Mountmellick
FLOOD RELIEF SCHEME

Option 2A – Embankment along Owenass river bank

Mountmellick Flood Relief Scheme - Emerging option 2A
March 2021

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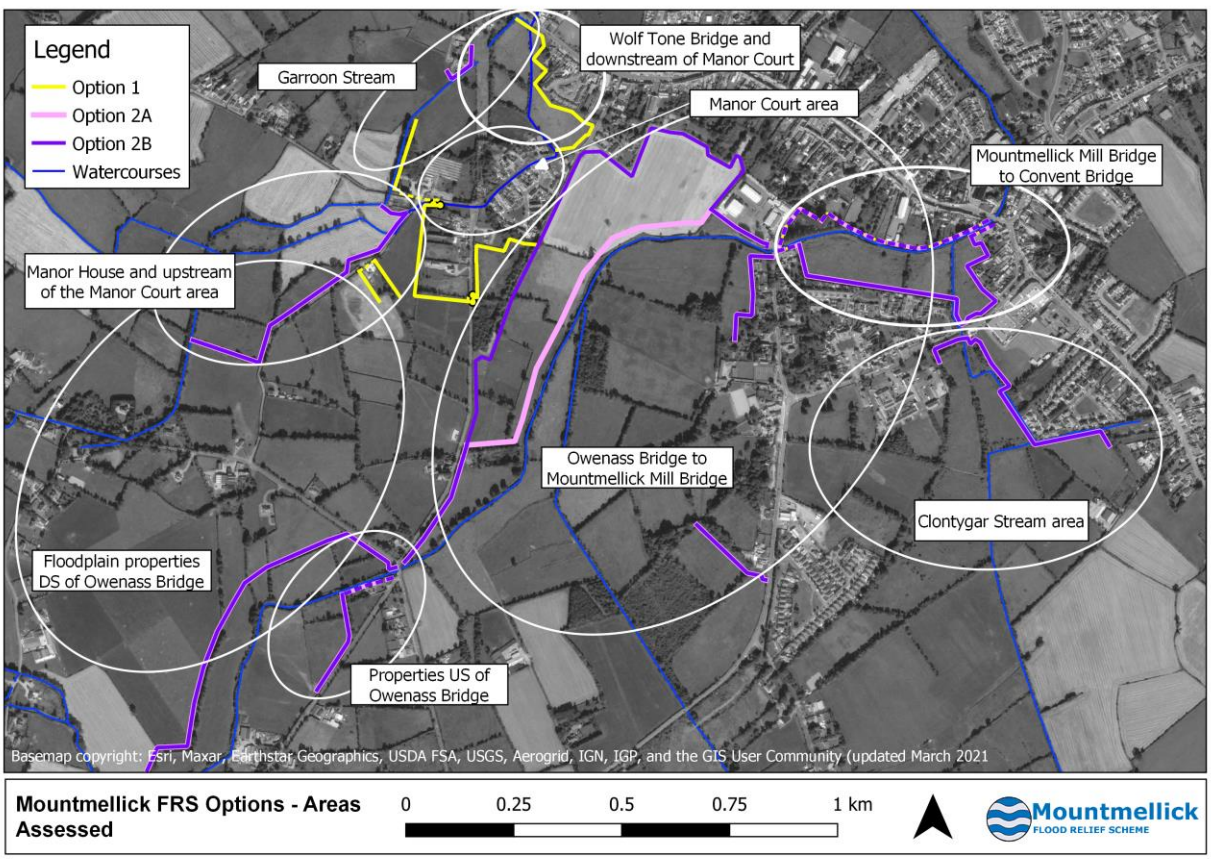
Option 2A

- The images and descriptions in the following pages are based on a comparison between the current (undefended) scenario and Option 2A. They are based on the 1% AEP flood event (or event that has a 1% chance of happening in any year, otherwise called the 1 in 100 year flood). The 1% AEP flood is also the level that the defences will be built to protect against. As well as the direct water level, the defences also have an element of freeboard, so are 300mm higher than the water level for walls and 500mm higher for embankments, where settlement can happen over time.
- The discussions on the following pages are geographically based, and cover the areas shown in the map below.
- You can use the interactive map near the end of the room to zoom into areas of interest more easily.
- In common with Option 1 and 2B, a line of defences will also be needed around the Bay Road Business Park (not shown on this map), which is at risk from the River Barrow rather than the Owenass or Pound.



