

# Does it all need to go there?

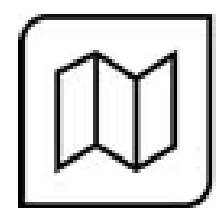
## - Pre-planning Disaster Waste Journeys Using Geospatial Analysis

Cameron Burton – Black Bridge Enviro



**Black Bridge Enviro**  
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Shanon Tait – Blackmaps Geospatial



**blackmaps**  
geospatial



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# Introduction & Context

- New Zealand faces recurring disasters: floods, cyclones, landslides, earthquakes...
- Traditional disaster waste management is reactive and inefficient.
- Today, we explore how spatial analysis enables proactive planning







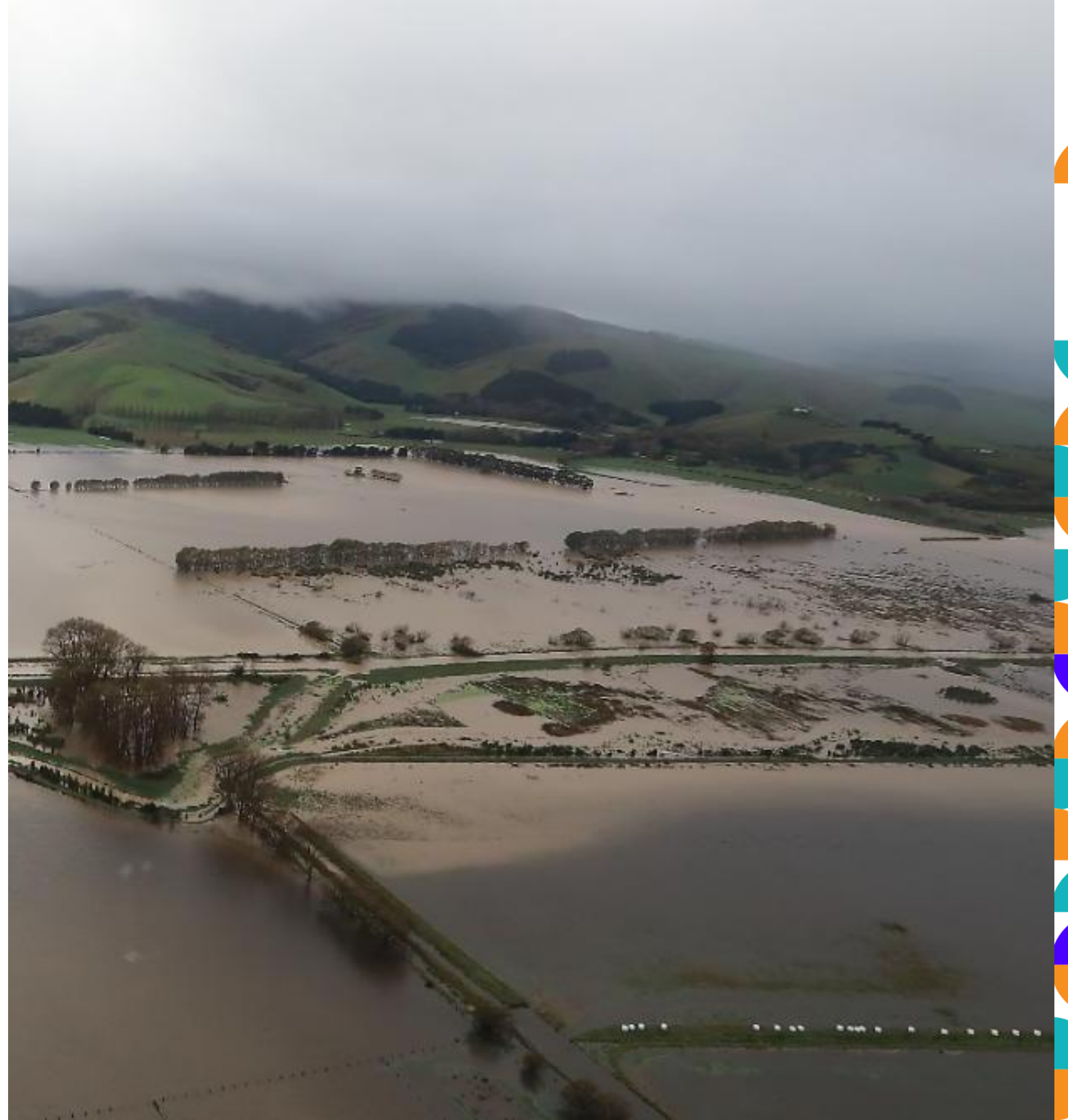
# The Problem with Reactivity

- Reliance on RMA emergency provisions leads to:
  - Waiting for an event to happen
  - Significant pressure on landfills
  - Degradation of te mana o te wai
  - Inefficient use of resources while mid-crisis
  - Long-term environmental damage
  - Increased and ongoing taxpayer/ratepayer burden
  - Reduced landfill airspace



