

CLONASLEE FLOOD RELIEF SCHEME

Appendix 4.1: Multi-Criteria Analysis

MDW0867
S5 P01
19 May 2025

DOCUMENT CONTROL SHEET



Client:	LCC
Project Name:	Clonaslee FRS
Project No.:	MDW0867
Package Name	MDW0867CA0001A02_Clonaslee MCA and CBA

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Project	Clonaslee FRS				
Project No	MDW0867				
Element	Introductory Notes				
Package	MDW0867CA0001A02_Clonaslee MCA and CBA				
Prepared by	Checked	Approved	Date	Rev.	Sheet No.
JP	BC	BC	08/08/2023	A02	1

Introductory Notes

A multi-criteria analysis was undertaken to analyse the effectiveness of each of the viable flood mitigation options. The analysis has been carried out in accordance with the OPW guidance document “National CFRAM Programme Technical Methodology Note - Option Appraisal and the Multi-Criteria Analysis (MCA) Framework. Version: Rev. B Date Published: September 2018.

The flood risk management objectives were categorised as follows:

- Social
- Economic
- Environmental
- Technical

The categories are weighted to reflect their importance and/or sensitivity, and to ensure that the objectives most relevant to the location under consideration were given priority in the decision-making process. Two types of weighting were used which are global and local. Global weightings range between 4 and 27 while local weightings range between 0 and 5. The weightings are applied based on guidance in the Technical Methodology Note.

A brief description of each option is presented below.

Please refer to the Technical Methodology Note for more detail, available at <https://www.gov.ie/en/publication/b15dd0-technical-specifications-and-guidance-notes/>

Referenced files:
MDW0867CA0002A01_Clonaslee CBA Existing Scenario
MDW0867CA0003A01_Clonaslee Agricultural Costs
MDW0867CA0004A01_Clonaslee Cost Estimates
MDW0867CA0005A01_Clonaslee CBA_Option 1
MDW0867CA0006A01_Clonaslee CBA_Option 2

Option 1a	<ul style="list-style-type: none">• Construct 130m road elevation at an average height of 440mm in Brittas Wood.• Construct debris trap located in Brittas Wood upstream of the old weir.• Demolition and clearance of 243m of old walls.• Construct 243m of walls (assumed with sheetpile cores/mass concrete as appropriate) to replace demolished wall at assumed 1m height. Temporary river diversion to accomodate replacement.• Construct new 150m embankment at an average height of 770mm adjacent to Tullamore Road behind existing embankment.• Construct 70m wall at an average height of 330mm in IW ICW along right bank.
Option 1b	<ul style="list-style-type: none">• Construct 130m road elevation at an average height of 440mm in Brittas Wood.• Construct debris trap located in Brittas Wood upstream of the old weir.• Demolition and clearance of 243m of old walls.• Construct 248m of walls (assumed with sheetpile cores/mass concrete as appropriate) to replace demolished wall at assumed 1m height. Section of wall will be set back from original location.• Construct new 150m embankment at an average height of 770mm adjacent to Tullamore Road behind existing embankment.• Construct 70m wall at an average height of 330mm in IW ICW along right bank.
Option 1c	<ul style="list-style-type: none">• Construct 600mm high road elevation in Brittas Wood.• Demolition and clearance of 243m of old walls.• Construct 248m of walls (assumed with sheetpile cores/mass concrete as appropriate) to replace demolished wall at assumed 1m height. Section of wall will be set back from original location.• Construct new 150m embankment at an average height of 770mm adjacent to Tullamore Road behind existing embankment.• Construct 70m wall at an average height of 330mm in IW ICW along right bank.
Option 2a	<ul style="list-style-type: none">• Construct 600mm high road elevation in Brittas Wood.• Construct debris trap located in Brittas Wood upstream of the old weir.• Demolition and clearance of 75m of old walls.• Construct 75m of walls (assumed with sheetpile cores/mass concrete as appropriate) to replace demolished wall at assumed 1m height.• Excavate area of 4934m2 and 0.8m deep in Moran's field.• Construct new 150m embankment at an average height of 770mm adjacent to Tullamore Road behind existing embankment.• Construct 70m wall at an average height of 330mm in IW ICW along right bank.
Option 2b	<ul style="list-style-type: none">• Construct 600mm high road elevation in Brittas Wood.• Demolition and clearance of 75m of old walls.• Construct 75m of walls (assumed with sheetpile cores/mass concrete as appropriate) to replace demolished wall at assumed 1m height.• Excavate area of 4934m2 and 0.8m deep in Moran's field.• Construct new 150m embankment at an average height of 770mm adjacent to Tullamore Road behind existing embankment.• Construct 70m wall at an average height of 330mm in IW ICW along right bank.

MCA Benefit – Cost Ratio	The MCA Benefit Score is divided by the cost of the option to provide a numerical, but non-monetarised, MCA Benefit - Cost Ratio (BCR) that provides an indication of the overall benefits that can be delivered per Euro invested. The greatest weight should be given in the option selection to the MCA BCR, which provides a measure of the overall benefits per euro investment.
The Economic Benefit – Cost Ratio	The Economic Benefit-Cost Ratio (BCR) is calculated by dividing the PVb for an option or measure, capped as appropriate, by the whole life cost (PVC) of that option or measure

	RPS GROUP LTD West Pier Business Campus Dun Laoghaire, Co. Dublin Tel: +353 1 488 2900					Project		Clonaslee FRS				
						Project No		MDW0867				
						Element		MCA Summary and CBA				
						Package		MDW0867CA0001A02 Clonaslee MCA and CBA				
						Prepared by		Checked	Approved	Date	Rev.	Sheet No.
JP						BC	BC	08/08/2023	A02	2		
MCA Summary and CBA												

MCA Summary					
Scheme Option	Option 1a	Option 1b	Option 1c	Option 2a	Option 2b
Social Score	1265.0	1265.0	1265.0	1265.0	1265.0
Economic Score	981.1	981.1	981.1	981.1	981.1
Environmental Score	-697.0	-498.0	-405.0	-531.0	-438.0
Technical Score	1100.0	1100.0	200.0	1000.0	200.0

