wall. The east face also has a service pipe fixed to the external face but it is not possible to see the extent of disturbance caused where the pipe penetrates the north east wing wall. The parapet of this wall has been substantially rebuilt with blockwork, particularly on the internal face. It is difficult to determine the extent of blockwork on the wing parapet due to the extent of vegetation growth. The copings on this section of wall have also been replaced with blockwork and there are a number of cracks in the joints. It was not possible to assess the pointing on the wing walls due to access limitations but it appears to be in a similar condition to the adjoining spandrels and piers.

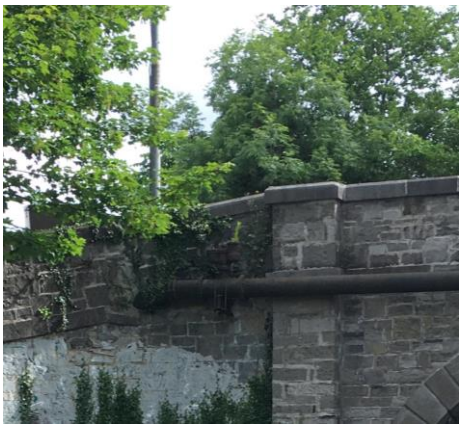

**Figure 16 –** Poorly rebuilt stonework around service pipe on north west side.

**Figure 17 –** Vegetation and paint on north west wing wall and paint under bridge.

**Figure 18 –** North east parapet repaired in blockwork with cracks visible.

**Figure 19 –** North east wing wall parapet rebuilt in blockwork internally.

The parapet stonework appears to be in fair condition but it is not possible to properly inspect the external faces. It is clear that substantial disturbance has occurred on the external face of both parapets where steel beams have been built in to support the service pipes. The joints have been strap pointed in areas in what appears to be a hard cement mortar. Some flush pointing has also been carried out more recently where vegetation was removed. There is evidence of shrinkage cracks between the stonework and mortar on the internal faces. There is also evidence of mortar joints breaking away from the coping stone in a number of areas potentially due to movement of the coping. The coping stones have been repaired in isolated areas where original stone has been lost. These repairs have been poorly carried out in mortar and are likely to fail quite quickly. The base of the parapet is visible on the south east internal face where the road has been lowered. This important stonework appears to be stable, but it would benefit from pointing works to reduce the likelihood of unravelling in future.

**Figure 20 –** East parapet with steel beams built in to historic stonework.

**Figure 21 –** Joint below coping stones broken.

**Figure 22 –** Poor mortar repairs to copings.

**Figure 23 –** Stonework at base of wall requiring pointing.

## 7.0 PROPOSED WORKS

As identified in the accompanying documentation, it is proposed to demolish the section of historic bridge over the railway line to allow for the electrification of the rail system. The existing bridge does not provide the clearance required to allow the Overhead Line Equipment (OHLE) to run under the bridge.

A number of approaches to provide the additional clearance required were considered. These included re-directing the tracks around the bridge, lowering the tracks and demolishing the railway side of the bridge to build a new bridge at a higher level. The evaluation process is detailed in EIAR Volume 4 Appendix A3.3 Option Selection for OHLE Intervention. On completion of this assessment the design team lead and client concluded that the demolition and re-build of the existing bridge at a higher level was the most suitable approach.

The removal of this section of bridge over the tracks is an irreversible loss of important historic fabric and permanently alters the historic structure and surrounding setting. This section of the bridge has significant historic value, particularly as it is one of the few remaining skewed historic bridges on this part of the line. The historic wall on the west side when approaching from the south is also largely being removed. This is an important layer of history and an important element of the overall historic setting. To mitigate the loss of the historic fabric as far as possible, the construction of the new bridge arch is being carefully considered. It is essential that the replacement section of bridge is well designed, detailed and executed. The most important consideration in the process is to ensure that the new build element sits comfortably alongside the remaining historic fabric. The stonework from the dismantled railway arch will also be salvaged and used for repairs where required.

