An Analysis of Opportunities within a UK Biodiversity Credit Market built on the Biodiversity Net Gain 3.1 Metric



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2022





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1.0 Introduction

1.1 Introduction

The increasing presence of anthropogenic climate change has pushed nations towards sustainable alternatives in all sectors. One of the main contributors to climate change, energy production, is at the forefront of this transition. Ambitious global and national targets are set to see an increase in renewable energy production, both in the terrestrial and marine environment. With biodiversity in these habitats being degraded from centuries of exploitation, legislation is required to ensure this transition is sustainable for both humans and the environment. One pathway being explored is the use of a Biodiversity Credit Market (BCM) to ensure developers are offsetting any impacts to the natural environment and contributing towards the recovery of biodiversity. With changing policy comes new opportunities, by switching to a nature-positive economic model there is potential for over \$10.1 trillion of business opportunities (World Economic Forum, 2022). This report aims to identify the potential opportunities and challenges of restoring intertidal and terrestrial habitats in the UK's Biodiversity Net Gain (BNG) metric and how they could be used to produce Biodiversity Units (BU) for a BCM.

1.2 Mitigation and compensation

In Europe, countries have begun to adhere to the mitigation hierarchy. The mitigation hierarchy requires developers to reduce the impact of their development to a net zero loss (Figure 1). As of 2007, European Union (EU) developments that are located within the Natura 2000 network of protected areas are required to adhere to compensatory measures which can lead to a net gain to the biodiversity (Briggs, Hill and Gillespie, 2009; Maestre-Andrés et al., 2020). Although this legislation aims to minimise the impacts of developments to "net zero", there is a need to "give back" to the natural environment to aid recovery.

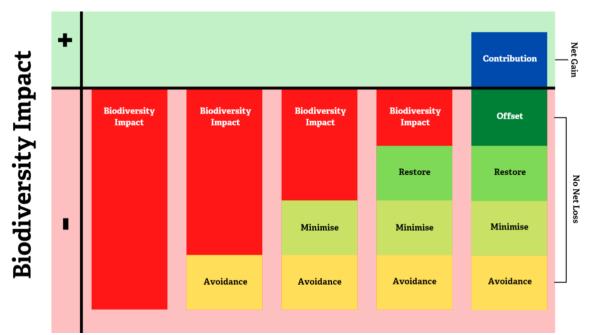


Figure 1: The stages of the Mitigation Hierarchy and Net Gain displayed visually. To achieve a "No Net Loss" to the site's biodiversity all four steps should be taken. To achieve "Net Gain" additional "contributions" must be made. Figure adapted from Natural England, 2021.



1.3 Biodiversity Net Gain

Biodiversity Net Gain (BNG) was introduced by the British Government due to a need for restoring biodiversity. Exponential growth in population, development and resource demand has left the biodiversity in a significantly poor state; both globally and nationally. With the need to improve biodiversity, alongside increasing development, BNG was introduced in the 2021 Environment Act which will require all developments under the Town and County Planning Act (TCPA) and the Nationally Significant Infrastructure Project (NSIP) scheme to leave the natural biodiversity in a 10% better state than what it was prior to development, a 10% "net gain" (Figure 1) (Department for Environment, Food and Rural Affairs, 2022b; Planning Advisory Service, 2021). BNG is set to come into policy around November 2023.

To measure a gain to the environment quantitively, a metric has been developed to measure the amount of net gain or net loss a development or restoration project will have on biodiversity. The current metric, BNG 3.1, includes both terrestrial and intertidal habitats but not marine. Marine habitats are included in a separate policy, Marine Net Gain (MNG), due to the more complex issues associated with that environment. As MNG has not been formed and the use of a metric in MNG is not certain (Department for Environment, Food and Rural Affairs, 2022a), BNG will be the main focus of this report. It is important to note that BNG does not replace any environmental legislation, processes such as the mitigation hierarchy (Figure 1) will still be in place. By adhering to other policies that minimise a developers impact on biodiversity they will therefore minimise the amount of restoration required to achieve a 10% net gain in BNG policy.

1.4 Biodiversity Credit Market

With BNG policy expected in 2023, a greater understanding of how a development will need to create/enhance habitats to produce a 10% net gain is needed. Furthermore, can a developer benefit from net gain policy and work with others to ensure BNG is both sustainable for the environment and future developments. This is where the BCM can be applied. The BCM is an emerging market proposition in which BU obtained from restoration, in the UK this is calculated by the BNG metric, could have an economic value which can be bought or sold to other developers (Ecosystem Marketplace, 2015).

Biodiversity credits are an economic incentive that can finance actions to aid the recovery of biodiversity (The Biodiversity Consultancy, 2022). The credits will only apply to contributions that result in a net gain to the natural environment (Figure 1). These can be acquired by either creating or selling BU. The current knowledge of BCM has formed from two decades of practise. The World Economic Forum (2022) suggested that a BCM is added to the Mitigation Hierarchy in a way that is similar to "net gain" by only applying to the positive biodiversity impact actions.

An example of ongoing biodiversity credit trading is in the United States of America with the Wetland Mitigation Banking Program (WMBP). This programme allows developers who have accumulated "debits" (impact on the environment) to buy "credits" (restoration) to offset any impacts they may have on wetlands. It also allows land owners or conservation bodies



that own the area of a restored, enhanced or created wetland to earn "credits" depending on the size and scope of the project (United States Department of Agriculture, 2022). Buyers can purchase credits off of this to ensure their development achieves a "net zero" or "net gain" impact to the local biodiversity. The WMBP was established in 2014 and has been running successfully since 2016 and funded by the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS). This habitat banking scheme only focuses on one habitat, wetlands, meaning the worth of a credit is not too complex. This system may not be appropriate for the UK due to the range of habitats that are found within BNG policy.

2.0 Methodology

The overarching objective for this report was to identify habitats of restoration potential for Ørsted and investigate how different functions affected the BNG metric BU output. The total units the BNG metric produced was multiplied by the predicted worth of a BU to estimate the value of restoration efforts. The BU monetary values used in this investigation were obtained from Ørsted.

2.1 Understanding the Biodiversity Net Gain metric

Prior to the main analysis of BU generation for BCM, pilot runs of habitat restoration in the BNG 3.1 Metric were done to understand how the metric's multipliers functioned. The offsite "Spatial Risk" multiplier was tested to identify the impact it had on the total units earned. This multiplier had six categories, three for intertidal habitats and three for terrestrial habitats. The spatial risk category for intertidal developments:

- Compensation inside same Marine Plan Area, or deemed to be sufficiently local, to site of biodiversity loss (multiplier of 1)
- Compensation outside same Marine Plan Area but in neighbouring Marine Plan Area (multiplier of 0.75)
- Compensation outside Marine Plan Area of impact site and beyond neighbouring Marine Plan Area (multiplier of 0.5)

Spatial risk category for terrestrial developments:

- Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss (multiplier of 1)
- Compensation outside LPA or NCA of impact site but in neighbouring LPA or NCA (multiplier of 0.75)
- Compensation outside LPA or NCA of impact site and beyond neighbouring LPA or NCA (multiplier of 0.5)

Another feature of the BNG metric 3.1 that was tested was the "Time to Target" (TTT) multiplier. This multiplier considered delaying or creating/enhancing a habitat in advance; this was tested to analyse how the multipliers affected the overall BU produced.



2.2 Habitat selection

After the pilot tests were done, habitats of restoration significance (Tables 1 and 2) were chosen to be input into the BNG 3.1 Metric. Intertidal habitats were handpicked after internal discussions as most relevant and most likely to be able to be restored (Table 1). The natural habitats all had high and very high distinctiveness whereas the artificial habitats had low distinctiveness. The terrestrial habitats were selected based upon their distinctiveness. Grassland and heathland & shrub were chosen following internal discussions, but it was decided that only habitats of high or very high distinctiveness should be tested in the BNG metric (Table 2).

Table 1: Shows the intertidal habitats selected alongside their distinctiveness assigned to them in the metric.

_	Sal	tmarsh		Seagrass		Biogenic reef		
	Saltmarshes and Artificial saltmarshes		Littoral	Littoral Littoral seagrass on		Biogenic	Biogenic	Artificial
	saline reedbeds	and saline reedbeds	seagrass	peat, clay or chalk	littoral	mussel reef	sabellaria reef	biogenic reef
					seagrass			
Distinctiveness	High	Low	High	V. High	Low	High	High	Low
Multiplier	6	2	6	8	2	6	6	2

Table 2: Displays the terrestrial habitats selected alongside their distinctiveness assigned to them in the metric.

	Grassland							Heathlana	l and shrub		
	Traditional orchids	Flood wetland mosaic (CFGM)	Lowland calcareous grassland	Lowland dry acid grassland	Tall herb communities	Upland calcareous grassland	Upland hay meadows	Lowland heathland	Mountain heaths & willow scrub	Sea buckthorn scrub	Upland heathland
Distinctiveness	High	High	High	V. High	High	High	V. High	High	V. High	High	High
Multiplier	6	6	6	8	6	6	8	6	8	6	6



2.3 Calculating the value of different habitats in the Biodiversity Net Gain metric

To maintain consistency the following attributes remained the same when each habitat was input into the metric:

- Area (ha): 1 ha.
- Habitat Baseline Condition: Fairly poor.
- Habitat Creation/Enhancement: Good.
- Strategic Significance: Area/compensation not in local strategy/ no local strategy (low strategic significance).
- Offsite Spatial Risk: Inside Landscape Protected Area (LPA) or Nature Conservation Area (NCA) for terrestrial and inside same marine plan area for intertidal

All habitats were tested on their onsite creation and enhancement. To calculate enhancement, the "area retained" feature of the metric was used. This referred to the baseline habitat that was retained and not impacted on. This area was then enhanced to contribute towards BU generation. Habitat creation was also input into the metric but in the opposite way. If 1ha of habitat was retained then 1 ha of habitat was therefore enhanced and no habitat was created. If 0 ha of habitat was retained then no habitat could be enhanced and 1 ha was instead created. For intertidal habitats, intervals of 0.2 ha transitioned between habitat creation and enhancement to analyse the units earned from each restoration method (Table 3). Terrestrial habitats followed this principle but instead was in intervals of 0.5 ha as it was deemed sufficient and showed the same overall pattern as intertidal habitats (Table 4).

Area retained	Onsite enhancement	Onsite creation
1	1	0
0.8	0.8	0.2
0.6	0.6	0.4
0.4	0.4	0.6
0.2	0.2	0.8
0	0	1

Table 3: Displays the transition from intertidal habitat enhancement to intertidal habitat creation in intervals of 0.2 ha.

Table 4: Displays the transition from terrestrial habitat enhancement to terrestrial habitat creation in intervals of 0.5 ha.

Area retained	Onsite enhancement	Onsite creation
1	1	0
0.5	0.5	0.5
0	0	1



3.0 Results:

Prior to selected habitat value calculations, tests were conducted on highlighted sections of the metric to understand how the metric functions and why negative multipliers are applied. Each test used littoral seagrass for both the baseline and enhanced habitat while using artificial littoral seagrass for the created habitat to maintain consistency. The other parameters were identical to the habitat tests apart from the specific function the test was targeting.

3.1 Spatial risk multiplier

A test was conducted to determine if there was a difference in restoring a habitat between onsite or offsite locations. As shown in Table 5, there is no difference between onsite and offsite units earned if the offsite compensation is inside the same marine plan area (or sufficiently local) to the site of biodiversity loss. If the compensation is in a neighbouring marine plan area then it has a negative multiplier of x0.75 and reduces the total units earned when compared to the onsite units. This decreases further if the compensation is deemed to be beyond a neighbouring marine plan area with a negative multiplier of x0.5. The spatial risk category is only found within the offsite creation and enhancement sections of the calculator.

Table 5: Comparison of onsite creation and enhancement to offsite creation and enhancement units earned. The difference between onsite and offsite restoration is the inclusion of a spatial risk category. The habitat used in this example was littoral seagrass. See Tables 30 and 31 in Appendix B for full table breakdown.

		Of	fsite Total Units Earne	ed
Baseline Habitat Retained (ha)	Onsite Total Units Earned	Compensation inside same Marine Plan Area, or deemed to be sufficiently local, to site of biodiversity loss	Compensation outside same Marine Plan Area but in neighbouring Marine Plan Area	Compensation outside Marine Plan Area of impact site and beyond neighbouring Marine Plan Area
1	20.04	20.04	17.53	15.03
0.8	16.43	16.43	14.38	12.33
0.6	12.82	12.82	11.22	9.62
0.4	9.21	9.21	8.06	6.92
0.2	5.6	5.6	4.91	4.21
0	1.99	1.99	1.75	1.51



3.2 Time to target condition multiplier

Both creation and enhancement of the habitat display similar trends when they are restored in advance or are delayed. The main difference is when the time to target condition hits zero the units delivered becomes 18 in both Table 6 and 7. When the habitat is delayed and the time to target condition exceeds 30 years (30+ years) then the units stop decreasing (Table 6).

Table 6: Comparison of delaying or restoring in advance. This example uses onsite habitat enhancement to display the function of the multiplier. The habitat used in this example was littoral seagrass.

Enhanced	Habitat en	hanced in a	dvance	Habitat enhancement delayed			
habitat units with no delay/advance	Number of years prior to development	Time to target condition	Enhanced Habitat units delivered	Number of years after development	Time to target condition	Enhanced habitat units delivered	
	5	25	10.22	5	30+	9.95	
	10	20	10.46	10	30+	9.95	
	15	15	10.74	15	30+	9.95	
10.02	20	10	11.08	20	30+	9.95	
10.02	25	5	11.49	25	30+	9.95	
	27	3	11.67	27	30+	9.95	
	29	1	11.87	29	30+	9.95	
	30	0	18	30	30+	9.95	

Table 7: Comparison of delaying or restoring in advance. This example uses onsite habitat creation to display the function of the multiplier.

