

RIMS
Roading Infrastructure Management Support

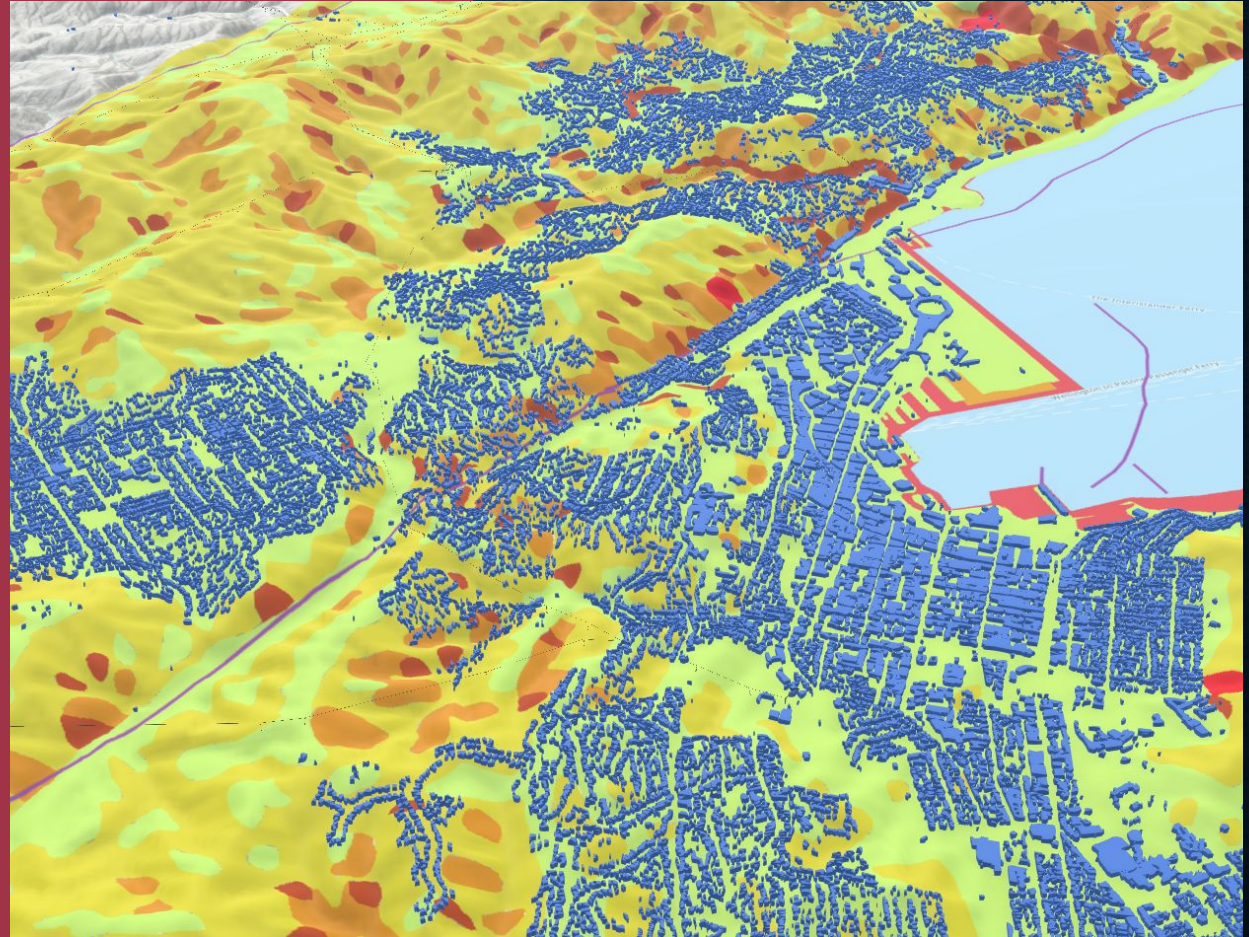
in association
IDS
Infrastructure
Decision Support

