Climate-Resilience and Nature-Based Solutions

Briefing for HS3
28 August 2023

Greater Wellington
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Key content + hot topics + recommended changes

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Nature-based solutions

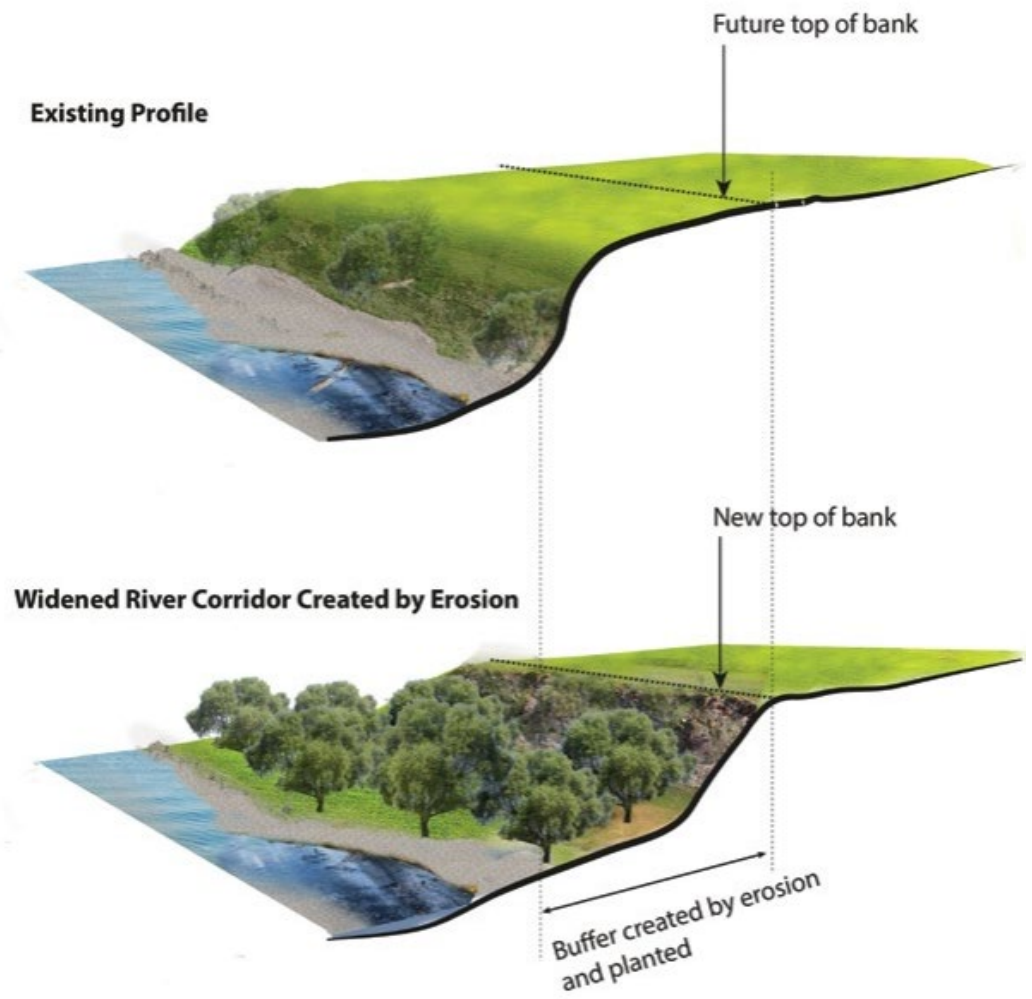
Use of **natural ecosystems** & incorporation of **natural elements in built environments** - reduce emissions &/or strengthen resilience, **co-benefits**

