



**CLIVE RIVER DREDGING**  
**RESOURCE CONSENT APPLICATION**

**AN APPLICATION TO THE HAWKE'S BAY REGIONAL COUNCIL**

**FROM**

**REGIONAL ASSET MANAGER  
(HAWKE'S BAY REGIONAL COUNCIL)**

**Revised & Updated September 2021**

**Prepared by  
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## APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 OF THE RESOURCE MANAGEMENT ACT 1991

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To the Hawke's Bay Regional Council.

1. **The Regional Assets Manager (Hawke's Bay Regional Council)** applies for the following types of resource consent:

**(A) In the Clive River (upstream of the Clive Bridge)**

- A Land Use consent to ***disturb the bed of the Clive River by dredging***. This is a Discretionary Activity under **Rule 69** (via Rule 75) of the Hawke's Bay Regional Resource Management Plan. The activity defaults to Rule 69 by exceeding the 5m<sup>2</sup> maximum area for a Permitted activity under Rule 75.

**(B) In the 'Coastal Margin' (between Clive Bridge & CMA Boundary, also on the Clive Beach)**

- A Land Use consent to ***disturb the foreshore and seabed by dredging in the Coastal Margin***. This is a Discretionary Activity under **Rule 46** (via Rule 47) of the Coastal Environment Plan. The activity defaults to Rule 46 by exceeding the 5m<sup>2</sup> maximum area for a Permitted activity under Rule 47.
- A Discharge Permit for the ***discharge of dredged material onto the shore*** above mean high water springs, near the river mouth groyne, whereby the dredge sediments, in slurry form, will flow down the beach and into the sea. This activity will occur in the 'Coastal Margin' and will be a Discretionary Activity under **Rule 9**, via Rule 19 of the Coastal Environment Plan as a '*Discharge of contaminants to land that may enter water*'. The activity defaults to Rule 9 by exceeding the 50m<sup>3</sup>/day maximum volume for a Permitted activity under Rule 19.
- A Water Permit to ***take surface water*** from within the 'Coastal Margin'. This is a Discretionary Activity under **Rule 35** (via Rule 38) of the Coastal Environment Plan. The water will be 'taken' to the extent that a cutter-suction dredge will be used for the dredging operation and the uptake of water along with sediment is incidental to that operation. The activity defaults to Rule 35 by exceeding the 20m<sup>3</sup>/day maximum volume for a Permitted activity under Rule 38.

**(C) In the Coastal Marine Area**

- A Coastal Permit to ***disturb the foreshore and seabed by dredging***. This is a Discretionary Activity under **Rule 130** of the Hawke's Bay Coastal Environment Plan. The dredged material will be predominantly silt that has deposited in the channel since the previous dredging in 2009, combined with water.

- A Coastal Permit to **deposit more than 50,000m<sup>3</sup> of dredged material on the foreshore and seabed**. This is a Discretionary Activity under **Rule 151** of the Coastal Environment Plan. The total estimated volume for the dredging operation will be 60,000m<sup>3</sup>.
- A Coastal Permit to **deposit dredged sediment in the Coastal Hazard 1 (CHZ1) Zone**. The CHZ1 extends over the area between the shoreline and a line 200m off-shore at Clive. This is a Discretionary Activity under **Rule 160** (via Rule 104) of the Coastal Environment Plan. The activity defaults to Rule 160 by exceeding the 5m<sup>3</sup> maximum volume for a Restricted Discretionary activity under Rule 104.
- A Coastal Permit to **take surface water** within SCA11 (*Significant Conservation Area 11 – ‘Waitangi Estuary’*). The water will be ‘taken’ to the extent that a cutter-suction dredge will be used for the dredging operation and the uptake of water along with sediment is incidental to that operation. This is a Discretionary Activity under **Rule 154** (via Rule 156). The activity defaults to Rule 154 because the activity of taking water from within SCA11 means that it cannot qualify as a Permitted activity under Rule 156.
- A Coastal Permit for **placement of a structure (the cutter-suction dredge discharge pipeline)** in the coastal marine area. This is a Discretionary Activity under **Rule 117** of the Coastal Environment Plan. The pipeline floats, and will run from the dredge to a discharge point on or beside the river mouth groyne. The activity defaults to Rule 117 by potentially occupying more than 5m<sup>2</sup> in the CMA and/or remaining for longer than 28 days, which are Permitted activity requirements under Rule 122.

Note: In conjunction with the above works it is proposed to separately remove the tubeworm masses that have formed on and around the highway bridge piers. This work will be done using a mechanical digger and/or by manual removal and the removed material will be disposed to landfill. This aspect of the work is a Permitted Activity under **Rule 70** of the Regional Resource Management Plan which allows ‘River control & drainage works’, including works required for ‘Waterway maintenance’. The tubeworm masses are obstructing the flow of the river at this point and their removal will be required to reduce flood risk.

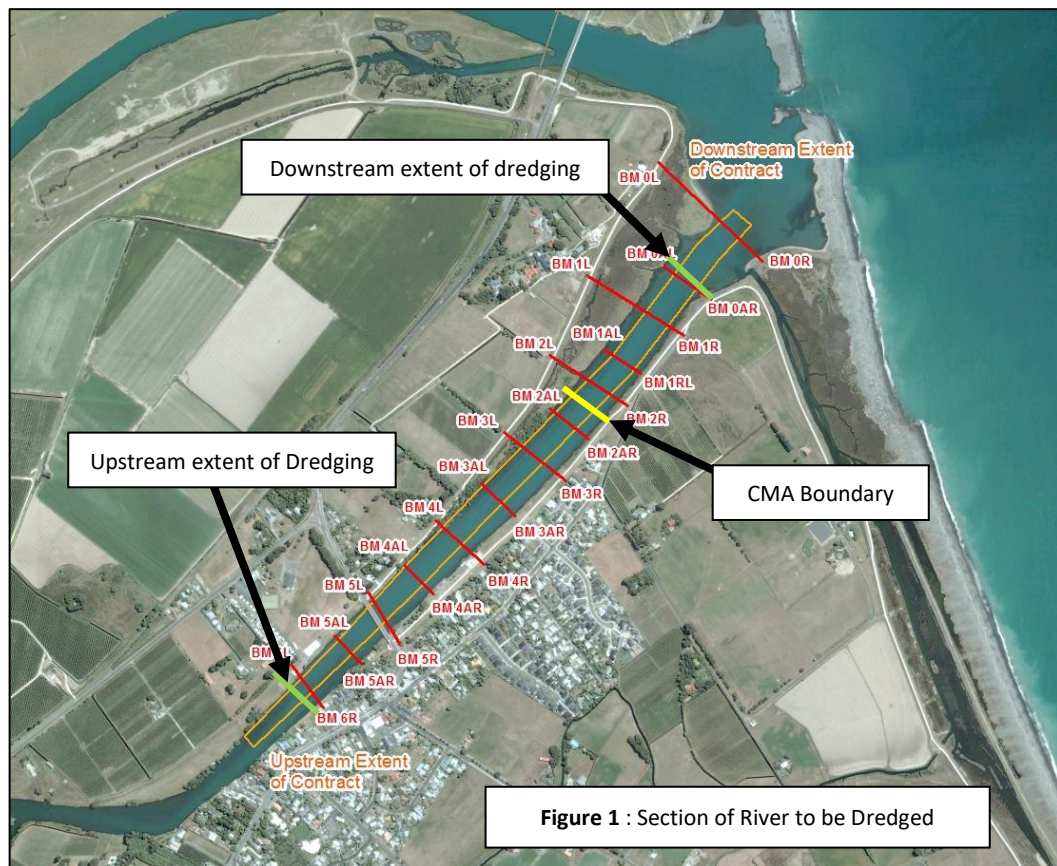
2. The activity to which the application relates (the proposed activity) is as follows:

*“Dredging of the bed of the lower Clive River (including that part of the river defined as coastal marine area). The dredged area will be approximately 1,500m long by 60m wide, starting from a point approximately 300m upstream of the Clive Bridge and extending to approximately 1,200m downstream of the bridge.*

*The depth, extent and method of dredging will be similar to that in the previous dredging of the river in 2009. The dredgings will be predominantly silt and will be pumped from the cutter-suction dredge to a discharge point on or near the sea groyne on the southern side of the river mouth. The dredgings will be discharged on the beach at this point, above high tide level, and will flow from there into the sea”.*

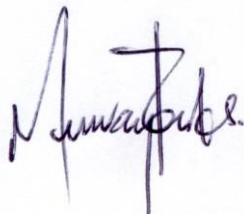
3. The site of the proposed activity is the Clive River upstream and downstream of the state highway bridge, as shown in Figure 1, below. The area to be dredged extends

over approximately 1,500 metres length by 60m width of river and coastal marine area. Of the 1,500 metres, approximately 200m is “river” (upstream of the bridge); 740m is “coastal margin” (between the bridge and the CMA boundary); and the remaining 560m is “coastal marine area”.



