



Gingin Water Group Inc.

Attachment to stakeholder comment form  
For Shire of Gingin

**From Gingin Water Group Inc.**

Project title: **REVISED OUTLINE DEVELOPMENT PLAN  
(MOORE RIVER SOUTH)**



## Gingin Water Group Inc.

The Gingin Water Group Inc. (GWG) seeks to make a submission to the Gingin Shire in response to the revised Outline Development Plan (ODP) as presented by Cardno for the Moore River Company (MRC)

GWG considers it inappropriate for it to comment on the general nature and background of the Plan or the specific planning details which relate to matters other than water.

GWG Inc. was set up with a mandate to gain an understanding, on behalf of the community in the greater Gingin region, of the sustainability of the current and future use of the water resource available to it and make comment on proposals in the area which may impact on that resource.

Water resource details of this area are reported in two publications of the Department of Water (DoW) :

1. Gingin Surface Water Allocation Plan (April 2011)
2. Gingin Groundwater Allocation Plan (proposed 2012)

The conclusions of the Surface Water Plan were disturbing. Surface water allocations in all areas were either in excess of supply or did not exist at all due to the current lack of supply in these areas. This contrasts to the historical perspective and reflects the predicted further decline of this resource due to climate change.

The very latest CSIRO report for the Gingin area is that this effect will be at the worse end of the modelled spectrum.

The relevance of the Surface Water Report, to this ODP, is that several very large licenses exist out of the western end of the Gingin Brook. This section supplies the bulk of the summer surface water flow into the Moore River estuary. The fact that this flow dried up completely during the summer of 2010/2011 is a very concerning sign of what is likely to happen more often in a future drying and warming climate. The ultimate effect that this trend will have on the health and viability of the Moore River estuary is uncertain in its extent, but can only be detrimental.

The Gingin Groundwater Allocation Plan was due for draft release in October 2011. It may now occur in May 2012. Full public submission periods must prevail before its finality.



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This document seeks to explain how the DoW will manage its obligations to ensure a sustainable water supply through licenses and natural rights for both the human and environmental demand. The task is complex and as the most recent CSIRO climate science reports indicate the models are all pointing to a rapidly worsening result with respect to water supply in the Gingin groundwater area. This task is to maintain water supply to the existing farming community as well as continue to allow the horticultural sector in our area to grow and supply the growing city needs as well as to reduce some of the agricultural water use extraction from the northern metropolitan area.

It is a concern to the Gingin Water Group that a large new urban town of , **initially**, 2000 households will be developed in a groundwater supply area which already supplies a large number of important horticultural interests. This area ( Guilderton Groundwater area) already contains the most concentrated cluster of licensed bores in the Gingin region. The bulk of these bores extract from the superficial aquifer.

The interaction between this water source and the deeper Leederville source is not well understood. The Tuff report , in its west Gingin brook study, identifies that the Leederville is in fact an **unconfined** aquifer in this area. One of its recommendations is that the full nature of this connection needs to be established before further licensing can be safely guaranteed. The effect of saline encroachment from rising sea levels and aquifer mixing via bores and natural connection is not understood but of very real concern in the Guilderton Groundwater area.

**Section 1.1 of the Moore River Outline Development Plan-Servicing Feasibility Study** describes the amount of no-risk water their 2000 lots will be likely to require and how this volume will be recycled to produce water for public open space(POS) . Cardno assumes the ODP having a site density of 1.8. This is based on a Guilderton density of 0.5 residents/lot (we assume the data they provide (0.5 per resident) is a misprint!) We submit that the permanent population of Guilderton would be much less than the 200 as suggested. We also submit that to achieve the town dynamics described in the ODP the proposed new town would need an occupancy of closer to 4 residents per lot. The 1.8 as assumed would produce a semi holiday village unable to successfully support the range of facilities and objectives described. A controlled expansion of existing coastal towns would achieve the same ends. We further submit that the water requirement for Guilderton as described at 184kL/lot/yr is reasonable , but that this mostly is used to support gardens on absentee



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lots (the vast majority of lots in Guilderton). Water use on a lot with a permanent family resident (plot ratio closer to 4) would more likely give a total no-risk water demand close to 1 gigalitre per year (1 million kL/yr). **Where would this water come from?**

Table 4 indicates the 3 bores in the area. It shows the bore allowance of each and extracts the fictitious existing (or proposed in the case MRS) extractions from Guilderton and Woodridge. It does not supply the ACTUAL annual supply to the existing settlements. DoW would know this figure obtained from the Water Corporation. No official data is supplied to indicate current flow test results which would indicate if these bores are still capable of supplying the allocated bore allowance in a sustainable manner going forward.

Furthermore the proponents provide a list of all the licenses in their immediate area. Presumably most of the smaller ones are those held by the Woodridge residents. The two large DoW licenses listed are those stated to most likely underpin the full required amount. The volumes shown would even supply the 1 gigalitre amount we submit is more realistic. The proponents suggest the water availability issue should not hold up approval of the ODP as the required amount will undoubtedly be sourced as described or by water trading.

