

Council Reference: DA21/0233 LN 41917  
Your Reference: SSD-10398



4 June 2021

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**Attention: James McDonough**

Dear Sir / Madam

**Tweed Shire Council Submission – Hanson Tweed Sand Plant Expansion -  
State Significant Development (SSD-10398)**

I refer to the Department's request for Council's advice / comment on the Environmental Impact Statement (EIS) for the Hanson Tweed Sand Plant Expansion (SSD-10398). Council officers have undertaken a review of the proponent's EIS and supporting documentation and provide the following comments for the Department's consideration.

**1. Flooding**

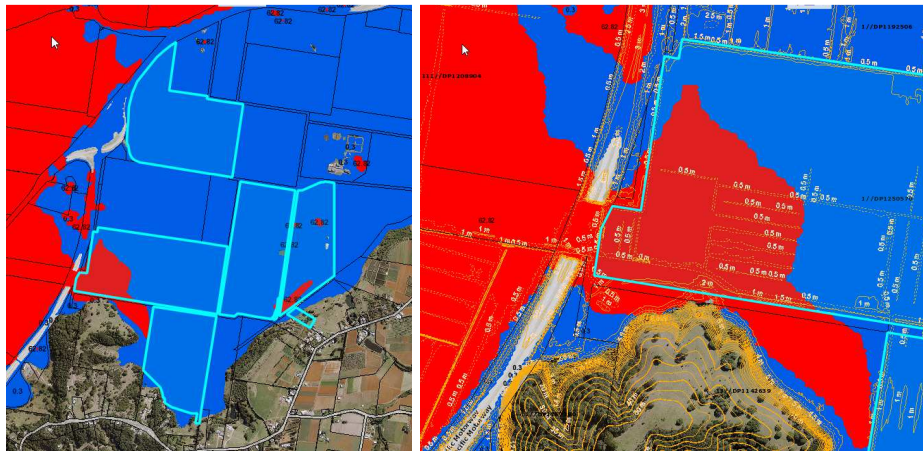
An assessment has been undertaken against the proposed SSD with specific reference to the proponent's Flooding and Stormwater Assessment (FSA). Significant flooding concerns are raised, as discussed below.

The following flood levels apply to the site:

Site Ground Levels (average) = RL ~1m AHD  
Design Flood Level (1% AEP) = RL 3.3m AHD  
PMF Level = RL 8.3m AHD

**1.1 High Flow Areas**

The majority of the site is classified as 'low flow' area. The exception to this is a small area in the south-west corner around the Pacific Motorway culvert/bridge (shown in red in Figure 1 below). In this area existing ground levels are as low as RL 0.5m AHD.



**Figure 1 – Low flow (blue) / High flow (red)**

The proponent's FSA suggests that the proposed lake is to be bunded to RL 1.3m AHD. This will result in a bund approximately 0.8m high being placed directly downstream of the highway culverts. It should be noted this is a flow path of critical importance. It is the primary access to the wider Chinderah/Kingscliff flood storage. Any obstruction to flow here is likely to have significant impacts upstream.

The proponent's flood impact assessment does **not** include the bunding of 'Lake 2' to RL 1.3m AHD. The FSA states that:

*The proposed bunding at RL 1.3 m AHD has NOT been included as it is considered negligible due to its low level compared to the overall flood levels experienced at the site.*

Council does not agree with the above statement. Whilst this may be valid for some areas of the proposed lake expansion (where existing topography is already around RL 1.3m AHD) it is not true of the critical high flow area adjacent to the Pacific Motorway culvert/bridge. An 800mm high bund in this area is likely to pose a significant barrier to flood waters entering the Chinderah/Kingscliff storage area and therefore have significant afflux upstream.

It should be noted that DCP-A3 only permits changes to ground levels up to 300mm in high flow areas (for local drainage purposes). In this case, given the critical nature of the flow path, 300mm would not be automatically considered permissible and this would be subject to detailed flood modelling (with bunding included). Any significant bunding in this area is contrary to DCP-A3 and unlikely to be supported. **This is a significant constraint for the proposal that has not been addressed and may have substantial implications as the ability to bund the lake to RL 1.3m AHD may not be possible.** Refer to request for further information below (Item 8.1).

## 1.2 Emergency Response Provisions

The proposal does not include any habitable land uses. Therefore the Emergency Response Provisions (evacuation) of DCP-A3 do not apply. Nevertheless, the SEARs included similar assessment requirements and the proponent has adopted DCP-A3's framework and submitted a Flood Response Assessment Plan (FRAP). The FRAP identifies an evacuation

approach to risk management, which is considered appropriate. It goes on to identify various flood action plan type measures, which is beyond the intended scope of a FRAP. The FRAP is noted.

### 1.3 Time of Inundation

The FSA does not include any analysis of any changes in the time of inundation due to the proposal. This is particularly relevant to nearby agriculture and development/environmental areas. Prolonged inundation can kill crops, increase nuisance and change environmental values. The proposal will have significant changes to the low-flow drainage regime of the area and therefore may effect time of inundation of surrounding floodplain areas. Refer to request for further information below (Item 8.1).

### 1.4 Reduction in Peak Flood Levels for Minor Events

The FSA reports modelling results that predict:

*For events lower than the 1% AEP, the development improves flooding in the area due to a large gain in flood storage.*

Whilst the starting water level (at beginning of regional flood modelling event) for each model run is not explicitly stated in the FSA, section 4.7 suggests that the consultant may have adopted the dry weather standing (ground) water level.

