

**MAJOR PROJECT APPLICATION MP 05\_0199 –  
PROPOSED CONCEPT PLAN FOR RESIDENTIAL SUBDIVISION AT  
BEVIAN ROAD, ROSEDALE.**

**A response to the Environmental Assessment (EA) lodged by the Proponents,  
Nature Coast Developments Pty Ltd (Marsim)  
by  
THE ROSEDALE ASSOCIATION INCORPORATED.**

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The Rosedale Association Inc. has seen submissions from The Guerilla Bay Association Inc., the Burrawang Cooperative and The Coastwatchers Association Inc. in response to the Concept Plan proposal. A number of matters of common concern have been raised between the four groups. We agree with and strongly support the issues each other raises, and we commend their submissions to The Director.

Our recommendations are summarised at the end of this submission.

## **1. PREAMBLE**

The Director General's Requirements for this development and the Proponent's responses to them provide some good ecological and environmental outcomes.

However there are some issues where those outcomes have not been realised, where the claims of having satisfied the DGRs are not substantiated or where opportunities to achieve a higher standard of environmental protection have not been grasped.

It is not our intention to oppose the development. We seek to improve on the proposals to ensure the best possible ecological and environmental outcomes.

## **2. OUR PRINCIPAL CONCERNS**

We have specific concern with the following issues:

1. The essential need to preserve the aquatic habitat of the two major waterbodies that will be affected by the development
2. The need to plan this and adjacent developments via an Integrated Master Plan for their catchments
3. The inadequacy of the hydrological analysis that claims to maintain or improve the status quo for runoff patterns and pollutant inflows to the receiving waterbodies
4. The need for an independent agent to carry out monitoring studies and to apply adaptive management techniques to ensure that the intended WSUD design principles work as intended.
5. Riparian strips should be extended in area to treat greater runoff and stormwater volumes and reduce dependence on engineered solutions.
6. The access road should be relocated to the eastern margin of Bevia Wetland
7. The traffic study is inadequate; it should be conducted taking account of tourist peak periods, and the additional Rosedale Farm development
8. The additional demands to be placed on community services, especially medical and educational, have been ignored.

## **3. WATER MANAGEMENT.**

### 3.1 Protection of Saltwater Creek and Bevia Wetland

The ecological importance of manipulating the water balance has been recognised by the Proponent in the case of the SEPP 14 Bevia Wetland. But Saltwater Creek, an off-site ICOLL has not been given the same consideration. This ICOLL is a nursery habitat for several fish species, especially black bream, snapper and mullet.

The Saltwater Creek lagoon is fed by a stream system that drains from the proposed urban expansion area, via a chain-of-ponds lower in the valley. Both of these receiving water bodies have been subjected to a grossly altered hydrology for over 100 years as a result of conversion from mostly forest cover to mostly grass cover for grazing and a little cultivation. The resultant flashier catchment (shorter runoff durations, higher velocities and peak flows, increased erosive capacity, greater

pollution from sediment and nutrient transport) has severely degraded the Wetland and the ICOLL for over a century. Further, the Wetland has had sediment input from the gravel road beside it for all of this time and latterly the ICOLL has been further impacted by improper urban development.

The ICOLL has experienced massive fishkills in recent decades, the most recent early this year, after bottom sediments were disturbed during a storm inflow event, probably exhausting the ICOLL's available oxygen. Alteration to the hydrology has increased the frequency of opening to the ocean over that of a comparable ICOLL nearby whose catchment is undisturbed.

We see this situation as urgently in need of remedy. Water management using Water Sensitive Urban Design (WSUD), appropriately sized riparian buffers and other measures, will contribute to returning the hydrologic regime to approximately its original, forested situation. Under those conditions, the ecologies of each will gradually improve. They may not return to their original state but they will function far better than if existing conditions are merely maintained.

The proponent's site occupies nearly all of the Wetland catchment and almost half of the ICOLL catchment. The adjacent Rosedale Farm development (MP 06-0038, currently lodged as a concept plan with DoP) will occupy another 20% of the ICOLL catchment. The proposed conversion from rural to urban land use provides a once-only opportunity to provide the best possible conditions for the long term recovery of both waterbodies, rather than perpetuating and accelerating their degradation.

