APPENDIX M

Reach summary sheets

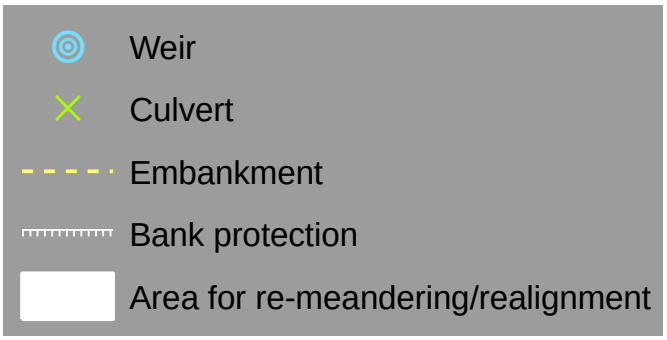
Information for reach summary sheets

Summary sheets were produced for the ten options that were found to be most favourable following MCA and subsequent assessment

Cost bands used on summary sheets

Cost band	Cost range (£k)
1	<50
2	50-100
3	100-200
4	200-500
5	>500

Key to symbols used on maps



Water body ID	10611	Water body name	Nith - Sanquhar to New Cumnock	MCA rank	1	MCA score	76
Reach no.	1	Reach location	Upstream Duncansburn Bridge	Cost band	4		

Context

6.5km length of channel flowing through low quality pasture. Connection with both floodplains is limited by embankments.

Restoration opportunity

- Remove embankments to allow reconnection with floodplain
- Enhance vegetation structure and complexity throughout reach
- 41% MImAS capacity released, improves status to good.
- Only 26% MImAS capacity required to achieve good status for morphology – therefore only a proportion of embankments need to be removed to achieve this
- Detailed assessment should be carried out to determine the locations where embankment removal would be most feasible.

Degree of potential NFM benefit

- Potential for embankment removal to contribute to reduced flood risk at Kirkconnel PVA

Other benefits

- Proximity to New Cumnock allows potential for local awareness raising

Land use/ownership

- Land is predominantly grazing
- The highest land capability value in reach is 4.1

Constraints

- Presence of roads and possibly sewer likely to constrain option

Funding and collaboration opportunities

- RSPB ditch blocking in adjacent areas may provide potential for collaborative work.

Water body ID	10629	Water body name	Cample Water	MCA rank	2	MCA score	51
Reach no.	1	Reach location	Downstream Kirkbog Bank	Cost band	2		

Context

A kilometre-length reach flowing across the Nith floodplain and joining the Nith at its downstream extent. Channel has been straightened and is constrained by embankments and a weir

Restoration opportunity

- Re-meandering, removal of embankment, bank protection and weir to allow reconnection with floodplain and increase morphological diversity.
- 44% MImAS capacity released, improves status from bad to moderate.

Degree of potential NFM benefit

- No significant benefit likely

Other benefits

- Potential for local awareness raising
- Potential to address other pressures on the channel

Land use/ownership

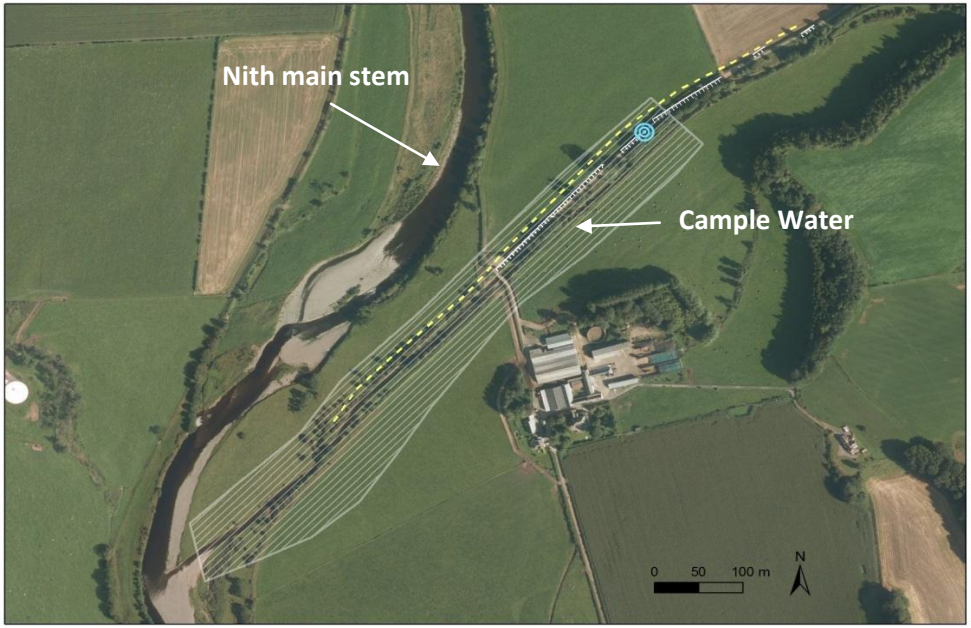
- Improved pasture land use
- Highest land capability value in reach is 3.2.
- Dairy farm which was previously organic.