*Flood storage calculations taken from the DFL (3.23 m AHD) to the standing water level at site (0.3 m AHD).*

The 2 x lakes are proposed to be bunded with overflow weirs at RL 1.0m AHD. Flooding in the Tweed Valley generally follows multiple days of heavy rain. A few hundred millimetres of rain falling over these bunded lakes in the lead up to a flood event would significantly reduce the 'large gain in flood storage'. These antecedent conditions are generally not included in flood model design event runs.

Therefore, depending on the assumptions input to the model, the predicted improvements in flooding for events lower than 1% AEP may be invalid. The starting water levels and/or antecedent condition assumptions used for the flood assessment should be clarified to verify the validity of these predictions. Refer to request for further information below (Item 8.1).

### 1.5 Cumulative Development Scenario

The proponent was advised at a pre-lodgement meeting with Council that "...the development must be assessed on an individual and cumulative development basis, consistent with the Tweed Valley Flood Study and Tweed Valley Floodplain Risk Management Study and Plan".

They were also advised that "...Given other significant floodplain developments in the West Kingscliff catchment, modelling of a cumulative development scenario for the 1% AEP and 1% climate change events is warranted. This includes expansion of the aquaculture farm, and sand mining and subdivision development by Gales Holdings. Gales Holdings is

*advancing their masterplanning and it is strongly advised that Hanson consults and consolidates the current technical studies if possible”.*

Section 4.6 of the FSA notes (part of) the Gales Kingscliff developments (Lot 21) but does not provide any further, cumulative analysis. This is not considered to be acceptable. The proposal’s impact on flooding in the area cannot be considered in isolation only. If co-operation from Gales Holdings, and their consultants, is not forthcoming the proponent can adopt the Tweed Valley Floodplain Risk Management Study 2014 cumulative development scenario and consult with Council to ensure any change since 2014 are included. A cumulative development scenario must be assessed otherwise the Flood Impact Assessment is not complete. Refer to request for further information below (Item 8.1).

#### 1.6 Acceptable Afflux Claims

The FSA repeatedly claims that afflux as a result of the proposal “...*is within the allowable limits as set by the Tweed Council*”. It should be noted that these thresholds were adopted for the Tweed Valley Floodplain Risk Management Study **cumulative** development scenario which included all anticipated fill/development of the floodplain. They are not applicable to an individual development assessment and should not be deemed an acceptable target in isolation. Refer to request for further information below (Item 8.1).

#### 1.7 PMF Afflux Results

The FSA makes a general conclusion:

*The proposed lakes do allow flood waters to be conveyed across them with less resistance than the existing farm paddocks, creating a marginal change to the level of flooding in some areas of the model domain. This is specifically notable in extreme events including the 0.2% AEP and above events.*

However, the PMF afflux maps depict the opposite result. A widespread reduction in peak water level to the east of the site and an area of increase to the south-east. This is inconsistent with the above commentary and the reason for it has not been explained. Refer to request for further information below (Item 8.1).

## 2. Stormwater

Similarly, an assessment of the proposed expansion has been undertaken with regard to stormwater, noting the following concerns.

#### 2.1 Predicted Afflux

The FSA analyses local stormwater flooding and concludes that:

*It is shown from the local flood assessment an increase in water level outside the allowable increase for rural properties (100mm) is anticipated at interrogation locations B, D, E and F in various events.*

*An increase in flooding is due to loss in conveyance area caused by the proposed lake bunds.*

It then goes on to claim that, as local stormwater peak flood levels are far lower than the regional peak flood levels, this is acceptable. It is considered that this is an over simplification of the problem. It is not acceptable to dismiss increases in local stormwater flooding simply because regional flooding is worse. Local drainage efficiency and time of inundation is important for the nearby agricultural land uses, for the viability of nearby development areas and for the ecology of environmental areas. The proponent has not demonstrated that the increases in local stormwater flooding are acceptable. Refer to request for further information below (Item 8.1).

## 2.2 Drain Upgrades

It is noted that FSA Appendix C contains a map that outlines various drainage channel realignments. The document states that:

*If during the operation of the sand plant, channels are required to be reformed or realigned, required channel sizing has been indicated in Appendix C.*

The document then goes on to state:

*No channel upgrades are proposed under this EIS submission. Pre-development channel sizing is matched in the proposed scenario and generally catchment areas draining to the channels have been maintained.*

Further clarification is required in this regard. It appears the FSA local stormwater results conclude that local stormwater afflux is not acceptable, suggests drain upgrades to offset these impacts, but then declines to include them in the proposal. Refer to request for further information below (Item 8.1).

## 2.3 Time of Inundation

As per the abovementioned flood comments, the FSA does not include any analysis of any changes in the time of inundation due to the proposal. The changes to the southern drain result in a longer flow path for low flow drainage to take to reach the outlet. The stormwater analysis should include consideration of low flow drainage and time of inundation. Refer to request for further information below (Item 8.1).

## 2.4 Flow from Eastern Catchments

Through direct experience and various assessments of development proposals east of the subject site it has been generally accepted that the Altona Road and Julius drains can flow in both directions depending on tail water levels, rainfall distribution and storage stages. The FSA selects a catchment divide that routes stormwater from the east of the site to the north. A sensitivity analysis should be considered where a suitable catchment east

of the site are routed to the west, through and around the subject site. Refer to request for further information below (Item 8.1).

## 2.5 Peak Discharges

The FSA predicts significant increases in peak stormwater discharge at the catchment outlets in more frequent events (refer to tables 3.3 and 3.4). However, no justification as to why this is acceptable is provided by the proponent. It should be noted that, for natural (unsealed) drains, peak discharge increases in frequent events can be related to erosion and associated environmental problems. Avoiding these is the objective of the waterway stability control in Development Design Specification D7 – Stormwater Quality. The proponent should either provide justification as to why these increases will not have any detrimental impact or propose mitigation measures. Refer to request for further information below (Item 8.1).

