9 ALTERNATIVE SENSITIVITY ANALYSIS

This section provides a short sensitivity matrix, which compares the three different alternatives corridors and their associated environmental sensitivities. Where an impact is rated between two thresholds, that is, low-moderate; moderate-high or high-very high the rating assigned to the description will lean towards the value assigned to that impact. (i.e. if ranked as 2.9 it wall fall within the upper threshold that is the high category as indicated in the matrix below).

TABLE 9-1: ALTERNATIVE SENSITIVITY MATRIX

	Sensitivity	RAILWAY CORRIDOR			POWER LINE A		POWER LINE B	
		Alternative 1	Alternative 2	Alternative 3	Alternative A-(a)	Alternative A-(b)	Alternative B-(a)	Alternative B-(b)
BIO-PHYSICAL	Air	Low	Low	Low	Low	Low	Low	Low
	Geology	Moderate	Moderate - High	Low - Moderate	Moderate	Moderate	Low - Moderate	Low - Moderate
	Topography	Low - Moderate	Moderate	Low-Moderate	Moderate	Moderate	Low	Low
	Soils and Agricultural Potential	Moderate – High	High	Moderate - High	Low	Low	Low	Low
	Surface Water and Wetlands	High	High (most stream crossings)	High	High	Moderate - High	Low - Moderate	Low - Moderate
	Groundwater	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
	Terrestrial Ecology	Moderate	Moderate - High	Moderate	Moderate	Low - Moderate	Low - Moderate	Low - Moderate

	Sensitivity	RAILWAY CORRIDOR			POWER LINE A		POWER LINE B	
		Alternative 1	Alternative 2	Alternative 3	Alternative A-(a)	Alternative A-(b)	Alternative B-(a)	Alternative B-(b)
	Avi-fauna	Moderate - High	High	Moderate - High	High	High	High	High
	Aquatic Ecology	Moderate	High	Moderate	Moderate	Moderate - Low	Low	Low
SOCIO-ECONOMIC	Social	Moderate	Moderate - High	Moderate	Moderate	Moderate	Moderate	Moderate
SOCIO-ECONOMIC	Visual	Moderate	Moderate – High	Moderate	Moderate	Moderate	Moderate	Moderate
SOCIO-ECONOMIC	Risk	Low	Low	Low	N/A	N/A	N/A	N/A
SOCIO-ECONOMIC	Noise	Low	Moderate - High	Low	Low	Low	Low	Low
SOCIO-ECONOMIC	Traffic	Low	Low - Moderate	Low	Low	Low	Low	Low
CULTURAL	Heritage	Low	Low	Low (preferred)	Low	Low	Low	Low
	Total Sensitivities	**11**	**16**	**10**	**11**	**9**	**6**	**6**

Low = 0	Moderate = 1	High = 2	Very High = 3

On the basis of the matrix presented above, it is suggested that ***railway corridor alternative 3 (three)*** be utilised as the preferred alternative for the proposed railway, access roads and substations (as well as associated infrastructure) and ***power line corridor A-(b)*** be utilised as the preferred alternative for the one

88/132kV power line, as these have the least sensitive features associated with the alignments. For the second power line both alternative B-(a) and B-(b) where ranked equally and have few environmental sensitivities therefore either is preferred.

The corridors that were assessed for the railway alternatives were 500 metres in width along the length of the proposed routes. Consequently Alternative 1 and Alternative 3 corridors are immediately adjacent to each other along the property boundaries. This being said it is preferable to construct the railway line along this boundary to minimise the impact on the landowners as little to no land will be lost. Therefore the preferred alternative is alternative three.