20 May 2017
IPART
PO Box K35, Haymarket Post Shop, NSW 1240
Level 15, 2-24 Rawson Place, Sydney NSW 2000

ipart@ipart.nsw.gov.au

Dear Sir,

Re: Submission - Northern Water Solutions Pty Ltd - Cobaki Sewage Treatment Plant & Water Recycling Facility and associated sewage and recycled water reticulation (WWTP) November 2016.

I wish to make a submission in regards to the above matter.

Background

Northern Water Solutions Pty Ltd (NWS) on behalf of Leda Manorstead Pty Ltd (LM) propose the construction and operation of a WWTP and reticulation network for the Cobaki Estate development, Cobaki.
The Cobaki Estate development site is owned by LM which has appointed NWS to be the Private Water Authority providing an integrated water scheme to service the development.

In developing the preferred water and waste water treatment strategy for the Cobaki Estate development, three options were considered by Northern Water Solutions Pty Ltd which included:
1. Do Nothing;
2. A centralised connection to the Tweed Shire Council Network;
3. A decentralised system with water recycling and irrigation of Advanced Water Treatment Plant treated effluent on private land and council parks and verges

The preferred option by NWS for the development is option 3, which option was considered to provide the applicant a decentralised system licensed under WIC Act which If approved, NWS could hold an IPART Network Operators and Retail Licence under the Water Industry Competition Act 2006 (WIC Act) NSW issued by IPART NSW.
NWS would then be responsible for providing all the drinking water supply, the recycled water supply for domestic reuse and open space irrigation purposes, the wastewater collection services and the treatment of all waste water within the development boundaries.

NWS advises that there are a number of current applications afoot that seek to either:
1. Introduce flexibility to the existing consent such that the development could proceed either by way of the standard or regular connection of gravity services to the Banora Point STP, or
2. By-way pressure sewer system (including recycled water reticulation) and connection to a new Sewage Treatment Plant.
At the time of this application (10th March 2017), there were no current approvals that authorise either a recycled water reticulation system or a Sewage Treatment Plant (as per the definitions provided under Clause 105 of the ISEPP).

There are approvals already relating to a Sewerage infrastructure and these are outlined below. These approvals are limited to a gravity sewer system, and therefore there are current applications underway to amend these consent to also have additional flexibility in respect of adopting an either / or approach to the formal adoption of a gravity / pressure system. This approach is considered to be the most advantageous, as in the event that a licence under the Water Industry Competition Act 2006, is not granted, then the development will still have the opportunity to proceed with a gravity sewer configuration.

LEDA Manorstead has now embarked upon a path to revisit all approvals for the site in order to modernise the development itself and to reflect current requirements.

Whether some modification of some of the residential subdivision approval has not yet been finalised by the Tweed Shire Council for assessment or determined by the Northern Joint Regional Planning Panel (JRPP) is unknown.
The applicant is now seeking to provide for a flexible outcome that covers either a conventional Gravity Sewer arrangement or a Pressure System.

Considerations of the government approval process and comparison of the Tweed Shire Council (TSC) 'Gravity System'

The NWS Licence Application advises**:**

- In respect of the **Recycled Water Reticulation** (as defined under the ISEPP), there is no current approval that authorises this infrastructure. An application to amend the current Concept Approval has been lodged with the Department of Planning & Environment. This application seeks to introduce the recycled water reticulation in to the overall Concept Approval relating to the development.
- In respect of the **Sewage Reticulation System**, this could be considered to have been covered (in its current gravity sewer format) within the existing Concept Approval covering all of the site.
  An application to amend the current Concept Approval has been lodged with the Department of Planning & Environment. This application seeks to introduce the Pressure Sewer System in to the overall Concept Approval relating to the development.
- In respect of the **Sewage Treatment Plant/ Water Recycling Facility**, there are no approvals that exist in respect of this element at this stage and nor are there any for the connections from the plant to the boundary of the Cobaki Estate (i.e. within the Piggabeen Road Reserve)