We are concerned that the significance of Saltwater Creek to the local land and marine environment has not been recognised in full despite a number of assurances in the EA. It was not named specifically in the Directors General's Requirements and was only mentioned for the first time in the November 2007 Environmental Assessment. It is an ICOLL with a fragile ecology and as an estuary it is an extension of the Marine Park. As an urban estuary used for both primary and secondary contact uses, there are serious concerns of health and amenity to be considered both on Rosedale Farm and in Rosedale Hamlet.

In view of the twin proposed developments currently listed with DoP (MP 05-0199 and MP 06-0038) with their combined potential and likelihood to adversely affect the two waterbodies, we recommend that:

- *Any development in these catchments must not only be required to adopt the most stringent protective measures for both receiving bodies but have as a condition of consent that they must be rehabilitated to the fullest extent that we know how.*
- *This implies that a similar degree of rehabilitation is required in the catchments that drain into them to avoid downstream impacts on these significant biodiversity habitats.*
- *The approach must be whole-of-catchment. This requires that the two major developers integrate their planning to the extent that there is a smooth ecological transition across cadastral boundaries. It is imperative that this be a condition of consent.*

- *There is therefore a need for a unified or Integrated Master Plan that sits above and across all the individual Concept Plans, even though they may be approved at different times.*
- *An Integrated Master Plan should identify biophysical constraints to urban development and observe how they can be accommodated to the satisfaction of the environment rather than to satisfy development imperatives alone.*

In summary, the proposed urban development has the potential to destroy the ecological habitat values of the SEPP 14 Beviaan Wetland and the Saltwater Creek chain-of-ponds and its ICOLL with flow on effects to the Marine Park and impact on fauna. We regard these receiving waterbodies as valuable, rare, endangered and irreplaceable. Close urban settlement in the Rosedale Urban Expansion Zone poses a most significant threat to these waterbodies and they should be protected by imposing the most stringent requirements on how their catchments are managed.

If these developments do proceed, they must be based on the best investigation, analysis and planning tools that are currently available. These include hydrologic modelling analyses and monitoring at appropriate scales in time and space, discussed later. The results of these analyses and observations should be used in the future as adaptive management tools to ensure that the Wetland and ICOLL environments are protected.

### 3.2 Defining Natural.

There are repeated references in the EA to ‘natural’ in relation to such matters as water quality, function of Saltwater Creek and Beviaan Wetland, values to be restored, etc. However the issue is confused.

The Planning Assessment Report for the previous application for this development notes the requirement that the benchmark for both runoff water quality and peak discharge to be a naturally forested catchment not the existing conditions. Appendix 24, p40 states “General best management practice in water management has interpreted this to require matching the existing conditions.”

The natural, ie the original, environment has been grossly modified, mostly degraded, and any references to ‘natural’ in these contexts should strictly refer to what existed before these changes occurred, as the earlier Planning Assessment Report states. It is clear that the Proponent interprets ‘natural’ to mean ‘existing.’ We contend that water quality and flow benchmark data taken from existing levels are not natural and are invalid here. The only valid benchmark data have yet to be either collected in the field or generated from modelling catchment behaviour under full forest cover with no dams. Improvement over highly modified levels is of little value and will simply lead to a continuation of the degradation we try to prevent for an ICOLL and a wetland which are already under considerable stress.

- *We request that the use of ‘natural’ be restricted to the undisturbed state of the catchments and to the processes operating in pre-disturbance times and that it be acknowledged that ‘existing’ levels of different attributes are understood to be highly modified and not natural.*

### 3.3 Control of the runoff balance

We assert that to improve the ecological health of the Bevia Wetland and Saltwater Creek, not merely to maintain it, it is essential that the original pattern of runoff should be restored. The EA claims that the use of WSUD principles will ensure only that the existing flow regime is maintained. Details are given in Appendix 24 of the EIS, which states that “the best practice water sensitive urban design approach would maintain the existing runoff volumes and the balance between surface and subsurface flows (groundwater)”. This tenet is discussed above under “Natural.”

