Project	Beaufort Bypass	Lead	WSP
Description	EES Environmental Risk Register	Last Updated	Dec-20

				Impact Pathway					Initial Risk				Residual Risk			
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
ASS1a	A0	Acid Sulfate Soils	Development	Earthworks	Expose Acid Sulphate Soils	Off-site disposal of contaminated materials	Earthworks cause Acid Sulfate Soils (ASS) to be exposed and require treatment or special construction measures. Low potential for encountering ASS, however limited data available. Potential for occurrence along water ways and alluvial geology. Based on topographic elevation (<100m above seal level), considered low likelihood. Low potential for metal sulfides to exist within rock.	Implement S177.E Contaminated Soils and Materials	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
ASS1b	A1	Acid Sulfate Soils	Development	Earthworks	Expose Acid Sulphate Soils	Off-site disposal of contaminated materials	Earthworks cause Acid Sulfate Soils (ASS) to be exposed and require treatment or special construction measures. Low potential for encountering ASS, however limited data available. Potential for occurrence along water ways and alluvial geology. Based on topographic elevation (<100m above seal level), considered low likelihood. Low potential for metal sulfides to exist within rock.	Implement S177.E Contaminated Soils and Materials	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
ASS1c	C0	Acid Sulfate Soils	Development	Earthworks	Expose Acid Sulphate Soils	Off-site disposal of contaminated materials	Earthworks cause Acid Sulfate Soils (ASS) to be exposed and require treatment or special construction measures. Low potential for encountering ASS, however limited data available. Potential for occurrence along water ways and alluvial geology. Based on topographic elevation (<100m above seal level), considered low likelihood. Low potential for metal sulfides to exist within rock.	Implement S177.E Contaminated Soils and Materials	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
ASS1d	C2	Acid Sulfate Soils	Development	Earthworks	Expose Acid Sulphate Soils	Off-site disposal of contaminated materials	Earthworks cause Acid Sulfate Soils (ASS) to be exposed and require treatment or special construction measures. Low potential for encountering ASS, however limited data available. Potential for occurrence along water ways and alluvial geology. Based on topographic elevation (<100m above seal level), considered low likelihood. Low potential for metal sulfides to exist within rock.	Implement S177.E Contaminated Soils and Materials	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ1a	A0	Air quality	Initial	Pre-construction activities	Dust and air quality impacts		Geotechnical and other investigations lead to the excessive dust at sensitive receptors	Contract conditions for investigation activities	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ1b	A1	Air quality	Initial	Pre-construction activities	Dust and air quality impacts		Geotechnical and other investigations lead to the excessive dust at sensitive receptors	Contract conditions for investigation activities	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ1c	C0	Air quality	Initial	Pre-construction activities	Dust and air quality impacts		Geotechnical and other investigations lead to the excessive dust at sensitive receptors	Contract conditions for investigation activities	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ1d	C2	Air quality	Initial	Pre-construction activities	Dust and air quality impacts		Geotechnical and other investigations lead to the excessive dust at sensitive receptors	Contract conditions for investigation activities	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ2a	A0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust and pollutants excessive in roof water supply	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable.	Moderate	Unlikely	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
AQ2b	A1	Air quality	Development	Construction	Dust and air quality impacts		Construction dust and pollutants excessive in roof water supply	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable.	Moderate	Unlikely	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Unlikely	Low
AQ2c	C0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust and pollutants excessive in roof water supply	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable.	Moderate	Unlikely	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Unlikely	Low
AQ2d	C2	Air quality	Development	Construction	Dust and air quality impacts		Construction dust and pollutants excessive in roof water supply	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable.	Moderate	Unlikely	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Unlikely	Low
AQ3a	A0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at community receptors (towns)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Possible	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Unlikely	Low
AQ3b	A1	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at community receptors (towns)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Possible	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
AQ3c	C0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at community receptors (towns)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Possible	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Possible	Low
AQ3d	C2	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at community receptors (towns)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Possible	Medium	Mandatory continuous dust monitoring and adaptive management to control dust if required	Minor	Possible	Low
AQ4a	A0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at horticulture areas	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ4b	A1	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at horticulture areas	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Minor	Unlikely	Low	Not required	Minor	Rare	Negligible
AQ4c	C0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at horticulture areas	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
AQ4d	C2	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at horticulture areas	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Insignificant	Rare	Negligible	Not required	Insignificant	Rare	Negligible
AQ5a	A0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Likely	High	Mandatory continuous dust monitoring and adaptive management to control dust if required	Moderate	Possible	Medium
AQ5b	A1	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Likely	High	Mandatory continuous dust monitoring and adaptive management to control dust if required	Moderate	Possible	Medium
AQ5c	C0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Likely	High	Mandatory continuous dust monitoring and adaptive management to control dust if required	Moderate	Possible	Medium
AQ5d	C2	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Construction air quality management plan should include provisions for Cover of Loads and Washdown facilities emission control mechanisms Locate stockpiles away from sensitive receivers, as far as practicable On dusty stockpiles lasting more than 4 weeks, use mulch or surfactants to minimise dust generation and material loss. Locate haulage routes for rock and soil away from sensitive receivers as much as practicable (ideally a minimum of 50 m).	Moderate	Likely	High	Mandatory continuous dust monitoring and adaptive management to control dust if required	Moderate	Possible	Medium
AQ6a	A0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ6b	A1	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
AQ6c	C0	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	unlikely	Low
AQ6d	C2	Air quality	Development	Construction	Dust and air quality impacts		Construction dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ7a	A0	Air quality	Development	Construction	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Comply with Section 177.C1 a & b Servicing and maintaining construction equipment powered by internal combustion engines to ensure exhaust emissions comply with regulatory requirements	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ7b	A1	Air quality	Development	Construction	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Comply with Section 177.C1 a & b Servicing and maintaining construction equipment powered by internal combustion engines to ensure exhaust emissions comply with regulatory requirements	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ7c	C0	Air quality	Development	Construction	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Comply with Section 177.C1 a & b Servicing and maintaining construction equipment powered by internal combustion engines to ensure exhaust emissions comply with regulatory requirements	Minor	Unlikely	Low	Not required	Minor	unlikely	Low
AQ7d	C2	Air quality	Development	Construction	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Comply with Section 177.C1 a & b Servicing and maintaining construction equipment powered by internal combustion engines to ensure exhaust emissions comply with regulatory requirements	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ8a	A0	Air Quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Standard roadworthiness enforcement as per VicRoads Regulations	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ8b	A1	Air Quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Standard roadworthiness enforcement as per VicRoads Regulations	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ8c	C0	Air Quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Standard roadworthiness enforcement as per VicRoads Regulations	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ8d	C2	Air Quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations (exhaust gas and vehicle wear) close to roadway due to traffic, especially trucks	Standard roadworthiness enforcement as per VicRoads Regulations	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ9a	A0	Air quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations close to roadway in the event of accidents (e.g., involving tankers)	Emergency services procedures; buffer distance beside roadways	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ9b	A1	Air quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations close to roadway in the event of accidents (e.g., involving tankers)	Emergency services procedures; buffer distance beside roadways	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ9c	C0	Air quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations close to roadway in the event of accidents (e.g., involving tankers)	Emergency services procedures; buffer distance beside roadways	Minor	Unlikely	Low	Not required	Minor	unlikely	Low
AQ9d	C2	Air quality	Operation/Maintenance	Operation	Dust and air quality impacts		Elevated air pollutant concentrations close to roadway in the event of accidents (e.g., involving tankers)	Emergency services procedures; buffer distance beside roadways	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ11a	A0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at community receptors (towns)	Comply Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ11b	A1	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at community receptors (towns)	Comply Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ11c	C0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at community receptors (towns)	Comply Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
AQ11d	C2	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at community receptors (towns)	Comply Section 177.C1 a & b	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ12a	A0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at horticulture areas	Comply Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ12b	A1	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at horticulture areas	Comply Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ12c	C0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at horticulture areas	Comply Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ12d	C2	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at horticulture areas	Comply Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ13a	A0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Planning of maintenance activities during times of calm weather	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ13b	A1	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Planning of maintenance activities during times of calm weather	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ13c	C0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Planning of maintenance activities during times of calm weather	Minor	Unlikely	Low	Not required	Minor	unlikely	Low
AQ13d	C2	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive at sensitive receptors (as defined in EPA Pub 1518)	Comply with Section 177.C1 a & b Planning of maintenance activities during times of calm weather	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
AQ14a	A0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ14b	A1	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ14c	C0	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
AQ14d	C2	Air quality	Operation/Maintenance	Maintenance	Dust and air quality impacts		Maintenance dust excessive for sensitive flora and fauna	Comply with Section 177.C1 a & b	Insignificant	Unlikely	Negligible	Not required	Insignificant	Unlikely	Negligible
BIO1a	A0	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		State offsets for clearing of vegetation and habitat are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Possible	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design.	Moderate	Possible	Medium
BIO1b	A1	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		State offsets for clearing of vegetation and habitat are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Possible	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design.	Moderate	Possible	Medium
BIO1c	C0	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		State offsets for clearing of vegetation and habitat are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Possible	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design.	Moderate	Possible	Medium
BIO1d	C2	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		State offsets for clearing of vegetation and habitat are difficult to source, leading to project delays and expense.	No relevant standards.	Moderate	Possible	Medium	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design.	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO2a	A0	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		Commonwealth offsets are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Likely	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design. Further avoid and minimise to reduce offset requirements	Major	Unlikely	Medium
BIO2b	A1	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		Commonwealth offsets are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Likely	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design. Further avoid and minimise to reduce offset requirements	Moderate	Unlikely	Medium
BIO2c	C0	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		Commonwealth offsets are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Likely	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design. Further avoid and minimise to reduce offset requirements	Moderate	Unlikely	Medium
BIO2d	C2	Biodiversity and Habitat	Initial	Planning	Statutory planning and environmental approval non-compliances		Commonwealth offsets are difficult to source, leading to project delays and expense.	No relevant standards.	Major	Likely	High	Source offsets early. Consider impacts and resulting offset requirements in route selection and detailed design. Further avoid and minimise to reduce offset requirements	Major	Unlikely	Medium
BIO3a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts EPBC Act listed ecological communities (Seasonal herbaceous Wetlands and/or White Box Box-Yellow Box – Blakely's Red Gum Grassy Woodland)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Major	Possible	High	Detailed refinement of design / impact footprint to minimise impact on these communities. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO3b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts EPBC Act listed ecological communities (Seasonal herbaceous Wetlands and/or White Box Box-Yellow Box – Blakely's Red Gum Grassy Woodland)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise impact on these communities. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO3c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts EPBC Act listed ecological communities (Seasonal herbaceous Wetlands and/or White Box Box-Yellow Box – Blakely's Red Gum Grassy Woodland)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Major	Possible	High	Detailed refinement of design / impact footprint to minimise impact on these communities. Incentives to contractors to further minimise vegetation and habitat loss.	Major	Possible	High
BIO3d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts EPBC Act listed ecological communities (Seasonal herbaceous Wetlands and/or White Box Box-Yellow Box – Blakely's Red Gum Grassy Woodland)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Possible	Low	Not required	Minor	Possible	Low
BIO4a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts native vegetation. Loss of >20ha of an endangered EVC or total vegetation loss of over >30ha.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201 and section 177. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Seed collection and revegetation of project area with local native species.	Catastrophic	Almost Certain	Extreme
BIO4b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts native vegetation. Loss of >20ha of an endangered EVC or total vegetation loss of over >30ha.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201 and section 177. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Seed collection and revegetation of project area with local native species.	Catastrophic	Almost Certain	Extreme
BIO4c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts native vegetation. Loss of >20ha of an endangered EVC or total vegetation loss of over >30ha.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201 and section 177. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Seed collection and revegetation of project area with local native species.	Catastrophic	Almost Certain	Extreme
BIO4d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts native vegetation. Loss of >20ha of an endangered EVC or total vegetation loss of over >30ha.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201 and section 177. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Seed collection and revegetation of project area with local native species.	Catastrophic	Almost Certain	Extreme

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO5a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts FFG Act listed community: Victorian Temperate Woodland Bird Community	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise the extent of this community to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Revegetation of project area with local native species to re-establish habitat.	Major	Likely	High
BIO5b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts FFG Act listed community: Victorian Temperate Woodland Bird Community	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise the extent of this community to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Revegetation of project area with local native species to re-establish habitat.	Major	Likely	High
