APPENDIX 2 Theme 2 A Healthy and Resilient Environment

Natural Assets

OSCAR, September 2025

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6.5 Biodiversity, Waterways and Wetlands Overlay Code

6.5.2 Requirements for accepted development

R1.4

> Where the development site, or an adjacent property, includes core habitat area, connecting habitat area, urban habitat and amenity area or other habitat and amenity area identified on the Biodiversity, Waterways and Wetlands Overlay Map, buildings and structures, other than those associated with a sport and recreation activity or environment facility on Council owned or controlled land, are separated from the edge of the vegetated area in accordance with Table 6.5C Separation distances to terrestrial habitat areas.

We do not understand how sport and recreation activity buildings and structures are exempted from providing adequate buffers to protected conservation or sensitive environmental areas. Organised sporting fields can concentrate significant numbers of people, generally associated with more intensive ground disturbance (for example fill) and ongoing use of chemicals; the very reasons a separation area should be in place.

We cannot understand why a council owned facility is exempt from a separation area while a privately owned one is not. The separation area should be dependent on intensity and type of activity requiring separation from sensitive areas and not ownership. Further, council should be demonstrating the appropriateness of provisions of the planning scheme and not exempting themselves from them. This sets an example that may engender a sceptical or cynical view from the general public. Lastly, the council has sought and received biosphere status for the administration area. We do not understand why this exemption from criteria that apply to other similar developments in private ownership supports the protection and educational commitments council subscribe to through the biosphere.

Recommendation:

> *R1.4 to remove exemptions especially for council owned land.*

6.5.3 Assessment benchmarks for assessable development

Part 3: Management of impacts on essential environmental infrastructure

Protection of essential environmental infrastructure

PO1

> Essential environmental infrastructure remains in-situ and is not disturbed or diminished by development, except where: (a) development has demonstrated that all reasonable steps have been taken to first avoid, then minimise and then mitigate, adverse impacts; and (b) any adverse impacts are compensated by the provision of an environmental offset.

A community was advised in writing that council accepted that, where buffer boundaries resulting from complex boundaries made it difficult for a development to efficiently utilise land, it was reasonable for an applicant to seek an adjustment of the boundaries of the buffer and area to be protected to simpler configuration. In addition, where additional separation areas are provided elsewhere on a 1:1 basis, buffer widths can be reduced if required.

The application of allowing a development to smooth a resultant buffer and average buffer widths would appear to be accepted arguments with reference to "except where development has demonstrated that all reasonable steps have been taken to first avoid, then minimise and then mitigate, adverse impacts" included in PO1. Critical to a transparent application of PO1 then is for council to communicate this transparently to the community.

OSCAR does not support amending buffer boundaries simply because it restricts development. The resulting buffer shape is a result of the feature to be protected and the site specific impacts that determine a buffer width. This process in turn produces the minimum area to be protected from direct and indirect impacts. There seems little justification to amend boundaries based on the development plans.

There also seems little justification for offsetting a buffer area on a 1:1 basis. Logically, if an area 50m from the protected area offers the same degree of protection as that 10m from the feature then this an argument that the feature should have a 50m buffer and not a 10m buffer. Further, processes such as sediment and nutrient control, forage distance, noise and dust mitigation all behave non-linearly. Where these impacts are expected, a buffer area should not be traded on a 1:1 basis.

Recommendation:

> *Any ongoing interpretations of "all reasonable steps" should be documented as they are formulated and added to Biodiversity, Waterways and Wetlands Overlay Planning Scheme Policy, or included in a register available on-line and referenced in the policy. When applied, the agreement between council and the applicant should be in writing*

and attached to the application. The level of authority in council at which authorisation was made should be clear.

Buffers to essential environmental infrastructure

PO8

Development on or adjacent to land containing essential environmental infrastructure is designed and constructed to prevent any direct or indirect impacts on the essential environmental infrastructure by providing for effective separation and buffers that:

(a) protect and enhance biodiversity and ecological values including through minimisation of edge effects;

(b) protect the cultural heritage and character values of essential environmental infrastructure; and

(c) maintain and improve water quality in natural waterways and wetlands; and

(d) reflect the urban or non-urban context of development.

PO8 and the AS are supported. The potential issues relate to interpretation of such when an applicant proposes alternative AS. Council has to date accepted 0 m buffers for native vegetation protection, including at times wetlands not mapped on the overlay.

The allowance of 0 m buffer width appears inconsistent with PO8 together with Management of impacts on essential environmental infrastructure within 3.4.3 Context and rationale for assessment benchmarks of the Biodiversity, Waterways and Wetlands Overlay Planning Scheme Policy.

Recommendation:

At the very least, the Australian Standard AS 4970-2009 Protection of trees on development sites should be implemented. This statement can be included in 3.4 Biodiversity, Waterways and Wetlands Overlay Planning Scheme Policy.

Hydrology and water quality

PO13

The natural surface water and groundwater hydrologic regimes of waterways and wetlands and their supported hydrologically sensitive plant communities are <u>not adversely impacted</u> by development and alterations to natural hydrologic regimes are minimised <u>as far as possible</u>.

The AS make clear the intent of PO13 and appear appropriate. The issue is the “option out” statement that hydrologic regimes are not to be adversely impacted “as far as possible”. PO13 may allow total disruption of surface and groundwater flows if the development design requires such.

Under most circumstances, minimum environmental harm should be established by the applicant. Best practice then requires development to operate above these criteria as far as possible. Again, council is to decide what constitutes reasonable steps (see 3.4.6(1)(a)).

PO13 should be treated in the same manner as PO1 above.

Water quality objectives

PO14

> Development maintains or enhances the quality of groundwater and surface water within and downstream of the site.

