HopkinsEcology

Site:	New Wastewater Treatment Works, Beeston St Andrew, Norwich
Item:	Biodiversity Net Gain Estimates (Statutory Metric)
Client:	Quinn Estates

Author:	Dr GW Hopkins CEnv MCIEEM FRES
Date:	16 February 2024

1. INTRODUCTION

1.1 Hopkins Ecology Ltd was appointed by Quinn Estates to prepare a Biodiversity Net Gain (BNG) assessment for a new wastewater treatment works at Beeston Park.

1.2 The assessor is Dr Graham Hopkins who qualifies as a competent person by virtue of academic[1] and professional qualifications[2], and professional experience[3].

2. BIODIVERSITY NET GAIN

2.1 The statutory BNG metric[4] is used here to estimate the change in biodiversity units for habitats. In brief, the change in biodiversity value is calculated as a function of:

- The difference between the biodiversity value pre- and post-development.

- Value is calculated as a function of habitat type x habitat condition x habitat area or length. There are additional multipliers that take-into account the strategic location of a site and factors such as the time for habitats to develop once created.

- Area is used for blocks of habitat, while linear features including hedgerows use length.

2.2 The documentation accompanying the Metric, e.g. the Technical Supplement (DEFRA, 2024[5]), includes protocols for identifying habitat types and assessing their condition, and in some instances the condition is pre-set within the Metric without the option for this to be modified.

---

[1] A PhD in ecology.

[2] CEnv MCIEEM FRES

[3] 18 years of consultancy experience.

[4] https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides

[5] DEFRA (2024) *The Statutory Biodiversity Metric User Guide).* Available from: https://assets.publishing.service.gov.uk/media/65c60e0514b83c000ca715f3/The_Statutory_Biodiversity_Metric_-_User_Guide_.pdf

3. ASSUMPTIONS

SPATIAL MULTIPLIER

3.1 Throughout, the spatial multiplier for semi-natural or low-input habitats is set at 1.1 to reflect the Site's location within a green infrastructure corridor.