	Habitat c	reated in adv	vance	e Habitat created delayed			
Created habitat units with no delay/advance	Number of years prior to development	Time to target condition	Created Habitat units delivered	Number of years after development	Time to target condition	Created habitat units delivered	
	5	15	3.48	2	22	2.71	
	10	10	4.16	4	24	2.53	
2.91	15	5	4.97	6	26	2.35	
2.91	17	3	5.34	8	28	2.19	
	19	1	5.73	10	30	2.04	
	20	0	18	11	30+	1.9	



3.3 Saltmarsh habitats:

This analysis focused on the difference between onsite creation and onsite enhancement of both "saltmarshes and saline reedbeds" and "artificial saltmarshes and saline reedbeds".

As shown in Table 8, natural saltmarsh earned 24.35 BU when 1 ha of the onsite baseline was retained and entirely enhanced from "fairly poor" to "good" condition (see Table 27 in Appendix A for more detail). This had a value of £243,500 if one BU is equal to £10,000. When compared to 1 ha of creation and no habitat retained (therefore no habitat enhanced), there is a significant difference. When 1 ha of artificial saltmarsh was created it generated 4.34 BU which could equate to £43,400 if a BU is equal to £10,000. The difference between enhancement and creation of saltmarsh habitats is £200,100 worth of credits (if valued at £10,000/BU).

Table 9 displays the habitat baseline of artificial saltmarsh. Artificial saltmarsh, when 1ha is enhanced, earned 8.12 BU; this equates to £81,200. In comparison, when the baseline habitat is not retained and 1ha of artificial saltmarsh is created it has a value of 2.22 BU or £22,200. The difference between enhancement and creation for this habitat is £59,000.

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodi <i>£9000.00</i>	versity Credit £10000.00	Value £12000.00
1	24.35	270.57%	£219,150.00	£243,500.00	£292,200.00
0.8	20.35	226.09%	£183,150.00	£203,500.00	£244,200.00
0.6	16.34	181.61%	£147,060.00	£163,400.00	£196,080.00
0.4	12.34	137.13%	£111,060.00	£123,400.00	£148,080.00
0.2	8.34	92.65%	£75,060.00	£83,400.00	£100,080.00
0	4.34	48.18%	£39,060.00	£43,400.00	£52,080.00

Table 8: Baseline habitat was saltmarshes and saline reedbeds. As the baseline habitat retained decreases, the area of natural saltmarsh enhanced decreases and the area of artificial saltmarsh created increases. See Table 27, Appendix A for full table breakdown.



Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biod <i>£9000.00</i>	iversity Credit £10000.00	Value <i>£12000.00</i>
1	8.12	270.57%	£73,080.00	£81,200.00	£97,440.00
0.8	6.94	231.24%	£62,460.00	£69,400.00	£83,280.00
0.6	5.76	191.92%	£51,840.00	£57,600.00	£69,120.00
0.4	4.58	152.60%	£41,220.00	£45,800.00	£54,960.00
0.2	3.4	113.28%	£30,600.00	£34,000.00	£40,800.00
0	2.22	73.96%	£19,980.00	£22,200.00	£26,640.00

Table 9: Baseline habitat was artificial saltmarshes and saline reedbeds. Table shows the change in units earned as habitat enhancement decreases and habitat creation increases (see Table 28, Appendix A for full table breakdown).

3.4 Littoral seagrass habitats:

This test focused on littoral seagrass habitats with artificial seagrass habitat being used for all onsite creation within the metric (see Appendix B for more detail).

Of the three habitats, littoral seagrass had the highest value with 20.04 BU or £200,400 worth of credits (Table 10). Littoral seagrass on peat, clay or chalk earned a maximum of 5.96 BU (£59,600) and artificial littoral seagrass earned 6.68 BU (£66,800) (Tables 11 and 12). Table 11 displays how the loss of littoral seagrass on peat, clay or chalk was unacceptable. The calculator did not produce a final BU value due to this. Unlike the other two habitats (Tables 10 and 11), littoral seagrass on peat, clay or chalk decreased in BU as habitat retained decreased but the percentage "Net Gain" increased (Table 12).



Table 10: Baseline habitat was littoral seagrass. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 29, Appendix B for full table breakdown).

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodi <i>£9000.00</i>	versity Credit £10000.00	Value £12000.00
1	20.04	222.67%	£180,360.00	£200,400.00	£240,480.00
0.8	16.43	182.56%	£147,870.00	£164,300.00	£197,160.00
0.6	12.82	142.45%	£115,380.00	£128,200.00	£153,840.00
0.4	9.21	102.34%	£82,890.00	£92,100.00	£110,520.00
0.2	5.6	62.23%	£50,400.00	£56,000.00	£67,200.00
0	1.99	22.12%	£17,910.00	£19,900.00	£23,880.00

Table 11: Baseline habitat was littoral seagrass on peat, clay or chalk. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 32, Appendix B for full table breakdown).

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodi <i>£9000.00</i>	versity Credit £10000.00	Value £12000.00
1	5.96	24.82%	£53,640.00	£59,600.00	£71,520.00
0.8	5.55	28.93%	£49,950.00	£55,500.00	£66,600.00
0.6	5.15	35.79%	£46,350.00	£51,500.00	£61,800.00
0.4	UNACCEPTA	BLE LOSS	N/A	N/A	N/A
0.2	UNACCEPTA	UNACCEPTABLE LOSS		N/A	N/A
0	UNACCEPTA	BLE LOSS	N/A	N/A	N/A



Table 12: Baseline habitat was artificial littoral seagrass. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 33, Appendix B for full table breakdown).

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodiv <i>£9000.00</i>	versity Credit £10000.00	Value <i>£12000.00</i>
1	6.68	222.67%	£60,120.00	£66,800.00	£80,160.00
0.8	5.61	186.87%	£50,490.00	£56,100.00	£67,320.00
0.6	4.53	151.08%	£40,770.00	£45,300.00	£54,360.00
0.4	3.46	115.29%	£31,140.00	£34,600.00	£41,520.00
0.2	2.38	79.49%	£21,420.00	£23,800.00	£28,560.00
0	1.31	43.70%	£11,790.00	£13,100.00	£15,720.00

3.5 Biogenic reef habitats:

Analysis focused on the difference between onsite creation and onsite enhancement of biogenic mussel reefs, biogenic sabellaria reefs and artificial biogenic reefs. The format of previous habitat tests was followed for this analysis.

As shown in Tables 13 and 14, the creation and enhancement of both sabellaria reef and mussel reef resulted in the same total units earned. The BNG calculator deemed them to be of equal biodiversity value and both produced a maximum of 27.07 BU or £270,700 worth of credits. Artificial biogenic reef produced 9.02 BU or £90,200 which is £180,500 less than biogenic mussel and sabellaria reef (Appendix C for more detail).



Table 13: Baseline habitat was biogenic mussel reef. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 34, Appendix C for full table breakdown).

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodiv <i>£9000.00</i>	versity Credit £10000.00	Value £12000.00
1	27.07	300.77%	£243,630.00	£270,700.00	£324,840.00
0.8	22.79	253.27%	£205,110.00	£227,900.00	£273,480.00
0.6	18.52	205.77%	£166,680.00	£185,200.00	£222,240.00
0.4	14.24	158.27%	£128,160.00	£142,400.00	£170,880.00
0.2	9.97	110.77%	£89,730.00	£99,700.00	£119,640.00
0	5.69	63.28%	£51,210.00	£56,900.00	£68,280.00

Table 14: Baseline habitat was biogenic sabellaria reef. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 35, Appendix C for full table breakdown).

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodiv <i>£9000.00</i>	versity Credit £10000.00	Value <i>£12000.00</i>
1	27.07	300.77%	£243,630.00	£270,700.00	£324,840.00
0.8	22.79	253.27%	£205,110.00	£227,900.00	£273,480.00
0.6	18.52	205.77%	£166,680.00	£185,200.00	£222,240.00
0.4	14.24	158.27%	£128,160.00	£142,400.00	£170,880.00
0.2	9.97	110.77%	£89,730.00	£99,700.00	£119,640.00
0	5.69	63.28%	£51,210.00	£56,900.00	£68,280.00



Table 15: Baseline habitat was artificial biogenic reef. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 36, Appendix C for full table breakdown).

Baseline Habitat Retained (ha)	Total Units Earned	% Net Gain	Biodiv <i>£9000.00</i>	versity Credit £10000.00	Value £12000.00
1	9.02	300.77%	£81,180.00	£90,200.00	£108,240.00
0.8	7.75	258.43%	£69,750.00	£77,500.00	£93,000.00
0.6	6.48	216.09%	£58,320.00	£64,800.00	£77,760.00
0.4	5.21	173.74%	£46,890.00	£52,100.00	£62,520.00
0.2	3.94	131.40%	£35,460.00	£39,400.00	£47,280.00
0	2.67	89.06%	£24,030.00	£26,700.00	£32,040.00

3.6 Grassland habitats:

Unlike the intertidal habitats, the terrestrial baseline habitat retained decreased in intervals of 0.5ha, as explained in section 2.3. Although not as detailed as the intertidal trials, the decreasing area retained still displays the pattern of the previous tests.

Other than lowland dry acid grassland and upland hay meadows (Tables 19 and 22), grassland habitats earned over 20 BU when 1ha was retained and enhanced. Flood wetland mosaic (CFGM) (Table 17) earned the highest total units with 27.4 BU or £274,000. Both the lowland dry acid grassland and upland hay meadows were "very high distinctiveness" habitats (Table 2) and did not produce BU when under 0.5ha of habitat was retained as the calculator deemed the loss to be unacceptable (Tables 19 and 22).



Table 16: Baseline habitat was traditional orchids. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 37, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net		versity Credit	
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	23.91	265.71%	£215,190.00	£239,100.00	£286,920.00
0.5	16.53	183.63%	£148,770.00	£165,300.00	£198,360.00
0	9.14	101.54%	£82,260.00	£91,400.00	£109,680.00

Table 17: Baseline habitat was flood wetland mosaic (CFGM). Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 38, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiversity Credit Value		
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	27.4	304.42%	£246,600.00	£274,000.00	£328,800.00
0.5	17.51	194.50%	£157,590.00	£175,100.00	£210,120.00
0	7.61	84.58%	£68,490.00	£76,100.00	£91,320.00

Table 18: Baseline habitat was lowland calcareous grassland. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 39, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiversity Credit Value		
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	21.48	238.68%	£193,320.00	£214,800.00	£257,760.00
0.5	13.07	145.19%	£117,630.00	£130,700.00	£156,840.00
0	4.65	51.70%	£41,850.00	£46,500.00	£55,800.00



Table 19: Baseline habitat was lowland dry acid grassland. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 40, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiversity Credit Value		
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	3.25	13.54%	£29,250.00	£32,500.00	£39,000.00
0.5	3.7	30.87%	£33,300.00	£37,000.00	£44,400.00
0	UNACCEPTAB	LE LOSS	N/A	N/A	N/A

Table 20: Baseline habitat was tall herb communities. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 41, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiversity Credit Value		
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	21.48	238.68%	£193,320.00	£214,800.00	£257,760.00
0.5	12.63	140.34%	£113,670.00	£126,300.00	£151,560.00
0	3.78	42.00%	£34,020.00	£37,800.00	£45,360.00

Table 21: Baseline habitat was upland calcareous grassland. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 42, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiversity Credit Value		
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	21.13	234.76%	£190,170.00	£211,300.00	£253,560.00
0.5	12.56	139.61%	£113,040.00	£125,600.00	£150,720.00
0	4	44.46%	£36,000.00	£40,000.00	£48,000.00



Table 22: Baseline habitat was upland hay meadows. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 43, Appendix D for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiv	versity Credit	Value
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	8.47	35.28%	£76,230.00	£84,700.00	£101,640.00
0.5	8.29	69.11%	£74,610.00	£82,900.00	£99,480.00
0	UNACCEPTAB	LE LOSS	N/A	N/A	N/A

3.7 Heathland habitats:

The format of these tests was the same as section 3.6, the baseline habitat retained decreased in intervals of 0.5ha. Other than mountain heaths and willow shrubs (Table 24), the three other habitats earned high amounts of BU. Sea buckthorn scrub earned 30.61 BU or £306,100.00 when 1 ha of the baseline habitat was retained and enhanced. Mountain heaths and willow shrubs was a "very high distinctiveness" habitat (Table 2) and when habitat retained was less than 0.5ha the calculator deemed the loss to be unacceptable (Table 24).

Table 23: Baseline habitat was lowland heathland. Table shows the units earned as habitat enhancement decreases and habitatbcreation increases (see Table 44, Appendix E for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiv	versity Credit	Value
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	23.91	265.71%	£215,190.00	£239,100.00	£286,920.00
0.5	14.39	170.79%	£129,510.00	£143,900.00	£172,680.00
0	4.86	53.96%	£43,740.00	£48,600.00	£58,320.00



Table 24: Baseline habitat was mountain heaths and willow shrubs. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 45, Appendix E for full table breakdown).

Baseline	Total Units		Biodiv	versity Credit	Value
Habitat Retained (ha)	Earned	% Net Gain	£9000.00	£10000.00	£12000.00
1	2.53	10.55%	£22,770.00	£25,300.00	£30,360.00
0.5	3.17	26.38%	£28,530.00	£31,700.00	£38,040.00
0	UNACCEPT	ABLE LOSS	N/A	N/A	N/A

Table 25: Baseline habitat was sea buckthorn scrub. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 46, Appendix E for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiv	versity Credit	Value
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	30.61	340.06%	£275,490.00	£306,100.00	£367,320.00
0.5	22.68	251.96%	£204,120.00	£226,800.00	£272,160.00
0	14.75	163.87%	£132,750.00	£147,500.00	£177,000.00

Table 26: Baseline habitat was upland heathland. Table shows the units earned as habitat enhancement decreases and habitat creation increases (see Table 47, Appendix E for full table breakdown).