We note that Purpose of 6.5.1(e) and PO14 of Hydrology and water quality require water quality objectives as prescribed in Schedule 1 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP Water). We support this straightforward performance outcome. The Biodiversity, Waterways and Wetlands Overlay Planning Scheme Policy does not appear to make reference to Maroochy River as a controlled basin[1] under EPP Water where catchment specific objectives are established.

Recommendation:

> *Users of the Biodiversity, Waterways and Wetlands Overlay Planning Scheme Policy are directed to the report Maroochy River Environmental Values and Water Quality Objectives Part of Basin 141.*

We note that the current scheme allows the satisfaction of WSUD criteria is an acceptable outcome demonstrating the achievement of water quality objectives of EPP Water. While it would have seemed obvious that such a performance outcome would refer to those parameters modelled for WSUD being total suspended solids, total nitrogen and total phosphorus, a consulting report in recent years identified the appropriate water quality objectives for the Maroochy River basin, undertook appropriate load modelling for WSUD and concluded that EPP Water water quality objectives had been met. Supporting technical guidelines and State advisory guides all refer to stormwater quality objectives[2] with reference to WSUD but do not reference Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

Recently in the PEC court, a consultant argued that only WSUD objectives were required to demonstrate compliance with Environmental Protection (Water and Wetland Biodiversity) Policy

1 Environmental Protection (Water and Wetland Biodiversity) Policy 2019. Maroochy River Environmental Values and Water Quality Objectives. Part of Basin 141.

2 Queensland Development Code Mandatory Part 4.2 and 4.3, SEQ Regional Plan Implementation Guidelines No. 7 (DIP, 2009), Draft Best Practice Environmental Management Guidelines — Urban Stormwater

2019 water quality objectives for a development within the Maroochy catchment.

We believe there is requirement for a clear statement in the policy to avoid any confusion moving forward from this point in time.

Recommendation:

> *To ensure that the appropriate guidance is used for the relevant water quality objectives, we recommend that the Biodiversity, Waterways and Wetlands Overlay Planning Scheme Policy makes clear the distinction between water quality objectives required to protect receiving waters of essential environmental infrastructure and stormwater quality objectives for nutrient load.*

5.1 Development Works Planning Scheme Policy

5.1.11 Constructed water bodies (CWB)

5.1.11.6 Key guiding principles

> (6) CWBs intended to be, or that might be, transferred to public ownership, will be subject to design requirements that minimise ongoing maintenance burdens from public funds. Less stringent design requirements could be considered for CWBs that, to a reasonable level of certainty, will remain in private ownership in perpetuity.

Constructed water bodies are justified by use of multiple models any one of which may be in error. The climate of the Sunshine Coast is changing introducing potential future risks. Any future liability should not be with ratepayers.

Recommendation:

> *The beneficiaries of a Constructed water body should bear future risk through a fund.*

6.7 Coastal Hazards Overlay Code

Insurance

6.7 Coastal Hazards Overlay Code

Editor's notes – dot point 6: Property owners should check whether appropriate insurances are available for development within coastal hazard areas.

This advice is repeated in 6.9 Flood Hazard Overlay Code.

The end consumer cannot assess insurance prior to development. This comment is therefore believed to be directed to applicants who also own the property.

Recommendation:

We believe the advice should apply to all applicants if it is believed to be of value. As there appears not appear to be any consequences whether or not the query is conducted or as to the advice received regarding insurability, we question as to why this editor's note warrants inclusion.

Alternatively, the response received regarding insurability could be required to be included within the Site-based Coastal Hazards Risk Assessment and Flood Hazard Assessment Reports.

Part 2 Strategic framework

Compromise of future coastal hazard strategies

Part 2 Strategic framework 2.5 Theme 2: A healthy and resilient environment

Local plans include specific provisions relating to development in coastal hazard adaptation precincts and are intended to include provisions based on the outcomes of localised studies and investigations over time. It is important that development is responsive to the risks posed by coastal hazards and does not compromise potential future mitigation or transition strategies prior to the completion of localised investigations.

Strategic outcomes

SO7.11

Development in an identified coastal hazard adaptation precinct is consistent with, and does not undermine any Council endorsed site or precinct-specific or locality-wide coastal hazard, flood hazard and/or drainage mitigation or transition measures or strategies relevant to the site.

6.7.1 Purpose

The purpose of the Coastal Hazards Overlay Code is to ensure that development:

(d) is consistent with any council endorsed site, precinct or locality specific coastal

hazard mitigation or transition measures or strategies;

3.6 Coastal Hazards Overlay Planning Scheme Policy
Coastal inundation

(9) Whilst solutions (primarily in the form of filling of land) may be viable for some land within the urban growth management boundary, permanent tidal inundation generally represents an irreversible constraint to most forms of development. Areas outside the urban growth management boundary that are subject to permanent tidal inundation need to prepare for transition.

Strategic framework 2.5 Theme 2 and SO7.11 applies stronger phrasing than 6.7.1 in that development is specifically not to "compromise" or "undermine" mitigation or transition strategies while the policy (Part 3.6) references the need to prepare for transition.

Recommendation:

6.71 (d) would better reflect the higher order statements as (d) is consistent with, and does not compromise any council endorsed site, precinct or locality specific coastal hazard mitigation or transition measures or strategies;

6.7.3 Assessment benchmarks for assessable development
Part 1: Coastal hazards generally
PO1
Development:

(b) where avoidance of coastal hazard areas is not possible, ensures an acceptable level of risk for people and property, having regard to:
(ii) any council endorsed site specific, precinct or locality wide coastal hazard mitigation or transition measures or strategies;

PO1 is not sufficiently clear as to what "having regard to" entails. AS1.1 introduces the concept of temporary development, that is, preparing for transition, though neither AS1.1 or AS1.2 appear to address the concept of not compromising mitigation or transition measures.