4. The land is Crown land. The Clive River is also subject to Statutory Acknowledgement under the Heretaunga Tamatea Claims Settlement Act 2018.
5. There are no other activities that are part of the proposal to which this application relates.
6. No other resource consents are needed for the proposal to which this application relates.
7. I attach an assessment of the proposed activity’s effects on the environment that –
  - (a) includes the information required by clause 6 of Schedule 4 of the RMA 1991; and
  - (b) addresses the matters specified in clause 6 of Schedule 4 of the RMA 1991; and
  - (c) includes such details as corresponds with the scale and significance of the effects that the activity may have on the environment.
8. I attach an assessment of the proposed activity against the matters set out in Part 2 of the RMA 1991.

9. I attach an assessment of the proposed activity against any relevant provisions of a document referred to in section 104(1)(b) of the RMA 1991, including the information required by clause 2(2) of Schedule 4 of that Act.
10. N/A
11. Applicants for protected customary rights and customary marine title (namely *Heretaunga Tamatea Settlement Trust and He Toa Takitini* [MAC-0109-01]; and *Ngai Tamahaua hapu (Herewini)* [MAC-01-07-09]) have been notified of the proposed application in accordance with s.62 of the Marine and Coastal Area (Takutai Moana) Act 2011.
12. N/A
13. N/A
13. N/A



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For Regional Assets Manager, HBRC

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# Assessment of Effects on the Environment

(based on the format of the 4<sup>th</sup> Schedule to the RMA)

## 1. Background

In 1969 the Ngaruroro River, which used to pass through Clive, was diverted to a new channel in order to reduce the incidence of flooding in the area. Since then, the 'old' channel of the Ngaruroro (now known as the Clive River) only carries water from the Karamu and Raupare catchments. The diversion has been successful in reducing flood risk but, because the old channel now carries less water than pre-1969, and because of significant changes in bed gradient as a result of the 1931 earthquake (specifically, a 'flattening' of gradient over the last 1.8km)<sup>1</sup>, the lower reaches of the Clive River now have a tendency to silt up over time.

The majority of the sediment is believed to come up into the Clive River from the Waitangi estuary when the Ngaruroro and Tutaekuri are in flood. The slower flow in the Clive River allows sediment to drop out and settle on the bed. It is likely that there is also a tendency for sediment to be carried up into the Clive River and deposited there when the two major rivers are simply running 'dirty' and there is an incoming tide. In addition, sediment will be coming down the Clive River itself, from the Karamu and Raupare catchments, and settling as it arrives in the more sluggish, shallow-graded and saline waters of the lower Clive.

Adding to the problem within the last 10 years has been the arrival of invasive Australian tube-worm in the lower Clive River. Tube-worms form dense coral-like masses. These are now well-established on and around the piers of the state highway bridge and are already obstructing the movement of rowing boats and other vessels at lower tides. They will also be incrementally increasing the flood risk in the river by impeding natural flow. The rowing club have occasionally attempted to cut back the worst of the clumps, when boats start to collide with them, but with limited success, and the problem is liable to get worse and remain on-going without other intervention. Reefs of tubeworm are most visible between the northern river bank and the first pier of the bridge and now effectively block most boat passage through that space.

As sediment (and tube-worm) builds up it hinders the use of the river for the various water sports and other water-based activities that happen there.

The river is used not only for rowing – as the base for the Hawke's Bay Rowing Club – but also for waka-ama, waka excursions (including for the annual Waitangi Day festivities), water-skiing, wake-boarding, jet-skiing, surf lifesaver training and other

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<sup>1</sup> Clode, G. (August 2018) *Clive River Sediment* (a report to HB Regional Council). The shallow gradients resulting from the 1931 earthquake also explain why gravel is no longer carried to the sea from either the Ngaruroro or Tutaekuri rivers and why the Waitangi Estuary now has a silty (rather than gravelly) base.

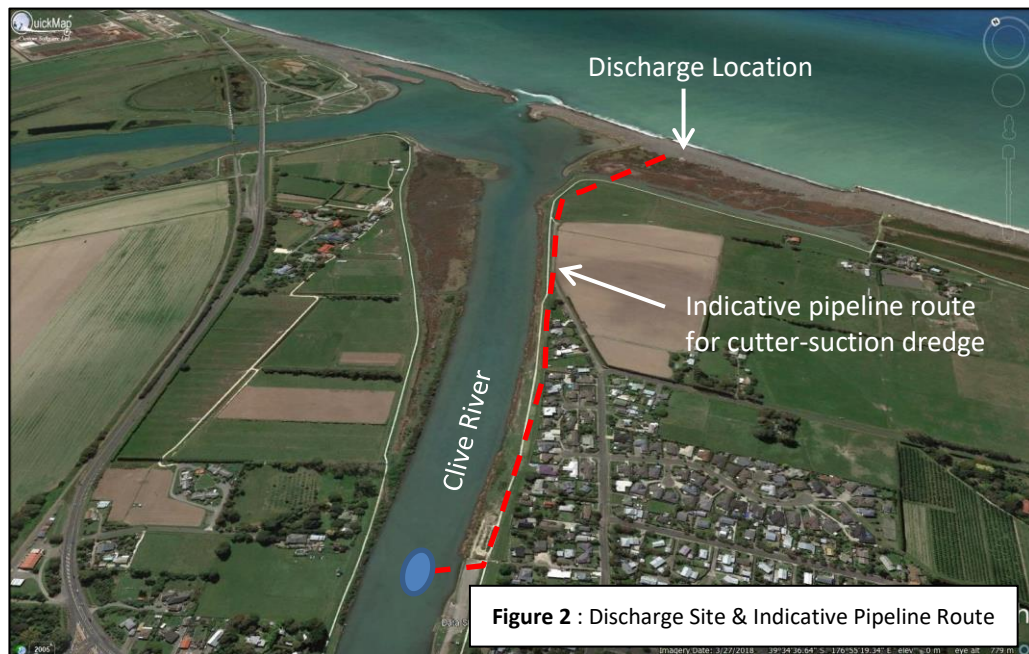
water sports. As the river gets shallower, these activities become difficult (and for some – notably the waka excursions – impossible) around low tide.

The shallow depth also leads to a build-up of floating weed mats in the river which get snagged as they drift downstream. As the weed decays it causes odour problems in the summer months.

In order to relieve the situation it is proposed to dredge the lower Clive River to restore the 1997 and 2009 level of the bed (these being the years when the river was previously dredged).

