Sunshine Coast Council

Residents' handbook: Private Structures in Canals

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Sunshine Coast COUNCIL

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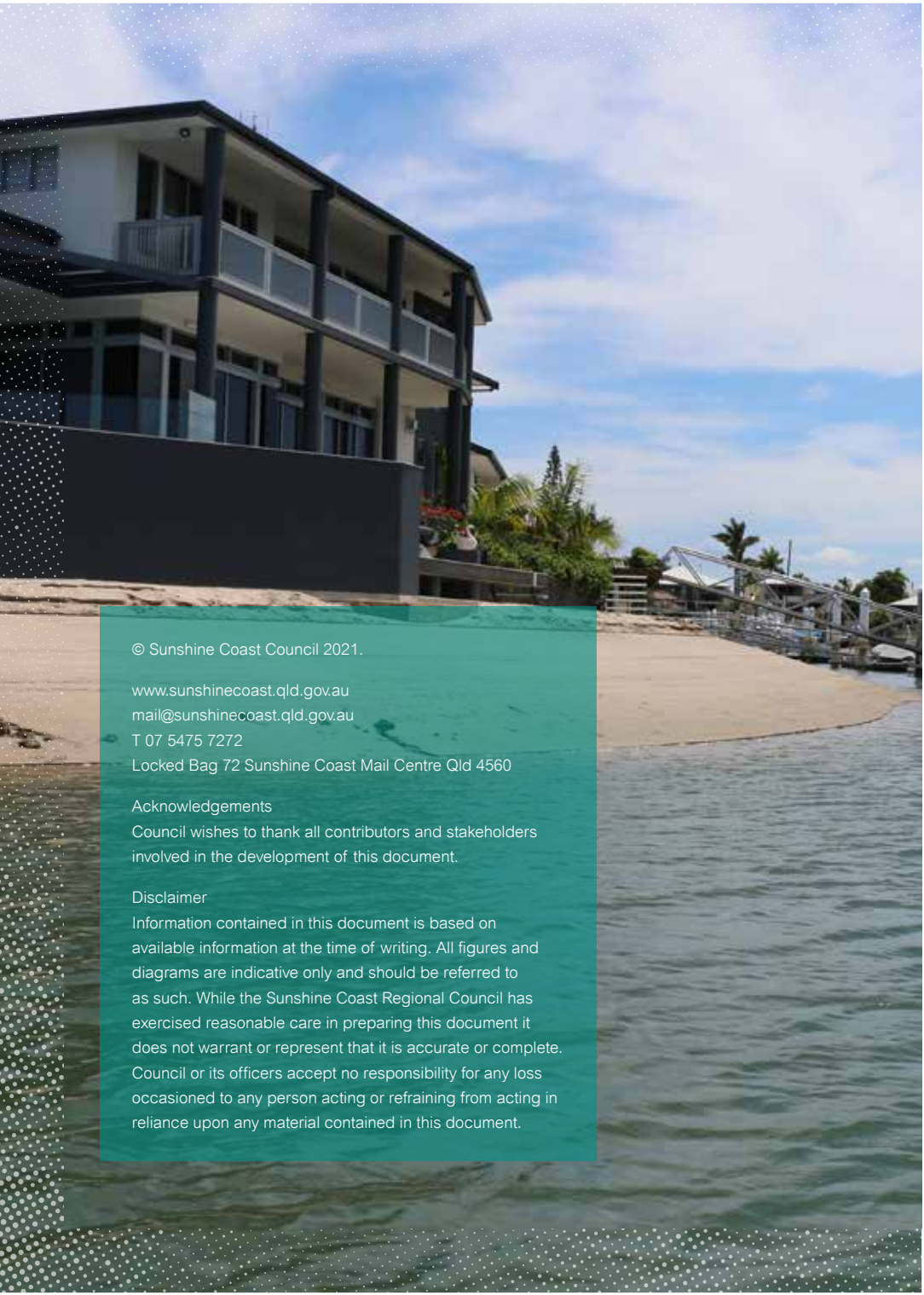

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Private structures in canals

This booklet is a guide only and is intended as general advice. It is not exhaustive. If you have concerns about the management of your private structure seek the advice of an independent, suitably qualified professional.

Council's responsibility in canals

Council maintains navigable access in and out of the canal and keeps the canal clean and maintained as a canal through programs such as:

- the maintenance dredging program
- rock scour replacement
- de-silting
- sand scraping
- vegetation and rubbish removal.

Property owner's responsibilities in canals

Property owners are responsible for the maintenance of their own private canal structures including, but are not limited to:

- revetment walls
- jetties
- pontoons
- decks
- boat ramps.

Maintenance

Maintenance of private structures in canal systems must abide by Council local laws, individual development approval documentation and State Government environmental legislation. It's the responsibility of the person authorising and carrying out the maintenance (such as the owner) to make sure relevant legislation is followed.



Approvals

All private structures covered by this booklet must have an approval. Council has managed the requests for new tidal works approvals in canal systems since 18 November 2005.