Baseline Habitat	Total Units	% Net	Biodiv	versity Credit	Value
Retained (ha)	Earned	Gain	£9000.00	£10000.00	£12000.00
1	22.14	246.02%	£199,260.00	£221,400.00	£265,680.00
0.5	14.18	157.52%	£127,620.00	£141,800.00	£170,160.00
0	6.21	69.03%	£55,890.00	£62,100.00	£74,520.00



4.0 Discussion

4.1 Spatial risk multipliers

Testing of the metric displays that the difference between onsite and offsite creation or enhancement is the location of the offsite restoration relative to the onsite location. Both intertidal and terrestrial have a spatial risk category that acts as an incentive to keep the restoration local to the onsite location. Both have three categories that have the same multipliers but how they are determined as local differs (Section 2.1).

Table 5 shows that this multiplier incentivises the developer to keep the restoration local to where the impact occurs. If it is within the same Marine Plan Area or LPA/NCA then the end output of BU remains the same as onsite restoration. This provides a degree of flexibility to the developer when choosing where to restore. If the restoration is done further away from the baseline site, the overall BU earned can be halved.

4.2 Time to Target Condition

Restoring a habitat in advance or delaying it did not seem to impact the total BU earned as significantly as the spatial risk multiplier. Table 7 shows that if a habitat is delayed and the time to target condition is 30+ years, the BU earned is only 0.07 BU less than if there was no delay. For Table 8, this gap increases to 0.81 BU but does not seem significant when compared to the spatial risk multiplier. On the other hand, when the time to target condition is decreased to 0 years, the BU earned becomes 18 BU for both creation and enhancement (Tables 6 and 7). This is a significant increase and is an incentive for developers to have established habitats that are restored to the required condition prior to a development. This ties into the use of habitat banks, by having areas of habitat that have been created or enhanced a number of years before development then the worth of that habitat will increase each year until the time to target condition reaches 0 years.

4.3 Intertidal habitats v. terrestrial habitats

For the intertidal habitats, the enhancement of natural biogenic reefs, sabellaria and mussel, produced the highest amount of BU with 27.07 BU or £270,700.00. For the terrestrial habitats, sea buckthorn scrub enhancement earned 30.61 BU or £306,100.00. The creation of habitats on terrestrial habitats were overall higher than intertidal habitats. This was due to the intertidal habitat creation being associated with artificial habitats of which had a lower distinctiveness than their natural counterpart. The metric does not have artificial versions of the habitats found within grassland or heathland habitats.

4.4 Habitat distinctiveness

Artificial habitats, be that artificial seagrass (6.68 BU), produce less BU than that of a natural habitat, like littoral seagrass (20.04 BU) (Tables 10 and 12). This is mainly determined by the distinctiveness value that is associated with artificial habitats (Table 2). Artificial habitats have a "low distinctiveness" and therefore produce less units than a habitat of high distinctiveness. What determines an intertidal habitat to be artificial is not made evident. If the creation of a habitat makes it artificial it would mean that enhancing a habitat that is already found in the area to be much more favourable for developers. In the majority of the



results, enhancement of the habitat resulted in higher BU's earned. This would be due to the risk of enhancing an already established habitat being lower than creating a habitat from nothing.

When a habitat of "very high distinctiveness" is input into the metric and the area is not retained past 0.5 ha then it becomes unacceptable loss and bespoke compensation is required, this is shown in Tables 11, 19, 22 and 24. The "very high distinctiveness" habitats displayed a trend that when the area retained decreased the percentage net gain increased. For Tables 11 and 22, their net gain increased even though the BU earned decreased. Tables 19 and 24 BU increased alongside their net gain. This did not follow the same pattern as the other habitats tested in this report.

In order to produce a high amount of BU, the developer must consider the distinctiveness of a habitat. If it is too low, "low distinctiveness", then the return will be poor but if it is too high, "very high distinctiveness", then in some cases BU will not be earned. By restoring "high distinctiveness" habitats the developer can produce more BU without the risk of unacceptable loss.

4.5 Feasibility of a BCM in the UK

Although this study assumed a credits worth to be within £9000-£12000 this will most likely change if a BCM is implemented in the UK. A study by Alvarado-Quesada et al. (2013) researched around BCMs and highlighted five case studies. All of the banks studied, both regulatory and voluntary habitat banks, had a large range in the price per unit. As BNG highlights a range of habitats, both terrestrial and intertidal, the worth of a single unit may not be a set figure. Another issue is that each BCM or banking scheme has a different methodology that is used to determine the unit value of biodiversity. The BNG metric is unique and the units produced is not intended to value the habitat in a monetary sense. The BU does give the habitat a worth that needs to be offset to achieve a net gain but other considerations may need to be considered to assess its value.

The main credit market in the US is the US Wetland and Species Conservation Banks (WSCBs). Compensation is referred to as a "credit" and habitat lost is a "debit" (Alvarado-Quesada et al. 2013; Briggs, Hill and Gillespie, 2009). These banks are centred around wetland habitats which means credits can be easily compared and weighted by either condition or size. If the UK is to build a market around the BNG metric, this would be much more complicated as different habitats would have different values due to their distinctiveness. However, the BNG metric does display evidence that habitat banks could be implemented. As shown in section 3.0, creating or enhancing a habitat ("credit") in advance to the habitat loss ("debit") can boost the BU value, especially if the time to target condition is 0 years. The use of habitat banks can store "credits" in advance of "debits" (Briggs, Hill and Gillespie, 2009) and therefore can increase in value as their time to target decreases and eventually reaches zero years.

The UK Government has mentioned a market-based approach in the recent Marine Net Gain (MNG) consultation that was released by Defra (Department for Environment, Food and



Rural Affairs, 2022a). This consultation states "The Government is encouraging a marketbased approach to delivering off-site habitat for terrestrial biodiversity net gain, whereby third parties will be able to create and sell BU to developers who need them" but this centralised trading platform for biodiversity credits will most likely be created by the private sector and, like other biodiversity credit markets around the world, will have ranges in credit value due to prices agreed between buyers and sellers (Department for Environment, Food and Rural Affairs, 2022a; Ecology by Design, 2021).

The creation of habitat bank networks has already begun in the UK (Jacobs et al., 2013, pp.325–329). The Environment Bank LTD have recently started integrating BNG delivery into their projects. They aim to create a network of habitat banks with at least one in each LPA to ensure strategic placement (Environment Bank, 2022). This is aimed to allow developers to buy BNG units to ensure they are achieving a 10% net gain to the environment. The use of BNG may be an advantage to a BCM within the UK due to the calculations that value a habitat. Places in Europe, like Spain, have experienced challenges with a BCM due to a lack of ecological metrics that can quantify offsets without being subjective (Maestre-Andrés et al., 2020). The BNG metric, although somewhat subjective for multipliers like condition, attempts to calculate quantitative data on a developments impact on biodiversity and the amount of biodiversity created from restoration.

5.0 Conclusions

The use of a BNG metric to produce biodiversity credits displayed how certain habitats and methods of restoration could benefit the developer more than others. By avoiding impacts on "very high distinctiveness" habitats the developer will not need to consider bespoke compensation. Furthermore, by enhancing the baseline habitat the BU earned is higher than if a habitat is created. This is due to a lower risk being associated with this method of restoration. For intertidal habitats, enhancing a natural habitat will produce a high amount of BU; creating artificial habitats does not return a high amount of BU and therefore would not be a good option for habitat banking. If a habitat can be created in advance, by the time a development is consented the time to target condition is 0 years, the unit value increases drastically. This could be utilised by creating or enhancing habitats in advance to be used as habitat banks for future projects or selling BU to other developers. This is seen in other habitat banking schemes around the world, a good example being the US WSCBs that use credits and debits when buying and selling. Unlike most BCM found globally, a UK based BCM would most likely use the BNG metric to calculate the value of the habitat lost, created or enhanced. Due to the wide range of habitats listed within this metric, from intertidal to terrestrial, there may be more complications on the worth of certain credits and using credits from intertidal habitats on debits from terrestrial habitats. Questions on if the habitat credits will be specific to that habitat restored and can only be used on the same habitat that has been lost (like-for-like).



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7.0 Appendices

7.1 Appendix A: Saltmarsh and saline reedbed habitats

Table 27: Saltmarsh calculations of the BNG metric. Onsite creation of artificial saltmarsh had a TTT of 15 years. Onsite and offsite enhancement of saltmarsh had a TTT of 18 years.

	A1- Onsit	e Habita	t Basel	ine	A2	- Onsi	te Habit	at Creatio	on	A3- (Onsite H	abitat E	nhancem	ent		D-1 0	ffsite Ha	abitat Bas	eline		D-3	Offsite H	labitat Ei	nhancen	nent	
A		Strat	Un	Are a		A		Strat	Habi tat Unit		Area		Strat	Habi tat Unit		A		Strat	Un	Are a	Area		Strat	Spa tial	Habi tat Unit	Tot al Un
re a	Con	egic signif	its W	reta ine	Habit	re	Con	egic signif	s Deli	Habit	enh ance	Con	egic signif	s Deli	Habit	re a	Con	egic signif	its W	reta ine	enh ance	Con	egic signif	risk cat	s Deli	its Ear
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a)	n	e	h	(ha)	Туре	a)	n	e	d	Type	(ha)	n	e	d	Type	a)	n	e	h	(ha)	(ha)	n	e	ry	d	d
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	Fairl					N				saline					saline		Fairl					-		Plan		
1	У	1	_	1	NI / A	/	NI / A	NI / A	NI / A	reedb	1	Goo	1	12.1	reedb	1	У	1.000	~	1	1	Goo	1.000	Are	12.1	24.
1	poor	Low	9	1	N/A Artifi	A	N/A	N/A	N/A	eds	1	d	Low	8	eds	1	poor	Low	9	1	1	d	Low	а	8	35
					cial																			Sam		
					saltm					Saltm					Saltm									e		
					arshe					arshe					arshe									Mar		
					s and					s and					s and									ine		
	Fairl				saline					saline					saline		Fairl							Plan		
	У				reed	0.	Goo			reedb		Goo			reedb		У					Goo		Are	12.1	20.
1	poor	Low	9	0.8	beds	2	d	Low	0.23	eds	0.8	d	Low	9.74	eds	1	poor	Low	9	1	1	d	Low	а	8	35
					Artifi																			C		
					cial saltm					Saltm					Saltm									Sam e		
					arshe					arshe					arshe									Mar		
					s and					s and					s and									ine		
	Fairl				saline					saline					saline		Fairl							Plan		
	у				reed	0.	Goo			reedb		Goo			reedb		у					Goo		Are	12.1	16.
1	poor	Low	9	0.6	beds	4	d	Low	0.46	eds	0.6	d	Low	7.31	eds	1	poor	Low	9	1	1	d	Low	а	8	34



1	Fairl y poor	Low	9	0.4	Artifi cial saltm arshe s and saline reed beds	0. 6	Goo d	Low	0.7	Saltm arshe s and saline reedb eds	0.4	Goo d	Low	4.87	Saltm arshe s and saline reedb eds	1	Fairl Y poor	Low	9	1	1	Goo d	Low	Sam e Mar ine Plan Are a	12.1 8	12. 34
1	Fairl y poor	Low	9	0.2	Artifi cial saltm arshe s and saline reed beds	0. 8	Goo d	Low	0.93	Saltm arshe s and saline reedb eds	0.2	Goo d	Low	2.44	Saltm arshe s and saline reedb eds	1	Fairl Y poor	Low	9	1	1	Goo d	Low	Sam e Mar ine Plan Are a	12.1 8	8.3 4
1	Fairl y poor	Low	9	0	Artifi cial saltm arshe s and saline reed beds	1	Goo d	Low	1.16	N/A	N/A	N/A	N/A	N/A	Saltm arshe s and saline reedb eds	1	Fairl Y poor	Low	9	1	1	Goo d	Low	Sam e Mar ine Plan Are a	12.1 8	4.3 4

Table 28: Artificial saltmarsh calculations of the BNG metric. This focused on the offsite creation and enhancement so A2 and A3 of the metric were not used. TTT for offsite creation was 15 years and for offsite enhancement was 18 years.

	A1- Onsi	te Habitat	Baselin	e		D-1 (Offsite Ha	bitat Base	line			D-2	Offsite H	abitat Crea	ition			D-3 Offs	site Habit	at Enhance	ement		Tot
																Habit					Spati	Habit	al
Ar		Strate	Uni	Area		Ar		Strate	Uni	Area		Ar		Strateg		at		Area		Strate	al	at	Uni
ea		gic	ts	retai		ea		gic	ts	retai		ea		ic	Spa	Units		enha		gic	risk	Units	ts
(h	Condi	signific	wo	ned	Habita	(h	Condi	signific	wo	ned	Habita	(h	Condi	Signific	tial	Deliv	Habita	nced	Condi	signific	cate	Deliv	Ear
a)	tion	ance	rth	(ha)	t Type	a)	tion	ance	rth	(ha)	t Type	a)	tion	ance	risk	ered	t Type	(ha)	tion	ance	gory	ered	ned
					Artifici																		
					al																		
					saltma												Saltma				Sam		
					rshes												rshes				e		
					and												and				Mari		
					saline												saline				ne		
	Fairly				reedbe		Fairly					N/					reedbe				Plan		9.1
1	poor	Low	3	0	ds	1	poor	Low	9	1	N/A	А	N/A	N/A	N/A	N/A	ds	1	Good	Low	Area	12.18	8



1	Fairly poor	Low	3	0	Saltma rshes and saline reedbe ds	1	Fairly poor	Low	9	0.8	Artifici al saltma rshes and saline reedbe ds	0.	Good	Low	Sam e Mar ine Plan Are a	0.23	Saltma rshes and saline reedbe ds	0.8	Good	Low	Sam e Mari ne Plan Area	9.74	5.1 7
1	Fairly	Low	3	0	Saltma rshes and saline reedbe ds	1	Fairly	Low	9	0.6	Artifici al saltma rshes and saline reedbe ds	0.	Good	Low	Sam e Mar ine Plan Are a	0.46	Saltma rshes and saline reedbe ds	0.6	Good	Low	Sam e Mari ne Plan Area	7.31	1.1 7
1	Fairly	Low	3	0	Saltma rshes and saline reedbe ds	1	Fairly	Low	9	0.4	Artifici al saltma rshes and saline reedbe ds	0.	Good	Low	Sam e Mar ine Plan Are a	0.7	Saltma rshes and saline reedbe ds	0.4	Good	Low	Sam e Mari ne Plan Area	4.87	- 2.8 3
1	Fairly	Low	3	0	Saltma rshes and saline reedbe ds	1	Fairly	Low	9	0.2	Artifici al saltma rshes and saline reedbe ds	0.	Good	Low	Sam e Mar ine Plan Are a	0.93	Saltma rshes and saline reedbe ds	0.2	Good	Low	Sam e Mari ne Plan Area	2.44	- 6.8 4
1	Fairly	Low	3	0	Saltma rshes and saline reedbe ds	1	Fairly	Low	9	0	Artifici al saltma rshes and saline reedbe ds	1	Good	Low	Sam e Mar ine Plan Are a	1.16		N/A	N/A	N/A	N/A	N/A	- 10. 84



7.2 Appendix B: Littoral seagrass habitats

Table 29: Littoral seagrass calculations of the BNG metric. This focused on the onsite creation and enhancement so offsite enhancement was consistent throughout. Onsite creation TTT is 20 years. Onsite and offsite enhancement TTT is 30 years.

