

TWEED SHIRE COUNCIL

TWEED DISTRICT WATER SUPPLY AUGMENTATION OPTIONS STUDY - Environmental Impact Quantifier

Environmental Attribute	Raising of the Clarrie Hall Dam	New Byrrell Creek Dam (Small)	New Byrrell Creek Dam (Large)	Pipeline connection to Seq Water Grid (Alignment A)	Pipeline connection to Seq Water Grid (Alignment B)	Pipeline connection to Seq Water Grid (Alignment C)	Contingency Option	Comments
Loss of threatned flora and fauna species	Records assessed for a 200 mts buffer zone	Records assessed for a 200 mts buffer zone	Records assessed for a 200 mts buffer zone	Records assessed for a 200 mts buffer zone	Records assessed for a 200 mts buffer zone	Records assessed for a 200 mts buffer zone	Records assessed for a 200 mts buffer zone	Records assessed for the pipelines. Ground water extraction areas are excluded.
No of known records	12 Known records	52 known Records	58 known records	13 Known Records	27 Known records	24 Known Records	44 Known Records	
Loss of riparian vegetation and instream aquatic habitat (upstream)	3km Doon Doon Ck 1km Commisioners Ck Total riparian length to be determined	8.25 Byrrell Ck 4km Kunghur Ck 27.4 km total riparian length	9.0km Byrrell Ck 4.5km Kunghur Ck 41.6 km total riparian length					Based on 20m buffer on either side of main, secondary & third order streams upstream from dam wall to extent of inundation. High level of certainty.
Area in Hectares		43.6	70	0	0	0	0	
Impact on riparian vegetation and instream aquatic habitat (downstream)	1.9 km long - 3rd order	5.6 km long - 3rd order	5.6 km long - 3rd order					Based on 20m buffer either side of stream downstream to Tweed River confluence. High level of certainty
Area in Hectares	6.8	19.6	19.6	0	0	0	0	
Loss of native vegetation				10m buffer on either side of pipleine route	10m buffer on either side of pipleine route	10m buffer on either side of pipleine route	10m buffer on either side of pipleine route. 90% of total Rous pipeline.	Based on vegetation management strategy mapping as @ May 2007. Excludes native plantations. Limited field survey for vegetation communities but high level of certainty due to amalgamation to determine native vegetation
Area in Hectares	123.7	61.1	117.8	1.2	1.2	2	28.8	

Environmental Attribute	Raising of the Clarrie Hall Dam	New Byrrill Creek Dam (Small)	New Byrrill Creek Dam (Large)	Pipeline connection to Seq Water Grid (Alignment A)	Pipeline connection to Seq Water Grid (Alignment B)	Pipeline connection to Seq Water Grid (Alignment C)	Contingency Option	Comments
Loss of endangered or regionally significant vegetation	0.3 ha Endangered	5.8 ha Endangered	8.8 ha Endangered	10m buffer on either side of pipeline route. 0.9 ha Endangered	10m buffer on either side of pipeline route. 0.9 ha Endangered	10m buffer on either side of pipeline route. 0.6 ha Endangered	Rous pipeline runs through SEPP 26 Litoral Rainforest areas	Based on vegetation management strategy mapping as @ May 2007. Includes vegetation communities that are likely EECs and other vegetation communities ranked a very high and high regional status. Limited field survey for vegetation communities. Moderately high level of certainty.
Area in Hectares	21.7	8.2	11.9	1.3	1.3	1.5	6	
Loss of old growth habitat								Based on vegetation management strategy mapping as @ may 2007. Includes "Candidate Old Growth" and "Disturbed Old Forest" - based on regional scale (1:100000) aerial photography interpretation mapping. Moderate reliability
Area in Hectares	1.4	21.3	37	0	0	0.6	0	
Loss of potential koala habitat				10m buffer on either side of pipeline route	10m buffer on either side of pipeline route	10m buffer on either side of pipeline route	10m buffer on either side of pipeline route. No impacts expected for Rous pipeline or groundwater.	Based on vegetation management strategy mapping as @ may 2007. Potential candidate primary and secondary habitat based on vegetation communities - not koala surveys. Limited field survey for vegetation communities. Moderate level of certainty.
Area in Hectares	116.2	40.3	90.5	0.9	0	1.2	1.2	
Loss of cleared land				10m buffer on either side of pipeline route	10m buffer on either side of pipeline route	10m buffer on either side of pipeline route	10m buffer on either side of pipeline route. 10% of total Rous pipeline.	Based on vegetation management strategy mapping at @ may 2007. Does not include plantations. High level of certainty
Area in Hectares	71.3	81.9	127.9	5.2	3.5	11.4	3.6	
Loss of Native plantations								High level of certainty