You must have a copy of the relevant historical approval to carry out maintenance on your structure. Request a copy of the historical approval from the administrating agency at the time of construction:

- If the prescribed tidal works approval was issued before 18 November 2005, the administrating authority would be State Government. Search 'historical tidal works approvals' at www.qld.gov.au.
- After the 18 November 2005 the administrating authority is Sunshine Coast Council. Search for your property at developmenti.sunshinecoast.qld.gov.au.

Regular inspections

Regular inspections of all your private structures is highly recommended. Focus on any changes to the structure, general damage, wear and tear or any of the maintenance issues listed in this document. When inspecting, take photos and use equipment, such as a tape measure, to record the rate of change.

Pontoons

A pontoon is a floating structure designed to provide waterway access to the adjoining property. Pontoons are attached to piles via a bracket with rollers to allow for tidal movement. In Queensland, pontoons must be wholly situated within an approved leased area.

Pontoon maintenance

Pontoons need regular maintenance. It is important to check your pontoon manufacturer's recommended maintenance before any works are done. This could include:

Private structures in canals

- Keep the rollers on both the gangway and bracket lubricated with a dispersant. This will ensure the structure can move with the tide and not damage any nearby brackets and piles.
- Ensure your rollers are not too worn down. Rollers are too worn when they cannot roll up and down the pile anymore.
- Rollers are required to move freely up and down the piles at all tides. Clean your piles and ensure they are clear of marine growth (i.e. oysters). If the rollers get caught on marine growth, the structure cannot rise and fall with the tide and the brackets may bend or snap off with the stress.
- Expect extreme low tides and inspect your pontoon to ensure the structure is floating with the majority of low tides. If your structure doesn't float with the majority of low tides or if your structure is sitting unevenly on the canal bed, this may place excessive loads on your brackets and piles leading to premature failure.
- If sand levels are uneven or too high your pontoon's brackets may fail. It is the owner's responsibility to manage this by levelling or moving sand away from under your pontoon. You can move the sand either manually or by a dredge or mobile water pump.
- Check for holes and damage to the pontoon's plastic. Holes in the skirt can lead to the internal foam becoming waterlogged. This will reduce the pontoons ability to float. If you notice any holes, contact a suitably qualified marine contractor to fix it.
- Check that your piles are straight at all times. Uneven piles can cause major damage to your floatation unit and brackets. This can be checked with a spirit level at 90 degree increments around the pile. If your piles start to lean contact a suitably qualified marine contractor to fix it.
- Check that your pontoon lighting is in working order so that your pontoon is seen at night by watercraft.

Revetment walls

Revetment walls

A revetment wall, also known as a seawall, is the wall between your property boundary and the canal system. Your revetment wall was most likely built at the same time as the canal system. Designs can differ in different canals and in different locations throughout the same canal.

Revetment walls are different in a variety of ways to standard retaining walls. The main difference is revetment walls need to withstand tidal influence from both behind and in front of the wall. Revetment walls must also withstand scour from boat wash, currents, and tides.

Revetment wall maintenance

Revetment walls need regular maintenance and inspections to ensure their longevity. It's important to consider your individual revetment wall's design when performing maintenance or inspection activities. Revetment walls are engineered structures. Any changes to your revetment wall, in particular rotation or subsidence, should be assessed by a suitably qualified person before work starts. **Council is unable to provide advice on the structural capacity of a private revetment wall.**

Common defects and maintenance recommendations

Investigate voids or sinkholes behind revetment walls

Identify the cause of voids and sinkholes, and rectify immediately. Generally the cause of voids behind the wall is due to water movement from tides, rainfall or pipes. Voids behind the wall should be filled with appropriate materials, such as a material consistent with the original design. Concrete slabs near (or on top of) revetment walls can hide these voids. Inspect the concrete for cracks or movement. If necessary, coring may be required to confirm a void under a concrete slab.



Avoid surcharge loading

Placing large items or constructing walls and pools etc. on top of your revetment wall will cause surcharge or additional loading. Surcharge loading is when force is applied to the wall that wasn't intended in the original design. Surcharge loading may be visible through movement of your wall. Surcharge loading can occur from a variety of ways, including:

- concrete slabs or pathways built on top of the wall
- retaining walls built too close to the wall, on top of the wall or without independent foundations
- swimming pools built without independent foundations and too close to your wall
- stairs on top of the revetment wall
- concrete behind the wall (may have been used to fill a previous void behind the wall)
- large vegetation planted directly behind the wall and the root ball pushing the wall out
- water not being able to drain from behind the wall may be due to blocked or absent weep holes
- pontoon catwalks or jetties illegally connected to the wall.

This list is not exhaustive and any movement of the wall may indicate surcharge loading. If you notice this, seek advice from a suitably qualified engineer.

Leave rocks in place

If you have rocks in front of your revetment wall it is likely that it was designed that way and they need to stay in front of the wall. You should not move or remove rocks from in front of your revetment wall. They provide an essential function to its design. If you notice the rocks in front of your revetment wall have moved, slumped or disappeared, please contact council on (07) 5475 7272 to organise a council officer inspection.

