

Category 4: Excellence in Pavement Recycling & Stabilisation in Local Government

Recycling Island Resources

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Bass Coast Council



2023 AustStab Awards of Excellence

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Project Challenges



Some local road users spotted – native Cape Barren geese



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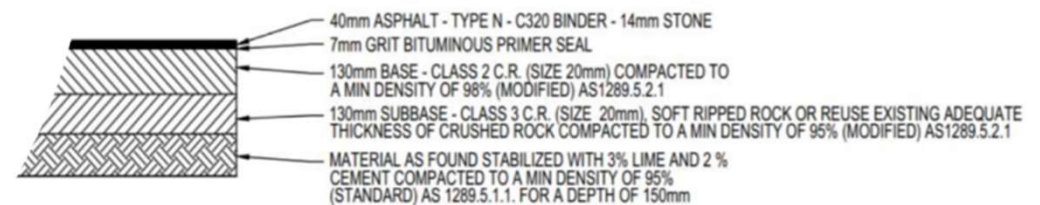
Project Challenges

Project Challenges	Solutions and Advantages of Insitu Stabilisation
Remote island location	<p>The ability to obtain materials for road construction (crushed rock, bitumen, spray seal, asphalt etc.) was a key challenge. An advantage of the insitu stabilisation process was reusing the existing road and prevention of disposal from site, with both facets advantageous on an island where material resourcing and management was restricted in terms of distance and access via a single bridge to the mainland.</p> <p>Binder and material resourcing was nonetheless a challenge, however minor compared with the traditional reconstruction option using crushed rock.</p>
Cold weather	<p>Undertaking insitu foamed bitumen in cool climates can be a concern for clients, due to the reliance of the bitumen to a certain temperature point to allow for effective foaming. This project is an example of how this recycling technology can be used in a cold climate and with low pavement temperatures (ambient temperatures of a maximum of 12 degrees Celsius). The bitumen tankers were effective in maintaining the bitumen at the adequate temperatures, and the insitu recycling process proved successful regardless of the cool pavement temperatures. As the third insitu foamed bitumen project by Council, this should instill confidence with clients to consider insitu foamed bitumen as a viable recycling option in cold climates and seasons.</p>
Budget	<p>Council had a limited budget, which turned into an advantage of insitu foamed bitumen stabilisation. The original reconstruction option was too expensive for Council to undertake, whereas insitu recycling provided a more economical alternative that was permissible with Council's budget.</p>

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Original Pavement Design

- Original design called for the removal of the existing road pavement material
- Followed by the stabilisation of the subgrade and importing of virgin materials to site



PAVEMENT COMPOSITION ALL ROADS

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Alternative Pavement Design



- Following an unsuccessful tender process due to construction timelines and budgets, Bass Coast Council worked closely with SPA to arrive at a fit for purpose alternate design that would both meet budget requirements however would also have sustainability benefits over the original design

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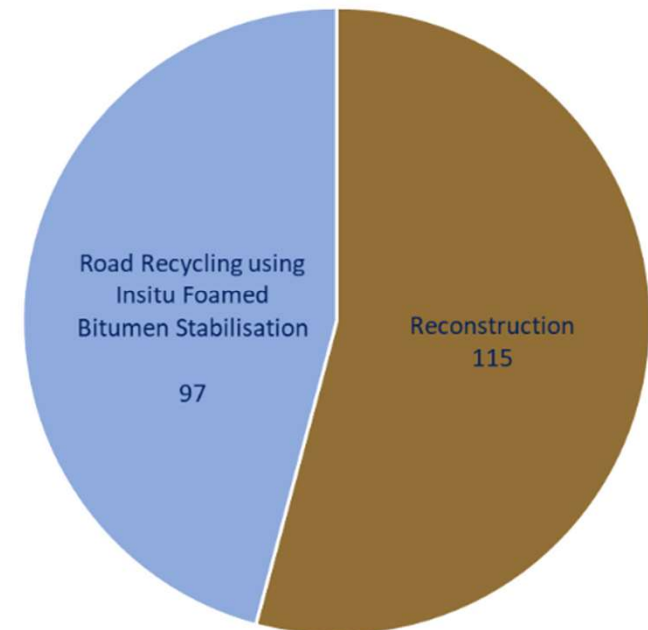
15%

