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Aerial photo of work near Maclean

Glenugie to Maclean

Woolgoolga to Ballina community update - April 2017

The Australian and NSW governments are jointly funding the \$4.36 billion Woolgoolga to Ballina Pacific Highway upgrade. Roads and Maritime Services Pacific Highway Office and Pacific Complete are working together to deliver the project.

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We are progressing with early work on the Glenugie to Maclean section of the Pacific Highway upgrade with activity focussed on setting up environmental controls, clearing vegetation, moving soil and preparing soft soils for later work. As this preliminary work comes to an end, we will see a number of new contractors join the project to start foundation work for bridges and lay pavement for the new highway.

Woolgoolga to Ballina project vehicles are restricted to 80 kilometres an hour or less on some local roads to help manage safety and dust. We have fitted monitoring systems in vehicles, allowing us to track the location and speed of our vehicles as we travel through local communities.

These measures are in place as part of our commitment to managing the impact of our work as the numbers of vehicles and trucks increase on local roads.

Ongoing and upcoming work

Much of the current work within the Glenugie to Maclean section of the Pacific Highway upgrade, such as earthworks and boundary fencing, will continue over the next three months. There will be some notable new activities however, like piling.

Work occurring over the next three months, weather permitting includes:

- ongoing soft soil work and installing equipment to monitor settlement
- installing new boundary fencing and property adjustments work
- ongoing blasting at Tyndale
- starting controlled blasting at Green Hill
- installing drainage under the Pacific Highway in Tyndale
- ongoing work to build the Tyndale interchange including realigning Bensons Lane
- start of clearing and grubbing between Old Six Mile Lane and Eight Mile Lane in Glenugie
- ongoing earthworks at Chaffin Creek
- continued work to upgrade Avenue Road and ongoing construction of the Avenue Road compound
- establishment of a dry mix batch plant on the alignment near Avenue Road
- start of piling work for future bridges.

Intersection upgrades

The Tyndale interchange is made up of two half interchanges located about two kilometres apart. Located just north of the Tyndale township, the Tyndale south interchange will provide a northbound off ramp and a southbound on ramp which will cross below the new highway. These two ramps will join at the existing Pacific Highway at an upgraded intersection. Work on this upgraded intersection with the existing highway is currently underway and is expected to be completed by June 2017, weather and site conditions permitting. It involves building a new northbound and southbound deceleration and acceleration lanes and realigning the existing pedestrian footpath. Access will be maintained for pedestrians at all times. Activities you will see during the work include:

- installing concrete barriers
- building and extending drains
- widening concrete pavements to create additional lanes
- linemarking
- building a temporary pedestrian footpath.

We are considering completing some of this work at night and will consult nearby residents with more information about the proposal, including the measures in place to manage noise during the work. The north interchange will be located north of Bondi Hill Road and will provide a northbound on ramp and a southbound off ramp to the existing Pacific Highway from the north. Work on the north interchange is expected to start in mid to late 2017.

Bensons Lane realignment

Part of the work on the south Tyndale interchange will involve realigning Bensons Lane. This will involve building a cul-de-sac at the end of Sheehys Lane and realigning Bensons Lane to the east of the new highway. Access for property owners will be maintained at all times and will involve using a temporary alternate access while work on the new permanent lane is underway. We have included diagrams of the final layout and upgraded intersection at the south Tyndale interchange. See Figures 1 and 2 for details.