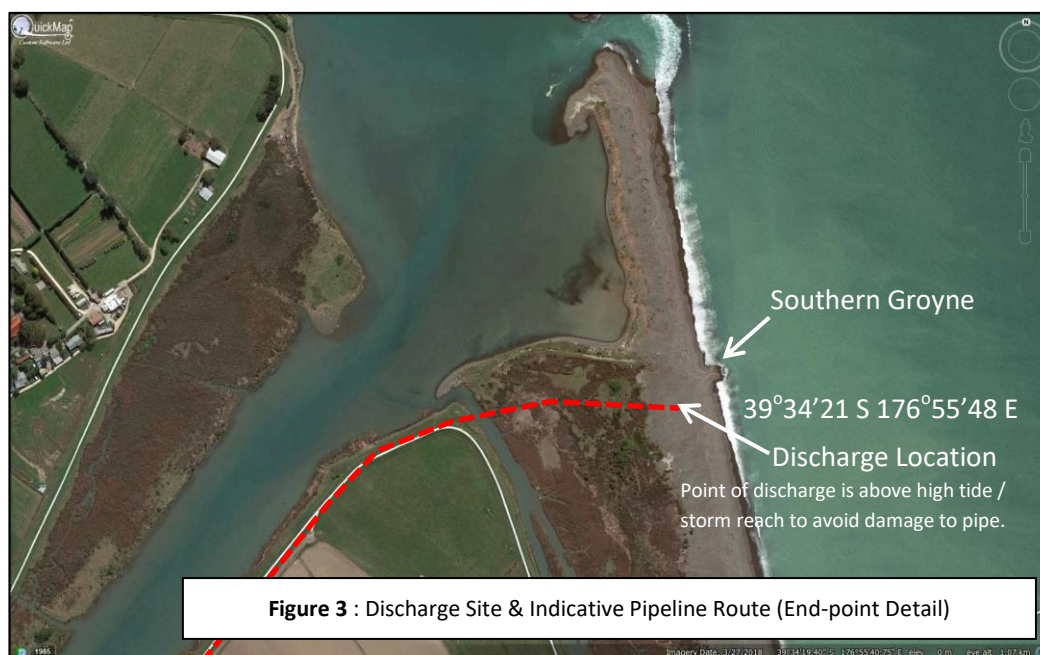
Specifically, the Applicant proposes to dredge sediment from the bed of the river to achieve a minimum water depth of approximately 0.70 metres at low tide (8.3m R.L.), over a 1,500 metre length by 60 metre width of river, using a cutter-suction dredge, and to discharge this sediment onto the foreshore and seabed near the river mouth (Refer to Figures 2 & 3, below and next page).

The location of the point of discharge is at approximately 39°34'21 South / 176°55'48 East – just to the south of the southern river-mouth groyne. The end to the outlet pipe will be positioned at the head of the beach, back from the water's edge, where it will be clear of and protected from storm waves. The discharge from the pipe will then flow down the beach and into the sea.



From there, upon entering the water, the sediment will be variously dispersed as a visible plume (for the finer material) or settle temporarily on the bottom. All settled materials will subsequently be fully dispersed by wave action. The frequency of swell-events with sufficient energy to complete this dispersal is about 3% or 11 times a

year<sup>2</sup> (averaging slightly less than once per month). The force of water passing out through the river mouth, especially in times of flood, is also likely to assist dispersal in the same way that river sediments are dispersed at the same locality.



The dredge material is, itself, river sediment, and the volume of material will equate to about 2.5% of what may come down the Ngaruroro River in a single flood event<sup>3</sup>.

The proposed dredging operation, overall, will be the same as that carried out on the Clive River in 1997 and 2009, including the use of a cutter-suction dredge and discharge of dredged sediment onto the foreshore and seabed near the river mouth, just to the south of the groyne.

The only difference, compared with previous operations, will be that the area around the state highway bridge where the main tubeworm colonies are located will be dealt with separately, using a mechanical excavator and/or manual removal to extract the tubeworm masses and dispose of the resulting material to land. This specific component of the work does not require consent but rather is a Permitted activity under Rule 70 of the HBRC Regional Resource Management Plan.

The reason for the separate mechanical and/or manual removal of tubeworm masses is to minimise the amount of fragmented tubeworm that will be able to enter the sea with the cutter-suction dredge discharge. While there is no evidence to suggest that such fragments would actually survive on the open coast, or have the ability to

<sup>2</sup> Refer to eCoast report *Clive River Dredging : Numerical Modelling and Ecological Impact Assessment* (10 May 2021) for dispersion modelling and predictions

<sup>3</sup> The Ngaruroro can discharge up to 2,000,000 cubic metres of sediment into the sea in a single large scale event. The dredging will involve the discharge of approximately 48,000 cubic metres, which is 2.5% of that volume.



colonise other areas by this process, the separate handling of the masses around the bridge will be done on a 'precautionary basis'.

## **2. Description of the Proposal**

The proposal is to dredge a length of 1,500 metres by 60m width of the bed of the lower Clive River, from about 200 metres upstream of the Clive Bridge to 1,300 metres downstream of the bridge (as shown in Figure 1). The dredge will cut to a sufficient level to provide a minimum water depth of approximately 0.70 metres at low tide (design depth 8.3m R.L.).

A cutter-suction dredge will be used for this work in all areas except around the highway bridge where there are large masses of Australian tubeworm. The tubeworm masses will be removed using a mechanical excavator and/or manually and taken to a site on land for disposal.

## **3. If it is likely that the activity will result in significant adverse effects on the environment, a description of any possible alternative locations and methods for undertaking the activity:**

Other alternative methods and locations have been considered. These are as follow:

### **3.1 Alternative Locations**

In a review conducted in 2013 the Regional Council assessed various alternative locations for the open water recreation activities currently occurring on the Clive River to see if there would be other ways to provide for these activities that would not require on-going maintenance dredging<sup>4</sup>. A number of sites were examined, including sections of the lower Ngaruroro and Tutaekuri Rivers and Ahuriri Estuary, but none of these other sites were found to be feasible and/or likely to provide any significant advantage over continuing at Clive.

Problems with the alternative sites included safety of access; flood-risk; wind and cross-current exposure and (for the Ahuriri Estuary) the likelihood of conflict with the status of that area as a wildlife refuge.

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<sup>4</sup> Environmental Management Services Ltd (February 2013) *Clive River Dredging Review (Draft Report)*. A Report to Hawke's Bay Regional Council. The report was formally presented to HBRC in February 2013. It reviews the cost:benefits of dredging as well alternatives to the on-going dredging of the Clive River.

### **3.2 Alternative Methods**

#### **(a) Do Nothing**

If nothing is done to re-dredge the river then recreational activities (rowing; waka excursions; waka-ama; wake-boarding, etc) will continue to run into difficulty with shallow water, including groundings, and odour and obstruction from stranded weed-rafts, at low tide.

The rate of sedimentation more generally is probably now slowing and approaching an equilibrium point. But even at the current water depth it is already a significant constraint on boat movement around low tide.

#### **(b) Narrowing of the Clive River Channel**

A solution that has been considered in the past is to narrow down the width of the river channel to increase the velocity of water coming down the Clive River, especially at high flows, so that there will be a greater flushing effect to move the sediment along and out to sea. An increased flushing force would also help to keep the weed mats moving and reduce the amount that strands in the downstream area.

The problem with this solution is that by narrowing the river it would also significantly impact on the amount of space available for existing recreational activity. To have any chance of being effective the river would probably need to be narrowed down from the existing 90 – 100 metres to a width of about 30 – 40 metres (possibly even narrower). This would impinge on many of the existing river activities, causing congestion and conflict between existing users and eliminate those that need a greater amount of amount of manoeuvring space, such as wake-boarding.

Furthermore, even if this narrowing was done, there would still be no guarantee that it would actually work. The situation on the lower Clive River is complicated by the fact that the river has a naturally flat gradient (since the 1931 earthquake) and the rate of sedimentation is highly influenced by back-flow from the Ngaruroro and Tutaekuri rivers in times of flood. This means that even narrowing the channel still might not be enough to prevent a similar amount of sedimentation as occurs today.

The narrowing of the river would also have potential ecological risks, given that portions of the channel are effectively an extension of the estuary, and that some of the existing reedy banks are likely to be habitat for inanga and other species. These existing tidal reed areas would be lost – including within portions of the river currently designated 'Significant Conservation Area'.

**(c) Installation of a weir**

A further option would be to install a weir at the downstream end of the river, with only a relatively narrow opening (of, say, 8 metres) between the river and the main estuary. An effect of this weir would be to reduce the amount of back-flow from the Ngaruroro and Tutaekuri Rivers, via the Waitangi Estuary, into the Clive River, as it would concentrate the force of water coming out of the Clive River to counter the pressure of water coming in. That in turn would reduce the amount of sediment coming up into the Clive River from the larger and more silt-laden rivers.