# Recent Catastrophes - A Wake-up Call

- Cyclone Hale
- Cyclone Gabrielle
- Canterbury flooding (Lake Ellesmere/Te Waihora)
- Glorit power outage
- South Island Earthquakes
- Westport flooding
- Nelson/Tasman flooding and landslides





# The Hidden Costs of Reactive DWM Planning

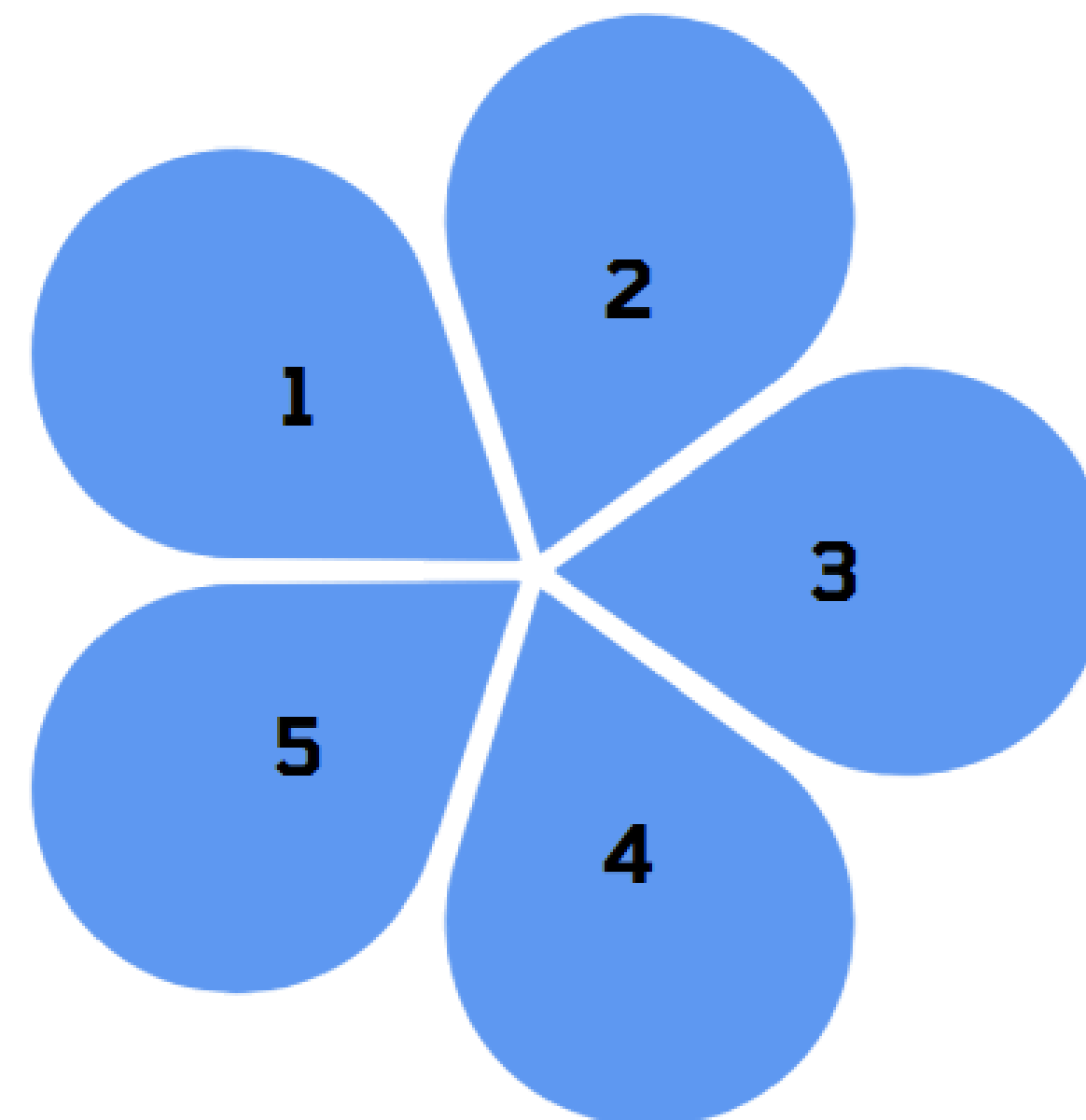


## Reputational Impacts

Public confidence erosion in emergency response capabilities

## Cultural Impacts

Damage to sacred sites and cultural values



## Environmental Impacts

Contamination of waterways and soil degradation

## Economic Impacts

Exponential cost increases during crisis situations

## Social Impacts

Community displacement and health risks

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# Geospatial Analysis - The Tools



## GIS Mapping

Satellite imagery and comprehensive spatial data integration



## 3D Visualizations

Fly-through models for site assessment and planning



## National Datasets

LINZ parcels, rivers, marae, waste destinations, transfer sites



## Sentinel

Frequent comparative satellite imagery/water monitoring



## Others

More readily available and accessible  
AI?