Regarding considerations of Tweed Shire Council

- The business as usual connection to the Tweed Shire Council network would involve construction and operation of Gravity sewer networks, some of which would be at considerable depth and located below the water table;
- A number of smaller sub-catchment scale sewage pump stations;
- A number of large sewage transfer pump stations and approximately 2.5km of sewer rising mains with chemical injection for septicity control to connect to the existing network;
- Upgrades to the existing network;
- Treatment of all wastewater at the Banora Point WWTP to secondary treatment standards in a conventional activated sludge process;
- Discharge of all treated effluent to the receiving environment with no wastewater recycling.

NWS evaluation of their proposed Pressure Sewer System

- 100% of treated effluent discharged to local waterways;
- Potential for wet weather overflows from the gravity sewer network and pump stations;
- Environmental risk associated with failure of the 2.5km sewer rising main;
- Significant cost associated with constructing the necessary infrastructure to connect the development site to the existing network
- Issues of septicity due to long detention times in the transfer system, particularly during earlier stages of development.

The NWS claims the current proposal has the following advantages to the Tweed Shire community when considering their Licence Application:

- The business as usual option is not the preferred option due to: No water recycling
- 100% of wastewater generated can be recycled back to each house and used for sustainable effluent irrigation of public spaces.
- No discharges of surplus recycled water to waterways;
- No wet weather overflows from the pressure sewer network;
- Treat wastewater close to its source and avoid long sewage transfer systems;
- Relatively low energy option.
- Can deliver 6064 ET capacity to allow whole subdivision approved under MP06_0316 to proceed
- More cost effective than option 2.

NWS – Preferred Option 3 proposes: Onsite treatment with water recycling and irrigation of private and public land

This option involves the construction and operation of:

- Pressure sewer network within continuous online monitoring and alarms;
- Onsite Membrane Bioreactor to treat wastewater close to its source;
- Advanced Water Treatment Plant sized to treat approximately 60% of wastewater flow for recycling at each house;
- The 40% of surplus effluent managed by irrigation of open space irrigation areas;
- 20 ha irrigation area and 2 ML wet weather storage to manage all surplus water by irrigation with no discharges to waterways.

The NWS proposal quotes the following advantages:

- The business as usual option is not the preferred option due to: No water recycling
- 100% of wastewater generated can be recycled back to each house and used for sustainable effluent irrigation of public spaces.
- No discharges of surplus recycled water to waterways;
- No wet weather overflows from the pressure sewer network;
- Treat wastewater close to its source and avoid long sewage transfer systems;
- Relatively low energy option.
- Can deliver 6064 ET capacity to allow whole subdivision approved under MP06_0316 to proceed
- More cost effective than option 2.

NWS Summary of the NWS Options

The Licence Applicant advises:
The NWS preferred option is option 3.
This option has been chosen following considerable investigation into the appropriate and economically feasible provision of services and alternative measures to deal with wastewater.
This option provides a decentralised system licensed under WIC Act which maximises water recycling and irrigation of public open spaces using an AWTP process.

My Submission

In the NWS Licence Application, it is claimed that

1. **The environmental impacts of the proposal are not likely to be significant and therefore it is not necessary for an environmental impact statement to be prepared or approval to be sought for the proposal from the Minister for Planning under Part 5.1 of the EP&A Act.**

Community Concern

I consider that an Environmental Impact Statement (EIS) should be prepared or approval should be sought for the Licence Application from the Minister for Planning under Part 5.1 of the EP&A Act.
In November 2004, a report named: Banora Point & Tweed Heads West STP's Water Recycling was prepared by Bligh Tanner Pty Ltd, Consulting Engineers (Job No. 2004.194.1), relative to the 'Poor' water quality of the Terranora Inlet and Cobaki and Terranora Broadwater systems.