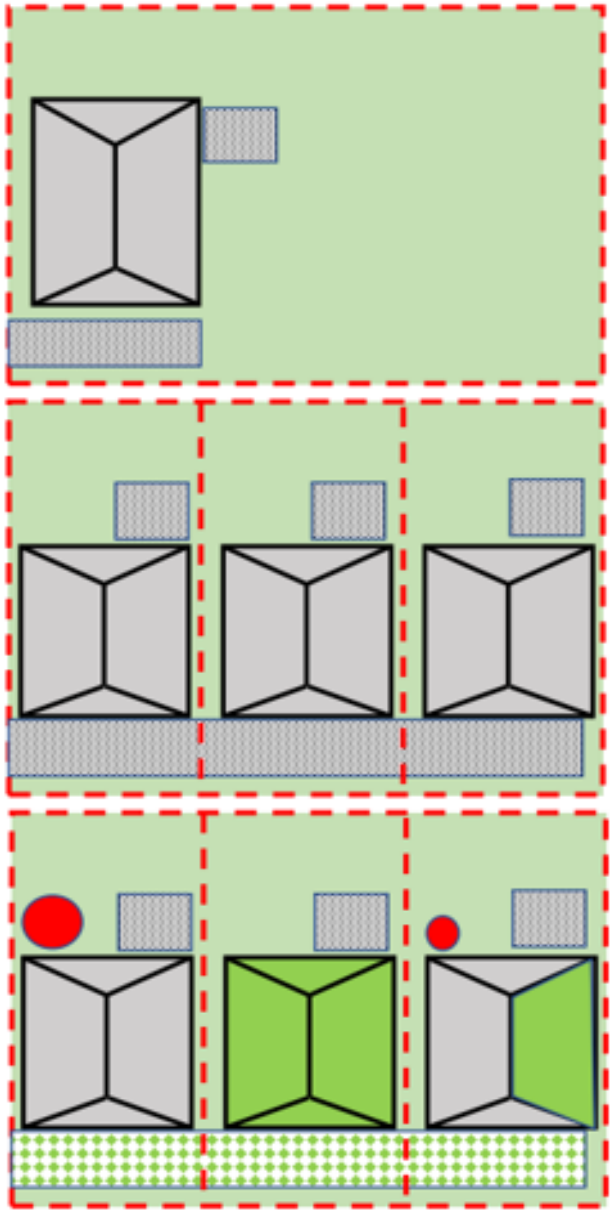
Range of scales: catchment, ecosystem, greenfield, brownfield

Protect/restore ecosystems – non-reg working with stakeholders - forests, wetlands, sand dunes, room for rivers/estuaries to move

Prioritise NbS as part of development - retain waterbodies, create swales, rain gardens, green rooves, shade trees

Nature-based Solutions - examples





1) Existing case - 600 m^2 Lot with single 120 m^2 dwelling

- Roof coverage 120 m^2 (20%)
- Driveway 60 m^2 (10%)
- Hardstand 30 m^2 (5%)
- Pervious area 390 m^2 (65%)

2) Future infill case - 3X 200 m^2 Lots with 100 m^2 dwellings

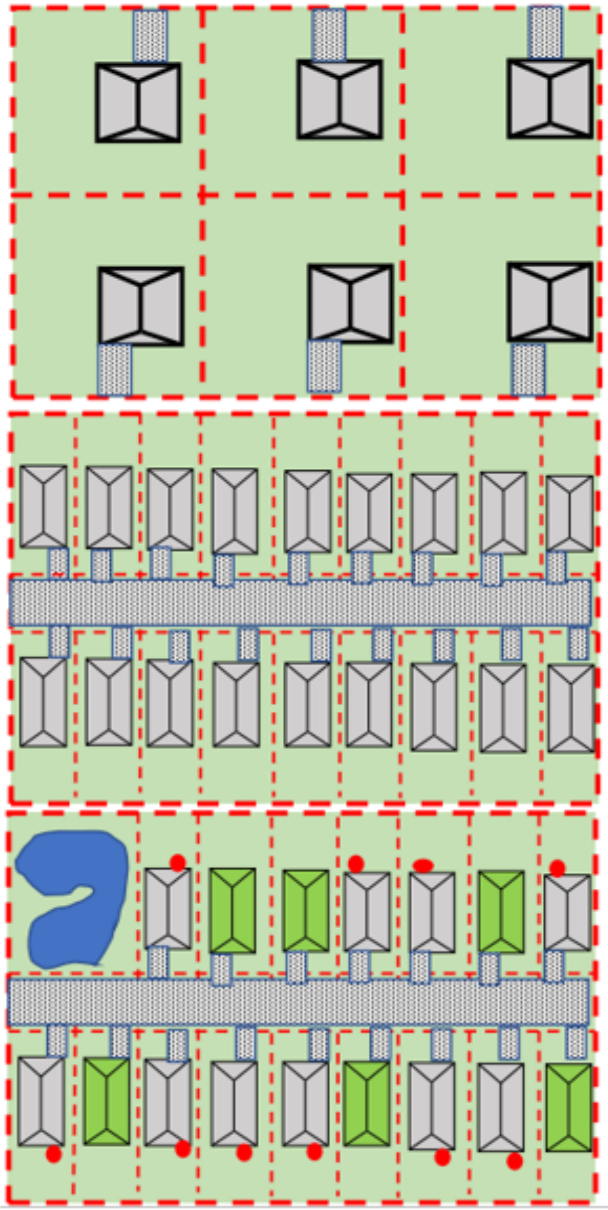
- Roof coverage 300 m^2 (50%)
- Driveway 60 m^2 (10%)
- Hardstand 60 m^2 (10%)
- Pervious area 240 m^2 (30%)