# Sentinel 1 - Water Index example

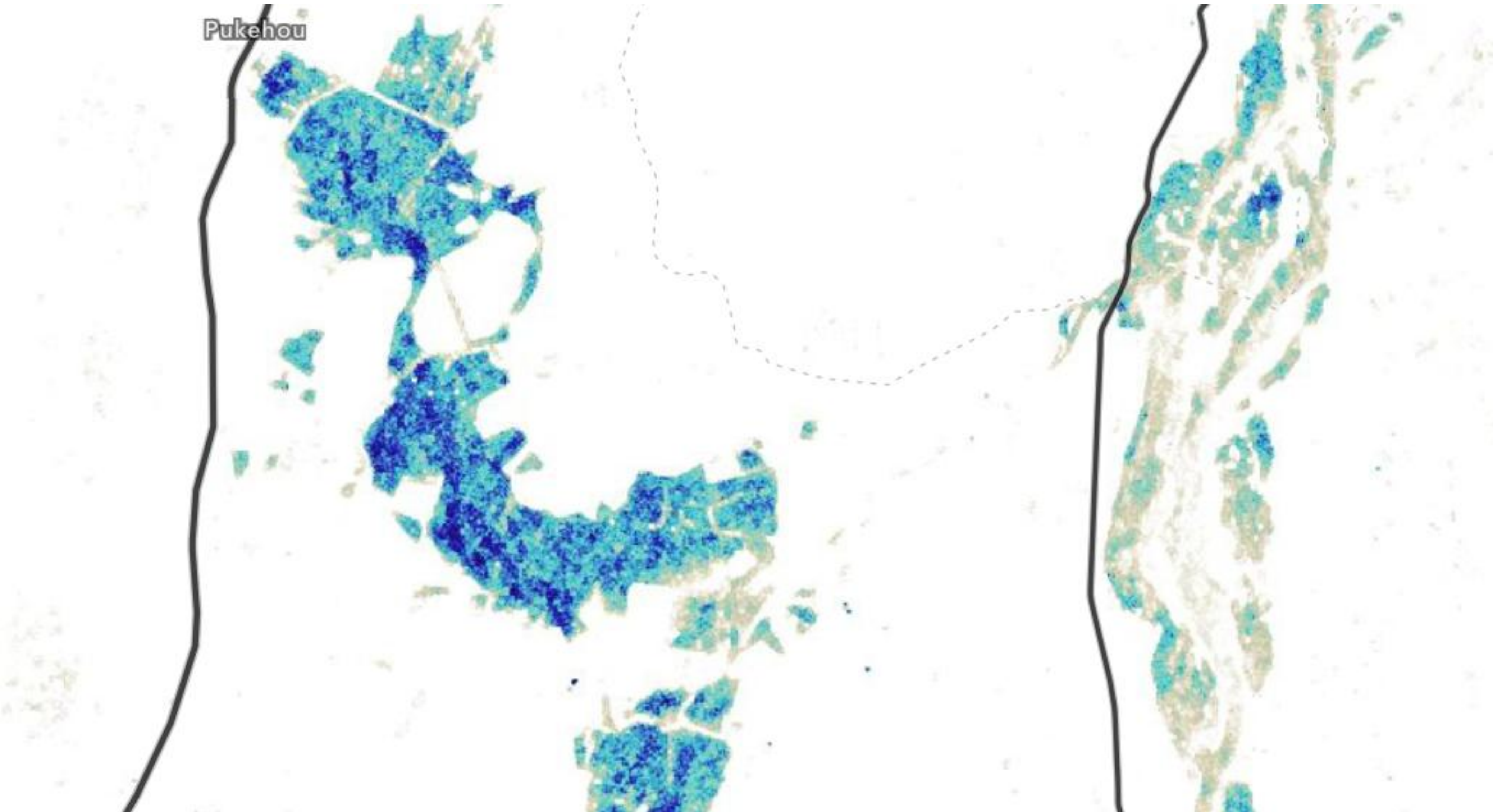


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# Sentinel 1 - Water Index example