Option Selection Summary					
Scheme Option	Option 1a	Option 1b	Option 1c	Option 2a	Option 2b
MCA Benefit Score	1549.1	1748.1	1841.1	1715.1	1808.1
Option Selection MCA Score	2649.1	2848.1	2041.1	2715.1	2008.1
Capital Costs of Option Development	€6,492,154.89	€6,102,716.96	€5,940,748.13	€4,833,197.12	€4,633,973.18
MCA Benefit – Cost Ratio	0.24	0.29	0.31	0.35	0.39
PVd Existing Damages (Capped)	€14,971,422.84	€14,971,422.84	€14,971,422.84	€14,971,422.84	€14,971,422.84
PVd Damages	€363,997.89	€363,997.89	€364,923.80	€364,923.80	€364,923.80
PVb (Capped)	€14,607,424.94	€14,607,424.94	€14,606,499.04	€14,606,499.04	€14,606,499.04
Economic Benefit – Cost Ratio	2.25	2.39	2.46	3.02	3.15

Economic BCR Ranking of Options		
Scheme Option	Economic BCR	Rank
Option 1a	2.25	5
Option 1b	2.39	4
Option 1c	2.46	3
Option 2a	3.02	2
Option 2b	3.15	1

MCA BCR Ranking of Options		
Scheme Option	MCA BCR	Rank
Option 1a	0.24	5
Option 1b	0.29	4
Option 1c	0.31	3
Option 2a	0.35	2
Option 2b	0.39	1

MCA Benefit Score Ranking of Options		
Scheme Option	MCA Benefit Score	Rank
Option 1a	1549	5
Option 1b	1748	3
Option 1c	1841	1
Option 2a	1715	4
Option 2b	1808	2

MCA Option Selection Score		
Scheme Option	MCA Benefit Score	Rank
Option 1a	2649	3
Option 1b	2848	1
Option 1c	2041	4
Option 2a	2715	2
Option 2b	2008	5

Overall Score	Option 1a	Option 1b	Option 1c	Option 2a	Option 2b
MCA Benefit Score Ranking	5	3	1	4	2
MCA Option Selection Score	3	1	4	2	5
Economic BCR Ranking	5	4	3	2	1
MCA BCR Ranking	5	4	3	2	1

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Project		Clonaslee FRS									
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Package		MDW0867CA0001A02		Clonaslee MCA and CBA							
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MCA Option Scoring

Core Criteria	Code / Tab Reference	Sub Objective	Global Weighting	Local Weighting	Residual Risk Score	Local Weighting Rationale	Scoring	Rationale	MCA Score	Maximum Possible Score
Social	1a(i)	Minimise risk to human health and life of residents	27	5.00	0.00	This score is derived from the number of residential properties potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 60 properties are identified. See tab 1a(i) for calculations of local weighting and residual risk.	5.00	All 60 ground floor properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	675	675
	1a(ii)	Minimise risk to high vulnerability properties	17	2.50	0.00	This score is derived from the number and type of high vulnerability properties potentially affected by flooding, and the highest probability flood event that causes flooding of that property (OPW, 2018). 1 property - a school - has been identified as a property which has a risk to accessibility, and has been assigned a local weighting score based on this. See tab 1a(ii) for calculations of local weighting and residual risk.	5.00	There is one property which has a risk to accessibility. This has been taken into account. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	213	425
	1b(i)	Minimise risk to social infrastructure and amenity	9	5.00	0.50	This score is derived from the number of social infrastructure and amenity assets potentially affected by flooding and the highest probability flood event that causes flooding of each asset (OPW, 2018). 5 assets are identified, 3 of which are mentioned in the Record of Protected Structures. See tab 1b(i) for calculations of local weighting and residual risk.	4.50	This Option provides protection for 2 out of the 3 protected structures, and protects St. manman's GAA club and the Brittas wood area. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	203	225
	1b(ii)	Minimise risk to local employment	7	5.00	0.00	This score is derived from the number of non-residential properties (taken as a place of employment) potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 3 properties have been identified. See tab 1b(ii) for calculations of local weighting and residual risk.	5.00	All three commercial properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	175	175
								Social Score	1265	1500
Economic	2a	Minimise economic risk	24	4.27	-	This score is calculated as per the OPW Technical Note 2018. See tab 2a for calculations.	4.87	Option set to reduce AAD by 100%. See tab 2a for calculations.	500	600
	2b	Minimise risk to transport infrastructure	10	5.00	0.00	This score is derived from the number and type of transport routes potentially blocked by flooding, and the highest probability of flood event that causes flooding of that route, taking account of the duration of flooding and the diversion time (OPW, 2018). 1 road is identified. See tab 2b for calculations.	5.00	Option set to reduce transport infrastructure to zero up to the 1 in 200-year flooding event scenario. The score is based on the degree of reduction in the risk to transport routes, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	250	250
	2c	Minimise risk to utility infrastructure	14	5.00	5.00	This score is derived from the number and type of utility infrastructure receptors potentially affected by flooding, and the highest probability flood event that causes flooding of that receptor (OPW, 2018). 1 receptor is identified. See tab 2c for calculations.	0.00	Irish Water ICW will remain at risk of flooding with Option in place. This score is based on the degree of reduction in the risk to utility receptors, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	0	350
	2d	Minimise risk to agriculture	12	5.00	-	One of the main focus of the scheme is protection to human health and life of residents over the agricultural land. However, a large portion of agricultural land is flooded in the 'Do Nothing' scenario and there is a large farming presence in Clonaslee. The local weighting has been selected to take this into account.	3.85	Flooded area will be reduced. The score takes into account the change in agricultural area subject to flooding and the frequency of flooding. See tab 2d for calculations.	231	300
								Economic Score	981	1500
Environmental	3a	Provide no impediment to the achievement of water body objectives and, if possible, contribute to the achievement of water body objectives.	16	5.00	-	The Local Weighting to be applied for this objective is constant, and should always be set equal to 5 as WFD objectives must be achieved and are relevant to all waterbodies (OPW, 2018).	2	Reduced flood risk in the village of Clonaslee leading to less risk of contaminants entering in the waterbody in times of flood. Sensitive waterbody present.	-400	400
