From: Don Paterson [mailto:nat.opc@xtra.co.nz]
Sent: Wednesday, 19 February 2014 6:44 p.m.
To: 'Steve Everitt '
Subject: RE: Culverts under 1971 Rock Protection

Hi Steve

There are 3 short purple highlighted references to culverts under the 1971 subsidized rock protection in my 12/2/14 correspondence to you that I have copied below for your easy reference. There are many previous years of reference to same in background correspondence that is copied on www.wetlandsnz.com.

The number, size and timing of culverts to be placed under the 1971 subsidized rock protection needs to be modelled please for Kaituna River low tide flood flows only as high tide flows will continue to exit at Te Tumu. I had on Monday evening attempted to accommodate your opinion that significant Kaituna River flow could not be reintroduced through Papahikahawai Channel for fear of an uphill and so I believe highly unlikely breakout through the spit against the force of gravity that would instead be speeding Papahikahawai Channel flow downward into Maketu Estuary, by my stating that culverts could be installed under the 1971 subsidized rock protection to lessen Papahikahawai Channel flow.

If culverts under the 1971 subsidized rock protection are too many at the start of reintroduction of Kaituna River flood flows through Maketu Estuary via the original river course, it could detract from potential ongoing navigability through Papahikahawai Channel. It could also detract from how effectively that sand can be eroded from the enlarged toe of Maketu Estuary spit and be flushed back out to sea via a new estuary entrance to be created. It could also detract from the degree of depth of anchorage and fish habitat that can now be re-created in the lower Maketu Estuary by reinstating original Kaituna River flood flow through Papahikahawai Channel. That flow will have to bend at a right angle and so gain energy and so create turbulence and so carry sediment without cost and without unnatural environmental degradation. The larger the low tide Kaituna River flood flows that are reintroduced through Maketu Estuary via Papahikahawai Channel then the more erosion of sediment that can be expected to occur in the lower Maketu Estuary. This is the original natural state of the mouth of the Kaituna River and so I believe that anyone who has expressed fear about moving water could best stay away from it to protect their safety rather than seek to continue to degrade the natural environment. Rivers do not drown people. People drown people.

If culverts under the 1971 subsidized rock protection were judged to be too few, could that make low-tide Kaituna River flood flows too significant for the Te Tumu weir and for Papahikahawai Channel and for Fords Twin Cuts to simultaneously handle them, until high tide flood flows were again exiting at Te Tumu over and/or either side of an overtopping concrete weir? I think not because if Kaituna River flood flows were significant then sand either side of a Te Tumu overtopping weir would immediately scour and so would temporarily allow Kaituna River flood relief at Te Tumu until the flood had abated and then scour adjacent to the weir would be in-filled by the next high tide beach wave action at Te Tumu as the Kaituna River

instead flowed downward into Maketu Estuary which is slower to fill on an incoming tide. This also needs to be modelled please.

You had stated at your Monday 17/2/14 presentation to Te Puke Forest & Bird that the ocean is always lower than the water level in Maketu Estuary. My best engineering advice for you based on 30 years of daily observation is that Maketu Estuary water level is always lower than the ocean on every incoming tide and that is why Maketu Estuary fills from the ocean.

The Kaituna River water level is always higher than the ocean that it is flowing onto and Maketu Estuary is always lower than the Kaituna River and so therefore is able to always accommodate Kaituna River flow. The carrying capacity of Maketu Estuary could allow flood waters backed up in the lower Kaituna River on a high tide to clear more quickly through three entrances on a falling tide than they currently do through one. The additional head created in Maketu Estuary on a falling tide could allow for additional scour of Maketu Estuary mouth and so more significant emptying and also boating access. This also needs to be modelled please.

Kindest regards

Don Paterson
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From: Don Paterson [mailto:nat.opc@xtra.co.nz]
Sent: Wednesday, 12 February 2014 5:34 p.m.
To: 'Steve Everitt '
Subject: RE: Discussion record

i) Don wants the system to be left to behave as it did prior to the mole construction (1950s) – i.e. continue to flow as it did in its old route, constrained initially by creating the preferential flow path down Papahikahawai Channel so as to erode the spit toe and lower Maketu Estuary while allowing it to breach at Te Tumu for flood relief. As time allows the spit toe to erode and the lower Maketu Estuary to deepen as the flow path returns to the south-eastern side of the lower Maketu Estuary and so mirrors the lower Whakatane River estuary, then place culverts under the 1971 rock protection to better allow access for spawning Kaituna River galaxius to find maritime marsh re-established in the upper Maketu Estuary…

vii) The 1971 subsidised rock protection would remain in place and possibly with culverts under it for the length of time it took for the toe of the spit to erode and for the lower Maketu Estuary to deepen (Don's view remains that flow in the Papahikahawai Channel is the only way the back of the spit will re-sand itself and the flood tide delta will dissipate and the toe of Maketu Estuary spit will reform as it originally had been)...

vii) The 1971 rock protection would remain in place for the length of time it took for the toe of the spit to erode and for the lower Maketu Estuary to deepen. Significant culverts under the 1971 subsidised rock protection could eventually replace any need to have Fords Twin Cuts in place and so could allow more room for maritime marsh galaxius spawning habitat. Fords Twin Cuts was an engineering blunder proposed by Ford and designed by Murray. Ref www.wetlandsnz.com/background/Historical River Changes 1925.This is a minor point of contention.

Don said that he had been proposing the same solution for 30 years and that it had not yet been fully considered or modelled. Don invited Steve to model his proposal please.

Hi Don,

You stated last Monday these culverts should be in place from the start. You previously suggested these not be put in until the estuary toe had re-stabilised.

Can you just confirm please.

Regards, Steve Everitt

WaterLine