While transition is better addressed in SO7, PO7 appears to address risk only.

Recommendation:

The phrase "consistent with any council endorsed site, precinct or locality specific coastal erosion mitigation measure or strategy" is required in PO7 as occurs in PO9. PO10 better addresses transition with "the need for progressive transition out of these areas".

Alternatively, an Editor's note referencing PO10 and PO15 where transition is addressed could be included.

Design life

The Coastal Hazards Overlay Planning Scheme Policy (Part 3.6) introduces "design life" as a concept for development within a coastal hazard zone. Design life is referenced six[3] times in 3.6 largely in relation to risk and design. This presupposes that the site-based coastal hazards risk assessment expressly identifies the design life. On two occasions, the PS states along the lines that the design is for the design life or to the year 2100 (whichever is the greater). Neither the policy nor CHAS advise on how to address a design life that exceeds 75 years.

Recommendation:

> *The preparation of a coastal hazards structural engineering design report (Part 3.6.6) should explicitly list the design life as a basic statement before addressing engineering concerns. It appears as a consideration in parts but, given this is critical in determining the potential "temporary" nature of the development referenced in AS1.1 of PO1, it should have a more prominent and specific reporting listing.*

The coastal hazards structural engineering design report does not appear to be required to:

- consider a transition or decommissioning plan,
- a trigger point to commence such implementation, or detail decommissioning, or
- secured financing for decommissioning.

The itself CHAS has been described as a trigger-based strategy. Such triggers are highly appropriate as a way of dealing with the uncertainty as to when sea level rises up to 0.8m are to occur.

Recommendation:

> *Any development within a coastal hazard zone should address its likely design life and upon what trigger a proposed decommissioning plan commences, or, the submission of a detailed plan allowing sufficient time for development, approval and implementation of a costed plan.*

AS1.1 of

CHAS needs to be up to date

6.7.1 Purpose

> The purpose of the Coastal Hazards Overlay Code is to ensure that development:
> (a) protects people and property from current and projected future coastal hazards, including as a result of climate change;

The CHAS is the critical document delivering structure to 3.6. The currency of the information contained in the CHAS is critical. Section 7.1 of the CHAS Part A lists six triggers to update the strategy (p111) in addition to the periodic 10 year review.

3 3.6.5 (1)(a), (2)(e)(i), (2)(f), 3.6.6 (3)(b)(i), (3)(i), 3.6.7 (8)(b)

Recommendation:

Section 3.6 of the PS should explicitly refer to the specific version of the CHAS or make a broader reference to subsequent updates.

It is important that the highly uncertain nature of current projections be acknowledged in the CHAS. The State planning policy acknowledges the IPCC as a reputable scientific reference. The latest IPCC assessment report of 2021 (AR6) made notable changes to their recommendations for planning for sea level rise by:

- increasing the rate and resulting projected sea level rise by 2100
- included a minimal estimate for a contribution from Antarctica for the first with the warning that these attributed sea level increases referenced only those sources where the quantification was believed well established source but warned other processes were likely to contribute even greater increases but at this stage were not well modelled
- increased the risk level to upper likely for significant developments in part to address the omitted but expected increased loss on Antarctic ice
- increase the planning period to 2150 again for significant infrastructure which includes urban development.

The recently released assessment of climate change impacts in Australia[4] references a planning benchmark of 0.94 m above today's mean sea level assuming tipping points do not occur.

Two triggers for a review in the CHAS appear to relate to this new planning scheme being:

- updated technical information that may be available and
- any new urban development or substantial landscape changes in the region.

The CHAS and hence the proposed planning scheme on face value implies that:

- sea level rise is not expected to continue to increase after 2100, or,
- all threatened developments are to be decommissioned prior to 2100 or
- there is no significant future coast of protecting such development.

None of these statements are considered realistic by OSCAR.

Recommendation:

The incorporation of the latest IPCC recommendations with the CHAS would seem to be of high importance to the planning window to be covered by the proposed planning scheme.

6.7.2 Requirements for accepted development

Relevance of exclusions to the erosion areas and Coastal Management District

Part 2: Development within the estuarine erosion area

4 Australian Climate Service (2025). Australia's National Climate Risk Assessment, September 2025. Australian Government.

R2.1 Where located within the estuarine erosion area: (a) development is located outside of the erosion prone area as declared under the Coastal Protection and Management Act 1995; or (b) where the site is on a lot with either direct frontage to an estuary; or on a lot separated from an estuary by a street, parkland, esplanade or other foreshore which is not a freehold residential lot, provides for permanent buildings and structures to be located landward of:
(i) an existing lawful revetment wall or other existing lawful structure stabilising the bank of the estuary against erosion; or
(ii) an existing constructed public road.

R2.1(ii) assumes all roads within coastal hazard areas are to be defended. This is an assumption that appears inconsistent with Part 2 Strategic framework 2.5 Theme 2 that states that it is "important that development is responsive to the risks posed by coastal hazards and does not compromise potential future mitigation or transition strategies prior to the completion of localised investigations".

As appears to be implied in PO15 Editors Note, development within the estuarine erosion area should not precede detailed reports yet R2.1 grants approval without review.

Recommendation:

R2.1(ii) should be removed.

PO2

Other than where a council endorsed coastal hazard mitigation strategy for a coastal hazard adaptation precinct is in place, which mitigates the hazard to an acceptable level, development involving permanent buildings or structures is not intensified on land that is within both the coastal management district and the declared erosion prone area, other than where for:

i. coastal dependent development;
ii. public purposes; or
iii. a modestly sized dwelling house on a lot created prior to the commencement of the planning scheme.