The EA uses the MUSIC model to demonstrate that this requirement will be satisfied. However:

- (a) the analysis is based on flimsy and inappropriate site data; and
- (b) assumptions about the performance of a network of swales, raingardens, infiltration ditches, detention ponds etc may be wishful thinking and are unsupported by actual performance data.

These are discussed below.

*3.3.1 Poor site data – soil* No comprehensive geotechnical investigation has been done for the site. The only relevant site data obtained for the EA was a series of soil infiltrometer measurements at eight sites. The extensive background knowledge on soils held by Council has apparently not been used here.

Data used in the MUSIC model are based on ring infiltrometer and falling head permeameter tests. The results have been used to infer that infiltration rates at the two key stormwater detention basins (just north of Bevia Wetland) will be 50 mm/h. This value is too high by a factor of 3 to 6. The use of ring infiltrometer data is inappropriate for a ponded detention basin. The falling head permeameter data should be used instead; these show that infiltration values at the pond sites are actually 8 to 16 mm/h (Appendix 24). Still more credible infiltration data could be obtained if CSIRO’s rain simulation equipment were used. If corrected infiltration values were used in the MUSIC model, then the balance of surface and groundwater flows into the Bevia Wetland would differ from the existing conditions by producing much higher runoff volumes and flow peaks with concomitantly greater erosive power and resulting increase in nutrient and sediment transport.

- *We recommend that the MUSIC modelling exercise be revisited using more realistic parameter values.*
- *We recommend that the MUSIC modelling exercise include undisturbed catchment conditions, ie full forest or woodland cover and no dams.*

*3.3.2 Assumptions about WSUD component properties* The MUSIC analysis makes quantitative assumptions about the effectiveness of swales, infiltration trenches etc to capture surface runoff and dispose of it slowly into watercourses and the Wetland. To our knowledge, there is no demonstrated site where the performance of WSUD components has been measured. There is a difference between assuming that a design component will operate as required, and checking to ensure that it does so.

It is disturbing to note that ‘best practice’ is invoked to maintain the ‘existing flows’ and other outcomes intended to protect the environment, particularly the two water bodies. Industry best practice is not always able to deliver the best outcome: the best

outcome for this development is to restore the catchments' hydrological regimes and material transport to the original, natural, levels.

This is a key ecological issue that concerns the future health of Bevia Wetland and Saltwater Creek. While the analysis tools used in the EA are current best practice (MUSIC), the data used in the analysis lack credibility, and therefore so do the conclusions. Similarly, we question the assurances that existing runoff volumes etc will be maintained, even though this is not our preferred outcome.

We applaud the Proponent's commitment to applying the principles of WSUD in planning for this site. However, we insist on ensuring that, as described in the EIS, they do indeed work as intended, and thereby protect the sensitive Bevia Wetland and Saltwater Creek from further degradation.

*3.3.3 Water Monitoring program* For this reason, we recommend that Planning should require the Proponents to appoint an independent agent to implement a program of water monitoring and evaluation to test not only the performance of the WSUD components at the site but the overall hydrologic performance. This would include the patterns of inflow and outflow including transport of materials for the Wetland and Saltwater Creek both at the eastern boundary and the waterbodies themselves. Later stages of development should then adapt WSUD components or other facets of water management appropriate to ensuring that the water management objectives as described above are achieved, in particular, restoration of the original, ie natural, flow regime into Bevia Wetland and Saltwater Creek.

- *We recommend that an independent agent be appointed to conduct a rigorous programme of monitoring that drives modifications to the Water Management Program and the Ecological Site Management Plan to ensure that specific outcomes are achieved.*

*3.3.4 Monitoring During Different Construction Stages* The development will be spread over three major Stages each with its sub-stages of infrastructure construction (roads, drainage etc), public space landscaping, house building and domestic landscaping. Multiple sub-stages will be in progress simultaneously and since the impacts of each sub-stage are additive, careful attention to scheduling the additional monitoring effort required during resulting peaks will be required. This is particularly so during infrastructure construction when the potential for off-site environmental damage is greatest: a single event during the critical construction phase could collapse the ecology of either the ICOLL or the Wetland beyond recovery. The Proponent should be required to respond accordingly to these critical periods so as to maintain monitoring at effective levels.