That Report was prepared as part of the Environmental Impact Assessment (EIS) for the Banora Point & Tweed Heads West STP's Reclaimed Water Management Strategy, which would consider the 'Poor' water quality of the Terranora Inlet system

In Issue 372 dated 6 July 2004, Tweed Shire Council GHD Pty Ltd (GHD) had been commissioned by the Tweed Shire Council to prepare the Environmental Impact Statement (EIS)under the Environmental planning & Assessment Act 1979 for the upgrade of the Banora Point Water Reclamation plant (WRP) (GHD Ref.41/13609/321571).

Conclusion
In view of past requirements by the Tweed Shire Council and EPA for the Cobaki Broadwater and Terranora Inlet system for an Environmental Impact Statement (EIS), it is considered an Environmental Impact Assessment (EIS) should be prepared by NWS for the proposed Sewage Treatment Plant/ Water Recycling Facility* and *proposed Recycled Water Reticulation,.

In the NWS Licence Application, it is claimed that:

2. **The proposal is unlikely to affect threatened species, populations or ecological communities or their habitats, within the meaning of the TSC Act or FM Act and therefore a Species Impact Statement is not required**.

Community Concern for Ecosystem Health is as follows:
The 2009 EHMP **Ecosystem Health Report for Cobaki and Broadwater and Terranora Catchment**

It is advised that the 2009 EHMP Health Report provides a snapshot of the ecosystem health of Cobaki and Terranora Broadwaters and the Terranora Creek Catchment. Source: EHMP (International Water Centre – 2009)

Terranora Broadwater has an EHMP Score of D+ (Poor) - Ecosystem Health Summary:

The water quality in the Broadwater deteriorates during the wetter months due to sediment and nutrient inputs from the catchment. Water quality improves with distance away from the two creeks. The riparian vegetation is in good to very good condition.

Key Ecosystem Health Issues applying to Terranora Broadwater, Cobaki Broadwater and Terranora Creek reports:-
The particulate load (with associated organic and nutrient load) during rainfall events is likely to be the main driver affecting water quality in the estuary.

Cobaki Broadwater has an EHMP Score of C (Fair) - Ecosystem Health Summary:

The water quality in the Broadwater deteriorates during the wetter months due to sediment and nutrient inputs from the catchment. The riparian vegetation is in good to very good condition.

Terranora Creek has an EHMP Score of C+ (Fair) - Ecosystem Health Summary:

Water quality is influenced by the two Broadwaters and tends to improve with distance towards the Tweed River mouth. Wastewater discharges into the creek don't appear to have influenced the results of monthly water quality monitoring. *However the presence of sewage related nitrogen has been mapped and occurs along the entire length of the creek.* The riparian vegetation has been assessed as fair to good condition.

The 2009 EHMP Health Report continues: The current condition of ecosystem health has been described as Fair – Poor (IWC, 2009), with data suggesting the streams are moderately to highly stress and the system is on the threshold of major impacts.

Chlorophyll *a* targets are already being exceeded on occasion. If no action is taken, there are likely to be detrimental impacts on the ecology of the Broadwaters such as compromised health and loss of seagrass, and subsequent impacts on aquatic fauna and higher order fauna including bird populations

The health of the system is currently impacted by: Recycling of nutrients from sediments and nutrients from STP effluent tidally moving upstream to the Broadwaters; Urban stormwater, particularly from the Western Drainage Scheme; Rural catchment runoff.

Significant work needs to be undertaken if the current health of the system is to be improved. The pollutant of greatest concern to ecosystem health is dissolved inorganic nitrogen (DIN) loading as it is the primary driver of phytoplankton biomass (chlorophyll-*a*, an indicator of algal blooms). To keep the chlorophyll-a concentration low enough to ensure a healthy functioning ecosystem, *it is necessary to* ***reduce total catchment*** dissolved inorganic nitrogen ***(DIN) loads by approximately 30%*** *in both the Terranora and Cobaki Broadwater catchments.*

During heavy rain events, vast quantities of nutrients have been deposited in the Lower Tweed River Estuary via the Cobaki Creek and Cobaki Broadwater.