							-2	Construction phase impacts from works, e.g. debris trap installation, erosion protection measures. Sensitive waterbody present.		
							-4	Medium-term impediment to the achievement of wb objectives due to the temporary diversion of the river during construction. Sensitive waterbody present.		
							-5	Permanent impediment to the achievement of wb objectives where a natural bank will be removed and replaced with a wall. In addition, flood levels will be increased in the long term in the Irish Water ICW, leading to an increase in the pollutants present in times of flood.		
							0			
							-7	Manual adjustment		
							-5	Best case positive score + worst case negative score		
	3b	Avoid detrimental effects to, and where possible enhance, Natura 2000 network , protected species and their key habitats, recognising relevant landscape features and stepping stones.	10	5.00	-	Works will be carried out in the Slieve Bloom Mountains SPA	-1	Proposed works are to be carried out within the Slieve Bloom Mountains SPA but is not encroaching on the hen harrier protected habitats.	-50	250
	3c	Avoid damage to or loss of, and where possible enhance, nature conservation sites and protected species or other known species of conservation concern .	5	3.00	-	Works will be carried out in the proximity of hedgerows and Brittas Wood walking trail in the Slieve Bloom Mountains SPA.	-3	Potential localised loss of and disturbance to flora/fauna. Works to be carried out in SPA. This includes earth works and installation of a debris trap. However, all works are not in known habitats of hen harrier.	-60	125
							0			
							0			
							-4	Manual adjustment		
	3d	Maintain existing, and where possible create new, fisheries habitat including the maintenance or improvement of conditions that allow upstream migration for fish species.	13	3.00	-	Based on scoring system seen in tab 3d (OPW, 2018). Waterbody supports substantial fisheries/shellfisheries and is of regional value for fishing/angling.	-2	Short-term minor impacts to fisheries habitat when installing erosion protection measures for wall sections where required.	-195	325
							-4	Medium to long-term alteration of fisheries habitat due to maintenance of debris trap. In addition, a temporary river diversion will affect the fisheries habitat.		
							-5	Permanent loss/ removal of fisheries habitats due to replacement of existing wall along meandering section of river which will change the left bank.		
							0			
							0			
							-5	Best case positive score + worst case negative score		
	3e	Protect, and where possible enhance, visual amenity , landscape protection zones and views into / from designated scenic areas within the river corridor.	8	4.00	-	Based on scoring system seen in tab 3e (OPW, 2018). There is a designated amenity view and prospect in the Laois CDP for Clonaslee. However, the works involved are not expected to impact this. The Clodiagh River is an important corridor with a diverse range of habitats with varying degrees of ecological value. There is a weir of cultural importance located adjacent to the works.	-2	Short term impact (construction) on moderate sensitivity landscape character/feature (wall along Chapel Street) in the zone of visibility of the selected measure.	-64	200
							0			
							0			
							-2	Best case positive score + worst case negative score		
	3f(i)	Avoid damage to or loss of features, institutions and collections of architectural value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(i) (OPW, 2018). There are eight sites in the study area listed on the RPS/ recorded by the NIAH and potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for a number of architectural features (Record of Protected Structures and NIAH) from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100
							0			
							0			
							3	Best case positive score + worst case negative score		
	3f(ii)	Avoid damage to or loss of features, institutions and collections of archaeological value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(ii) (OPW, 2018). There are three RMP sites in the study area which are potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for the 2 cross slabs recorded in the Record of Monuments and Places from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100
							0	Flood levels during flooding scenarios at Ballynakill Castle (third item part of the Record of Monuments and Places) remain unchanged.		
							0			
							3	Best case positive score + worst case negative score		
								Environmental Score	-697	1500
Technical	4a	Ensure flood risk management options are operationally robust. Dependant on the degree of reliance on mechanical, electrical or electronic systems, or on human intervention, action or decision, for the option to operate or perform successfully.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	4	No reliance on systems or intervention, but with more regular monitoring and intermittent, but potentially substantial, maintenance requirements with regards to the maintenance of the debris trap.	400	500
	4b	Minimise health and safety risks associated with the construction, operation and maintenance of flood risk management options. Dependant on the degree of health and safety risk during construction, maintenance, and operation.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	2	Baseline score less 1 point for each specific risk identified. See tab 4b for calculations.	200	500
	4c	Ensure flood risk can be managed effectively and sustainably into the future, and the potential impacts of climate change. Dependant on the sustainability and adaptability of the flood risk management measure in the face of potential future changes, including the potential impacts of climate change.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	5	Option is inherently adaptable at no/ negligible cost, difficulty and impact and provides no impediment to future interventions to address new potential future risk areas (i.e., that are separate from the area benefitting from the option in question). Options meet the standard of protection up to the HEFS.	500	500
								Technical Score	1100	1500

