

# BOONAH SEWAGE EFFLUENT TREATMENT PLANT



**Paul Truong**

**Director, The Vetiver Network International,  
Director *Veticon Consulting*, Brisbane, Australia.**

**Email: <[p.truong@veticon.com.au](mailto:p.truong@veticon.com.au)>**

---

*All materials in this document remain the property of Veticon Consulting Pty Ltd.  
Permission must be obtained for their use. Copyright © 2011*

# BOONAH SEWAGE EFFLUENT TREATMENT PLANT

- This plant serves a small rural town in Queensland, Australia, with the capacity to dispose of 500 000L of sewage effluent per day.
- Vetiver Phytoremediation was adopted to reduce both construction and maintenance costs in upgrading this plant to comply with EPA new regulations.
- **EDVI** model was used in the design of this plant.

# Effluent Disposal Modelling

In Queensland, Australia the EPA has adopted MEDLI as a general model for industrial and municipal wastewater management. The main components for effluent treatment are: *Effluent quantity and quality, Plant species, Soils and Climate.*

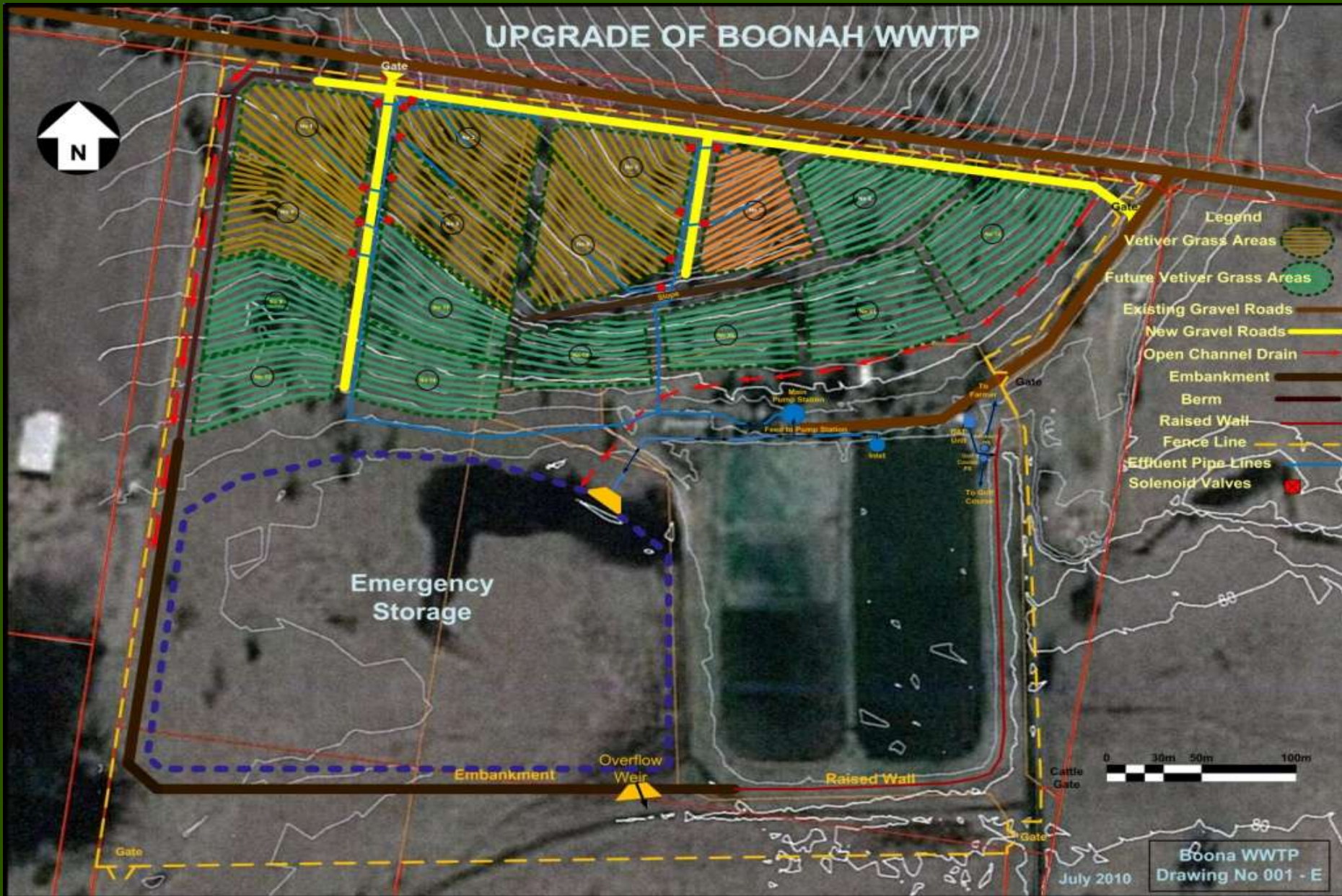
However **MEDLI** is limited:

- \* to large scale wastewater management.
- \* it is based on a wide range of pasture plant species and
- \* it is not suitable for smaller scale using vetiver grass.