BASELINE HABITATS

3.2 The BNG assessment only considers the plot where new wastewater works is proposed, which is mainly an improved sward, with some peripheral tall ruderal vegetation and a length of hedgerow. The conversion of these Phase 1 habitats to the UKHab classification is presented in the Calculations.
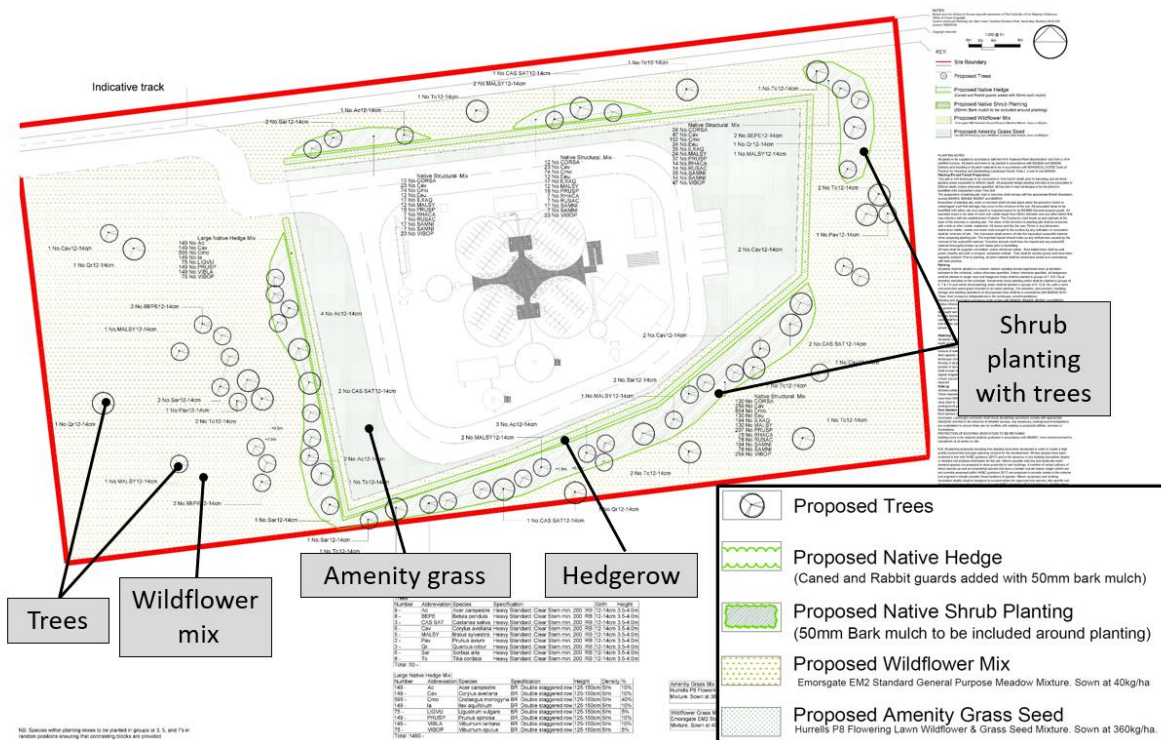
Figure 1. Habitat plan.
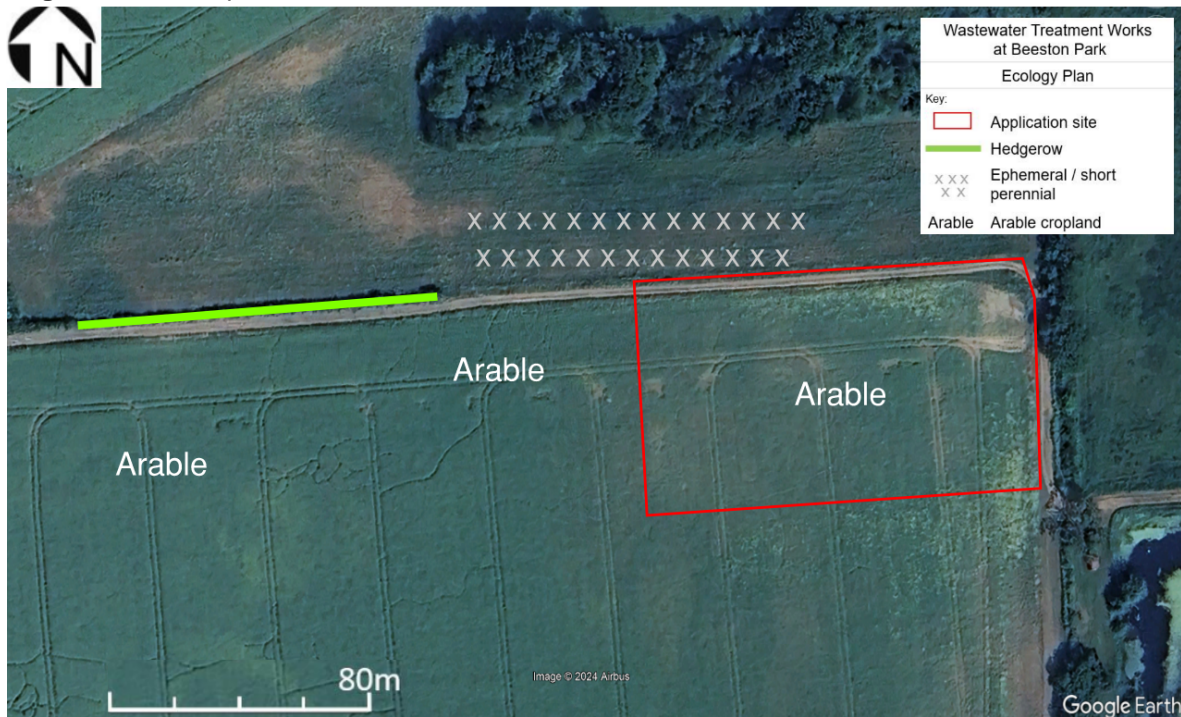
POST-DEVELOPMENT HABITATS

3.3 The concept plan is shown overleaf (Figure 2) and the key point is that there is an extensive area of new landscaping.

New Wastewater Treatment Works, Beeston St Andrew: Biodiversity Net Gain

Figure 2. Concept plan with the legend increased in size.

HEDGEROWS

3.4   There is one length of existing hedgerow which is not directly impacted, but the infrastructure will have boundary hedgerow planting.

