

No.	Nature and Consequences of impact	Duration / Frequency of activity likely to cause impact	Geographical Extent	Severity (level of damage caused) if impact were to occur	Probability of impact without mitigation	Significance before application of Mitigation Measures	Will activity cause irreplaceable loss of resources?	Mitigation	Probability of impact after mitigation	Significance after application of Mitigation Measures
	The following table rates impacts after the application of mitigation measures and operates on a scale of 0-14. A score of between 1 and 5 is rated as low. A score of between 6 and 10 is rated as medium. A score of between 11 and 14 is rated as high.	0 = No impact 1 = short term / once off 2 = medium term / during operation 3 = long term / permanent	0 = No impact 1 = point of impact / restricted to site 2 = local / surrounding area 3 = regional	0 = No impact 1 = minor; 3 = medium 5 = major	0 = No impact 1 = Low 2 = Medium 3 = High	1 - 5 = low. 6 - 10 = medium. 11 - 14 = high.	10 = Yes 0 = No	0 = No impact -5 = can be fully mitigated -3 = can be partially mitigated -1 = unable to be mitigated	0 = No impact 1 = Low 2 = Medium 3 = High	1 - 5 = low. 6 - 10 = medium. 11 - 14 = high.
		<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>Significance</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>Significance</b>
<b>Block 1 Siphon</b>										
<b>Site and Technology Alternative 1</b>										
<b>Construction</b>										
<b>Direct Impacts</b>										
1	There is the potential for erosion to take place within the Tugela River Tributary resulting in downstream sedimentation of this eroded material due to clearing and the operation of the construction site within the Tugela River Tributary.	1	1	3	1	6	0	-5	1	2
2	The habitat for fauna living within the construction footprint will be modified due to the excavation and construction activities taking place within the Tugela River Tributary.	1	1	3	1	6	0	-5	1	2
3	Clearing of the Block 1 siphon site resulting in the loss of vegetation within the Thukela Valley Bushveld vegetation type.	1	1	3	1	6	0	-1	1	6
4	Removal of alien invasive vegetation found within the Block 1 siphon construction site.	0	0	0	0	0	0	0	0	0
5	Careless operation by the contractor within the Tugela River Tributary resulting in damage to the Tugela River Tributary i.e. the riverbed, banks and riparian zones within the construction footprint and adjacent areas	1	1	3	0	5	0	-5	1	1
6	Disturbance of the Block 1 siphon site due to construction activities resulting in the encroachment of alien vegetation into disturbed areas i.e. Castor Oil.	1	1	1	1	4	0	-5	1	0
<b>Indirect Impacts</b>										
7	Positive impacts for the community include potential for local employment.	0	0	0	0	0	0	0	0	0
<b>Operation</b>										
<b>Direct Impacts</b>										
8	Long-term erosion within the Tugela River Tributary and damage to watercourse banks where siphon has been placed.	3	1	5	3	12	0	-5	1	8
9	Potential alteration of flow dynamics within the Tugela River Tributary due to poor placement of the siphon.	3	1	3	3	10	0	-5	1	6
10	The siphon bursting resulting in localised flooding and erosion.	3	2	5	1	11	0	-5	1	7
<b>Indirect Impacts</b>										
11	Maintain the supply of irrigation water to the Tugela Ferry Co-Op	0	0	0	0	0	0	0	0	0
<b>Cumulative</b>										
12	Maintenance will be required for the Block 1 siphon meaning workmen will need to enter the Tugela River Tributary.	3	1	1	1	6	0	-5	1	2
<b>Site and Technology Alternative 2</b>										
<b>Construction</b>										
<b>Direct Impacts</b>										
1	There is a greater potential for erosion to take place within the Tugela River Tributary as work will need to take place along the entire length of the existing siphon and along the embankments supporting the canal.	1	1	5	1	8	0	-5	1	4
2	Due to a bigger construction footprint a larger habitat will be modified due to the excavation and construction activities taking place within the Tugela River Tributary.	1	1	5	1	8	0	-5	1	4
3	Due to a bigger construction footprint there will more vegetation lost within the Thukela Valley Bushveld vegetation type.	1	1	5	1	8	0	-1	1	8