Constraints

- No constraint on critical infrastructure, although a minor road runs adjacent to the channel in the upper half of the reach.

Funding and collaboration opportunities

n/a



Water body ID	10624	Water body name	Scar Water	MCA rank	3	MCA score	46
Reach no.	1	Reach location	Downstream half	Cost band	4		

Context

2.2 km reach. Moderately large gravel-bed channel just upstream of its confluence with the Nith, which has been straightened and is constrained by embankments and bank protection.

Restoration opportunity

- Re-meandering, removal of embankments and bank protection to allow reconnection with floodplain and operation of natural physical process.
- 86% MImAS capacity released, improves status from bad to moderate.

Degree of potential NFM benefit

- No significant benefit likely

Other benefits

- Potential for local awareness raising within local community

Land use/ownership

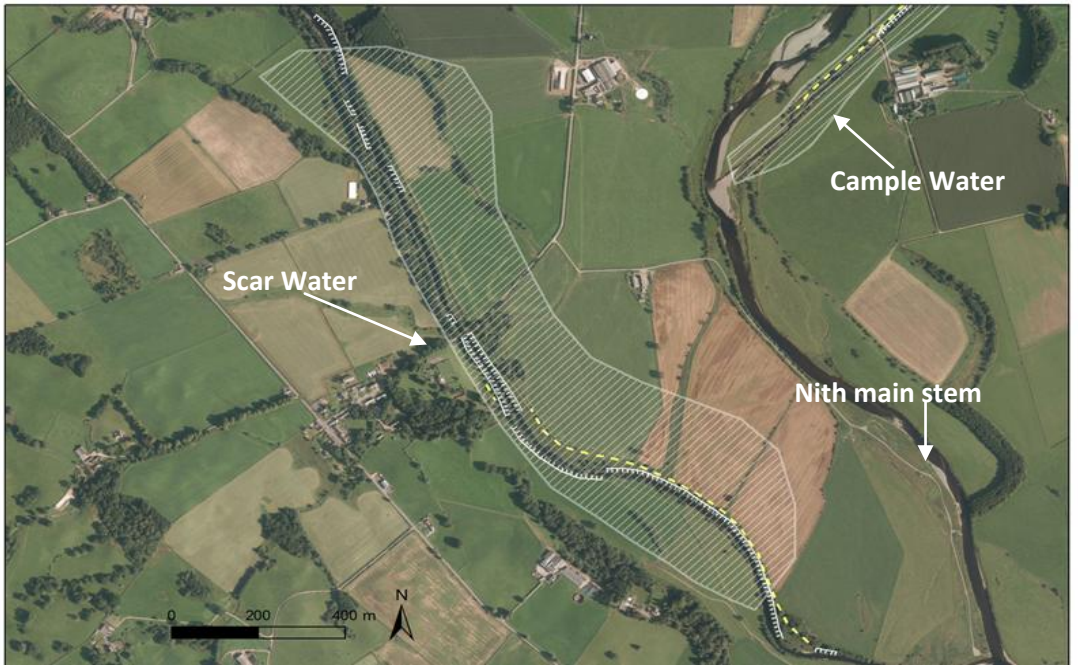
- Highest land capability value in reach, 3.2.
- Mostly dairy pasture land use

Constraints

- No constraint on critical infrastructure, although there is a bridge in the centre of the reach.