There are, however, potential issues with this solution as well. It is uncertain, for example, what effect a structure of this kind would have on flood flows in the Clive River and whether the weir (even when over-topped) would be likely to obstruct that flow and potentially increase the risk of flooding in the township of Clive. Flood modelling would be required to better assess these risks.

It is also uncertain if the weir would have the potential to create an obstruction to floating weed mats and other debris. Weed mats would probably pass through the opening, but might get snagged on the outer flanks of the weir.

Another potential risk is the effect that a weir would have on the extent of the so-called 'salt water wedge' within the river and the effect that a movement of the location of the upstream end of the wedge might have on existing whitebait spawning areas. It is possible that the whitebait would simply adjust and if necessary spawn in new locations, but this remains unknown.

Finally, even if a weir was to be installed, there would still need to be a dredging of the river anyway. A weir, if it works at all, will only serve to reduce the rate of re-sedimentation of the river once the river has already been dredged. It will not do anything to shift the sediment that has accumulated to date.

**(d) Disposal of dredge material to Land**

An alternative to disposing of dredge sediment from the Clive River into the sea would be to land-fill the material somewhere in the vicinity of the river. Although there would be no obvious ecological advantages in doing so, and potentially greater significant adverse effects overall, it would at least satisfy broader community perceptions favouring land disposal over disposal to sea. It would also ease concerns that fragments of tubeworm contained in the dredge waste might somehow survive and go on to colonise other areas that are currently free of this invasive species (notwithstanding that tubeworm in the Clive River are already likely to be releasing spawn down the river and into the sea).

Various landfill sites were considered as part of the review of options for the previous dredgings in 1997 and 2009 and this option has again been assessed for the current dredging proposal.

The recent investigations have mainly focused on the possibility of disposing of dredge material onto land at the Hohepa Homes site between the river and state highway north of Clive. This site is on the left bank, downstream of the bridge, and the Trust that operates the farm has indicated that they are willing to at least consider the option. The site is near enough to the river to be within reach for pumping from a cutter-suction dredge.

This option is 'technically possible' but would also be substantially more expensive than the method of ocean discharge that has been used in the past and that is again proposed for this current application. As an indication: The budget for the sea discharge option is approximately \$1M. The cost of disposal to the Hohepa site (if indeed that site was available), exclusive of land acquisition costs, would be a minimum of \$1.7M – \$2.3M and potentially \$3M to \$4M when allowance is made for associated cost-escalation risks due the specific nature of the work.

These cost impacts are 'real' impacts insofar as the additional funding required for land disposal would not then be available for other environmental works undertaken by the Regional Council, to the value of \$1M or more. That is \$1M that would not then be available for use on, for example, a more intensive control of tubeworm, additional dredging, or riparian planting in the Clive River, or for any number of other projects across the Region. The funds would be used instead for putting the dredged river sediment onto land.

There would also be significant logistical difficulties with this option including, most obviously, the requirement to purchase or lease, on a willing-seller/ willing-buyer basis, approximately 6 hectares of land at the Hohepa farm. There have been discussions with the Hohepa Trust but it still remains to be seen if an agreement can be reached.

This land, if purchased or leased and then used for a dredge disposal site, would no longer be readily available for the use of the farming operation and would potentially lose organic certification status as a result of the dredge material that is placed on it.

In order to get the sediment onto the land (delivered in slurry form directly from the cutter-suction dredge) the 6 hectares would need to be stripped of top-soil and surrounded and sub-divided by approximately 1.5m high earth bunds. The division into at least two separate bunded areas would be necessary to create a settling and de-watering system for the recovery and containment of sediment. However, even with settling ponds a significant portion of finer suspended sediment (clays in particular) would be expected to pass through the settling process and go back into the river with the returning dredge water. This would form a visible plume in the

river at the point of discharge. The plume would mostly flow down-river, toward the sea and estuary, but would also be carried up-river at times on the in-coming tide (where some would re-settle on the bed).

Once the sediment has been stored and dried-out on the land at Hohepa the intention would be for the resulting (predominantly silt) material to then be available for contractors to take away and use as fill. River silt is a material commonly used as fill on construction projects. Sediment grain-size testing shows that the material will be around 25% sand 60% silt, and 14% clay, so should be acceptable for this purpose. However, in order for contractors to uplift the material it would be necessary for trucks to be able to drive into and out of the Hohepa property from the highway on an irregular as-needed basis and for loaders to be allowed to operate on site. This may present safety issues both within the site and on the highway.

The material could alternatively be capped with topsoil and left permanently on the Hohepa site but, if so, this would prevent the same area from being re-used for the receipt of dredge material in future dredgings, which would then most likely eliminate land disposal as a future option due to the lack of other suitable alternative sites.

Odour would also be an issue – although this effect is likely to be only temporary as the dredge material dries out. The sediments, which have been tested, are mostly anoxic, with a slight odour of hydrogen sulphide<sup>5</sup>.

These various issues, combined, make land disposal a less-preferred option than the proposed method of ocean discharge at the present time. As discussed above, the reasons include the substantially higher cost of land disposal for minimal (if any) ecological benefits compared with disposal to sea, as well as lost opportunity costs associated with \$1M or more of additional expenditure. The land disposal option also presents uncertainty in terms of the ability to acquire the necessary amount of land and would have its own impacts on the utility of existing productive organic farmland. It would result in a visible plume of sediment in the river (due to the return of dredge-water from the de-watering site); safety issues on the highway and within the receiving property; and potential odour nuisance. None of these issues occur with the proposed option of disposal to sea.

Disposal to sea is therefore proposed, with the one exception being the disposal of material taken from around the highway bridge where the main tubeworm infestations presently occur. This material will instead be extracted by mechanical excavator and/or manually removed and disposed to land. The intention in doing to will be to ease concerns over the fate of tubeworm fragments through the cutter-suction dredge process and the potential or otherwise for any such fragments to survive in the open ocean and/or colonise other areas beyond the Clive River.

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<sup>5</sup> eCoast (Oct 2019) *Lower Clive River Sediment Sampling and Depth Probing, and Entrance Bathymetry and Ecological Assessment* (p.6).

## **4. An assessment of actual or potential effects on the environment:**

### **4.1 Beneficial Effects**

The proposed dredging will improve the recreational potential of the Lower Clive River for rowing, waka-ama, canoe-paddling, water-skiing, casual boating, swimming and fishing; allow a potential return of the waka excursions, with resulting social and economic benefits (specifically, the promotion of community sporting and cultural activity and the economic value of such activities including, for example, the hosting of national and regional regattas and the commercial activity of waka excursions).

The dredging will also help to overcome the problems of stagnant weed during the summer. Reduction in weed stranding and increased water circulation will enhance water quality in the channel and the deepening of the channel will slightly improve flood capacity for the Karamu and Raupare catchments (mainly by reducing bed friction).

These benefits will be enjoyed for the lifetime of the project (expected to be about 10 years). Re-dredging will be required at the end of this period if the benefits are to be maintained.

A further associated benefit will be to reduce infestations of Australian tubeworm (*Ficopomatus enigmaticus*) in the vicinity of the highway bridge. The tubeworm masses will be mechanically and/or manually removed and disposed to land (most likely to be used as landfill capping material). Complete elimination is now unlikely but the existing infestation can be much further contained. This will have benefits for boat passage and management of flood risk.

### **4.2 Adverse Effects**

All of the potential adverse effects associated with the dredging will be of a relatively minor and temporary nature. The relevant issues are:

#### **(a) Water turbidity in the River**

While dredging is underway there could be a small loss of sediment around the dredge and into the water column as the dredge works the bed of the river. However, because this will be a cutter-suction dredge, which effectively vacuums as it cuts, the amount of sediment that is lost from this process will be minimal. In previous dredgings, around the dredge, only a minor plume was apparent.

Where any such plume occurs it will have only a localised, transitory and no more than minor effect on water quality and aquatic life.