Tweed Shire Councillors are aware of this sedimentary pollution of Cobaki Broadwater as they have been shown satellite images of large sedimentary plumes entering Cobaki Broadwater following heavy rainfall events.

Aerial photo of stormwater pollution to the Cobaki Broadwater May, 2017 is attached.

Conclusion:

1. ***A planned update of the 2009 EHMP Health Report Card was proposed for 2018 for the Terranora inlet and would need to take into account the proposed Cobaki Lakes sewage treatment and water reticulation system requirements.***
   This outstanding matter should be taken into account in considering this Licence Application.
2. ***Nutrient rich irrigated reticulated water run-off from the Cobaki Lakes subdivision draining to the Cobaki Broadwater, a coastal lake on Commonwealth land is likely to add to the existing 'poor' water quality of the Terranora Inlet.***
3. ***Considering previously mentioned environmental reports, a Species Impact Statement is considered necessary for this Licence Application***.

In the NWS Licence Application, it is claimed that

3. The proposal is also unlikely to affect Commonwealth land or have an impact on any matters of national environmental significance.

Community concern

The Cobaki Broadwater site has been recorded as an important waterfowl and migratory wetland bird habitat and is listed in the Tweed Estuary seabird habitat nesting, feeding and roosting (NPWS). Among the estuarine birds utilizing the Tweed Estuary, there are 17 Migratory and 10 non-migratory species listed on the JAMBA and CAMBA Treaties. In addition several species are listed as Vulnerable or Threatened Fauna under the NSW National Parks and Wildlife Act. (PWD Report Sep 1991).
The Cobaki Broadwater is connected to the Terranora Inlet and nearby Terranora Broadwater.

The shallow waters of the Cobaki Broadwater (approx. 45 hectares of which is Commonwealth land), is a suitable refuge to migratory birds, if they are disturbed, while feeding or roosting in connected areas of the Lower Tweed Estuary. *As part of the Cobaki Broadwater is on commonwealth land and leased to the Gold Coast Airport, this matter should be taken into the consideration of this Licence Application.*
Environmental impacts from this proposal are considered to be of State and National significant importance.

Impact to Cobaki Broadwater and surrounds – An Area of High Conservation Value

The Australian Wetlands and ABER prepared a Coastal Zone Management plan (CZMP) in 2010 for the Cobaki and Terranora Broadwaters and found the Cobaki Broadwater was an area with recognised 'high' conservation values.

These 'high' conservation areas include

Vegetation Communities

All vegetation remnants surrounding Cobaki and Terranora Broadwaters are of High Conservation Value (HCV) and are classed as 'Very High' ecological status and 'High' ecological sensitivity in the Tweed Vegetation Management Strategy (Ecograph, 2004).
The riparian vegetation of both Broadwater foreshores is in generally good condition (IWC, 2009). These remnants are extremely valuable habitat and are included in the Regional Corridor as a key habitat linkage (Ecograph, 2004).

Habitat

The two Broadwaters and their catchments incorporate a number of terrestrial and aquatic habitats under both private and public ownership. Both catchments contain habitat for a number of rare or threatened flora and fauna species and provide an, albeit fragmented, corridor connecting lowland coastal ecosystems with the Terranora Hills in the hinterland.
Some of the habitats important to the survival of local flora and fauna communities, and the health of the Broadwaters include: Shallow-water vegetated habitats, notably saltmarsh, mangrove communities (identified as SEPP 14 wetlands) and seagrass communities. Freshwater wetlands, Rainforests, Riparian corridor and In-stream habitat
The protection and improvement of catchment habitat is vital to ensure a healthy, functioning ecosystem.

Shorebirds

Shorebirds are an important component of estuarine systems, representing higher order consumers of intertidal invertebrates.