SPATIAL UNLEASHED:

MASTERING CLIMATE RISK ANALYSIS AND RESILIENCE ON YOUR NETWORK

Claire-Louise Bode
Principal Asset Manager

WSP



Fostering Collaboration: Whanaungatanga in transport asset management

IDS
Infrastructure
Decision Support

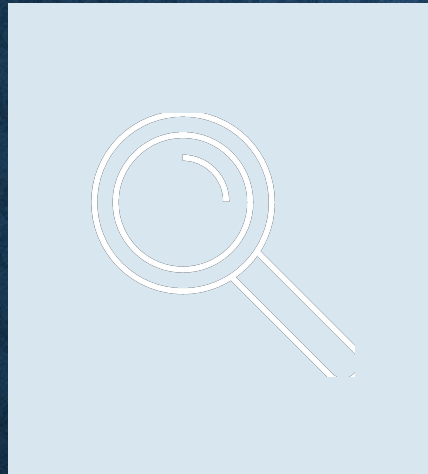
Āpōpō

Spatial Analytics is all about **fostering collaboration**:

Whanaungatanga in transport networks



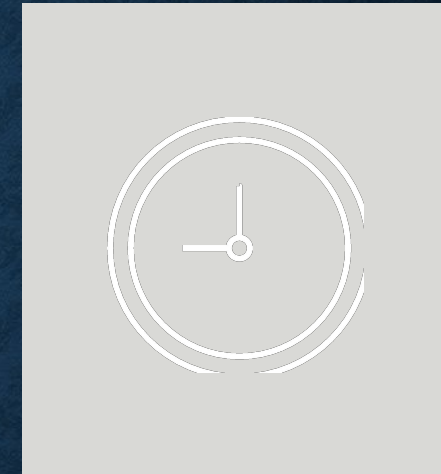
Maintain
Operations &
Collaborate



Visualise
Increase
Resilience



Reduce \$\$
on
Rework



Sustainable
Planning
Tools

Cyclic Changes = Direct impact into Asset Management & Infrastructure Management

Current Scenario

Extreme Weather Events



- Extreme weather
- Unpredictability

Financial Risks



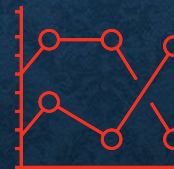
- Inadequate planning
- Insufficient investment

Costly Consequences



- Economic losses
- Surges in insurance claims

Adaptation and Mitigation



- Strategic early warning systems
- Resilient infrastructure

The Power of Geospatial

Spatial Context



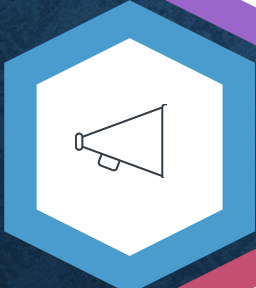
Location based data = Spatial context

Risk Mapping & Visualise



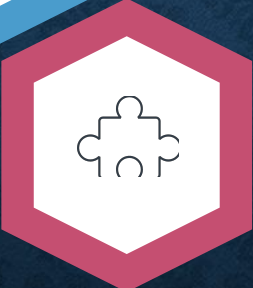
Interactive maps = display vulnerabilities
Create early warning systems

Infrastructure Resilience



Identify lifelines vulnerable to impacts
Test strategies & evaluate effectiveness

Financial Risk Assessment



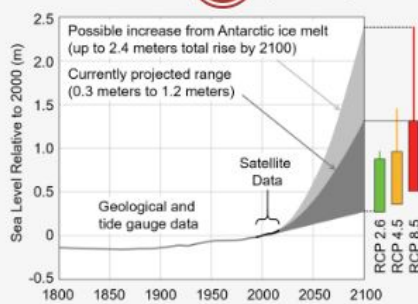
Inform stakeholders & manage portfolios



So, you have data now what?



