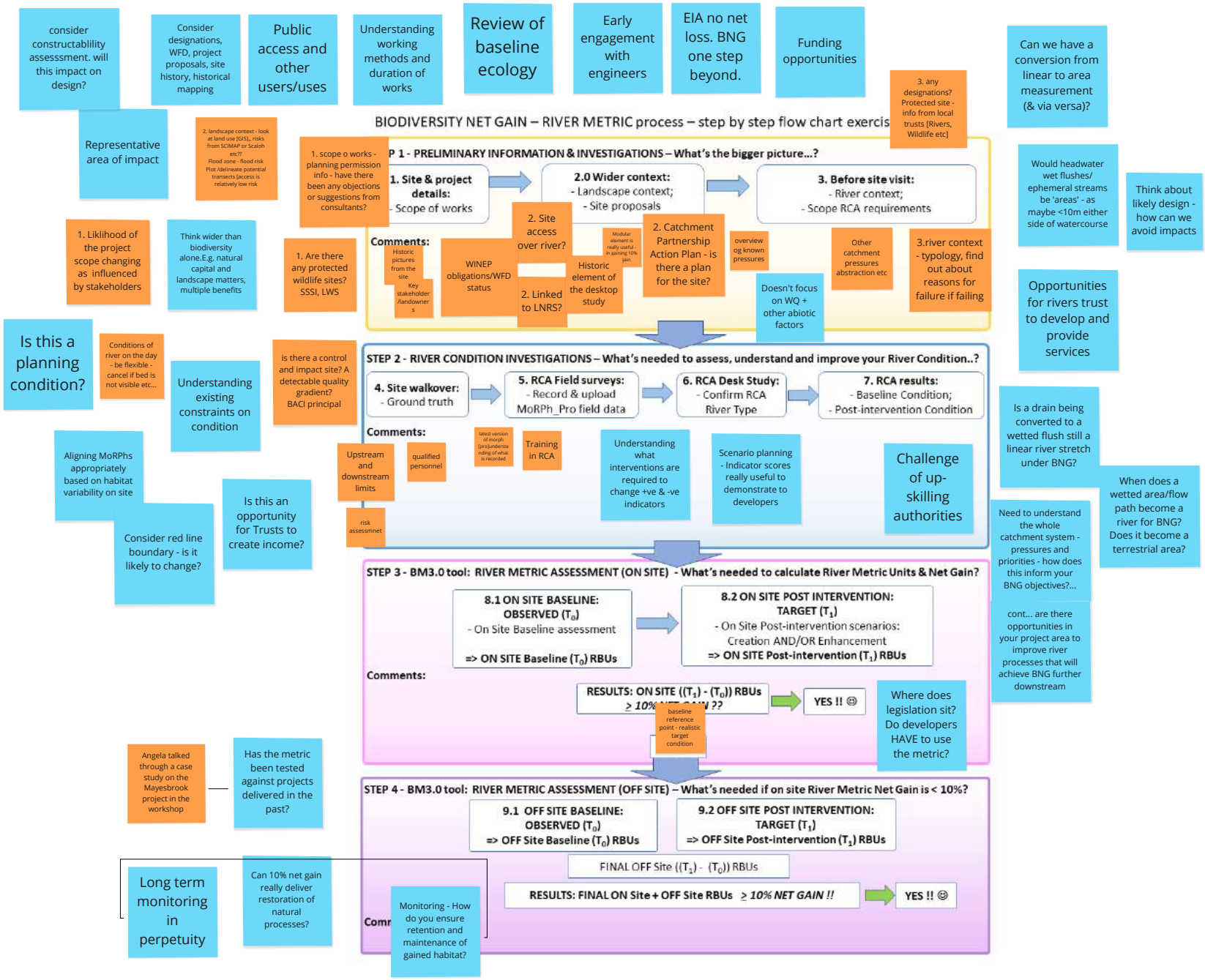

consider constructablility assesssment. will this impact on design?
Consider designations, WFD, project proposals, site history, historical mapping
Public access and other users/uses
Understanding working methods and duration of works
Review of baseline ecology
Early engagement with engineers
EIA no net loss. BNG one step beyond.
Funding opportunities
Can we have a conversion from linear to area measurement (& via versa)?
3. any designations? Protected site - info from local trusts [Rivers, Wildlife etc]
Representative area of impact
2. landscape context - look at land use [GIS], risks from SCIMAP or Scalsh etc?? Flood zone - flood risk Plot /delineate potential transects [access is relatively low risk
BIODIVERSITY NET GAIN – RIVER METRIC process – step by step flow chart exercis
1. scope o works - planning permission info - have there been any objections or suggestions from consultants?
P 1 - PRELIMINARY INFORMATION & INVESTIGATIONS – What's the bigger picture...?
1. Site & project details:
- Scope of works
2.0 Wider context:
- Landscape context;
- Site proposals
3. Before site visit:
- River context;
- Scope RCA requirements
Would headwater wet flushes/ ephemeral streams be 'areas' - as maybe <10m either side of watercourse
Think about likely design - how can we avoid impacts
1. Liklihood of the project scope changing as influenced by stakeholders
Think wider than biodiversity alone.E.g. natural capital and landscape matters, multiple benefits
1. Are there any protected wildlife sites? SSSI, LWS
Comments:
Historic pictures from the site
Key stakeholder /landowner s
WINEP obligations/WFD status
2. Site access over river?
2. Linked to LNRS?
Historic element of the desktop study
Modular element is really useful - in gaining 10% gain
2. Catchment Partnership Action Plan - is there a plan for the site?
overview og known pressures
Other catchment pressures abstraction etc
3.river context - typology, find out about reasons for failure if failing
Doesn't focus on WQ + other abiotic factors
Opportunities for rivers trust to develop and provide services
Is this a planning condition?
Conditions of river on the day - be flexible - cancel if bed is not visible etc...
Understanding existing constraints on condition
is there a control and impact site? A detectable quality gradient? BACI principal
STEP 2 - RIVER CONDITION INVESTIGATIONS – What's needed to assess, understand and improve your River Condition..?
4. Site walkover:
- Ground truth
5. RCA Field surveys:
- Record & upload MoRPh_Pro field data
6. RCA Desk Study:
- Confirm RCA River Type
7. RCA results:
- Baseline Condition;
- Post-intervention Condition
Is a drain being converted to a wetted flush still a linear river stretch under BNG?
Aligning MoRPhs appropriately based on habitat variability on site
Comments:
Upstream and downstream limits
qualified personnel
latest version of morph (pro)understa nding of what is recorded
Training in RCA
Understanding what interventions are required to change +ve & -ve indicators
Scenario planning - Indicator scores really useful to demonstrate to developers
Challenge of up-skilling authorities
When does a wetted area/flow path become a river for BNG? Does it become a terrestrial area?
Is this an opportunity for Trusts to create income?
risk assessmnet
Consider red line boundary - is it likely to change?
Need to understand the whole catchment system - pressures and priorities - how does this inform your BNG objectives?...
cont... are there opportunities in your project area to improve river processes that will achieve BNG further downstream
STEP 3 - BM3.0 tool: RIVER METRIC ASSESSMENT (ON SITE) - What's needed to calculate River Metric Units & Net Gain?
8.1 ON SITE BASELINE:
OBSERVED (T_0)
- On Site Baseline assessment
=> ON SITE Baseline (T_0) RBUs
8.2 ON SITE POST INTERVENTION:
TARGET (T_1)
- On Site Post-intervention scenarios:
Creation AND/OR Enhancement
=> ON SITE Post-intervention (T_1) RBUs
Comments:
RESULTS: ON SITE ((T_1) - (T_0)) RBUs
≥ 10% ??
YES !! ☺
baseline reference point - realistic target condition
Where does legislation sit? Do developers HAVE to use the metric?
Angela talked through a case study on the Mayesbrook project in the workshop
Has the metric been tested against projects delivered in the past?
STEP 4 - BM3.0 tool: RIVER METRIC ASSESSMENT (OFF SITE) – What's needed if on site River Metric Net Gain is < 10%?
9.1 OFF SITE BASELINE:
OBSERVED (T_0)
=> OFF Site Baseline (T_0) RBUs
9.2 OFF SITE POST INTERVENTION:
TARGET (T_1)
=> OFF Site Post-intervention (T_1) RBUs
FINAL OFF Site ((T_1) - (T_0)) RBUs
RESULTS: FINAL ON Site + OFF Site RBUs ≥ 10% NET GAIN !!
YES !! ☺
Long term monitoring in perpetuity
Can 10% net gain really deliver restoration of natural processes?
Monitoring - How do you ensure retention and maintenance of gained habitat?

BIODIVERSITY NET GAIN – RIVER METRIC process – supplementary information

STEP 1 - PRELIMINARY INFORMATION & INVESTIGATIONS (PRE-SITE VISIT) – What's the bigger picture...?

1. Site & project details:

- Scope of works: client, location, proposed etc

2.0 Wider context:

- Landscape context: geographic / geological / fluvial / anthropogenic / cultural characteristics;
- Site proposals: Red line boundary - yes/no? identify lengths for proposed treatment OR habitat creation reaches

3. BEFORE site visit:

- River context: priority river habitats? in local or CaBA action plans?
- Scope RCA River Type & MoRPh Pro requirements: ensure 20% coverage & representation of different lengths as 'linear parcels'

STEP 2 - RIVER CONDITION INVESTIGATIONS – What's needed to assess, understand and improve your River Condition..?