BIO5c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts FFG Act listed community: Victorian Temperate Woodland Bird Community	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise the extent of this community to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Revegetation of project area with local native species to re-establish habitat.	Major	Likely	High
BIO5d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant vegetation or ecological communities		Clearing impacts FFG Act listed community: Victorian Temperate Woodland Bird Community	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise the extent of this community to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss. Revegetation of project area with local native species to re-establish habitat.	Catastrophic	Almost Certain	Extreme
BIO6a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing results in impacts upon EPBC Act listed migratory species	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
BIO6b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing results in impacts upon EPBC Act listed migratory species	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
BIO6c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing results in impacts upon EPBC Act listed migratory species	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
BIO6d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing results in impacts upon EPBC Act listed migratory species	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
BIO7a	A0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in loss of over 300 large remnant trees. These may be valuable fauna habitat and cannot be replaced.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise large remnant trees to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Catastrophic	Almost Certain	Extreme
BIO7b	A1	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in loss of over 300 large remnant trees. These may be valuable fauna habitat and cannot be replaced.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise large remnant trees to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Catastrophic	Almost Certain	Extreme
BIO7c	C0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in loss of over 300 large remnant trees. These may be valuable fauna habitat and cannot be replaced.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise large remnant trees to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Catastrophic	Almost Certain	Extreme

				Impact Pathway					Initial Risk				Residual Risk			
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO7d	C2	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in loss of over 300 large remnant trees. These may be valuable fauna habitat and cannot be replaced.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Catastrophic	Almost Certain	Extreme	Detailed refinement of design / impact footprint to minimise large remnant trees to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Catastrophic	Almost Certain	Extreme
BIO8a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts River Swamp Wallaby Grass (EPBC Act vulnerable).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Minor	Possible	Low
BIO8b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts River Swamp Wallaby Grass (EPBC Act vulnerable).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Minor	Possible	Low
BIO8c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts River Swamp Wallaby Grass (EPBC Act vulnerable).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Possible	Medium
BIO8d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts River Swamp Wallaby Grass (EPBC Act vulnerable).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Minor	Possible	Low
BIO9a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Matted Flax-lily (EPBC Act endangered, FFG Act listed, Vic advisory list endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Unlikely	Medium
BIO9b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Matted Flax-lily (EPBC Act endangered, FFG Act listed, Vic advisory list endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Unlikely	Medium
BIO9c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Matted Flax-lily (EPBC Act endangered, FFG Act listed, Vic advisory list endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Unlikely	Medium
BIO9d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Matted Flax-lily (EPBC Act endangered, FFG Act listed, Vic advisory list endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Unlikely	Medium
BIO10a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Ornate Pink Fingers (EPBC Act vulnerable, FFG Act listed, Vic Advisory List vulnerable)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Possible	Medium
BIO10b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Ornate Pink Fingers (EPBC Act vulnerable, FFG Act listed, Vic Advisory List vulnerable)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Moderate	Possible	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO10c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Ornate Pink Fingers (EPBC Act vulnerable, FFG Act listed, Vic Advisory List vulnerable)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Unlikely	Low	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Minor	Unlikely	Low
BIO10d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Ornate Pink Fingers (EPBC Act vulnerable, FFG Act listed, Vic Advisory List vulnerable)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Unlikely	Low	Detailed design to minimise impact on habitat for this species. Relocation of plants occurring within construction footprint.	Minor	Unlikely	Low
BIO11a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Yarra Gum (Vic Advisory List rare)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Seed collection and replanting.	Minor	Possible	Low
BIO11b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Yarra Gum (Vic Advisory List rare)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Seed collection and replanting.	Minor	Possible	Low
BIO11c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Yarra Gum (Vic Advisory List rare)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Seed collection and replanting.	Minor	Possible	Low
BIO11d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts Yarra Gum (Vic Advisory List rare)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Likely	Medium	Detailed design to minimise impact on habitat for this species. Seed collection and replanting.	Minor	Possible	Low
BIO12a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts other significant flora species. (Emerald-lip Greenhood, Floodplain Fireweed, Ben Major Grevillea, Pale-flower Cranesbill, Rosemary Grevillea, Rough Wattle) . Alignment avoid known records.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Possible	Low	Current alignment avoids known records and populations of these species. Further design refinement to minimise vegetation impacts will assist in minimising impacts to any other potential or modelled habitat. Pre-clearing survey and relocation of any threatened flora found.	Minor	Unlikely	Low
BIO12b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts other significant flora species. (Emerald-lip Greenhood, Floodplain Fireweed, Ben Major Grevillea, Pale-flower Cranesbill, Rosemary Grevillea, Rough Wattle) . Alignment avoid known records.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Possible	Low	Current alignment avoids known records and populations of these species. Further design refinement to minimise vegetation impacts will assist in minimising impacts to any other potential or modelled habitat. Pre-clearing survey and relocation of any threatened flora found.	Minor	Unlikely	Low
BIO12c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts other significant flora species. (Emerald-lip Greenhood, Floodplain Fireweed, Ben Major Grevillea, Pale-flower Cranesbill, Rosemary Grevillea, Rough Wattle) . Alignment avoid known records.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Possible	Low	Current alignment avoids known records and populations of these species. Further design refinement to minimise vegetation impacts will assist in minimising impacts to any other potential or modelled habitat. Pre-clearing survey and relocation of any threatened flora found.	Minor	Unlikely	Low
BIO12d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant flora species		Clearing impacts other significant flora species. (Emerald-lip Greenhood, Floodplain Fireweed, Ben Major Grevillea, Pale-flower Cranesbill, Rosemary Grevillea, Rough Wattle) . Alignment avoid known records.	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Minor	Possible	Low	Current alignment avoids known records and populations of these species. Further design refinement to minimise vegetation impacts will assist in minimising impacts to any other potential or modelled habitat. Pre-clearing survey and relocation of any threatened flora found.	Minor	Unlikely	Low
BIO13a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Golden Sun Moth (EPBC Act critically endangered, FFG Act listed, Vic advisory list critically endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Likely	High
BIO13b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Golden Sun Moth (EPBC Act critically endangered, FFG Act listed, Vic advisory list critically endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Likely	High

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO13c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Golden Sun Moth (EPBC Act critically endangered, FFG Act listed, Vic advisory list critically endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Likely	High
BIO13d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Golden Sun Moth (EPBC Act critically endangered, FFG Act listed, Vic advisory list critically endangered).	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Likely	High	Detailed design to minimise impact on habitat for this species. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Likely	High
BIO14a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Growling Grass Frog through direct loss of habitat (EPBC Act Vulnerable, FFG Act listed, Vic Advisory List endangered)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO14b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Growling Grass Frog through direct loss of habitat (EPBC Act Vulnerable, FFG Act listed, Vic Advisory List endangered)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO14c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Growling Grass Frog through direct loss of habitat (EPBC Act Vulnerable, FFG Act listed, Vic Advisory List endangered)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Major	Possible	High	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Major	Possible	High
BIO14d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Growling Grass Frog through direct loss of habitat (EPBC Act Vulnerable, FFG Act listed, Vic Advisory List endangered)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO15a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Little Galaxias through direct loss of habitat or impediment to passage	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Maintenance of connectivity and minimisation of impacts at creek crossings. Specific culvert design to facilitate fish passage as per FFIA. Stringent erosion and sedimentation controls in CEMP. Monitoring, with penalties for contractors for impacts to creeks.	Minor	Possible	Low
BIO15b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Little Galaxias through direct loss of habitat or impediment to passage	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Maintenance of connectivity and minimisation of impacts at creek crossings. Specific culvert design to facilitate fish passage as per FFIA. Stringent erosion and sedimentation controls in CEMP. Monitoring, with penalties for contractors for impacts to creeks.	Minor	Possible	Low
BIO15c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Little Galaxias through direct loss of habitat or impediment to passage	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Maintenance of connectivity and minimisation of impacts at creek crossings. Specific culvert design to facilitate fish passage as per FFIA. Stringent erosion and sedimentation controls in CEMP. Monitoring, with penalties for contractors for impacts to creeks.	Minor	Possible	Low
BIO15d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts Little Galaxias through direct loss of habitat or impediment to passage	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Maintenance of connectivity and minimisation of impacts at creek crossings. Specific culvert design to facilitate fish passage as per FFIA. Stringent erosion and sedimentation controls in CEMP. Monitoring, with penalties for contractors for impacts to creeks.	Minor	Possible	Low
BIO16a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Woodland birds and arboreal mammals)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Likely	High	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO16b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Woodland birds and arboreal mammals)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Likely	High	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO16c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Woodland birds and arboreal mammals)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Likely	High	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO16d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Woodland birds and arboreal mammals)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Likely	High	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO17a	A0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Wetland birds and other wetland fauna)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Minor	Possible	Low
BIO17b	A1	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Wetland birds and other wetland fauna)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Minor	Possible	Low
BIO17c	C0	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Wetland birds and other wetland fauna)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation to be retained.	Major	Possible	High	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Moderate	Possible	Medium
BIO17d	C2	Biodiversity and Habitat	Development	Clearing	Impacts significant fauna species		Clearing impacts other significant fauna species through direct loss of habitat (Wetland birds and other wetland fauna)	Clearing to be undertaken in accordance with Vic Roads Contract Specification Section 201. No go zones will be implemented for vegetation and habitat to be retained.	Moderate	Possible	Medium	Detailed refinement of design / impact footprint to minimise vegetation to be removed and develop no-go zones. Incentives to contractors to further minimise vegetation and habitat loss.	Minor	Possible	Low
BIO18a	A0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing fragments fauna habitat. As well as potentially impacting threatened species, this can impact numerous common species and will result in a negative public perception.	No standard controls	Major	Almost Certain	Extreme	Utilise wildlife crossings in strategic locations to maintain connectivity for various fauna groups.	Major	Possible	High
BIO18b	A1	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing fragments fauna habitat. As well as potentially impacting threatened species, this can impact numerous common species and will result in a negative public perception.	No standard controls	Major	Almost Certain	Extreme	Utilise wildlife crossings in strategic locations to maintain connectivity for various fauna groups.	Major	Possible	High
BIO18c	C0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing fragments fauna habitat. As well as potentially impacting threatened species, this can impact numerous common species and will result in a negative public perception.	No standard controls	Major	Almost Certain	Extreme	Utilise wildlife crossings in strategic locations to maintain connectivity for various fauna groups.	Major	Possible	High
BIO18d	C2	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing fragments fauna habitat. As well as potentially impacting threatened species, this can impact numerous common species and will result in a negative public perception.	No standard controls	Major	Almost Certain	Extreme	Utilise wildlife crossings in strategic locations to maintain connectivity for various fauna groups.	Major	Possible	High
BIO19a	A0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in fauna mortality (e.g. during clearing of hollow-bearing trees etc.)	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Moderate	Possible	Medium	Utilise two stage clearing with specific protocols to be detailed in FFIA. Provide replacement hollows in nearby/retained native vegetation to be retained for use by any displaced fauna. Pre-clearing survey and fauna relocation.	Minor	Possible	Low
BIO19b	A1	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in fauna mortality (e.g. during clearing of hollow-bearing trees etc.)	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Moderate	Possible	Medium	Utilise two stage clearing with specific protocols to be detailed in FFIA. Provide replacement hollows in nearby/retained native vegetation to be retained for use by any displaced fauna. Pre-clearing survey and fauna relocation.	Minor	Possible	Low
BIO19c	C0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in fauna mortality (e.g. during clearing of hollow-bearing trees etc.)	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Moderate	Possible	Medium	Utilise two stage clearing with specific protocols to be detailed in FFIA. Provide replacement hollows in nearby/retained native vegetation to be retained for use by any displaced fauna. Pre-clearing survey and fauna relocation.	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO19d	C2	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearing results in fauna mortality (e.g. during clearing of hollow-bearing trees etc.)	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Moderate	Possible	Medium	Utilise two stage clearing with specific protocols to be detailed in FFIA. Provide replacement hollows in nearby/retained native vegetation to be retained for use by any displaced fauna. Pre-clearing survey and fauna relocation.	Minor	Possible	Low
BIO20a	A0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearance of vegetation results in decrease in non-listed native fauna due to habitat loss	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Restoration, including facilitating natural recruitment and revegetation/replanting of native vegetation in the project area, including midstorey vegetation, to supplement fauna habitat in the locality, particularly for e.g. small birds. Ensure high structural diversity in revegetation areas. Seed collection from key species of multiple strata for use in revegetation should sufficient local provenance plants not be available. Utilise timber in revegetation areas to supplement fauna habitat	Minor	Possible	Low