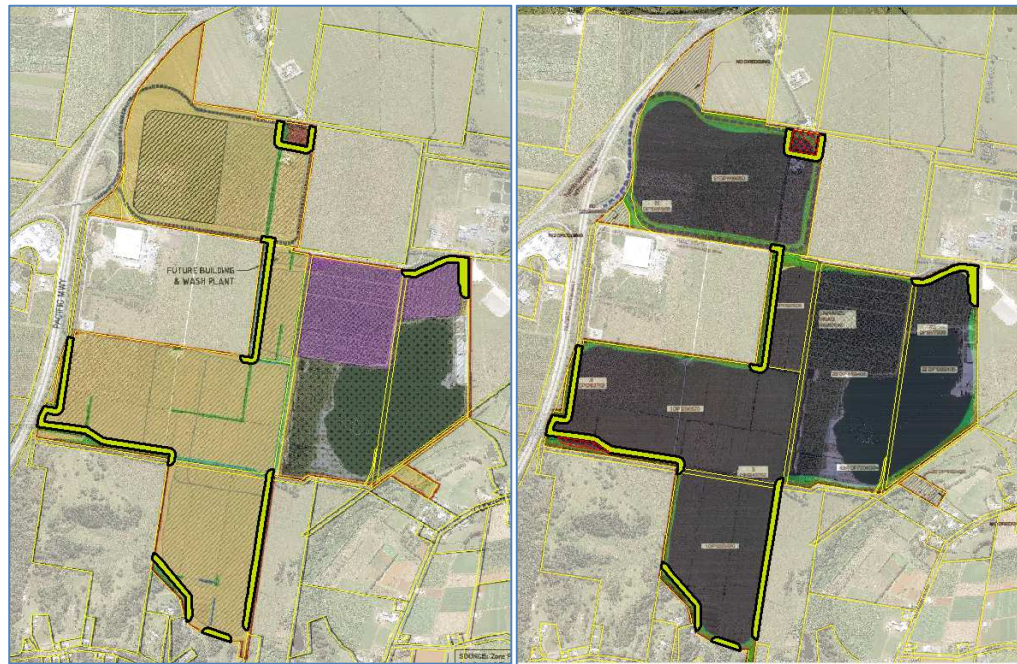
## 3. Ecology

An assessment has been undertaken against the proposed expansion of the Hanson Sand Plant, raising concerns with the proposed layout and Biodiversity Development Assessment Report (BDAR), Koala Habitat Protection, Rehabilitation and final land use, as noted below.

### 3.1 Proposed layout and Biodiversity Development Assessment Report (BDAR)

- The proposed development layout design fails to satisfy the avoid and minimise provisions set out in Section 7.2 of the Biodiversity Assessment Method 2020 prepared under the *Biodiversity Conservation Act 2016* resulting in a direct loss of 3.66 ha of remnant mapped vegetation;
- The proposed development layout design fails to satisfy the avoid and minimise provisions set out in the Tweed Development Control Plan Section A19 Biodiversity & Habitat Management resulting in a direct loss of 3.66 ha of remnant mapped vegetation and likely indirect habitat impact by virtue of inadequate ecological setbacks to red flagged values. Opportunities to retain existing vegetation and provide buffers (of minimum 30m width) are highlighted in Figures 2 and 3 below. It is noted that 50m buffers to sensitive high value, poorly represented coastal values is considered appropriate and achievable given the scale of the proposal;





**Figure 2**

**Figure 3**

**Figure 2** - Example of responsive design identifying areas of high ecological value and applied 30 m buffers (shaded lime green) to be avoided, established and protected as overlaid with the BDAR Vegetation Zone mapping.

**Figure 3** - Areas of high ecological value (cross-hatched red) and applied 30 m buffers (shaded lime green) to be avoided, established and protected as overlaid with the final landform plan.

- Onsite offsetting to minimise local residual impacts has not been proposed;
- Further survey should be undertaken for Koala (*Phascolarctos cinereus*) given the presence of preferred habitat;
- Limited impact assessment has been undertaken with respect Groundwater Dependent Ecosystems;
- Assessment with the Scientific Determination for Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions has not been provided. In order to be satisfied that the mapped Vegetation Zone 4 does not qualify as an Endangered Ecological Community listed under the BC Act detailed evaluation should be provided;
- An assessment should be made with respect to Vegetation Zone 1 and 2, having regard for the Conservation Advice - Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community listed under *Environment Protection & Biodiversity Conservation Act 1999*; and
- The proposed layout affects areas identified for rehabilitation as shown in the Revised Rehabilitation and Landscape Management Plan Tweed Sand Plant prepared by JWA Pty Ltd March 2019 under the current extraction approval. See Figure 4 below.



**Figure 4** - Extract from the currently approved Rehabilitation and Landscape Management Plan

### 3.2 Koala Habitat Protection

The proposal fails to address the provisions of the Tweed Coast Comprehensive Koala Plan of Management March 2020. By virtue the proposal in its current form is not considered to satisfy the aims of the *Tweed Local Environmental Plan 2014*.

### 3.3 Concept Rehabilitation and Landscape Management Plan

The following concerns are raised in relation to the proposed rehabilitation and landscaping works as outlined in the Concept Rehabilitation & Landscape Management Plan dated March 2021 prepared by JWA Ecological Consultants.