4.   CALCULATIONS

HABITATS

Baseline

4.1   The habitat baseline is characterised below (Table 1), and the total area is taken as 0.99ha; additional commentary is provided in Table 2.

Table 1. Baseline condition of habitats.

Ref	Habitat type	Area (ha)	Distinctiveness		Condition		Area retained (ha)	Units lost
			Desc.	Score	Desc.	Score		
1	Artificial unvegetated, unsealed surface	0.08	V.Low	0	N/A - Other	0	0.08	0.00
2	Non-cereal crops	0.91	Low	2	Condition Assessment N/A	1	0	2.00
							Habitat Units Lost 2.0	

New Wastewater Treatment Works, Beeston St Andrew: Biodiversity Net Gain

Table 2. Explanatory notes for the baseline assessment (cross-referencing to Table 1).

Ref	Comment
1	This is the existing track, which is effectively a bare substrate.
2	The is the main part of the Site, and is under arable.

Post-Development Habitats and Units

4.2   The post-development habitats are shown in Table 3 and additional notes are provided in Table 4.

Table 3. Post-development habitats.

Ref	Broad habitat	Habitat type	Area (ha)	Distinctiveness		Condition		Units delivered
				Desc.	Score	Desc.	Score	
1	Urban	Developed land; sealed surface	0.26	V.Low	0	N/A - Other	0	0.00
2	Grassland	Modified grassland	0.1	Low	2	Poor	1	0.21
3	Heathland and shrub	Mixed scrub	0.08	Medium	4	Moderate	2	0.59
4	Grassland	Other neutral grassland	0.47	Medium	4	Moderate	2	3.46
5	Individual trees	Urban tree	0.1059	Medium	4	Moderate	2	0.36
							Habitat Units Delivered	4.62

Table 4. Explanatory notes for the post-development assessment (cross-referencing to Table 3).

Ref	Comment
1	This is the access and infrastructure.
2	This is a mown sward around the infrastructure, assumed to be the lowest quality grassland type.
3	The landscaping includes scrub and this is rated as moderate.
4	Wildflower sward will be planted outside of the hedgerows.
5	An assumed 26 trees are counted here, excluding those within the scrub blocks.

New Wastewater Treatment Works, Beeston St Andrew: Biodiversity Net Gain

HEDGEROWS

4.3   The hedgerow is shown in Figure 1 and will be retained (Table 5). A new length of boundary planting will be included (Table 6). The condition of the hedgerow is moderate rather than good as it fails three criteria: A2, width; B1, gaps in the hedge base; C1, undisturbed vegetation.

Table 5. Hedgerow baseline.

Ref	Hedgerow type	Length (km)	Distinctiveness		Condition		Length retained (km)	Units lost
			Desc.	Score	Desc.	Score		
West	Native hedgerow	0.05	Low	2	Moderate	2	0.05	0
							Habitat Units Lost 0	

Table 6. Hedgerow enhancement.

Ref	Hedgerow type	Length created (km)	Distinctiveness		Condition		Units created
			Desc.	Score	Desc.	Score	
Boundary	Species-rich native hedgerow	0.25	Medium	4	Moderate	2	1.84
						Habitat Units Gained 1.84	

5.   RESULTS

5.1   The scheme achieves a Biodiversity Net Gain of +130% driven by the low baseline and extensive high-quality landscaping (Table 7). The new hedgerow without removals represents a gain of >800%.

New Wastewater Treatment Works, Beeston St Andrew: Biodiversity Net Gain

Table 7. Summary of results.

On-site baseline	Habitat units	2.00	
	Hedgerow units	0.22	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	4.62	
	Hedgerow units	2.06	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	2.62	130.70%
	Hedgerow units	1.84	836.83%
	Watercourse units	0.00	0.00%
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	2.62	
	Hedgerow units	1.84	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
FINAL RESULTS			
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	2.62	
	Hedgerow units	1.84	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	130.70%	
	Hedgerow units	836.83%	
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

6. CONCLUSIONS

6.1   The scheme readily achieves gain for habitats and hedgerows.

6.2   The scheme achieves a Biodiversity Net Gain of +130% driven by the low baseline and extensive high-quality landscaping.

6.3   The new hedgerow without removals represents a gain of >800%.

New Wastewater Treatment Works, Beeston St Andrew: Biodiversity Net Gain