BIO20b	A1	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearance of vegetation results in decrease in non-listed native fauna due to habitat loss	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Restoration, including facilitating natural recruitment and revegetation/replanting of native vegetation in the project area, including midstorey vegetation, to supplement fauna habitat in the locality, particularly for e.g. small birds. Ensure high structural diversity in revegetation areas. Seed collection from key species of multiple strata for use in revegetation should sufficient local provenance plants not be available. Utilise timber in revegetation areas to supplement fauna habitat	Minor	Possible	Low
BIO20c	C0	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearance of vegetation results in decrease in non-listed native fauna due to habitat loss	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Restoration, including facilitating natural recruitment and revegetation/replanting of native vegetation in the project area, including midstorey vegetation, to supplement fauna habitat in the locality, particularly for e.g. small birds. Ensure high structural diversity in revegetation areas. Seed collection from key species of multiple strata for use in revegetation should sufficient local provenance plants not be available. Utilise timber in revegetation areas to supplement fauna habitat	Minor	Possible	Low
BIO20d	C2	Biodiversity and Habitat	Development	Clearing	Impacts fauna habitat values		Clearance of vegetation results in decrease in non-listed native fauna due to habitat loss	Works to be conducted in accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Restoration, including facilitating natural recruitment and revegetation/replanting of native vegetation in the project area, including midstorey vegetation, to supplement fauna habitat in the locality, particularly for e.g. small birds. Ensure high structural diversity in revegetation areas. Seed collection from key species of multiple strata for use in revegetation should sufficient local provenance plants not be available. Utilise timber in revegetation areas to supplement fauna habitat	Minor	Possible	Low
BIO21a	A0	Biodiversity and Habitat	Development	Clearing	Unauthorised clearing		Clearing or other impacts (e.g. through stockpiling, tracks etc.) occurs beyond approved clearance area and results in impacts upon biodiversity or habitat values which were not authorised to be impacted.	No go zones around vegetation outside of construction footprint. CEMP including toolbox talks and other requirements to ensure significant values are understood and protected. Pre-clearing survey undertaken. Additional checking is undertaken to ensure that all significant values are recorded.	Moderate	Possible	Medium	Penalties for contractors that impact No-go Zones or any vegetation/habitat outside of the project area. Regular monitoring and enforcement.	Minor	Possible	Low
BIO21b	A1	Biodiversity and Habitat	Development	Clearing	Unauthorised clearing		Clearing or other impacts (e.g. through stockpiling, tracks etc.) occurs beyond approved clearance area and results in impacts upon biodiversity or habitat values which were not authorised to be impacted.	No go zones around vegetation outside of construction footprint. CEMP including toolbox talks and other requirements to ensure significant values are understood and protected. Pre-clearing survey undertaken. Additional checking is undertaken to ensure that all significant values are recorded.	Moderate	Possible	Medium	Penalties for contractors that impact No-go Zones or any vegetation/habitat outside of the project area. Regular monitoring and enforcement.	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO21c	C0	Biodiversity and Habitat	Development	Clearing	Unauthorised clearing		Clearing or other impacts (e.g. through stockpiling, tracks etc.) occurs beyond approved clearance area and results in impacts upon biodiversity or habitat values which were not authorised to be impacted.	No go zones around vegetation outside of construction footprint. CEMP including toolbox talks and other requirements to ensure significant values are understood and protected. Pre-clearing survey undertaken. Additional checking is undertaken to ensure that all significant values are recorded.	Moderate	Possible	Medium	Penalties for contractors that impact No-go Zones or any vegetation/habitat outside of the project area. Regular monitoring and enforcement.	Minor	Possible	Low
BIO21d	C2	Biodiversity and Habitat	Development	Clearing	Unauthorised clearing		Clearing or other impacts (e.g. through stockpiling, tracks etc.) occurs beyond approved clearance area and results in impacts upon biodiversity or habitat values which were not authorised to be impacted.	No go zones around vegetation outside of construction footprint. CEMP including toolbox talks and other requirements to ensure significant values are understood and protected. Pre-clearing survey undertaken. Additional checking is undertaken to ensure that all significant values are recorded.	Moderate	Possible	Medium	Penalties for contractors that impact No-go Zones or any vegetation/habitat outside of the project area. Regular monitoring and enforcement.	Minor	Possible	Low
BIO22a	A0	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Damage to vegetation and habitat due to airborne dust from earthworks	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with CEMP.	Minor	Possible	Low	Not required	Minor	Possible	Low
BIO22b	A1	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Damage to vegetation and habitat due to airborne dust from earthworks	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with CEMP.	Minor	Possible	Low	Not required	Minor	Possible	Low
BIO22c	C0	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Damage to vegetation and habitat due to airborne dust from earthworks	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with CEMP.	Minor	Possible	Low	Not required	Minor	Possible	Low
BIO22d	C2	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Damage to vegetation and habitat due to airborne dust from earthworks	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with CEMP.	Minor	Possible	Low	Not required	Minor	Possible	Low
BIO23a	A0	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Works impact downstream aquatic habitat	In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Moderate	Possible	Medium	Monitoring by RRV, with penalties for contractors for impacts to creeks and No-go Zones	Minor	Possible	Low
BIO23b	A1	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Works impact downstream aquatic habitat	In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020). Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Moderate	Possible	Medium	Monitoring by RRV, with penalties for contractors for impacts to creeks and No-go Zones	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO23c	C0	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Works impact downstream aquatic habitat	In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020). Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Moderate	Possible	Medium	Monitoring by RRV, with penalties for contractors for impacts to creeks and No-go Zones	Minor	Possible	Low
BIO23d	C2	Biodiversity and Habitat	Development	Earthworks	Impacts fauna habitat values		Works impact downstream aquatic habitat	In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020). Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Moderate	Possible	Medium	Monitoring by RRV, with penalties for contractors for impacts to creeks and No-go Zones	Minor	Possible	Low
BIO24a	A0	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Death or injury of native fauna during construction (e.g. due to vehicle and/or construction plant collision, potentially exacerbated by entrapment by construction fencing, or due to entrapment in excavations)	In accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Include closing of trenches at night. Where trenches cannot be closed, check trenches first thing in the morning. Incorporate wildlife egress points in construction fencing. Construction and traffic control personnel to report fauna entrapment and traffic control to slow vehicles to minimise collision risk.	Minor	Possible	Low
BIO24c	A1	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Death or injury of native fauna during construction (e.g. due to vehicle and/or construction plant collision, potentially exacerbated by entrapment by construction fencing, or due to entrapment in excavations)	In accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Include closing of trenches at night. Where trenches cannot be closed, check trenches first thing in the morning. Incorporate wildlife egress points in construction fencing. Construction and traffic control personnel to report fauna entrapment and traffic control to slow vehicles to minimise collision risk.	Minor	Possible	Low
BIO24c	C0	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Death or injury of native fauna during construction (e.g. due to vehicle and/or construction plant collision, potentially exacerbated by entrapment by construction fencing, or due to entrapment in excavations)	In accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Include closing of trenches at night. Where trenches cannot be closed, check trenches first thing in the morning. Incorporate wildlife egress points in construction fencing. Construction and traffic control personnel to report fauna entrapment and traffic control to slow vehicles to minimise collision risk.	Minor	Possible	Low
BIO24d	C2	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Death or injury of native fauna during construction (e.g. due to vehicle and/or construction plant collision, potentially exacerbated by entrapment by construction fencing, or due to entrapment in excavations)	In accordance with Vic Roads Contract Specification Section 177.1 in relation to fauna.	Minor	Likely	Medium	Include closing of trenches at night. Where trenches cannot be closed, check trenches first thing in the morning. Incorporate wildlife egress points in construction fencing. Construction and traffic control personnel to report fauna entrapment and traffic control to slow vehicles to minimise collision risk.	Minor	Possible	Low
BIO25a	A0	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Temporary or permanent loss of vegetation and habitat due to fires instigated by construction activities	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with AS 5062-2006 Fire protection of mobile and transportable equipment. Compliance with CEMP	Major	Rare	Medium	Maintain close contact with State Emergency Services and local Fire services. Controls in CEMP to minimise fire risk during construction. Fire extinguishers in vehicles and along length of the alignment. Inclusion in toolbox talks. Extra precautions on days of very high and extreme fire risk.	Moderate	Rare	Low
BIO25b	A1	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Temporary or permanent loss of vegetation and habitat due to fires instigated by construction activities	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with AS 5062-2006 Fire protection of mobile and transportable equipment. Compliance with CEMP	Major	Rare	Medium	Maintain close contact with State Emergency Services and local Fire services. Controls in CEMP to minimise fire risk during construction. Fire extinguishers in vehicles and along length of the alignment. Inclusion in toolbox talks. Extra precautions on days of very high and extreme fire risk.	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO25c	C0	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Temporary or permanent loss of vegetation and habitat due to fires instigated by construction activities	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with AS 5062-2006 Fire protection of mobile and transportable equipment. Compliance with CEMP	Major	Rare	Medium	Maintain close contact with State Emergency Services and local Fire services. Controls in CEMP to minimise fire risk during construction. Fire extinguishers in vehicles and along length of the alignment. Inclusion in toolbox talks. Extra precautions on days of very high and extreme fire risk.	Moderate	Rare	Low
BIO25d	C2	Biodiversity and Habitat	Development	Construction	Destroys rare fauna/ecological community		Temporary or permanent loss of vegetation and habitat due to fires instigated by construction activities	In accordance with Vic Roads Contract Specification Section 177.1 in relation to flora. Compliance with AS 5062-2006 Fire protection of mobile and transportable equipment. Compliance with CEMP	Major	Rare	Medium	Maintain close contact with State Emergency Services and local Fire services. Controls in CEMP to minimise fire risk during construction. Fire extinguishers in vehicles and along length of the alignment. Inclusion in toolbox talks. Extra precautions on days of very high and extreme fire risk.	Moderate	Rare	Low
BIO26a	A0	Biodiversity and Habitat	Development	Construction	Impacts significant fauna species		Increased noise and/or light during construction causes disturbance or altered behaviour in native fauna	In accordance with Vic Road Contract Specification Section 177.1 in relation to fauna. Implementation of CEMP. In accordance with Fauna Sensitive Road Design Guidelines (VicRoads 2012) in relation to fauna. Compliance with Swift Parrot Management Plan and CEMP Contract Specification Section 177.H - Noise and Vibration	Minor	Likely	Medium	Minimise construction at night where practicable Minimise impact of construction lighting through consideration of siting, fixtures etc. Do not point lighting at habitat	Minor	Possible	Low
BIO26b	A1	Biodiversity and Habitat	Development	Construction	Impacts significant fauna species		Increased noise and/or light during construction causes disturbance or altered behaviour in native fauna	In accordance with Vic Road Contract Specification Section 177.1 in relation to fauna. Implementation of CEMP. In accordance with Fauna Sensitive Road Design Guidelines (VicRoads 2012) in relation to fauna. Compliance with Swift Parrot Management Plan and CEMP Contract Specification Section 177.H - Noise and Vibration	Minor	Likely	Medium	Minimise construction at night where practicable Minimise impact of construction lighting through consideration of siting, fixtures etc. Do not point lighting at habitat	Minor	Possible	Low
BIO26c	C0	Biodiversity and Habitat	Development	Construction	Impacts significant fauna species		Increased noise and/or light during construction causes disturbance or altered behaviour in native fauna	In accordance with Vic Road Contract Specification Section 177.1 in relation to fauna. Implementation of CEMP. In accordance with Fauna Sensitive Road Design Guidelines (VicRoads 2012) in relation to fauna. Compliance with Swift Parrot Management Plan and CEMP Contract Specification Section 177.H - Noise and Vibration	Minor	Likely	Medium	Minimise construction at night where practicable Minimise impact of construction lighting through consideration of siting, fixtures etc. Do not point lighting at habitat	Minor	Possible	Low
BIO26d	C2	Biodiversity and Habitat	Development	Construction	Impacts significant fauna species		Increased noise and/or light during construction causes disturbance or altered behaviour in native fauna	In accordance with Vic Road Contract Specification Section 177.1 in relation to fauna. Implementation of CEMP. In accordance with Fauna Sensitive Road Design Guidelines (VicRoads 2012) in relation to fauna. Compliance with Species-specific Management Plan and CEMP Contract Specification Section 177.H - Noise and Vibration	Minor	Likely	Medium	Minimise construction at night where practicable Minimise impact of construction lighting through consideration of siting, fixtures etc. Do not point lighting at habitat	Minor	Possible	Low
BIO27a	A0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Operation results in increased fauna mortality from wildlife-vehicle collisions	No standard controls	Moderate	Likely	High	Utilise wildlife crossings in strategic locations to maintain connectivity and minimise mortality for various fauna groups. Utilise strategic fencing to encourage crossings. Investigate and consider strategic signage and other mortality-reduction measures.	Moderate	Possible	Medium
BIO27b	A1	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Operation results in increased fauna mortality from wildlife-vehicle collisions	No standard controls	Moderate	Likely	High	Utilise wildlife crossings in strategic locations to maintain connectivity and minimise mortality for various fauna groups. Utilise strategic fencing to encourage crossings. Investigate and consider strategic signage and other mortality-reduction measures.	Moderate	Possible	Medium
BIO27c	C0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Operation results in increased fauna mortality from wildlife-vehicle collisions	No standard controls	Moderate	Likely	High	Utilise wildlife crossings in strategic locations to maintain connectivity and minimise mortality for various fauna groups. Utilise strategic fencing to encourage crossings. Investigate and consider strategic signage and other mortality-reduction measures.	Moderate	Possible	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO27d	C2	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Operation results in increased fauna mortality from wildlife-vehicle collisions	No standard controls	Moderate	Likely	High	Utilise wildlife crossings in strategic locations to maintain connectivity and minimise mortality for various fauna groups. Utilise strategic fencing to encourage crossings. Investigate and consider strategic signage and other mortality-reduction measures.	Moderate	Possible	Medium
BIO28a	A0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Road noise impacts fauna	No standard controls	Minor	Likely	Medium	Further investigation noise-reducing measures nearby sensitive fauna habitat	Minor	Likely	Medium
BIO28b	A1	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Road noise impacts fauna	No standard controls	Minor	Likely	Medium	Further investigation noise-reducing measures nearby sensitive fauna habitat	Minor	Likely	Medium
BIO28c	C0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Road noise impacts fauna	No standard controls	Minor	Likely	Medium	Further investigation noise-reducing measures nearby sensitive fauna habitat	Minor	Likely	Medium
BIO28d	C2	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Road noise impacts fauna	No standard controls	Minor	Likely	Medium	Further investigation noise-reducing measures nearby sensitive fauna habitat	Minor	Likely	Medium
BIO29a	A0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Light from the road (headlights or road lighting) impacts native fauna	No standard controls	Moderate	Possible	Medium	Revegetation and restoration to incorporate midstorey plants which will improve screening capabilities. Use of fauna-sensitive lighting where lighting is required. Barriers where required.	Minor	Possible	Low
BIO29b	A1	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Light from the road (headlights or road lighting) impacts native fauna	No standard controls	Moderate	Possible	Medium	Revegetation and restoration to incorporate midstorey plants which will improve screening capabilities. Use of fauna-sensitive lighting where lighting is required. Barriers where required.	Minor	Possible	Low
BIO29c	C0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Light from the road (headlights or road lighting) impacts native fauna	No standard controls	Moderate	Possible	Medium	Revegetation and restoration to incorporate midstorey plants which will improve screening capabilities. Use of fauna-sensitive lighting where lighting is required. Barriers where required.	Minor	Possible	Low