A	1- Onsit	e Habita	t Basel	ine	A2	2- Ons	ite Habi	tat Creat	ion	A3-	Onsite	Habitat I	Enhancer	nent		D-1 (Offsite H	abitat Ba	seline			D-3 Offs	ite Habi	tat Enhai	ncement	t	
A re a	Con	Strat egic signif	Un its W	Are a ret	Ha bita t	A re a	Con	Strat egic signif	Habi tat Unit s Deli	Ha bita t	Are a enh anc	Con	Strat egic signif	Habi tat Unit s Deli	Ha bita t	A re a	Con	Strat egic signif	Un its w	Are a ret ain	Ha bita t	Are a enh anc	Con	Strat egic signif	Spa tial risk cat	Habi tat Unit s Deli	Tot al Un its Ear
(h	ditio	icanc	ort	ain	Тур	(h	ditio	icanc	vere	Тур	ed	ditio	icanc	vere	Тур	(h	ditio	icanc	or	ed	Тур	ed	ditio	icanc	ego	vere	ne
a)	n	e	h	ed	e	a)	n	e	d	е	(ha)	n	e	d	е	a)	n	e	th	(ha)	е	(ha)	n	e	ry So	d	d
										Litt					Litt						Litt				Sa me Mar ine		
										oral					oral						oral				Pla		
	Fairl					N				sea		_			sea		Fairl				sea		-		n		
1	y poor	Low	9	1	N/A	/ A	N/A	N/A	N/A	gra ss	1	Goo d	Low	10.0 2	gra ss	1	y poor	Low	9	1	gra ss	1	Goo d	Low	Are a	10.0 2	20. 04
1	Fairl y poor	Low	9	0.8	Arti fici al litt oral sea gra ss Arti	0. 2	Goo d	Low	0.19	Litt oral sea gra ss	0.8	Goo d	Low	8.02	Litt oral gra ss	1	Fairl y poor	Low	9	1	Litt oral sea gra ss	1	Goo d	Low	Sa me Mar ine Pla n Are a Sa	10.0 2	16. 43
1	Fairl y poor	Low	9	0.6	fici al litt oral sea gra ss Arti	0. 4	Goo d	Low	0.39	Litt oral sea gra ss	0.6	Goo d	Low	6.01	Litt oral sea gra ss	1	Fairl y poor	Low	9	1	Litt oral sea gra ss	1	Goo d	Low	me Mar ine Pla n Are a Sa	10.0 2	12. 82
1	Fairl Y poor	Low	9	0.4	fici al litt oral sea	0. 6	Goo d	Low	0.58	Litt oral sea gra ss	0.4	Goo d	Low	4.01	Litt oral sea gra ss	1	Fairl Y poor	Low	9	1	Litt oral sea gra ss	1	Goo d	Low	me Mar ine Pla n	10.0 2	9.2 1



					gra ss																				Are a		
					Arti																				Sa		
					fici																				me		
					al																				Mar		
					litt					Litt					Litt						Litt				ine		
					oral					oral					oral						oral				Pla		
	Fairl				sea					sea					sea		Fairl				sea				n		
	У				gra	0.	Goo			gra		Goo			gra		У				gra		Goo		Are	10.0	
1	poor	Low	9	0.2	SS	8	d	Low	0.78	SS	0.2	d	Low	2	SS	1	poor	Low	9	1	SS	1	d	Low	а	2	5.6
					Arti																				Sa		
					fici																				me		
					al																				Mar		
					litt										Litt						Litt				ine		
					oral										oral						oral				Pla		
	Fairl				sea										sea		Fairl				sea				n		
	У				gra		Goo								gra		У				gra		Goo		Are	10.0	1.9
1	poor	Low	9	0	SS	1	d	Low	0.97	N/A	N/A	N/A	N/A	N/A	SS	1	poor	Low	9	1	SS	1	d	Low	а	2	9

Table 30: Littoral seagrass calculations of the BNG metric. This focused on the offsite creation and enhancement to notice if there were differences between onsite (Table 29) and offsite restoration. Offsite creation TTT is 20 years. Onsite and offsite enhancement TTT is 30 years.

Α	1- Onsit	e Habita	t Base	line	A3-	Onsite H	labitat I	Enhancer	nent		D-1 0)ffsite H	abitat Ba	seline	!		D-2 (Offsite H	labitat C	reation		[D-3 Offs	ite Habi	tat Enha	ncemen	nt	
				Are					Hab						Are						Hab						Hab	То
			U	а		Are			itat					U	а						itat		Are			Spa	itat	tal
Α		Strat	nit	ret	На	а		Strat	Unit	На	Α		Strat	nit	ret	На	Α		Strat	Sp	Unit	Ha	а		Strat	tial	Unit	Un
re		egic	s	ain	bit	enh		egic	s	bit	re		egic	s	ain	bit	re		egic	ati	s	bit	enh		egic	risk	s	its
а	Con	signi	w	ed	at	anc	Con	signi	Deli	at	а	Con	signi	w	ed	at	а	Con	Signi	al	Deli	at	anc	Con	signi	cat	Deli	Ea
(h	diti	fican	or	(ha	Тур	ed	diti	fican	ver	Тур	(h	diti	fican	or	(ha	Тур	(h	diti	fican	ris	ver	Тур	ed	diti	fican	ego	ver	rn
a)	on	ce	th)	е	(ha)	on	ce	ed	e	a)	on	ce	th)	е	a)	on	ce	k	ed	е	(ha)	on	ce	ry	ed	ed
																										Sa		
																										me		
					Litt					Litt												Litt				Ma		
					ora					ora												ora				rine		
	Fairl				1					1		Fairl										1				Pla		
	у				sea					sea		у					Ν					sea				n		
	роо				gra		Goo		10.0	gra		роо				N/	/			N/		gra		Goo		Are	10.0	20.
1	r	Low	9	1	SS	1	d	Low	2	SS	1	r	Low	9	1	А	Α	N/A	N/A	А	N/A	SS	1	d	Low	а	2	04



																Arti fici				Sa me						Sa		
					Litt					Litt						al litt				M ari		Litt				me Ma		
					ora					ora						ora				ne		ora				rine		
	Fairl				1					T		Fairl				T				Pla		T				Pla		
	у роо				sea gra		Goo		10.0	sea gra		у роо				sea gra	0.	Goo		n Ar		sea gra		Goo		n Are		16.
	r r	Low	9	1		1	d	Low	2	SS	1	r	Low	9	0.8	SS	2	d	Low	ea	0.19	SS	0.8	d	Low	a	8.02	43
																Arti				Sa								
																fici al				me M						Sa me		
					Litt					Litt						litt				ari		Litt				Ma		
					ora					ora						ora				ne		ora				rine		
	Fairl				1					1		Fairl				1				Pla		1				Pla		
	у роо				sea gra		Goo		10.0	sea gra		у роо				sea gra	0.	Goo		n Ar		sea gra		Goo		n Are		12.
	r	Low	9	1	SS	1	d	Low	2	SS	1	r	Low	9	0.6	SS	4	d	Low	ea	0.39	SS	0.6	d	Low	a	6.01	82
																Arti				Sa								
																fici al				me M						Sa me		
					Litt					Litt						litt				ari		Litt				Ma		
					ora					ora						ora				ne		ora				rine		
	Fairl				1					T		Fairl				I				Pla		T				Pla		
	у роо				sea gra		Goo		10.0	sea gra		у роо				sea gra	0.	Goo		n Ar		sea gra		Goo		n Are		9.2
	r	Low	9	1	SS	1	d	Low	2	SS	1	r	Low	9	0.4	SS	6	d	Low	ea	0.58	SS	0.4	d	Low	a	4.01	1
																Arti				Sa								
																fici				me						Sa		
					Litt					Litt						al litt				M ari		Litt				me Ma		
					ora					ora						ora				ne		ora				rine		
	Fairl				1					1		Fairl				T				Pla		1				Pla		
	y noo				sea		Goo		10.0	sea		у				sea	0	Goo		n Ar		sea		Goo		n Are		
1	poo r	Low	9	1	gra ss	1	d	Low	10.0	gra ss	1	poo r	Low	9	0.2	gra ss	0. 8	d	Low	ea	0.78	gra ss	0.2	d	Low	a	2	5.6
						l										Arti				Sa								
					Litt					Litt						fici				me								
	Fairl				ora I					ora I		Fairl				al litt				M ari								
	y				sea					sea		y				ora				ne								
	роо				gra		Goo		10.0	gra		роо				T		Goo		Pla		N/						1.9
1	r	Low	9	1	SS	1	d	Low	2	SS	1	r	Low	9	0	sea	1	d	Low	n		А	N/A	N/A	N/A	N/A	N/A	9



				1				gra		Ar				
								SS		ea				

Table 31: Littoral seagrass calculations of the BNG metric. This focused on the offsite spatial risk category to note the change in units earned if restoration was done further away (compared to Table 30). Offsite creation TTT is 20 years. Onsite and offsite enhancement TTT is 30 years. Having the offsite area in a neighbouring marine plan area decreases the total units generated. The multipliers go: Same Marine Plan Area x1; In Neighbouring Marine Plan Area x0.75; Beyond Neighbouring Marine Plan Area x0.5.

А	1- Onsit	e Habita	t Base	line	A3- (Onsite H	labitat	Enhance	ment	D-1	Offsi	te Habi	tat Basel	ine		D-2 O	ffsite	Habitat	t Creatio	n		D-3	Offsite	Habitat	Enhanc	ement		
				Are					Hab						Are						Hab						Hab	То
Α			U	а		Are			itat		Α			U	а		Α				itat		Are				itat	tal
r		Strat	ni	ret	На	а		Strat	Uni	На	r		Strat	ni	ret	На	r		Strat		Uni	На	а		Strat	Spati	Uni	Un
е		egic	ts	ain	bit	enh		egic	ts	bit	е		egic	ts	ain	bit	е		egic		ts	bit	enh		egic	al	ts	its
a	Con	signi	w	ed	at	anc	Con	signi	Deli	at	a	Con	signi	w	ed	at	a	Con	Signi	Spati	Deli	at	anc	Con	signi	risk	Deli	Ea
(h	diti	fican	or	(ha	Ту	ed	diti	fican	ver	Ту	(h	diti	fican	or	(ha	Ту	(h	diti	fican	al	ver	Ту	ed	diti	fican	categ	ver	rn
a)	on	се	th)	ре	(ha)	on	се	ed	ре	a)	on	се	th)	ре	a)	on	се	risk	ed	ре	(ha)	on	се	ory	ed	ed
																										In		
					1:44					1:44												1:44				Neigh		
					Litt					Litt												Litt				bouri		
	Fairl				ora I					ora		Fairl										ora				ng Mari		
	V				sea					sea		-					N					sea				ne		17
	y poo				gra		Goo		10.	gra		у роо				N/	/					gra		Goo		Plan	7.5	.5
1	r	Low	9	1	SS	1	d	Low	02	SS	1	r	Low	9	1	A	A	N/A	N/A	N/A	N/A	SS	1	d	Low	Area	1	3
-		2011	5		55	-	ŭ	2011	02	55	-	•	2011		-	Arti			,//	1,1,1		55	-	ŭ	2011	7.1.64	-	
																fici				In						In		
																al				Neigh						Neigh		
					Litt					Litt						litt				bouri		Litt				bouri		
					ora					ora						ora				ng		ora				ng		
	Fairl				1					1		Fairl				Ι				Mari		1				Mari		
	у				sea					sea		у				sea				ne		sea				ne		14
	роо				gra		Goo		10.	gra		роо				gra	0.	Goo		Plan	0.1	gra		Goo		Plan	6.0	.3
1	r	Low	9	1	SS	1	d	Low	02	SS	1	r	Low	9	0.8	SS	2	d	Low	Area	5	SS	0.8	d	Low	Area	1	8
																				In						In		
																Arti				Neigh						Neigh		
					Litt					Litt						fici				bouri		Litt				bouri		
					ora					ora						al				ng		ora				ng		
	Fairl											Fairl				litt				Mari		I				Mari		
	У				sea		_			sea		У				ora	_			ne		sea		_		ne		11
	роо				gra		Goo	Ι.	10.	gra		роо				I	0.	Goo	Ι.	Plan	0.2	gra		Goo		Plan	4.5	.2
1	r	Low	9	1	SS	1	d	Low	02	SS	1	r	Low	9	0.6	sea	4	d	Low	Area	9	SS	0.6	d	Low	Area	1	2



																	gra ss												
						Litt					Litt						Arti fici al litt				In Neigh bouri		Litt				ln Neigh bouri		
		Fairl Y				ora I sea		Car		10	ora I sea		Fairl Y				ora I sea	0	Gaa		ng Mari ne		ora I sea		Car		ng Mari ne	2.0	
-	1	poo r	Low	9	1	gra ss	1	Goo d	Low	10. 02	gra ss	1	poo r	Low	9	0.4	gra ss Arti	0. 6	Goo d	Low	Plan Area	0.4	gra ss	0.4	Goo d	Low	Plan Area	3.0 1	
						Litt					Litt						fici al litt				In Neigh bouri		Litt				In Neigh bouri		
		Fairl				ora I					ora I		Fairl				ora I				ng Mari		ora I				ng Mari		
	1	y poo r	Low	9	1	sea gra ss	1	Goo d	Low	10. 02	sea gra ss	1	y poo r	Low	9	0.2	sea gra ss	0. 8	Goo d	Low	ne Plan Area	0.5 8	sea gra ss	0.2	Goo d	Low	ne Plan Area	1.5	
																	Arti fici al				In Neigh								
		Fairl				Litt ora I					Litt ora I		Fairl				litt ora I				bouri ng Mari								
	1	y poo r	Low	9	1	sea gra ss	1	Goo d	Low	10. 02	sea gra ss	1	y poo r	Low	9	0	sea gra ss	1	Goo d	Low	ne Plan Area	0.7 3	N/ A	N/A	N/A	N/A	N/A	N/A	

Table 32: Littoral seagrass on peat, clay or chalk calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 20 years. Onsite and offsite enhancement TTT is 8 years. Due to high distinctiveness habitat, any loss is unacceptable and the calculator does not provide an output after area retained is below 0.5.