Core Criteria	Code / Tab Reference	Sub Objective	Global Weighting	Local Weighting	Residual Risk Score	Local Weighting Rationale	Scoring	Rationale	MCA Score	Maximum Possible Score
Social	1a(i)	Minimise risk to human health and life of residents	27	5.00	0.00	This score is derived from the number of residential properties potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 60 properties are identified. See tab 1a(i) for calculations of local weighting and residual risk.	5.00	All 60 ground floor properties are benefiting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	675	675
	1a(ii)	Minimise risk to high vulnerability properties	17	2.50	0.00	This score is derived from the number and type of high vulnerability properties potentially affected by flooding, and the highest probability flood event that causes flooding of that property (OPW, 2018). 1 property - a school - has been identified as a property which has a risk to accessibility, and has been assigned a local weighting score based on this. See tab 1a(ii) for calculations of local weighting and residual risk.	5.00	There is one property which has a risk to accessibility. This has been taken into account. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	213	425
	1b(i)	Minimise risk to social infrastructure and amenity	9	5.00	0.50	This score is derived from the number of social infrastructure and amenity assets potentially affected by flooding and the highest probability flood event that causes flooding of each asset (OPW, 2018). 5 assets are identified, 3 of which are mentioned in the Record of Protected Structures. See tab 1b(i) for calculations of local weighting and residual risk.	4.50	This Option provides protection for 2 out of the 3 protected structures, and protects St. mannan's GAA club and the Brittas wood area. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	203	225
	1b(ii)	Minimise risk to local employment	7	5.00	0.00	This score is derived from the number of non-residential properties (taken as a place of employment) potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 3 properties have been identified. See tab 1b(ii) for calculations of local weighting and residual risk.	5.00	All three commercial properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	175	175
								Social Score	1265	1500
Economic	2a	Minimise economic risk	24	4.27	-	This score is calculated as per the OPW Technical Note 2018. See tab 2a for calculations.	4.87	Option set to reduce AAD by 100%. See tab 2a for calculations.	500	600
	2b	Minimise risk to transport infrastructure	10	5.00	0.00	This score is derived from the number and type of transport routes potentially blocked by flooding, and the highest probability of flood event that causes flooding of that route, taking account of the duration of flooding and the diversion time (OPW, 2018). 1 road is identified. See tab 2b for calculations.	5.00	Option set to reduce transport infrastructure to zero up to the 1 in 200-year flooding event scenario. The score is based on the degree of reduction in the risk to transport routes, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	250	250
	2c	Minimise risk to utility infrastructure	14	5.00	5.00	This score is derived from the number and type of utility infrastructure receptors potentially affected by flooding, and the highest probability flood event that causes flooding of that receptor (OPW, 2018). 1 receptor is identified. See tab 2c for calculations.	0.00	Irish Water ICW will remain at risk of flooding with Option in place. This score is based on the degree of reduction in the risk to utility receptors, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	0	350
	2d	Minimise risk to agriculture	12	5.00	-	One of the main focus of the scheme is protection to human health and life of residents over the agricultural land. However, a large portion of agricultural land is flooded in the 'Do Nothing' scenario and there is a large farming presence in Clonaslee. The local weighting has been selected to take this into account.	3.85	Flooded area will be reduced. The score takes into account the change in agricultural area subject to flooding and the frequency of flooding. See tab 2d for calculations.	231	300
								Economic Score	981	1500
Environmental	3a	Provide no impediment to the achievement of water body objectives and, if possible, contribute to the achievement of water body objectives.	16	5.00	-	The Local Weighting to be applied for this objective is constant, and should always be set equal to 5 as WFD objectives must be achieved and are relevant to all waterbodies (OPW, 2018).	2	Reduced flood risk in the village of Clonaslee leading to less risk of contaminants entering in the waterbody in times of flood. Sensitive waterbody present.	-240	400
							-2	Construction phase impacts from works, e.g. debris trap installation, erosion protection measures. Sensitive waterbody present.		
							-5	Flood levels will be increased in the long term in the Irish Water ICW, leading to an increase in the pollutants present in times of flood.		
							0			
							0			
							0			
							-3	Best case positive score + worst case negative score		
	3b	Avoid detrimental effects to, and where possible enhance, Natura 2000 network , protected species and their key habitats, recognising relevant landscape features and stepping stones.	10	5.00	-	Works will be carried out in the Slieve Bloom Mountains SPA	-1	Proposed works are to be carried out within the Slieve Bloom Mountains SPA but is not encroaching on the hen harrier protected habitats.	-50	250
	3c	Avoid damage to or loss of, and where possible enhance, nature conservation sites and protected species or other known species of conservation concern.	5	3.00	-	Works will be carried out in the proximity of hedgerows and Brittas Wood walking trail in the Slieve Bloom Mountains SPA.	-3	Potential localised loss of and disturbance to flora/fauna. Works to be carried out in SPA. This includes earth works and installation of a debris trap. However, all works are not in known habitats of hen harrier.	-60	125
							0			
							0			
							-4	Manual adjustment		
							-4	Best case positive score + worst case negative score		
	3d	Maintain existing, and where possible create new, fisheries habitat including the maintenance or improvement of conditions that allow upstream migration for fish species.	13	3.00	-	Based on scoring system seen in tab 3d (OPW, 2018). Waterbody supports substantial fisheries/shellfisheries and is of regional value for fishing/angling.	-2	Short-term minor impacts to fisheries habitat when installing erosion protection measures for wall sections where required.	-156	325
							-4	Medium to long-term alteration of fisheries habitat due to maintenance of debris trap.		
							0			
							0			
							-4	Best case positive score + worst case negative score		
	3e	Protect, and where possible enhance, visual amenity , landscape protection zones and views into / from designated scenic areas within the river corridor.	8	4.00	-	Based on scoring system seen in tab 3e (OPW, 2018). There is a designated amenity view and prospect in the Laois CDP for Clonaslee. However, the works involved are not expected to impact this. The Clodiagh River is an important corridor with a diverse range of habitats with varying degrees of ecological value. There is a weir of cultural importance located adjacent to the works.	-2	Short term impact (construction) on moderate sensitivity landscape character/feature (wall along Chapel Street) in the zone of visibility of the selected measure.	-64	200
							0			
							0			
							-2	Best case positive score + worst case negative score		
	3f(i)	Avoid damage to or loss of features, institutions and collections of architectural value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(i) (OPW, 2018). There are eight sites in the study area listed on the RPS/ recorded by the NIAH and potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for a number of architectural features (Record of Protected Structures and NIAH) from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100
							0			
							0			
							3	Best case positive score + worst case negative score		
	3f(ii)	Avoid damage to or loss of features, institutions and collections of archaeological value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(ii) (OPW, 2018). There are three RMP sites in the study area which are potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for the 2 cross slabs recorded in the Record of Monuments and Places from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100
							0	Flood levels during flooding scenarios at Ballynakill Castle (third item part of the Record of Monuments and Places) remain unchanged.		
							0			
							3	Best case positive score + worst case negative score		
								Environmental Score	-498	1500
Technical	4a	Ensure flood risk management options are operationally robust. Dependant on the degree of reliance on mechanical, electrical or electronic systems, or on human intervention, action or decision, for the option to operate or perform successfully.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	4	No reliance on systems or intervention, but with more regular monitoring and intermittent, but potentially substantial, maintenance requirements with regards to the maintenance of the debris trap.	400	500
	4b	Minimise health and safety risks associated with the construction, operation and maintenance of flood risk management options. Dependant on the degree of health and safety risk during construction, maintenance, and operation.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	2	Baseline score less 1 point for each specific risk identified. See tab 4b for calculations.	200	500
	4c	Ensure flood risk can be managed effectively and sustainably into the future, and the potential impacts of climate change. Dependant on the sustainability and adaptability of the flood risk management measure in the face of potential future changes, including the potential impacts of climate change.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	5	Option is inherently adaptable at no/ negligible cost, difficulty and impact and provides no impediment to future interventions to address new potential future risk areas (i.e., that are separate from the area benefitting from the option in question). Options meet the standard of protection up to the HEFS.	500	500
								Technical Score	1100	1500