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Mountmellick Mill Bridge to Convent Bridge

Description: The playground is flooded in the current scenario and continues to be flooded when Option 2A is in place with defence line to the rear of the playground.
There is only minor spill on the north bank downstream of the playground in the current scenario but defences are included along this area as flooding in worsened for the rear of Sarsfield Street when upstream defences are modelled.
Flood levels increase by 28cm (1') in the playground and by approximately 40cm in Healion's field compared with the current scenario.

Benefits: As with Option 1, in Option 2A properties previously flooded in this area are defended. As a result of the additional defences, no additional key risk receptors are impacted.

Constraints: As with Option 1, in Option 2A properties along Sarsfield Street will need a defence wall built along the riverside boundary but access to the river will be facilitated in line with current usage as far as possible.
This boundary is also the edge of the Archaeological Zone of Notification.
The defences do not protect the playground area or the public walkway along the right bank.
There will be some loss of mature trees in the playground; the impact on the trees and bat habitat will need to be mitigated. The defences bisect the SAC boundary along the north side of Grove Park and consultation with NPWS will be needed about this.
Monitoring to confirm the presence of otters will be carried out, and may require mitigation to avoid damage to holts and impairing access to feeding sites.

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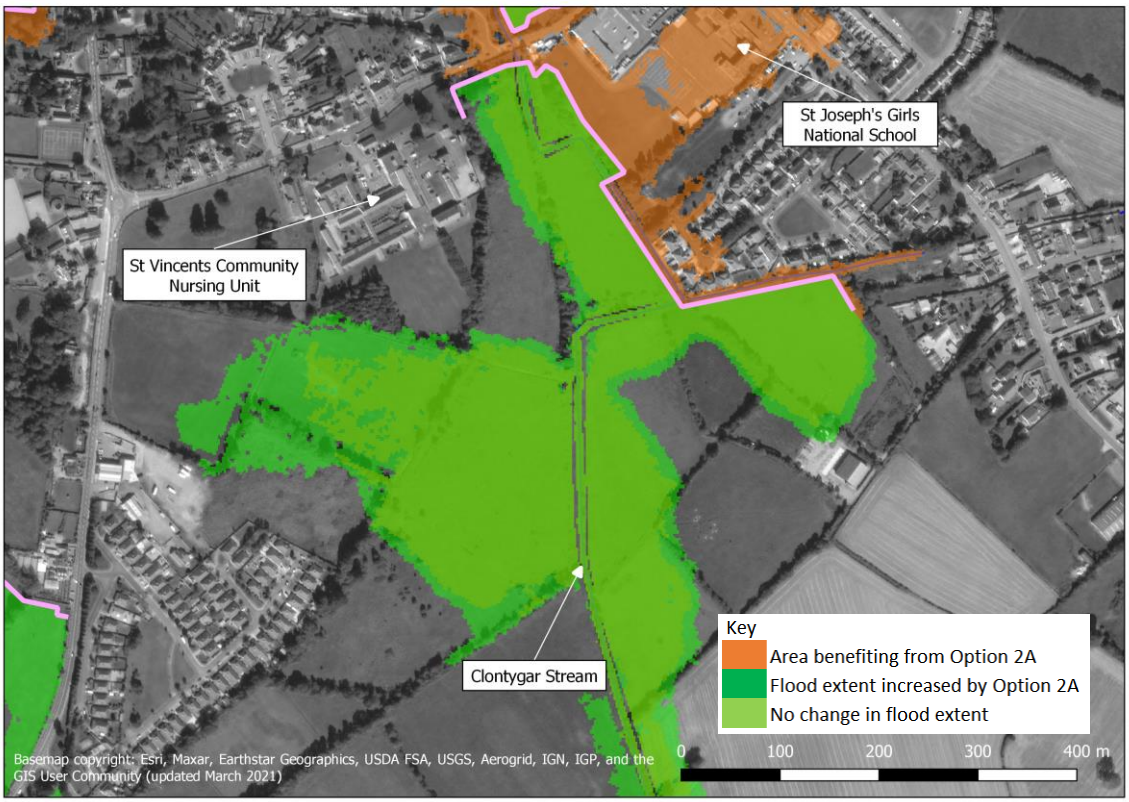
Clontygar Stream and Davitt Road



Description: As in Option 1, flooding along the Clontygar Stream is a largely as a result of the Owenass backing up into Healion's field and up the stream channel. This also causes the drains and pipes which flow into the Clontygar to back up. In Option 2A, the defence line provides protection to the surrounding properties from this flooding. It also ensures that Irishtown road – a key access route- is not flooded. The presence of the Option 2A defences does increase water levels along the Clontygar as flood waters are contained and there is also an increase in flood extents in greenfield areas. Levels in Option 2A along the Clontygar increase by approximately 0.3m compared to the current scenario.