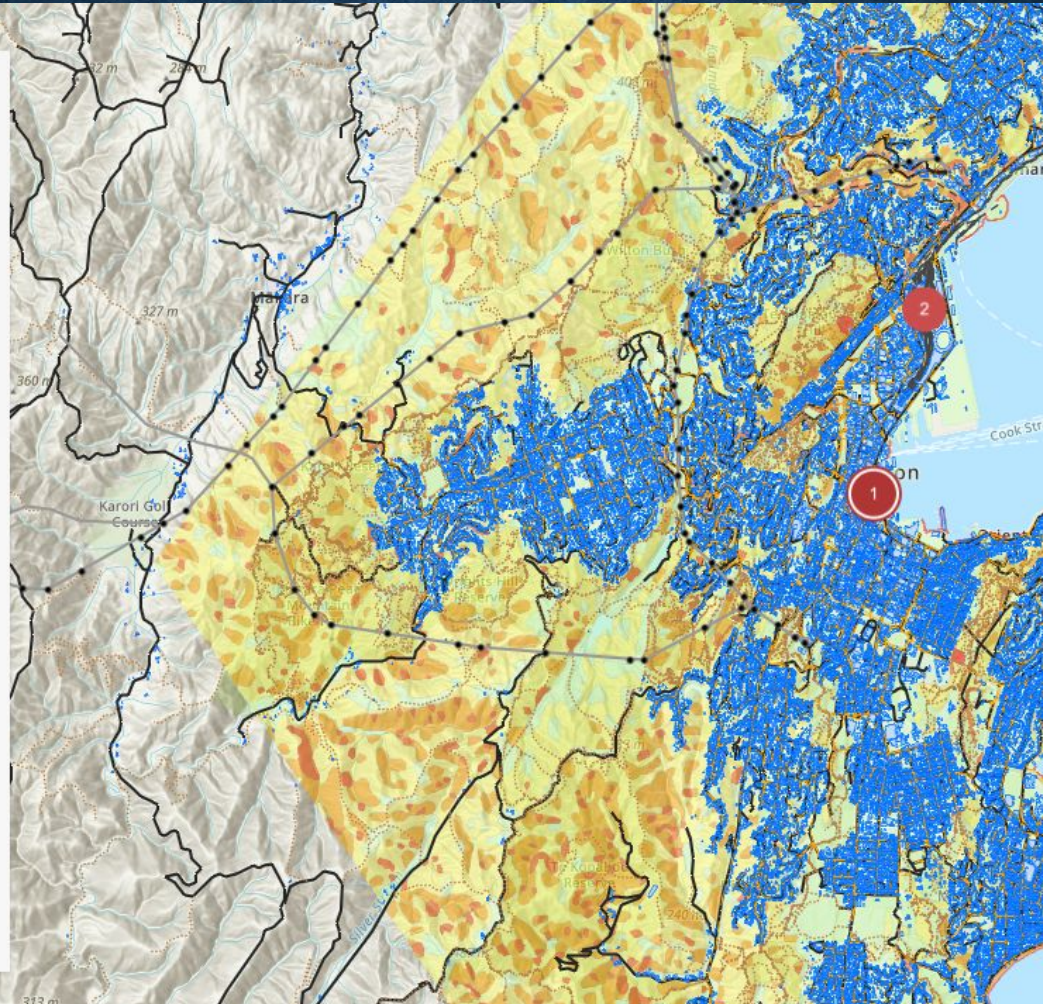
Global Mean Sea Level Rise and Projections



Historical sea level reconstruction and projections up to 2100 published in January 2017 by the U.S. Global Change Research Program for the Fourth National Climate Assessment.

Correlating Climate and Asset Data

- Geospatial technology correlates climate data (such as droughts, flooding, and extreme heat) with asset data (such as high risk slip locations).
- By overlaying this information, analysts can assess how weather and climate events relate to specific asset-level locations.