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<div><div><div><div></div><div>RPS GROUP LTD</div><div>West Pier Business Campus</div><div>Dun Laoghaire, Co. Dublin</div><div>Tel: +353 1 488 2900</div></div></div></div>	Project Clonaslee FRS					Project No MDW0867				
	Element MCA Option Scoring									
	Package MDW0867CA0001A02 Clonaslee MCA and CBA									
	Prepared by			Checked		Approved	Date	Rev.	Sheet No.	
	JP			BC		BC	08/08/2023	A02	3	

MCA Option Scoring										
Core Criteria	Code / Tab Reference	Sub Objective	Global Weighting	Local Weighting	Residual Risk Score	Local Weighting Rationale	Scoring	Rationale	MCA Score	Maximum Possible Score
Social	1a(i)	Minimise risk to human health and life of residents	27	5.00	0.00	This score is derived from the number of residential properties potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 60 properties are identified. See tab 1a(i) for calculations of local weighting and residual risk.	5.00	All 60 ground floor properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	675	675
	1a(ii)	Minimise risk to high vulnerability properties	17	2.50	0.00	This score is derived from the number and type of high vulnerability properties potentially affected by flooding, and the highest probability flood event that causes flooding of that property (OPW, 2018). 1 property - a school - has been identified as a property which has a risk to accessibility, and has been assigned a local weighting score based on this. See tab 1a(ii) for calculations of local weighting and residual risk.	5.00	There is one property which has a risk to accessibility. This has been taken into account. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	213	425
	1b(i)	Minimise risk to social infrastructure and amenity	9	5.00	0.50	This score is derived from the number of social infrastructure and amenity assets potentially affected by flooding and the highest probability flood event that causes flooding of each asset (OPW, 2018). 5 assets are identified, 3 of which are mentioned in the Record of Protected Structures. See tab 1b(i) for calculations of local weighting and residual risk.	4.50	This Option provides protection for 2 out of the 3 protected structures, and protects St. mannan's GAA club and the Brittas wood area. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	203	225
	1b(ii)	Minimise risk to local employment	7	5.00	0.00	This score is derived from the number of non-residential properties (taken as a place of employment) potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 3 properties have been identified. See tab 1b(ii) for calculations of local weighting and residual risk.	5.00	All three commercial properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	175	175
								Social Score	1265	1500
Economic	2a	Minimise economic risk	24	4.27	-	This score is calculated as per the OPW Technical Note 2018. See tab 2a for calculations.	4.87	Option set to reduce AAD by 100%. See tab 2a for calculations.	500	600
	2b	Minimise risk to transport infrastructure	10	5.00	0.00	This score is derived from the number and type of transport routes potentially blocked by flooding, and the highest probability of flood event that causes flooding of that route, taking account of the duration of flooding and the diversion time (OPW, 2018). 1 road is identified. See tab 2b for calculations.	5.00	Option set to reduce transport infrastructure to zero up to the 1 in 200-year flooding event scenario. The score is based on the degree of reduction in the risk to transport routes, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	250	250
	2c	Minimise risk to utility infrastructure	14	5.00	5.00	This score is derived from the number and type of utility infrastructure receptors potentially affected by flooding, and the highest probability flood event that causes flooding of that receptor (OPW, 2018). 1 receptor is identified. See tab 2c for calculations.	0.00	Irish Water ICW will remain at risk of flooding with Option in place. This score is based on the degree of reduction in the risk to utility receptors, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	0	350
	2d	Minimise risk to agriculture	12	5.00	-	One of the main focus of the scheme is protection to human health and life of residents over the agricultural land. However, a large portion of agricultural land is flooded in the 'Do Nothing' scenario and there is a large farming presence in Clonaslee. The local weighting has been selected to take this into account.	3.85	Flooded area will be reduced. The score takes into account the change in agricultural area subject to flooding and the frequency of flooding. See tab 2d for calculations.	231	300
								Economic Score	981	1500
Environmental	3a	Provide no impediment to the achievement of water body objectives and, if possible, contribute to the achievement of water body objectives.	16	5.00	-	The Local Weighting to be applied for this objective is constant, and should always be set equal to 5 as WFD objectives must be achieved and are relevant to all waterbodies (OPW, 2018).	2	Reduced flood risk in the village of Clonaslee leading to less risk of contaminants entering in the waterbody in times of flood. Sensitive waterbody present.	-240	400
							-2	Construction phase impacts from works where erosion protection measures will be implemented along river banks in some areas. Sensitive waterbody present.		
							-5	Flood levels will be increased in the long term in the Irish Water ICW, leading to an increase in the pollutants present in times of flood.		
							0			
							0			
							-3	Best case positive score + worst case negative score		
	3b	Avoid detrimental effects to, and where possible enhance, Natura 2000 network, protected species and their key habitats, recognising relevant landscape features and stepping stones.	10	5.00	-	Works will be carried out in the Slieve Bloom Mountains SPA	-1	Proposed works are to be carried out within the Slieve Bloom Mountains SPA but is not encroaching on the hen harrier protected habitats.	-50	250
	3c	Avoid damage to or loss of, and where possible enhance, nature conservation sites and protected species or other known species of conservation concern.	5	3.00	-	Works will be carried out in the proximity of hedgerows and Brittas Wood walking trail in the Slieve Bloom Mountains SPA.	-3	Potential localised loss of and disturbance to flora/fauna. Works to be carried out in SPA.	-45	125
	3d	Maintain existing, and where possible create new, fisheries habitat including the maintenance or improvement of conditions that allow upstream migration for fish species.	13	3.00	-	Based on scoring system seen in tab 3d (OPW, 2018). Waterbody supports substantial fisheries/shellfisheries and is of regional value for fishing/angling.	-2	Short-term minor impacts to fisheries habitat when installing erosion protection measures for wall sections where required.	-78	325
							0			
							0			
	3e	Protect, and where possible enhance, visual amenity, landscape protection zones and views into / from designated scenic areas within the river corridor.	8	4.00	-	Based on scoring system seen in tab 3e (OPW, 2018). There is a designated amenity view and prospect in the Laois CDP for Clonaslee. However, the works involved are not expected to impact this. The Clodiagh River is an important corridor with a diverse range of habitats with varying degrees of ecological value. There is a weir of cultural importance located adjacent to the works.	-2	Short term impact (construction) on moderate sensitivity landscape character/feature (wall along Chapel Street) in the zone of visibility of the selected measure.	-64	200
3f(i)	Avoid damage to or loss of features, institutions and collections of architectural value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(i) (OPW, 2018). There are eight sites in the study area listed on the RPS/ recorded by the NIAH and potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for a number of architectural features (Record of Protected Structures and NIAH) from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100	
3f(ii)	Avoid damage to or loss of features, institutions and collections of archaeological value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(ii) (OPW, 2018). There are three RMP sites in the study area which are potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for the 2 cross slabs recorded in the Record of Monuments and Places from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100	
						0	Flood levels during flooding scenarios at Ballynakill Castle (third item part of the Record of Monuments and Places) remain unchanged.			
						3	Best case positive score + worst case negative score			
								Environmental Score	-405	1500
Technical	4a	Ensure flood risk management options are operationally robust. Dependant on the degree of reliance on mechanical, electrical or electronic systems, or on human intervention, action or decision, for the option to operate or perform successfully.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	-5	In the event of a build up of debris at the bridge, there is a need for the debris to be cleared out during the flooding event to prevent properties from flooding along the main street. Score is given as the risk is higher to clear out the debris from the bridge than if a debris trap was installed.	-500	500
	4b	Minimise health and safety risks associated with the construction, operation and maintenance of flood risk management options. Dependant on the degree of health and safety risk during construction, maintenance, and operation.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	2	Baseline score less 1 point for each specific risk identified. See tab 4b for calculations.	200	500
	4c	Ensure flood risk can be managed effectively and sustainably into the future, and the potential impacts of climate change. Dependant on the sustainability and adaptability of the flood risk management measure in the face of potential future changes, including the potential impacts of climate change.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	5	Option is inherently adaptable at no/ negligible cost, difficulty and impact and provides no impediment to future interventions to address new potential future risk areas (i.e., that are separate from the area benefitting from the option in question). Options meet the standard of protection up to the HEFS.	500	500
								Technical Score	200	1500