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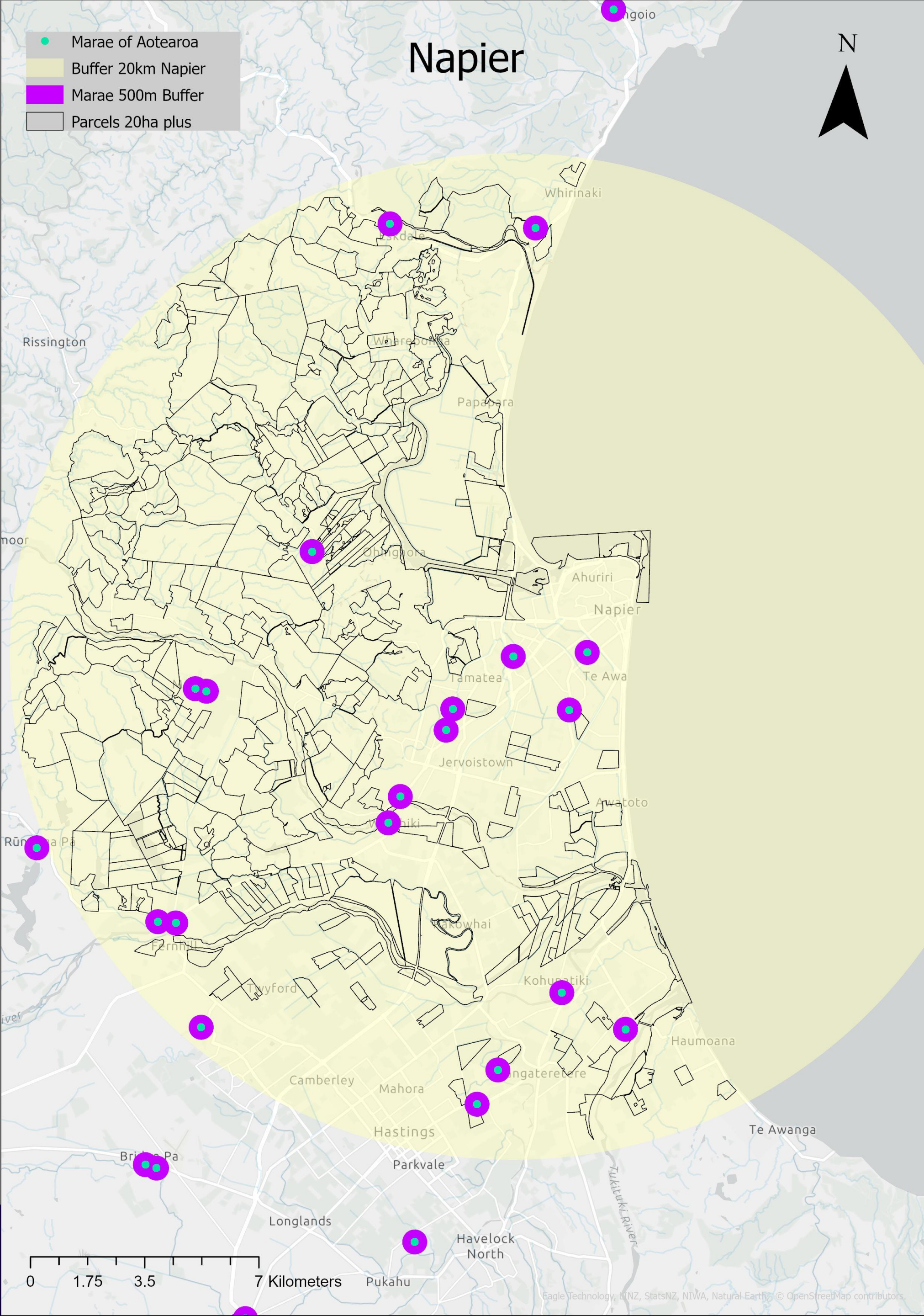




