Upgrade of the New England Highway at Bolivia Hill

The project is located between Tenterfield and Glen Innes in the New England region. Bolivia Hill and much of the surrounding area has been experiencing one of the worst droughts on record.

The terrain on which the project is being built is extremely steep with a large number of granite rock outcrops. To allow machinery and trucks to access the work site over 3km of access tracks have been built. Dirt tracks mean dust and we are required to ensure dust is controlled on site. Rather than using vital water to keep the dust under control the project looked for alternatives. A soil stabiliser was used to bind the surface of the dirt access tracks this resulted in the reduction of water being used on site to suppress dust.

Water use in road construction and maintenance

Transport for NSW recognises the importance of water to the environment and the wider community. Efficient use of water has been a priority for us for many years. During the current drought affecting a large proportion of NSW, we have stepped up our efforts to find innovative ways to limit the amount of water we use. During drought conditions we continuously monitor surface and ground water levels to inform our road maintenance and construction program of work. We delay or re-program non-essential work when water levels reach critical levels. Nonetheless, there are a number of areas where water is still essential to our road maintenance and construction activities.

Concrete production

To produce concrete, water is needed to combine the cement and aggregate, and allow the concrete to be workable. The water used in concrete needs to be high quality as impurities can impact on the quality of the concrete and its overall strength. Poor quality concrete results in the road failing and having to be reconstructed; wasting taxpayers money and valuable water.

It typically requires about 180 litres to make one cubic metres of concrete.

WE ARE COMMITTED TO

- eliminating water wastage on site
- improving efficiency of water using processes
- offsetting consumption of mains water with alternative sources, such as rainwater harvesting and use of treated waste water.

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Reducing dust

Reducing the amount of dust leaving a work site is important. Dust negatively impacts on communities, can irritate people and farm animal’s eyes and breathing, restrict plant growth, and be a road safety hazard.

Sourcing water responsibility

We have regulatory obligations to reduce these impacts and the Environment Protection Authority monitors our adherence to these regulations. Water is often used to wet the exposed ground where heavy machinery is working. The water we use is often collected on-site from runoff or waste water from nearby sources, such as water treatment plants. If these sources are not available we look to local rivers, creeks, bores and dams, and as a last resort to potable water.

When we source water from dams, rivers or creeks we continuously monitor the levels available and discuss the use with the local water manager (typically council, Local Land Services, WaterNSW, Department of Planning, Industry and Environment (DPIE). When accessing water from bores we selectively use existing bore sites over a large area to ensure they are sustainable and allow for recharge.

Surface water levels (dams and creeks/rivers) are continuously monitored by Transport for NSW and discussed with the local water manager (typically council, Local Land Services, WaterNSW, DPIE).

We do not extract water from rivers and creeks that are at critically low levels as this may impact on the water supply of towns and villages. Approval is sought when water is extracted from natural watercourses, and whenever possible, we buy water from local sources e.g. property owners, irrigation authority, and local government.

Work in the far west of NSW

Effective water management has always been vital for our project teams working in the far west of NSW. This region receives the lowest average rainfall of any region across NSW. Our teams have developed a number of innovative ways to reduce water use in this extreme environment.

The teams have adopted a strategic approach to the maintenance of unsealed (dirt) roads by allowing rainfall to be a critical factor in when roads are maintained. Water is needed to maintain dirt roads; it helps compaction of the road surface for a smoother longer lasting surface. Rather than using an imported water source the teams monitor rainfall and schedule maintenance activities to use the soil moisture in the areas which have received rain.

A network of bores are used as a water source. These are rigorously monitored to ensure they are recharging to sustainable levels. The access and use of these and other water sources is always carried out in consultation with the local community. Where water has to be stored on site, covered storage facilities, such as water bladders and tanks are used.

These significantly reduce water loss from evaporation. The sealing of the last remaining sections of dirt road on the Silver City and Cobb highways will significantly reduce the dust generated in these areas and will reduce the need for water to be used to maintain them into the future.

Sediment basins are used to catch water run-off from sites, for reuse of water and to stop sediment leaving the site.

Dust storm as a result of drought in far western NSW

Warratta NSW, road sealing program on Silver City Highway

Water bladder in use on site

Dust generated by a road train on an unsealed section of Silver City Highway.
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