А	1- Onsit	e Habita	t Base	line	A2	- Ons	ite Habi	itat Creat	tion	A3	- Onsite	e Habita	t Enhanc	ement		D-1 C	Offsite H	abitat Ba	seline)	1	D-3 Offs	ite Habi	tat Enha	ncemer	ıt	
				Are					Hab											Are		_				Hab	
			U	а					itat		Are		_			_			U	а		Are		_	Spa	itat	
Α		Strat	nit	ret	На	Α		Strat	Unit	На	а		Strat		На	Α		Strat	nit	ret	На	а		Strat	tial	Unit	
re		egic	S	ain	bit	re		egic	S	bit	enh		egic	Habitat	bit	re		egic	S	ain	bit	enh		egic	risk	S	
а	Con	signi	w	ed	at	а	Con	signi	Deli	at	anc	Con	signi	Units	at	а	Con	signi	w	ed	at	anc	Con	signi	cat	Deli	Total
(h	diti	fican	or	(ha	Тур	(h	diti	fican	ver	Тур	ed	diti	fican	Deliver	Тур	(h	diti	fican	or	(ha	Тур	ed	diti	fican	ego	ver	Units
a)	on	се	th)	e	a)	on	се	ed	е	(ha)	on	ce	ed	e	a)	on	се	th)	е	(ha)	on	се	ry	ed	Earned
										Litt					Litt												
										ora					ora												
										1																	
										sea					sea												
										gra					gra												
										SS					SS										Sa		
										on					on										me		
										pea					pea										Ma		
										t,					t,										rine		
	Fairl									cla					cla		Fairl								Pla		
	У					N				y or					y or		У								n		
	роо				N/	/				cha		Goo			cha		роо						Goo		Are	14.9	
1	r	Low	12	1	A	A	N/A	N/A	N/A	lk	1	d	Low	14.98	lk	1	r	Low	12	1	е	1	d	Low	а	8	5.96
										Litt					Litt						Litt						
										ora					ora						ora						
										I											1						
										sea					sea						sea						
					Arti					gra					gra						gra						
					fici					SS					SS						SS				Sa		
					al					on					on						on				me		
					litt					pea					pea						pea				Ma		
					ora					t,					t,						t,				rine		
	Fairl									cla					cla		Fairl				cla				Pla		
	У				sea					y or		~			y or		У				y or				n		
	роо		12		gra	0.	Goo		0.40	cha	0.0	Goo		14.00	cha		роо		12		cha		Goo		Are	14.9	
1	r	Low	12	0.8	SS	2	d	Low	0.19	lk	0.8	d	Low	11.98	lk	1	r	Low	12	1	lk	1	d	Low	а	8	5.55



1	Fairl y poo r	Low	12	0.6	Arti fici al litt ora l sea gra ss	0.	Goo d	Low	0.39	Litt ora l sea gra ss on pea t, cla y or cha lk	0.6	Goo d	Low	8.99	Litt ora I sea gra ss on pea t, cla y or cha Ik	1	Fairl y poo r	Low	12	1	Litt ora I sea gra ss on pea t, cla y or cha Ik	1	Goo d	Low	Sa me Ma rine Pla n Are a	14.9	5.15
1	Fairl Y poo r	Low	12	0.4	Arti fici al litt ora l sea gra ss	0.	Goo d	Low	0.58	Litt ora l sea gra ss on pea t, cla y or cha lk	0.4	Goo d	Low	UNNAC CEPTAB LE LOSS	Litt ora I sea gra ss on pea t, cla y or cha Ik	1	Fairl y poo r	Low	12	1	Litt ora l sea gra ss on pea t, cla y or cha lk	1	Goo d	Low	Sa me Ma rine Pla n Are a	14.9	UNAC CEPTA BLE LOSS
1	Fairl Y poo r	Low	12	0.2	Arti fici al litt ora l sea gra ss	0.	Goo d	Low	0.78	Litt ora l sea gra ss on pea t, cla y or cha lk	0.2	Goo d	Low	UNNAC CEPTAB LE LOSS	Litt ora I sea gra ss on pea t, cla y or cha Ik	1	Fairl y poo r	Low	12	1	Litt ora l sea gra ss on pea t, cla y or cha lk	1	Goo d	Low	Sa me Ma rine Pla n Are a	14.9 8	UNAC CEPTA BLE LOSS



									ĺ						Litt						Litt						
															ora						ora						
															1						1						
															sea						sea						
					Arti										gra						gra						
					fici										SS						SS				Sa		
					al										on						on				me		
					litt										pea						pea				Ma		
					ora										t,						t,				rine		UNAC
	Fairl				I.										cla		Fairl				cla				Pla		CEPTA
	У				sea										y or		У				y or				n		BLE
	роо				gra		Goo			N/					cha		роо				cha		Goo		Are	14.9	LOSS
1	r	Low	12	0	SS	1	d	Low	0.97	А	N/A	N/A	N/A	N/A	lk	1	r	Low	12	1	lk	1	d	Low	а	8	

Table 33: Artificial littoral seagrass calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 20 years. Onsite and offsite enhancement TTT is 30 years. Artificial habitat creation seems to produce lower habitat units than natural enhancement.

	A1- Onsit	e Habitat	: Basel	ine	A2	2- Ons	ite Habi	tat Creati	on	A3-	Onsite I	labitat I	Enhancen	nent		D-1 C	Offsite H	abitat Ba	seline			D-3 Offs	ite Habi	itat Enhai	ncemen	t	
									Habi					Habi												Habi	Tot
				Are					tat		Are			tat						Are		Are			Spa	tat	al
Α		Strat	Un	а	На	Α		Strat	Unit	На	а		Strat	Unit	На	Α		Strat	Un	а	На	а		Strat	tial	Unit	Un
re		egic	its	ret	bita	re		egic	s	bita	enh		egic	s	bita	re		egic	its	ret	bita	enh		egic	risk	s	its
а	Con	signif	w	ain	t	а	Con	signif	Deli	t	anc	Con	signif	Deli	t	а	Con	signif	w	ain	t	anc	Con	signif	cat	Deli	Ear
(h	ditio	icanc	or	ed	Тур	(h	ditio	icanc	vere	Тур	ed	ditio	icanc	vere	Тур	(h	ditio	icanc	or	ed	Тур	ed	ditio	icanc	ego	vere	ne
a)	n	е	th	(ha)	е	a)	n	е	d	е	(ha)	n	е	d	е	a)	n	е	th	(ha)	е	(ha)	n	е	ry	d	d
										Arti					Arti						Arti				Sa		
										fici					fici						fici				me		
										al					al						al				Mar		
										litto					litto						litto				ine		
										ral					ral						ral				Pla		
	Fairl					Ν				sea					sea		Fairl				sea				n		
	У					/				gra		Goo			gra		У				gra		Goo		Are		6.6
1	poor	Low	3	1	N/A	Α	N/A	N/A	N/A	SS	1	d	Low	3.34	SS	1	poor	Low	3	1	SS	1	d	Low	а	3.34	8
					Arti					Arti					Arti						Arti				Sa		
					fici					fici					fici						fici				me		
					al					al					al						al				Mar		
	Fairl				litto					litto					litto		Fairl				litto				ine		
	У				ral	0.	Goo			ral		Goo			ral		У				ral		Goo		Pla		5.6
1	poor	Low	3	0.8	sea	2	d	Low	0.19	sea	0.8	d	Low	2.67	sea	1	poor	Low	3	1	sea	1	d	Low	n	3.34	1



					gra					gra					gra						gra				Are		
					SS					SS					SS						SS				а		
															۰										6.		
					Arti fici					Arti fici					Arti fici						Arti fici				Sa me		
					al					al					al						al				Mar		
					litto					litto					litto						litto				ine		
					ral					ral					ral						ral				Pla		
	Fairl				sea					sea					sea		Fairl				sea				n		
	У				gra	0.	Goo			gra		Goo			gra		У				gra		Goo		Are		4.5
1	poor	Low	3	0.6	SS	4	d	Low	0.39	SS	0.6	d	Low	2	SS	1	poor	Low	3	1	SS	1	d	Low	а	3.34	3
					Arti					Arti					Arti						Arti				Sa		
					fici					fici					fici						fici				me		
					al litto					al litto					al litto						al litto				Mar ine		
					ral					ral					ral						ral				Pla		
	Fairl				sea					sea					sea		Fairl				sea				n		
	у				gra	0.	Goo			gra		Goo			gra		у				gra		Goo		Are		3.4
1	poor	Low	3	0.4	SS	6	d	Low	0.58	SS	0.4	d	Low	1.34	SS	1	poor	Low	3	1	SS	1	d	Low	а	3.34	6
					Arti					Arti					Arti						Arti				Sa		
					fici					fici					fici						fici				me		
					al					al					al						al				Mar		
					litto ral					litto ral					litto ral						litto ral				ine Pla		
	Fairl				sea					sea					sea		Fairl				sea				n		
	y				gra	0.	Goo			gra		Goo			gra		y				gra		Goo		Are		2.3
1	poor	Low	3	0.2	SS	8	d	Low	0.78	SS	0.2	d	Low	0.67	SS	1	poor	Low	3	1	SS	1	d	Low	а	3.34	8
					Arti										Arti						Arti				Sa		
					fici										fici						fici				me		
					al										al						al				Mar		
					litto										litto						litto				ine		
	Fairl				ral sea										ral sea		Fairl				ral sea				Pla n		
	V				gra		Goo								gra		y rain				gra		Goo		Are		1.3
1	poor	Low	3	0	SS	1	d	Low	0.97	N/A	N/A	N/A	N/A	N/A	SS	1	, poor	Low	3	1	SS	1	d	Low	a	3.34	1



7.3 Appendix C: Biogenic Reef Habitats

Table 34: Littoral mussel reef calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 15 years, onsite and offsite enhancement TTT is 8 years.

	A1- Onsit	e Habita	t Basel	ine	A	2- Ons	ite Habi	tat Creat	ion	A3-	Onsite I	labitat I	Enhancen	nent		D-1 (Offsite H	abitat Ba	seline			D-3 Offs	ite Habi	itat Enha	ncemen	t	
A re a	Con	Strat egic signif	Un its w	Are a ret ain	Ha bita t	A re a	Con	Strat egic signif	Habi tat Unit s Deli	Ha bita t	Are a enh ance	Con	Strat egic signif	Habi tat Unit s Deli	Ha bita t	A re a	Con	Strat egic signif	Un its w	Are a ret ain	Ha bita t	Are a enh ance	Con	Strat egic signif	Spa tial risk cat	Habi tat Unit s Deli	Tot al Un its Ear
(h	ditio	icanc	or	ed	Тур	(h	ditio	icanc	vere	Тур	d	ditio	icanc	vere	Тур	(h	ditio	icanc	or	ed	Тур	d	ditio	icanc	ego	vere	ne
a)	n	e	th	(ha)	e	a)	n	e	d	e Litt	(ha)	n	e	d	e Litt	a)	n	e	th	(ha)	e Litt	(ha)	n	e	ry	d	d
										oral					oral						oral						
										bio gen					bio gen						bio gen				Sa me		
										ic					ic						ic				Mar		
										reef					reef						reef				ine		
										s -					s -						s -				Pla		
	Fairl					N				Mu					Mu		Fairl				Mu				n		
1	y poor	Low	9	1	N/A	/ A	N/A	N/A	N/A	ssel	1	Goo d	Low	13.5 3	ssel s	1	y poor	Low	9	1	ssel	1	Goo d	Low	Are a	13.5 3	27. 07
1	poor	LOW	9	1	Arti	A	IN/A	IN/A	N/A	s Litt	1	u	LOW	5	Litt	1	μοσι	LOW	9	1	s Litt	1	u	LOW	d	5	07
					fici					oral					oral						oral						
					al					bio					bio						bio				Sa		
					litt					gen					gen						gen				me		
					oral					ic					ic						ic				Mar		
					bio					reef s -					reef s -						reef s -				ine Pla		
	Fairl				gen ic					Mu					S - Mu		Fairl				Mu				n		
	y				ree	0.	Goo			ssel		Goo		10.8	ssel		y				ssel		Goo		Are	13.5	22.
1	poor	Low	9	0.8	fs	2	d	Low	0.23	S	0.8	d	Low	3	S	1	poor	Low	9	1	S	1	d	Low	а	3	79
					Arti					Litt					Litt						Litt						
					fici					oral					oral						oral				6-		
					al litt					bio gen					bio gen						bio gen				Sa me		
					oral					ic					ic						ic				Mar		
					bio					reef					reef						reef				ine		
					gen					s -					s -						s -				Pla		
	Fairl				ic					Mu					Mu		Fairl				Mu		_		n		
	У			0.0	ree	0.	Goo		0.46	ssel	0.0	Goo		0.12	ssel		У				ssel		Goo		Are	13.5	18.
1	poor	Low	9	0.6	fs	4	d	Low	0.46	S	0.6	d	Low	8.12	S	1	poor	Low	9	1	S	1	d	Low	а	3	52