Funding and collaboration opportunities

n/a



Water body ID	10624	Water body name	Scar Water	MCA rank	12	MCA score	35
Reach no.	2	Reach location	Penpont	Cost band	2		

Context

1.8 km reach on a moderately large, meandering channel, where embankments are preventing connection with the floodplain.

Restoration opportunity

- Remove embankments to allow reconnection with floodplain and enhancement of geomorphic process
- 21.1% MImAS capacity released, no status improvement.

Degree of potential NFM benefit

- No significant benefit likely

Other benefits

- Potential to address other pressures on the channel
- Potential to create recreational infrastructure due to proximity to Penpont
- Potential for local awareness raising within local community

Land use/ownership

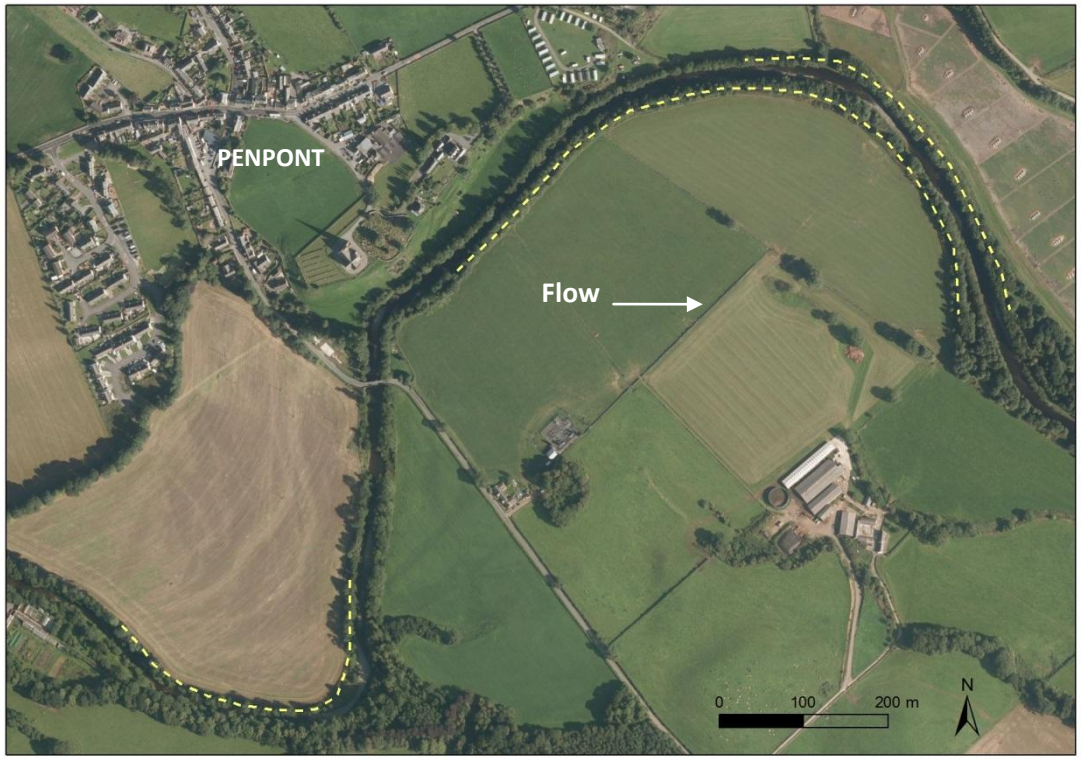
- Highest land capability value in reach, 3.2.
- Land use is predominantly improved pasture

Constraints

- Possible constraint caused by road bridge in centre of reach

Funding and collaboration opportunities

n/a



Water body ID	10610	Water body name	Nith: Dumfries to Sanqhuar	MCA rank	7	MCA score	39
Reach no.	5	Reach location	Upstream Auldgirth	Cost band	5		

Context

Approximately 3km reach on the main stem Nith, which has been straightened to the right hand side of its floodplain and constrained by embankments in its lower section.

Restoration opportunity

- Re-meandering, removal of embankments and bank protection to allow reconnection with floodplain and operation of natural physical process.
- 10.5% MImAS capacity released, no improvement to status.