Reduction of Greenhouse Gas Emissions by using
Insitu Foamed Bitumen Stabilisation compared to Reconstruction

- The scope of calculations covers:
 - Material manufacturing (cradle-to-gate)
 - Construction activities
 - Transport and haulage



Greenhouse Gas Emissions
(Measured in Carbon Dioxide Equivalent Tonnes)



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3,181 tonnes of Recycled Materials

Was used to create a renewed road simply by treating and rejuvenating 100% of the existing materials insitu

2,558 tonnes of New Materials

Was prevented from being manufactured and imported to site, thereby preserving natural and finite resources, and associated fuel and energy expenditure

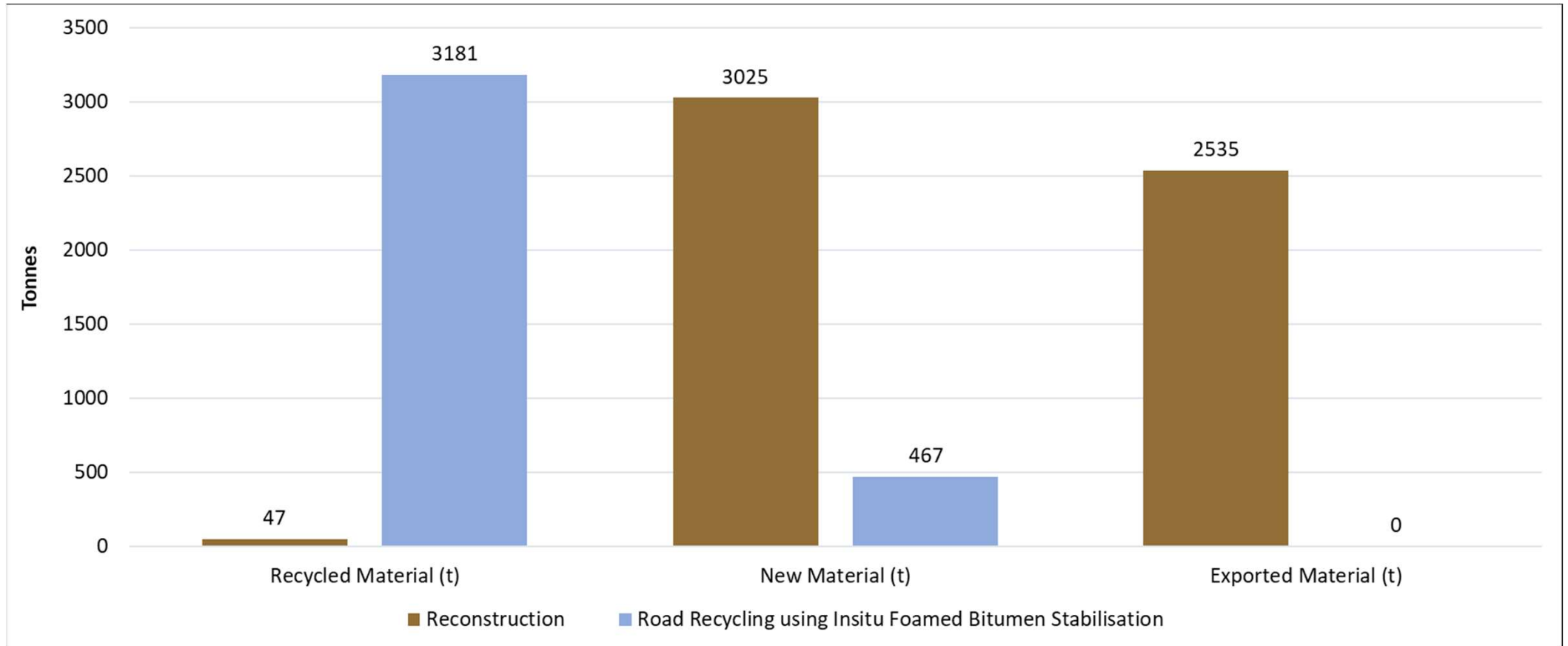


2,535 tonnes of Construction and Demolition Materials

Were prevented from being exported from site to disposal and instead re-engineered into a fit-for-purpose road asset

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Phillip Island Material Management



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- **846 truck movements** were reduced to-and-from site
- That's an incredible **98% savings** the total distance travelled by trucks on the road network*
- Prevention of **over 29,400 kilometres** of total distance of travelled by heavy vehicles
- Savings in the consumption of **16,400 litres of diesel**