Environmental Attribute	Raising of the Clarrie Hall Dam	New Byrrill Creek Dam (Small)	New Byrrill Creek Dam (Large)	Pipeline connection to Seq Water Grid (Alignment A)	Pipeline connection to Seq Water Grid (Alignment B)	Pipeline connection to Seq Water Grid (Alignment C)	Contingency Option	Comments
Area in Hectares	6.5	64.1	119.9	0	0	0	0	
Loss of Exotic vegetation								High level of certainty
Area in Hectares	8.5	29.6	32.6	0	0	0	0	
Inundation (Loss) of National Parks	Jerusalem National Park	Mebbin National Park	Mebbin National Park				The Rous pipeline would lie in an existing road reserve running through nature reserve. Total of 8ha.	High level of certainty. Exact extent of Rous pipeline / road reserve low moderate certainty.
Area in Hectares	3.7	3.5	21	0	0	0	8	
Inundation (Loss) of total land area	Total additional area under inundation	Total area under inundation	Total area under inundation	Total footprint of the pipeline assuming a 10 mts corridor	Total footprint of the pipeline assuming a 10 mts corridor	Total footprint of the pipeline assuming a 10 mts corridor	Assumes Alignment C for SEQ pipeline plus 5ha groundwater sites	High level of certainty
Area in Hectares	210	235	398	7	9	13	55	
Water Quality Impacts (Upstream / Downstream)	U/S catchment currently contributes nutrients to dam causing algae blooms, Temperature and oxygen impacts of D/S water	Upper catchment water quality less influenced by agricultural issues - better dam water quality, Temperature and oxygen impacts of D/S water	Upper catchment water quality less influenced by agricultural issues - better dam water quality, Temperature and oxygen impacts of D/S water	NA	NA	NA	NA	
Quality								
Water Quantity Impacts (Upstream / Downstream)	Stillwater inundation of U/S riffles, additional environmental D/S flows are probable license requirement for larger dam (improved instream flows)	New instream barrier, Significant stillwater inundation of U/S riffles, D/S flows regulated to include environmental flows which approximate natural flows	New instream barrier, Significant stillwater inundation of U/S riffles, D/S flows regulated to include environmental flows which approximate natural flows	NA	NA	NA	NA	
Availability								
Ground Water Impacts (Quantity)	Minimal impacts	Minimal impacts	Minimal impacts	NA	NA	NA	Potential Impacts depending on extraction regime	Issues related to extraction of groundwater include: 1. Intrusion of brackish water; 2. Potential decrease of streamflow; and 3. Possible acid sulphate soils mechanisms associated with changes to groundwater levels
Withdrawal rates				0	0	0		

Environmental Attribute	Raising of the Clarrie Hall Dam	New Byrrell Creek Dam (Small)	New Byrrell Creek Dam (Large)	Pipeline connection to Seq Water Grid (Alignment A)	Pipeline connection to Seq Water Grid (Alignment B)	Pipeline connection to Seq Water Grid (Alignment C)	Contingency Option	Comments
Ground Water Impacts (Quality, salt water intrusion)	Minimal impacts to quality of groundwater	Minimal impacts to quality of groundwater	Minimal impacts to quality of groundwater	NA	NA	NA	Potential salt water intrusion issues in coastal aquifers	
Salinity etc.				0	0	0		
Greenhouse Gas footprint	High GHG emissions during construction and clearing. Some ongoing methane production due to rise/fall water effects. Permanent loss of carbon sink due to vegetation clearing.	High GHG emissions during construction and clearing. Some ongoing methane production due to rise/fall water effects. Permanent loss of carbon sink due to vegetation clearing.	High GHG emissions during construction and clearing. Some ongoing methane production due to rise/fall water effects. Permanent loss of carbon sink due to vegetation clearing.	Low GHG emissions during construction and clearing. High ongoing energy use for pumping by Tweed and SEQ (and potentially for water production at desal. plant)	Low GHG emissions during construction and clearing. High ongoing energy use for pumping by Tweed and SEQ (and potentially for water production at desal. plant)	Low GHG emissions during construction and clearing. High ongoing energy use for pumping by Tweed and SEQ (and potentially for water production at desal. plant)	Low GHG emissions during construction and clearing. High ongoing energy use for pumping by Tweed, Rous and SEQ (and potentially for water production at desal. plant)	Low level of certainty.
Vegetation cleared (Hectares)	138.7	153.1	270.1	1.8	5.5	1.6	51.4	
Impacts during Construction	Erosion and sedimentation when clearing inundation area, Construction traffic / noise at dam wall and Doon Creek Rd, vegetation clearing for access to wall, need to partially drain CHD	Erosion and sedimentation when clearing inundation area and constructing coffer dam, Construction traffic / noise at dam wall and Byrrell Creek Rd, vegetation clearing for access to wall	Erosion and sedimentation when clearing inundation area and constructing coffer dam, Construction traffic / noise at dam wall and Byrrell Creek Rd, vegetation clearing for access to wall	Acid sulfate soils during excavation for pipeline, vegetation clearing for access, Construction traffic / noise along and to route	Acid sulfate soils during excavation for pipeline, vegetation clearing for access, Construction traffic / noise along and to route	Acid sulfate soils during excavation for pipeline, vegetation clearing for access, Construction traffic / noise along and to route	Acid sulfate soils during excavation for pipeline, vegetation clearing for access, Construction traffic / noise at each site	Summary of potential impacts.
Various								