The Gingin Water Group most strenuously disagree with this assumption. We suspect the forthcoming Groundwater Allocation Plan will show a fully allocated, or even overallocated, water source in the Guilderton licensing area. Any water trading in that area should be available only to the horticulture and farming industry. The Surface Water licenses in this area are totally unsustainable and must be returned to the environment and may need to be swapped for a groundwater allocation. The environmental requirement is yet to be formally assessed, but will be particularly high due to the important ecologies of the western Gingin brook and southern sections of the Moore river leading to the conjunction and into the important estuarine wetlands. Existing farmers would be incensed if the DoW handed the volume from its two large bores to MRS for urban use.

Similar analysis of the recycling concept to water POS will show that the bulk of the annual no-risk water demand will be for garden use, which cannot be recycled. The summer demand for POS will not be met from recycling.



**5.3 Water Conservation Measures** highlight a range of state usage targets , mandatory rainwater tanks and use of water efficient appliances. All these things are laudable but not relevant to the bottom line of the argument. These things cannot be guaranteed nor mandated any more than to prohibit the sinking of private bores into the superficial aquifer by all 2000 lotholders!

**Figure 4.1 Moore River Hydrograph in the Moore River – Groundwater Monitoring Report** shows a significant decline in the groundwater level of ALL ten test bores over the tested period October 2009 to March 2010.

This decline is in line with the general observation in Superficial aquifer bores right across the region. Both levels and pressures are falling , making it increasingly difficult ( and more expensive) for license holders to water their farms.

No data is presented to indicate that these bores showed an aquifer recharge back to October 2009 levels , nor any historic data to indicate the original sustainable base levels of bores in this aquifer.(remember the Yanchev Caves!)

No later monitoring figures are supplied of which there has been two more sets available.(October 2010-March 2011 and October 2011-March 2012)

We submit that in the light of the observed deterioration in water levels and pressures any new urban development in the area would be undesirable and irresponsible. The highly technical nature of the new horticultural ventures has a much reduced demand for labour which is well supplied from existing urban centres. Cardnos own traffic study figures shows most of the residents travelling south each morning and back each evening. Surely this will only exacerbate an already dire congestion problem further south. With this in mind , one of the main objectives stated to support the ODP , ie. That of supporting a growth in the horticultural labour force, would appear to be not correct , and in fact the development may well risk horticultural development by depleting their water source.



## **The Environmental Influence**

The greater Moore River estuary which extends from the conjunction between the Moore River and the Gingin Brook to the Indian ocean is perhaps the most significant and important natural resource in the Gingin Shire.

The actual significance of this system has NOT been established.

Its Social Value has not been professionally evaluated . The Environmental Index of this unique natural heritage has also not been scientifically quantified. In fact the relationship between the surface water flow through the system and the surrounding groundwater aquifers has not even been established.

All descriptive literature to date merely extrapolates from hydrological understandings elsewhere.

The recent and comprehensive study of the surface water ground water interaction along the Gingin Brook commenced with 32 monitoring bores being dug along the Brook east of the Neergabby conjunction. This report (*GROUNDWATER-SURFACE WATER INTERACTION ALONG THE GINGIN BROOK WESTERN AUSTRALIA December 2010 Dept. of Water HG54*), known as the Tuff report, discovered the complex and as yet poorly understood relationship between the surface water, superficial aquifer and the Leederville aquifer in the western Gingin brook area.

These are the same aquifers which in some unknown way maintain the complex and unique Moore River estuary.

These same aquifers underpin the MRC development. How they interact and what will be the effect of climate change on their sustainability, and thus the suitability of this project, is a fundamental question.

The ODP makes it quite clear that the historical background underpinning the acceptability of the proposed urban development are previous decisions, statements and objectives that will lead to an expansion of Guilderton on the north bank of the Moore river to a population of 15,000 being matched by a 15,000 person development on the southern bank. The ODP points out that one of its objectives is to support the expansion of the existing Guilderton town and it explains the various ways its proposal will encourage this.



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Despite the reduction to a 5,000 population to the south , the ODP clearly shows two unused **urban development zones** which imply a future expansion towards the 15,000 figure mentioned.

The Gingin Water Group can only read this as being a unique river estuarine system completely sandwiched between up to 30,000 residents in an area where the water dynamics of the system are not fully described , or even understood, and a changing climate which will make the maintenance of this system difficult even without any urban growth.

The proposal frequently uses the term sustainable to support the ODP. The Gingin Water Group would submit that this revised ODP will result in a future situation which may well prove to be unsustainable with respect to the greater Moore river estuarine system and the water aquifer systems which currently supply the increasingly important horticultural and farming activities being undertaken on this part of the Gingin coastal plain.

Because of this we again request that any consideration of the revised ODP be deferred until the Gingin Groundwater Allocation Plan has been finalised after its period of public comment , and further that the GPS9 set of documents has been carefully concluded.

David Rickson

Chairman Gingin Water Group Inc.

April 2012