## **(b) Water turbidity and Deposition off-shore**

The proposed discharge point for the dredge sediments from the cutter-suction pipeline will be above the high tide line on the shore to the south of the rivermouth groyne. From here the sediment, combined with conveyance water, will run down the beach and into the sea. This will cause a visible plume. Modelling suggests that there will also be an area of deposition on the sea bed, within about 800m of the point of entry into the sea, which will remain there until being dispersed by storms. Such storms are predicted to occur around 11 times a year (equivalent, on average, to one day a month).

The results of this modelling can be seen in the accompanying eCoast report<sup>6</sup>. The report concludes (p.37) that the sand content from the discharge will drop out within about 100m of the discharge point and that fines will remain in suspension and form a plume with concentrations of 0.3 kg/m<sup>3</sup> up to 500m from the river mouth. Sediment deposition will be greatest near to the outfall, with a depositional layer of nearly 1m within 150 of the outfall but tapering off rapidly to a depth of 0.01m beyond that, out to a distance of approximately 500m during summer conditions and 800m in winter.

The direction of drift of the plume will be in a predominantly north-east direction and the overall pattern of deposition and dispersal will be similar to that observed in with sediments that are naturally discharged during flood events from the Ngaruroro and Tutaekuri rivers.

Within this immediate off-shore area there are very few benthic species. Almost nothing is capable of surviving in the wave-zone because of the constant abrasive effects of movement of the shingle in this zone and the recent (July 2019) eCoast benthic survey found no live organisms in any of the 10 ponar grab samples collected beyond the rivermouth, within about 300m of the shore.

These findings strongly suggest that any dredge sediment that settles in the river delta, or that passes along the wave zone with the long-shore drift, will have a negligible adverse effect on any existing benthic species. That is because there is very little there. Furthermore, because this area around the rivermouth is a naturally high-sediment environment anyway, due to the continual input of sediment from the rivers, it is almost certain that any such benthic species living in the area will already be well adapted to cope with far higher levels of sediment than are likely to be seen as a result of discharge from the dredge.

The area is nevertheless frequented by fish (presumably feeding on prey and materials washed out of the rivers) and the dredge plume may cross over with areas where fish are to be found. The turbidity of the water may cause some of these fish

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<sup>6</sup> eCoast (10 May 2021) *Clive River Dredging : Numerical Modelling and Ecological Impact Assessment*

to avoid the plume. On the other hand it may have the effect of actually drawing fish in to the shore in search of marine worms, shrimps and snails brought up with the river sediment by the dredge. Anecdotal reports from previous dredgings suggest that this may have in fact resulted in an overall improvement in fish-catches at the river mouth during the time that the dredge was at work<sup>7</sup>.

### (c) Contaminants

Sediment samples were collected by eCoast marine scientists in August 2019 from eleven sampling sites on 4 cross-sections along the length of river where the proposed dredging will occur. The sampling sites are as shown in Figure 4 (below). The samples were tested at a certified laboratory for potential contaminants. The results of the sampling are reported in eCoast report<sup>8</sup> attached to this assessment as Appendix 1.



The eCoast report finds that contaminant concentrations were mostly below the guidelines threshold, and in some cases undetectable, but that nutrients (specifically total nitrogen and total phosphorus) were found to be in the upper-range of recorded values for reference sites in Hawke’s Bay and other estuaries in New Zealand. Zinc levels were also found to be slightly elevated, above the ANZECC ISQC-Low effect threshold level<sup>9</sup>, at three of the eleven sites – with the higher-concentration sites

<sup>7</sup> *Pers comm.* (June 2019) Marei Apatu (Te Taiwhenua O Heretaunga), reporting on comment relayed to him from a well-known local fisherman (Mick Unahi).

<sup>8</sup> eCoast (August 2019) *Lower Clive River Sediment Sampling and Depth Probing.*

<sup>9</sup> ANZECC is the Australia and New Zealand Environment and Conservation Council. ISQC is the International Standard on Quality Control. The ‘Low’ effects threshold for contaminants is the concentration at which a contaminant may begin to affect some species. The default guideline ‘Low’ effect threshold for zinc is currently 200mg/kg. The ‘High’ guideline value is 410mg/kg.



located near to the state highway bridge. The zinc level in all other samples, and the average across all samples combined (approximately 150 mg/kg) was, however, below the ANZECC ISQC-Low effects threshold of 200 mg/kg for zinc.

These results are similar to the sampling results from sediment testing undertaken prior to the 1997 dredging. At that time the highest concentration of zinc was also in samples taken from the vicinity of the state highway bridge and is likely to have been due to road run-off, with the zinc originating as a component in tyres, and is typical of the run-off from most highways.

In 1997 there were also slightly elevated lead concentrations found in this same area near the road bridge and probably originating from lead in petrol. The relatively low concentrations of lead in the latest (2019) results will be a reflection of the fact that lead is no longer a petrol additive in New Zealand, having been removed from all regular petrols in 1996.

The results for zinc concentration indicate that sediments in the vicinity of the bridge, on their own, would potentially have a minor effect on zinc-sensitive species, based on the ANZECC default guideline values for 'Low' environmental effect. These particular samples are not, however, representative of the entire volume of dredged material and the mixing and dilution with other lower-concentration sediments from across the remainder of the dredge area needs to be taken into account. Allowing for this, the average zinc concentration falls below the default 200mg/kg 'Low' effects threshold to approximately 150mg/kg. At this concentration, and allowing also for dispersal in the receiving environment, there will be a less than minor effect.

Similarly, because of the well-aerated and highly mobile nature of the open-water environment at the river mouth, the effect of elevated nutrient concentrations (nitrogen and phosphorus) will be no more than minor. These inputs will be dwarfed by the quantities of nutrient, combined with sediment, that is discharged naturally from the Tutaekuri and Ngaruroro Rivers in times of high flow. To put this into perspective: the amount of sediment that will be discharged from the entire dredging operation (60,000m<sup>3</sup>) will be the equivalent of that discharged from the Tukituki River, along with associated nutrients, over a period of 4 hours during a typical 1-in-5 year flood event<sup>10</sup>.

For further information and expert analysis of sediment contaminant loadings, refer to the accompanying eCoast reports in Appendix 1.

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<sup>10</sup> HBRC Land Scientist Tim Norrie, quoted in *Hawke's Bay Today* (28 June 2018)

**(d) Risk of Spread of Australian Tubeworm (*Ficopomatus enigmaticus*)**

For the proposed dredging operation the main Australian tubeworm infestations on and around the piers of the state highway bridge will be handled separately. These will be removed using a mechanical excavator and/or taken out manually, rather than with the cutter-suction dredge, and the tubeworm clumps that are extracted in this way will be taken away for disposal to landfill.

The reason for doing so, rather than utilise the cutter-section dredge in this area, is to address concern over the potential for tubeworm to survive in the open ocean and/or colonise other areas if discharged to sea.

The chances of such a scenario becoming a reality are extremely low, given that tubeworm do not generally survive in active wave environments on the open coast, and would additionally have to survive colony destruction and fragmentation through the cutter-suction process before being discharged to sea. Any that did manage to survive this process would then need to be carried at least 20km northward to the Esk River, and then into the river, to find and occupy an area of potential habitat not already colonised by Australian tubeworm.

Either method for removing and disposing of tubeworm would therefore be likely to work equally well. With the land disposal option, however, the tubeworm is more conspicuously destroyed and there can be no remaining doubt and/or risk of criticism that the action of removing it has contributed to its spread.

**(e) Dredge Noise**

Noise will be generated from the dredge and associated booster pumps while the plant is in operation. This will be during daylight hours only.

The sound made by the cutter suction dredge is a low humming engine noise, comparable to that of an idling train. There may also be sound caused by the rattle of stones in the pipeline – although the majority of sediment to be removed from the Clive River will be silt, sand and clay.

The noise will not be especially loud or intrusive.

**(f) Whitebait**

On the advice of the Department of Conservation, the previous dredgings of the Clive River in 1997 and 2009 were timed to avoid the whitebait spawning and upstream migration periods (March to mid-May, and mid-August to November).

Discussions with the Department of Conservation (August 2019<sup>11</sup>) have reconfirmed that it is appropriate to avoid the main upstream migration period but from observation of the previous dredging the DOC staff now advise that also avoiding the spawning period is likely to be an unnecessary precaution.