4. Site walkover:

- Ground truth e.g. start/end pts for lengths with different character / condition, RCA River Types & field survey locations

5. RCA Field surveys:

- Record & upload MoRPh Pro field data to RCA information system for representative MoRPhS subreaches

6. RCA Desk Study:

- Confirm RCA River Type using combined field & remote data

7. RCA results:

- Baseline – calculate the preliminary condition score and final class for current
- Post-intervention: model target condition score and class

STEP 3 - BM3.0 tool: RIVER METRIC ASSESSMENT (ON SITE) - what's needed to calculate River Metric Units & Net Gain?

6.1 ON SITE BASELINE: OBSERVED (T_0)

- On Site Baseline assessment (C-1):
ENTER: Length; Distinctiveness; Condition; Strategic Significance; Encroachment; Lengths Retained or Enhanced
=> ON Site Baseline (T_0) RBUs

6.2 ON SITE POST INTERVENTION: TARGET (T_1)

- On Site Post-intervention scenarios:
Creation (C-2) AND/OR Enhancement (C-3)
ENTER CHANGES IN: Distinctiveness; Condition; Strategic Significance; Advanced/Delayed activity; Encroachment
=> ON Site Post-intervention (T_1) RBUs

Does the river shape index account for whether channels should be multi-threaded?

RESULTS: FINAL ON Site ((T_1) - (T_0)) RBUs *≥ 10% NET GAIN ??* → YES !! ☺

*Opportunities for PreApp Advice?
⇒ LPA / EA / NE

NO*

STEP 4 - BM3.0 tool: RIVER METRIC ASSESSMENT (OFF SITE*)

6.2 OFF SITE BASELINE OBSERVED (T_0)
=> OFF Site Baseline (T_0) RBUs

6.2 OFF SITE POST INNTERVENTION: TARGET (T_1)
=> OFF Site Post-intervention (T_1) RBUs

FINAL OFF Site ((T_1) - (T_0)) RBUs

FINAL RESULTS: ON Site + OFF Site RBUs ≥ 10% NET GAIN !!

** Opportunities for offsetting options?*
⇒ Local Catchment Action Plans
⇒ Landowners
⇒ LPAs

**Future opportunities to link with local Nature Recovery Strategies?*

TO FIND OUT MORE:
The Biodiversity Metric 3.0 guidance: http://nepubprod.appspot.com/publication/6049804846366720
River Condition Assessment Guidance & Training: https://modularriversurvey.org/river-condition/
CIEEM BNG Guidance & River Metric Training* : https://cieem.net/i-am/current-projects/biodiversity-net-gain/
** Search for 'CIEEM + River Metric' for event waiting list*

Red Stream

- No artificial/managed bank top
- Steep banks
- No bank or bed reinforcement
- Natural bank top and bank face vegetation, including trees
- Invasive species
- Smooth flow
- No in-channel features visible
- Floating vegetation
- Overhanging vegetation
- Some shading
- Fallen trees

Condition: Moderate

Wider channel, improve planform, introduce gravels

since banks are not reinforced - should be easier to give a natural profile as part of programme of measures

more LWD for more in channel features and flow heterogenity, also refugia for fish

create in-channel features

berms and gravel seeding to have more flow hetereogeneity

invasive species removal programme or fund existing work

fallen trees give this site some more value than Old Brook site

regrade banks so there is more heterogeneity and wet margins

more natural bank profiles

Large wood, riparian planting, marginal scrapes

Old Brook

- Managed bank top
- Reshaped bank face
- No bank or bed reinforcement
- Limited natural bank top and bank face vegetation, some trees
- Invasive species
- Smooth flow
- No in-channel features visible
- Overhanging vegetation
- Shading

Condition: Fairly Poor

full 10% less likely to be reached

install woody features

Selective daylighting and wood placement

invasive sp removal programme

Add in-channel features

selective clearance of overhanging vegetation - to get a mixture of shaded and ssunlit stretches [check for bat roosts etc beforehand]

2 stage channel for old brook

Create bank top buffer zone.