BIO29d	C2	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts fauna habitat values		Light from the road (headlights or road lighting) impacts native fauna	No standard controls	Moderate	Possible	Medium	Revegetation and restoration to incorporate midstorey plants which will improve screening capabilities. Use of fauna-sensitive lighting where lighting is required. Barriers where required.	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
BIO30a	A0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in increase in weed infestation which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Minor	Likely	Medium	Additional weed control required adjacent to sensitive vegetation (such as areas of Yellow Box Grassy Woodland). Follow up monitoring and weed control. All machinery to be cleaned prior to entering site and moving between sections of the alignment.	Minor	Possible	Low
BIO30b	A1	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in increase in weed infestation which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Minor	Likely	Medium	Additional weed control required adjacent to sensitive vegetation (such as areas of Yellow Box Grassy Woodland). Follow up monitoring and weed control. All machinery to be cleaned prior to entering site and moving between sections of the alignment.	Minor	Possible	Low
BIO30c	C0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in increase in weed infestation which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Minor	Likely	Medium	Additional weed control required adjacent to sensitive vegetation (such as areas of Yellow Box Grassy Woodland). Follow up monitoring and weed control. All machinery to be cleaned prior to entering site and moving between sections of the alignment.	Minor	Possible	Low
BIO30d	C2	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in increase in weed infestation which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Minor	Likely	Medium	Additional weed control required adjacent to sensitive vegetation (such as areas of Yellow Box Grassy Woodland). Follow up monitoring and weed control. All machinery to be cleaned prior to entering site and moving between sections of the alignment.	Minor	Possible	Low
BIO31a	A0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in disease introduction or spread (e.g. Chytrid or Phytophthora) which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Moderate	Possible	Medium	Additional disease control required in CEMP as detailed in FFIA, particularly for Chytrid and Phytophthora. Monitoring, testing and reporting.	Moderate	Rare	Low
BIO31b	A1	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in disease introduction or spread (e.g. Chytrid or Phytophthora) which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Moderate	Possible	Medium	Additional disease control required in CEMP as detailed in FFIA, particularly for Chytrid and Phytophthora. Monitoring, testing and reporting.	Moderate	Rare	Low
BIO31c	C0	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in disease introduction or spread (e.g. Chytrid or Phytophthora) which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Moderate	Possible	Medium	Additional disease control required in CEMP as detailed in FFIA, particularly for Chytrid and Phytophthora. Monitoring, testing and reporting.	Moderate	Rare	Low
BIO31d	C2	Biodiversity and Habitat	Operation/Maintenance	Operation	Impacts significant vegetation or ecological communities		Clearing/construction/operation/maintenance results in disease introduction or spread (e.g. Chytrid or Phytophthora) which threatens nearby habitat.	Standard construction and maintenance controls for reducing weed spread (e.g. In accordance with Vic Roads Contract Specification Section 201 in relation to site clearing and in accordance with Vic Roads Contract Specification Section 177.1 in relation to weed management. Compliance with CEMP. Maintenance requirements in VicRoads' Roadside Management Strategy 2011)	Moderate	Possible	Medium	Additional disease control required in CEMP as detailed in FFIA, particularly for Chytrid and Phytophthora. Monitoring, testing and reporting.	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
CH1a	A0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Geotechnical investigations leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Review Aboriginal and Historic site registers. Develop strategy with RAP to evaluate Geotech testing locations and monitor where necessary. Some Geotech testing locations may need to be excluded if within extent of known sites. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH1b	A1	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Geotechnical investigations leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Review Aboriginal and Historic site registers. Develop strategy with RAP to evaluate Geotech testing locations and monitor where necessary. Some Geotech testing locations may need to be excluded if within extent of known sites. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH1c	C0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Geotechnical investigations leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Review Aboriginal and Historic site registers. Develop strategy with RAP to evaluate Geotech testing locations and monitor where necessary. Some Geotech testing locations may need to be excluded if within extent of known sites. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH1d	C2	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Geotechnical investigations leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Review Aboriginal and Historic site registers. Develop strategy with RAP to evaluate Geotech testing locations and monitor where necessary. Some Geotech testing locations may need to be excluded if within extent of known sites. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH2a	A0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Road works leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH2b	A1	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Road works leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH2c	C0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Road works leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH2d	C2	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Initial	Pre-construction activities	Uncovers/damages matters of cultural significance		Road works leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH3a	A0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Clearing	Uncovers/damages matters of cultural significance		Clearing leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
CH3b	A1	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Clearing	Uncovers/damages matters of cultural significance		Clearing leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH3c	C0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Clearing	Uncovers/damages matters of cultural significance		Clearing leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH3d	C2	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Clearing	Uncovers/damages matters of cultural significance		Clearing leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Possible	High	None identified	Major	Possible	High
CH4a	A0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Earthworks	Uncovers/damages matters of cultural significance		Earthworks leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH4b	A1	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Earthworks	Uncovers/damages matters of cultural significance		Earthworks leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH4c	C0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Earthworks	Uncovers/damages matters of cultural significance		Earthworks leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH4d	C2	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Earthworks	Uncovers/damages matters of cultural significance		Earthworks leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Possible	High	None identified	Major	Possible	High
CH5a	A0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Construction	Uncovers/damages matters of cultural significance		Construction leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Rare	Medium	None identified	Major	Rare	Medium
CH5b	A1	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Construction	Uncovers/damages matters of cultural significance		Construction leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Rare	Medium	None identified	Major	Rare	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
CH5c	C0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Construction	Uncovers/damages matters of cultural significance		Construction leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Rare	Medium	None identified	Major	Rare	Medium
CH5d	C2	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Development	Construction	Uncovers/damages matters of cultural significance		Construction leads to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor. Mapping of areas of cultural significance to ensure higher vigilance in areas of known or suspected cultural significance.	Major	Rare	Medium	None identified	Major	Rare	Medium
CH6a	A0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Operation/Maintenance	Maintenance	Uncovers/damages matters of cultural significance		Maintenance activities lead to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Rare	Medium	None identified	Major	Rare	Medium
CH6b	A1	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Operation/Maintenance	Maintenance	Uncovers/damages matters of cultural significance		Maintenance activities lead to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Rare	Medium	None identified	Major	Rare	Medium
CH6c	C0	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Operation/Maintenance	Maintenance	Uncovers/damages matters of cultural significance		Maintenance activities lead to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Rare	Medium	None identified	Major	Rare	Medium
CH6d	C2	Cultural Heritage (Aboriginal heritage and Historic Heritage)	Operation/Maintenance	Maintenance	Uncovers/damages matters of cultural significance		Maintenance activities lead to the destruction of cultural heritage artefacts and the disturbance of culturally significant places.	Follow conditions in approved CHMP or Historic Heritage Report. Where cultural heritage is identified, follow appropriate contingency plan and contact heritage advisor.	Major	Rare	Medium	None identified	Major	Rare	Medium
E1a	A0	Economics	Initial	Design	Compulsory land acquisition		Compulsory acquisition of farming or commercial land leads to impact on viability of productive activities / business operations	Design should avoid compulsory land acquisition where practicable. Community engagement Compensation agreed with landowner in accordance with RRV Procedures	Minor	Possible	Low	Not required	Minor	Possible	Low
E1b	A1	Economics	Initial	Design	Compulsory land acquisition		Compulsory acquisition of farming or commercial land leads to impact on viability of productive activities / business operations	Design should avoid compulsory land acquisition where practicable. Community engagement Compensation agreed with landowner in accordance with RRV Procedures	Minor	Possible	Low	Not required	Minor	Possible	Low
E1c	C0	Economics	Initial	Design	Compulsory land acquisition		Compulsory acquisition of farming or commercial land leads to impact on viability of productive activities / business operations	Design should avoid compulsory land acquisition where practicable. Community engagement Compensation agreed with landowner in accordance with RRV Procedures	Minor	Possible	Low	Not required	Minor	Possible	Low
E1d	C2	Economics	Initial	Design	Compulsory land acquisition		Compulsory acquisition of farming or commercial land leads to impact on viability of productive activities / business operations	Design should avoid compulsory land acquisition where practicable. Community engagement Compensation agreed with landowner in accordance with RRV Procedures	Minor	Possible	Low	Not required	Minor	Possible	Low
E2a	A0	Economics	Development	Construction	Impacts on local economy		Potential impact on existing businesses and projects due to labour shortage	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E2b	A1	Economics	Development	Construction	Impacts on local economy		Potential impact on existing businesses and projects due to labour shortage	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk			
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
E2c	C0	Economics	Development	Construction	Impacts on local economy		Potential impact on existing businesses and projects due to labour shortage	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E2d	C2	Economics	Development	Construction	Impacts on local economy		Potential impact on existing businesses and projects due to labour shortage	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E3a	A0	Economics	Development	Construction	Impacts on local economy		Potential impact on tourism sector if project construction workers occupy most/all hotel, motel rooms etc. (noting limited existing supply).	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E3b	A1	Economics	Development	Construction	Impacts on local economy		Potential impact on tourism sector if project construction workers occupy most/all hotel, motel rooms etc. (noting limited existing supply).	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E3c	C0	Economics	Development	Construction	Impacts on local economy		Potential impact on tourism sector if project construction workers occupy most/all hotel, motel rooms etc. (noting limited existing supply).	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E3d	C2	Economics	Development	Construction	Impacts on local economy		Potential impact on tourism sector if project construction workers occupy most/all hotel, motel rooms etc. (noting limited existing supply).	Proponent to prepare a workforce development plan Ongoing consultation	Minor	Possible	Low	Not required	Minor	Possible	Low
E4a	A0	Economics	Development	Construction	Land access issues for local land users		Reduced access to farms, businesses and other properties.	Design should avoid severance to properties and businesses where practicable, and alternative access constructed should it be required Ongoing consultation Development of Access Plans for impacted businesses	Minor	Possible	Low	Not required	Minor	Unlikely	Low
E4b	A1	Economics	Development	Construction	Land access issues for local land users		Reduced access to farms, businesses and other properties.	Design should avoid severance to properties and businesses where practicable, and alternative access constructed should it be required Ongoing consultation Development of Access Plans for impacted businesses	Minor	Possible	Low	Not required	Minor	Unlikely	Low
E4c	C0	Economics	Development	Construction	Land access issues for local land users		Reduced access to farms, businesses and other properties.	Design should avoid severance to properties and businesses where practicable, and alternative access constructed should it be required Ongoing consultation Development of Access Plans for impacted businesses	Minor	Possible	Low	Not required	Minor	Unlikely	Low
E4d	C2	Economics	Development	Construction	Land access issues for local land users		Reduced access to farms, businesses and other properties.	Design should avoid severance to properties and businesses where practicable, and alternative access constructed should it be required Ongoing consultation Development of Access Plans for impacted businesses	Minor	Possible	Low	Not required	Minor	Unlikely	Low
E5a	A0	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential permanent impacts on access to farms, businesses and other properties	Implement recommendations of EIA Construction management plan controls to minimise changes/alterations to existing road networks, access to farms businesses and other properties.	Minor	Possible	Low	Not required	Minor	Possible	Low
E5b	A1	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential permanent impacts on access to farms, businesses and other properties	Implement recommendations of EIA Construction management plan controls to minimise changes/alterations to existing road networks, access to farms businesses and other properties.	Minor	Possible	Low	Not required	Minor	Possible	Low
E5c	C0	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential permanent impacts on access to farms, businesses and other properties	Implement recommendations of EIA Construction management plan controls to minimise changes/alterations to existing road networks, access to farms businesses and other properties.	Minor	Possible	Low	Not required	Minor	Possible	Low
E5d	C2	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential permanent impacts on access to farms, businesses and other properties	Implement recommendations of EIA Construction management plan controls to minimise changes/alterations to existing road networks, access to farms businesses and other properties.	Minor	Possible	Low	Not required	Minor	Possible	Low
E6a	A0	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential short-term loss of trade	Consultation with local stakeholders and Government agencies Tourism plan, gateway strategy, strategic township plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
E6b	A1	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential short-term loss of trade	Consultation with local stakeholders and Government agencies Tourism plan, gateway strategy, strategic township plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
E6c	C0	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential short-term loss of trade	Consultation with local stakeholders and Government agencies Tourism plan, gateway strategy, strategic township plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
E6d	C2	Economics	Operation/Maintenance	Operation	Impacts on local economy		Potential short-term loss of trade	Consultation with local stakeholders and Government agencies Tourism plan, gateway strategy, strategic township plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
GW1a	A0	Groundwater	Initial	Design	Changes in Hydrogeology	Impacts to Biodiversity, Impacts to Beneficial Users	Reduction in groundwater levels affecting existing users/sensitive receptors - such as registered and unregistered groundwater bores (water users), GDEs and surface waters systems.	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW1b	A1	Groundwater	Initial	Design	Changes in Hydrogeology	Impacts to Biodiversity	Reduction in groundwater levels affecting existing users/sensitive receptors - such as registered and unregistered groundwater bores (water users), GDEs and surface waters systems.	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW1c	C0	Groundwater	Initial	Design	Changes in Hydrogeology	Impacts to Biodiversity	Reduction in groundwater levels affecting existing users/sensitive receptors - such as registered and unregistered groundwater bores (water users), GDEs and surface waters systems.	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW1d	C2	Groundwater	Initial	Design	Changes in Hydrogeology	Impacts to Biodiversity	Reduction in groundwater levels affecting existing users/sensitive receptors - such as registered and unregistered groundwater bores (water users), GDEs and surface waters systems.	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW2a	A0	Groundwater	Development	Earthworks	Impacts groundwater quality	Impacts to Biodiversity	Disturbance of existing soils with elevated levels of contamination, including salinity, during construction resulting in mobilisation of contaminants into groundwater	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater - Contract Specification Section 177.G1 Fuels and Chemicals - Contract Specification Section 177.E Contaminated Soils and Material - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source Comply with - Environment Protection Act 1970. - Occupational Health and Safety Act 2004	Minor	Possible	Low	Contaminated soils, included soils with elevated salinity identified in reports of other environmental assessments are to be considered -Soil excavated in known and suspected salinity affected areas to be routinely tested prior to and during earthworks	Minor	Rare	Negligible