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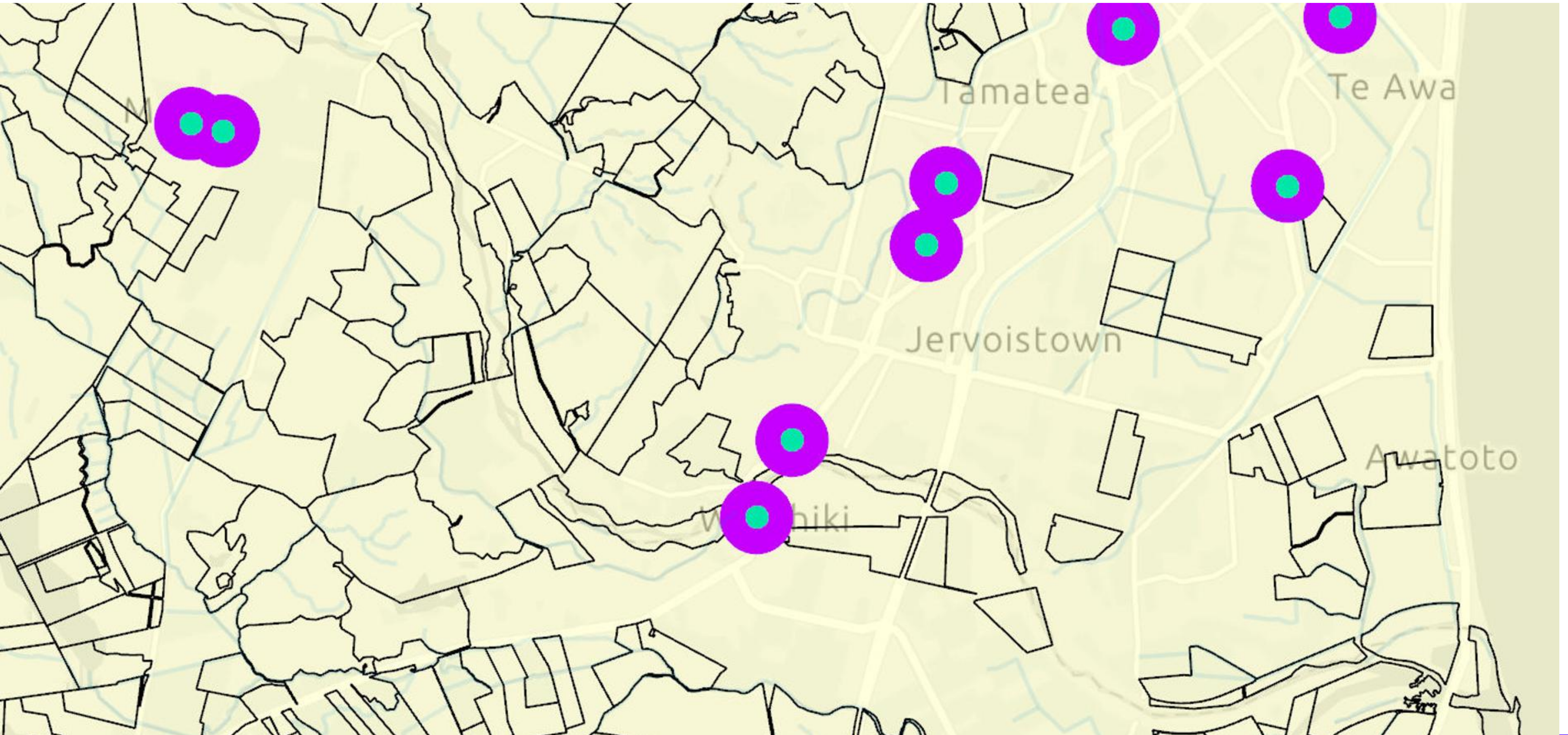


# Static Maps - Case Studies - Napier

- Within 20km of ground zero
- More than 500m away from marae
- Land parcels 20ha or greater
- Flattish (not a golf course, estuary,
- 100m away from waterways
- 100m or closer to road access
- Above sea level
- The correct side of susceptible infrastructure
- With a 'way out'

