

Project: Goodna Substation  
Date: July 2013  
Client: Powerlink  
Contractor: L & K Truck & Bobcat Hire  
Location: Goodna, QLD



## SmartDitch® System

**The Problem:** An earth drainage ditch beside an access road to the substation was eroding and transporting silt, allowing it to accumulate in an access grate and storm water pipes, blocking water flow. Upon inspection, the grate was covered with over 200mm of silt and the underlying drainage pipes were also blocked.

**The Solution:** Install SmartDitch® Channel Lining System to prevent side wall erosion and the pick-up of silt along the drainage path, eliminating accumulation and the need to regularly unblock drainage.

**The Method:** An initial enquiry from contractor L & K Truck & Bobcat Hire outlined the problem and alternate rock based solutions had been suggested by others. After a site inspection, an opportunity was seen to use SmartDitch® 300mm Trapezoid channel lining system.

The product was approved by the client and a template profile was fabricated from 50mm PVC pipe to obtain the correct excavation angles and dimensions. It is important to note at this stage that the soil must support the SmartDitch® structure.

Working from the low point, the panels were first put into place loose keeping the SmartDitch® logo on the same side of the structure all the way to ensure the ridges or knuckles overlapped correctly – these are shaped round and square alternately so that one fits inside the other on the overlap. The upstream panel always overlapped the downstream panel to ensure water flow does not get under the structure and undermine it. Once all the pieces were in place and all curves were well structured, the panels were sealed and screwed together. SmartDitch® 300 Trapezoid is flexible enough to form a minimum radius of just 3.05m. The next stage was to install the anchors at a 45° angle to a suitable depth, tighten the cable and lock it into place on the SmartDitch®.

With all panels securely fitted so that water cannot infiltrate from either side, the entrance and exits were trimmed with concrete, again to ensure no water gets under the lining system. The high side of the system can have a HDPE apron fitted if it is suspected that excess water may infiltrate under the side of the system

*Photos to the right show the dirt drainage ditch prior to installation (top) and the SmartDitch® drain installed prior to final tightening of the securing anchor system.*

