-----Original Message-----
From: Don Paterson [mailto:nat.opc@xtra.co.nz]
Sent: Friday, 7 June 2013 4:30 p.m.
To: 'Pim de Monchy'
Subject: FW: Further to our 25 May 2013 meeting

Hi Pim

Further to your comment 5/6/13 to Maketu Taiapure Trust members that Jim Dahm's opinion had negated my statement that the outgoing Maketu Estuary current had eroded the back of the toe of Maketu Estuary spit because of introduction of Fords Twin Cuts flow in isolation from a protective Papahikahawai Channel flow, I now wish to clarify for you the following facts:

1. There is photographic evidence of a small toe of Maketu Estuary spit before introduction of Kaituna River flow through Fords Twin Cuts.
2. Since introduction of Kaituna River flow through Fords Twin Cuts there is evidence of both destruction of the spit opposite Whakaue Marae and now of a much enlarged toe of the spit that has consumed a large part of the area that used to hold the enlarged flood tide delta.
3. I had accurately predicted in an Appeal Court hearing in my opposition to reintroduction through Ford's Twin Cuts that this would occur following reintroduction, due to erosion caused to the back of the spit and subsequent wave overtopping. For you to even consider a repeat of reintroduction through Ford's Twin Cuts is therefore foolish and unscientific as it has already physically been proven to have failed twice. The same individual who has recently been steering you in that direction had also steered Chris Richmond of DOC to make the last failed reintroduction through Fords Twin Cuts because his wife's father had helped to build it. This had then considerably degraded the Maketu Estuary public asset. I had been at all of the public meetings and I had witnessed this to have occurred. I suggest that there could best be consequences for people who propose changes that degrade public assets.
4. The toe of the spit is still steadily growing and infilling the lower estuary.
5 The spit is not being overtopped by waves but is growing because there is no Papahikahawai Channel flow to protect the spit from erosive flow from Fords Twin Cuts.
6. I observe daily by the narrowing of the spit opposite Whakaue Marae and by the colour of the sand deposited at the toe of the spit, that the spit is growing in size due to erosion of the back of the spit opposite Whakaue Marae by Fords Twin Cuts flow in isolation from a Papahikahawai Channel flow.

7. Before reintroduction of Fords Twin Cuts flow there was more water flowing into Maketu Estuary mouth from the sea but the flood tide delta was smaller.
8. Erosion to the back of the spit was less without the increased flow from the back of the estuary in isolation from Papahikahawai Channel flow.
9. Since reintroduction there is less salt water flowing into the Maketu Estuary mouth from the sea but the flood tide delta had become considerably larger.
10. If the flood tide delta was growing in size relative to input from the sea then it would have grown more in size before reintroduction from Fords Twin Cuts had lessened the flow from the sea.
11. It did in fact do the opposite so discrediting Jim Dahm's opinion about the cause of the size of the flood tide delta.
12. Jim believes that the flood tide delta is a result of inflow through the estuary mouth. By his reasoning he disproves his own opinion because when the flow was greater in through the estuary mouth the flood tide delta was smaller. Before diversion through Fords Twin Cuts the flood tide delta was insignificant. Since diversion the inside of the spit opposite Whakaue Marae has been continuously eroded and the flood tide delta has grown enormously. Since the most recent spit breech the flood tide delta has been consumed by the toe of the spit infilling the lower estuary.
13. Following introduction of Kaituna River fresh water from Ford's Twin Cuts and with less salt water entering Maketu Estuary mouth from the sea, the flood tide delta had increased in size considerably as the back of the spit opposite Whakaue Marae was eroded.
14. You must now please protect the spit from being narrowed and overtopped opposite Whakaue Marae with a Papahikahawai Channel flow or the consequence
will inevitably be another spit breech and wave overtopping and further infilling of Maketu Estuary.

Kindest regards

Don Paterson
CLM; President HbT. SRF; SNTR

Chairman, History Focus Group
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-----Original Message-----
From: Don Paterson [mailto:nat.opc@xtra.co.nz]
Sent: Tuesday, 4 June 2013 12:50 p.m.
To: 'Pim de Monchy'
Subject: Further to our 25 May 2013 meeting

Hi Pim

Thank you and your colleagues for meeting me at my home 22/5/13. Further to our discussion I would now like to propose the following points for your joint consideration:

Stage 1 could I believe best be to abandon your Option 1 and Option 2 because they represent more of the same and can never be a complete success, and to remove the block between the Kaituna River and the old river course until the salt water/fresh water mix has flushed the stagnant mud from the area and out to sea at Te Tumu. A swing bridge could continue to allow pedestrian access to the beach.