The Coastal management district mapping methodology[5] of the State includes lots where all or part of the lot is below the level of highest astronomical tide after applying 18 exclusions some via state-wide mapping rules and others as assumptions. Given that mapping indicates rural lots within proposed transition areas have been excluded from the CMD, it appears that one or more exclusions have been assumed prior to detailed precinct plans being developed.

Surely the role of these detailed plans is to assess actual information and not rely on potentially dated assumptions. PO1 (b)(i) makes the distinction between urban v non-urban and this would be more appropriate than applying filters based on assumptions prior to detailed mitigation or transition plans being place.

5 https://www.qld.gov.au/environment/coasts-waterways/plans/hazards/district-mapping

Recommendation:

PO2 would better refer to non-urban land located wholly or partially within the various hazard zones.

Part 3: Coastal inundation

PO10 Development in the permanent tidal inundation area outside the urban growth management boundary recognises the permanent and irreversible nature of the constraint, and the need for progressive transition out of these areas.

The phrasing of PO10 appears more appropriate in referencing development within a recognised transition zone.

Agriculture in coastal hazard areas

Part 3: Development for animal husbandry, cropping or permanent plantation within a permanent tidal inundation area

R3.1. Where within a permanent tidal inundation area, building work, including building work associated with a material change of use, associated with an animal husbandry, cropping or permanent plantation use:

(b) does not result in an increase in the number of people living or working in a permanent tidal inundation area

The restriction placed on an increase in people working in an agricultural enterprise which may not be impacted for decades, and, is easily decommissioned appears harsh. It appears more so when commercial or residential development have been better addressed in other provisions by incorporating the concepts of design life.

Recommendation:

Separate people living and working and add (c) any increase in the number of people working in a permanent tidal inundation area is to cease prior to the proposed design life.

Development in general in coastal hazard areas

6.7.3 Assessment benchmarks for assessable development Table 6.7B Assessment benchmarks for assessable development
Part 1: Coastal hazards generally

PO1 supports the Strategic framework 2.5 Theme 2 by indicating that development avoids coastal hazard areas, or ensures an acceptable level of risk for people and property identified through council precinct plans or an applicant's Coastal Hazards Structural Engineering Design Report.

AS1.1 however introduces the term "abandoned".

Recommendation:

We do not endorse the abandonment of development within a transition zone. All development is to be decommissioned including identification and treatment of contaminated land.

Referenced studies in Parts 6.7 and 3.6
Reference is made to detailed plans or studies in Parts 6.7 and 3.6 as:

- Council endorsed coastal hazard mitigation strategy
- Site-Based Coastal Hazards Risk Assessment
- Coastal Hazards Structural Engineering Design Report
- and others.

It is not clear if some of the terms are synonymous.

Recommendation:

Specific terminology is best introduced in the policy (Part 3.6) and consistently used in Part 6.7.

Storage volume loss

PO11 Development in the permanent tidal inundation area outside the urban growth management boundary ensures:

(a) there is no loss of flood and tidal storage capacity, whether caused directly, indirectly or through cumulative impacts;
(b) natural hydrological systems and coastal processes are protected;

A recent approval in which there was a documented loss of floodplain volume to the Maroochy floodplain was accepted by council after a council officer found the reported off-site material impacts predicted by model outputs including increased flood levels to property and over 30 cm increase in flood levels and loss of dry refuge during rare flood events were considered “not significant” by a council officer. Similar protections as above appear in the current planning scheme. It is unclear therefore if the current policy of accepting a flood model to override quantified volume loss is to be maintained into the proposed planning scheme. We do not support such an approach.

Recommendation:

Either:

- *council does accept loss of floodplain storage is conditional on flood modelling, and in effect, can actually remove flood storage volume from the planning scheme where modelling is undertaken, or,*
- *PO11 should explicitly include “irrespective of flood model outputs”.*

AS11 excludes the council from assessments required by all other development. Council should be providing leadership and not exceptions that suggest double standards and may be taken as council developments cannot meet risk reductions required by applicants.

Recommendation:

Council developments are held to the same criteria as non-council developments with respect to coastal hazards.

Excavations to remove floodplain storage to offset volume losses elsewhere within a development If excavation to create a void to offset volume loss, that volume should be placed above the PMF. In the current PS, it is to above the Q100 flood line. This position is immediately a legacy approval as sea level rise of >3mm per year (Queensland Maritime Tide Guide 2023) means an increase >10mm within 4 years. Increase in criteria and instant loss of floodplain storage.

Future potential raising of structures

PO13

Where located within the permanent tidal inundation area and within the urban growth management boundary, the finished surface level of lots, and any urban infrastructure associated with development, provides whole of lot immunity from inundation in a manner that:
(b) provides for potential future raising of essential infrastructure such as roads and other urban infrastructure;

The above appears sound advice but surely should apply to any structure.

Given the nature of the current sea level rise application of 0.8m to current mean sea level, the 2100 level is a moving target. Maritime Safety Queensland[6] assumed a rate of sea level rise of 2.4 mm per year as of 2023. This rate of sea level rise would produce a 2.4 cm increase in design heights of all structures. Any fill that only met the approved height would be too low 10 years later if redevelopment is to occur.

Recommendation:

PO13 (b) to read "provides for potential future raising of essential infrastructure such as roads, other urban infrastructure and lots".

Hydrology protection

Part 6: Coastal values, public access and public safety

PO21 Development occurs in a manner which protects water quality, biodiversity, coastal dunes and creeks, mangroves, wetlands and other native vegetation within coastal areas.