It is therefore not proposed to place any restriction on timing of dredging around the March to mid-May spawning season but the restriction on dredging in the period of August to November will remain. The official whitebait season runs from the 15<sup>th</sup> of August to 30<sup>th</sup> November. The Department of Conservation have accordingly asked that the period 1<sup>st</sup> August to 30<sup>th</sup> November be avoided.

The dredge itself will generally work no closer than about 10 metres (averaging more than 20 metres) from the banks of the river. This means that whitebait spawning areas along the banks of the river will not be damaged or disturbed.

**(g) Birds**

The previous dredgings of the Clive River were also timed to avoid the period of arrival of migratory birds in the Waitangi Estuary (September to March). However, from on-site observation during the dredging in 1997 and 2009, Department of Conservation staff have indicated that they now believe this to be an unnecessary precaution and that dredging can be carried out at any time without significant adverse effect on the birds.

**(h) River Benthos**

Benthic species in the Clive River (shrimps, worms, snails etc that live in the mud) will be almost completely removed from the section of river where the dredging will occur, along with the sediment. It is likely to take a few months for these species to re-colonise the area once dredging has been completed.

This will have a short-term effect on flat-fish and possibly other species of fish that currently feed in the Clive River on these invertebrates, although there will still be the remainder of the Waitangi Estuary and Ngaruroro / Tutaekuri Rivers for these species to feed while natural re-stocking occurs. The benthos will return, however. Full colonisation can be expected to occur within the course of a year.

**(i) Boat Passage**

Boat passage on the river is likely to be slightly disrupted while the dredge is there. The dredge, if not anchored, may be tethered to the river bank by cables, which will temporarily obstruct some boat movement. There will also be some obstruction from the discharge pipeline – which will be partly a floating line – although most of

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<sup>11</sup> In attendance: Matt Brady; Neil Grant, from DoC. Also present, Jessie Friedlander (NZ Fish & Game).

the pipeline will be laid along the banks of the river. This is, however, considered to be a relatively minor inconvenience for boat-users in the interests of a longer term improvement for boating in the river.

**(j) Power Boat Noise**

An indirect effect will be longer periods of motor-boat noise. At present the state of the river allows boating to occur only around high tide. It is acknowledged that the dredging will allow that use (and associated noise) to be extended. Motor boating is, however, a permitted activity on the lower Clive River.

**5. Where the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment which are likely to arise from such use:**

There will be no hazardous substances or installations associated with the dredging operation other than the normal use of fuel for powering the dredge.

**6. Where the activity includes the discharge of any contaminant, a description of:**

**(i) The nature of the discharge and the sensitivity of the proposed receiving environment to adverse effects:**

**(ii) Any possible alternative methods of discharge, including discharge into any other receiving environment.**

The nature of the proposed activity has been described in preceding sections. It is intended to dredge the bed of the Clive River over a 1,500 metre length, from the about 200 metres upstream of the road bridge to 1,300 metres below the bridge. The sediment from this dredging exercise will be discharged from the cutter-suction dredge pipeline onto the foreshore and in to the surf zone beyond the Clive / Ngaruroro/Tutaekuri river mouth. This sediment may be considered a “contaminant” in terms of the definition of Section 2 of the Resource Management Act<sup>12</sup>.

The sediment will mainly be comprised of sand, silt and clay, but with small amounts of shingle possibly present in some of the deeper sediment layers.

The sediments of the Clive River have been tested (in August 2019) and found to be generally below the guideline threshold for all contaminants except for slightly elevated zinc concentrations from the two sampling points near the state highway

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<sup>12</sup> “Contaminant” includes ... any substance (including gases, liquids, solids and micro-organisms) ... that ... when discharged into water, changes or is likely to change the physical, chemical, or biological condition of the water.

bridge. The mixing of these near-bridge sediments with other sediments will result in concentrations below the guidelines and a negligible adverse effect on the receiving environment, after reasonable mixing.

The sediments are anoxic, with elevated nutrient levels (total nitrogen and total phosphorus). This will not materially affect the open receiving waters where there is abundant oxygen and a high potential for assimilation of nutrients.

The receiving environment for the sediment will be the beach and surf zone of the coastal marine area. The sediment will be discharged above high tide level (to keep the pipeline safe from wave damage) and will flow from there down the beach and into the water where it will be transported by long-shore drift into the outflow from the rivers and dispersed by wave action. The recent eCoast survey found no living benthic species in this receiving area and any benthic species as may exist will be pre-adapted to high sediment environments. A single large flood on the Ngaruroro / Tutaekuri will carry down in to this area many times the amount of sediment proposed to be discharged from the dredge.

Various species of fish (snapper, kahawai) are also present in the receiving environment, with fishing being a popular activity at the mouth and in the Ngaruroro River. Fish are sufficiently mobile to avoid the sediment plume and may tend to avoid the turbid water carried north of the pipe outlet toward the river mouth. On the other hand fish may be attracted to the discharge plume to catch the various worms, shrimps and marine snails that will be mixed in with the dredgings. Fishing in the vicinity of the dredge outlet therefore may actually improve while the dredge is operating. Anecdotal reports from previous dredging support this.

Overall, the discharge will have a short-term effect on water clarity in the near-shore area and may discourage fish from coming close inshore because of the plume but also draw them in because of the feeding opportunities at the point of discharge.

An alternative method for discharging the sediment would be to pump the material on to land immediately adjacent to the Clive River. There is limited space available but sufficient land could theoretically be found at Hohepa Farm. The sediment would arrive on the land as a slurry and would be banded, dewatered, and allowed to dry before being re-spread and surfaced with original top-soil. This would be possible, but expensive and logistically difficult to carry out, and would provide no obvious environmental benefit when compared with the impacts of discharging to sea.

**7. A description of the mitigation measures (safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effects:**

**(a) Timing limitations**

In order to minimise disturbance of the migration of whitebait (15<sup>th</sup> of August to the 30<sup>th</sup> November) it is proposed that dredging will not be carried out in the period 1<sup>st</sup> August to 30<sup>th</sup> November.

Note that the Department of Conservation have advised that no special precautions are required with respect to timing of the operation as regards effects on birds.

**(b) Avoidance of whitebait spawning areas**

The dredge will generally work no closer than about 10 metres (averaging more than 20 metres) from the banks of the river. This means that whitebait spawning areas along the banks of the river will not be damaged or disturbed.

The only proposed exception to this rule is where Australian tubeworm is found and needs to be removed within 10m of the bank.

**(c) Hours of Operation**

Dredging will take place only during daylight hours so that there will be a minimal noise disturbance for adjacent residents associated with the dredging activity. The dredge itself does not produce a particularly loud or intrusive noise during operation.

**8. An identification of those persons interested in or affected by the proposal, the consultation undertaken, and any response to the views of those consulted:**

In the course of this assessment and preparation for the proposed dredging, meetings and/or discussions have been had with:

- a) Representatives of Kohupatiki Marae
- b) Te Taiwhenua O Heretaunga
- c) Department of Conservation
- d) NZ Fish & Game
- e) Hawke's Bay Rowing Club
- f) Hawke's Bay Canoe Club
- g) Heretaunga Ararau O Ngati Kahungunu Waka-ama
- h) Operators of the Clive waka excursions (Nga Tukemata o Kahungunu)

Other parties known to use the river for recreational purposes but not individually consulted include the Clive Waterski Club; Wakeboarders; Jet-skiers; and Waimarama surf life-saving Club.

All of the consulted recreational groups, along with the operators of the Nga Tukemata o Kahungunu waka excursions, have been strongly supportive of the proposed dredging and have been advocating for the work to commence. The lack of dredging has particularly impacted the waka excursions, which can no longer operate on the river due to the risk of stranding, and with the result that the waka has now been removed from the river.