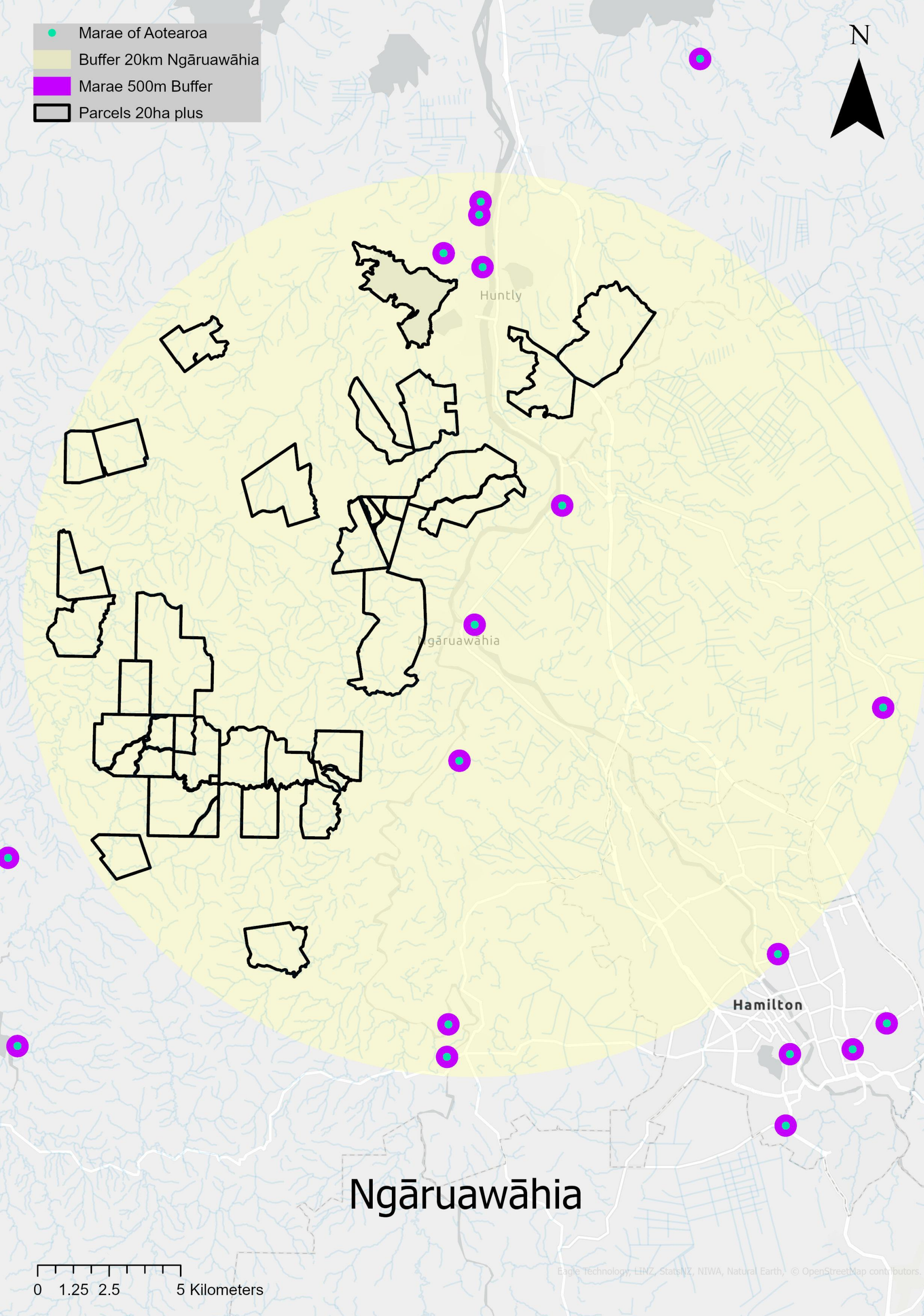


# Static Maps - Case Studies - Napier



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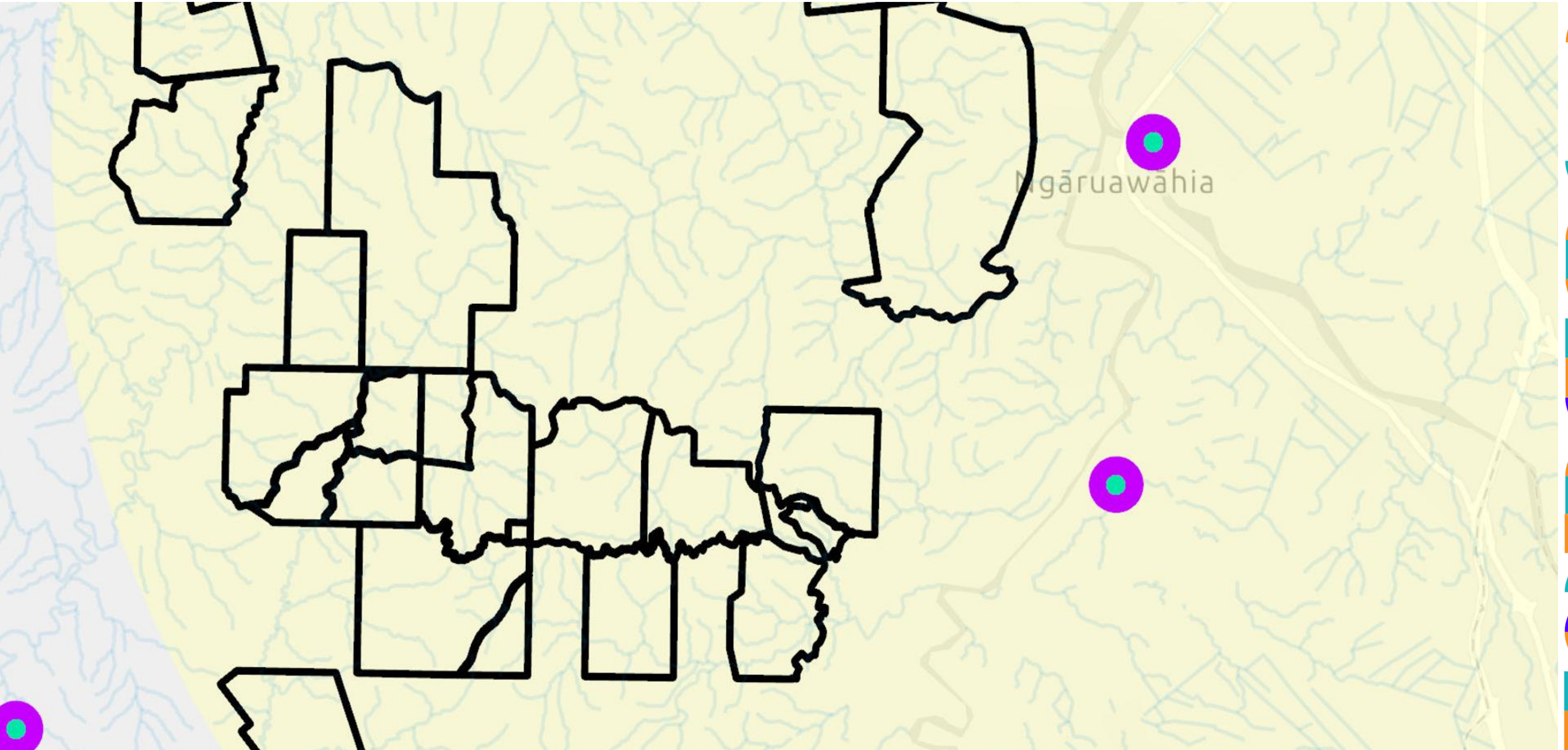