The Tweed Estuary is one of the five most important sites in NSW for estuarine birds.
The Broadwaters are not used by an isolated population of shorebirds and individuals need to be able to move regularly between the main river channel and the Broadwaters to roost and forage.
Shorebirds utilising the habitat of the Broadwaters are both local internationally significant migratory species.
Management of shorebird roosting and foraging habitat in the Broadwaters is critical to ensure that the Tweed River Estuary shorebird population remains viable.

Other Environmental reports by Government agencies

The Final Report (April 2002) of the Independent Inquiry into Coastal Lakes by the New South Wales Healthy Rivers Commission (2001) found that the Cobaki Broadwater was an area with recognised 'high' conservation values.
It also found that the lake condition was 'unknown' and its natural sensitivity (Risk) was 'high'.
The Department of Land and Water Conservation's "Stressed Rivers Assessment Report for the Tweed Catchment" reported that NPWS and Fisheries have identified conservation values in this area but that the environmental Stress rating was 'high'.
Considerable data has been collected by Researchers, consultants for development and State and Local government agencies on the Cobaki Broadwater and surrounds.

Some further studies of environmental values of the Cobaki Broadwater and catchment area carried out include:

- Independent Inquiry into Coastal Lakes by the New South Wales Healthy Rivers Commission (2001)
- Rohweder, D. A. (1998). High-tide roosts for shorebirds in the lower Tweed River estuary: an evaluation of existing roosts and a preliminary assessment of potential sites and options for the construction of additional spring tide roosts. Unpublished report prepared for the Tweed River Committee.
- Rohweder, D. A. (2002). *Estuarine Bird Monitoring Program: Results and Future Directions*. Presentation to the Tweed River Committee, August 2002
- Rohweder, D. A. (2003). *Monitoring Estuarine Birds in the Tweed River Estuary 1997-2002.* A Report prepared for the Tweed River Committee – October 2003.
- Kingston M.B. Turnbull P.W., Hall P.W., Boulton S.C. and Storey R.J. 1999, *Tweed Vegetation Management Plan*, Volume 1, prepared for Tweed Shire Council.

Aboriginal Cultural Heritage values

The Australian Wetlands and ABER's the Cobaki and Terranora Broadwater Catchment and Estuary Management Plan (2009) though considered lacking in detail, was to increase community awareness and protection of areas important to Aboriginal cultural heritage.

Community Concern

With the NWS to be the proposed Private Water Authority, providing an integrated water scheme to service the Cobaki Lakes development, the following issues on Aboriginal Cultural Heritage should be considered in regard to this Licence Application
The one page Australian Wetlands and ABER's document on cultural heritage provided insufficient detail on how our community can protect Aboriginal Cultural Heritage values, having made no reference of contact with the Tweed's Aboriginal community about their plan.

At the time the following information was provided by a member of the Aboriginal community about Aboriginal Cultural Heritage sites mapped in the Cobaki area, which followed the Cobaki and Terranora Broadwater Aboriginal Cultural Heritage Management Plan (Fox, 2006).

Further documents that provide more information about protecting Aboriginal Cultural Heritage values include:

- Draft Results of a Preliminary Cultural Heritage Survey of the proposed C4 Tugun Bypass. Eastern Yugambeh 2005.
- Cobaki and Terranora Broadwater Aboriginal Cultural Heritage Management Plan, Fox August 2006.
- Archaeological Test Excavation Report Zone 7, Tugun Bypass. Oz Ark August 2006

- Geomorphological and Archaeological Assessment. The Tugun Bypass C4 Corridor. Oz Ark May 2006
- Archaeological Salvage Excavation Report Zone 7, Tugun Bypass. Oz Ark March 2007.
- Archaeological Test Excavation Report Zone 10, Tugun Bypass. Oz Ark May 2007
- Archaeological Excavation and Cultural Heritage Assessment, Piggabeen Midden, West Tweed Heads by Converge Heritage & Community. 2008
- Cobaki Lakes Residential Development Cultural Heritage Assessment. Everick Heritage Consultants Aug.2008
- Archaeological Excavation report Cobaki Lakes Everick (dated ??)
- Draft Cultural Heritage Management Plan Cobaki Lakes residential development. Everick December 2009
- Hideaway Village Cultural Heritage Assessment (Everick ? date?) Hideaway Village is on the north side of the ridgeline adjoining the Cobaki Lakes development in Queensland.