<b>Indirect Impacts</b>										
Indirect Impacts will remain as per Alternative 1										
<b>Operation</b>										
<b>Direct Impacts</b>										
4	Piers impeding flow of the Tugela River Tributary, resulting in changes to the flow dynamics of the river	3	1	3	3	10	0	-5	1	6
<b>Indirect Impacts</b>										
5	The construction of a pier bridge will require an additional funding as the cost of a pier structures is significant.	3	3	5	3	14	0	-1	3	16
<b>Cumulative</b>										
Cumulative Impacts will remain as per Alternative 1										

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<b>Block 6 Abstraction</b>										
<b>Site and Technology Alternative 1</b>										
<b>Construction</b>										
<b>Direct Impacts</b>										
1	There is the potential for erosion to take place within the Tugela River resulting in downstream sedimentation of this eroded material due to clearing and the operation of the construction site within the Tugela River.	1	1	3	3	8	0	-5	1	4
2	The habitat for fauna living within the construction footprint will be modified due to the excavation and construction activities taking place within the Tugela River and with 32m of the river.	1	1	3	3	8	0	-5	1	4
3	Clearing of the Block 6 abstraction site resulting in the loss of vegetation within the Highveld Alluvial Vegetation type.	1	1	3	3	8	0	-1	1	8
4	Removal of alien invasive vegetation found within the Block 6 abstraction facility.	0	0	0	0	0	0	0	0	0
5	Careless operation by the contractor within the Tugela River resulting in damage to the Tugela River i.e. the riverbed, banks and riparian zones within the construction footprint and adjacent areas	1	1	3	3	8	0	-5	1	4
6	Disturbance of the Block 6 abstraction site due to construction activities resulting in the encroachment of alien vegetation into disturbed areas i.e. Castor Oil.	1	1	1	3	6	0	-5	1	2
<b>Indirect Impacts</b>										
7	Positive impacts for the community include potential for local employment.	0	0	0	0	0	0	0	0	0
<b>Operation</b>										
<b>Direct Impacts</b>										
8	Flood events along the Tugela River damaging the facility	3	1	5	1	10	0	-3	1	8
9	Potential alteration of flow dynamics within the Tugela River due to poor placement of the inlet pipe.	3	1	5	1	10	0	-3	1	8
10	Utilisation and storage of hydrocarbons in close proximity to the Tugela River	1	1	5	1	8	0	-5	1	4
<b>Indirect Impacts</b>										
11	The new Block 6 abstraction point will improve water supply to support agriculture activities in the area.	0	0	0	0	0	0	0	0	0
<b>Cumulative</b>										
12	Maintenance will be required for the Block 6 abstraction point meaning workmen entering the Tugela River.	3	1	1	1	6	0	-5	1	2
13	Abstraction of water from the Tugela River putting pressure on lower Thukela River Reserve	3	1	1	1	6	0	-5	1	2
<b>Site and Technology Alternative 2</b>										
<b>Construction</b>										
<b>Direct Impacts</b>										
1	There is a greater potential for erosion to take place within the Tugela River due to the positioning of the pump chamber within the Tugela River.	1	1	3	3	8	0	-5	2	5
2	There is a greater potential for careless operations by the contractor within the Tugela River resulting in damage to the Tugela River i.e. the riverbed, banks and riparian zones within the construction footprint and adjacent areas	1	1	3	3	8	0	-5	2	5
<b>Indirect Impacts</b>										
Indirect Impacts will remain as per Alternative 1										
<b>Operation</b>										
<b>Direct Impacts</b>										
3	The potential for flood events along the Tugela River to damage the facility is greatly increased due to the pump station being located within the river.	3	1	5	2	11	0	-3	2	10
4	Potential alteration of flow dynamics within the Tugela River due to poor placement of the pump house	3	1	5	1	10	0	-3	2	9
<b>Indirect Impacts</b>										
5	Due to the poor placement of the existing abstraction point a steady supply of water to the irrigation scheme cannot be guaranteed.	3	3	5	3	14	0	-1	3	16
<b>Cumulative</b>										
Cumulative Impacts will remain as per Alternative 1										