Revetment walls

Monitor sand erosion

Erosion of sand from in front of your revetment wall may weaken its structural integrity. Council carry's out a maintenance dredging program every three to four years. If you notice a lot of sand has eroded from in front of your revetment wall and the Council maintenance dredging is not due to occur soon, organise for sand to be placed back against the revetment wall.

You can't introduce any sand into a canal that is not part of the canal system already (such as from a landscaping yard) so the sand must be moved from the canal only. Each resident has the right, under State legislation, to move up to 500t of sand from the canal edge annually. You can move this sand manually, with a machine or via a mechanical pump. It's important you use the services of a suitable operator if you want to dredge sand onto your canal frontage. Check if a contractor is an approved suitable operator by searching 'suitable operators' at environment.des.qld.gov.au.

Also treat the cause of erosion (typically due to overland flow) to reduce further erosion and decrease the need to maintain your revetment wall between Council's maintenance dredging programs.

Check for cracks

Cracks in your revetment wall generally occur from movement of your wall. Investigate the cause and fix the problem. Use material compatible with the original design to fill cracks.

Clear weep holes

Clear all weep holes (drainage holes) to ensure water is able to drain from behind the revetment wall.

Check for signs of spalling

Concrete revetment walls that are more than 40 years old may show signs of spalling. Spalling is the loss of cement between the aggregate/rocks in the concrete mix. This is mostly a visual issue but if it is allowed to continue it may become a structural one.

Boat ramps

Boat ramps

A boat ramp is a hard structure, usually made of concrete, which runs from the property boundary down to the water to provide waterway access.

Many boat ramps built in older canal systems were not built to current coastal engineering. You can check if your boat ramp is designed to withstand all forces in a canal system by viewing typical boat ramp designs on the Queensland Government Department of Transport and Main Roads website. Search for 'bridges, marine and structures' at www.tmr.qld.gov.au.

Common boat ramp defects

Concrete spalling or loss of grout and concrete break down

Concrete spalling or loss of grout and concrete break down is common if low strength concrete was use or if the ramp has reached the end of its useful life. Either resurfacing or replacement is recommended.

Cracks in the main concrete slab of the boat ramp

The typical cause of a crack in a boat ramp is due to movement and loss of foundation material under the boat ramp. Fill the cracks with an appropriate material and treat the cause of movement by structural upgrades. Failure to fill large cracks could lead to the breakdown of the steel reinforcement, leading to structural failure.

Erosion on the side of the boat ramp

Erosion on the side of your ramp is generally due to rainfall exiting on the side of the ramp. Rock shoulders (as shown in the boat ramp designs on the Department of Transport and Main Roads website), or concentrating flow into the centre of the ramp will make this type of erosion less severe.

Scour (loss of material) at the end of the boat ramp

Scour (loss of material) at the end of your boat ramp can occur if there is no rocks at the end of the ramp or if the concrete isn't extended to below the lowest tide of the year. See the typical boat ramp designs on the Department of Transport and Main Roads website for suggestions of upgrades.

Jetties

Jetties

Jetties are structures that do not float with the tides, have piles that penetrate the canal, are perpendicular to the property boundary and extend into the property owners' allocated water frontage to provide waterway access.

Jetty maintenance

Common jetty issues and maintenance include:

- Inspect the piles below the water level if a jetty has timber piles. In South East Queensland, marine borers are a common cause of loss of structural integrity of timber piles. Borers will eat the timber from the inside out. Inspections and rectification works should be carried out by a suitably qualified marine contractor.
- Check for corrosion in any part of the steel on the structure. Corrosion is common with connection points. Replace these as required. Use marine grade 316 stainless steel for all replacements.
- Look after any timber on the structure. Weathering of timber in any part of the structure is common in a salt water environment. Timber maintenance includes oiling regularly, replacing any severely weathered sections and turning over timber decking boards.
- Check that any lighting on your jetty is in working order so that your jetty is seen at night by watercraft.

Decks

Decks

A deck is a structure that extends from your property boundary and generally doesn't provide waterway access.

Deck maintenance

This list does not include general maintenance to your deck. It is maintenance activities that may be specific to canal systems.

Common maintenance issues include:

- Inspect the piles below the water level if the deck has timber piles. In South East Queensland, marine borers are a common cause of loss of structural integrity of timber piles. Borers will eat the timber from the inside out. Inspections and rectification works should be carried out by a suitably qualified marine contractor.
- All decks should provide access (generally in the deck) for a 100mm pipe. This is for council's dredging contractor to place sand under the deck and in front of your revetment wall. You can provide temporary access when dredging is occurring by lifting decking boards or have permanent access via a trap door.
- Check for corrosion in any part of the steel on the structure. Replace these as required. Use marine grade 316 stainless steel for all replacements.
- Look after any timber on the structure. Weathering of timber in any part of the structure is common in a salt water environment. Timber maintenance includes oiling regularly, replacing any severely weathered sections and turning over timber decking boards.
- For more information about Council and residents' responsibilities read the *Resident's Handbook: Artificial Waterways*.

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