- *The monitoring programme must be sensitive to the changing levels of potential environmental impact arising from different combinations of construction stages over time.*

*3.3.5 Scheduling of monitoring activities* Monitoring is planned for each of the ICOLL and the Wetland (Ecological Site Management Plan, Appendix 21).

Validation and Verification tasks have been staged over the three phases of Preconstruction, Construction and Postconstruction and some monitoring tasks seem to terminate early when they need to persist, if not until after construction, then indefinitely: downstream impacts cannot be allowed however long after construction is complete. Monitoring of Saltwater Creek is scheduled for preconstruction and not thereafter. Both the ICOLL and the Wetland must be monitored effectively and indefinitely. Further, the time schedule for some detailed monitoring activities is given for only until 2012. Some monitoring activities are scheduled to last up to ten years after construction is complete but it is by no means evident what is meant by ‘construction’ in this context and this should be made clear.

As a component of the overall monitoring program we advocate elsewhere, the Proponent should be required to pursue a much more rigorous monitoring program of both waterbodies, including sampling directly from each, employing appropriate measures and sampling regimes for the early detection of adverse impacts. It needs to be made quite clear that both water bodies must be monitored indefinitely. Agreement should be put in train before construction begins for an appropriate authority to take indefinite responsibility for the program eventually.

- *A monitoring program must operate throughout the construction and indefinitely afterwards.*
- *The Monitoring Program must be a major component of the Ecological Site Management Plan and the principal driver of adaptive changes to it.*

*3.3.6 Bevian Wetland Buffer* The proposed buffers against the Wetland (core 40 m, additional 10 m; EA p 138) are generous but not enough to fully remove the effect of the Centre Zone due in Stage 3 (Appendix 16a). Its proximity to the Wetland should be determined by a zero impact on the Wetland, not by the amenity provided by it. It needs to be relocated further away from the Wetland to reduce visitor pressure. Interception measures (WSUD) designed to maintain existing levels of flow and transport are inadequate to protect the Wetland. Gross pollutants are not all captured by GPTs, as assumed in the EA, and removal of rubbish from water is highly impractical, better to prevent it in the first place.

Further, it was stated that development impact within the riparian zone around the Bevian Wetland basin should be avoided because of the likelihood of undetected Aboriginal archaeological sites occurring within this zone (up to 100 m from the water edge). This is a good deal greater than 40 m.

The required buffer zone of 50 m around SEPP 14 Wetlands is arbitrary and potentially masks the full function of the true riparian zone. This is determined by vegetation, topography, hydrology and other bio-physical factors, not a line drawn on a map at a desk somewhere off-site (see Riparian, below).

- *We recommend that the community centre be relocated as far away as is necessary to achieve a zero impact on Bevian Wetland.*
- *We request that the effective buffer around Bevian Wetland be defined by biophysical factors reflecting the true and effective function of its riparian zone OR 100 m whichever is the greater.*

#### 4. RIPARIAN MANAGEMENT

We challenge the classification of Saltwater Creek streams as Category 3 - Bank stability and water quality (10 m buffer). We are strongly of the opinion that the management objectives for all but the uppermost reaches of these streams is Environmental Corridor, giving them Category 1 rating (40 m buffer). Relegating them to Category 3 belies their potential to not only extend wildlife, especially birds, but to utilise natural biophysical water quality controls more and depend less on engineering solutions.

We disagree with some of the upper reaches being sacrificed to building lots. Extending additional corridors north and westward supplements (for birds at least) the proposed continuity and connectivity with Mogo Forest provided by the major E-W corridor (EA p 101). The values of continuity and connectivity should be paramount in a development claiming to be environmentally responsible.

We also challenge that streams feeding Bevia Wetland will have their riparian function replaced by engineered structures. While this approach may satisfy the relevant authorities, it places the SEPP at greater risk than if Category 3 riparian corridors were to be established and become fully functional.

We disagree with the allowance of ‘pinch’ spots where the riparian strip is reduced so long as the adjacent APZ is landscaped to replace the riparian functions. Firstly, we understand that APZs are required to carry a low fire fuel load which could not infer riparian functionality, secondly, as we state above the riparian buffer should be wider, not narrower.