Figure 1 Tyndale south and north interchanges

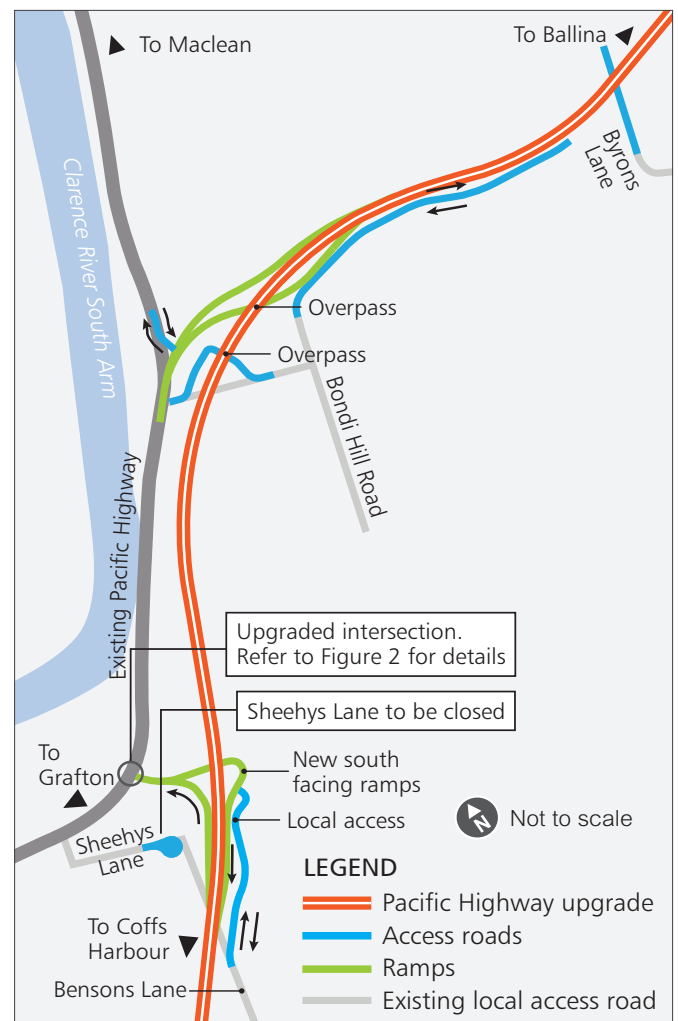
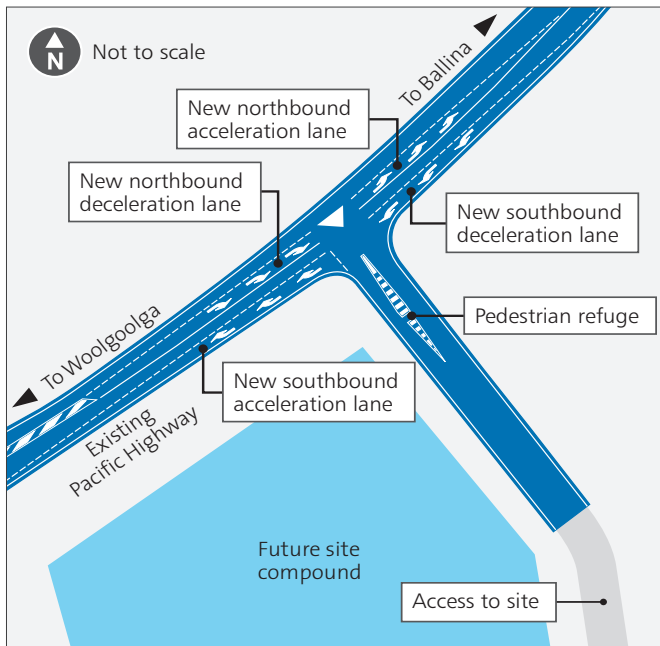


Figure 2 Upgraded intersection at the south Tyndale interchange



Soft soil work

Soft soil treatment is being carried out on sections of the highway before major building work starts. Soft soil work between Tyndale and Maclean is now 40 percent complete and will continue in this area. Without soft soil treatment there is the potential for highway foundations and pavement to sink and crack. Soft soil treatment takes time but saves money by improving the long-term performance of the road surface and ride quality for motorists.

What's a wick drain?

Wick drains remove water from soft soils so the settlement time of the soil is reduced from years to months. The process is like squeezing a sponge to remove moisture. Wick drains look like flat firefighting hoses and come in large reels, but have a plastic core like a bunch of drinking straws. The wick is covered with a geofabric which filters the water from the soil when downward pressure is applied from earth placed on top. As more earth is placed on top of the embankment, the increased weight pushes the water out of the soft soils, through the wicks into drains alongside the embankments. A video illustrating how wick drains to remove water from soft soils can be found at www.rms.nsw.gov.au/projects/northern-nsw/pimlico-to-teven/soft-soil-treatment.

Next steps for soft soil

We are monitoring the level of ground settlement and will continue to do so. Once we've determined the settlement has reached the required level, we will remove the excess earth to make way for teams to build the new road. Soft soil work will be completed in between Tyndale and Maclean by mid-2017.