Due to the significant raising of the bridge to accommodate the OHLE and the requirement to install a precast concrete arch, it is not possible or desirable to reconstruct the span to match the existing. Instead, a contemporary solution using modern materials is being designed. The extent of demolition will be confined to the section of bridge between the stone piers to ensure that the reconstructed section will be read as an insertion rather than an entirely new bridge.

A number of finishes and construction methods were assessed during the design process. Initially the preferred option was to re-use the original facing stone but it became clear that this would not be successful due to the technical constraints of the new construction. The string course is an essential element of the existing composition but the increased height of the arch would distort its connection to the string course on the piers. The precast arch construction would reduce the existing voussoirs to cladding stones and the facing stone of the spandrels would also become cladding stones tied back to the concrete structure behind. The combination of all these factors made it very difficult to design or build stonework that would sit well alongside the original fabric and there were concerns that it would very much read as modern stone cladding.

**Figure 24 –** West elevation with string course highlighted.

**Figure 25 –** East Elevation with string course highlighted.

The use of a weathered steel facade was also explored as this material is being used on new build elements elsewhere in the project. After careful assessment it was decided to proceed with a concrete

structure as this has the potential to sit most comfortably with the remaining original stonework. It is proposed to use a board marked concrete finish on all faces and to select a concrete colour that best complements the original stonework.

**Figure 26 -** Example of a new board marked concrete insertion in an existing stone structure.

The colour and texture of the concrete finish, along with the quality of the detailing and workmanship is critical to its success. There are many examples of fine concrete work next to historic stonework across Europe, as identified in the image above. The design team is aware that Irish conditions are generally a lot damper than elsewhere, therefore the texture and finish of the concrete will be designed to minimise algae and vegetation growth. The texture created by the board will be controlled to ensure there are no large shelves for vegetation to take root and the surface finish will be carefully specified to limit the number of bugholes present on the finished concrete. It is proposed to use hand sawn boards to provide a finish that is not too uniform. Research into materials and sample panels will be essential prior to construction to ensure the new concrete finish complements the remaining historic stonework.

The form of the new arch and its relationship to the piers and abutment walls is of critical importance. The design team have decided not to replicate the original arch exactly as the geometry of that shape would require the bridge to be raised even more than the current proposal. A slightly flatter arch provides the clearance required for both lines with less elevation.

The junctions between old and new will need to be carefully considered during detail design. The presence of the piers on either side of the arch allows the new build to be contained neatly at a natural break. These junctions will still need to be skilfully detailed and executed to ensure the concrete and stonework sit comfortably together. There will be a considerable amount of stone repair and repointing on the piers following the removal of concrete shuttering. These repairs will need to be carried out with great care by a skilled stonemason.

**Figure 27** - East elevation with piers highlighted.

The new concrete parapets will extend up to the height of the original with the additional height provided by the contemporary design discussed below. The original parapet thickness will be carefully designed to ensure the new parapet sits in as neatly as possible with the original. The piers extend up through the parapet externally providing a natural break but there is no detail on the internal face. This creates a challenge that will need to be overcome with careful detailing and skilled craftspeople.