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ProjectClonaslee FRS

Project NoMDW0867

ElementMCA Option Scoring

PackageMDW0867CA0001A02 Clonaslee MCA and CBA

Prepared byJP

CheckedBC

ApprovedBC

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Sheet No.3

MCA Option Scoring

Core Criteria	Code / Tab Reference	Sub Objective	Global Weighting	Local Weighting	Residual Risk Score	Local Weighting Rationale	Scoring	Rationale	MCA Score	Maximum Possible Score
Social	1a(i)	Minimise risk to human health and life of residents	27	5.00	0.00	This score is derived from the number of residential properties potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 60 properties are identified. See tab 1a(i) for calculations of local weighting and residual risk.	5.00	All 60 ground floor properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	675	675
	1a(ii)	Minimise risk to high vulnerability properties	17	2.50	0.00	This score is derived from the number and type of high vulnerability properties potentially affected by flooding, and the highest probability flood event that causes flooding of that property (OPW, 2018). 1 property - a school - has been identified as a property which has a risk to accessibility, and has been assigned a local weighting score based on this. See tab 1a(ii) for calculations of local weighting and residual risk.	5.00	There is one property which has a risk to accessibility. This has been taken into account. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	213	425
	1b(i)	Minimise risk to social infrastructure and amenity	9	5.00	0.50	This score is derived from the number of social infrastructure and amenity assets potentially affected by flooding and the highest probability flood event that causes flooding of each asset (OPW, 2018). 5 assets are identified, 3 of which are mentioned in the Record of Protected Structures. See tab 1b(i) for calculations of local weighting and residual risk.	4.50	This Option provides protection for 2 out of the 3 protected structures, and protects St. mannan's GAA club and the Brittas wood area. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	203	225
	1b(ii)	Minimise risk to local employment	7	5.00	0.00	This score is derived from the number of non-residential properties (taken as a place of employment) potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 3 properties have been identified. See tab 1b(ii) for calculations of local weighting and residual risk.	5.00	All three commercial properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	175	175
								Social Score	1265	1500
Economic	2a	Minimise economic risk	24	4.27	-	This score is calculated as per the OPW Technical Note 2018. See tab 2a for calculations.	4.87	Option set to reduce AAD by 100%. See tab 2a for calculations.	500	600
	2b	Minimise risk to transport infrastructure	10	5.00	0.00	This score is derived from the number and type of transport routes potentially blocked by flooding, and the highest probability of flood event that causes flooding of that route, taking account of the duration of flooding and the diversion time (OPW, 2018). 1 road is identified. See tab 2b for calculations.	5.00	Option set to reduce transport infrastructure to zero up to the 1 in 200-year flooding event scenario. The score is based on the degree of reduction in the risk to transport routes, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	250	250
	2c	Minimise risk to utility infrastructure	14	5.00	5.00	This score is derived from the number and type of utility infrastructure receptors potentially affected by flooding, and the highest probability flood event that causes flooding of that receptor (OPW, 2018). 1 receptor is identified. See tab 2c for calculations.	0.00	Irish Water ICW will remain at risk of flooding with Option in place. This score is based on the degree of reduction in the risk to utility receptors, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	0	350
	2d	Minimise risk to agriculture	12	5.00	-	One of the main focus of the scheme is protection to human health and life of residents over the agricultural land. However, a large portion of agricultural land is flooded in the 'Do Nothing' scenario and there is a large farming presence in Clonaslee. The local weighting has been selected to take this into account.	3.85	Flooded area will be reduced. The score takes into account the change in agricultural area subject to flooding and the frequency of flooding. See tab 2d for calculations.	231	300
								Economic Score	981	1500
Environmental	3a	Provide no impediment to the achievement of water body objectives and, if possible, contribute to the achievement of water body objectives.	16	5.00	-	The Local Weighting to be applied for this objective is constant, and should always be set equal to 5 as WFD objectives must be achieved and are relevant to all waterbodies (OPW, 2018).	2	Reduced flood risk in the village of Clonaslee leading to less risk of contaminants entering in the waterbody in times of flood. Sensitive waterbody present.	-320	400
							-2	Construction phase impacts from works, e.g. debris trap installation, erosion protection measures. Sensitive waterbody present.		
							-4	Medium-term impediment to the achievement to wb objectives. The natural bank will be adjusted in the creation of the conveyance area. Sensitive waterbody present.		
							-5	Flood levels will be increased in the long term in the Irish Water ICW, leading to an increase in the pollutants present in times of flood.		
							0			
							-6	Manual adjustment		
							-4	Best case positive score + worst case negative score		
	3b	Avoid detrimental effects to, and where possible enhance, Natura 2000 network , protected species and their key habitats, recognising relevant landscape features and stepping stones.	10	5.00	-	Works will be carried out in the Slieve Bloom Mountains SPA	-1	Proposed works are to be carried out within the Slieve Bloom Mountains SPA but is not encroaching on the hen harrier protected habitats.	-50	250
	3c	Avoid damage to or loss of, and where possible enhance, nature conservation sites and protected species or other known species of conservation concern.	5	3.00	-	Works will be carried out in the proximity of hedgerows and Brittas Wood walking trail in the Slieve Bloom Mountains SPA.	1	Potential for localised improvement of flora/fauna by turning conveyance area into an environment which promotes flora/ fauna growth.	-45	125
							-3	Potential localised loss of and disturbance to flora/fauna. Works to be carried out in SPA. This includes earth works and installation of a debris trap. However, all works are not in known habitats of hen harrier.		
							0			
	3d	Maintain existing, and where possible create new, fisheries habitat including the maintenance or improvement of conditions that allow upstream migration for fish species.	13	3.00	-	Based on scoring system seen in tab 3d (OPW, 2018). Waterbody supports substantial fisheries/shellfisheries and is of regional value for fishing/angling.	-4	Medium to long-term alteration of fisheries habitat due to maintenance of debris trap.	-156	325
							0			
							0			
	3e	Protect, and where possible enhance, visual amenity , landscape protection zones and views into / from designated scenic areas within the river corridor.	8	4.00	-	Based on scoring system seen in tab 3e (OPW, 2018). There is a designated amenity view and prospect in the Laois CDP for Clonaslee. However, the works involved are not expected to impact this. The Clodiagh River is an important corridor with a diverse range of habitats with varying degrees of ecological value. There is a weir of cultural importance located adjacent to the works.	1	Permanent localised enhancement of local sensitivity landscape character/feature in the zone of visibility of the selected measure (wall clad in stone matching the landscape character).	-32	200
							-2	Short term impact (construction) on moderate sensitivity landscape character/feature (wall along Chapel Street) in the zone of visibility of the selected measure.		
0										
3f(i)	Avoid damage to or loss of features, institutions and collections of architectural value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(i) (OPW, 2018). There are eight sites in the study area listed on the RPS/ recorded by the NIAH and potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for a number of architectural features (Record of Protected Structures and NIAH) from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100	
						0				
						0				
3f(ii)	Avoid damage to or loss of features, institutions and collections of archaeological value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(ii) (OPW, 2018). There are three RMP sites in the study area which are potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for the 2 cross slabs recorded in the Record of Monuments and Places from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100	
						0	Flood levels during flooding scenarios at Ballynakill Castle (third item part of the Record of Monuments and Places) remain unchanged.			
						0				
								Environmental Score	-531	1500
Technical	4a	Ensure flood risk management options are operationally robust. Dependant on the degree of reliance on mechanical, electrical or electronic systems, or on human intervention, action or decision, for the option to operate or perform successfully.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	3	No reliance on systems or intervention, but with more regular monitoring and intermittent, but potentially substantial, maintenance requirements with regards to the maintenance of the debris trap.	300	500
	4b	Minimise health and safety risks associated with the construction, operation and maintenance of flood risk management options. Dependant on the degree of health and safety risk during construction, maintenance, and operation.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	2	Baseline score less 1 point for each specific risk identified. See tab 4b for calculations.	200	500
	4c	Ensure flood risk can be managed effectively and sustainably into the future, and the potential impacts of climate change. Dependant on the sustainability and adaptability of the flood risk management measure in the face of potential future changes, including the potential impacts of climate change.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	5	Option is inherently adaptable at no/ negligible cost, difficulty and impact and provides no impediment to future interventions to address new potential future risk areas (i.e., that are separate from the area benefitting from the option in question). Options meet the standard of protection up to the HEFS.	500	500
								Technical Score	1000	1500