- *Reclassify streams to Category 3 to permit upgrade of corridor, connectivity and filtration functions*
- *Eliminate pinch points where at all possible and avoid relying on the reduced capacity of APZs to act as filters.*
- *Restore the riparian vegetation to the streams feeding the Wetland and minimise reliance on WSUD structures for flow and water quality control*

#### 5. BOARDWALK OVER WETLAND EDGE

We believe it is not acceptable to put an over-water boardwalk in a SEPP Wetland. It brings visitors into the Wetland proper and is an efficient rubbish conduit directly into the water. This feature would be better relocated to the eastern boundary but kept well away from the top waterline for the same reasons.

Wherever the boardwalk is located, impact on the Wetland must be minimal during construction, there can be no machinery allowed on-ground neither can there be any on-ground foot traffic. All operations must progress forward from the existing platform as is practiced in the construction of mangrove boardwalks.

- *Relocate boardwalk from western side to eastern side of wetland*

## 6 ROADS AND TRAFFIC

### 6.1 Access To George Bass Drive

*6.1.1 Option 1.* We remain unconvinced that the engineering solutions proposed for the SW option (Option 1, Appendix 44) will moderate runoff and reduce the transport of nutrient and sediment to levels approaching those of the formerly undisturbed condition, levels which we argue elsewhere are required for the long term rehabilitation of the Wetland. Any engineering shortfall here will not readily be rectified, if ever, and will merely perpetuate the degradation of the Wetland.

Peak hour traffic congestion in the vicinity of Option 1, the culvert over the Wetland and the Barlings Beach access are in close proximity where the road takes a lazy-S-bend. This is a recipe for traffic congestion and accidents in peak hour especially with private and commercial school traffic in the mornings. Also, we are concerned that future traffic engineering will encroach further on the Wetland.

*6.1.2 Option 2* Option 2(SE) is on a straighter road with better visibility. We would normally stand for the protection of vegetation, especially EECs, but we disagree with the consultant's view on the magnitude of the Option 2 ecological impact. The road design should allow for the easy passage of fauna, perhaps via spaced underpasses, into the wetland. The impact can be reduced by moving the road closer to the STP, malodour notwithstanding. The area of disturbance as a measure of impact then becomes of less significance. An area of 0.22 ha of disturbed spotted gum forest will be lost but there is far greater opportunity for replacement plantings here than at the Option 1 site.

- *We consider that the long term ecological health of the Wetland surpasses considerations of the EECs involved and we urge adoption of Option 2*

*6.1.3 Rejection of Option 1* The current road to the west of the Wetland is a serious source of Wetland pollution which Option 1 is designed to eliminate. If Option 2 is adopted, the pollution must still be eliminated. However, adequate facilities for pedestrian and cyclist traffic access to the Wetland must be provided on the western shore.

- *In the event Option 2 is adopted the existing gravel road should be retained to provide facilities for pedestrian and cyclist traffic as well as emergency access, but must be re-engineered to provide the same protection to the wetland had Option 1 been selected.*

### 6.2 Coordination with Rosedale Farm

There appears to be no evidence of an effective coordinated traffic plan between the two developments (MP 05-0199 and MP 06-0038). The EA makes no mention of the additional traffic to be generated by the Rosedale Farm development (approx 140 lots). Its access to George Bass Drive will be opposite the access to South Rosedale Hamlet (Rosedale Parade) and the combined traffic levels will be many times greater than at present, the more so because it is the only vehicular access to Rosedale Beaches.

The EA is deficient in that the traffic study makes no mention of the proposed Rosedale Farm development, and the consequent intensified traffic volumes that will be generated along a highly dangerous stretch of George Bass Drive, at the NE intersection with George Bass Drive, and at the Rosedale Parade intersection.

#### 6.3 Data collection.

We can find no reported date for the collection of the road use data used in the transport assessment so do not know if it was collected during peak tourist (holiday) season when traffic volumes are significantly higher or in the off-season. It has been contended that the Shire population doubles at Christmas and Easter while Batemans Bay population quadruples. Severe traffic congestion occurs at the major centres at these times. Even allowing for some error in these estimates, the data collected for this assessment will be grossly under-estimated if collected during off-season.