Stage 2 could be to install stacked flap-gated box-section culverts in the old river course that are capable of carrying the Kaituna River flow so as to be able to control how much water is introduced into Maketu Estuary to exit at the estuary mouth.

Stage 3 could be to remove the diving board from the lower Maketu Estuary so as to discourage children from taking undue risk swimming in an original current.

Stage 4 could be to remove the obstruction blocking Papahikahawai Channel and to check that channel has scour potential with a digger.

Stage 5 could be to reintroduce currently polluted Kaituna River fresh water and Te Tumu exit salt water into Maketu Estuary via the original river course flap-gated box section culverts and so into Papahikahawai Channel to stabilize the toe of Maketu Estuary Spit, as well as under or through the 1971 subsidised rock protection to help flush sand from the lower Maketu Estuary during times of peak Kaituna River flow, and to assist with the reestablishment of maritime marsh in the upper Maketu Estuary, and to assist the lower Kaituna River emptying through Maketu Estuary without placing undue pressure on Papahikahawai Channel if you continue to believe this to be necessary. Lower flap gates at Te Tumu could later in turn be closed so

as to allow more fresh water and less salt water to enter Maketu Estuary when the Kaituna River water standards have been made to improve.

Stage 6 could be to gain permission from BOPRC to remove Te Tumu exit mole and to replace it with an adjacent shallow v-drain that would allow some lower Kaituna River high tide flow to always exit at Te Tumu to keep that exit open and ready to allow flood relief beach scour potential, but also high enough to stop salt water intrusion into the lower Kaituna River. Large rocks placed on the beach to the north of the structure could stop any storm surge from overtopping the v-drain. Sand either side of the structure could then be easily eroded by extreme flood events so as not to raise the lower Kaituna River water level when the river was in flood, and could just as easily be pushed back after the event. Box section culverts could simultaneously be removed to allow boating access to and from the Kaituna River via Maketu Estuary as had originally occurred.

Stage 7 could be to replant Maketu Estuary with maritime marsh galaxius spawning habitat in the upper Maketu Estuary's fresh water environment recreated. Salt marsh replanting trials adjacent to Maketu Road have demonstrated a considerable tolerance to salinity as long as there is some fresh water component as is currently entering the estuary there via No 1 Pumping Station.

Stage 8 could possibly be to construct an overtopping weir from between the pine trees at Te Tumu to opposite the western end of Papahikahawai Channel to allow for the immediate release of any excess Kaituna River flow onto the ocean during times of peak Kaituna River flow. A cheaper alternative would be to leave it as a sand-dune that could easily be eroded by any Kaituna River excess flood flows adjacent to the v-drain. After the event an entrance scoured could if necessary then be refilled with sand off the beach before the entrance had a chance to migrate back to Maketu destroying and then also rebuilding the spit. Wave action and wind would also assist to rebuild the beach sand dune adjacent to the v-drain while Maketu Estuary would provide somewhere else for Kaituna River water to flow.

Stage 9 could be to breech Maketu Estuary Spit at its narrowest point opposite Whakaue Marae, and so to flush the artificially enlarged toe of the spit back out to sea, to rebuild that section of the spit while also deepening the lower Maketu Estuary and bar making it more suitable for boating and without destroying estuary ecosystems. Maketu Estuary spit is I believe best removed and rebuilt naturally and without cost by a Papahikahawai Channel flow.

To return mana to Te Arawa I believe that our intent must be to return the

mauri of the whole Kaituna River back through Maketu Estuary via its original course, which will then also return the kaimoana, plus the estuary's navigability, plus the Kaituna River catchment's galaxius spawn and so local inshore coastal fisheries production food chains. This had already been modelled in the past. You simply need to return it to how it was.

To do this you must stop the salt water intrusion at Te Tumu. Kaituna River flood flows into Maketu Estuary partly through Papahikahawai Channel would solve the estuaries sedimentation problems I am certain. Excess Kaituna River flood flows can still exit at Te Tumu. At low tide the lower Kaituna River will continue to empty onto the lowered salt water wedge as it originally had at Maketu.

Other points that I think you could all best note Jim Dahm are:

Water moves sand. Sand does not move water. The Maketu Estuary flood tide delta is therefore not pushing the outgoing Maketu Estuary current. The flood tide delta is instead there because of the direction of the outgoing current.
Directional flow determines scour potential.
Fresh water does flow on top of salt water and they do not immediately mix.
Twin Cuts fresh water input has flowed across Maketu Estuary salt water in the direction of the back of the spit and it has turned against the spit and eroded it.
You were able to see the irony of a judge being entertained for dinner before making a decision in favour of the host. A parallel is that Ken Murray's father designed Ford's Twin Cuts and so Ken Murray cannot I believe be expected to have an unbiased opinion about its success, or in this case it's obvious failure. His opinion can be seen to have a conflict of interest.