521 of a total of 680 geotechnical instruments have been installed in the soft soil areas between Tyndale and Maclean



Instrumentation monitoring for soft soil work, showing drainage rock installed

Bridges

Temporary bridge at Shark Creek

A temporary bridge has been built over Shark Creek for use by construction vehicles until the permanent bridge is built at a later stage. The temporary bridge will reduce the number of project vehicles using the existing Pacific Highway and local roads. The permanent bridge over Shark Creek will span around 865 metres across the creek and flood plain, forming one of the largest bridges on the project. Work on the permanent bridge is expected to start in 2017.

Building foundations

Much of our work to date has been focussed on clearing vegetation, installing environmental controls and preparing soft soils for construction. The next wave of work in the Glenugie to Tyndale section will focus on piling for future bridges.

What is piling?

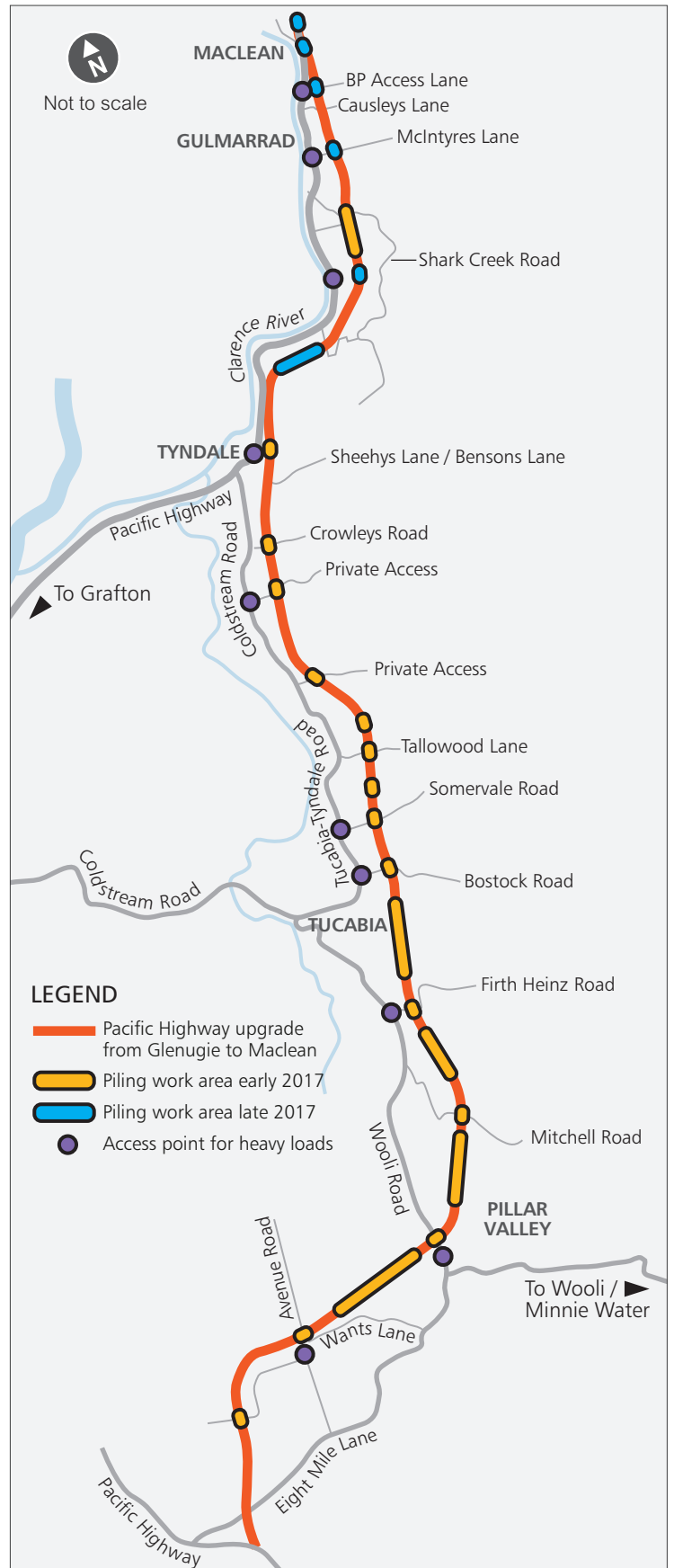
Piling is one of the methods we use to create a stable foundation for bridges, structures and buildings. Piling transfers the weight of the structure deeper into the ground. Piles are large columns generally made from reinforced concrete or steel. Inserting piles into the ground can take between one to two days to complete depending on the length and size. They can vary in length depending on the ground conditions and are driven or bored into the ground using a combination of cranes, piling rigs and vibrating hammers. Piling will take place at each bridge location. Refer to Figure 3 for indicative piling work areas.