#### 6.4 Speed restrictions.

The speed limit between Malua Bay and Tomakin should be dropped to a uniform 70 km/h, not the 80 km/h proposed.

### **7. COMMUNITY SERVICES AND INFRASTRUCTURE**

#### 7.1 Medical

The addition of over 2000 houses (Bevian, Rosedale Farm, Barlings Beach) in the next few decades will require a quantum leap in medical services at all levels. The proponent claims these are available but it is well publicised that area health and medical services are grossly under capacity. The drift back to the city of older retirees because of the lack of medical services is also well known. This is a serious concern that requires a satisfactory answer before consent.

#### 7.2 Schools and Education

In response to Appendix 38, a letter from the Department of Education stating that schools in the catchment of the subject development are currently at or over capacity, the Proponent merely lists the schools as evidence of there being many from which to choose and dismisses the point about capacity with a brief reference to s94 contributions. It should be of concern that an unfair proportion of the cost of providing schools might ultimately fall on taxpayers. We seek better assurances than this from all parties before consent is granted.

- *We request that a firm commitment be sought from the relevant parties to increase infrastructure and services capacity to accommodate the future demand from the large developments in the local area.*

### **8. COLLECTED RECOMMENDATIONS, REQUESTS**

- *Any development in these catchments must not only be required to adopt the most stringent protective measures for both receiving bodies but have as a condition of consent that they must be rehabilitated to the fullest extent that we know how.*

- *This implies that a similar degree of rehabilitation is required in the catchments that drain into them to avoid downstream impacts on these significant biodiversity habitats.*
- *The approach must be whole-of-catchment. This requires that the two major developers integrate their planning to the extent that there is a smooth ecological transition across cadastral boundaries. It is imperative that this be a condition of consent.*
- *There is therefore a need for a unified or Integrated Master Plan that sits above and across all the individual Concept Plans, even though they may be approved at different times.*
- *An Integrated Master Plan should identify biophysical constraints to urban development and observe how they can be accommodated to the satisfaction of the environment rather than to satisfy development imperatives alone.*
- *We request that the use of ‘natural’ be restricted to the undisturbed state of the catchments and to the processes operating in pre-disturbance times and that it be acknowledged that ‘existing’ levels of different attributes are understood to be highly modified and not natural.*
- *We recommend that the MUSIC modelling exercise be revisited using more realistic parameter values.*
- *We recommend that the MUSIC modelling exercise include undisturbed catchment conditions, ie full forest or woodland cover and no dams.*
- *We recommend that an independent agent be appointed to conduct a rigorous programme of monitoring that drives modifications to the Water Management Program and the Ecological Site Management Plan to ensure that specific outcomes are achieved.*
- *The monitoring programme must be sensitive to the changing levels of potential environmental impact arising from different combinations of construction stages over time.*
- *A monitoring program must operate throughout the construction and indefinitely afterwards.*
- *The Monitoring Program must be a major component of the Ecological Site Management Plan and the principal driver of adaptive changes to it.*
- *We recommend that the community centre be relocated as far away as is necessary to achieve a zero impact on Bevia Wetland.*
- *We request that the effective buffer around Bevia Wetland be defined by biophysical factors reflecting the true and effective function of its riparian zone OR 100 m whichever is the greater.*
- *Reclassify streams to Category 3 to permit upgrade of corridor, connectivity and filtration functions*
- *Eliminate pinch points where at all possible and avoid relying on the reduced capacity of APZs to act as filters.*

- *Restore the riparian vegetation to the streams feeding the Wetland and minimise reliance on WSUD structures for flow and water quality control*
- *Relocate boardwalk from western side to eastern side of wetland*
- *We consider that the long term ecological health of the Wetland surpasses considerations of the EECs involved and we urge adoption of Option 2*
- *In the event Option 2 is adopted the existing gravel road should be retained to provide facilities for pedestrian and cyclist traffic as well as emergency access, but must be re-engineered to provide the same protection to the wetland had Option 1 been selected.*
- *We request that a firm commitment be sought from the relevant parties to increase infrastructure and services capacity to accommodate the future demand from the large developments in the local area.*

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7 April 2008