But what does this mean? A recent development approval was allowed to construct a spillway to direct overflow from a saline CWB into a freshwater wetland and increase flood levels significantly as well as velocity. The project hydrologist stated this was acceptable as there were "no buildings

6 Queensland Tide Tables Standard Port Tide Times 2023. Maritime Safety Queensland.

present".

Surface water to a freshwater wetland was also allowed to be diverted up to and above the Q2 event, that is, flows expected on average over a two year period will no longer report to the wetland as surface flows. Further, it was stated by an expert to the court as recently as a month ago that water quality objectives can be met by meeting WSUD criteria only. This is consistent with a recent major approval that claimed the same.

Without either a definition of what "protect" means within this planning scheme, or, reference through an Editors note to more prescriptive performance outcomes, PO21 may have little or no practical meaning.

Recommendation:

Insert an Editor's note referencing prescriptive performance outcomes elsewhere in the scheme that require quantitative criteria.

Given the extreme range of application of "protect" applied to multiple natural and cultural entities to be protected, it is strongly recommended that council define this word such that the common meaning of the word and as applied by council and the State planning policies align better, or, replace protect with alternative requirements that better reflect council's actual intent.

6.9 Flood Hazard Overlay Code

6.9.1 Purpose

Material increase

> (h) does not result in a material increase in flood risk or flood related impacts, including cumulative impacts, on the site or on other land, including risks across a broad range of event likelihoods;

Critical to achieving no material increase in flood related impacts, guidance as to what constitutes unacceptable flood impacts is required. Community groups have been advised on multiple occasions that under the current planning scheme, any individual development should not increase flood levels off-site above 10mm. We do not however that higher increases have been accepted on occasion.

Groups were also advised forcefully that cumulative impacts could only refer to stages of an individual development as legally, council; could not place restrictions on future developments as a result of a current development. The definition of cumulative impacts within the proposed scheme that includes "a proposed development will not comply … merely because its individual impacts, when considered in isolation, may be acceptable." This definition is welcomed as it aligns with both common understanding in the community and better handles a complex future under a changing climate.

This improved consideration of cumulative impacts however makes it even of greater importance to define material increase in what becomes cumulative flood impacts.

To date, our community members have been advised by council staff that a 10mm increase in flood levels from any individual development was acceptable. We note that a 1 cm increase in flood height can add 1% of total damage cost up the first 0.5m depth in Australia[7]. It is imperative that council limit such damage to existing buildings constructed under approval to what is now inappropriate criteria through no fault of the owner.

Recommendation:

> *"Material increase" as included in 6.9.1(h) is defined or an Editor's note refers the reader to where this is addressed in the Flood Hazard Overlay Scheme Policy.*

6.9.2 Requirements for accepted development

R1.1

7 Huizinga, J., Moel, H. de, Szewczyk, W. (2017). Global flood depth-damage functions. Methodology and the database with guidelines. EUR 28552 EN.

OR
(c) filling does not: (iv) result in the total volume of filling undertaken on the premises since the commencement of the planning scheme, cumulatively exceeding 140m3

As the scheme nominates a specific fill volume as acceptable development here, we assume the council has confirmed through modelling that such filling on every current lot and future lots in proposed urban areas cumulatively does not increase flood levels above a material increase. This being the case, the council is also in a position to determine how much further fill is permitted before unacceptable flood increases result in unacceptable impacts.

Recommendation:

Council references studies confirming the amount of volume that can be added to river catchments before cumulative impacts result in unacceptable flood impacts. Otherwise, council commit to such a study.
Without this information, any acceptable material increase or cumulative impacts would appear to have little impact.

R1.1 (c) (v) occur in an area of the site identified as high stormwater risk area;

Surely this restricting criteria for acceptable development should also include moderate stormwater risk area such that a project that might increase stormwater risk from moderate to high is assessed appropriately.

Recommendation:

R1.1(c)(v) to read "occur in an area of the site identified as moderate or high stormwater risk area".

R1.1 OR
Where involving a minor extension to an existing dwelling that does not meet the flood immunity requirements …

(a) the extension has a gross floor area not exceeding 20m²;
(b) the finished floor level of any new habitable room is not less than the floor level of existing habitable rooms; and
(c) no approval for an extension situated below the minimum levels has been issued within the previous 5 years.

This criteria permitting works that do not provide even partial flood immunity to a building that itself is at flood risk appears lax every five years appears to be in conflict with the purpose of the Flood hazard overlay code. Surely such an extension must be assessed more thoroughly, or at the very, very least, the requirement not to increase residents at such risk must be included.

Recommendation:

Remove the approval of extensions that do not improve flood immunity, or, at the very least, preclude any extension that could increase the number of people residing there.

R1.2 Building works do not occur in active flow areas that have a maximum flow velocity greater than 1.5m/s.

This acceptance of building in an active flow area even if velocities are less than 1.5m/s should not be accepted. Cumulatively, multiple constructions within a flow area could significant increase flow velocities.

Recommendation:

R1.2 Building works do not occur in active flow areas.

R1.5 Buildings are designed and constructed to: (a) avoid the inclusion of obstructions in undercroft areas, ... that could impede flood water flows …

Both R1.1 and R1.4 allow filling or obstruction which would be expected to result in total redirection of flood flow without an assessment of impact. To then restrict partial obstruction under a building appears inconsistent.

Recommendation:

Height or proportional obstruction commensurate with the dimensions permitted in R1.4 should be included in R1.5, or, remove R1.4.

6.9.3 Assessment benchmarks for assessable development

Flood risk

PO1

Development: (a) avoids flood risk areas; or (b) where avoidance of flood risk areas is not possible, …

Part (a) of such provisions have little meaning given the exception that immediately follows.