Te Taiwhenua O Heretaunga have not expressed any firm opinion (deferring instead to Kohupatiki Marae) but have equally not indicated any specific opposition to the proposed dredging. The Taiwhenua have nevertheless advocated for a Cultural Impact Assessment to be produced and have provided HBRC with a quote to carry out this work. However, due to disagreement over the scope of the proposed work (the Taiwhenua wishing to focus on potential extensions to the dredging, further up the Clive River, though this is not part of the current proposal), and the price quoted, the proposal was withdrawn and the Taiwhenua have discontinued engagement. An indication was also given that a CIA that is not undertaken by the Taiwhenua's consultants would not be accepted.

HBRC staff have separately met with representatives of Kohupatiki Marae to discuss the dredging proposal on various occasions in 2019 and 2020, with a last meeting on 24<sup>th</sup> November 2020. At this meeting the marae representatives repeated a previously-stated preference for the dredging to be extended to include not only the proposed area but also much further up the river to at least as far as the marae (another 3 km), or to the rail bridge (600m beyond the marae). The representatives stated that they were disappointed that this will not be done and have said that they will not actively 'support' the proposal for this reason, but equally that they can see the value of the work for recreational users of the river, and will not object to the proposal. It is assumed, at time of writing, that this position has not changed.

The marae representatives have also indicated that they would have preferred to see the dredge material discharged to land, rather than to sea, but have likewise

indicated that they accept that this would be a far higher-cost option and that there is not currently any guarantee that land (the Hohepa site) would be available. They acknowledge that the extra money required for land disposal would be better directed to other environmental works such as addressing the problem of tubeworm infestation in the Clive River.

Other persons who may potentially have an interest in the proposed dredging but have not been individually consulted are those residents of Clive that live alongside the section of river where the dredging will occur. The dredging of the river will result in a reduction in odour for these residents, from the weed rafts that currently get caught in the shallow water and rot during the summer, but also result in extended use of the river by recreational craft during periods of lower tide.

**9. *Where the scale and significance of the activity's effect are such that monitoring is required, a description of how, once the proposal is approved, effects will be monitored and by whom:***

Cross-sectional surveys are carried out every 3 years on the river to monitor silt build-up in the dredged channel. These surveys will continue.

The applicant also proposes to commit to follow-up benthic sampling in the area off the river mouth, on completion of the dredging operation, to test for effects.



## **10. Assessment against matters in Part 2 of the Act**

### **(a) Regarding the Purpose of the Act**

The proposed dredging is intended to enable the on-going unimpeded use of the lower Clive River for recreational and cultural activities including rowing, waka-ama, canoeing, wakeboarding and waka excursions – which in turn includes use of the waka (Nga Tukemata o Kahungunu) for the annual Waitangi Day festivities. In so doing, the dredging will better enable the people and communities in the Heretaunga Plains area to provide for their social and cultural well-being.

The dredging will at the same time have no enduring adverse effect on the environment. This is illustrated by the two previous dredgings of the river, which used identical methods. The activity will not, therefore, compromise the potential of the relevant natural and physical resources for meeting the needs of future generations.

### **(b) Regarding Matters of National Importance**

- (a) The proposed dredging will not adversely affect the natural character of the coastal environment or wetlands. It will merely deepen the water in the existing channel.
- (b) The dredging will not impact upon an Outstanding Natural Landscape;
- (c) No areas of significant indigenous vegetation will be affected. The dredging will include work in an area of significant habitat (a branch of the Waitangi Estuary) but will not significantly adversely affect this habitat.
- (d) The dredging will enhance public access to and along the coast by making the river more navigable, especially at low tide.
- (e) The work will facilitate waka-ama and waka excursions on the river. These activities have an association with Maori culture and traditions, although it is also separately acknowledged that Kohupatiki marae have mixed opinions on the proposal and would prefer to see the dredge work extended another 3 km up-river to the marae, as well as dredge material discharged to land, for them to fully support it. They have, however, also indicated that they will not object to what is now proposed.
- (f) No heritage sites will be materially affected.
- (g) There will be no impact on any protected customary rights.
- (h) The proposed dredging will not present any significant risk from natural hazards.

### **(c) Regarding ‘Other Matters’**

- (a) The kaitiakitanga of the people of Kohupatiki Marae is acknowledged. The marae have been consulted and will be formally notified of the proposal through the Statutory Acknowledgement process. The representatives of the marae have

indicated that they won't actively 'support' a proposal that does not include dredged another 3 km up to the marae, and that does not include discharge to land, but will equally not oppose the application.

(aa) The stewardship of the people of Kohupatiki in respect of the river is also recognised.

(b) N/A

(ba) N/A

(c) The amenity values of the Clive River will be enhanced by the proposed dredging. The dredging will allow better boat movement; remove invasive tubeworm and improve water quality in the river and estuary (mainly by reducing the stranding of rafts of weed and allowing more water movement).

(d) The dredging will enhance the intrinsic value of the river ecosystem.

(f) Removal of tubeworm and deepening the river will enhance the quality of the river environment – especially for recreational users.

(g) N/A

(h) N/A

(i) N/A

(j) N/A

#### **(d) Regarding the Treaty of Waitangi**

As discussed above: there have been various consultations with Te Taiwhenua o Heretaunga and more particularly with the people of Kohupatiki Marae (for whom the lower Clive River has particular significance). These consultations have been undertaken in good faith and the Regional Council Asset Management Group have made every attempt to come up with a solution that is affordable, achievable, and agreeable to Kohupatiki. The proposal put forward with this application is considered by the Asset Management Group to be the best compromise.

## 11. Assessment against the provisions of relevant Plans

### (a) New Zealand Coastal Policy Statement (2010)

The relevant Objectives of the New Zealand Coastal Policy Statement (NZCS) include **Objective 1**, which seeks to safeguard the integrity of the coastal environment and sustaining its ecosystems by maintaining or enhancing natural biological and physical processes; protecting significant natural ecosystems and maintaining coastal water quality. Accompanying this Objective is **Policy 11**, which seeks to avoid significant adverse effects on coastal ecosystems.

#### Assessment

As explained in the preceding assessment of effects: the proposed dredging will not compromise existing ecosystems. The deepening of the river will improve water circulation (and therefore water quality) and will have only a temporary effect on existing river benthos, which will re-populate the area once the dredging is complete. The site where the dredge material is to be disposed of is already adapted to high rates of sediment input from natural sources (of far greater volume than will occur as a result of the dredging).

Vulnerable habitats within the Clive River include the estuarine marshes on the northern bank of the river, beside the Waitangi Estuary, and the whitebait spawning areas elsewhere along the bank. None of these areas will be impacted by the dredging and the dredge work will be timed to avoid the whitebait upstream migration.

**Objective 3** requires that account should be taken of the principles of the Treaty of Waitangi, including recognising the on-going relationship of tangata whenua over their lands, rohe and resources; promoting meaningful relationships with tangata whenua; and recognising and protecting characteristics of the coastal environment that are of special value to them. **Policy 2** correspondingly requires the recognition of the traditional and on-going relationship of tangata whenua with the coastal environment.

#### Assessment

The consultation with tangata whenua that the Applicant has undertaken – in particular with the people of Kohupatiki marae – recognises these values and responsibilities.

**Objective 4** is also relevant and seeks to maintain and enhance the public open space qualities and recreation opportunities of the coastal environment (including in the coastal marine area). Objective 4 may be read in conjunction with **Objective 6**, which seeks to 'enable people and communities to provide for their social, economic and cultural well-being; as well as **Policy 9**, which requires a recognition of the need for open space in the coastal marine area, including for active and passive recreation. Also **Policy 18**, which requires a recognition of the need for public open space in the coastal marine area, where this can be done in a way that is compatible with the natural character of the coastal environment, and requires that account should be

taken of the need for public open space in the coastal marine area that is close to cities and other settlements.

#### Assessment

The proposed dredging is primarily for the benefit of recreational users of the Clive River and is intended to enhance that use. In so doing, the dredging will serve to enable people and communities to provide for their social and cultural well-being through the various recreational activities (rowing, waka-ama, canoeing, waka excursions) that occur on the river. The dredging will merely deepen the river and therefore have no impact on the river's natural character.

### **(b) Hawke's Bay Regional Policy Statement**

The Regional Policy Statement (RPS) is incorporated into the Regional Plan. There are no coastal-related policies in the RPS (these are reserved for the Coastal Plan) but there are a number of Objectives (Obj 4 – 10).