A simpler model **EDVI** was developed by Veticon Consulting for sites where MEDLI is not suitable

**EDVI** is based on some components of **MEDLI** and the "Australia Water Balance Model" In addition **EDVI** was designed exclusively for vetiver grass, using data from extensive R&D results obtained from Veticon research and TVNI data

# GENERAL PLAN OF THE SITE



# Original site



# Site preparation: Levelling for surface irrigation



**April  
2011**



**Marking  
contour line**

# Planting materials

Bare root plantlets



Potted plants





## Planting from potted plants



## Planting from Bare root plantlets



# Manual planting on 27 April 2011



**Potted plants and bare root slips**



# Manual planting on 27 April 2011



**Bare root slips**

**Potted plants**

# May 2011: One week after planting



**Potted plants**

**and**

**bare root slips**



**May  
2011**



**Potted plants**

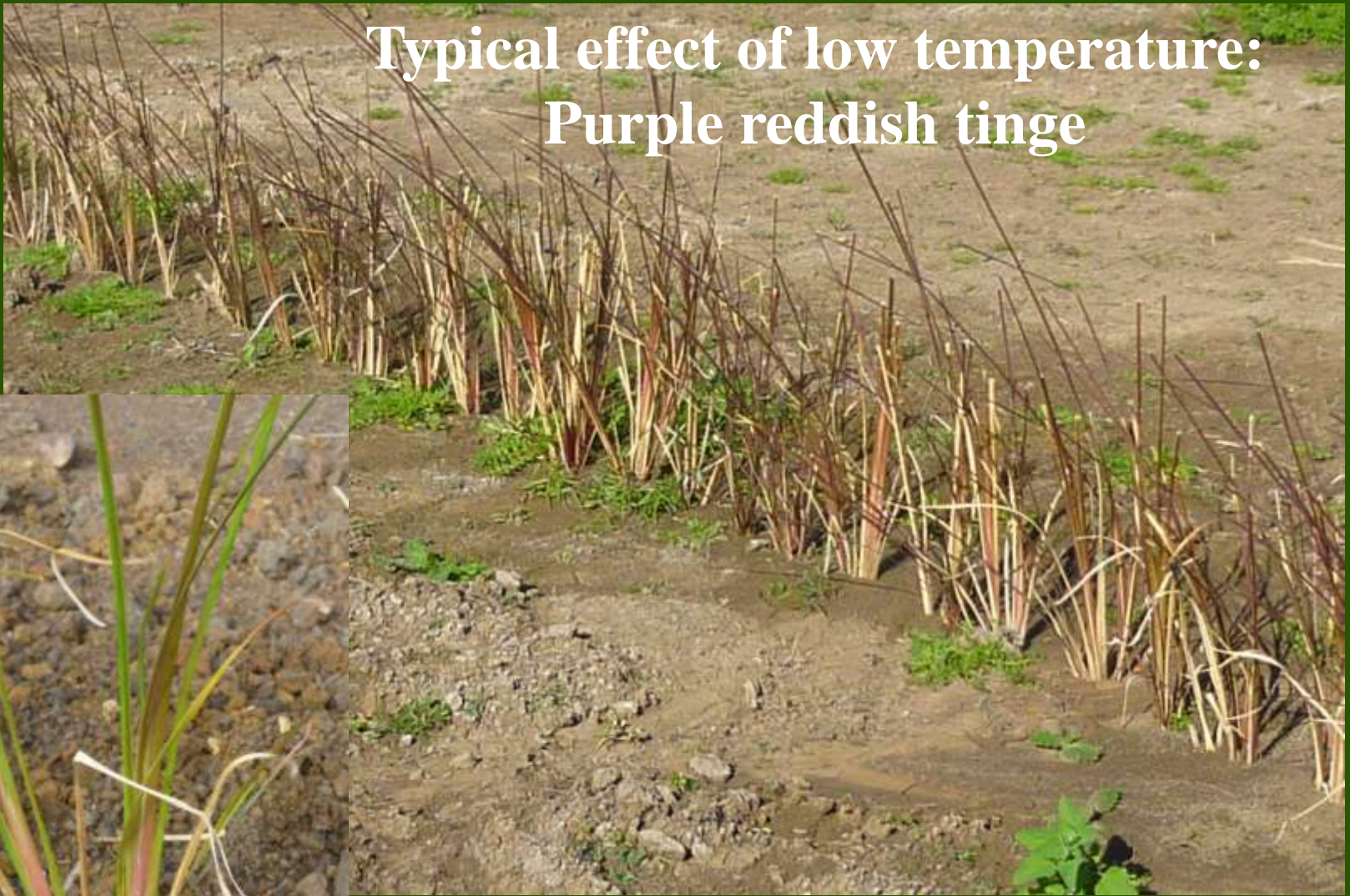


**One week after  
planting**



**Bare root plantlets**

**Typical effect of low temperature:  
Purple reddish tinge**



**Winter at Boonah: June-August  
Minimum range: -5oC to 8oC  
Maximum range: 10oC to 18oC  
Frost frequency: Average 6/month**

# Effects of severe frosts



**Potted plants**

**Bare root plantlets**



# July 2011: Effects of frosting and winter weeds



# August- September 2011: Badly affected by winter weeds



# October 2011: Winter weeds protected young vetiver from severe frosts



Winter weeds were controlled by herbicide in Spring, when frosting incidence stops



# Mid November 2011: Recovery after winter frosts



**Regrowth after weed control  
and trimming**

# Late November 2011: Recovery after winter frost





**Two week growth  
in November**



08 13 2011

# Growth difference between potted plants and bare root slip planting on 13 December 2011



**Potted plants 80cm**



**Bare root plantlets  
70cm**

**Potted plants 80cm**



**Bare root slips 70cm**



13-12-2011



# Very fast regrowth after winter

**14 August 2011**



**10 November 2011  
after third trimming**



**15 November 2011**





**25 November 2011**

**13 December  
2011**



**80cm**

# Growth was not affected by sludge spill







May 2011



September 2011



November 2011



December 2011

*Thank You*