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
GW2b	A1	Groundwater	Development	Earthworks	Impacts groundwater quality	Impacts to Biodiversity	Disturbance of existing soils with elevated levels of contamination, including salinity, during construction resulting in mobilisation of contaminants into groundwater	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater - Contract Specification Section 177.G1 Fuels and Chemicals - Contract Specification Section 177.E Contaminated Soils and Material - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source Comply with - Environment Protection Act 1970. - Occupational Health and Safety Act 2004	Minor	Possible	Low	Contaminated soils, included soils with elevated salinity identified in reports of other environmental assessments are to be considered - soil excavated in known and suspected salinity affected areas to be routinely tested prior to and during earthworks	Minor	Rare	Negligible
GW2c	C0	Groundwater	Development	Earthworks	Impacts groundwater quality	Impacts to Biodiversity	Disturbance of existing soils with elevated levels of contamination, including salinity, during construction resulting in mobilisation of contaminants into groundwater	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater - Contract Specification Section 177.G1 Fuels and Chemicals - Contract Specification Section 177.E Contaminated Soils and Material - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source Comply with - Environment Protection Act 1970. - Occupational Health and Safety Act 2004	Minor	Possible	Low	Contaminated soils, included soils with elevated salinity identified in reports of other environmental assessments are to be considered - soil excavated in known and suspected salinity affected areas to be routinely tested prior to and during earthworks	Minor	Rare	Negligible
GW2d	C2	Groundwater	Development	Earthworks	Impacts groundwater quality	Impacts to Biodiversity	Disturbance of existing soils with elevated levels of contamination, including salinity, during construction resulting in mobilisation of contaminants into groundwater	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater - Contract Specification Section 177.G1 Fuels and Chemicals - Contract Specification Section 177.E Contaminated Soils and Material - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source Comply with - Environment Protection Act 1970. - Environment Protection Amendment Act 2018 - Occupational Health and Safety Act 2004	Minor	Possible	Low	Contaminated soils, included soils with elevated salinity identified in reports of other environmental assessments are to be considered - soil excavated in known and suspected salinity affected areas to be routinely tested prior to and during earthworks	Minor	Rare	Negligible
GW3a	A0	Groundwater	Development	Earthworks	Changes in Hydrogeology	Impacts to Biodiversity	Excavation of cuttings resulting in groundwater inflows during construction (and operation), leading to groundwater drawdown and changes to groundwater flow paths	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW3b	A1	Groundwater	Development	Earthworks	Changes in Hydrogeology	Impacts to Biodiversity	Excavation of cuttings resulting in groundwater inflows during construction (and operation), leading to groundwater drawdown and changes to groundwater flow paths	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
GW3c	C0	Groundwater	Development	Earthworks	Changes in Hydrogeology	Impacts to Biodiversity	Excavation of cuttings resulting in groundwater inflows during construction (and operation), leading to groundwater drawdown and changes to groundwater flow paths	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW3d	C2	Groundwater	Development	Earthworks	Changes in Hydrogeology	Impacts to Biodiversity	Excavation of cuttings resulting in groundwater inflows during construction (and operation), leading to groundwater drawdown and changes to groundwater flow paths	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	Risk is already considered acceptable. The groundwater management plan developed (GMP) by the Principal contractor should include sufficient provisions to capture any changes to the potential risk throughout the detailed design and construction phases. If additional geotechnical investigations, or design changes result in an unacceptable change to the risk ranking, then the GMP must incorporate suitable flexibility to incorporate additional controls if required.	Minor	Rare	Negligible
GW4a	A0	Groundwater	Development	Earthworks	Impacts groundwater quality		Inflow of contaminated groundwater presenting OH&S and ongoing environmental compliance issues	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	- If groundwater is encountered during 'Design Stage' works and the risk of groundwater inflow is established, then provisions for the installation of groundwater observation bores to test water quality should be incorporated into the GMP. Groundwater is to be tested and compare against water quality guidelines for ANZECC 2000 Primary contact (recreational use) - Elimination to the extent practical the source/s of contamination so as to minimise potential OH&S and impact/s to environmental values - adopt appropriate precautionary Personal Protective Equipment (PPE) when handling residual contaminated groundwater - apply applicable treatment measures to meet disposal guidance criteria prior to returning water to local waterways, or off-site disposal (as contaminant levels dictate).	Minor	Unlikely	Low
GW4b	A1	Groundwater	Development	Earthworks	Impacts groundwater quality		Inflow of contaminated groundwater presenting OH&S and ongoing environmental compliance issues	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	- If groundwater is encountered during 'Design Stage' works and the risk of groundwater inflow is established, then provisions for the installation of groundwater observation bores to test water quality should be incorporated into the GMP. Groundwater is to be tested and compare against water quality guidelines for ANZECC 2000 Primary contact (recreational use) - Elimination to the extent practical the source/s of contamination so as to minimise potential OH&S and impact/s to environmental values - adopt appropriate precautionary Personal Protective Equipment (PPE) when handling residual contaminated groundwater - apply applicable treatment measures to meet disposal guidance criteria prior to returning water to local waterways, or off-site disposal (as contaminant levels dictate).	Minor	Unlikely	Low
GW4c	C0	Groundwater	Development	Earthworks	Impacts groundwater quality		Inflow of contaminated groundwater presenting OH&S and ongoing environmental compliance issues	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	- If groundwater is encountered during 'Design Stage' works and the risk of groundwater inflow is established, then provisions for the installation of groundwater observation bores to test water quality should be incorporated into the GMP. Groundwater is to be tested and compare against water quality guidelines for ANZECC 2000 Primary contact (recreational use) - Elimination to the extent practical the source/s of contamination so as to minimise potential OH&S and impact/s to environmental values - adopt appropriate precautionary Personal Protective Equipment (PPE) when handling residual contaminated groundwater - apply applicable treatment measures to meet disposal guidance criteria prior to returning water to local waterways, or off-site disposal (as contaminant levels dictate).	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
GW4d	C2	Groundwater	Development	Earthworks	Impacts groundwater quality		Inflow of contaminated groundwater presenting OH&S and ongoing environmental compliance issues	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan Groundwater encountered on site shall be assessed for the opportunity for reuse as a non-potable water source	Minor	Possible	Low	- If groundwater is encountered during 'Design Stage' works and the risk of groundwater inflow is established, then provisions for the installation of groundwater observation bores to test water quality should be incorporated into the GMP. Groundwater is to be tested and compare against water quality guidelines for ANZECC 2000 Primary contact (recreational use) - Elimination to the extent practical the source/s of contamination so as to minimise potential OH&S and impact/s to environmental values - adopt appropriate precautionary Personal Protective Equipment (PPE) when handling residual contaminated groundwater - apply applicable treatment measures to meet disposal guidance criteria prior to returning water to local waterways, or off-site disposal (as contaminant levels dictate).	Minor	Unlikely	Low
GW5a	A0	Groundwater	Development	Construction	Impacts groundwater quality	Impacts to Biodiversity	Construction works impacting water quality in watercourses, GDE environments, and wetlands (as applicable) (sedimentation and salinity)	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable, development of the GMP combined with other controls within the EMF is sufficient for control and mitigation of risk.	Minor	Unlikely	Low
GW5b	A1	Groundwater	Development	Construction	Impacts groundwater quality	Impacts to Biodiversity	Construction works impacting water quality in watercourses, GDE environments, and wetlands (as applicable) (sedimentation and salinity)	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable, development of the GMP combined with other controls within the EMF is sufficient for control and mitigation of risk.	Minor	Unlikely	Low
GW5c	C0	Groundwater	Development	Construction	Impacts groundwater quality	Impacts to Biodiversity	Construction works impacting water quality in watercourses, GDE environments, and wetlands (as applicable) (sedimentation and salinity)	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable, development of the GMP combined with other controls within the EMF is sufficient for control and mitigation of risk.	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
GW5d	C2	Groundwater	Development	Construction	Impacts groundwater quality	Impacts to Biodiversity	Construction works impacting water quality in watercourses, GDE environments, and wetlands (as applicable) (sedimentation and salinity)	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable, development of the GMP combined with other controls within the EMF is sufficient for control and mitigation of risk.	Minor	Unlikely	Low
GW6a	A0	Groundwater	Operation/Maintenance	Operation	Impacts groundwater quality	Impacts to Biodiversity	Water quality impacts during operation of road	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable using standard controls this includes design measures to mitigate and manage ongoing (post construction stage) road run-off and associated operations pollution, as per VicRoads/RRV guidance standards	Minor	Unlikely	Low
GW6b	A1	Groundwater	Operation/Maintenance	Operation	Impacts groundwater quality	Impacts to Biodiversity	Water quality impacts during operation of road	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable using standard controls this includes design measures to mitigate and manage ongoing (post construction stage) road run-off and associated operations pollution, as per VicRoads/RRV guidance standards	Minor	Unlikely	Low
GW6c	C0	Groundwater	Operation/Maintenance	Operation	Impacts groundwater quality	Impacts to Biodiversity	Water quality impacts during operation of road	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Civil construction, building and demolition guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable using standard controls this includes design measures to mitigate and manage ongoing (post construction stage) road run-off and associated operations pollution, as per VicRoads/RRV guidance standards	Minor	Unlikely	Low
GW6d	C2	Groundwater	Operation/Maintenance	Operation	Impacts groundwater quality	Impacts to Biodiversity	Water quality impacts during operation of road	Management of potential impacts on groundwater in accordance with: - Contract Specification Section 177, B2, Groundwater, - Environmental guidelines for Civil construction, building and demolotion guide (EPA Publication 1834) - Construction Techniques for Sediment Pollution Control (EPA Publication 275) Develop a groundwater management plan The Contractor shall consider the beneficial uses, quality and quantity of groundwater when determining the ongoing management of groundwater	Minor	Possible	Low	Risk is already acceptable using standard controls this includes design measures to mitigate and manage ongoing (post construction stage) road run-off and associated operations pollution, as per VicRoads/RRV guidance standards	Minor	Unlikely	Low
CLM1a	A0	Land contamination	Development	Construction	Contamination of soil	Off-site disposal of contaminated materials	Cleaning / Construction vehicles / mini fuel tankers causing land contamination through fuel /chemical spills /discharges. Increased waste disposal cost, potential project delays	Implement S177.G1 Fuels and Chemicals Environment Protection Act 1970 Construction Environmental Management Plan	Moderate	Rare	Low	Not required	Moderate	Rare	Low
CLM1b	A1	Land contamination	Development	Construction	Contamination of soil	Off-site disposal of contaminated materials	Cleaning / Construction vehicles / mini fuel tankers causing land contamination through fuel /chemical spills /discharges. Increased waste disposal cost, potential project delays	Implement S177.G1 Fuels and Chemicals Environment Protection Act 1970 Construction Environmental Management Plan	Moderate	Rare	Low	Not required	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
CLM1c	C0	Land contamination	Development	Construction	Contamination of soil	Off-site disposal of contaminated materials	Cleaning / Construction vehicles / mini fuel tankers causing land contamination through fuel /chemical spills /discharges. Increased waste disposal cost, potential project delays	Implement S177.G1 Fuels and Chemicals Environment Protection Act 1970 Construction Environmental Management Plan	Moderate	Rare	Low	Not required	Moderate	Rare	Low
CLM1d	C2	Land contamination	Development	Construction	Contamination of soil	Off-site disposal of contaminated materials	Cleaning / Construction vehicles / mini fuel tankers causing land contamination through fuel /chemical spills /discharges. Increased waste disposal cost, potential project delays	Implement S177.G1 Fuels and Chemicals Environment Protection Act 1970 Construction Environmental Management Plan	Moderate	Rare	Low	Not required	Moderate	Rare	Low
CLM2a	A0	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	Off-site disposal of contaminated materials	Discovery of contaminated soils requiring management and potential off-site disposal.	Implement S177.E Contaminated Soils and Materials. Environment Protection Act 1970. Occupational Health and Safety Act 2004 Spoil Management Strategy/Plan Acid Sulfate Soil Management Plan Industrial Waste Resource Guidelines 702 and 621 guidelines	Moderate	Unlikely	Medium	Once the road alignment is finalised soil sampling and analysis is required to understand contamination risk / disposal costing / reuse assessment. Update EMP and Occupation Health and Safety Plan based on contaminants found.	Moderate	Rare	Low
CLM2b	A1	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	Off-site disposal of contaminated materials	Discovery of contaminated soils requiring management and potential off-site disposal.	Implement S177.E Contaminated Soils and Materials. Environment Protection Act 1970. Occupational Health and Safety Act 2004 Spoil Management Strategy/Plan Acid Sulfate Soil Management Plan Industrial Waste Resource Guidelines 702 and 621 guidelines	Moderate	Unlikely	Medium	Once the road alignment is finalised soil sampling and analysis is required to understand contamination risk / disposal costing / reuse assessment. Update EMP and Occupation Health and Safety Plan based on contaminants found.	Moderate	Rare	Low
CLM2c	C0	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	Off-site disposal of contaminated materials	Discovery of contaminated soils requiring management and potential off-site disposal.	Implement S177.E Contaminated Soils and Materials. Environment Protection Act 1970. Occupational Health and Safety Act 2004 Spoil Management Strategy/Plan Acid Sulfate Soil Management Plan Industrial Waste Resource Guidelines 702 and 621 guidelines	Moderate	Unlikely	Medium	Once the road alignment is finalised soil sampling and analysis is required to understand contamination risk / disposal costing / reuse assessment. Update EMP and Occupation Health and Safety Plan based on contaminants found.	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
CLM2d	C2	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	Off-site disposal of contaminated materials	Discovery of contaminated soils requiring management and potential off-site disposal.	Implement S177.E Contaminated Soils and Materials. Environment Protection Act 1970. Occupational Health and Safety Act 2004 Spoil Management Strategy/Plan Acid Sulfate Soil Management Plan Industrial Waste Resource Guidelines 702 and 621 guidelines	Moderate	Unlikely	Medium	Once the road alignment is finalised soil sampling and analysis is required to understand contamination risk / disposal costing / reuse assessment. Update EMP and Occupation Health and Safety Plan based on contaminants found.	Moderate	Rare	Low
CLM3a	A0	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	-	Contaminated groundwater / perched water encountered requiring dewatering for piling.	Implement S177.B2 Groundwater (including installation of groundwater monitoring wells to assess groundwater depth and quality to manage any potential contamination issues during construction (piling) /operations). Environment Protection Act 1970	Moderate	Unlikely	Medium	Elimination (e.g. treatment and remediation), to the extent practicable, of the source/s of contamination so as to minimise potential OH&S impacts and impact/s to environmental values	Moderate	Rare	Low
CLM3b	A1	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	-	Contaminated groundwater / perched water encountered requiring dewatering for piling.	Implement S177.B2 Groundwater (including installation of groundwater monitoring wells to assess groundwater depth and quality to manage any potential contamination issues during construction (piling) /operations). Environment Protection Act 1970	Moderate	Unlikely	Medium	Elimination (e.g. treatment and remediation), to the extent practicable, of the source/s of contamination so as to minimise potential OH&S impacts and impact/s to environmental values	Moderate	Rare	Low