Managing noise during piling

Piling can create increased noise and vibration levels. It is likely you will be able to hear piling activities if they are near your property. The majority of bridges between Glenugie and Maclean will have bored piles which are associated with smaller levels of noise and vibration than driven piles. We will carry out noise and vibration monitoring throughout this work. If the piling exceeds the noise guidelines, we will use respite periods.

All material for the piling, including concrete, will be delivered to the required location in trucks and semi-trailers. We anticipate fifteen concrete agitator truck deliveries per day and overall about 850 deliveries of materials used during piling. As much as possible, materials will be moved within the project boundary to reduce the number of construction vehicles on local roads.

Figure 3 Location of piling work areas and heavy load access points



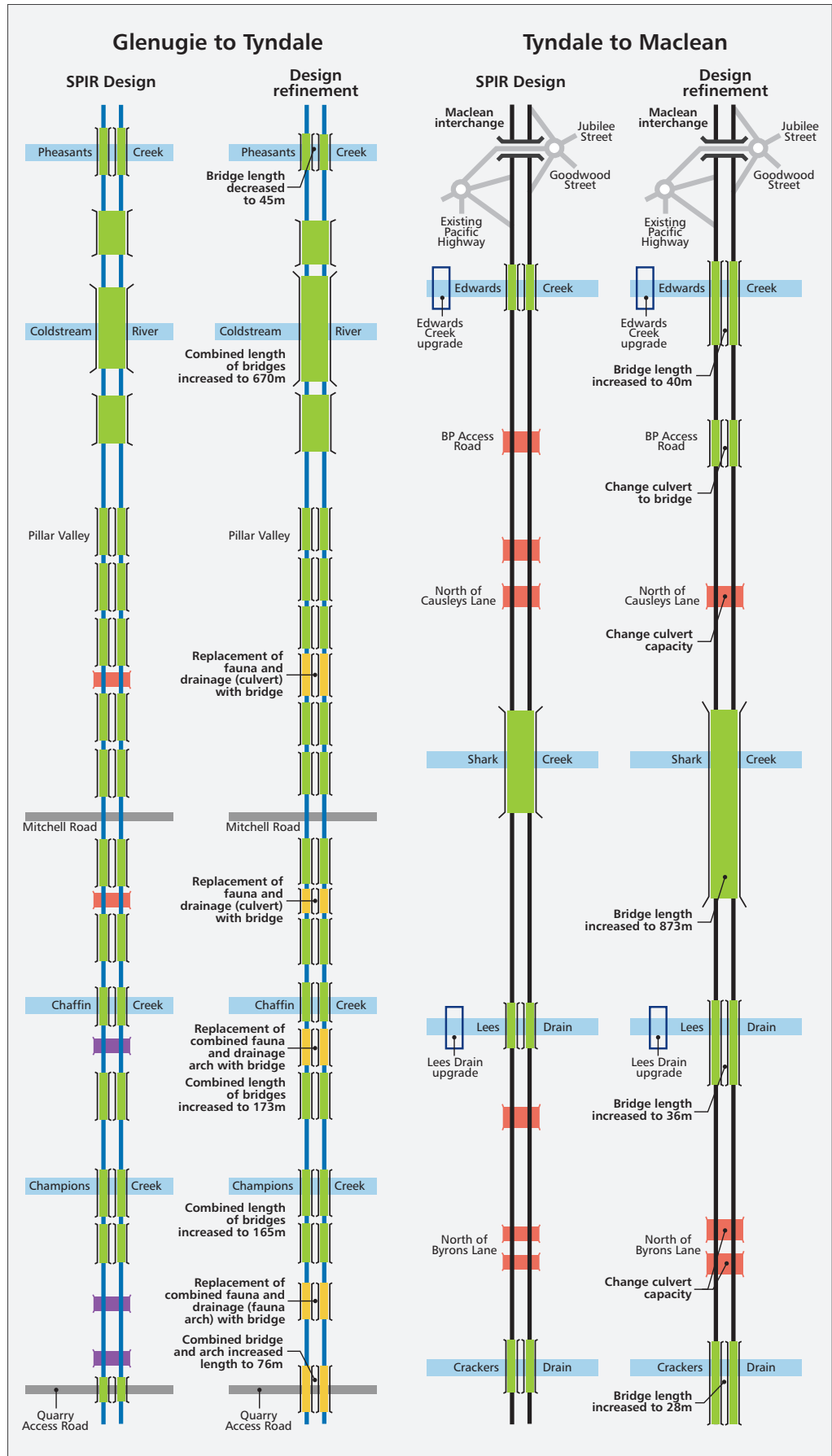
Flooding

A detailed flood assessment has been completed for the temporary and permanent work associated with the new highway. The study has modelled the impact of the work in a range of flood events, including a 100 year flood event. In the event of a flood, construction work would stop so equipment can be moved to higher ground and secured.

The project's base flood models have been updated and improved since the Environmental Impact Statement and refinements have been proposed to the design of the Woolgoolga to Ballina upgrade accordingly. These changes were presented at flood focus groups held in Tucabia and Maclean in late 2016. Figure 4 illustrates the changes in design from that proposed during the Environmental Impact Statement /SPIR for the Glenugie to Maclean section of the upgrade.

The project has generally met its flood management objectives and is consulting with landowners where the objectives cannot be achieved.

Figure 4 Design refinements



Hydrological mitigation report

The Glenugie to Devils Pulpit hydrological mitigation report is now available. This report sets out the flood management objectives and how the project has and will continue to reduce the impacts of flooding in the Clarence catchment. Your feedback has been considered and addressed in this report. We thank everyone for their involvement during the flooding assessments development. The report is available on Roads and Maritime Services' website rms.nsw.gov.au/W2B

Compound facilities

Main site compounds (also known as ancillary sites) have been established in three locations between Glenugie and Tyndale to provide temporary office, workshop and storage facilities for construction teams working on the upgrade. Batch plants will also be located at some compounds. Smaller compounds, known as satellite compounds, will also be set up at a number of locations between Glenugie and Tyndale to locate staff and facilities close to work areas. Once the upgrade is complete compounds will be removed and sites restored to their previous landscapes.