There is considerably more Aboriginal Cultural Heritage information about the Cobaki development area available, since 2008.

Conclusion

1. ***IPART and Tweed Shire Council should consult with the Tweed Aboriginal community about plans to protect areas important to Aboriginal Cultural Heritage Landscape in this Licence Application.***

The following extract is from a submission from a member of the Aboriginal community concerning past development of the Cobaki Lakes residential development.

That extract from an Aboriginal community elder's submission read: "The development at Cobaki Lakes will result in further destruction of our heritage. It is vitally important that as many of these sites as possible are protected and those that are about to be impacted, be appropriately recorded as being part of the greater cultural landscape. These are not just artifacts that are being destroyed. They are a tangible connection to our ancestors, our connection to the life-ways of our people prior to colonization. They are an invaluable education resource for future generations of Aboriginal and non-Aboriginal people."

2. ***Value of threatened species covered under the Cobaki Lakes Management Plan could be adversely affected by 'poor' stormwater drainage systems and should be considered.***
3. ***There is an impact on matters of national environmental significance where birds protected by international agreement can be affected where the 'high' conservation environmental values are threatened or compromised by the effects of this licence Application.***

Advantages to the Tweed Shire environment and a sustainable of a Council Water Demand Policy

Background

The Regional State of the Environment 2012 Report advises:
In 2012, Tweed Shire Council total water usage was 8,275 megalitres, which equals 341 kilolitres per connection.

Tweed Shire Council operates 8 WWTPs which reused 1,467 megalitres (17.2%) of tertiary treated wastewater for irrigation of public open spaces, using an AWTP process, and dumping the remaining 7,079 megalitres (82.8%) to waterways and the ocean.

In 2012, Feedback from Community Groups and Community Members included the following:

- That the community have a desire for increased water recycling but there are significant barriers to implementation of recycled water schemes within the Tweed Shire.
- Council has a target for 15% of treated effluent to be reused by 2013, however, this target not likely to be met, with between 5% and 9% of wastewater previously being recycled.

- That increasing regulations, treatment requirements and cost associated with use of recycled water contribute to this issue.
- Nonetheless, future planning and assessment of recycled water schemes must weigh up the high cost to the community.
- With the current Council direction and policy relating to recycled water use, the initiative to implement recycling is left to the developer which provides little incentive for recycling.
-

Comment

The Tweed Shire Council Final Draft Integrated Water Cycle Management (IWCM) Strategy 2014 advised on the increased use of recycled water:

- Council is limited in its ability to influence residential developments already approved at state government level but not yet constructed. Council should consider future policy development in this area and opportunities for increased water recycling as an integral part of Council's servicing strategy for future developments.
- A comprehensive consultation program central to the IWCM Strategy Review, was undertaken over 2012 and 2013. It is reported that a number of community suggestions, such as the increased use of recycled water and a rainwater tank rebate, (being looked at) were made.

It is noted that Council's previous decisions not to reuse reclaimed water or grey-water systems means that some 36,000 new residents who will reside in the new greenfield areas by 2041 will continue their wastage of costly potable drinking for outside irrigation.

The Tweed Shire Council Water Unit has not been able to come to some flexible agreement with several major developments near the Banora Point Sewage Treatment plant for the supply and use of reclaimed water for residential irrigation. The Tweed Shire Council would benefit from the water saving experience of the Water Sydney Olympic Park.

