

Option B4 Recycled Water from [redacted] to [redacted] via Havant Thicket Route 3

Metrics	Units	Temporary	Permanent (SRO (BNG net gain intervention) +10%)	Comment
Biodiversity	RAG			
Climate Regulation	£2019/year			
Natural Hazard Reduction	£/year			
Water Purification	RAG			Water purification is based on the current and proposed land use, and proximity to waterbody. Therefore, there isn't an expected difference between the SRO intervention and the Biodiversity net gain scenario.
Water Regulation	na			The WRPG does not require the monetisation of Water Regulation Services. The main benefit is the deployable output, therefore this is not considered as an additional Natural Capital benefit to the SRO intervention.
Air Quality	na			This is out of scope as there is now Air quality management areas across the options
Recreation and Tourism	£2019/year			Estimating impact from BNG+10% is not current feasible. It is assumed at this stage that what is removed on construction would be re-instated so the permanent impact across options in negligible.
Agriculture	£2019/year			No expected difference between the SRO intervention and the Biodiversity net gain scenario, biodiversity modelling would allocate habitat creation to grassland instead of agriculture

Natural Capital Assessment

Biodiversity

Pull numbers from BNG spreadsheet
Tabs used are

Climate regulation

Spreadsheet means that all info should just be pulled from biodiversity tab - check this is correct
May have to add extra habitats in, the climate regulation values with the correct formulas can be found on tab 'A1' which is hidden

Natural hazard regulation

Data needed		
Woodland (ha)	Note - only lowland meadows should be used, due to data used to create value. This includes unimproved neutral grassland. This means if modified grassland included in main valye in biodiversity table then data should be entered manually in the grassland section for natural hazard. More information on classification can be found on: Note - includes open water, wetlands and floodplains	Lowland meadows Buglife
Grasslands (ha)		
Freshwater (ha)		

Option name	
Area coverage (ha)	
Notes	

Biodiversity

Overall Biodiversity metric tool unit score

Broad habitat	Ecosystem services	Temporary habitat lost during construction (ha)	Permanent habitat loss (ha)	On-site re-instatement (ha)	Off-site habitat creation/ BNG uplift (ha)	Biodiversity net loss metric score (Temporary and permanent loss)	Biodiversity metric score rating based on +10% net gain
Arable land	Crops, carbon sequestration, air quality management	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
Freshwater	Water abstraction, recreation, flood regulation						
Grassland	Carbon sequestration, air quality management, recreation						
Heathland	Livestock, carbon sequestration, recreation						
Marine	Fisheries, recreation, water desalination						
Shrub	Livestock, carbon sequestration, recreation						
Urban	No environmental benefits						
Woodland (coniferous)	Timber, carbon sequestration, air quality management, recreation						
Woodland (deciduous)	Timber, carbon sequestration, air quality management, recreation						

Carbon sequestration - temporary habitat loss during construction

Broad habitat	Cumulative area (ha)	Carbon sequestration rate (t/CO2e/ha/yr)	Low non-traded carbon (unadjusted)	Medium non-traded carbon (unadjusted)	High non-traded carbon (unadjusted)	Low non-traded carbon (£2019)/year	Medium non-traded carbon (£2019) /year	High non-traded carbon (£2019) / year
Arable land								
Grassland								
Heathland								
Shrub								
Woodland (coniferous)								
Woodland (deciduous)								

Carbon sequestration - permanent habitat loss

Broad habitat	Cumulative area (ha)	Carbon sequestration rate (t/CO2e/ha/yr)	Low non-traded carbon (unadjusted)	Medium non-traded carbon (unadjusted)	High non-traded carbon (unadjusted)	Low non-traded carbon (£2019)/year	Medium non-traded carbon (£2019) /year	High non-traded carbon (£2019) / year
Arable land								
Grassland								
Heathland								
Shrub								
Woodland (coniferous)								
Woodland (deciduous)								

Carbon sequestration - On-site re-instatement (ha)

Broad habitat	Cumulative area (ha)	Carbon sequestration rate (t/CO2e/ha/yr)	Low non-traded carbon (unadjusted)	Medium non-traded carbon (unadjusted)	High non-traded carbon (unadjusted)	Low non-traded carbon (£2019)/year	Medium non-traded carbon (£2019) /year	High non-traded carbon (£2019) / year
Arable land								
Grassland								
Heathland								
Shrub								
Woodland (coniferous)								
Woodland (deciduous)								

Carbon sequestration - Off-site habitat succession (ha)

Original habitat	New habitat	Amount (ha)	Carbon sequestration of original	Carbon sequestration of new woodland	succeeded - original	Low non-traded carbon (unadjusted)	Medium non-traded carbon (unadjusted)	High non-traded carbon (unadjusted)	Low non-traded carbon (£2019)/year	Medium non-traded carbon (£2019) /year	High non-traded carbon (£2019) / year
Modified grassland	Mixed deciduous woodland										



Natural hazard regulation

Instructions - hide col E when finished

Broad habitat type	Temporary habitat lost during construction (ha)	Baseline value of natural hazard regulation (non-adjusted)	Baseline value of natural hazard regulation (£2019) /year
Woodland			
Semi-natural grasslands			
Freshwater			

Broad habitat type	Permanent habitat loss (ha)	Baseline value of natural hazard regulation (non-adjusted)	Baseline value of natural hazard regulation (£2019) /year
Woodland			
Semi-natural grasslands			
Freshwater			