Degree of potential NFM benefit

- No significant benefit likely

Other benefits

- Significant potential to increase connectivity with surrounding habitats
- Potential for local awareness raising
- Potential to address other pressures on channel

Land use/ownership

- Highest land capability value in reach, 3.1.
- Grazing and arable land uses

Constraints

- Ongoing fisheries management to reduce vegetation

Funding and collaboration opportunities

n/a

Water body ID	10629	Water body name	Cample Water	MCA rank	10	MCA score	37
Reach no.	3	Reach location	Cample to New Cample	Cost band	1		

Context

1.1km reach, active meandering channel with significant gravel transport that has been constrained by embankments and bank protection

Restoration opportunity

- Removal of embankments would allow reconnection with floodplain
- 24.8% MImAS capacity released; improves status from bad to poor.
- Removal of bank protection would allow for greater operation of natural physical process, but would release very little capacity in terms of MImAS (and increase the cost of the option).

Degree of potential NFM benefit

- No significant benefit

Other benefits

- Potential for local awareness raising
- Potential to address other pressures on channel

Land use/ownership

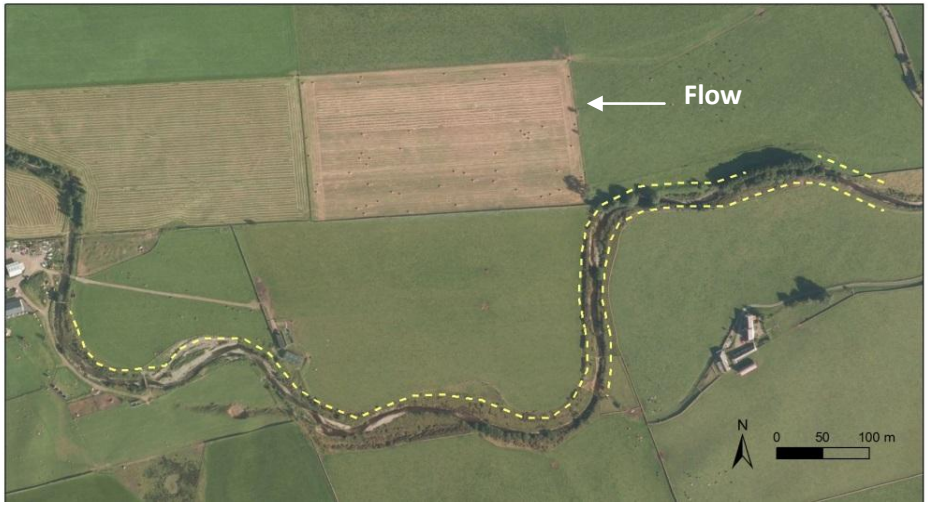
- Highest land capability value in reach, 3.2.
- Land use is predominantly improved pasture

Constraints

- No constraint on critical infrastructure but there is a farm adjacent to the reach and a new development of houses downstream on the left bank.

Funding and collaboration opportunities

- Possibility to tie in with tree planting and habitat enhancement work by NDSFB



Water body ID	10629	Water body name	Cample Water	MCA rank	14	MCA score	32
Reach no.	2	Reach location	Gallows Knowe	Cost band	1		

Context

Short reach downstream of road bridge where minor embankments reduce connectivity with floodplain.

Restoration opportunity

- Remove embankment
- 4.7% MImAS capacity released, no improvement to status.

Degree of potential NFM benefit

- No significant benefit

Other benefits

- Potential for local awareness raising
- Potential to increase connectivity with surrounding habitats
- Potential to address other pressures on the channel