A successful integrated approach to water conservation at Water Sydney Olympic Park (2014-15) with statistics of water saved

"Water Sydney Olympic Park has a locally integrated approach to water conservation based on wastewater reprocessing, stormwater harvesting and reducing water demand. Water Sydney Olympic Park has a locally integrated approach to water conservation based on wastewater reprocessing, stormwater harvesting and reducing water demand. The Water Reclamation and Management Scheme (WRAMS) produces recycled water from sewage and stormwater; this recycled water is used for irrigation, ornamental fountains, and toilet flushing across all of the Park's sports and entertainment venues, office buildings and apartments, as well as homes in the adjacent suburb of Newington and Newington public school. Separate metering enables the water consumption of individual components (such as fountains) within the public domain to be monitored, and leaks identified or operating regimes adjusted. Stormwater from buildings and roads is harvested into water storage ponds and is used to irrigate park areas, landscapes and sports fields, and also feeds into the WRAMS water recycling system. Potable water is typically only used for kitchens, showers and hand basins, in swimming pools and on artificial turf hockey playing fields. Water demand for landscaping is minimised through water-wise landscaping practices and night time irrigation, when evaporation is low. Most landscape plantings are native species that do not require irrigation once established.

Water production and consumption 2014-15 Recycled water production 896,000 kilolitres produced 1,360 account customers - approximately 26,000 people serviced Recycled water consumption 158,293 kilolitres used in the public domain 106,962 kilolitres used in the sports venues Harvested stormwater consumption 23,526 kilolitres used for Parklands irrigation Potable water consumption 27,567 kilolitres used in the public domain 89,207 kilolitres used in the sports venues Water management initiatives The 'Recycled Water Quality Management Plan and assessment of WRAMS Operations' was completed and is being reviewed by the NSW Department of Health. A study into further expansion of the WRAMS system is underway." (Sydney Olympic Park Authority Annual Report | 2014–15, P., 24)

Another example of Australia's urban and residential water reuse schemes

Rouse Hill, Sydney

Sydney Water is continuing the expansion of Australia's largest residential water recycling scheme in the Rouse Hill area in Sydney's north-west. The scheme started in 2001 and over 19000 homes are now using up to 1.7Mm3/yr. of recycled water for flushing toilets, watering gardens, washing cars and other outdoor uses. On average the Rouse Hill scheme has reduced demand for drinking water by about 40%. (Australia's urban and residential water reuse schemes by John Anderson)
https://books.google.com.au/books?id=gqUth3vNbFgC&pg=PA139&lpg=PA139&dq=...+The+Rouse+Hill+Water+Recycling+Plant+treats+about+4.7+Mm3/yr+of+wastewater&source=bl&ots=vn_UvjZwys&sig=_Yyk1C_TMJX0N84QW2_Q6o0ioZ8&hl=en&sa=X&ved=0ahUKEwiPzbPMwP3TAhVHfbwKHdbzDXAQ6AEIMjAA#v=onepage&q&f=false

Conclusion

Our community has the desire for increased water recycling, and the undermentioned proposed reuse, which is subject to government and Tweed Shire Council approvals that could authorise this proposed infrastructure.

- ***100% of wastewater generated can be recycled back to each house and used for sustainable effluent irrigation of public spaces;***
- ***No discharges of surplus recycled water to waterways;***
- ***Advanced Water Treatment Plant sized to treat approximately 60% of wastewater flow for recycling at each house;***
- ***The 40% of surplus effluent managed by irrigation of open space irrigation areas.***

Comment on an area of Tweed Shire Council concern

Comparison of the proposed Sewage pressure system versus Tweed Council's gravity sewage system; in an area subject to localised flooding with increased tidal encroachments caused by a climate changing.