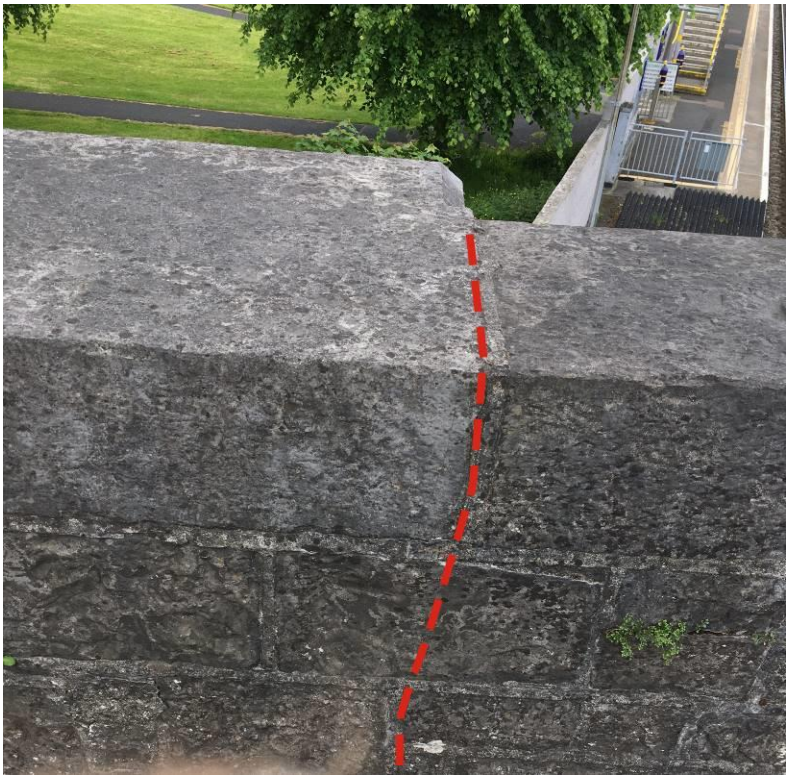

**Figure 28 -** Image of parapet internally with line highlighting where the junction with the new concrete parapet will be.

It is a safety requirement that the parapets are a minimum of 1800mm high, with the bottom 1200mm solid, in the area of the OHLE. This presents a significant challenge for Castleknock Bridge as the existing parapet heights are lower than 1200mm on the north side. A rigorous design process has taken place to

identify a solution that will complement the historic setting and maintain a visual connection to the rail lines and surrounding landscape, when on the bridge. It is also essential that the parapet is not the dominant feature while viewing the bridge from the canal. The proposed design is a contemporary, adaptable solution that can be implemented throughout, bringing a degree of uniformity to all interventions along the railway. An alternative option with the extended parapet structure fixed on top of the coping, was also assessed. Due to wind loads and the uncertain structural integrity of the parapets, a considerable amount of damage to the original fabric would be required to anchor the new structure through the existing parapet to new concrete pads below.

For Castleknock Bridge it is proposed to provide a solid metal panel from the top of the parapet up to 1200mm with an expanded metal mesh to continue up to 1800mm. The vertical supports and mesh will be carefully designed to ensure the internal face of the parapet is not obscured and that the mesh allows a good visual connection to the surroundings.

**Figure 29** – Render of design proposal to increase the parapet height to 1800mm with mesh about 1200mm.

Repair works will be required to the remaining existing parapet before the proposed heightening works can take place. This will include stabilising works to the wider section of parapet just above road level that is likely to have originally been below the road level. All joints will need to be examined and raked out where the existing mortar is lost or failing. Joints will need to be repointed in a suitable lime mortar and protected until satisfactorily carbonated. These works must be carried out by a skilled mason with extensive experience with historic stonework.

## 8.0 ARCHITECTURAL HERITAGE IMPACT ASSESSMENT

| Proposed Alteration | Negative Impact | Neutral Impact | Positive Impact | Mitigating Measures |
|---|---|---|---|---|
| Demolition of the section of original bridge over the railway line. | Loss of important historic fabric.<br><br>Alters the historic setting.<br><br>Loss of original skewed bridge arch, one of the few remaining along this section of the line.<br><br>Impacts the setting of the canal bridge. | | Allows for the train system to be electrified.<br><br>The unsightly supports for the service pipes along each side of the bridge will be removed and replaced with carefully designed supports to minimise the impact on the new bridge. | The demolition will be contained between the stone piers on each side to minimise the loss of historic fabric.<br><br>A carefully designed replacement section of bridge will be constructed to sit comfortably with the original fabric on each side.<br><br>The stonework will be carefully dismantled and used for repairs on the historic bridges where necessary. |
| Removal of original parapets from the section of bridge being removed. | Loss of important historic fabric.<br><br>Removes the only visible connection to the historic bridge when crossing over. | | Allows for the train system to be electrified. | The replacement parapets will be reinstated to the original level. The additional required height will be provided with a modern parapet detail.<br><br>The parapets will be carefully designed to ensure they connect neatly to the remaining historic parapets on each side. |
| Construction of the new bridge section over the railway line. | The use of a precast concrete will create a construction joint under the bridge between the arch and board marked concrete face.<br><br>The concrete arch will read differently to the shuttered concrete on completion.<br>The removal of a section of boundary wall on the approach from the south is an unfortunate loss of original fabric that the new bridge infill was designed to sit in harmony with. | | Concrete colour and texture will be designed to be compatible with the surrounding historic stonework.<br><br>The junctions between the concrete and original stone will be carefully detailed to ensure the two phases of construction sit comfortably together. | The cast in-situ concrete will be carefully designed to ensure the precast arch is not visible while viewing the original structure in elevation.<br><br>The surface finish of the concrete will be carefully considered to limit the vegetation growth as much as possible. |