- Rehabilitation areas appear inadequate in width (up to 10m) to act as effective buffers to existing ecological values on and adjacent to the subject site;
- The rehabilitation plan fails to capture significant areas of existing vegetation;



- Given the scale of the development, commitment of a maximum of 5 years to the maintenance of habitat restoration areas is considered insufficient;
- Proposed planting densities are considered inadequate to successfully achieve site capture within the specified timeframes;
- Species selection is depauperate and should include a greater diversity of local native plant species for each stratum;
- Maintenance rotations of once every six (6) months is considered inadequate to successfully achieve site capture within the specified timeframes; and
- Open Space Areas detailed in 2.7.3.4 are not identified on Figure 4 Concept RLMP Phasing.

### 3.4 Final land-use

Details of the final land use post extraction remain vague. The EIS reflects the following:

*Hanson would retain ownership of the site following completion of sand extraction and any proposed subsequent use of the site would be decided via the appropriate consultative, application and regulatory processes in place at that time.*

Long term management and protection arrangements of ecological values and associated buffer zones should be determined during the assessment stage of the proposal.

## 4. Traffic Impact

An analysis has been undertaken of the proponent's Traffic Impact Assessment (TIA), noting that Transport for NSW will be the leading authority in terms of access to / from the existing Tweed Valley Way / M1 interchange.

### 4.1 Proposed Works

The proposed works include:

- Construction of new access to TVW southbound off ramp. Includes acceleration lane (618m) allows speed of 67km/h, which terminates before ABLP access. Acceleration modelling carried out;
- Auxiliary Left turn Lane (AUL) (110m deceleration including 30m taper) into ABLP access; and
- Lane widening on the TVW/ Service station roundabout to accommodate the passing of two B doubles.

Right turns in and right turns out are to be banned from existing Australian Bay Lobster Producers (ABLP) driveway access. It is unclear why there is a need to construct the widening of the shoulder at the ABLP access to enable trucks to turn out of the site as all truck will use the new access and acceleration lane to the north. Refer to request for further information below (Item 8.7).

#### 4.2 Tweed Road Contribution Plan (TRCP)

Whilst it may be accepted that the vast majority 80 – 90% of movements will be north bound, there may some trips to sites within the Tweed Shire and this is estimated (by Council) to be 10%, thereby triggering TRCP contributions.

### 5. Environmental Health

#### 5.1 Acid Sulfate Soils

The application identifies the subject site as Class 2, 3 and 5 Acid Sulfate Soil. Disturbance of such soil has the potential to result in adverse environmental impacts. Any investigations and management plans, or similar, should be prepared in accordance with NSW Acid Sulfate Soils Management Advisory Committee (ASSMAC) guidance documents.

The application indicates the development is a 'scheduled activity' under the *Protection of the Environment Operations Act 1997*, and an Environment Protection Licence issued by the NSW Environment Protection Authority (EPA) will be required to carry out works at the premises.

It is likely management of acid sulfate soils/waste will be regulated under the Environment Protection Licence. Comments and potential conditions to be recommended by EPA and potentially other State Agencies will be critical.

#### 5.2 Air Pollution

Construction, operations, haulage and rehabilitation activities have the potential to result in off-site dust/particulate impacts.

The application includes air quality criteria for the Phase 1-4 Approval. It is considered that similar criteria should be applied to the proposal if approved. As stated, an Environment Protection Licence will be required to carry out works at the premises. Comments and potential conditions recommended by EPA will be critical.

#### 5.3 Contaminated Land

The application includes a Preliminary Site Investigation (PSI) prepared Gilbert + Sutherland. A detailed review of the PSI has not been carried out, however the below summary is noted.

*The potentially contaminating activities/potential contaminants associated with the site are typical of land where agricultural activities have historically been undertaken and were limited to small areas of the site as identified on Drawing 12035-416 in Appendix 1.*

*Should the proposed expansion be approved, a detailed investigation would be undertaken to inform the preparation of a Remediation Action Plan (RAP) for the relevant areas of the site.*

*In many instances, remediation requirements are likely to be straightforward and simply require the removal of identified wastes with*

*selected areas also requiring soil testing. These activities would be undertaken in accordance with an approved RAP and scheduled to occur on a lot by lot basis prior to the commencement of extraction within the relevant allotments. This staged approach is supported by State Environmental Planning Policy (SEPP) 55 which provides that detailed assessments need not be undertaken immediately following the preliminary investigation but should be undertaken prior to commencement of the new land use.*

*It is proposed that detailed investigations, preparation of the RAP and any subsequent remediation of the identified areas could reasonably form a condition of approval for the proposed expansion.*

The approach of 'approval without knowing contamination conditions' is contrary to Council's understanding of the intent of SEPP 55 and contaminated land legislation, whereby detailed investigations and RAP (as necessary) are undertaken prior to determination in order to comply with the provisions of clause 7 of SEPP 55. Accordingly, the proponent's current approach to contamination is not supported.

#### 5.4 End Use

The application indicates the proposal development will occur in stages, and once it is completed, a series of large brackish (salt) clean water lakes will be created, shorelines embellished, and the area made available for public use. It is unknown whether management/control/ownership of the lakes will be transferred to Council. It is possible substantial resources will have to be allocated to maintaining water quality at a primary contact recreation standard (i.e. suitable for swimming and similar). Correction of pH may be required due to acid sulfate soil conditions. Algae growth may need to be addressed. Further information is required regarding end use and long-term management/control/ownership of the lakes.

#### 5.5 Groundwater and Dewatering

The application indicates that due to the excavation process used, dewatering is not required.