The “where avoidance not possible” is undermined by proposed rezoning of rural lots that include high flood risk areas such as at Forest Glen. It is difficult to believe that all remaining non-urban lots within Buderim and Surrounds Local Plan Area have been exhausted thus demonstrating avoidance is not possible. Surely lots that include any flood risk let alone high flood risk are left until last when all other sites that deliver the required population growth have been exhausted.

Recommendation:

Council does not rezone non-urban lots to urban in this proposed scheme where such lots include a high flood risk area without a demonstration that all available lots not so constrained have been assigned to accommodate the planned population growth.

PO2 AS2

Where located outside the urban growth management boundary, development within

a high or moderate flood risk area is limited to: (d) a dwelling house, where the dwelling house: ….

AS2 finds acceptable that a residence is constructed within a high flood risk area as long as has an internal structure above the flood immunity level. The site does not have to have a safe evacuation route at the time flood waters enter the property; it could be already totally isolated. Acceptance of such a residence without a competent review appears inconsistent with the purpose of the flood hazard overlay to "protect people and property from current and projected future flood risk". AS2 does not appear compatible with PO2 itself.

Recommendation:

Add to AS2 as follows:
a dwelling house, where the dwelling house: is located such that all habitable buildings are on the part of the site with:

- *avoids the high flood risk area*
- *if within a moderate flood risk area, has a safe evacuation route at the time when flood waters enters the property;*

PO2(b) and AS2(e) being development for the infrastructure identified on the planning scheme maps.

Infrastructure includes transport, water cycle management, energy generation and distribution, waste management, information and telecommunications, environmental management, open space and social systems and facilities required to support the sustainable growth of the region. In most instances, it would have to be questioned as to why such infrastructure is being placed in high flood risk areas. Its inclusion simply because the plan has located it in such a location on face value does not support a concept of good planning. Infrastructure "required to support the sustainable growth of the region" should be subject to good planning principles and evaluation.

Recommendation:

Amend to: Development for the infrastructure identified on the planning scheme maps where a flood risk assessment demonstrates compliance with the remaining performance outcomes of the Flood hazard overlay code.

PO6

Development supports, and does not hinder or unduly burden, disaster management response or recovery capacity and capabilities.

AS6.1 OR Where located within one of the following zones: … development incorporates building floor levels within each lot, as adequate safe refuges, that are …

PO6 appears to allow development in high flood risk areas by relying on evacuation in the event of any mishap and also assumes the total adherence by residents in having and maintaining adequate water, food , medical supplies, power and so forth. It must be anticipated that a proportion of residences trapped by flood waters will not be prepared and so increase the number

requiring emergency services attention. The reliance of defined flood event and permitting people in these risk zones has and will continue to lead to catastrophes at the moment the DFE is exceeded. While there may be a 1% chance of such a flood in any one year, there is for example a 55% chance of experiencing such a flood at least once in a typical lifetime[8]. At such time, disaster management response effectiveness will be proportional to the number of people at risk.

Recommendation:

AS6.1 requires the requirement for a safe evacuation route and emergency evacuation plan. A levy should be considered for residences without safe evacuation routes to ensure that disaster management services are sufficiently funded to rescue the anticipated numbers of people in known flood risk areas.

PO7

Development to establish or intensify a vulnerable use is avoided in a flood risk area unless it is demonstrated that the development: …

Rather than restrict development, this PO like others simply authorises development in high risk areas by using "cannot practically or feasibly be located outside of the flood risk area" which is never truly employed as it is written. There will almost always be an alternative elsewhere for somebody else.

The occurrence of an individual development not being able to fully protect vulnerable uses by avoiding flood risk should not be sufficient reason to allow such. It places too great a reliance on correctly anticipating all climate risks into the future when the science continues to change, and on computer models that have proven themselves to be absolutely accurate in flood events to date.

Recommendation:

Avoidance should be the directive here. At the very least, AS7.1 be amended to: Development for a vulnerable use is not located or intensified within a high or moderate flood risk area.
Likewise AS7.2 has moderate risk area removed.

Flood storage preservation

PO9

In order to preserve their critical role in providing flood storage for developed coastal communities, development in a regional flood storage preservation area: (b) is undertaken in a manner that ensures: (i) there is no loss of flood storage capacity whether caused directly, indirectly, or through cumulative impacts;

PO10

8 https://www.cessnock.nsw.gov.au/files/assets/public/v/3/hptrim/website-community-information-do-not-change/57-2015-1-_-draft-flood-dcp-_-fact-sheet-1-_-formatted-published-version-website-doc.pdf

Development in the other flood storage preservation area is undertaken in a manner that ensures: (a) flood storage capacity is maintained as far as possible, and any reduction in flood storage capacity does not result in cumulative impacts;

AS9.2 states that no earthworks occurs as part of a development then immediately allows such up to 90m^3 as part of the alternative solution. Critical infrastructure which may be permitted under other performance outcomes as well as open space infrastructure requiring some fill. The reality is the scheme allows fill. What is required in addition to a limit per application is a total permitted volume loss of all cumulative impacts above which impacts become unacceptable. Council should develop and update progress to this limit periodically to determine if PO9 and PO10 together with similar exemptions should be amended to remove reference to any permitted volume loss. These updates can accommodate future developments in climate threats and model improvements.

Recommendation:

Develop and update periodically an upper limit of cumulative volume to ensure that small but many permitted volume losses since 2014 permitted under PO9, PO10 and similar outcomes do not result in an increase in flood impacts.