Benefits: The proposed defence line protects many and a key access route. The area where flooding is increased is green space which has no key risk receptors. While levels do increase in Option 2A along the Clontygar there is potential for further work and assessment to reduce this by adding a flap valve on the Irishtown road culvert to prevent backwater from the Owenass river. Levels increase by 5cm in Option 2A when a flap valve is put in place compared to the current level.

Constraints: The Davitt Road area is known to have sewer capacity and flooding issues, including backing up of systems/surcharge and flooding resulting from pluvial sources. Some of the most vulnerable properties have had individual property protection measures installed to prevent reoccurrence of the 2015/2016 & 2017 flood events. Additional flood water being stored or the addition of flap valves to discharges will require further detailed assessments and the development of a solution as required in conjunction with Irish Water.

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Owenass Bridge to Mountmellick Mill Bridge

Description: The defence line follows the left (westerly) bank of the Owenass at an offset of 30-40m. This protects the floodplain from flooding when compared with the current scenario. However, flooding on the eastern bank of the Owenass increases in extent and depth and as a result a length of embankment is needed to protect the garden centre.

Benefits: The riverbank defence protects key risk receptors to the north, as in Option 1, and also cuts down flow to the west and therefore removes flooding from lands between the Owenass and Pound Rivers.
The embankment alignment provides a natural continuation of the existing riverside walk and minimises overlooking of residences.
Coupled with works around the pumping station (which could be moved inside the defences), there are opportunities to form a pocket park in this under-utilised corner.
There may be opportunities to re-naturalise the river next to the embankment, including remeandering the channel.
Embankment lends itself to an extension to the riverside walkway.

Constraints: As a result of defending the floodplain on the western bank there is increased flooding to the east of the Owenass compared to the current scenario. This will require an additional length of defence behind the garden centre.
The embankment bisects the River Barrow and River Nore SAC boundary at the MDA and consultation will be needed with NPWS in relation to the status of the SAC and required mitigation works.
In channel works will be within the SAC and will require approval of NPWS.

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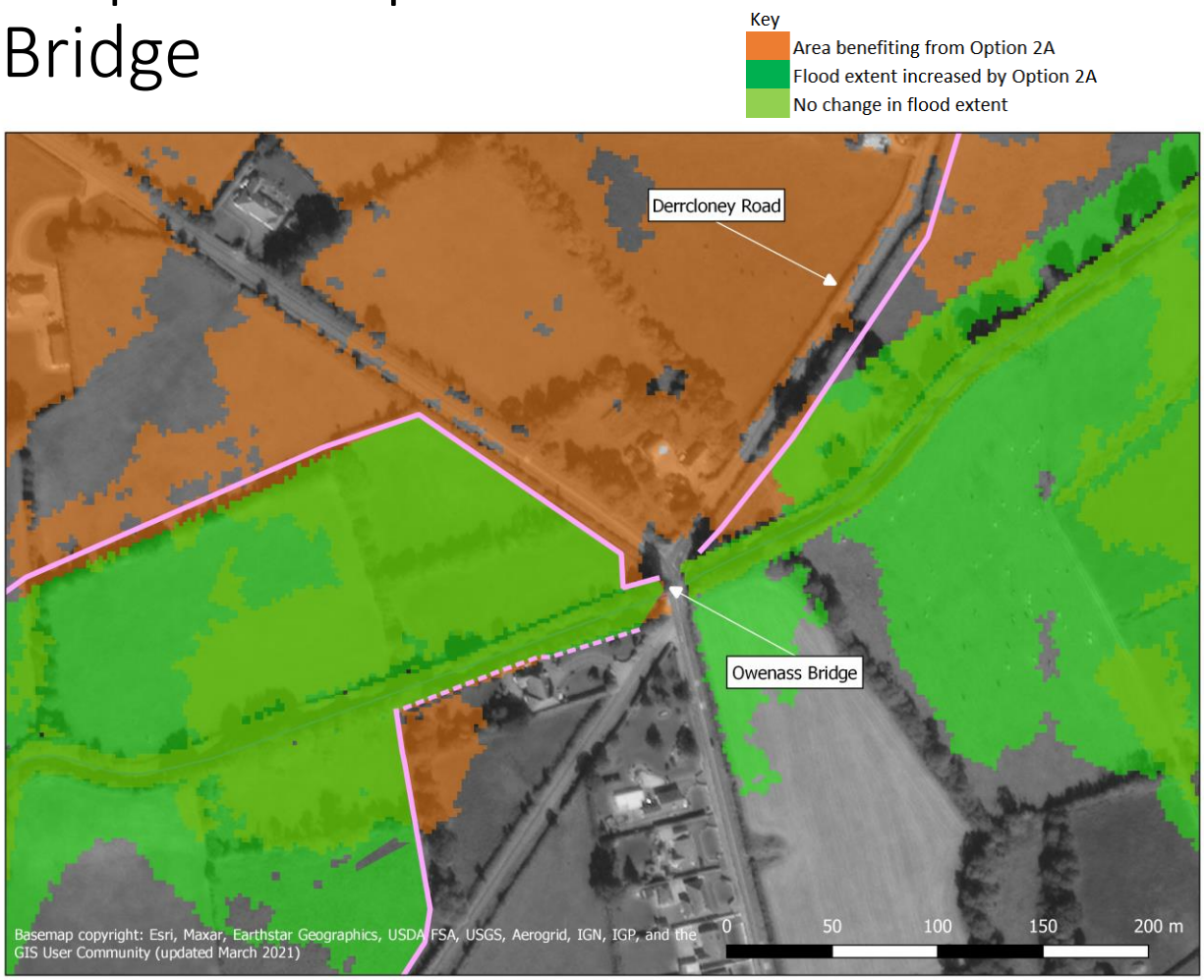
Properties upstream of Owenass Bridge