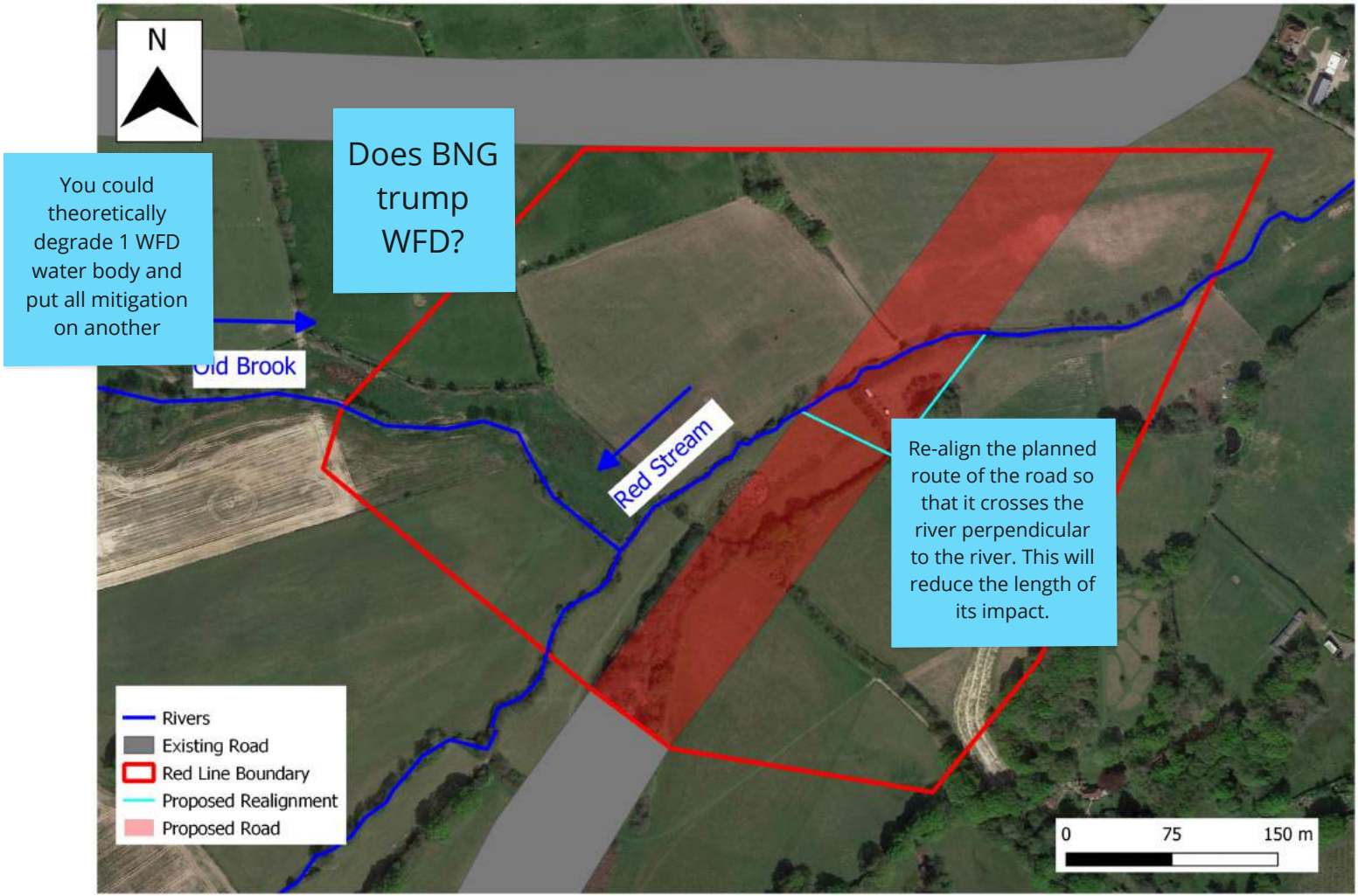
assess type of banktop management and draw up alternativee , low maintenance management scheme to benefit riparian species

Realign?

Monitoring and maintenance tracking

Raise bed level

Re-profile one bank


N
You could theoretically degrade 1 WFD water body and put all mitigation on another
Does BNG trump WFD?
Old Brook
Red Stream
Re-align the planned route of the road so that it crosses the river perpendicular to the river. This will reduce the length of its impact.
Rivers
Existing Road
Red Line Boundary
Proposed Realignment
Proposed Road
0
75
150 m

You need more vegetation, more shade to the water, add meanders.

Bridge for the road?.. or maybe a culvert under the red stream for the road?

The Red Stream diversion needs to be more diverse in terms of geomorphology and habitat, e.g. add meanders, more in-stream features, backwaters, ponds, native tree planting

Remeander section of Red Brook

Build viaduct over river

Sediment management south of Old Brook - riparian buffer (native species)?

Location of red line boundary is crucial

Question 1: What are you going to do?

Realignment of proposed alignment

Concentrate on Old Brook? Fairly poor.

Alter the proposed Red Stream culvert design to a wide open span bridge, retaining natural banks

1

Restore Old Brook to its floodplain, including backwaters, ponds, native tree planting

Can the road be elevated above the river so a culvert isn't required. Shading would still be a problem, but less enhancements would be required to mitigate

Can the road go in a tunnel underneath the river retaining the floodplain and river

Use local knowledge, existing data u/s and d/s

INNS management on both streams

In stream features old brook

Wetland creation

Question 1: What are you going to do now your proposals haven't reached 10% BNG?

Look off site for enhancements

Plant trees

Floodplain reconnection old brook