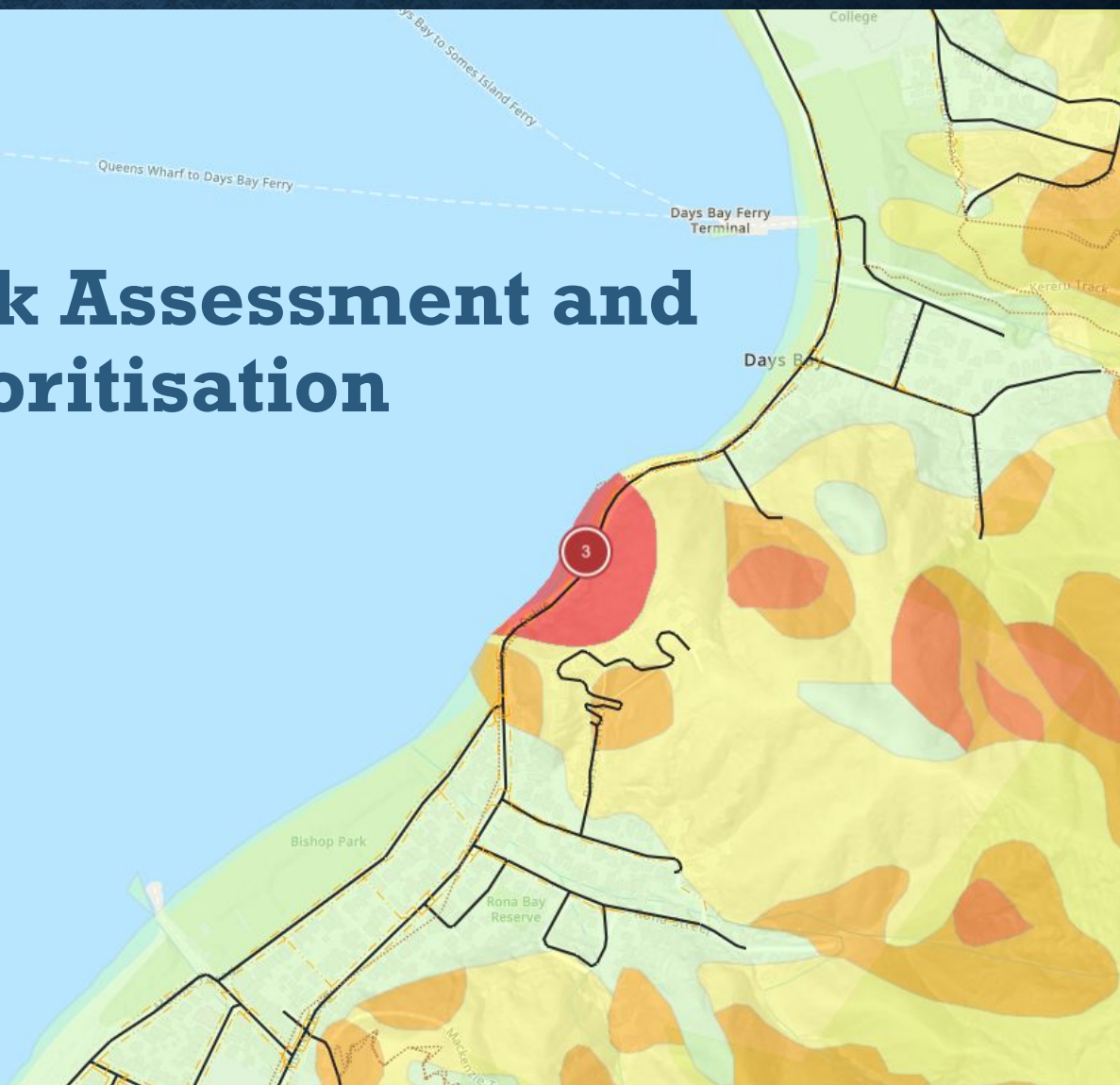
Spatial Analysis and Data Integration

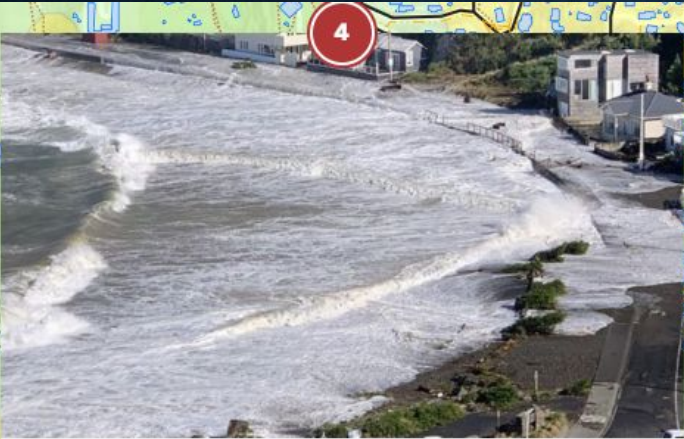


Natural Hazard Risk Assessment and Mitigation

- New Zealand faces various natural hazards, including earthquakes, volcanic eruptions, landslides, and coastal erosion.
- Geospatial analytics help assess vulnerability by mapping hazard-prone areas, identifying critical infrastructure, and planning evacuation routes.
- By integrating climate & risk data, emergency services can enhance preparedness and response strategies.