AS10.1

Where development is located on a site in the other flood storage preservation area, no earthworks (including but not limited to filling of land) occurs, unless:
(a) an assessment undertaken by a Registered Professional Engineer of Queensland (RPEQ) demonstrates that the works do not:
(i) result in the reduction of flood storage capacity on the site;
(ii) negatively impact on the overall hydrology, hydraulics and flood capacity of the waterway; or
(iii) alter flood characteristics in a manner that results in a higher flood risk or the duration or severity of flooding impacts on premises external to the development site;
(b) any filling is offset by compensatory earthworks within the site whereby the cut provides new flood storage resulting in no net loss of active floodplain storage for the site below the DFE or DSTE;

As reported earlier, the community has been advised that approval of a significant development that removed floodplain storage occurred as off-site flood modelling impacts were not deemed significant by a council officer. In this instance there was an increase in excess of 10mm to adjoining properties and an increase in flood levels to a conservation area such that the dry refuge areas above the 1% AEP flood event were to be flooded. Provisions (a)(i), (ii) and (iii) all depend upon the actual operational policies rather than the apparent intent of the performance outcomes unless those outcomes make clear the anticipated outcome.
Solution (a)(iii) could be appropriate good but it depends on council use of higher flood risk etc.- have allowed increases recently as not significant in their opinion.

The use of the DFE to assess volume offsets is inappropriate. There is not a reputable science report that suggests sea level rise is anticipated to fall after 2100. As such the actual DFE level in

meters above a fixed reference elevation is expected to increase. IPCC AR6 Chapter 9 part 9.6.3.5 reports that the committed sea level rise if all emissions ceased at 2030 is between 0.8-1.4m, that is, almost certainly above 0.8m especially if emissions continue after 2030 which is highly likely. Any volume balance must be to the PMF.

Recommendation:

As above, develop and update periodically an upper limit of cumulative volume to ensure that small but many permitted volume losses since 2014 permitted under PO9, PO10 and similar outcomes do not result in an increase in flood impacts.

AS10.1(b) to read any filling is offset by compensatory earthworks within the site whereby the cut provides new flood storage resulting in no net loss of active floodplain storage for the site below the PMF.

Flood resilient design

PO12

Development ensures that building design and built form in areas subject to flooding:
(c) ensures undercroft areas provide for: (i) unobstructed drainage to ensure flood water flows are not impeded;

The requirement that raised structures require that flood water flows are not impeded appears at odds with fill is allowable. Surely options exist for a site to match performance of flood flows to that of total fill.

Recommendation:

To read: (c) ensures undercroft areas provide for: (i) drainage to ensure flood water flows match or improve that of a filled site.

PO15

Development that involves filling of land to achieve flood immunity ensures structures for a fence, screen or retaining wall, or a combination of fences, screens or retaining walls, along side and rear property boundaries, are designed and sited to achieve the required flood immunity whilst:
(a) providing residents with a reasonable level of privacy and amenity, including access to natural light, sunlight and ventilation to habitable rooms; and
(b) minimising adverse impacts on the privacy and amenity of residents on adjoining lots, including by allowing adequate natural light, sunlight and ventilation to habitable rooms.

We support PO15 however the words “reasonable” and “minimise” are open to wide interpretation. An approval in recent years required a park to be protected but allowed “minor”

changes to the park boundary. The applicant proposed a 60% loss of park area after locating a road over the park area and claimed they were delivering a minor change to the park boundary. This proposed change was approved. Such words as “reasonable” and “minimise” all too often precede an erosion of their intent.

Recommendation:

Develop quantified criteria for (a) and (b) and include in a policy of the scheme allowing reference as an Editor’s note here.

Environmental values and public safety

PO16

Bank stabilisation measures, erosion control measures and flood mitigation measures required to meet other assessment benchmarks in this code:
(a) do not result in significant adverse impacts on the visual amenity or landscape character of the locality; and
(b) avoid, or where avoidance is not possible, minimise adverse impacts on essential environmental infrastructure and other environmental values.

As with PO15, the underlined words above while conveying a positive connotation, the ability of this PO to deliver a positive outcome will depend on the quantification of the qualitative intentions.

Recommendation:

Develop quantified criteria for (a) and (b) and include in a policy of the scheme allowing reference as an Editor’s note here.

3.8 Flood Hazard Overlay Planning Scheme Policy

(6) To ensure that flood risk is appropriately avoided, except where expressly contemplated by the Flood Hazard Overlay Code, development should not occur on land that is outside the urban growth management boundary and within a high or moderate flood risk area identified on the Flood Hazard Overlay Map.

The intent is positive but widespread exceptions for development as alternatives to avoidance means that is unlikely to be delivered.

3.8.3 Context and rationale for assessment benchmarks

Flood risks

(6) To ensure that flood risk is appropriately avoided, except where expressly

contemplated by the Flood Hazard Overlay Code, development should not occur on land that is outside the urban growth management boundary and within a high or moderate flood risk area identified on the Flood Hazard Overlay Map.

As above, it is the almost universal allowable alternatives to avoidance that will lead to avoidance being avoided.

Flood storage preservation areas

(7) Protecting flood storage areas from the cumulative impacts of filling in the floodplain and ensuring that waterways flow effectively under all conditions is essential to the management of flood risk for our communities, and even more so in the face of a changing climate including rising sea levels and more frequent and severe flooding events. Because of the importance of preserving flood storage capacity, the provisions in Part 2 of the Flood Hazard Overlay Code are to be applied strictly, to prevent cumulative impacts. A proposed development that involves some reduction in storage capacity should not be able to occur merely because, individually, the extent of loss of flood storage capacity is minimal or negligible, or may even be within levels of model noise.