A claim that Papahikahawai Channel had been excavated in 1922 is unfounded Pim and should not I believe be considered unless evidence of it can be produced. I have read extensive old documentation and I have found no such evidence. It is I believe irrelevant anyway.

It is easy for me to picture that when the Kaituna River had broken out at Te Tumu, the entrance would have then migrated back to Maketu so forming Papahikahawai Channel behind itself. We have witnessed the last breakout 50 metres east of where the spit is currently narrowing and following reintroduction of Kaituna River fresh water flow through Ford's Twin Cuts, then migrate back to Maketu reforming the spit behind itself.

I can picture that when Papahikahawai Channel had been formed by Kaituna River flow heading for Maketu, the old river course through Maketu Estuary to the south or Papahikahawai Island would still be there carrying water and so would have presented less constriction than would Papahikahawai Channel which would have then begun to close due to the growth of maritime marsh galaxius spawning habitat.

Flows would have become less to the north of Papahikahawai Island than to the south of the island until eventually Papahikahawai Channel flow would have become insignificant. The cycle would have then repeated itself when the Kaituna River next broke out at Te Tumu during an extreme flood event. This would most recently have been due to forest clearance and land drainage in the catchment increasing Kaituna River flood flows.

When the Papahikahawai Channel had eventually become more constricted, and in isolation from a significant flow through Papahikahawai Channel, the current flowing to the south of Papahikahawai Island would have eroded and destroyed the toe of the spit as does the Fords Twin Cuts flow today. This can be corrected by maintaining a significant Papahikahawai Channel flow.

To construct an artificial Kaituna River course across Brain's land would be to destroy considerable potential original maritime marsh galaxius spawning habitat that could instead be recreated. A Te Tumu exit if left in place would stop any works from being a success anyway, as there is no point creating estuarine maritime marsh galaxius spawning habitat without also having a connection to the Kaituna River galaxius spawn which occurs at the top of the salt water wedge.

Ford's Twin Cuts has also destroyed potential habitat and could now best be seen as nothing more than a privately owned whitebaiting area that is destroying potential inshore coastal fisheries commercial production food chains and recreational fishing potential and so it could I believe be better employed if blocked and filled as maritime marsh galaxius spawning habitat.

I have watched and I have studied flow patterns in Maketu Estuary daily for 30 years. I believe that Maketu Estuary is able to be deepened and maintained at minimal expense by a Papahikahawai Channel Flow and that it could again be a valuable harbour with a sheltered entrance adjacent to a growing Bay of Plenty population.

To truly reflect pre-diversion estuary morphology, Te Tumu entrance must be blocked to low tide flow and that low tide flow must be returned to Maketu Estuary via Papahikahawai Channel as per your photographic evidence

presented of 1948.

Te Tumu exit can continue to provide high tide Kaituna River flood relief while blocked to low tide flow which would ensure that only fresh water entered Maketu Estuary and the lower Kaituna River.

There is certainty regarding the extent of adverse effects resulting from Fords Twin Cuts diversion in isolation from an original Papahikahawai Channel flow. It has certainly caused further and accelerated erosion to the back of the toe of Maketu Estuary spit and so further infilling of the estuary with sand from the spit. It has been made to occur by BOPRC and by its predecessor since the original erroneous construction of Fords Twin Cuts. I had accurately predicted in the Appeal Court that this would be accelerated by reintroduction of Fords Twin Cuts flow and we have now witnessed this to have occurred. I lost the Appeal Court hearing in a miscarriage of justice and without equal access to public funding for professional witnesses, but I have by time been proven to have been entirely correct in my predictions.

Resource consents could more easily be obtained for using the original river course to carry Kaituna River fresh water into Maketu Estuary because that is the original natural water course and it is in public ownership.

There is no need for a compulsory acquisition under the Public Works Act of Brain land to carry Kaituna River water because the original Kaituna River course still exists through Papahikahawai Channel.

Why I wonder does BOPRC persist with wanting to introduce Kaituna River water into Maketu Estuary from an unnatural Fords Twin Cuts that has already proven to have been an unsuccessful engineering error that has been destructive of the toe of Maketu Estuary spit and so caused infilling of the lower Maketu Estuary?

We have been through a democratic public consultation process with the Kaituna River and Maketu Estuary Management Strategy and we have agreed in committees to return the Kaituna River to Maketu Estuary via Papahikahawai Channel. Why then is BOPRC ignoring this public preference?

Kindest regards

Don Paterson
CLM; President HbT. SRF SNTR

Chairman, History Focus Group

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