Land use/ownership

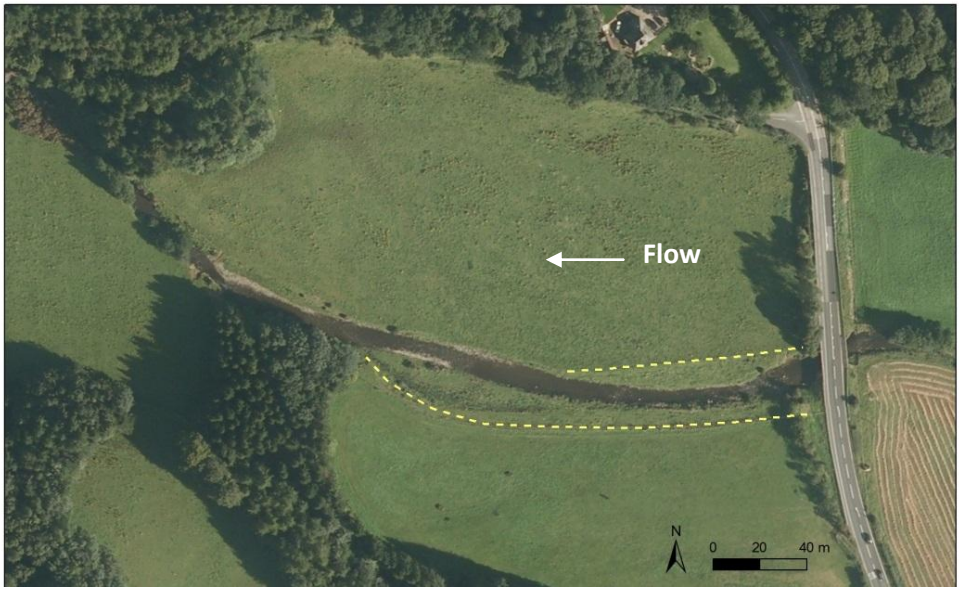
- Highest land capability value in reach, 3.2.
- Land use is improved pasture

Constraints

n/a

Funding and collaboration opportunities

n/a



Water body ID	10633	Water body name	Laggan Burn	MCA rank	13	MCA score	34
Reach no.	1	Reach location	Downstream of A76	Cost band	1		

Context

900m of channel just upstream of confluence with the Nith that has been realigned and embanked.

Restoration opportunity and capacity released

- Embankment removal would allow reconnection with floodplain and may help with recovery of realigned channel
- 10.2% MImAS capacity released, improves status from poor to moderate.
- Option could also include actions to re-meander; however, given that realignment was classed as 'low impact' this would release little additional capacity in terms of MImAS.

Degree of potential NFM benefit

- No significant benefit

Other benefits

- Potential to increase connectivity with surrounding habitats
- Potential to address other pressures on the channel

Land use/ownership

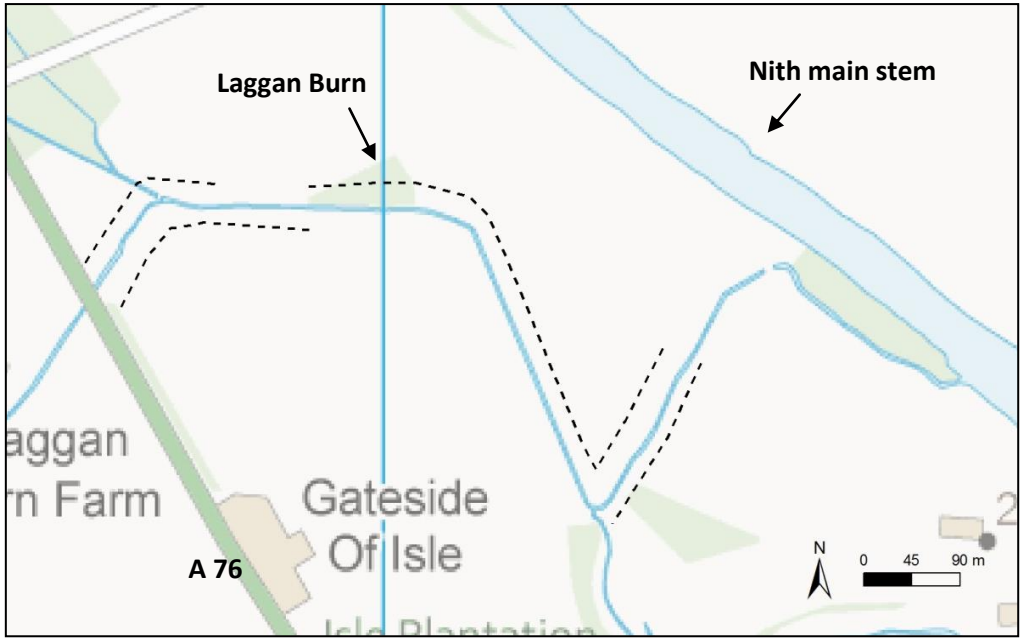
- Highest land capability value in reach, 3.1.
- Land use is improved pasture and arable