(8) In particular, the regional flood storage preservation areas which include the Maroochy River Floodplain, the Lower Mooloolah River Floodplain and the Lower Pumicestone Floodplain all perform critical roles in flood storage for our coastal communities. These areas are also subject to current and worsening permanent tidal inundation in parts, particularly the Maroochy River Floodplain. For these reasons development in these areas is intended to be very limited, with very minimal built infrastructure and no filling to occur. Other identified flood storage preservation areas, primarily located in higher parts of the catchment, are also critical. Development may occur in these areas but needs to ensure flood storage is maintained.

We fully support the above statements. A meaningful delivery of the intent will depend on council adhering to a maximum allowable volume in light of the persistent allowance of loss of volume in multiple performance outcomes.

3.8.8 Other Design Advice

Environment

44. Development should not divert flood water or low flows away from or to environmentally sensitive areas in order to protect the natural hydrological functions of these areas, unless for the provision of flood mitigation for the benefit of an existing urban community.
45. Development should protect the general landform, vegetation and function of the floodplain.

46. Flooding and drainage characteristics of environmentally sensitive areas should be retained, or enhanced by reinstatement to natural conditions.

The above design advice are sound however, they are not reflected either in 3.8.5 Preparation of a flood hazard assessment report nor 3.8.6 Preparation of a flood hazard mitigation report. The protection of the hydrology of environmentally sensitive areas will simply not be achieved if the identification of such areas and reporting of baseline conditions are not required during model preparation and reporting.

There was a case several years ago when an hydrologist when questioned in a PEC hearing as to why flood waters from a constructed water body were directed to a wetland of high significance answered that there were no buildings present.

Until a flood model has to explicitly address item 44-46 above, they are likely to be overlooked or an afterthought at best.

Recommendation:

Reference essential environmental infrastructure in 3.85 (2)(c) include accurate hydrological and hydraulic modelling of waterway, drainage, essential environmental infrastructure and stormwater networks that are relevant to the assessment of flood levels affecting the location of interest;

We note and commend the addition of PO16(b) to the scheme which links to the points 44-46 above, this linkage not being present in the current scheme. The performance outcome however limits assessment to erosion control works while Points 44-46 relate to overall hydrology.

Point 44 of the policy itself is inconsistent with PO16. The policy allows significant changes to the hydrology of all essential environmental infrastructure if the design development fails to appropriately control off-site impacts to urban areas. Again, the first part of point 44 appears appropriate but then an exemption is provided allowing essentially the opposite to occur. Allowing what amounts to poor design and what normally be unacceptable design to occur because excess water be directed to environmentally sensitive areas is not supported by OSCAR. This exemption appears inconsistent with PO16(b).

Further, PO16(b) itself directs the development only to “minimise” adverse impacts. The policy provides the avenue to provide guidance here directly or by referencing advice elsewhere in the scheme.

To make this unambiguous to project hydrologists, amendments are required to point 44 and PO16 as well as the inclusion of appropriate investigations during the flood modelling as advised above.

Recommendation:

Point 44 to read: Development should not divert flood water or low flows away from or to essential environmental infrastructure in order to protect the natural hydrological functions of these areas.

To better address adverse impacts, PO16 be amended to:
Development including bank stabilisation measures, erosion control measures and flood mitigation measures required to meet other assessment benchmarks in this code ...

- *Either a further 16(b) be expanded to better define "minimise adverse impacts" or*
- *is replaced with a new PO, or,*
- *a section is added to the Flood Hazard Overlay Planning Scheme Policy providing guidance to what constitutes acceptable impacts to an environmentally sensitive area for example through maintenance of indicators of current habitat such as upper and lower limits to current flows, extent of habitat types, species number, and ecosystem productivity as measured by foliage protective cover.*

Biosphere

2.2 Background and context 2.2.1 Preparing for 2046

> The UNESCO biosphere designation will support our liveability now and for future generations and will help enhance our national and international reputation.

2.3 Vision

A healthy and resilient environment

> In 2046, the Sunshine Coast is a healthy and resilient region. Recognised as a UNESCO Biosphere, the region's outstanding biodiversity, natural assets and landscapes, including the Blackall Range and Glass House Mountains, beaches, headlands, coastal plains, waterways and wetlands are protected and enhanced and remain undiminished by development.

The council has received biosphere designation for the Sunshine Coast under the Seville strategy[9]. Under this strategy, the biosphere reserve contains three elements:

1) one or more core areas, which are securely protected sites for conserving biological biological diversity, monitoring minimally disturbed ecosystems, and undertaking non-destructive research and other low-impact uses (such as education);
2) a clearly defined buffer zone, which usually surrounds or adjoins core areas, and is used for co-operative activities compatible with sound ecological practices, including environmental education, recreation, ecotourism and applied and basic research; and
3) a flexible transition area, or area of co-operation, which may contain a variety of agricultural activities, settlements and other uses and in which local communities, management agencies, authorities and other stakeholders work together to manage and sustainably develop the area's resources.

The Strategy also contains a suite of implementation indicators that should be met including:

- II.3.1 Biosphere reserves included in regional development and land-use planning projects.
- IV.1.10 Different zones of the biosphere reserves identified and mapped.
- IV.1.12 Buffer and transition zones re-planed to promote sustainable development and preserve core areas.

As the "biosphere designation will support our liveability now and for future generations", and requires sustainable development especially in the buffer zone, we expect there to be a strong link

9 UNESCO (1996). Biosphere Reserves: The Seville Strategy and the Statutory Framework of the World Network. UNESCO, Paris.

between the biosphere planning and land use planning as addressed in the proposed planning scheme.

Recommendation:

> *Include in the planning scheme a map showing the extent of each of the three biosphere zones.*
>
> *Include a biosphere policy is included in Volume 3 Planning Scheme Policies. At a minimum, the policy should address how the scheme supports the requirements of each of the three land use zones of the biosphere.*