

# *Category 3: Excellence in Sustainability and Innovation*

## Sydney Gateway Project

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Hiway Stabilizers



## *2023 AustStab Awards of Excellence*

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# Overview and Objectives

- To beneficially treat and reuse unsuitable material on site
- To eliminate the disposal of the unsuitable material to landfill
- To minimise imported select fill for the embankment

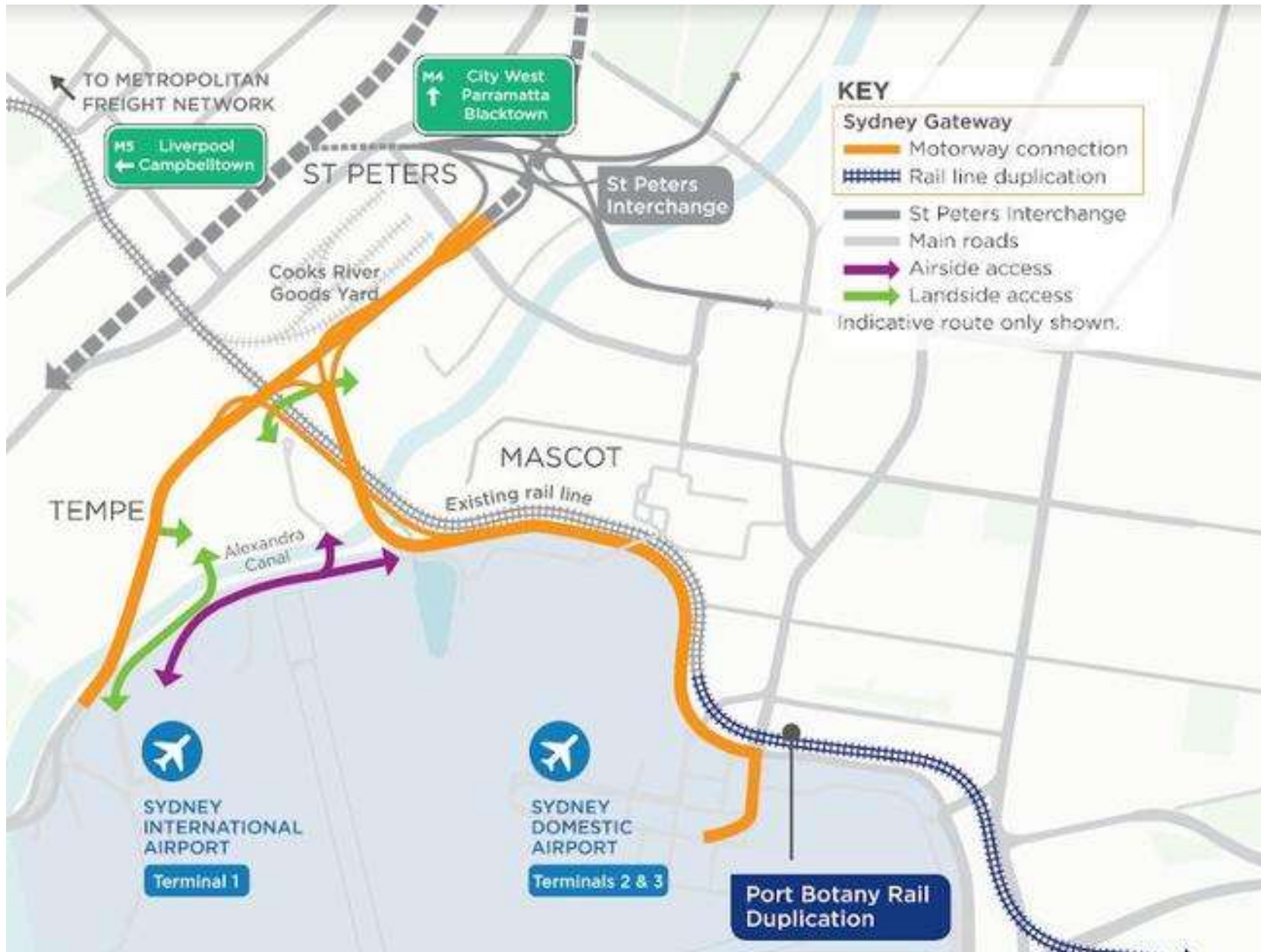
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# Sydney Gateway Road Project

- The \$2.6 billion Sydney Gateway road project is a new toll-free connection from St Peters Interchange to the International and Domestic Terminals and beyond making journeys from west and southwest Sydney to Sydney Airport, the M5, Eastern Distributor and Port Botany easier, faster and safer.
- The project is being constructed by John Holland Seymour Whyte JV (JHSWJV)
- Featuring a total of 19 bridges, including one that will be wider than the Sydney Harbour Bridge, and offering a direct connection to the new Sydney motorway network at St Peters Interchange, Sydney Gateway will streamline travel for motorists and divert up to 10,000 trucks a day from local streets.
- There is an adjacent rail project to duplicate the Botany Rail Loop.

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# What We Did

- JHSWJV approached Hiways to assist in solving a contaminated soil problem on the Sydney Gateway project
- We discussed ways to beneficially reuse the material on site and eliminate the need to dispose of the unsuitable material from the project to landfill at a high cost
- At the same time, JHSWJV had a 30m high embankment to construct and were seeking to minimise the importing of select fill
- As a trial, JHSWJV placed a 300mm layer of the unsuitable soil, comprised mostly of a dark brown sandy silt material on a mixing pad
- After inspecting the material Hiways recommended a cement lime blend
- This 50:50 cement lime blend was trialled at 2% and 4% of the blend. The 4% was only required in the lower quality wetter material, and 2% was sufficient to achieve select fill properties in the dryer material

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# Operating Environment and Impacts

- The site is adjacent to major transport routes around the airport and the Botany Rail Loop
- It has a large project footprint
- The road network is sensitive to traffic volumes and potential delays for those heading to the airport

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# Other Key Points

- In total between March 2022 and January 2023, the following areas were treated:
  - 287,685m<sup>2</sup> at 2% and 300mm
  - 35,215m<sup>2</sup> at 4% and 300mm
  - 111,748m<sup>2</sup> at 2% and 150mm, and
  - 469,765m<sup>2</sup> at 4% and 150mm
- In total
  - 322,900m<sup>2</sup> at 300mm, and
  - 581,513m<sup>2</sup> at 150mm

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# Successes

- The total volume of unsuitable material treated was 184,100m<sup>3</sup>
- Which is a total of 331,400 tonnes of unsuitable material beneficially treated and recycled into select fill
- This saved
  - 27,615 tipper loads of unsuitable material to landfill,
  - 11,046 truck and dog loads of select fill being imported to site, for
  - A total of 38,661 truck movements
- Recycling on site required 9,547t of 50:50 cement lime blend – 341 semi trailer loads of binder delivered to site
- This is a net 38,320 truck movements eliminated from the road network

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Pavement Recycling and Stabilisation Association



# Impacts of the Initiative

- The unsuitable material was successfully recycled on site
- Truck movements to and from the project were substantially reduced
- The cost of contaminated soil tipping fees was eliminated
- Road users on the proposed route from project to landfill were not impacted by a disposal operation
- The landfill didn't receive some 184,100m<sup>3</sup>, thereby saving landfill space

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