

## **BENEFITS OF LAND AND WATER MANAGEMENT PLANS FOR THE TURF PRODUCER**

The purpose of “Land & Water Management Plans” (LWMP) in the Queensland Turf Industry is to ensure that storm or irrigation water does not cause land and water degradation, both on and off farms, and into local water ways. Furthermore, LWMP’s can improve Natural Resource Management (NRM) issues along with general turf productivity. NRM issues concerning turf production include:

- ⑥ Soil erosion
- ⑥ Native vegetation management
- ⑥ Nutrient & sediment movement into waterways.
- ⑥ Water quality
- ⑥ Water table issues
- ⑥ Salinity

**LWMP’s can be used as part of normal business practice and be beneficial to farm practices by:**

- ⑥ Planning and reviewing turf irrigation practices
- ⑥ Identifying and managing the risks of land nutrient and sediment movement
- ⑥ Improving water quality and erosion control associated with irrigation practices into local waterways
- ⑥ Enhancing natural grasslands or riparian areas on land and above water ways and estuaries
- ⑥ Recording and measuring improvements in turf irrigation management practices
- ⑥ Improve farm operation in order to restore local waterways

Drainage from undulating country (both on-farm and in local catchment areas) can cause severe degradation to turf farms, local gullies, creeks and associated waterways in catchments areas. The recording, measuring and monitoring of drainage areas through LWMP’s can prove important to demonstrate individual on-farm land and water management, sustainability and efficiency. The recording of turf buffer zones or riparian areas shows how nutrient movement into waterways or irrigation storages is being controlled.



Nutrient and sediment drainage areas on farm are important management issues in relation to Natural Resource Management (NRM). Mandatory LWMPs approved by DERM are required before you can obtain a water allocation for irrigation under a range of circumstances. These include (but aren’t limited to): new, additional and interim water allocations; moving some or all of your existing water allocation from one resource operations plan (ROP) zone to another; and being in an area where a ROP specifies that a LWMP is required to obtain a water licence.

(Source: <http://www.derm.qld.gov.au/factsheets/pdf/water/w56.pdf>)

# CASE STUDY

**NO: 005**

**Date: March 2011**

**A LWMP comprises of written workbook and 6 different property maps (with data overlays) of infrastructure and NRM issues on the property. These maps include:**

## Map 1: Farm Layout

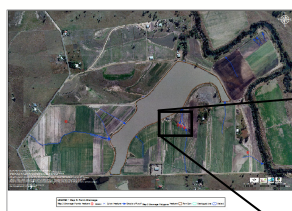
- 🌀 Bore
- 🌀 Cattle Dip
- 🌀 Chemical Storages
- 🌀 Fuel Storage
- 🌀 Hydrants (Existing / Proposed)
- 🌀 Power Poles
- 🌀 Pump sites
- 🌀 Soil Moisture Monitoring
- 🌀 Water Outlets
- 🌀 Access Tracks on property
- 🌀 Boundary of Irrigation land
- 🌀 Fences (Existing and Proposed)
- 🌀 Irrigation flow path
- 🌀 Mainline location and size types.

## Map 2: Property Description

- 🌀 Lot and Plan

## Map 3: Farm Drainage

- 🌀 Erosion
- 🌀 Culverts
- 🌀 Farm Dam
- 🌀 Water Logged areas
- 🌀 Wetlands
- 🌀 Irrigation Storage Areas
- 🌀 Dam By-Wash
- 🌀 Piezometer
- 🌀 Piezometer Proposed
- 🌀 Salinity
- 🌀 Sediment Trap
- 🌀 Direction of movement



**Sample Farm map**

## Map 5: Soil types

- 🌀 Moreton Land Resource Areas



## **Legend**

Sediment & nutrient control areas proposed  
Direction of run-off

**E**



## Map 6: Vegetation

- |                          |                          |                           |
|--------------------------|--------------------------|---------------------------|
| 🌀 Agro Forestry Existing | 🌀 Improved Pasture       | 🌀 Timbered Native Pasture |
| 🌀 Buffer Zone Good       | 🌀 Open Native Pasture    | 🌀 Windbreak Existing      |
| 🌀 Buffer Zone Moderate   | 🌀 Riparian Area Good     | 🌀 Windbreak Proposed      |
| 🌀 Buffer Zone Poor       | 🌀 Riparian Area Moderate |                           |
| 🌀 Heavily Timbered       | 🌀 Riparian Area Poor     |                           |

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**Turf**  
**Queensland**  
*Grow Green*

Turf is the natural buffer zone for nutrient and sediment control along bare ground in undulating country. This proves to be beneficial through reducing nutrient and sediment movement into waterways or on-farm irrigation storage areas.

**Photo 1: High levels of nutrient and sediment movement over undulating country into irrigation storage**



**Photo 2: Turf buffer zone used to reduce movement of sediment and nutrient into irrigation storage**



The turf buffer zone used on farm reduced the impact of nutrient movement into water ways and irrigation storage areas.



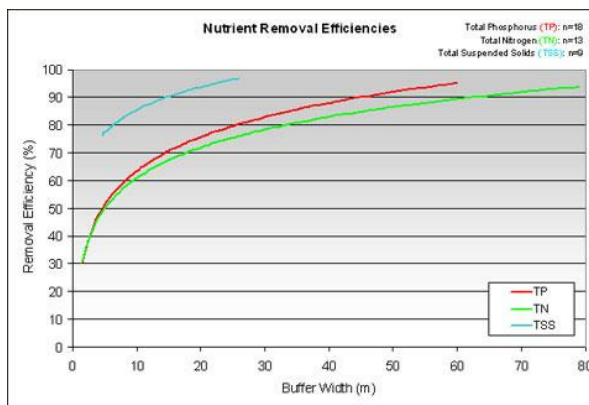
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**Turf  
Queensland**  
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## FACTS OF TURF BUFFER ZONES REDUCING NUTRIENT & SEDIMENT MOVEMENT



Turf buffer zones can serve more than one role: decreasing in-flow of water carrying turf chemicals, improving riparian habitat, and reducing sediment and nutrient movement during storms or high irrigation events. Research from Baros and Cohen (2008) shows an increase of turf buffer zone widths plays a vital role in decreasing Total Nitrogen (TN), Total Phosphorus (TP) and Total Suspended Salts (TSS). Graph one above shows that as the width of buffer zone increases, the removal efficiency of these pollutants also increases.

These pictures below are testament to areas of reduced nutrient & sediment movement in the environment, in parks and along roadways.



(Source: [www.environmentalandturf.com](http://www.environmentalandturf.com))



(Source: [www.lrc.usace.army.mil](http://www.lrc.usace.army.mil))



(Source: [www.dot.ca.gov](http://www.dot.ca.gov))

Turf Queensland's TAP (Turf Accreditation Process) is equivalent to 50% of LWMP's. Contact Turf Queensland Inc. for advice on TAP. Turf Queensland Inc. with assistance from DERM, can also advise on whether existing property management plans or other plans and documents are suitable to use in the TAP or LWMP applications. Turf Queensland Inc. with assistance from SEQ Catchments can provide assistance for turf producers in completing a LWMP for their property.

(Reference: Baris, RD, Q Ma, SZ Cohen. 2008.

Buffer Widths and Nutrient and Sediment Removal Efficiencies. Presentation at the American Water Resources Association, 2008 Summer. Specialty Conference: Riparian Ecosystems and Buffers: Working at the Water's Edge, Virginia Beach, VA. [www.environmentalandturf.com](http://www.environmentalandturf.com))

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