Those of relevance to the current application include **OBJ 5**, which sets the objective of maintaining and where practical and in the public interest, the enhancement of public access to and along the coast, and **OBJ 6** which seeks to manage coastal water quality to achieve appropriate standards, taking into account spatial variations in existing water quality, actual public uses and the sensitivity of the receiving environment.

#### Assessment

The proposed dredging will enhance public access within the coastal marine part of the Clive River, which is currently impassable (or difficult to navigate) for a number of vessels at low tide.

The place of discharge for the dredged material, next to the river mouth, is an environment that is already adapted to far greater inputs of river sediment than proposed by the current consent application.

Also relevant are RPS Objectives relating to water quality, including **OBJ 27**, which seeks to maintain and improve surface water quality in rivers, lakes and wetlands, and **OBJ 27A** which aims to protect riparian vegetation.

#### Assessment

The proposed dredging will improve summer water quality in the lower Clive River by providing better water circulation and reducing the incidence of water-weed strandings (where rafts of weed, cut upstream for flood protection purposes, get snagged in the shallow water). The dredging activity itself will have no significant adverse effect on water quality within the river due to the use of a cutter-suction dredge.

In regard to riparian vegetation: there will be no effect on existing bank vegetation as the dredging will occur in the mid-channel of the river, no closer than about 10m from the bank.

Objectives **OBJ 34 – OBJ 37** and policies **POL 57 – POL 66** in the RPS also need to be considered. These recognise the role of tikanga and the role of tangata whenua as kaitiaki and seek to ensure that consultation occurs with Maori on relevant resource management issues as well as ensuring that waahi tapu and tauranga waka (landings for waka) are protected and preserved.

#### Assessment

The proposed dredging project has involved consultations with local hapu and marae (particularly Kohupatiki Marae) and the dredging itself will protect and enable waka launching sites on the lower Clive River. This includes the waka-ama and waka excursions – both of whom are active supporters of the proposed dredging. The operators of the waka excursions are currently unable to use the river because of the build-up of sediment that has occurred.

### **(c) Hawke’s Bay Regional Resource Management Plan**

The main policy in the RRMP of relevance to this application, as this relates to activities on the beds of Rivers and Lakes (Section 5.8 of the RRMP), is **Policy 79**, which requires that the effects of activities affecting the beds of rivers should be in accordance with the Environmental Guidelines set out in Table 12.

#### Assessment

The proposed dredging will comply with all of the guidelines in Table 12 and therefore Policy 79. This is in large part because a cutter-suction dredge will be used in the river, which means that there will be a minimal amount of ‘stray’ sediment, within the river, during the operation.

On completion of the dredging there will be an overall improvement in water quality due to the reduced amount of weed strandings; enhanced water circulation; and improved temperature buffering from deeper water. There will also be a minor improvement in flood capacity – mainly due to the reduction in bed friction resulting from increased depth. These will be positive factors in respect of the Guidelines in Table 12.

The same applies in respect of objectives and policies in Section 5.4 of the RRMP (Surface Water Quality). **OBJ 40** seeks to ensure that river water quality is maintained and policy **POL 71** sets environmental guidelines for surface water quality. These guidelines are as set out in Tables 7 & 8 in Section 5.4.

#### Assessment

The proposed dredging will comply with the guidelines in Tables 7 & 8. This is, again, largely due to the use of a cutter-suction dredge for the proposed dredging operation.

## (d) Hawke's Bay Coastal Environment Plan

### Part D : Use and Development : Coastal Marine Area

#### 16. Discharge of Contaminants into the CMA

The principal policy of this section of the Plan (**Policy 16.1**) seeks to manage discharges of contaminants in the coastal marine area in accordance with the environmental guidelines set out in the accompanying table (Table 16-1). This includes guidelines for (5) 'water quality'.

#### Assessment

The proposed dredging will not comply with the AE(HB) and CR(HB) to the extent that the discharge of dredge material to the shoreline at the river mouth, and which will then flow into the sea, will "result in the deposition of matter on the foreshore or seabed" and involve a "discharge of contaminant into water". The Water Quality guideline (5(b)(ii)) goes on to say, however, that despite such exceedance, a permit may be granted for the discharge if the discharge is "of a temporary nature". That will be the situation in this case and means that the Council would be entitled to grant the application due to the temporary nature of the activity.

Exception can also be made for discharges associated with necessary maintenance works, under 5(b)(iii) and for "exceptional circumstances" under 5(b)(i).

#### 17. Disturbances, Depositions and Extractions in the CMA

The principal policy in section 17 (**Policy 17.1**) is for the deposition and extraction of material within the CMA to be managed in accordance with guidelines in Table 17-1.

This includes, under Issue 2 in Table 17-1, the 'removal of material' within the CMA, for which the guidelines require that adverse effects on indigenous flora, fauna, benthic organisms and their habitats within a Significant Conservation Area (which would include the Clive River branch of the Waitangi Estuary) should be avoided.

#### Assessment

The preceding environmental impact analysis (accompanying this application) confirms that there will be no significant adverse effects on indigenous flora or fauna, including benthic organisms.

The guidelines for Issue 6 also allow (under (a)) that the disturbance of the foreshore and seabed shall be provided for where it is necessary for the "maintenance of safe access for marine vessels". This will be the primary purpose of the dredging.

## (e) Overall Conclusion of Policy Analysis

From the preceding analysis it is concluded that the proposed dredging operation will be generally compatible with relevant national and regional policy documents (the NZCPS, RPS, RRMP and Coastal Plan).

Key factors in this analysis include:

1. That the proposed dredging will generally improve overall water quality in the lower Clive River (by reducing weed strandings; increasing water circulation; and providing greater temperature buffering due to the increased depth).
2. The existing benthic environment at the combined Clive / Ngaruroro / Tutaekuri river mouth is regularly affected by naturally high river-sediment inputs and therefore ecologically adapted to this effect.
3. Local hapu / marae representatives have been consulted about the proposed dredging operation (as has, to a secondary extent, Te Taiwhenua O Heretaunga). This consultation has occurred over a number of meetings and conversations. While it has not resulted in universal consensus (in particular, with Kohupatiki continuing to advocate for the dredging to be extended another 3 km up-river), it is believed by HBRC that the best compromise has been reached.
4. The dredging will clearly enhance public access to and recreational use of the lower Clive River, which is the primary sheltered open-water recreational resource of its kind in the Heretaunga Plains. It will also enhance the use of the river for waka ama and waka excursions, and as a site for tauranga waka, with associated Maori cultural significance.
5. The discharge of the dredge material will result in a '*deposition of matter on the foreshore and seabed*' and in a '*discharge of contaminant to water*' in the coastal marine area beyond the river mouth but will not result in any material adverse effect on benthic species within this area (where the rate of natural river sedimentation from a single flood event far exceeds the 60,000m<sup>3</sup> proposed to be dredged from the Clive River). There will be an acknowledged temporary impact on water turbidity but (under Regional Coastal Plan) discharges of a "temporary nature" may be granted by HBRC. Exceptions can also be made where the activity is a necessary maintenance work.

## **12. Recommendation & Conditions**

It is recommended that consent be granted to this application, and that the terms and conditions of consent should be essentially the same as those applied to the dredging consents issued in 1996, except that:

- The period over which the consent may be exercised (which, in the 1996 consents was limited to the period 15 May to 8 September), should this time be changed to read:

***“The consent may only be exercised between 30 November and 1 August of the following year”.***



**APPENDIX 1**

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**eCOAST SEDIMENT SAMPLING &  
DEPTH PROBING REPORT  
(August 2019)**

**AND**

**eCOAST SEDIMENT SAMPLING, DEPTH PROBING &  
ENTRANCE BATHYMETRY AND ECOLOGICAL ASSESSMENT  
(October 2019)**

**AND**

**eCOAST : CLIVE RIVER DREDGING : NUMERICAL MODELLING  
AND ECOLOGICAL IMPACT ASSESSMENT  
Response to s.92 Further Information Request  
(10 May 2021)**