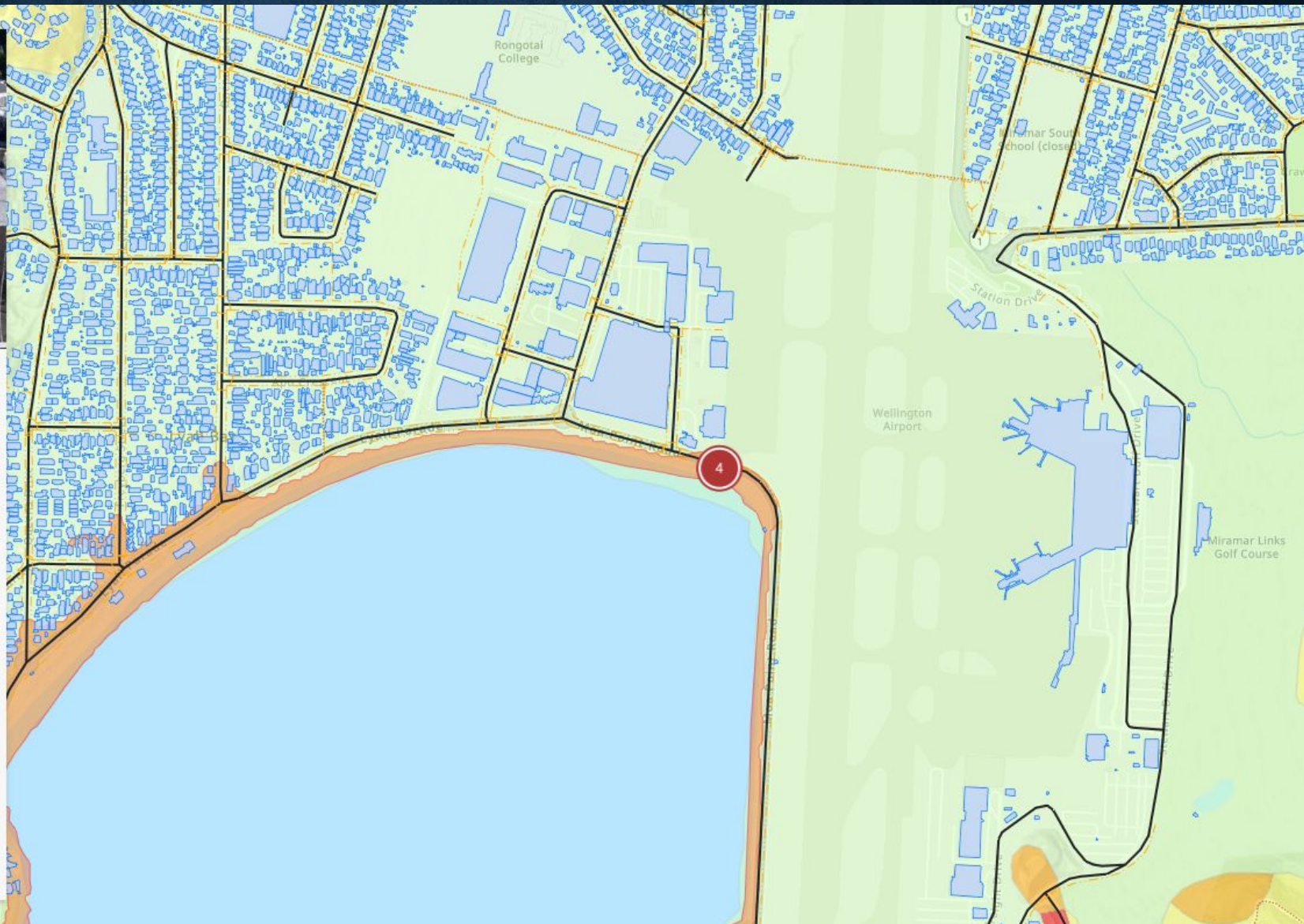
Risk Assessment and Prioritisation





Coastal Adaptation and Sea-Level Rise

- Rising sea levels pose a significant threat to New Zealand's coastal communities.
- Geospatial tools assist in mapping vulnerable coastlines, predicting inundation zones, and planning adaptive measures.
- Coastal engineers and urban planners use spatial data to design resilient infrastructure and protect against erosion and storm surges.



Communication and Stakeholder Engagement

WAKA KOTAHI NZ TRANSPORT AGENCY

MAPHUB

NOC L1 Controls:
0

NOC L2 Controls:
0

Recommended Baseline (i.e. TTM, reduce speed)

Recommended Enhanced (i.e. Level 1 PLUS physical measures)

Sites under contractor control:
0

Enhanced (i.e. Level 1 PLUS physical measures)

Controls and Mitigation

There are currently no sites where Level 1 alert is active.

Last Updated at:
31/05/2022, 07:47

WAKA KOTAHI NZ TRANSPORT AGENCY

MAPHUB

Structure Type Distribution

Data here is extracted from OBIS weekly.

Total structures: 104

Urgent/High priority actions: 4

1.7% of identified work

Handed over: 104

100% of structures

Scheduled Inspections (Year lookahead)

Future Inspection Schedule