CLM3b	C0	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	-	Contaminated groundwater / perched water encountered requiring dewatering for piling.	Implement S177.B2 Groundwater (including installation of groundwater monitoring wells to assess groundwater depth and quality to manage any potential contamination issues during construction (piling) /operations). Environment Protection Act 1970	Moderate	Unlikely	Medium	Elimination (e.g. treatment and remediation), to the extent practicable, of the source/s of contamination so as to minimise potential OH&S impacts and impact/s to environmental values	Moderate	Rare	Low
CLM3d	C2	Land contamination	Development	Construction	Uncovers contaminated land (incl. landfill)	-	Contaminated groundwater / perched water encountered requiring dewatering for piling.	Implement S177.B2 Groundwater (including installation of groundwater monitoring wells to assess groundwater depth and quality to manage any potential contamination issues during construction (piling) /operations). Environment Protection Act 1970	Moderate	Unlikely	Medium	Elimination (e.g. treatment and remediation), to the extent practicable, of the source/s of contamination so as to minimise potential OH&S impacts and impact/s to environmental values	Moderate	Rare	Low
NV1a	A0	Noise and vibration	Initial	Pre-construction activities	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement (EPA Guideline 1834) Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Possible	Low
NV1b	A1	Noise and vibration	Initial	Pre-construction activities	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement (EPA Guideline 1834) Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Possible	Low
NV1c	C0	Noise and vibration	Initial	Pre-construction activities	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement (EPA Guideline 1834) Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Possible	Low
NV1d	C2	Noise and vibration	Initial	Pre-construction activities	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
NV2a	A0	Noise and vibration	Initial	Clearing	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low
NV2b	A1	Noise and vibration	Initial	Clearing	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low
NV2c	C0	Noise and vibration	Initial	Clearing	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low
NV2d	C2	Noise and vibration	Initial	Clearing	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low
NV3a	A0	Noise and vibration	Development	Earthworks	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low
NV3b	A1	Noise and vibration	Development	Earthworks	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Possible	Low	Not required	Minor	Possible	Low
NV3c	C0	Noise and vibration	Development	Earthworks	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177 Hoarding (erection of temporary fencing) in selected locations, in consultation with receivers	Minor	Likely	Medium	None identified	Minor	Likely	Medium
NV3d	C2	Noise and vibration	Development	Earthworks	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide noise controls Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177 Hoarding (erection of temporary fencing) in selected locations, in consultation with receivers	Minor	Likely	Medium	None identified	Minor	Likely	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
NV4a	A0	Noise and vibration	Development	Earthworks	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV4b	A1	Noise and vibration	Development	Earthworks	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV4c	C0	Noise and vibration	Development	Earthworks	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV4d	C2	Noise and vibration	Development	Earthworks	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works Controls as per Section 177	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV5a	A0	Noise and vibration	Development	Earthworks	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guidewith reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking)	Minor	Unlikely	Low	Consideration of additional protection for assets and buildings should be considered through external structural analysis	Minor	Rare	Negligible
NV5b	A1	Noise and vibration	Development	Earthworks	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking)	Minor	Unlikely	Low	Consideration of additional protection for assets and buildings should be considered through external structural analysis	Minor	Rare	Negligible
NV5c	C0	Noise and vibration	Development	Earthworks	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide noise controls with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking).	Moderate	Unlikely	Medium	Dilapidation surveys Consideration of additional protection for assets and buildings should be considered through external structural analysis, if required	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
NV5d	C2	Noise and vibration	Development	Earthworks	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide noise controls with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking).	Moderate	Unlikely	Medium	Dilapidation surveys Consideration of additional protection for assets and buildings should be considered through external structural analysis, if required	Moderate	Rare	Low
NV6a	A0	Noise and vibration	Development	Construction	Increases noise and vibration	Impact on Groundwater flow	Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Possible	Low
NV6b	A1	Noise and vibration	Development	Construction	Increases noise and vibration	Impact on Groundwater flow	Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Possible	Low
NV6c	C0	Noise and vibration	Development	Construction	Increases noise and vibration	Impact on Groundwater flow	Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Hoarding (erection of temporary fencing) in selected locations, in consultation with receivers	Minor	Likely	Medium	None identified	Minor	Likely	Medium
NV6d	C2	Noise and vibration	Development	Construction	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Implement EPA Guideline 1834 Civil construction, building and demolition guide noise controls Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works Hoarding (erection of temporary fencing) in selected locations, in consultation with receivers	Minor	Likely	Medium	None identified	Minor	Likely	Medium
NV7a	A0	Noise and vibration	Development	Construction	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV7b	A1	Noise and vibration	Development	Construction	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV7c	C0	Noise and vibration	Development	Construction	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible

				Impact Pathway					Initial Risk				Residual Risk			
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
NV7d	C2	Noise and vibration	Development	Construction	Increases noise and vibration		Ground-borne noise: Construction activity can result in ground-borne noise inside noise sensitive buildings that can cause disturbance	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as NSW EPA Interim Construction Noise Guideline Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking). Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV8a	A0	Noise and vibration	Development	Construction	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking)	Moderate	Unlikely	Medium	Dilapidation surveys Consideration of additional protection for assets and buildings should be considered through external structural analysis, if required	Moderate	Rare	Low
NV8b	A1	Noise and vibration	Development	Construction	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking)	Moderate	Unlikely	Medium	Dilapidation surveys Consideration of additional protection for assets and buildings should be considered through external structural analysis, if required	Moderate	Rare	Low
NV8c	C0	Noise and vibration	Development	Construction	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking)	Moderate	Unlikely	Medium	Dilapidation surveys Consideration of additional protection for assets and buildings should be considered through external structural analysis, if required	Moderate	Rare	Low
NV8d	C2	Noise and vibration	Development	Construction	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Implement EPA Guideline 1834 Civil construction, building and demolition guide with reference to alternative guidance documents such as DIN 4150-3 to set and implement vibration limits Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking)	Moderate	Unlikely	Medium	Dilapidation surveys Consideration of additional protection for assets and buildings should be considered through external structural analysis, if required	Moderate	Rare	Low
NV9a	A0	Noise and vibration	Operation/Maintenance	Operation	Increases noise and vibration		Airborne Noise: High levels of airborne operational traffic noise can adversely impact on noise sensitive receivers	Compliance with VicRoads Traffic Noise Reduction Policy Noise mitigation measures, such as noise barriers, noise mounds	Moderate	Unlikely	Medium	Off-Reservation Treatments (ORT) to individual buildings such as - Fresh air ventilation treatments - Upgraded windows / doors - Upgrade window and door seals - Sealing of wall vents - Installation of external screens (local noise barriers)	Minor	Rare	Negligible
NV9b	A1	Noise and vibration	Operation/Maintenance	Operation	Increases noise and vibration		Airborne Noise: High levels of airborne operational traffic noise can adversely impact on noise sensitive receivers	Compliance with VicRoads Traffic Noise Reduction Policy Noise mitigation measures, such as noise barriers, noise mounds	Moderate	Unlikely	Medium	Off-Reservation Treatments (ORT) to individual buildings such as - Fresh air ventilation treatments - Upgraded windows / doors - Upgrade window and door seals - Sealing of wall vents - Installation of external screens (local noise barriers)	Minor	Rare	Negligible
NV9c	C0	Noise and vibration	Operation/Maintenance	Operation	Increases noise and vibration		Airborne Noise: High levels of airborne operational traffic noise can adversely impact on noise sensitive receivers	Compliance with VicRoads Traffic Noise Reduction Policy Noise mitigation measures, such as noise barriers, noise mounds and road surface treatment	Major	Possible	High	Off-Reservation Treatments (ORT) to individual buildings such as - Fresh air ventilation treatments - Upgraded windows / doors - Upgrade window and door seals - Sealing of wall vents - Installation of external screens (local noise barriers)	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
NV9d	C2	Noise and vibration	Operation/Maintenance	Operation	Increases noise and vibration		Airborne Noise: High levels of airborne operational traffic noise can adversely impact on noise sensitive receivers	Compliance with VicRoads Traffic Noise Reduction Policy Noise mitigation measures, such as noise barriers, noise mounds and road surface treatment	Major	Possible	High	Off-Reservation Treatments (ORT) to individual buildings such as - Fresh air ventilation treatments - Upgraded windows / doors - Upgrade window and door seals - Sealing of wall vents - Installation of external screens (local noise barriers)	Minor	Possible	Low
NV10a	A0	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration	Impact on Groundwater flow	Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Maintenance in the form of road works would fall under EPA 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV10b	A1	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration	Impact on Groundwater flow	Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Maintenance in the form of road works would fall under EPA 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV10c	C0	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Maintenance in the form of road works would fall under EPA 1834 Civil construction, building and demolition guide Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Unlikely	Low
NV10d	C2	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Airborne Noise: High levels of airborne construction noise can adversely impact on noise sensitive receivers	Maintenance in the form of road works would fall under Implement EPA Guideline 1834 Civil construction, building and demolition guide noise controls Provide engineering controls, such as noise mitigation in the form of noise barriers, attenuated plant. Provide management controls such as restricted hours of operation (day time only), community notification of works	Minor	Possible	Low	Not required	Minor	Unlikely	Low
NV11a	A0	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Monitor and manage vibration levels by implementing DIN 4150-3 to set vibration 'limits' to reduce risk of structural damage. Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking).	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV11b	A1	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Monitor and manage vibration levels by implementing DIN 4150-3 to set vibration 'limits' to reduce risk of structural damage. Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking).	Minor	Rare	Negligible	Not required	Minor	Rare	Negligible
NV11c	C0	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Monitor and manage vibration levels by implementing DIN 4150-3 to set vibration 'limits' to reduce risk of structural damage. Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking).	Moderate	Rare	Low	Not required	Moderate	Rare	Low
NV11d	C2	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Vibration: Damage to buildings. High levels of vibration can cause damage to heritage or other property assets	Monitor and manage vibration levels by implementing DIN 4150-3 to set vibration 'limits' to reduce risk of structural damage. Provide engineering controls, such as introduction of less impactful works (e.g. smaller plant), less vibration intensive methods (e.g. rock saws vs. rock-breaking).	Moderate	Rare	Low	Not required	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
NV12a	A1	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Airborne noise: Sleep disturbance Single event maximum noise levels have the potential to disturb sleep at nearby sensitive receivers.	None	Moderate	Possible	Medium	Off-reservation treatments (ORT) would reduce impacts.	Moderate	Possible	Medium
NV12b	C0	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Airborne noise: Sleep disturbance Single event maximum noise levels have the potential to disturb sleep at nearby sensitive receivers.	None	Moderate	Possible	Medium	Off-reservation treatments (ORT) would reduce impacts.	Moderate	Possible	Medium
NV12c	C2	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Airborne noise: Sleep disturbance Single event maximum noise levels have the potential to disturb sleep at nearby sensitive receivers.	None	Moderate	Possible	Medium	Off-reservation treatments (ORT) would reduce impacts.	Moderate	Possible	Medium
NV12d	C2	Noise and vibration	Operation/Maintenance	Maintenance	Increases noise and vibration		Airborne noise: Sleep disturbance Single event maximum noise levels have the potential to disturb sleep at nearby sensitive receivers.	None	Moderate	Possible	Medium	Off-reservation treatments (ORT) would reduce impacts.	Moderate	Possible	Medium
PLU1a	A0	Planning and landuse	Initial	Design	Compulsory land acquisition		The project design does not identify all the land required for acquisition, resulting in additional planning approval and land acquisition and project delays.	Due diligence, project quality management control and Government agency review through project assessment and approval process to ensure compliance with all relevant statutory controls.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU1b	A1	Planning and landuse	Initial	Design	Compulsory land acquisition		The project design does not identify all the land required for acquisition, resulting in additional planning approval and land acquisition and project delays.	Due diligence, project quality management control and Government agency review through project assessment and approval process to ensure compliance with all relevant statutory controls.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU1c	C0	Planning and landuse	Initial	Design	Compulsory land acquisition		The project design does not identify all the land required for acquisition, resulting in additional planning approval and land acquisition and project delays.	Due diligence, project quality management control and Government agency review through project assessment and approval process to ensure compliance with all relevant statutory controls.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU1d	C2	Planning and landuse	Initial	Design	Compulsory land acquisition		The project design does not identify all the land required for acquisition, resulting in additional planning approval and land acquisition and project delays.	Due diligence, project quality management control and Government agency review through project assessment and approval process to ensure compliance with all relevant statutory controls.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU2a	A0	Planning and landuse	Initial	Design	Changes land use		The project design is inconsistent with strategic planning policies relevant to future land use.	Planning approval will address consistency with planning policy relevant to future land use.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU2b	A1	Planning and landuse	Initial	Design	Changes land use		The project design is inconsistent with strategic planning policies relevant to future land use.	Planning approval will address consistency with planning policy relevant to future land use.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU2c	C0	Planning and landuse	Initial	Design	Changes land use		The project design is inconsistent with strategic planning policies relevant to future land use.	Planning approval will address consistency with planning policy relevant to future land use.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU2d	C2	Planning and landuse	Initial	Design	Changes land use		The project design is inconsistent with strategic planning policies relevant to future land use.	Planning approval will address consistency with planning policy relevant to future land use.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
PLU3a	A0	Planning and landuse	Initial	Design	Changes land use		The project design is not compliant with the statutory project approvals.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Major	Unlikely	Medium	Ensure penalty clauses in Contractor contracts that match the cost of the risk. Build in clear early warning and 'corrective action' provisions	Moderate	Unlikely	Medium
PLU3b	A1	Planning and landuse	Initial	Design	Changes land use		The project design is not compliant with the statutory project approvals.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Major	Unlikely	Medium	Ensure penalty clauses in Contractor contracts that match the cost of the risk. Build in clear early warning and 'corrective action' provisions	Moderate	Unlikely	Medium
PLU3c	C0	Planning and landuse	Initial	Design	Changes land use		The project design is not compliant with the statutory project approvals.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Major	Unlikely	Medium	Ensure penalty clauses in Contractor contracts that match the cost of the risk. Build in clear early warning and 'corrective action' provisions	Moderate	Unlikely	Medium
PLU3d	C2	Planning and landuse	Initial	Design	Changes land use		The project design is not compliant with the statutory project approvals.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Major	Unlikely	Medium	Ensure penalty clauses in Contractor contracts that match the cost of the risk. Build in clear early warning and 'corrective action' provisions	Moderate	Unlikely	Medium