| Proposed Alteration | Negative Impact | Neutral Impact | Positive Impact | Mitigating Measures |
|---|---|---|---|---|
| Increase of parapet height. | Obscures the original design intent of the remaining section of existing parapets to some degree on the internal faces.<br><br>Visual connection to the top of the coping stones will be lost on internal faces.<br><br>The connection to the surrounding setting is compromised by increasing the parapet height to 1800mm. | | Allows for the train system to be electrified.<br><br>This approach allows the original parapets to be retained on each side. | The new parapet will be carefully designed to minimise the impact on the remaining historic parapets.<br><br>Fixings on the historic parapets will be minimised and will be installed in joints where required. The majority of the structural load will be transferred to the deck, decreasing the impact on the parapets.<br><br>The metal mesh will be carefully selected to ensure the visual connection to the surrounding landscape is maintained as much as possible.<br><br>The parapet supports will be designed to be as slender and elegant as possible to reduce the visual impact on the parapets. |

## 9.0 CONCLUSION

The demolition and replacement of the span of Castleknock Bridge over the railway line is a very significant loss of important historic fabric. Unlike the two other historic bridges of the scheme being partially removed, this bridge stands separate, but close to Granard Bridge over the canal, a protected structure. The loss of this section of bridge along with the boundary wall to the south, will have a considerable and irreversible impact on the character of the setting, surrounding environment and the canal bridge. From a conservation perspective it would be preferable to incorporate the welcomed new infrastructure into the existing setting, while retaining this important historic structure. As identified in Appendix A3.3 Option Selection for OHLE Intervention in Volume 4 of the EIAR, the bridge can be retained, but due to significant financial and programme reasons, removal and replacement has been chosen as the preferred option.

By raising the railway arch, the connection between this and the historic abutments is fundamentally altered, so constructing a stone facade on the new bridge section is not considered appropriate. After carefully assessing the alternatives, it was concluded that a contemporary concrete structure would sit most comfortably with the remaining historic stonework. Considerable effort will be required during detail design and construction to ensure the colour and texture of the concrete complement the existing stonework. Careful detailing and execution at the junctions will also be fundamental but these are all achievable and should lead to a successful outcome. Containing the re-build between the piers on each side is positive and will allow the new section of bridge to be read as an insertion into the original rather than a new bridge.

The proposed parapet heightening design provides a flexible solution that can be adapted to each historic bridge along the length of the Dart+ West project. Raising the parapet is a fundamental safety requirement when installing OHLE, so the proposal needs to incorporate these essential requirements. The use of an expanded metal mesh above 1200mm ensures that a visual connection to the surroundings is maintained while on the bridge. The positioning of the new parapet on the internal face also ensures that it reads as a secondary element when viewing the external faces of the bridge. Unfortunately, the raised parapet will obscure the top of the existing coping stones internally, but it is an essential safety requirement to remove any ledges that could be used to climb up on the parapet.

It is clear from a conservation perspective that the demolition of the section of bridge over the railway, and boundary wall to the south, is a major loss to the overall structure and surrounding setting. However, the proposal to reconstruct the arch with a carefully designed and detailed concrete finish should sit comfortably with the remaining canal bridge and reflect a high quality contemporary design. The required conservation and repair works to the existing fabric should also be incorporated into any future works on the bridge.