** Including of materials to site from material suppliers, and between material suppliers and the asphalt plant and assuming a travel distance of 20km for metropolitan suppliers and 50km for others*



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Pre-milling and Overlay Works

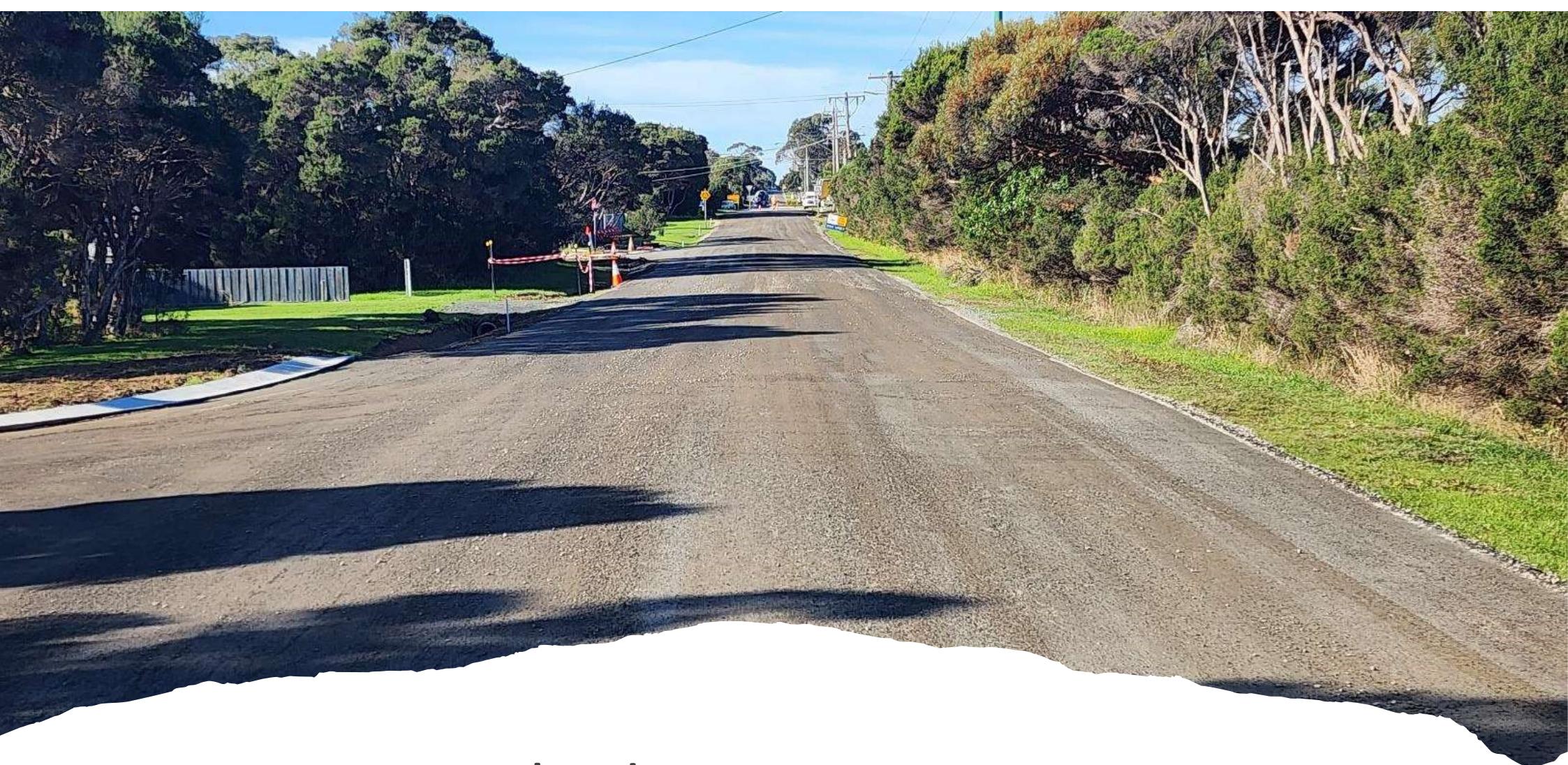


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Foamed Bitumen Stabilisation Process



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Recycled Pavement Layer

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Application Wearing Course



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