					Arti		I	I	I	Litt					Litt		I	1	L 1		Litt						
					fici					oral					oral						oral						
					al					bio					bio						bio				Sa		
					litt					gen					gen						gen				me		
					oral					ic					ic						ic				Mar		
					bio					reef					reef						reef				ine		
					gen					S -					S -						S -				Pla		
	Fairl				ic		~			Mu		~			Mu		Fairl				Mu		~		n	40.5	
	У				ree	0.	Goo			ssel		Goo			ssel		У				ssel		Goo	Ι.	Are	13.5	14.
1	poor	Low	9	0.4	fs	6	d	Low	0.7	S	0.4	d	Low	5.41	S	1	poor	Low	9	1	S	1	d	Low	а	3	24
					Arti					Litt					Litt						Litt						
					fici					oral					oral						oral						
					al					bio					bio						bio				Sa		
					litt					gen					gen						gen				me		
					oral					ic					ic						ic				Mar		
					bio					reef					reef						reef				ine		
					gen					S -					S -						S -				Pla		
	Fairl				ic	-	-			Mu		-			Mu		Fairl				Mu				n		
	У		_		ree	0.	Goo			ssel		Goo			ssel		У				ssel		Goo		Are	13.5	9.9
1	poor	Low	9	0.2	fs	8	d	Low	0.93	S	0.2	d	Low	2.71	S	1	poor	Low	9	1	S	1	d	Low	а	3	7
					Arti										Litt						Litt						
					fici										oral						oral						
					al										bio						bio				Sa		
					litt										gen						gen				me		
					oral										ic						ic				Mar		
					bio										reef						reef				ine		
					gen										s -						S -				Pla		
	Fairl				ic		_								Mu		Fairl				Mu				n		
	У				ree		Goo								ssel		У				ssel		Goo		Are	13.5	5.6
1	poor	Low	9	0	fs	1	d	Low	1.16	N/A	N/A	N/A	N/A	N/A	S	1	poor	Low	9	1	S	1	d	Low	а	3	9



Table 35: Littoral Sabellaria reef calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 15 years, offsite enhancement TTT is 8 years.

	A1- Onsi	te Habita	t Base	line	A2	2- Ons	ite Habi	tat Creat	ion	A3-	Onsite H	labitat I	Inhancen	nent		D-1 0)ffsite H	abitat Ba	seline			D-3 Offs	ite Habi	tat Enhar	ncement	t	
									Hab					Hab												Hab	Tot
			U	Are					itat		Are			itat						Are		Are			Spa	itat	al
Α		Strat	nit	а	На	Α		Strat	Unit		а		Strat	Unit		Α		Strat	Un	а		а		Strat	tial	Unit	Un
re		egic	s	ret	bita	re		egic	S	Hab	enh		egic	S	Hab	re		egic	its	ret	Hab	enh		egic	risk	S	its
а	Con	signif	w	ain	t	a	Con	signif	Deli	itat	anc	Con	signif	Deli	itat	a	Con	signif	w	ain	itat	anc	Con	signif	cat	Deli	Ear
(h		icanc	or	ed	Тур	(h	ditio	icanc	vere	Тур	ed	ditio	icanc	vere	Тур	(h	ditio	icanc	or	ed	Тур	ed	ditio	icanc	ego	vere	ne
a)	n	е	th	(ha)	e	a)	n	e	d	e	(ha)	n	e	d	е	a)	n	e	th	(ha)	e	(ha)	n	e	ry	d	d
										Litto					Litto						Litto				6.		
										ral					ral						ral				Sa		
										biog					biog						biog				me		
										enic roof					enic roof						enic reef				Mar		
	Fairl									reef s -					reef s -		Fairl				s -				ine Pla		
	v					N				Sab					Sab		v				Sab				n		
	poo					/				ellar		Goo		13.5	ellar		y poo				ellar		Goo		Are	13.5	27.
1	-	Low	9	1	N/A	A	N/A	N/A	N/A	ia	1	d	Low	3	ia	1	r	Low	9	1	ia	1	d	Low	a	3	07
		-			Arti		,	,	,	-		-	-					-			-			-			-
					fici					Litto					Litto						Litto						
					al					ral					ral						ral				Sa		
					litt					biog					biog						biog				me		
					oral					enic					enic						enic				Mar		
					bio					reef					reef						reef				ine		
	Fairl				gen					s -					s -		Fairl				s -				Pla		
	У				ic					Sab					Sab		У				Sab				n		
	роо				ree	0.	Goo			ellar		Goo		10.8	ellar		роо				ellar		Goo		Are	13.5	22.
1	r	Low	9	0.8	fs Aut:	2	d	Low	0.23	ia	0.8	d	Low	3	ia	1	r	Low	9	1	ia	1	d	Low	а	3	79
					Arti					Litta					Litto						Litta						
					fici					Litto											Litto				Sa		
					al litt					ral biog					ral biog						ral biog				me		
					oral					enic					enic						enic				Mar		
					bio					reef					reef						reef				ine		
	Fairl				gen					s -					s -		Fairl				s -				Pla		
	v				ic					Sab					Sab		v				Sab				n		
	, poo				ree	0.	Goo			ellar		Goo			ellar		, poo				ellar		Goo		Are	13.5	18.
1	-	Low	9	0.6	fs	4	d	Low	0.46	ia	0.6	d	Low	8.12	ia	1	r	Low	9	1	ia	1	d	Low	а	3	52



1	Fairl y poo r	Low	9	0.4	Arti fici al litt oral bio gen ic ree fs	0.	Goo d	Low	0.7	Litto ral biog enic reef s - Sab ellar ia	0.4	Goo d	Low	5.41	Litto ral biog enic reef s - Sab ellar ia	1	Fairl Y poo r	Low	9	1	Litto ral biog enic reef s - Sab ellar ia	1	Goo d	Low	Sa me Mar ine Pla n Are a	13.5 3	14. 24
1	Fairl Y poo r	Low	9	0.2	Arti fici al litt oral bio gen ic ree fs	0.	Goo d	Low	0.93	Litto ral biog enic reef s - Sab ellar ia	0.2	Goo d	Low	2.71	Litto ral biog enic reef s - Sab ellar ia	1	Fairl y poo r	Low	9	1	Litto ral biog enic reef s - Sab ellar ia	1	Goo d	Low	Sa me Mar ine Pla n Are a	13.5 3	9.9 7
1	Fairl Y poo r	Low	9	0	Arti fici al litt oral bio gen ic ree fs	1	Goo d	Low	1.16	N/A	N/A	N/A	N/A	N/A	Litto ral biog enic reef s - Sab ellar ia	1	Fairl y poo r	Low	9	1	Litto ral biog enic reef s - Sab ellar ia	1	Goo d	Low	Sa me Mar ine Pla n Are a	13.5 3	5.6 9



Table 36: Artificial littoral biogenic reef calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 15 years, offsite enhancement TTT is 8 years.

	A1- Onsit	te Habita	t Basel	ine	A2	2- Ons	ite Habi	tat Creat	ion	A3-	Onsite I	labitat	Enhancer	nent		D-1 0	Offsite H	abitat Ba	seline			D-3 Offs	ite Habi	itat Enhai	ncemen	t	
									Habi					Habi												Habi	Tot
				Are					tat		Are			tat						Are		Are			Spa	tat	al
Α		Strat	Un	а	На	Α		Strat	Unit	На	а		Strat	Unit	На	Α		Strat	Un	а	На	а		Strat	tial	Unit	Un
re		egic	its	ret	bita	re		egic	S	bita	enh		egic	s	bita	re		egic	its	ret	bita	enh		egic	risk	S	its
а	Con	signif	w	ain	t	а	Con	signif	Deli	t	ance	Con	signif	Deli	t	а	Con	signif	w	ain	t	ance	Con	signif	cat	Deli	Ear
(h	ditio	icanc	or	ed	Тур	(h	ditio	icanc	vere	Тур	d	ditio	icanc	vere	Тур	(h	ditio	icanc	or	ed	Тур	d	ditio	icanc	ego	vere	ne
a)	n	е	th	(ha)	е	a)	n	е	d	е	(ha)	n	е	d	е	a)	n	е	th	(ha)	е	(ha)	n	е	ry	d	d
										Arti					Arti						Arti						
										fici					fici						fici						
										al					al						al				Sa		
										litt					litt						litt				me		
										oral					oral						oral				Mar		
										bio					bio						bio				ine		
										gen					gen						gen				Pla		
	Fairl					N				ic		-			ic		Fairl				ic				n		
	У					/				reef		Goo			reef		У				reef		Goo		Are		9.0
1	poor	Low	3	1	N/A	A	N/A	N/A	N/A	S	1	d	Low	4.51	S	1	poor	Low	3	1	S	1	d	Low	а	4.51	2
					Arti					Arti					Arti						Arti						
					fici					fici					fici						fici						
					al					al					al						al				Sa		
					litt					litt					litt						litt				me		
					oral					oral					oral						oral				Mar		
					bio					bio					bio						bio				ine		
	E				gen					gen					gen		F . 1 . 1				gen				Pla		
	Fairl				ic	~	C • •			ic		C • •			ic		Fairl				ic		6		n Ana		
1	y	Low	2	0.0	ree	0. 2	Goo d	Low	0.23	reef	1	Goo	Low	3.61	reef	1	y noor	Low	3	1	reef	1	Goo	Low	Are	4.51	7.7
1	poor	Low	3	0.8	fs Arti	2	u	Low	0.23	s Arti	1	d	Low	3.01	s Arti	1	poor	Low	5	1	s Arti	1	d	Low	а	4.51	5
					fici					fici					fici						fici						
					al					al					al						al				Sa		
					litt					litt					litt						litt				me		
					oral					oral					oral						oral				Mar		
					bio					bio					bio						bio				ine		
					gen					gen					gen						gen				Pla		
	Fairl				ic					ic					ic		Fairl				ic				n		
	v				ree	0.	Goo			reef		Goo			reef		v				reef		Goo		Are		6.4
1	poor	Low	3	0.6	fs	4	d	Low	0.46	S	1	d	Low	2.71	s	1	poor	Low	3	1	s	1	d	Low	a	4.51	8



					Arti		1	1	I	Arti					Arti		1	1			Arti						
					fici					fici					fici						fici						
					al					al					al						al				Sa		
					litt					litt					litt						litt						
																									me		
					oral					oral					oral						oral				Mar		
					bio					bio					bio						bio				ine		
	E . 1 . 1				gen					gen					gen		F . 1 . 1				gen				Pla		
	Fairl				ic	~	C			ic		C • •			ic		Fairl				ic		C		n		
	У				ree	0.	Goo			reef		Goo			reef		У				reef		Goo		Are		5.2
1	poor	Low	3	0.4	fs	6	d	Low	0.7	S	1	d	Low	1.8	S	1	poor	Low	3	1	S	1	d	Low	а	4.51	1
					Arti					Arti					Arti						Arti						
					fici					fici					fici						fici				<i>c</i>		
					al					al					al						al				Sa		
					litt					litt					litt						litt				me		
					oral					oral					oral						oral				Mar		
					bio					bio					bio						bio				ine		
					gen					gen					gen						gen				Pla		
	Fairl				ic	-	-			ic					ic		Fairl				ic				n		
	У				ree	0.	Goo			reef		Goo			reef		У				reef		Goo		Are		3.9
1	poor	Low	3	0.2	fs	8	d	Low	0.93	S	1	d	Low	0.9	S	1	poor	Low	3	1	S	1	d	Low	а	4.51	4
					Arti										Arti						Arti						
					fici										fici						fici						
					al										al						al				Sa		
					litt										litt						litt				me		
					oral										oral						oral				Mar		
					bio										bio						bio				ine		
					gen										gen						gen				Pla		
	Fairl				ic		_								ic		Fairl				ic		_		n		
	У				ree		Goo								reef		У				reef		Goo		Are		2.6
1	poor	Low	3	0	fs	1	d	Low	1.16	N/A	N/A	N/A	N/A	N/A	S	1	poor	Low	3	1	S	1	d	Low	а	4.51	7



7.4 Appendix D: Grassland Habitats

Table 37: Traditional orchids calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Worth noting that instead of a Marine Plan Area (in saltmarsh, seagrass and biogenic reef habitats) it is Landscape Protection Area (LPA) and Nature Conservation Area (NCA) but have the same multipliers as the Marine Plan Area (x1, x0.75 and x0.5). Onsite creation TTT is 30 years, onsite and offsite enhancement TTT is 20 years.