As part of the work to build the Avenue Road compound we will start to receive deliveries of gravel and other building materials and demountable buildings. To prepare for the expected increase in construction vehicles, work to upgrade Avenue Road has been continuing, including clearing of vegetation and widening of the pavement. There will likely be a requirement for an additional wet batch to be built between Tyndale and Glenugie. This location will only be finalised following the required consultation and approval process.

Batch plant

A batch plant is a combination of equipment that combines ingredients to form concrete. There are two types of plants, dry and wet mix plants. A dry batch plant mixes the dry ingredients with water added into a mixer truck. A wet plant combines the dry and wet ingredients on site, with the concrete often delivered in open bodied trucks.

Location	Function
Main compounds	
McIntyres Lane	<ul style="list-style-type: none"> • Temporary offices and amenities • Staff and truck parking • Storage areas for equipment and materials • Proposed wet batch plant
Tyndale	<ul style="list-style-type: none"> • Temporary offices and amenities • Staff and truck parking • Storage areas for equipment and materials
Satellite compounds	
Avenue Road	<ul style="list-style-type: none"> • Temporary offices and amenities • Staff and truck parking • Workshop for repairing and maintaining machinery and equipment • Storage areas for equipment and materials • Wet and dry batch plant to make concrete and structures
Firth Heinz Road	<ul style="list-style-type: none"> • Temporary offices and amenities • Workshop • Storage area for equipment and materials
Wooli Road	<ul style="list-style-type: none"> • Temporary offices and amenities • Workshop • Storage area for equipment and materials • Potential batch plant location
Tyndale-Tucabia Road	<ul style="list-style-type: none"> • Temporary offices and amenities • Storage area for equipment and materials
Old Six Mile Lane	<ul style="list-style-type: none"> • Temporary offices and amenities • Storage area for equipment and materials
Bondi Hill Road	<ul style="list-style-type: none"> • Temporary offices and amenities • Workshop • Storage area for equipment and materials • Potential batch plant location

Controlled blasting

Controlled blasting is occurring at a number of different locations in the Glenugie to Maclean section of the highway upgrade. The rock generated from controlled blasting activities is crushed on site using a crushing machine and transported and used to build the new highway. Controlled blasting may be carried out between 9am and 5pm weekdays and 9am and 1pm on Saturdays. Blasting at Green Hill Tyndale is planned to start in early 2017.