# Static Maps - Case Studies - Ngāruawāhia

- Within 20km of ground zero
- More than 500m away from marae
- Land parcels 20ha or greater
- Flattish
- 100m away from waterways
- 100m or closer to road access
- The correct side of susceptible infrastructure
- Not Lake Waahi

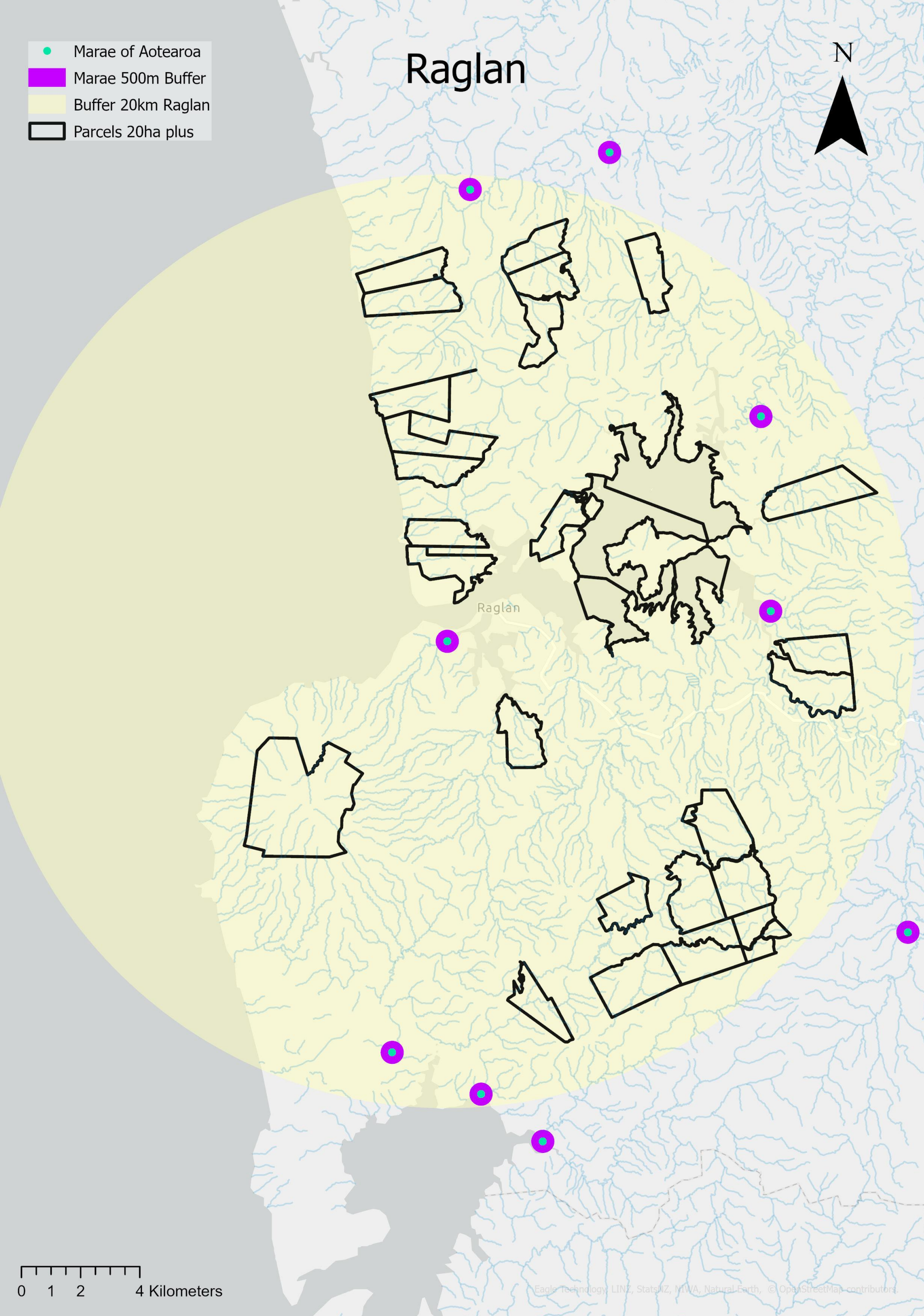


# Static Maps - Case Studies - Ngāruawāhia



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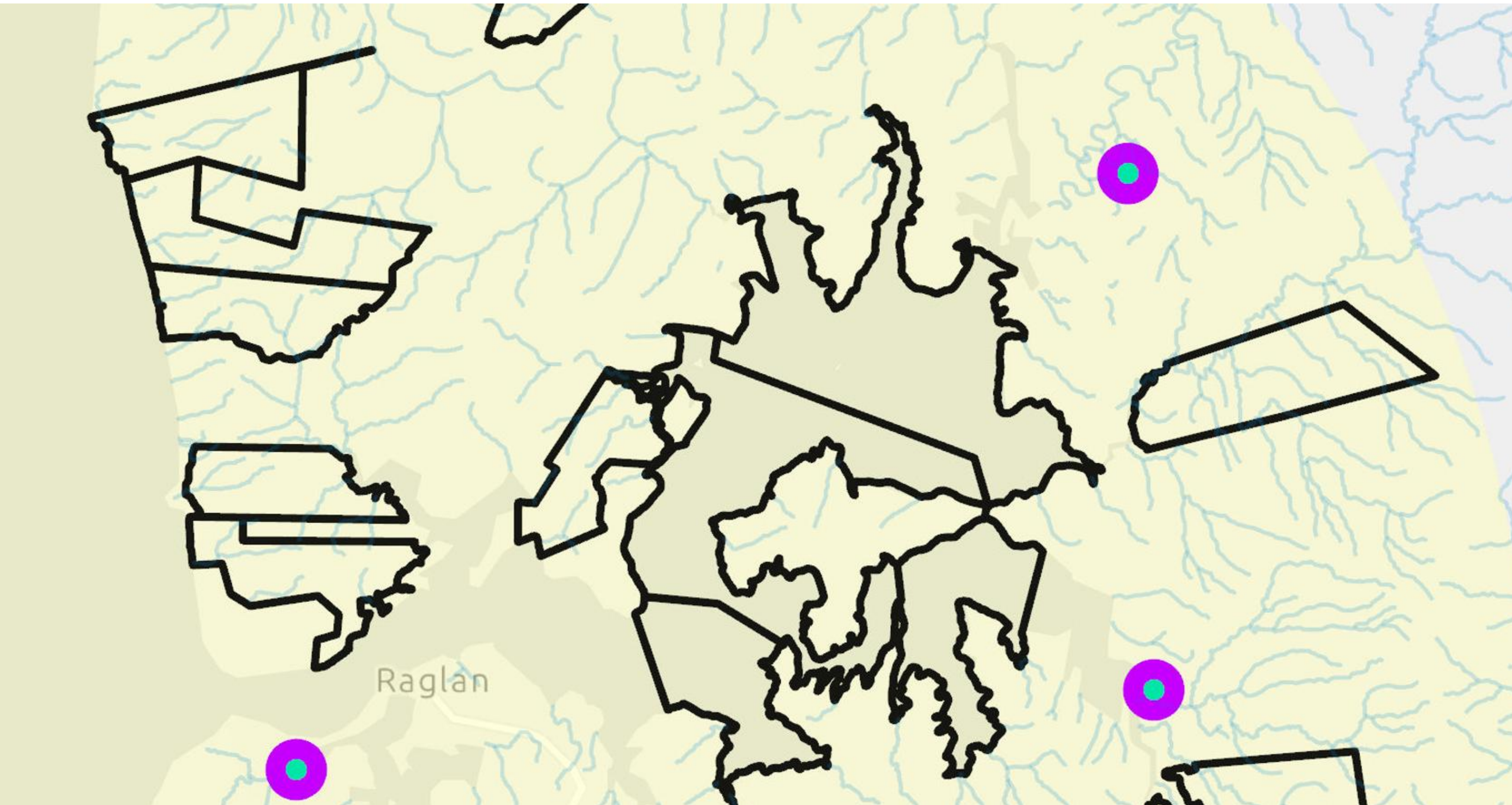


# Static Maps - Case Studies - Raglan

- Within 20km of ground zero
- More than 500m away from marae
- Land parcels 20ha or greater
- Flattish (Not Mount Karioi)
- Not DoC or forestry land
- 100m away from waterways
- 100m or closer to road access
- Above sea level
- The correct side of susceptible infrastructure



# Static Maps - Case Studies - Raglan



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## Nationally consistent, regionally specific DWMP

- A nationally consistent framework ensures equity and efficiency.
- Regional tailoring respects local values, risks, and opportunities.
- Collaboration is key: councils, iwi, industry, and community working together.
- Use GIS to support your planning quest before the next disaster strikes





# Fortune favours the bold - take action; smarter, safer, more sustainable

- Identify destinations, sensitive areas
- Map critical lifeline disaster waste routes
- Pre-approve DWMPs for foreseeable crises
- Update, test, build resilience
- Empower contractors, communities
- Integrate geospatial information into disaster waste planning
- Reduce landfill airspace consumption, long-term environmental degradation, costly dumping





# Questions & Considerations



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