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Project

Clonaslee FRS

Project No

MDW0867

Element

MCA Option Scoring

Package

MDW0867CA0001A02 Clonaslee MCA and CBA

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Checked

BC

Approved

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Date

08/08/2023

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MCA Option Scoring

Core Criteria	Code / Tab Reference	Sub Objective	Global Weighting	Local Weighting	Residual Risk Score	Local Weighting Rationale	Scoring	Rationale	MCA Score	Maximum Possible Score
Social	1a(i)	Minimise risk to human health and life of residents	27	5.00	0.00	This score is derived from the number of residential properties potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 60 properties are identified. See tab 1a(i) for calculations of local weighting and residual risk.	5.00	All 60 ground floor properties are benefiting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	675	675
	1a(ii)	Minimise risk to high vulnerability properties	17	2.50	0.00	This score is derived from the number and type of high vulnerability properties potentially affected by flooding, and the highest probability flood event that causes flooding of that property (OPW, 2018). 1 property - a school - has been identified as a property which has a risk to accessibility, and has been assigned a local weighting score based on this. See tab 1a(ii) for calculations of local weighting and residual risk.	5.00	There is one property which has a risk to accessibility. This has been taken into account. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	213	425
	1b(i)	Minimise risk to social infrastructure and amenity	9	5.00	0.50	This score is derived from the number of social infrastructure and amenity assets potentially affected by flooding and the highest probability flood event that causes flooding of each asset (OPW, 2018). 5 assets are identified, 3 of which are mentioned in the Record of Protected Structures. See tab 1b(i) for calculations of local weighting and residual risk.	4.50	This Option provides protection for 2 out of the 3 protected structures, and protects St. manman's GAA club and the Brittas wood area. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	203	225
	1b(ii)	Minimise risk to local employment	7	5.00	0.00	This score is derived from the number of non-residential properties (taken as a place of employment) potentially affected by flooding, and the highest probability flood event that causes flooding of each property (OPW, 2018). 3 properties have been identified. See tab 1b(ii) for calculations of local weighting and residual risk.	5.00	All three commercial properties are benefitting with this Option in place. The score is based on the degree of reduction in the risk to social infrastructure and amenity, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	175	175
								Social Score	1265	1500
Economic	2a	Minimise economic risk	24	4.27	-	This score is calculated as per the OPW Technical Note 2018. See tab 2a for calculations.	4.87	Option set to reduce AAD by 100%. See tab 2a for calculations.	500	600
	2b	Minimise risk to transport infrastructure	10	5.00	0.00	This score is derived from the number and type of transport routes potentially blocked by flooding, and the highest probability of flood event that causes flooding of that route, taking account of the duration of flooding and the diversion time (OPW, 2018). 1 road is identified. See tab 2b for calculations.	5.00	Option set to reduce transport infrastructure to zero up to the 1 in 200-year flooding event scenario. The score is based on the degree of reduction in the risk to transport routes, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	250	250
	2c	Minimise risk to utility infrastructure	14	5.00	5.00	This score is derived from the number and type of utility infrastructure receptors potentially affected by flooding, and the highest probability flood event that causes flooding of that receptor (OPW, 2018). 1 receptor is identified. See tab 2c for calculations.	0.00	Irish Water ICW will remain at risk of flooding with Option in place. This score is based on the degree of reduction in the risk to utility receptors, calculated using the residual risk score as determined for the Option, and the final local weighting, and multiplied by a factor of 5.	0	350
	2d	Minimise risk to agriculture	12	5.00	-	One of the main focus of the scheme is protection to human health and life of residents over the agricultural land. However, a large portion of agricultural land is flooded in the 'Do Nothing' scenario and there is a large farming presence in Clonaslee. The local weighting has been selected to take this into account.	3.85	Flooded area will be reduced. The score takes into account the change in agricultural area subject to flooding and the frequency of flooding. See tab 2d for calculations.	231	300
								Economic Score	981	1500
Environmental	3a	Provide no impediment to the achievement of water body objectives and, if possible, contribute to the achievement of water body objectives.	16	5.00	-	The Local Weighting to be applied for this objective is constant, and should always be set equal to 5 as WFD objectives must be achieved and are relevant to all waterbodies (OPW, 2018).	2	Reduced flood risk in the village of Clonaslee leading to less risk of contaminants entering in the waterbody in times of flood. Sensitive waterbody present.	-320	400
							-2	Construction phase impacts from works where erosion protection measures will be implemented along river banks in some areas. Sensitive waterbody present.		