Broad habitat type	On-site re-instatement (ha)	Baseline value of natural hazard regulation (non-adjusted)	Baseline value of natural hazard regulation (£2019) /year
Woodland			
Semi-natural grasslands			
Freshwater			

Broad habitat type	Off-site habitat succession (ha)	Baseline value of natural hazard regulation (non-adjusted)	Baseline value of natural hazard regulation (£2019) /year
Woodland			
Semi-natural grasslands			
Freshwater			

Water Purification

Overall RAG score -1.41

*more is permanent loss of this option than temporary

Component	Permanent or temporary	WFD Status and waterbody	Assessment	RAG rating
WRP Parcel 72*	Permanent	Heritage Stream - Moderate Status	Water purification services are currently provided by grassland and woodland habitats. Hermitage Stream flows adjacent to the land parcel and the WFD waterbody is currently achieving Moderate status. The construction of water recycling plant will change the land cover which could potentially decline water purification services.	-2
Pipeline from WRP to Havant Thicket Reservoir Route 1	Temporary	Heritage Stream - Moderate Status	Water purification services are currently provided by greenspace and urban habitats. Hermitage Stream WFD waterbody is currently achieving Moderate status. Therefore, there is no potential impact to water purification services.	0
High lift pumping station at Havant Thicket - HTPS5	Permanent	Heritage Stream - Moderate Status	Water purification services are currently provided by greenfield and woodland habitats. Park Lane Stream has no WFD classification which flows into Hermitage Stream WFD waterbody is currently achieving Moderate status. A pumping station will be constructed. Therefore, the change in land cover has a potential to decline water purification services.	-2
Pipeline route 3 to [redacted] WSW from Havant Thicket	Temporary	Heritage Stream and River Itchen - Moderate Status	Water purification services are currently provided by greenspace and urban habitats. Hermitage Stream WFD waterbody is currently achieving Moderate status. Water will be transferred from WRP to Havant Thicket therefore, there is no change to water purification. The water will be transferred to [redacted] WSW. Therefore, no change to water purification to River Itchen which flows nearby and the WFD waterbody is achieving a Moderate status.	0
Pre-disinfection ceramic membrane plant at [redacted] WSW	Permanent	River Itchen - Moderate Status	Water purification services are currently provided by greenfield and grassland habitats. The pre-disinfection ceramic membrane plant will be constructed. River Itchen is in close proximity of the plant and the change in land cover has a potential to decline water purification services.	-2
Pumping Station: WfLH Horndean WBS	Permanent	N/a	Water purification services are currently provided by arable, pasture and grassland habitats. A WBS will be constructed. There are no waterbodies within close proximity of the WBS however, the change in land cover has a potential to decline water purification services.	-1
Break Pressure Tank: WfLH Upper Swanmore BPT	Permanent	N/a	Water purification services are currently provided by greenfield and grassland habitats. A BPT will be constructed. There are no waterbodies within close proximity of the BPT however, the change in land cover has a potential to decline water purification services.	-1

Assigned weight

0.75 -6
0.25 4.25
0.75 -1.41176
0.25
0.75
0.75
0.75

Criteria

Water purification	
0	No change
1 / -1	Negligible changes in land cover which will have a relatively minor impact to water quality based on the absence of a nearby waterbody
2 / -2	Change in land cover (e.g. farmland, green urban, heath or other grassland/shrub habitats) which will have a minor impact to water quality and/or minor change in dilution which could affect water quality
3 / -3	Change in land cover (woodland, salt marsh or undamaged peatland) which will have a moderate/major impact to water quality and/or major change in dilution which could affect water quality

Water Regulation

No Assessment

The WRPG does not require the monetisation of Water Regulation Services. The main benefit is the deployable output, therefore this is not considered as an additional Natural Capital benefit to avoid double counting, and Water Regulation has been screened out of the assessment.

Recreation and Tourism

			Total		Total		
Component	Location	Type of recreation/ Tourism impacted	Welfare Value (per year)	Estimated visits (per year)	Conditional multiplier (based on number of path intersections or construction area / area of recreation)	Adjusted welfare Value (£2019 per year)	Adjusted estimated visits (per year)
WRP Parcel 72 and pipeline from WRP to Havant Thicket Reservoir Route 1	Brockhampton Mill Lane to Harts Farm Way	Path					
	Bidbury Mead Recreation ground	Greenspace					
		Country Park					
High lift pumping station at Havant Thicket - HTPS5	Pumping Station	Path					
Pipeline route 3 to WSW from Havant Thicket		Greenspace					
		Path					
		Path					
		Path					
	Bishops Waltham	Path					
		path					
		Path					
		path					
Pre-disinfection ceramic membrane plant at WSW	N/a						
Pumping Station: WfLH Horndean WBS	N/a						
Break Pressure Tank: WfLH Upper Swanmore BPT	N/a						

Air Quality

No Assessment
The configuration does not fall within an Air Quality Management Area, and due to the temporary nature of habitat impacts during construction, Air Quality has been screened out of the assessment.

Agriculture

Arable 2019 price



Configuration	Permanent arable land loss (ha)	Estimated Permanent Agriculture value (£) / year	Temporary arable land loss (ha)	Estimated Temporary Agriculture value (£)/ year
B4 recycled water from [redacted] to WTW route 3	[redacted]	[redacted]	[redacted]	[redacted]