The proposed development has the potential to impact on groundwater quality. An Environment Protection Licence will be required to carry out works at the premises. Comments and potential conditions recommended by EPA will be critical.

#### 5.6 Land Use Conflict

Living and Working in Rural Areas (NSW DPI, 2007) recommends a minimum buffer of 500m between 'mining, petroleum, production and extractive industries' and 'residential areas and urban development' and 'rural dwellings'.

The application indicates such a buffer will not be provided.

It is noted an Agricultural Land Assessment has been included in the application. A detailed review of the Agricultural Land Assessment has not been carried out.

#### 5.7 Lighting

The application indicates 24 hour operations are proposed. Lighting has the potential to adversely impact on off-site receptors.

Any lighting should comply with applicable Australian Standards.

It is currently unknown whether the application has appropriately addressed lighting and compliance with applicable Australian Standards.

#### 5.8 Noise

Construction, operations, haulage and rehabilitation activities have the potential to result in off-site noise impacts.

The application included the below statement:

*Noise Impact was identified as a Key Issue that would also require focused engagement. Consistent with current operations, extraction will occur via dredge unit that will change location throughout the phases of operation. The proposal would also result in additional heavy vehicle movements and loading of vehicles. All these activities may be heard at nearby dwellings subject to prevailing conditions and in particular S/SE winds that prevail. A Noise Impact Assessment would be prepared to assess all noise generating activities and ensure noise levels can achieve compliance with relevant legislative requirements.*

It is noted noise assessments have been included in the application. Detailed reviews of these assessments have not been carried out.

An Environment Protection Licence will be required to carry out works at the premises. Comments and potential conditions recommended by EPA will be critical.

#### 5.9 On-Site Sewage Management

Should toilet facilities and the like not be connected to a reticulated sewerage system, an on-site sewage management system/s will be required. S68 approval under the *Local Government Act 1993* will be required.

Any trade wastewater generated on-site needs to be appropriately managed.

#### 5.10 Waste

The below statement is included in the application:

*The proposed HTSP expansion would access an available sand resource of approximately 30-35 million tonnes and provide production*

*and transport of a maximum 950,000 tonnes of sand per annum (market driven). The proposed project life is 30 years (market driven) spanning several extraction phases. The project would increase the current approved operating hours of the HTSP to allow operations 24 hours, seven days a week.*

*The project would include an allowance to import 60,000 tonnes per annum of Virgin Excavated Natural Material (VENM) for the purposes of backfilling, armoring lake edges, rehabilitation works, etc.*

An Environment Protection Licence will be required to carry out works at the premises. Comments and potential conditions recommended by EPA will be critical.

#### 5.11 Water Pollution

The below statement is included in the application:

*The data set demonstrates that surface water quality within the current TSP dredge lake has remained mostly compliant with the site's water quality objectives since issue of the Development Consent in 2006. With respect to cyanobacteria, long-term results indicate the ongoing presence of a seasonal algal bloom with the potential to produce algal toxins. The characteristics of the lake's cyanobacteria population have been extensively analysed and expert advice sought to determine appropriate hazard and risk management techniques. Recent results have been encouraging with a significant reduction in algal cell numbers since 2017.*

*Groundwater quality at the cessation of sand extraction, including any implications to the proposed end-use(s) of the site as informed by an assessment of risks to the environment and human health.*

The above suggests ongoing management of surface water will be required. An Environment Protection Licence will be required to carry out works at the premises. Comments and potential conditions recommended by EPA will be critical.

As stated, it is possible substantial resources will have to be allocated to maintaining water quality at a primary contact recreation standard. Correction of pH may be required due to acid sulfate soil conditions. Algae growth may need to be addressed. Further information is required regarding end use and long-term management/control/ownership of the lakes.

It is recommended that the Department consider engaging the services of an experienced hydrogeologist to review the proposed development in terms of management of water quality in perpetuity.

#### 5.12 Biting Midges and Mosquitoes

The proposed development includes large areas of open water and wetland rehabilitation areas. The application is to address Tweed Development Control Plan 2008, Section A6 – Biting Midge and Mosquito Control.

## 6. End Use / Open Space

Council has reviewed the proposed development with regard to the end use and its alignment with Council's open space strategies.

### 6.1 Proposed End Use / End Use Concept Plan

The subject application is currently proposing that the site owner will retain ownership of the site following completion of sand extraction and any proposed subsequent use of the site would be decided via the appropriate consultative, application and regulatory processes in place at that time – i.e. in approximately 30 years' time. However, the subject application also provides some limited information regarding the proposed end use of the area. Documentation provided mentions vague 'end use principles, and provides similarly vague options, however at this stage the proponent is not suggesting any handover of assets for open space to Council. However, some contradictory information is provided in Attachment 13 – Community Consultation Methodology and Scoping Report, Page 3, which states:

*This proposal is based on the applicant's intention that as the project is developed in stages, and once it is completed, a series of large brackish (salt) clean water lakes will be created, shorelines embellished, and the area made available for public use. The applicant proposes to deliver staged landscaped areas surrounding the lakes that are suitable for public use and as listed below it is intended to consult with a wide range of community groups to seek their input and recommendations into the potential of making the lake and foreshore areas available to them and their members or supporters and what embellishments they would like to see included to support their specific uses.*

Similarly, Attachment 02 – End Use Concept Plan suggests a range of passive and active recreation activities including: rowing; sailing; boating; canoeing; fishing or cable ski activities, as well as education infrastructure to support fauna & flora education and study at a community, school and/or tertiary research level. Additionally, the plan shows a range of infrastructure for the site including: Primary recreation nodes; shelters and rest stops; seating; beaches; pathways; a jetty; model yacht and boat racing course etc – refer to Figures 5 and 6 below.