From a telephone conversation it is understand that Tweed Shire Council does not favour the Licence Applicant's Pressure Sewer System. If the Pressure Sewer System was approved, Tweed Shire Council would be concerned if NWS was to retire from this pressure system due to unsatisfactory operation or other reasons

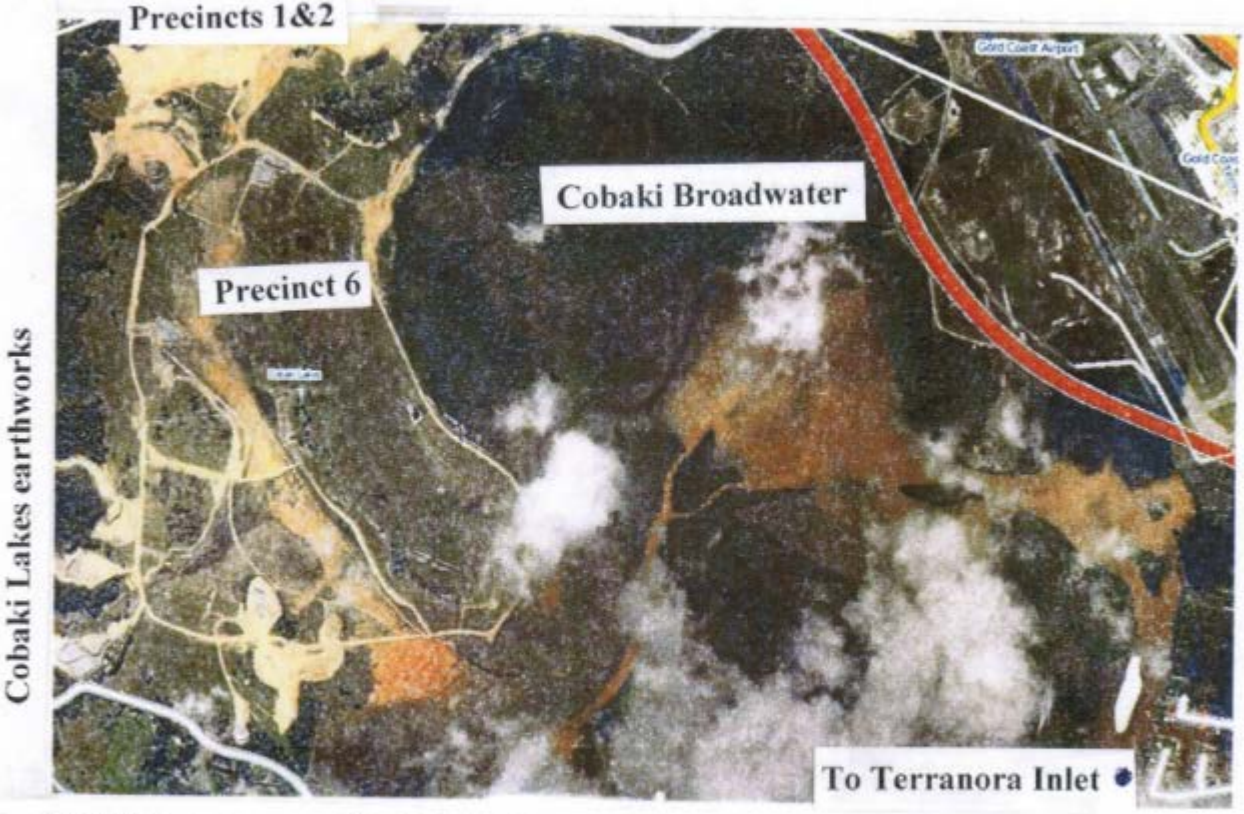
I request that IPART considers this submission, and acknowledges receipt of this submission.

Yours sincerely

[redacted]

Richard W Murray
[redacted]
Tweed Heads
NSW2485

Aerial photo 6 May 2010 – Polluting Stormwater drainage from Cobaki Lakes to Cobaki Creek/Cobaki Broadwater.



http://www.nearmap.com/?ll=-28.175307,153.502693&z=14&t=h&nmd=20100506 4/02/2011