Minimising noise and vibration impacts

Blasting is used to break rock and is associated with two main impacts; overpressure (vibrations that travel through the air) and ground vibrations.

All blasts are extensively monitored to enable us to report results to community members and external agencies. We also use the information to help us design future blasts to further minimise impacts.

We work to minimise the noise and vibration impacts of blasting operations by:

- appropriately preparing blast-holes
- designing the detonation sequence so that there are time lapses between blast waves
- choosing appropriate blast times
- considering the impact of adverse weather conditions which can enhance vibration impacts.

Changes to roads and traffic management

Local road diversions

Traffic on some local roads will be detoured via short service roads to allow for work to occur on future overpasses. This has already occurred on Somervale Road and Wooli Road, with 11 more diversions to occur over the next few months.

Most of these detours are temporary and traffic will return to the existing local road when work on the future overpass is complete. There are some places, such as Bensons Lane in Tyndale and Wants Lane in Glenugie, where roads will be permanently realigned.

Construction vehicles on local roads

There has been an increase in construction vehicles on some local roads, including Wooli Road, Tyndale-Tucabia Road and Norleys Lane. As piling starts, we will also be managing the movement of about six drill rigs around the project site. The rigs will be moved on floats (oversize vehicles) and will access the project via approved heavy vehicle access points, shown on Figure 3. As much as possible, material will be moved within the project boundary to reduce the number of construction vehicles on local roads.

A 30 kilometre haul road is being built for the Glenugie to Tyndale section of the project to limit the need for large earthwork equipment to continually use local roads. This is scheduled to be completed progressively between February and August 2017. While this haul road is being built, there will be up to 20 truck movements per hour on local roads as we transport materials between sites. For the safety of workers and all road users, speed limits have been reduced to 60km/hour at various locations on local roads during work hours and traffic control is in place to direct and manage traffic at key locations and intersections.

The project team is also trialling a reduced speed limit of 80 kilometres/hour for all construction vehicles on Tyndale-Tucabia Road. Project and contractor staff are regularly reminded of the presence of local and holiday vehicles on the route and of the requirement to drive to conditions and be courteous. In addition, we have been working with highway patrol to conduct surveillance of this road and monitor driver behaviour periodically during construction hours. We will remain in regular contact with Clarence Valley Council and local residents to manage the interaction of local and construction vehicles.

How this may affect you

Changed traffic conditions

There will be some temporary traffic changes while work on the project is carried out. Reduced speed limits and lane closures may be in place for access and may affect travel times. Please keep to speed limits and follow the direction of traffic controllers and signs. For the latest traffic updates, you can call 132 701, visit livetraffic.com or download the NSW Live Traffic app. We apologise for any inconvenience and thank you for your patience during this important work.



Emu fencing at Woolli Road

Environmental update

Coastal emus

To ensure ongoing safe movement of local wildlife under or over the new highway during construction and in the future, the project has been installing fauna fencing. The fencing consists of two strands of plain wire, two strands of barbed wire and a squeeze stile in areas between Glenugie to Tyndale where emus are regularly sighted. The fence is also designed to have sediment fencing along the bottom to keep emu chicks outside the project boundary (see photo). It is being installed in a way that will guide emus to use designated crossing points which will align with future connectivity crosses. The project team is continuing to monitor emu movements and you can get involved too. If you see an emu in your local community register your sighting with the project by calling us on 1800 778 900 or emailing W2B@pacificcomplete.com.au.

Innovation - yellow line trial

To improve the safety of road users and workers we are trialling a number of new ways to guide people through work zones and increase awareness of changed traffic conditions and speed limits. We are doing this because we understand changes to the road environment during construction change your experience of your journey.

Yellow lines will replace white lines at a number of temporary work zones near the existing highway to provide better guidance through work zones and raise awareness of changed conditions. Yellow lines have been marked at the Yamba interchange, with signs installed at either end of the trial section to inform road users they are entering and leaving the yellow line marked zones. We need your feedback about travelling through the yellow line trial to help us understand if you think they are effective. To be part of this important safety initiative please complete our five minute survey www.surveymonkey.com/r/yellow_line_trial or visit www.rms.nsw.gov.au

For more information about the Woolgoolga to Ballina Pacific Highway upgrade contact:

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We thank you for your patience during this important work.

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