**Figure 6**

It is considered appropriate that further and more clear information as to the proposed end use of the site and any potential implications on Council be provided, to enable a more informed decision as to whether any proposed facility has any future benefit to the greater Tweed community. It is not accepted that planning for the end use of this site and any potential implications on Council be addressed at the end of extraction period (30 years into the future).

## 6.2 Alignment to existing Tweed Shire Council Open Space or other relevant plans or strategies

The proposed / end use concept plans do not appear to align to any existing Council strategies or plans including the 'Open Space Strategy 2019' or 'Sports Field Strategy' 2014, neither of which have identified the need through extensive community consultation for the proposed end use outcomes.

Further to this, Council would like further information as to how the proposed end use of the site will potentially interact and relate to the proposed end use of the similar artificial lake proposed by the adjoining Gales Development.

6.3 Feasibility & Demand Analysis and Impact of ongoing maintenance and financial implications of the Council and Tweed residents.

Council will require appropriate feasibility and demand-analysis studies be completed for any proposed public end use of the site. Additionally, such studies and reports will need to identify any and all ongoing maintenance and financial implications for Tweed Shire Council if the subject application proposes any end use to be handed over to Council in the future.

6.4 Zoning

Zoning for the subject application is currently zoned RU1 Primary Production or RU2 Rural, therefore unsuitable to public recreation.

7. **Planning**

7.1 Zone Objectives

It is considered that the proponent has not adequately demonstrated that the proposed development is consistent with the objectives of the RU1 and RU2 zones applicable to the subject site.

7.2 Loss of Agricultural Land

Concern is raised with regard to the suitability of the proposed development and the impact of sterilizing the land for future uses and loss of agricultural land. The cumulative impact of the subject site and adjoining land being utilised for similar sand extraction industries has not been suitably addressed, in terms of the strategic importance of the land, given its identification as being regionally significant farmland. If the proposed development is granted approval, the agricultural use of the land will be lost in perpetuity.

7.3 Benefits to Tweed Shire

Whilst the application has included assessment reports on the Social and Economic impacts associated with the development, it is considered that these reports do not clearly spell out the benefits of the proposed expansion to Tweed Shire. With the majority of the sand being extracted going to South East Queensland, concern is raised that little benefit will be forthcoming for the Tweed Shire.

7.4 End Use / Management in Perpetuity

Initial discussions with the proponent identified that the resulting lakes were to be dedicated to Council. This raised many concerns with regard to appropriate end uses and the ability to fund the management of the lake system in perpetuity. Whilst the proponent now proposes to maintain ownership of the site during the lifetime of the sand extraction (30 years), the initial concerns of Council remain. The end use / management issues should be appropriately addressed now, as opposed to leaving it for the end of the life of the sand extraction.

Although funding for the long-term management is not currently proposed by the proponent, Council is happy to discuss available options. This includes an option for the payment of a minimum dollar amount for every tonne removed from the site. It is considered that this type of funding option would provide a simple and acceptable solution for the long-term management of the lake system, should the application be granted approval.

#### 7.5 Aboriginal Cultural Heritage Assessment

It is considered appropriate that the application is formally referred to the Tweed Byron Local Aboriginal Land Council (TBLALC) for comment. Subject to TBLALC comment, any recommendations of the ACHA should be reflected in the consent, should the SSD be granted approval.

#### 7.6 Impact upon Tweed River

It is considered appropriate that the Department investigates any potential impacts upon the banks of the Tweed River, as a result of the proposed 20m deep dredging of the subject site.

### 8. Request for Further Information

#### 8.1 Flooding & Stormwater

- a. The proposed Southern lake is to be bunded to RL 1.3m AHD. The proponent's Flooding and Stormwater Assessment does not include this bunding in its flood model as it 'is considered negligible due to its low level compared to the overall flood levels experienced at the site'. The proposal will result in a bund approximately 0.8m high being placed directly downstream of the Pacific Highway Bridge which is a critical flow path for water entering the Chinderah/Kingscliff floodplain storage. Any obstruction to flow here is likely to have significant impacts upstream.

It should also be noted that the area near the Pacific Highway Bridge is classified as "High Flow". Tweed Shire Development Control Plan section A3 – Development of Flood Liable Land strictly limits changes to ground levels in high flow areas in order to maintain flood conveyance in critical areas. Any significant bunding in this area is contrary to DCP-A3 and unlikely to be supported. This constraint has not been addressed and a proper assessment may reveal unacceptable flood impacts upstream that could have substantial implications for the proposal.

- b. The Flooding and Stormwater Assessment does not include any analysis of changes in the time of inundation in the surrounding floodplain due to the proposal. This is particularly relevant to nearby agriculture, development and environmental areas. Prolonged inundation can kill crops, increase nuisance and change environmental values. The proposal will have significant changes to the low-flow drainage regime of the area and therefore may effect time of inundation of surrounding floodplain areas. This should be evaluated.