Constraints

- Possible constraint caused by road at upstream end of reach

Funding and collaboration opportunities

- Potential to link with a project to remove the weir in the upper part of the reach, planned by NDSFB



Water body ID	10633	Water body name	Laggan Burn	MCA rank	9	MCA score	37
Reach no.	2	Reach location	Woodhead	Cost band	2		

Context

1.9km reach through woodland and improved pasture. Parts of the reach have been subject to realignment. There are two sections of embankments, one of which is associated with an artificial off-line pond adjacent to the right bank.

Restoration opportunity

- Re-meander in realigned sections; remove weir and culverts to increase morphological diversity
- Remove embankments to increase connectivity with floodplain.
- 11.1% MImAS capacity released, improves status from poor to moderate.

Degree of potential NFM benefit

- Overall NFM benefit score is zero

Other benefits

- Significant potential to increase connectivity with surrounding habitat
- Potential to address other pressures on the channel

Land use/ownership

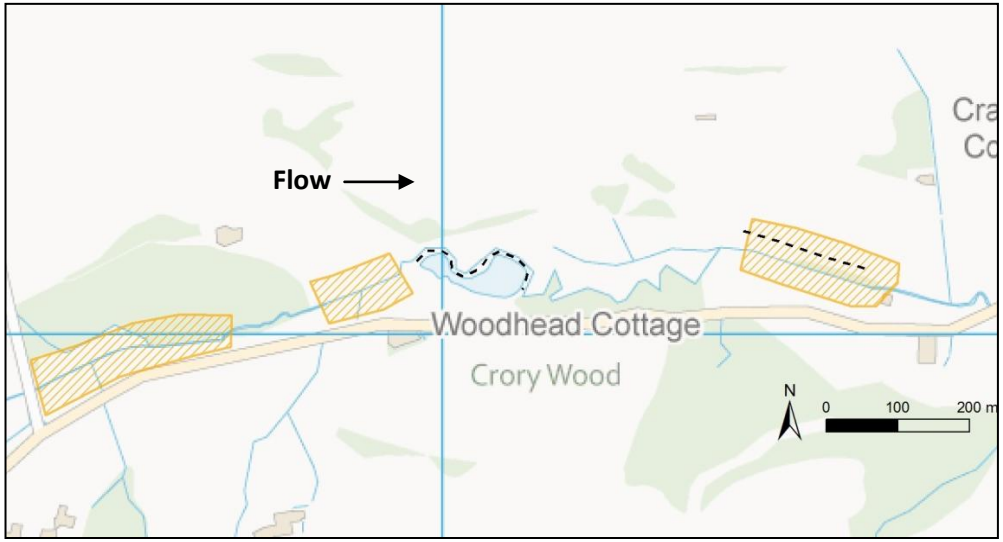
- Highest land capability value in reach, 4.1.
- Land use includes pasture and woodland

Constraints

- One of the embankments forms a bund for the pond. Removal of this may result in loss of the pond and any associated habitats.

Funding and collaboration opportunities

n/a



Water body ID	10631	Water body name	Crichope Linn	MCA rank	8	MCA score	38
Reach no.	1	Reach location	Adjacent to forestry	Cost band	3		

Context

1.2km reach. Minor headwater channel flowing through upland moorland, which has been realigned/straightened adjacent to forestry, resulting in a ditch-like channel form.

Restoration opportunity

- Mitigate high impact realignment. Further assessment would be needed to determine an appropriate approach, but may involve measures that encourage the channel to revert back to its natural form (likely to be a wetland).
- Enhance vegetation structure and complexity throughout reach
- 20.7% MImAS capacity released, improves status from moderate to good

Degree of potential NFM benefit

- No significant benefit

Other benefits

- n/a

Land use/ownership

- Highest land capability value in reach, 6.3.
- Land is unimproved upland grazing of low agricultural value, drained with ditches, with a coniferous forestry plantation on the right bank.

Constraints

n/a

Funding and collaboration opportunities

n/a