	1- Onsit	te Habita	t Base	line	A2-	- Onsi	te Habit	at Creati	on	A3- (Onsite H	labitat E	nhancen	nent		D-1 O	ffsite Ha	abitat Ba	seline		[0-3 Offsi	te Habit	at Enhar	cement	t	То
A re a (h a)	Con diti on	Strat egic signif icanc e	U nit s w or th	Are a ret ain ed (ha)	Habi tat Type	A re a (h a)	Con diti on	Strat egic signif icanc e	Hab itat Unit s Deli vere d	Habi tat Type	Are a enh anc ed (ha)	Con diti on	Strat egic signif icanc e	Hab itat Unit s Deli vere d	Habi tat Type	A re a (h a)	Con diti on	Strat egic signif icanc e	U nit s w or th	Are a ret ain ed (ha)	Habi tat Type	Are a enh anc ed (ha)	Con diti on	Strat egic signif icanc e	Spa tial risk cat ego ry	Hab itat Unit s Deli vere d	tal Un its Ear ne d
1	Fairl Y poo r	Low	9	1	N/A	N / A	N/A	N/A	N/A	Trad ition al Orch ards	1	Goo d	Low	11.9 6	Trad ition al Orch ards	1	Fairl y poo r	Low	9	1	Trad ition al Orch ards	1	Goo d	Low	Insi de LPA or NC A	11.9 6	23. 91
1	Fairl Y poo r	Low	9	0.5	Trad ition al Orch ards	0. 5	Goo d	Low	3.09	Trad ition al Orch ards	0.5	Goo d	Low	5.98	Trad ition al Orch ards	1	Fairl y poo r	Low	9	1	Trad ition al Orch ards	1	Goo d	Low	Insi de LPA or NC A	11.9 6	16. 53
1	Fairl y poo r	Low	9	0	Trad ition al Orch ards	1	Goo d	Low	6.18	N/A	N/A	N/A	N/A	N/A	Trad ition al Orch ards	1	Fairl y poo r	Low	9	1	Trad ition al Orch ards	1	Goo d	Low	Insi de LPA or NC A	11.9 6	9.1 4



Table 38: Flood wetland mosaic (CFGM) calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 20 years, onsite and offsite enhancement TTT is 7 years.

-	A1- Onsit	e Habita	t Basel	ine	A	2- Ons	ite Habi	tat Creati	ion	A3-	Onsite I	labitat	Enhancer	nent		D-1 C	Offsite H	abitat Ba	seline			D-3 Offs	ite Habi	tat Enhar	ncement	t	Tot
A re a (h a)	Con ditio n	Strat egic signif icanc e	Un its w or th	Are a ret ain ed (ha)	Hab itat Typ e	A re a (h a)	Con ditio n	Strat egic signif icanc e	Habi tat Unit s Deli vere d	Hab itat Typ e	Are a enh ance d (ha)	Con ditio n	Strat egic signif icanc e	Habi tat Unit s Deli vere d	Hab itat Typ e	A re a (h a)	Con ditio n	Strat egic signif icanc e	Un its w or th	Are a ret ain ed (ha)	Hab itat Typ e	Are a enh ance d (ha)	Con ditio n	Strat egic signif icanc e	Spa tial risk cat ego ry	Habi tat Unit s Deli vere d	al Un its Ear ne d
1	Fairl Y poor	Low	9	1	N/A	N / A	N/A	N/A	N/A	Flo od We tlan d Mo saic (CF GM)	1	Goo d	Low	13.7	Flo od We tlan d Mo saic (CF GM)	1	Fairl Y poor	Low	9	1	Flo od We tlan d Mo saic (CF GM)	1	Goo d	Low	Insi de LPA or NC A	13.7	27. 4
1	Fairl y poor	Low	9	0.5	Flo od We tlan d Mo saic (CF GM)	0. 5	Goo d	Low	1.46	Flo od We tlan d Mo saic (CF GM)	1	Goo d	Low	6.85	Flo od We tlan d Mo saic (CF GM)	1	Fairl Y poor	Low	9	1	Flo od We tlan d Mo saic (CF GM)	1	Goo d	Low	Insi de LPA or NC A	13.7	17. 51
1	Fairl y poor	Low	9	0	Flo od We tlan d Mo saic (CF GM)	1	Goo d	Low	2.91	N/A	N/A	N/A	N/A	N/A	Flo od We tlan d Mo saic (CF GM)	1	Fairl Y poor	Low	9	1	Flo od We tlan d Mo saic (CF GM)	1	Goo d	Low	Insi de LPA or NC A	13.7	7.6



Table 39: Lowland calcareous grassland calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 20 years, onsite and offsite enhancement TTT is 15 years.

4	1- Onsit	e Habita	t Base	line	A2	- Onsi	te Habit	at Creati	on	A3-	Onsite H	labitat E	nhancen	nent		D-1 0	ffsite Ha	abitat Ba	seline		C	0-3 Offsi	te Habit	tat Enhar	cement	t	То
A re a (h a)	Con diti on	Strat egic signif icanc e	U nit s w or th	Are a ret ain ed (ha)	Habi tat Type	A re a (h a)	Con diti on	Strat egic signif icanc e	Hab itat Unit s Deli vere d	Habi tat Type	Are a enh anc ed (ha)	Con diti on	Strat egic signif icanc e	Hab itat Unit s Deli vere d	Habi tat Type	A re a (h a)	Con diti on	Strat egic signif icanc e	U nit s w or th	Are a ret ain ed (ha)	Habi tat Type	Are a enh anc ed (ha)	Con diti on	Strat egic signif icanc e	Spa tial risk cat ego ry	Hab itat Unit s Deli vere d	tal Un its Ear ne d
1	Fairl y poo r	Low	9	1	N/A	N / A	N/A	N/A	N/A	Lowl and Calc areo us Gras slan d	1	Goo d	Low	10.7 4	Lowl and Calc areo us Gras slan d	1	Fairl y poo r	Low	9	1	Lowl and Calc areo us Gras slan d	1	Goo d	Low	Insi de LPA or NC A	10.7 4	21. 48
1	Fairl y poo r	Low	9	0.5	Lowl and Calc areo us Gras slan d	0. 5	Goo d	Low	1.46	Lowl and Calc areo us Gras slan d	1	Goo d	Low	5.37	Lowl and Calc areo us Gras slan d	1	Fairl y poo r	Low	9	1	Lowl and Calc areo us Gras slan d	1	Goo d	Low	Insi de LPA or NC A	10.7 4	13. 07
1	Fairl Y poo r	Low	9	0	Lowl and Calc areo us Gras slan d	1	Goo d	Low	2.91	N/A	N/A	N/A	N/A	N/A	Lowl and Calc areo us Gras slan d	1	Fairl Y poo r	Low	9	1	Lowl and Calc areo us Gras slan d	1	Goo d	Low	Insi de LPA or NC A	10.7 4	4.6 5



Table 40: Lowland dry acid grassland calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 30+ years, onsite and offsite enhancement TTT is 25 years.

A	1- Onsit	e Habita	t Base	line	Α	2- On	site Hal	bitat Crea	ation	A3- 0	Onsite H	labitat E	Inhancer	nent	I	D-1 O	ffsite Ha	abitat Ba	seline		C)-3 Offsi	te Habi	tat Enhai	ncemen	t	Total
A re a (h a)	Con diti on	Strat egic signi fican ce	U ni ts w or th	Are a ret ain ed (ha	Hab itat Typ e	A re a (h a)	Con diti on	Strat egic signi fican ce	Habitat Units Deliver ed	Hab itat Typ e	Are a enh anc ed (ha)	Con diti on	Strat egic signi fican ce	Hab itat Uni ts Deli ver	Hab itat Typ e	A re a (h a)	Con diti on	Strat egic signi fican ce	U ni ts w or th	Are a ret ain ed (ha	Hab itat Typ e	Are a enh anc ed (ha)	Con diti on	Strat egic signi fican ce	Spa tial risk cat ego ry	Hab itat Uni ts Deli ver	Units Earne d
1	Fairl Y poo r	Low	12) 1	N/A	N / A	N/A	N/A	N/A	Low land Dry Acid Gra ssla nd	1	Goo d	Low	ed 13.6 3	Low land Dry Acid Gra ssla nd	1	Fairl y poo r	Low	12) 1	Low land Dry Acid Gra ssla nd	1	Goo d	Low	Insi de LPA or NC A	ed 13.6 3	3.25
1	Fairl y poo r	Low	12	0.5	Low land Dry Acid Gra ssla nd	0. 5	Goo d	Low	1.27	Low land Dry Acid Gra ssla nd	1	Goo d	Low	6.81	Low land Dry Acid Gra ssla nd	1	Fairl y poo r	Low	12	1	Low land Dry Acid Gra ssla nd	1	Goo d	Low	Insi de LPA or NC A	13.6 3	3.7
1	Fairl Y poo r	Low	12	0	Low land Dry Acid Gra ssla nd	1	Goo d	Low	ANY LOSS UNNAC CEPTAB LE	N/A	N/A	N/A	N/A	N/A	Low land Dry Acid Gra ssla nd	1	Fairl y poo r	Low	12	1	Low land Dry Acid Gra ssla nd	1	Goo d	Low	Insi de LPA or NC A	13.6 3	UNAC CEPTA BLE LOSS



Table 41: Tall herb communities calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 30 years, onsite and offsite enhancement TTT is 15 years.

Α	1- Onsit	e Habita	t Base	line	A2-	Onsit	te Habit	at Creati	on	A3- 0	nsite Ha	abitat E	nhancem	ient	C)-1 Of	fsite Ha	bitat Bas	eline		D	-3 Offsit	e Habit	at Enhan	cement		To
A re a (h a)	Con diti on	Strat egic signi fican ce	U ni ts w or th	Are a ret ain ed (ha)	Habit at Type	A re a (h a)	Con diti on	Strat egic signi fican ce	Hab itat Unit s Deli ver ed	Habit at Type	Are a enh anc ed (ha)	Con diti on	Strat egic signi fican ce	Hab itat Unit s Deli ver ed	Habit at Type	A re a (h a)	Con diti on	Strat egic signi fican ce	U nit s w or th	Are a ret ain ed (ha)	Habit at Type	Are a enh anc ed (ha)	Con diti on	Strat egic signi fican ce	Spa tial risk cat ego ry	Hab itat Unit s Deli ver ed	tal Un its Ea rn ed
1	Fairl y poo r	Low	9	1	N/A	N / A	N/A	N/A	N/A	Tall Herb Com munit ies	1	Goo d	Low	10.7 4	Tall Herb Com munit ies	1	Fairl y poo r	Low	9	1	Tall Herb Com munit ies	1	Goo d	Low	Insi de LPA or NC A	10.7 4	21. 48
1	Fairl y poo r	Low	9	0.5	Tall Herb Com muni ties	0. 5	Goo d	Low	1.02	Tall Herb Com munit ies	1	Goo d	Low	5.37	Tall Herb Com munit ies	1	Fairl y poo r	Low	9	1	Tall Herb Com munit ies	1	Goo d	Low	Insi de LPA or NC A	10.7 4	12. 63
1	Fairl y poo r	Low	9	0	Tall Herb Com muni ties	1	Goo d	Low	2.04	N/A	N/A	N/A	N/A	N/A	Tall Herb Com munit ies	1	Fairl y poo r	Low	9	1	Tall Herb Com munit ies	1	Goo d	Low	Insi de LPA or NC A	10.7 4	3.7 8



Table 42: Upland calcareous grassland calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 25 years, onsite and offsite enhancement TTT is 18 years.

	1- Onsit	te Habita	t Base	line	A2-	Onsi	te Habit	tat Creati	ion	A3- (Onsite H	labitat E	nhancen	nent		D-1 0	ffsite Ha	abitat Ba	seline		C	D-3 Offsi	te Habit	at Enhan	cement	t	То
A re a (h a)	Con diti on	Strat egic signif icanc e	U nit s w or th	Are a ret ain ed (ha)	Habi tat Type	A re a (h a)	Con diti on	Strat egic signif icanc e	Hab itat Unit s Deli vere d	Habi tat Type	Are a enh anc ed (ha)	Con diti on	Strat egic signif icanc e	Hab itat Unit s Deli vere d	Habi tat Type	A re a (h a)	Con diti on	Strat egic signif icanc e	U nit s w or th	Are a ret ain ed (ha)	Habi tat Type	Are a enh anc ed (ha)	Con diti on	Strat egic signif icanc e	Spa tial risk cat ego ry	Hab itat Unit s Deli vere d	tal Un its Ear ne d
1	Fairl y poo r	Low	9	1	N/A	N / A	N/A	N/A	N/A	Upla nd Calc areo us Gras slan d	1	Goo d	Low	10.5 6	Upla nd Calc areo us Gras slan d	1	Fairl y poo r	Low	9	1	Upla nd Calc areo us Gras slan d	1	Goo d	Low	Insi de LPA or NC A	10.5 6	21. 13
1	Fairl y poo r	Low	9	0.5	Upla nd Calc areo us Gras slan d	0. 5	Goo d	Low	1.22	Upla nd Calc areo us Gras slan d	1	Goo d	Low	5.28	Upla nd Calc areo us Gras slan d	1	Fairl y poo r	Low	9	1	Upla nd Calc areo us Gras slan d	1	Goo d	Low	Insi de LPA or NC A	10.5 6	12. 56
1	Fairl y poo r	Low	9	0	Upla nd Calc areo us Gras slan d	1	Goo d	Low	2.44	N/A	N/A	N/A	N/A	N/A	Upla nd Calc areo us Gras slan d	1	Fairl Y poo r	Low	9	1	Upla nd Calc areo us Gras slan d	1	Goo d	Low	Insi de LPA or NC A	10.5 6	4

A	1- Onsit	e Habita	t Base	line	A	2- On	site Hal	bitat Cre	ation	A3- (Onsite ⊦	labitat I	Inhancer	nent		D-1 0	ffsite Ha	abitat Ba	seline		C	0-3 Offsi	te Habit	tat Enhai	ncemen	t	Total Units
A re a	Con diti on	Strat egic signi	U ni ts	Are a ret	Hab itat Typ	A re a	Con diti on	Strat egic signi	Habitat Units Deliver	Hab itat Typ	Are a enh	Con diti on	Strat egic signi	Hab itat Uni	Hab itat Typ	A re a	Con diti on	Strat egic signi	U ni ts	Are a ret	Hab itat Typ	Are a enh	Con diti on	Strat egic signi	Spa tial risk	Hab itat Uni	Earne d
(h a)		fican ce	w or th	ain ed (ha	e	(h a)		fican ce	ed	e	anc ed (ha)		fican ce	ts Deli ver	e	(h a)		fican ce	w or th	ain ed (ha	e	anc ed (ha)		fican ce	cat ego ry	ts Deli ver	
)										ed)			-			ed	
1	Fairl y poo	Low	12	1	N/A	N / A	N/A	N/A	N/A	Upl and Hay	1	Goo d	Low	16.2 3	Upl and Hay	1	Fairl Y poo	Low	12	1	Upl and Hay	1	Goo d	Low	Insi de LPA	16.2 3	8.47
	r									Me ado ws					Me ado ws		r				Me ado ws				or NC A		
1	Fairl y poo r	Low	12	0.5	Upl and Hay Me ado ws	0. 5	Goo d	Low	1.94	Upl and Hay Me ado ws	1	Goo d	Low	8.12	Upl and Hay Me ado ws	1	Fairl y poo r	Low	12	1	Upl and Hay Me ado ws	1	Goo d	Low	Insi de LPA or NC A	16.2 3	8.29
1	Fairl y poo r	Low	12	0	Upl and Hay Me ado ws	1	Goo d	Low	ANY LOSS UNNAC CEPTAB LE	N/A	N/A	N/A	N/A	N/A	Upl and Hay Me ado ws	1	Fairl y poo r	Low	12	1	Upl and Hay Me ado ws	1	Goo d	Low	Insi de LPA or NC A	16.2 3	UNAC CEPTA BLE LOSS

Table 43: Upland hay meadows calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 20 years, onsite and offsite enhancement TTT is 18 years.