Description: In Option 2A, the floodplain embankment results in increased flooding to the east of the Owenass. As a result properties around Owenass bridge that were previously not flooded are impacted in Option 2A. Defences in the form of walls and embankments will be required around these properties (flood level around defences approximately 0.90m or just under 3').

Benefits: The flood plain barrier reduces the need for complex work on the Pound system and removes flood risk from a number of properties in the flood plain.

Constraints: New properties not previously at risk must now be protected and their defences factored into the overall design and cost of the Option.
Velocities through the Owenass Bridge increase and may require an overflow / diversion channel to the north which could see periodic road closures but this would reduce pressure on the bridge and minimise scour.
Under the climate change scenarios there is a significant increase in flood depths upstream of the Owenass Bridge and adaptation will have to be carefully considered, possibly involving a bypass channel around the bridge.

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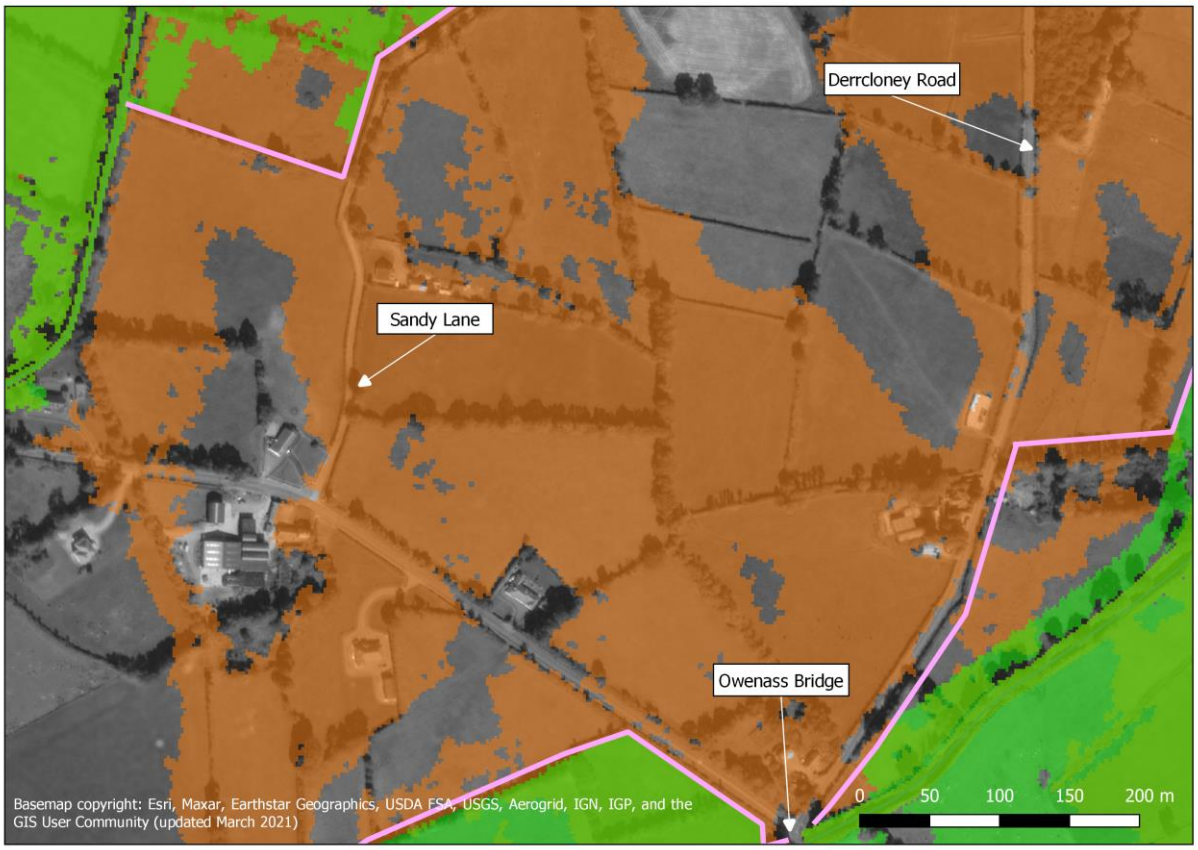
Floodplain between the Owenass and Pound rivers