PLU4a	A0	Planning and landuse	Initial	Planning	Land access issues for local land users		The project planning does not identify and assess land fragmentation that would impact viability for local land users.	Engage with community, affected properties and stakeholders early and throughout. Implement relevant management plans (e.g. traffic management plan, project management plan)	Moderate	Rare	Low	Not required	Moderate	Rare	Low
PLU4b	A1	Planning and landuse	Initial	Planning	Land access issues for local land users		The project planning does not identify and assess land fragmentation that would impact viability for local land users.	Engage with community, affected properties and stakeholders early and throughout. Implement relevant management plans (e.g. traffic management plan, project management plan)	Moderate	Rare	Low	Not required	Moderate	Rare	Low
PLU4c	C0	Planning and landuse	Initial	Planning	Land access issues for local land users		The project planning does not identify and assess land fragmentation that would impact viability for local land users.	Engage with community, affected properties and stakeholders early and throughout. Implement relevant management plans (e.g. traffic management plan, project management plan)	Moderate	Rare	Low	Not required	Moderate	Rare	Low
PLU4d	C2	Planning and landuse	Initial	Planning	Land access issues for local land users		The project planning does not identify and assess land fragmentation that would impact viability for local land users.	Engage with community, affected properties and stakeholders early and throughout. Implement relevant management plans (e.g. traffic management plan, project management plan)	Moderate	Rare	Low	Not required	Moderate	Rare	Low
PLU5a	A0	Planning and landuse	Development	Pre-construction activities	Land access issues for local land users		Pre-construction activities inconsistent with statutory approvals or policy, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU5b	A1	Planning and landuse	Development	Pre-construction activities	Land access issues for local land users		Pre-construction activities inconsistent with statutory approvals or policy, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU5c	C0	Planning and landuse	Development	Pre-construction activities	Land access issues for local land users		Pre-construction activities inconsistent with statutory approvals or policy, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU5d	C2	Planning and landuse	Development	Pre-construction activities	Land access issues for local land users		Pre-construction activities inconsistent with statutory approvals or policy, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
PLU6a	A0	Planning and landuse	Development	Clearing	Land access issues for local land users		Project clearing requirements are inconsistent with statutory approvals requiring additional approvals and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU6b	A1	Planning and landuse	Development	Clearing	Land access issues for local land users		Project clearing requirements are inconsistent with statutory approvals requiring additional approvals and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU6c	C0	Planning and landuse	Development	Clearing	Land access issues for local land users		Project clearing requirements are inconsistent with statutory approvals requiring additional approvals and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU6d	C2	Planning and landuse	Development	Clearing	Land access issues for local land users		Project clearing requirements are inconsistent with statutory approvals requiring additional approvals and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU7a	A0	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks cause amenity impacts on land use that are non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU7b	A1	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks cause amenity impacts on land use that are non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU7c	C0	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks cause amenity impacts on land use that are non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU7d	C2	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks cause amenity impacts on land use that are non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU8a	A0	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU8b	A1	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU8c	C0	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
PLU8d	C2	Planning and landuse	Development	Earthworks	Land access issues for local land users		Project earthworks non-compliant with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU9a	A0	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, impacting on reputation with other Government agencies..	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU9b	A1	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, impacting on reputation with other Government agencies..	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU9c	C0	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, impacting on reputation with other Government agencies..	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU9d	C2	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, impacting on reputation with other Government agencies..	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU10a	A0	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU10b	A1	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU10c	C0	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU10d	C2	Planning and landuse	Development	Earthworks	Unauthorised clearing		Project earthworks resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU11a	A0	Planning and landuse	Development	Construction	Land access issues for local land users		Project construction is inconsistent with statutory project approvals requiring additional permitting and project delays, this may include potential for locating unidentified infrastructure during construction	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU11b	A1	Planning and landuse	Development	Construction	Land access issues for local land users		Project construction is inconsistent with statutory project approvals requiring additional permitting and project delays, this may include potential for locating unidentified infrastructure during construction	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU11c	C0	Planning and landuse	Development	Construction	Land access issues for local land users		Project construction is inconsistent with statutory project approvals requiring additional permitting and project delays, this may include potential for locating unidentified infrastructure during construction	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
PLU11d	C2	Planning and landuse	Development	Construction	Land access issues for local land users		Project construction is inconsistent with statutory project approvals requiring additional permitting and project delays, this may include potential for locating unidentified infrastructure during construction	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU12a	A0	Planning and landuse	Development	Construction	Unauthorised clearing		Project construction resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU12b	A1	Planning and landuse	Development	Construction	Unauthorised clearing		Project construction resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU12c	C0	Planning and landuse	Development	Construction	Unauthorised clearing		Project construction resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU12d	C2	Planning and landuse	Development	Construction	Unauthorised clearing		Project construction resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting and project delays.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Possible	Low	Not required	Minor	Possible	Low
PLU13a	A0	Planning and landuse	Operation/Maintenance	Maintenance	Land access issues for local land users		Maintenance activities are non-compliant with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU13b	A1	Planning and landuse	Operation/Maintenance	Maintenance	Land access issues for local land users		Maintenance activities are non-compliant with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU13c	C0	Planning and landuse	Operation/Maintenance	Maintenance	Land access issues for local land users		Maintenance activities are non-compliant with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU13d	C2	Planning and landuse	Operation/Maintenance	Maintenance	Land access issues for local land users		Maintenance activities are non-compliant with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.A5.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
PLU14a	A0	Planning and landuse	Operation/Maintenance	Maintenance	Unauthorised clearing		Maintenance activities resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Rare	Negligible		Minor	Rare	Negligible
PLU14b	A1	Planning and landuse	Operation/Maintenance	Maintenance	Unauthorised clearing		Maintenance activities resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Rare	Negligible		Minor	Rare	Negligible
PLU14c	C0	Planning and landuse	Operation/Maintenance	Maintenance	Unauthorised clearing		Maintenance activities resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Rare	Negligible		Minor	Rare	Negligible
PLU14d	C2	Planning and landuse	Operation/Maintenance	Maintenance	Unauthorised clearing		Maintenance activities resulting in unauthorised vegetation clearing and non-compliance with statutory approvals, requiring additional permitting.	The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by RRV, in accordance with VicRoads Standard Contract Specification Section 177.Part I.	Minor	Rare	Negligible		Minor	Rare	Negligible

				Impact Pathway					Initial Risk				Residual Risk			
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
S1a	A0	Social	Initial	Design	Compulsory land acquisition		Permanent full or partial acquisition of residential or lifestyle properties	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Design to consider standard performance measures. Design to minimise degree of land acquisition. Engage with affected properties early and throughout including early engagement with RRV property services.	Moderate	Almost Certain	High	Engage independent expert advice to determine the additional reasonable and feasible mitigation measures to minimise impacts Establish dispute resolution protocols	Minor	Almost Certain	Medium
S1b	A1	Social	Initial	Design	Compulsory land acquisition		Permanent full or partial acquisition of residential or lifestyle properties	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Design to consider standard performance measures. Design to minimise degree of land acquisition. Engage with affected properties early and throughout including early engagement with RRV property services.	Moderate	Almost Certain	High	Engage independent expert advice to determine the additional reasonable and feasible mitigation measures to minimise impacts Establish dispute resolution protocols	Minor	Almost Certain	Medium
S1c	C0	Social	Initial	Design	Compulsory land acquisition		Permanent full or partial acquisition of residential or lifestyle properties	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Design to consider standard performance measures. Design to minimise degree of land acquisition. Engage with affected properties early and throughout including early engagement with RRV property services.	Moderate	Almost Certain	High	Engage independent expert advice to determine the additional reasonable and feasible mitigation measures to minimise impacts Establish dispute resolution protocols	Minor	Almost Certain	Medium
S1d	C2	Social	Initial	Design	Compulsory land acquisition		Permanent full or partial acquisition of residential or lifestyle properties	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Design to consider standard performance measures. Design to minimise degree of land acquisition. Engage with affected properties early and throughout including early engagement with RRV property services.	Moderate	Almost Certain	High	Engage independent expert advice to determine the additional reasonable and feasible mitigation measures to minimise impacts Establish dispute resolution protocols	Minor	Almost Certain	Medium
S2a	A0	Social	Initial	Pre-construction activities	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
S2b	A1	Social	Initial	Pre-construction activities	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
S2c	C0	Social	Initial	Pre-construction activities	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
S2d	C2	Social	Initial	Pre-construction activities	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
S3a	A0	Social	Development	Construction	Changes land use		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks. Temporary loss of existing residential and/or agricultural land.	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation Design to consider standard performance measures. Design to minimise and offset adverse changes were possible. Engage with affected properties early and throughout, demonstrate how feedback was considered in design process. Traffic management plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S3b	A1	Social	Development	Construction	Changes land use		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks. Temporary loss of existing residential and/or agricultural land.	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation Design to consider standard performance measures. Design to minimise and offset adverse changes were possible. Engage with affected properties early and throughout, demonstrate how feedback was considered in design process. Traffic management plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S3c	C0	Social	Development	Construction	Changes land use		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks. Temporary loss of existing residential and/or agricultural land.	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation Design to consider standard performance measures. Design to minimise and offset adverse changes were possible. Engage with affected properties early and throughout, demonstrate how feedback was considered in design process. Traffic management plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S3d	C2	Social	Development	Construction	Changes land use		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks. Temporary loss of existing residential and/or agricultural land.	(not specified in Section 177) Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation Design to consider standard performance measures. Design to minimise and offset adverse changes were possible. Engage with affected properties early and throughout, demonstrate how feedback was considered in design process. Traffic management plan	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S4a	A0	Social	Development	Clearing	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties and stakeholders early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks. Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S4b	A1	Social	Development	Clearing	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties and stakeholders early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks. Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation	Minor	Likely	Medium	None identified	Minor	Likely	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
S4c	C0	Social	Development	Clearing	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties and stakeholders early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks. Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S4d	C2	Social	Development	Clearing / Earthworks	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Ensure compliance with standard performance measures. Engage with affected properties and stakeholders early and throughout. Implement relevant management plans. Construction management plan controls to minimise changes/alterations to existing road networks, access to open space, facilities, networks. Implement recommendations of SIA. Negotiate appropriate mitigation or compensation in line with RRV protocols and procedures. Negotiate alternative access or temporary accommodation	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S5a	A0	Social	Development	Construction	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Construction works to use standard performance measures. Construction works to minimise and offset adverse changes were possible. Ensure compliance with standard performance measures. Engage with affected properties early and throughout, demonstrate how feedback was considered during construction planning. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S5b	A1	Social	Development	Construction	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Construction works to use standard performance measures. Construction works to minimise and offset adverse changes were possible. Ensure compliance with standard performance measures. Engage with affected properties early and throughout, demonstrate how feedback was considered during construction planning. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S5c	C0	Social	Development	Construction	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Construction works to use standard performance measures. Construction works to minimise and offset adverse changes were possible. Ensure compliance with standard performance measures. Engage with affected properties early and throughout, demonstrate how feedback was considered during construction planning. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S5d	C2	Social	Development	Construction	Land access issues for local land users		Temporary alteration or severance of existing local movement patterns and access to/from private land. Temporary loss of or change of access to open space, facilities or local networks.	(not specified in Section 177) Construction works to use standard performance measures. Construction works to minimise and offset adverse changes were possible. Ensure compliance with standard performance measures. Engage with affected properties early and throughout, demonstrate how feedback was considered during construction planning. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S6a	A0	Social	Operation/Maintenance	Operation	Land access issues for local land users		Permanent alteration or severance of existing local movement patterns and access to/from private land. Permanent loss of or change of access to open space, facilities or local networks.	Engage with affected properties and stakeholders early and throughout. Implement relevant management plans. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
S6b	A1	Social	Operation/Maintenance	Operation	Land access issues for local land users		Permanent alteration or severance of existing local movement patterns and access to/from private land. Permanent loss of or change of access to open space, facilities or local networks.	Engage with affected properties and stakeholders early and throughout. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S6c	C0	Social	Operation/Maintenance	Operation	Land access issues for local land users		Permanent alteration or severance of existing local movement patterns and access to/from private land. Permanent loss of or change of access to open space, facilities or local networks.	Engage with affected properties and stakeholders early and throughout. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S6d	C2	Social	Operation/Maintenance	Operation	Land access issues for local land users		Permanent alteration or severance of existing local movement patterns and access to/from private land. Permanent loss of or change of access to open space, facilities or local networks.	Engage with affected properties and stakeholders early and throughout. Implement relevant traffic and access management plans.	Minor	Likely	Medium	None identified	Minor	Likely	Medium