Scheduled Inspections | Planned Inspections by Type

Financial Year Inspections:
Planned: 60
Completed: 44

Defect Type Distribution

Defects | Defects ID'd in last 90 days

Completed Inspection Details

- Structure No: 1710 - Rosy Morn (Formerly SR29_5K9)
Type: Other Structure - Special
Date: 24 February 2022
- Structure No: 1711 (A) - Rosy Morn (Formerly SR29d_1)
Type: Other Structure - General
Date: 24 February 2022
- Structure No: 1711 (B) - Rosy Morn (Formerly SR29d_2)
Type: Other Structure - General
Date: 24 February 2022
- Structure No: 1711 (C) - Rosy Morn (Formerly SR29d_3)
Type: Other Structure - Special
Date: 24 February 2022
- Structure No: 1709 (A) - Rosy Morn (Formerly SR29a)
Type: Other Structure - Special
Date: 24 February 2022
- Structure No: 1716 - Rileys Lookout (Panau Island)

Information is available such as:

- Location and geometry of assets.
- List of completed and upcoming inspections.
- Defects identified from previous inspections.

Dashboard last updated:
29/05/2022

Unleash!!!

- Data potential
- Ability to communicate
- Safety to plan & work
- Productivity
- Scenario testing
- Output
- Vision



Thank you
Any Questions?



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