~70% increase in Stormwater Volume from frequent storms (<10mm depth)
~40% loss in urban greenspace

3) Nature based solutions

- Rainwater collection and reuse (toilet flushing/irrigation)
- Green roofs
- Permeable paving
- Lot scale raingarden

~80% decrease in Stormwater Volume from frequent storms (<10mm depth)
~10% gain in urban greenspace



1) Existing case – 6 X 500 m^2 Lot with single 110 m^2 dwellings

- Roof coverage 660 m^2 (22%)
- Driveway 120 m^2 (4%)
- Hardstand 120 m^2 (4%)
- Pervious area 390 m^2 (70%)

2) Future infill case – 18 X 150 m^2 Lots with 70 m^2 dwellings

- Roof coverage 1215 m^2 (40%)
- Driveway 360 m^2 (12%)
- Public road 300 m^2 (10%)
- Pervious area 1125 m^2 (37%)

~110% increase in Stormwater Volume from frequent storms (<10mm depth)
~50% loss in urban greenspace

3) Nature based solutions

- Rainwater collection and reuse (toilet flushing/irrigation)
- Green roofs
- Permeable paving
- Lot scale raingarden

~80% decrease in Stormwater Volume from frequent storms (<10mm depth)
~10% gain in urban greenspace – Public realm

Topic Provisions

- Objective CC.4: Nature-based solutions are an integral part of mitigation & adaptation
- Objective CC.5: Increase in permanent forest; right tree-right place
- Policies CC.4 & 14: Climate-resilient development
- Policies CC.7 & 12: Protecting/restoring ecosystems that provide NbS
- Policies CC.6 & 18: Right tree-right place
- Methods CC.6 & 9: Identifying & protecting NbS in the Wellington Region
- Method CC.4: Regional forest spatial plan

Key issues -

- Definitions - NbS, highly erodible land, permanent & plantation forestry; climate-resilient
- Strength of direction to TAs to require climate-resilience features, to prioritise use of NbS, roles of TAs vs regional council
- Relevance of climate-resilience features to different activities
- Role/approach of local govt to protect/restore ecosystems on private land
- Wairarapa will become the carbon sink for the region
- Direction to avoid plantation forestry on highly erodible land. Going further than the NES-Plantation forestry

Key recommendations –

- Clarify relationship of NbS with ‘green infrastructure’, use NES-PF definition for plantation forestry, replacement definition for permanent forestry
- New definitions for climate-resilience & water-sensitive urban design
- Policies CC.4 and 14, significant drafting changes while retaining intent and climate-resilience attributes being sought: two new policies to clarify district and regional functions
- Deletion of Policies CC.7 and CC.12 as drafted, clauses integrated with CC.4-14 suite
- Policy CC.7 redrafted to clarify approach to work with and support protection/ restoration of ecosystems that provide NbS
- Regional forest spatial plan – detail to clarify approach