- c. The Flooding and Stormwater Assessment predicts that *'for events lower than the 1% AEP, the development improves flooding in the area due to a large gain in flood storage'*. These results are likely to be heavily dependent on the starting water level of the lakes input into the flood model runs, which are not defined in the Flooding and Stormwater Assessment. Flooding in the Tweed Valley generally follows multiple days of heavy rain, while the 2 x lakes are proposed to be bunded with overflow weirs at RL 1.0m AHD. It is likely that a large portion of the "gain in flood storage" would be consumed by this trapped 'pre-flood' rainfall. The proponent should define the starting water level and/or antecedent conditions applied to each flood model run so that the validity of this result can be assessed.
- d. The Flooding and Stormwater Assessment analyses the proposals impact on flooding in isolation but does not consider a cumulative development scenario. This not acceptable and a comprehensive cumulative development scenario must be investigated. If the latest plans for surrounding development cannot be sourced from the relevant landowners and their consultants the proponent can adopt the Tweed Valley Floodplain Risk Management Study 2014 cumulative development scenario and consult with Council to ensure any changes since 2014 are included.
- e. The Flooding and Stormwater Assessment repeatedly claims that afflux as a result of the proposal *'is within the allowable limits as set by the Tweed Council'*. It should be noted that these thresholds were adopted for the Tweed Valley Floodplain Risk Management Study **cumulative** development scenario which included all anticipated fill/development of the floodplain. They are not applicable to an individual development assessment considered in isolation only. These precedents can only be considered relevant if a comprehensive cumulative development scenario is undertaken.
- f. The Flooding and Stormwater Assessment makes a general conclusion that *'the proposed lakes do allow flood waters to be conveyed across them with less resistance than the existing farm paddocks, creating a marginal change to the level of flooding in some areas of the model domain. This is specifically notable in extreme events including the 0.2% AEP and above events'*. However, the PMF afflux maps depict the opposite result - a widespread reduction in peak water level to the east of the site and an area of increase to the south-east. This is inconsistent with the above commentary and the reason for it should be explained.
- g. The Flooding and Stormwater Assessment analyses local stormwater flooding and concludes that: *'an increase in water level outside the allowable increase for rural properties (100mm) is anticipated at interrogation locations B, D, E and F in various events. An increase in flooding is due to loss in conveyance area caused by the proposed lake bunds*. It then goes on to claim that, as local stormwater peak flood levels are far lower than the regional peak flood levels, this is OK. It is not acceptable to dismiss increases in local stormwater flooding simply because regional flooding is worse. Local drainage efficiency and time of inundation is important for the nearby agricultural land uses, for the

viability of nearby development areas and for the ecology of environmental areas. The proponent has not demonstrated that the expected increases in local stormwater flooding are acceptable.

- h. The Flooding and Stormwater Assessment predicts some significant changes to peak discharge and peak water level in local stormwater flooding scenarios. It does not propose any mitigation measures to manage these impacts. It is noted that Appendix C contains a map that outlines various drainage channel realignments/upgrades and the document text states that: *'If during the operation of the sand plant, channels are required to be reformed or realigned, required channel sizing has been indicated in Appendix C'*.

However, the document then goes on to state that *'no channel upgrades are proposed under this EIS submission. Pre-development channel sizing is matched in the proposed scenario and generally catchment areas draining to the channels have been maintained'*. It appears the Flooding and Stormwater Assessment concludes that local stormwater afflux is not acceptable, suggests drain upgrades to offset these impacts, but then declines to include them in the proposal. This requires clarification.

- i. The Flooding and Stormwater Assessment local stormwater analysis does not include any assessment of changes in the time of inundation due to the proposal. The changes to the southern drain result in a longer flow path for low flow drainage to take to reach the outlet. The stormwater analysis should include consideration of low flow drainage and time of inundation.
- j. The Altona Road and Julius (at the foot of Cudgen ridge) drains are known to flow in both directions depending on tail water levels, rainfall distribution and storage stages. The Flooding and Stormwater Assessment selects a catchment divide that routes stormwater from the east of the site to the north. A sensitivity analysis should be considered where a reasonable area of catchment east of the site is routed to the west, through and around the subject site.
- k. The Flooding and Stormwater Assessment predicts significant increase in peak discharge at the catchment outlets in more frequent events (tables 3.3 and 3.4). However, no justification as to why this is acceptable is provided. It should be noted that, for natural (unsealed) drains, peak discharge increases in frequent events can be related to erosion and related environmental problems (see Development Design Specification D7 – Stormwater Quality waterway stability objective). The proponent should either provide justification as to why these increases will not have any detrimental impact or propose mitigation measures
- l. Table 3.3 of the Flooding and Stormwater Assessment contains typographical errors that should be corrected.



## 8.2 Ecological impact and management

- a. The development layout should be modified to demonstrate how the avoid and minimise principles/provisions specified in the Biodiversity Assessment Method 2020 and Council's Development Control Plan Section A19 Biodiversity & Habitat Management are to be met.
- b. Areas of high ecological significance (i.e. Endangered Ecological Communities, Preferred Koala Habitat) identified in the Biodiversity Development Assessment Report (BDAR) dated March 2021 prepared by JWA Ecological Consultants should be retained and afforded ecological buffers of minimum 30 – 50 metre widths to avoid adverse indirect impact. Those values and associated buffers should be the subject of a habitat restoration program, incorporated into the Concept Rehabilitation & Landscape Management Plan and afforded long term statutory protection.
- c. Any demonstrated unavoidable direct habitat impact requiring offsetting should be delivered and secured onsite. Offset areas should be contiguous with, and expand on those habitat units and associated buffers to be protected and subject to a habitat restoration program.
- d. Further survey should be undertaken for Koala (*Phascolarctos cinereus*) given the presence of preferred habitat onsite.
- e. Assessment of Vegetation Zone 4 with the Scientific Determination for Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions should be performed in order to be satisfied that the mapped vegetation zone does not qualify as an Endangered Ecological Community listed under the *Biodiversity Conservation Act 2016*.
- f. Assessment of Vegetation Zone 1 and 2 with the Conservation Advice for Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland should be performed in order to be satisfied that the mapped vegetation zone does not qualify as a Threatened Ecological Community listed under the *Environment Protection & Biodiversity Conservation Act 1999*.
- g. The proposed development in its current form impacts upon areas identified for rehabilitation in the Revised Rehabilitation and Landscape Management Plan, Tweed Sand Plant prepared by JWA Pty Ltd dated March 2019 under the current extraction approval. Alternative areas of similar areal extent for habitat restoration should be provided and be additional to that required under the current proposal.
- h. The proposed northern Haul Road should be realigned to avoid the unit of vegetation mapped as Vegetation Zone 3 in the BDAR and associated minimum 30 – 50 metre wide ecological buffer zone.