7.5 Appendix E: Heathland and shrub habitats

Table 44: Lowland heathland calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 30+ years, onsite and offsite enhancement TTT is 20 years.

	A1- Onsit	e Habitat	t Basel	ine	A2	- Onsi	te Habit	at Creati	on	A3- (Onsite H	labitat E	nhancen	nent		D-1 0	ffsite Ha	abitat Ba	seline		[0-3 Offs	ite Habi	tat Enhar	ncemen	t	
				Are					Hab					Hab						Are						Hab	То
			U	а					itat		Are			itat					U	а		Are			Spa	itat	tal
Α		Strat	nit	ret		Α		Strat	Unit		а		Strat	Unit		Α		Strat	nit	ret		а		Strat	tial	Unit	Un
re		egic	S	ain	Habi	re		egic	s	Habi	enh		egic	s	Habi	re		egic	s	ain	Habi	enh		egic	risk	s	its
а	Con	signif	w	ed	tat	а	Con	signif	Deli	tat	anc	Con	signif	Deli	tat	а	Con	signif	w	ed	tat	anc	Con	signif	cat	Deli	Ear
(h	diti	icanc	or	(ha	Тур	(h	diti	icanc	vere	Тур	ed	diti	icanc	vere	Тур	(h	diti	icanc	or	(ha	Тур	ed	diti	icanc	ego	vere	ne
a)	on	е	th)	е	a)	on	е	d	е	(ha)	on	е	d	е	a)	on	е	th)	е	(ha)	on	е	ry	d	d
																									Insi		
										Lowl					Lowl						Lowl				de		
	Fairl									and					and		Fairl				and				LPA		
	У					Ν				Heat					Heat		У				Heat				or		
	роо					/				hlan		Goo		11.9	hlan		роо				hlan		Goo		NC	11.9	23.
1	r	Low	9	1	N/A	Α	N/A	N/A	N/A	d	1	d	Low	6	d	1	r	Low	9	1	d	1	d	Low	А	6	91
																									Insi		
					Lowl					Lowl					Lowl						Lowl				de		
	Fairl				and					and					and		Fairl				and				LPA		
	У				Heat					Heat					Heat		У				Heat				or		
	роо				hlan	0.	Goo			hlan		Goo			hlan		роо				hlan		Goo		NC	11.9	14.
1	r	Low	9	0.5	d	5	d	Low	0.95	d	0.5	d	Low	6.96	d	1	r	Low	9	1	d	1	d	Low	A	6	39
																									Insi		
					Lowl										Lowl						Lowl				de		
	Fairl				and										and		Fairl				and				LPA		
	У				Heat		_								Heat		У				Heat				or		
	роо				hlan		Goo								hlan		роо				hlan		Goo		NC	11.9	4.8
1	r	Low	9	0	d	1	d	Low	1.9	N/A	N/A	N/A	N/A	N/A	d	1	r	Low	9	1	d	1	d	Low	А	6	6



Table 45: Mountain heaths and willow scrubs calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 30+ years, onsite and offsite enhancement TTT is 30+ years.

	A1- Onsit	te Habita	t Base	line	A2	- Onsi	te Habi	tat Creati	ion	A3- (Onsite H	labitat I	Inhancer	nent		D-1 0	ffsite H	abitat Ba	seline		[D-3 Offsi	ite Habi	tat Enhar	ncemen	nt	
			U	Are a					Hab itat		Are			Hab itat		_			U	Are a		Are			Spa	Hab itat	
Α		Strat	nit	ret		Α		Strat	Unit		а.		Strat	Unit		Α		Strat	nit	ret		а.		Strat	tial	Unit	
re		egic	S	ain	Hab	re		egic	S	Hab	enh	_	egic	S	Hab	re		egic	S	ain	Hab	enh		egic	risk	S	
а	Con	signi	w	ed	itat	а	Con	signi	Deli	itat	anc	Con	signi	Deli	itat	а	Con	signi	w	ed	itat	anc	Con	signi	cat	Deli	Total
(h	diti	fican	or	(ha	Тур	(h	diti	fican	ver	Тур	ed	diti	fican	ver	Тур	(h	diti	fican	or	(ha	Тур	ed	diti	fican	ego	ver	Units
a)	on	се	th)	е	a)	on	се	ed	e	(ha)	on	се	ed	e	a)	on	се	th)	e	(ha)	on	се	ry	ed	Earned
										Mo					Mo						Mo						
										unt					unt						unt						
										ain					ain						ain						
										Hea					Hea						Hea				lun al		
										ths					ths						ths				Insi		
	Fairl									& Will					& Will		Fairl				& Will				de LPA		
	Fairl					NI											Fairl										
	y noo					N /				0W Scru		Goo		13.2	0W Scru		y noo				0W Scru		Goo		or NC	12.2	
1	poo	Low	12	1	N/A	/ A	N/A	N/A	N/A	Scru b	1	d 000	Low	13.2	Scru b	1	poo r	Low	12	1	Scru b	1	d	Low	A	13.2 7	2.53
-	-	LOW	12	1	Mo	А	N/A	N/A	N/A	Mo	1	u	LOW	/	Mo	1	1	LOW	12	1	Mo	1	u	LOW	A	· /	2.55
					unt					unt					unt						unt						
					ain					ain					ain						ain						
					Hea					Hea					Hea						Неа						
					ths					ths					ths						ths				Insi		
					&					&					&						&				de		
	Fairl				Will					Will					Will		Fairl				Will				LPA		
	v				ow					ow					ow		y				ow				or		
	, poo				Scru	0.	Goo			Scru		Goo			Scru		, poo				Scru		Goo		NC	13.2	
1		Low	12	0.5	b	5	d	Low	1.27	b	0.5	d	Low	6.63	b	1	r	Low	12	1	b	1	d	Low	A	7	3.17
					Мо										Мо						Мо						
					unt										unt						unt						
					ain										ain						ain						
					Неа										Неа						Неа						
					ths										ths						ths				Insi		
					&										&						&				de		ANY
	Fairl				Will										Will		Fairl				Will				LPA		LOSS
	у				ow										ow		у				ow				or		UNACC
	роо				Scru		Goo								Scru		роо				Scru		Goo		NC	13.2	EPTAB
1	r	Low	12	0	b	1	d	Low	2.53	N/A	N/A	N/A	N/A	N/A	b	1	r	Low	12	1	b	1	d	Low	А	7	LE



Table 46: Sea buckthorn scrub (Annex 1) calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 30 years, onsite and offsite enhancement TTT is 30 years.

A	1- Onsit	e Habitat	Base	line	A2-	- Onsi	te Habit	at Creati	on	A3- (Onsite H	labitat E	nhancen	nent		D-1 0	ffsite H	abitat Ba	seline			D-3 Offs	ite Habi	tat Enhar	ncemen	t	
			υ	Are a					Hab itat		Are			Hab itat					U	Are a		Are			Spa	Hab itat	To tal
А		Strat	nit	ret		А		Strat	Unit		a		Strat	Unit		А		Strat	nit	ret		a		Strat	tial	Unit	Un
re		egic	s	ain	Habi	re		egic	s	Habi	enh		egic	s	Habi	re		egic	s	ain	Habi	enh		egic	risk	s	its
a	Con	signif	w	ed	tat	a	Con	signif	Deli	tat	anc	Con	signif	Deli	tat	a	Con	signif	w	ed	tat	anc	Con	signif	cat	Deli	Ear
(h	diti	icanc	or	(ha	Тур	(h	diti	icanc	vere	Тур	ed	diti	icanc	vere	Тур	(h	diti	icanc	or	(ha	Тур	ed	diti	icanc	ego	vere	ne
a)	on	e	th)	e	a)	on	e	d	e	(ha)	on	e	d	e	a)	on	e	th)	e	(ha)	on	e	ry	d	d
1		-		· ·		-7		-		Sea	()		-	-	Sea	/		-		ŕ	Sea	(,		-	- 7		
										Buck					Buck						Buck						
										thor					thor						thor						
										n					n						n				Insi		
										Scru					Scru						Scru				de		
	Fairl									b					b		Fairl				b				LPA		
	у					Ν				(Ann					(Ann		у				(Ann				or		
	роо					/				ex		Goo			ex		роо				ex		Goo		NC		30.
1	r	Low	9	1	N/A	А	N/A	N/A	N/A	1)	1	d	Low	15.3	1)	1	r	Low	9	1	1)	1	d	Low	А	15.3	61
					Sea					Sea					Sea						Sea						
					Buck					Buck					Buck						Buck						
					thor					thor					thor						thor						
					n					n					n						n				Insi		
					Scru					Scru					Scru						Scru				de		
	Fairl				b					b					b		Fairl				b				LPA		
	У				(Ann					(Ann					(Ann		У				(Ann				or		
	роо		_		ex	0.	Goo			ex		Goo			ex		роо		_		ex		Goo		NC		22.
1	r	Low	9	0.5	1)	5	d	Low	4.22	1)	0.5	d	Low	7.65	1)	1	r	Low	9	1	1)	1	d	Low	A	15.3	68
					Sea										Sea						Sea						
					Buck										Buck						Buck						
					thor										thor						thor						
					n Seru										n Seru						n				Insi		
	Fairl				Scru b										Scru b		Fairl				Scru				de LPA		
	Fairl				b (Ann										b (Ann		Fairl				b (Ann						
	y 000				(Ann ex		Goo								(Ann ex		y poo				(Ann ex		Goo		or NC		14.
1	poo r	Low	9	0	1)	1	d	Low	8.45	N/A	N/A	N/A	N/A	N/A	1)	1	poo r	Low	9	1	1)	1	d	Low	A	15.3	75



Table 47: Upland heathland calculations of the BNG metric. This focused on the onsite creation and enhancement with offsite enhancement being consistent throughout. Onsite creation TTT is 10 years, onsite and offsite enhancement TTT is 10 years.

A	1- Onsit	e Habitat	t Basel	line	A2	- Onsi	ite Habit	at Creati	on	A3- (Onsite H	labitat E	nhancen	nent		D-1 O	ffsite Ha	abitat Ba	seline		[D-3 Offs	ite Habit	tat Enhar	ncemen	t	
				Are					Hab					Hab						Are						Hab	То
			U	а					itat		Are			itat					U	а		Are			Spa	itat	tal
Α		Strat	nit	ret		Α		Strat	Unit		а		Strat	Unit		Α		Strat	nit	ret		а		Strat	tial	Unit	Un
re		egic	s	ain	Habi	re		egic	s	Habi	enh		egic	s	Habi	re		egic	s	ain	Habi	enh		egic	risk	s	its
а	Con	signif	w	ed	tat	а	Con	signif	Deli	tat	anc	Con	signif	Deli	tat	а	Con	signif	w	ed	tat	anc	Con	signif	cat	Deli	Ear
(h	diti	icanc	or	(ha	Тур	(h	diti	icanc	vere	Тур	ed	diti	icanc	vere	Тур	(h	diti	icanc	or	(ha	Тур	ed	diti	icanc	ego	vere	ne
a)	on	е	th)	е	a)	on	е	d	e	(ha)	on	е	d	е	a)	on	е	th)	е	(ha)	on	е	ry	d	d
																									Insi		
										Upla					Upla						Upla				de		
	Fairl									nd					nd		Fairl				nd				LPA		
	У					Ν				Heat					Heat		У				Heat				or		
	роо					/				hlan		Goo		11.0	hlan		роо				hlan		Goo		NC	11.0	22.
1	r	Low	9	1	N/A	Α	N/A	N/A	N/A	d	1	d	Low	7	d	1	r	Low	9	1	d	1	d	Low	A	7	14
																									Insi		
					Upla					Upla					Upla						Upla				de		
	Fairl				nd					nd					nd		Fairl				nd				LPA		
	У				Heat					Heat					Heat		У				Heat				or		
	роо				hlan	0.	Goo			hlan		Goo			hlan		роо				hlan		Goo		NC	11.0	14.
1	r	Low	9	0.5	d	5	d	Low	2.07	d	0.5	d	Low	5.54	d	1	r	Low	9	1	d	1	d	Low	А	7	18
																									Insi		
					Upla										Upla						Upla				de		
	Fairl				nd										nd		Fairl				nd				LPA		
	У				Heat										Heat		У				Heat				or		
	роо				hlan		Goo								hlan		роо				hlan		Goo		NC	11.0	6.2
1	r	Low	9	0	d	1	d	Low	4.14	N/A	N/A	N/A	N/A	N/A	d	1	r	Low	9	1	d	1	d	Low	А	7	1



End of report