							-4	Medium-term impediment to the achievement to wb objectives. The natural bank will be adjusted in the creation of the conveyance area. Sensitive waterbody present.		
							-5	Flood levels will be increased in the long term in the Irish Water ICW, leading to an increase in the pollutants present in times of flood.		
							0			
							-6	Manual adjustment		
							-4	Best case positive score + worst case negative score		
	3b	Avoid detrimental effects to, and where possible enhance, Natura 2000 network , protected species and their key habitats, recognising relevant landscape features and stepping stones.	10	5.00	-	Works will be carried out in the Slieve Bloom Mountains SPA	-1	Proposed works are to be carried out within the Slieve Bloom Mountains SPA but is not encroaching on the hen harrier protected habitats.	-50	250
	3c	Avoid damage to or loss of, and where possible enhance, nature conservation sites and protected species or other known species of conservation concern.	5	3.00	-	Works will be carried out in the proximity of hedgerows and Brittas Wood walking trail in the Slieve Bloom Mountains SPA.	1	Potential for localised improvement of flora/fauna by turning conveyance area into an environment which promotes floral/ fauna growth.	-30	125
							-3	Potential localised loss of and disturbance to flora/fauna. Works to be carried out in SPA.		
							0			
	3d	Maintain existing, and where possible create new, fisheries habitat including the maintenance or improvement of conditions that allow upstream migration for fish species.	13	3.00	-	Based on scoring system seen in tab 3d (OPW, 2018). Waterbody supports substantial fisheries/shellfisheries and is of regional value for fishing/angling.	-2	Short-term minor impacts to fisheries habitat when installing erosion protection measures for wall sections where required.	-78	325
							0			
							0			
							0			
3e	Protect, and where possible enhance, visual amenity , landscape protection zones and views into / from designated scenic areas within the river corridor.	8	4.00	-	Based on scoring system seen in tab 3e (OPW, 2018). There is a designated amenity view and prospect in the Laois CDP for Clonaslee. However, the works involved are not expected to impact this. The Clodiagh River is an important corridor with a diverse range of habitats with varying degrees of ecological value. There is a weir of cultural importance located adjacent to the works.	1	Permanent localised enhancement of local sensitivity landscape character/feature in the zone of visibility of the selected measure (wall clad in stone matching the landscape character).	-32	200	
						-2	Short term impact (construction) on moderate sensitivity landscape character/feature (wall along Chapel Street) in the zone of visibility of the selected measure.			
						0				
						0				
3f(i)	Avoid damage to or loss of features, institutions and collections of architectural value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(i) (OPW, 2018). There are eight sites in the study area listed on the RPS/ recorded by the NIAH and potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for a number of architectural features (Record of Protected Structures and NIAH) from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100	
						0				
						0				
3f(ii)	Avoid damage to or loss of features, institutions and collections of archaeological value and their setting.	4	3.00	-	Based on scoring system seen in tab 3f(ii) (OPW, 2018). There are three RMP sites in the study area which are potentially affected with a high to moderate vulnerability.	3	Increase in the level of protection for the 2 cross slabs recorded in the Record of Monuments and Places from extreme flooding, such that they are substantially less vulnerable to flood damage.	36	100	
						0	Flood levels during flooding scenarios at Ballynakill Castle (third item part of the Record of Monuments and Places) remain unchanged.			
						0				
								Environmental Score	-438	1500
Technical	4a	Ensure flood risk management options are operationally robust. Dependant on the degree of reliance on mechanical, electrical or electronic systems, or on human intervention, action or decision, for the option to operate or perform successfully.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	-5	In the event of a build up of debris at the bridge, there is a need for the debris to be cleared out during the flooding event to prevent properties from flooding along the main street. Score is given as the risk is higher to clear out the debris from the bridge than if a debris trap was installed.	-500	500
	4b	Minimise health and safety risks associated with the construction, operation and maintenance of flood risk management options. Dependant on the degree of health and safety risk during construction, maintenance, and operation.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	2	Baseline score less 1 point for each specific risk identified. See tab 4b for calculations.	200	500
	4c	Ensure flood risk can be managed effectively and sustainably into the future, and the potential impacts of climate change. Dependant on the sustainability and adaptability of the flood risk management measure in the face of potential future changes, including the potential impacts of climate change.	20	5.00	-	The Local Weighting is constant and set at 5 as it is always a consideration in option design and selection (OPW 2018).	5	Option is inherently adaptable at no/ negligible cost, difficulty and impact and provides no impediment to future interventions to address new potential future risk areas (i.e., that are separate from the area benefitting from the option in question). Options meet the standard of protection up to the HEFS.	500	500
								Technical Score	200	1500