Key

- Area benefiting from Option 2A
- Flood extent increased by Option 2A
- No change in flood extent

Description: The embankment along the Owenass prevents flooding of the properties in the floodplain upstream of Mountmellick town. The embankment blocks the cross flow removing the flood risk to these upstream properties and land.

Benefits: Protection for five additional properties outside Mountmellick, and a substantial area of agricultural land between the two rivers.

Constraints: The increased length of embankment needed upstream to protect these properties is significant and extends outside of Mountmellick
There is increased risk to land and property on the Owenass right bank, as discussed in the previous page.

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Manor House and upstream of Manor Court

Description: The main Owenass embankment blocks cross floodplain flow to the Pound. The Pound is better able to manage the reduced flows. In Option 2A an embankment to west of Sandy Lane, in the vicinity of the old mill pond provides a flood storage area. A throttle below the embankment further limits flows down the Pound. As a result of the reduction in flows from the Owenass, flood depths at this location decrease by approximately 30cm (12”) compared to the current scenario.

Benefits: Significant reduction in flood risk to Derrycloney Road, Manor Road and downstream.
There is a reduction of flood depth in currently impacted lands and flooding is removed from a large area of land.
The historic mill building is defended.
Nature based solutions can be incorporated into the option in this location.

Constraints: The route and capacity of historic (infilled) mill races in this area is unknown and there is a risk that underground flows may continue even after defences have been built above ground.
There is an increase in flow to the Garroon which needs to be managed (see the next page).

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Garroon Stream

Description: Under Option 2A, there is an increase in flows down the Garroon. As the culvert below the old railway line is under capacity, water backs up and creates a flood risk to property to the north. This may be managed

Benefits: The Garroon provides a route for flows which have been restricted by the throttle on the Pound, reducing water levels upstream.

Constraints: The extra flows down the Garroon results in increased flooding of land and causes risk to one property . This may be mitigated by either defences around the property will be required (flood depths are around 30cm so defence would be approximately 80cm) or upsizing the culvert below the railway.

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Manor Road and Manor Court

Description: In Option 2A, the combination of the main Owenass embankment and the Pound embankment and throttle means that no additional defences are needed along the Manor Road channel as the flow is low enough that the system can pass it though.

Benefits: Removes flood risk to a critical area of residential properties.
No additional defences needed downstream on the Pound.

Constraints: No significant constraints identified.

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Wolfe Tone Bridge and downstream of Manor Road

Description: In Option 2A, the combination of the main Owenass embankment and the Pound embankment and throttle means there is no flooding modelled in this area. Therefore there is no need for defences along Wolfe Tone bridge or around the property boundaries.

Benefits: Control of flow upstream removed need for defences downstream and reduces flooding to previously impacted areas.

Constraints: No significant constraints identified.

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