## 8.3 Tweed Coast Comprehensive Koala Plan of Management

In order to meet the aims of the *Tweed Local Environmental 2014*, in particular Section 1.2(j):

*to provide special protection and suitable habitat for the recovery of the Tweed coastal Koala.*

The proponent is requested to address all relevant provisions of the Tweed Coast Comprehensive Koala Plan of Management (TCKPoM) [approved under State Environmental Planning Policy (Koala Habitat Protection) 2021].

With reference to the TCCKPoM, the site occurs within the Southern Tweed Coast Koala Management Area and supports Preferred Koala Habitat.

Where impact upon Preferred Koala Habitat is unavoidable, the proponent must address Appendix C – Offset Provisions of the TCCKPoM and provide a Koala Offset Plan for approval. Preferred Koala Habitat Offsets are to be provided within the Southern Tweed Coast Koala Management Area and afforded long term protection.

#### 8.4 Concept Rehabilitation and Landscape Management Plan

The Concept Rehabilitation & Landscape Management Plan dated March 2021 prepared by JWA Ecological Consultants should be amended to address the following fundamental matters:

- a. Capture areas of high ecological significance (i.e. Endangered Ecological Communities, Preferred Koala Habitat), associated buffer zones and any offset areas;
- b. In perpetuity maintenance arrangements should be reflected in the plan;
- c. Species densities should be increased within Riparian Rehabilitation Areas and expanded buffer zones to:
  - i. Trees - 5 m spacing
  - ii. Shrubs - 3 m spacing
  - iii. Groundcover - 1 m spacing
- d. Increase maintenance rotations to quarterly per annum; and
- e. Identify Open Space Areas detailed in 2.7.3.4 on the Concept RLMP Phasing plan.

#### 8.5 Groundwater Dependent Ecosystems

Further investigation and assessment should be undertaken with regard to the impact of the proposal on Groundwater Dependent Ecosystems by a suitably qualified specialist in the field.

#### 8.6 Long term management and protection

Details of long term management (including funding) and statutory protection arrangements of ecological values, associated buffer zones and any offset areas should be provided. The preparation of a Planning Agreement to deliver land management and protection commitments may be considered an appropriate mechanism.

#### 8.7 Traffic Impact

The proposed upgrade (widened left turn out) of the existing access to the Australian Bay Lobster Producers site is not justified as no truck movements associated with this application will be required to turn left out of this access.

## 8 **Conclusion**

As noted by the comments above, a significant amount of issues have been raised, along with a substantial request for further information. Given the concerns raised, the proposed development is formally objected to by Council.

It is envisaged that the above matters will be forwarded to the proponent for an appropriate response to be prepared. Council looks forward to reviewing such response and is happy to meet with the Department / proponent to further discuss any outstanding matters.

## 9 **Additional Comments**

In addition to endorsing the abovementioned Council officer comments (that were issued to the Department as a 'Draft Submission' on 20 May 2021), it was resolved by Council's Planning Committee on 3 June 2021 to include the following comments in the endorsed submission:

- *"Due to the close proximity of highly populated areas a risk analysis and management plan should be provided to consider the potential for catastrophic failure for all risk scenarios, such as significant drain blockage, weir or bund failure that may suddenly redirect waters to sensitive populated areas;*
- *Due to the close proximity of highly populated areas and important farmlands, worst case scenarios should be considered for joint probability analysis of combined events for all potential flooding and storm water impacts, including with stormtides, wind driven waves, meteotsunamis and seiches;*
- *Potential impacts on the Chinderah village should be examined in detail in regard to increased velocities in this area, and for the potential of waters and / or debris being redirected towards the northern side of the Tweed River to the Oxley Cove residential areas;*
- *Further investigation and assessment should be undertaken in regard to the impact of the proposal on the marine ecology of the Tweed estuary from increased flows, increased velocity, poor or contaminated water quality, including on any key fish habitats associated with the drainage system, Boyds channel and the significant Lillies Island seagrass beds that are downstream and are the largest seagrass bed in the Tweed River;*
- *Due to the close proximity of highly populated areas a geotechnical analysis should be undertaken on the ability of the landscape to withstand such large scale changes in structural forces and in light of the ongoing erosion processes of the Tweed Caldera;*
- *Analysis should be undertaken by a suitably qualified expert on the significance of the site for the Tweed in regard to the wider geological landscape and in light of the Tweed being identified as a National Iconic Landscape, and any potential geological attributes that may be affected including ecosystem services; and*
- *As the water bodies and surrounding environment will require ongoing management at the end of life of the sand quarry operation that*

*consideration be given to applying a royalty or some other form of arrangement to fund this work in perpetuity, if approved."*

For further information regarding this matter please contact Colleen Forbes on (02) 6670 2596.

Yours faithfully

**Lindsay McGavin**

Manager Development Assessment and Compliance