S7a	A0	Social	Operation/Maintenance	Operation	Visual or physical impact upon key sites		Permanent severance or change of access to or use of places of recognised significance to communities including local and regional residents, workers, businesses, and visitors	Engage with community, affected properties and stakeholders including Council early and throughout. Implement relevant management plans.	Moderate	Possible	Medium	Establish a Community Grant program or similar in consultation with Council to fund community support activities and small capital works targeting community, supporting and recreation facilities during the construction of the project	Moderate	Rare	Low
S7b	A1	Social	Operation/Maintenance	Operation	Visual or physical impact upon key sites		Permanent severance or change of access to or use of places of recognised significance to communities including local and regional residents, workers, businesses, and visitors	Engage with community, affected properties and stakeholders including Council early and throughout. Implement relevant management plans.	Moderate	Possible	Medium	Establish a Community Grant program or similar in consultation with Council to fund community support activities and small capital works targeting community, supporting and recreation facilities during the construction of the project	Moderate	Rare	Low
S7c	C0	Social	Operation/Maintenance	Operation	Visual or physical impact upon key sites		Permanent severance or change of access to or use of places of recognised significance to communities including local and regional residents, workers, businesses, and visitors	Engage with community, affected properties and stakeholders including Council early and throughout. Implement relevant management plans.	Moderate	Possible	Medium	Establish a Community Grant program or similar in consultation with Council to fund community support activities and small capital works targeting community, supporting and recreation facilities during the construction of the project	Moderate	Rare	Low
S7d	C2	Social	Operation/Maintenance	Operation	Visual or physical impact upon key sites		Permanent severance or change of access to or use of places of recognised significance to communities including local and regional residents, workers, businesses, and visitors	Engage with community, affected properties and stakeholders including Council early and throughout. Implement relevant management plans.	Moderate	Possible	Medium	Establish a Community Grant program or similar in consultation with Council to fund community support activities and small capital works targeting community, supporting and recreation facilities during the construction of the project	Moderate	Rare	Low
SG1a	A0	Soils and Geology	Initial	Design	Erosion / soil instability		Areas of cut may intersect groundwater levels and result in potential slope instability, face seepage and groundwater drawdown	In sections of the proposed alignments where significant cut is required, it is recommended that boreholes are drilled to confirm the geology and depth to the groundwater table. Standpipe installation is recommended to allow the monitoring of groundwater fluctuation over time to inform the design of the proposed cut slopes. Samples from each strata encountered in the borehole should be taken to allow geotechnical laboratory testing to be undertaken to allow the derivation of geotechnical parameters which will further inform the concept design of the proposed cut slopes. Samples should also be assessed for dispersion potential.	Minor	Possible	Low	Not required	Minor	Possible	Low
SG1b	A1	Soils and Geology	Initial	Design	Erosion / soil instability		Areas of cut may intersect groundwater levels and result in potential slope instability, face seepage and groundwater drawdown	In sections of the proposed alignments where significant cut is required, it is recommended that boreholes are drilled to confirm the geology and depth to the groundwater table. Standpipe installation is recommended to allow the monitoring of groundwater fluctuation over time to inform the design of the proposed cut slopes. Samples from each strata encountered in the borehole should be taken to allow geotechnical laboratory testing to be undertaken to allow the derivation of geotechnical parameters which will further inform the concept design of the proposed cut slopes. Samples should also be assessed for dispersion potential.	Minor	Possible	Low	Not required	Minor	Possible	Low
SG1c	C0	Soils and Geology	Initial	Design	Erosion / soil instability		Areas of cut may intersect groundwater levels and result in potential slope instability, face seepage and groundwater drawdown	In sections of the proposed alignments where significant cut is required, it is recommended that boreholes are drilled to confirm the geology and depth to the groundwater table. Standpipe installation is recommended to allow the monitoring of groundwater fluctuation over time to inform the design of the proposed cut slopes. Samples from each strata encountered in the borehole should be taken to allow geotechnical laboratory testing to be undertaken to allow the derivation of geotechnical parameters which will further inform the concept design of the proposed cut slopes. Samples should also be assessed for dispersion potential.	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SG1d	C2	Soils and Geology	Initial	Design	Erosion / soil instability		Areas of cut may intersect groundwater levels and result in potential slope instability, face seepage and groundwater drawdown	In sections of the proposed alignments where significant cut is required, it is recommended that boreholes are drilled to confirm the geology and depth to the groundwater table. Standpipe installation is recommended to allow the monitoring of groundwater fluctuation over time to inform the design of the proposed cut slopes. Samples from each strata encountered in the borehole should be taken to allow geotechnical laboratory testing to be undertaken to allow the derivation of geotechnical parameters which will further inform the concept design of the proposed cut slopes. Samples should also be assessed for dispersion potential.	Minor	Possible	Low	Not required	Minor	Possible	Low
SG2a	A0	Soils and Geology	Initial	Design	Encounters weak grounds		Embankments constructed over areas of alluvial deposits are likely to settle as a result of the compressible soils below.	In sections of the proposed alignments where softer ground is anticipated (i.e. alluvium deposits), it is recommended that boreholes are drilled to confirm the depth and nature of the soft ground to allow a preliminary estimation of anticipated settlement. The magnitude and time for completion of settlement should be reviewed as part of the design phase. Areas of softer ground may be encountered in areas associated with alluvial deposits and waterways. Structures are likely to require the use of piles to increase bearing capacity and reduce the impact of settlement.	Minor	Possible	Low	Not required	Minor	Possible	Low
SG2b	A1	Soils and Geology	Initial	Design	Encounters weak grounds		Embankments constructed over areas of alluvial deposits are likely to settle as a result of the compressible soils below.	In sections of the proposed alignments where softer ground is anticipated (i.e. alluvium deposits), it is recommended that boreholes are drilled to confirm the depth and nature of the soft ground to allow a preliminary estimation of anticipated settlement. The magnitude and time for completion of settlement should be reviewed as part of the design phase. Areas of softer ground may be encountered in areas associated with alluvial deposits and waterways. Structures are likely to require the use of piles to increase bearing capacity and reduce the impact of settlement.	Minor	Possible	Low	Not required	Minor	Possible	Low
SG2c	C0	Soils and Geology	Initial	Design	Encounters weak grounds		Embankments constructed over areas of alluvial deposits are likely to settle as a result of the compressible soils below.	In sections of the proposed alignments where softer ground is anticipated (i.e. alluvium deposits), it is recommended that boreholes are drilled to confirm the depth and nature of the soft ground to allow a preliminary estimation of anticipated settlement. The magnitude and time for completion of settlement should be reviewed as part of the design phase. Areas of softer ground may be encountered in areas associated with alluvial deposits and waterways. Structures are likely to require the use of piles to increase bearing capacity and reduce the impact of settlement.	Minor	Possible	Low	Not required	Minor	Possible	Low
SG2d	C2	Soils and Geology	Initial	Design	Encounters weak grounds		Embankments constructed over areas of alluvial deposits are likely to settle as a result of the compressible soils below.	In sections of the proposed alignments where softer ground is anticipated (i.e. alluvium deposits), it is recommended that boreholes are drilled to confirm the depth and nature of the soft ground to allow a preliminary estimation of anticipated settlement. The magnitude and time for completion of settlement should be reviewed as part of the design phase. Areas of softer ground may be encountered in areas associated with alluvial deposits and waterways. Structures are likely to require the use of piles to increase bearing capacity and reduce the impact of settlement.	Minor	Possible	Low	Not required	Minor	possible	Low
SG3a	A0	Soils and Geology	Initial	Design	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Emerson class testing should be carried out during the design phase to confirm dispersive nature of encountered soils	Minor	Likely	Medium	None identified	Minor	Likely	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SG3b	A1	Soils and Geology	Initial	Design	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Emerson class testing should be carried out during the design phase to confirm dispersive nature of encountered soils	Minor	Likely	Medium	None identified	Minor	Likely	Medium
SG3c	C0	Soils and Geology	Initial	Design	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Emerson class testing should be carried out during the design phase to confirm dispersive nature of encountered soils	Minor	Likely	Medium	None identified	Minor	Likely	Medium
SG3d	C2	Soils and Geology	Initial	Design	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Emerson class testing should be carried out during the design phase to confirm dispersive nature of encountered soils	Minor	Likely	Medium	None identified	Minor	Likely	Medium
SG4a	A0	Soils and Geology	Development	Construction	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Erosion and sediment control as per Section 177 Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Likely	Medium	Further Emerson class testing to confirm dispersive nature of encountered soils and detailed design to account for the findings of the testing.	Minor	Possible	Low
SG4b	A1	Soils and Geology	Development	Construction	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Erosion and sediment control as per Section 177 Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Likely	Medium	Further Emerson class testing to confirm dispersive nature of encountered soils and detailed design to account for the findings of the testing.	Minor	Possible	Low
SG4c	C0	Soils and Geology	Development	Construction	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Erosion and sediment control as per Section 177 Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Likely	Medium	Further Emerson class testing to confirm dispersive nature of encountered soils and detailed design to account for the findings of the testing.	Minor	Possible	Low
SG4d	C2	Soils and Geology	Development	Construction	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Erosion and sediment control as per Section 177 Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Likely	Medium	Further Emerson class testing to confirm dispersive nature of encountered soils and detailed design to account for the findings of the testing.	Minor	Possible	Low
SG5a	A0	Soils and Geology	Operation/Maintenance	Operation	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Maintain Erosion and sediment control Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Possible	Low	Not required	Minor	Possible	Low
SG5 b	A1	Soils and Geology	Operation/Maintenance	Operation	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Maintain Erosion and sediment control Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Possible	Low	Not required	Minor	Possible	Low
SG5c	C0	Soils and Geology	Operation/Maintenance	Operation	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Maintain Erosion and sediment control Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SG5d	C2	Soils and Geology	Operation/Maintenance	Operation	Erosion / soil instability		Previous reports have noted potential for dispersive soils. Dispersive nature of soils needs to be investigated adjacent to cut areas. Runoff from dispersive soils may pose an environmental hazard.	Maintain Erosion and sediment control Revegetation appropriate to the nature of the soils SEPP (Waters)	Minor	Possible	Low	Not required	Minor	Possible	Low
SW1a	A0	Surface Water	Initial	Design	Changes Hydrology		The final design alters local hydrology regime and negatively impacts on flooding, water quality and / or habitat.	Use hydrologic and hydraulic numerical modelling to inform the functional design of the bypass corridor. Consultation with CMA and Council to confirm surface water performance criteria (flood risk and drainage) for detail design. Preferred bypass alignment to be modelled to meet CMA and Council criteria. For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW1b	A1	Surface Water	Initial	Design	Changes Hydrology		The final design alters local hydrology regime and negatively impacts on flooding, water quality and / or habitat.	Use hydrologic and hydraulic numerical modelling to inform the functional design of the bypass corridor. Consultation with CMA and Council to confirm surface water performance criteria (flood risk and drainage) for detail design. Preferred bypass alignment to be modelled to meet CMA and Council criteria. For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW1c	C0	Surface Water	Initial	Design	Changes Hydrology		The final design alters local hydrology regime and negatively impacts on flooding, water quality and / or habitat.	Use hydrologic and hydraulic numerical modelling to inform the functional design of the bypass corridor. Consultation with CMA and Council to confirm surface water performance criteria (flood risk and drainage) for detail design. Preferred bypass alignment to be modelled to meet CMA and Council criteria. For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC.	Major	Likely	High	None identified	Major	Likely	High
SW1d	C2	Surface Water	Initial	Design	Changes Hydrology		The final design alters local hydrology regime and negatively impacts on flooding, water quality and / or habitat.	Use hydrologic and hydraulic numerical modelling to inform the functional design of the bypass corridor. Consultation with CMA and Council to confirm surface water performance criteria (flood risk and drainage) for detail design. Preferred bypass alignment to be modelled to meet CMA and Council criteria. For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC.	Minor	Unlikely	Low	None identified	Minor	Unlikely	Low
SW2a	A0	Surface Water	Initial	Planning	Statutory planning and environmental approval non-compliances		Unable to meet the Permit and Approval requirements	Planners, designers and managers review Legislation and Policies throughout the design process to ensure the design is compliant with legislation and approvals. Relevant legislation and strategies include: - Environmental Protection Act 1970 - State Environment Protection Policy (SEPP) (Waters) - Planning and Environment Act (1987) - Victorian Planning Policy (VPP) Framework - VPP Overlays - Water Act 1989 - Catchment and Land Protection Act 1994 - Local Planning Policy Framework - Glenelg Hopkins CMA relevant catchment management strategies and guidelines. Comprehensive understanding of applicable legislation and policy requirements to align construction activities and final design carefully with the applicable requirements. Effective communication with stakeholders to identify potential departures in early phases	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SW2b	A1	Surface Water	Initial	Planning	Statutory planning and environmental approval non-compliances		Unable to meet the Permit and Approval requirements	Planners, designers and managers review Legislation and Policies throughout the design process to ensure the design is compliant with legislation and approvals. Relevant legislation and strategies include: - Environmental Protection Act 1970 - State Environment Protection Policy (SEPP)(Waters) - Planning and Environment Act (1987) - Victorian Planning Policy (VPP) Framework - VPP Overlays - Water Act 1989 - Catchment and Land Protection Act 1994 - Local Planning Policy Framework - Glenelg Hopkins CMA relevant catchment management strategies and guidelines. Comprehensive understanding of applicable legislation and policy requirements to align construction activities and final design carefully with the applicable requirements. Effective communication with stakeholders to identify potential departures in early phases	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW2c	C0	Surface Water	Initial	Planning	Statutory planning and environmental approval non-compliances		Unable to meet the Permit and Approval requirements	Planners, designers and managers review Legislation and Policies throughout the design process to ensure the design is compliant with legislation and approvals. Relevant legislation and strategies include: - Environmental Protection Act 1970 - State Environment Protection Policy (SEPP)(Waters) - Planning and Environment Act (1987) - Victorian Planning Policy (VPP) Framework - VPP Overlays - Water Act 1989 - Catchment and Land Protection Act 1994 - Local Planning Policy Framework - Glenelg Hopkins CMA relevant catchment management strategies and guidelines. Comprehensive understanding of applicable legislation and policy requirements to align construction activities and final design carefully with the applicable requirements. Effective communication with stakeholders to identify potential departures in early phases	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW2d	C2	Surface Water	Initial	Planning	Statutory planning and environmental approval non-compliances		Unable to meet the Permit and Approval requirements	Planners, designers and managers review Legislation and Policies throughout the design process to ensure the design is compliant with legislation and approvals. Relevant legislation and strategies include: - Environmental Protection Act 1970 - State Environment Protection Policy (SEPP)(Waters) - Planning and Environment Act (1987) - Victorian Planning Policy (VPP) Framework - VPP Overlays - Water Act 1989 - Catchment and Land Protection Act 1994 - Local Planning Policy Framework - Glenelg Hopkins CMA relevant catchment management strategies and guidelines. Comprehensive understanding of applicable legislation and policy requirements to align construction activities and final design carefully with the applicable requirements. Effective communication with stakeholders to identify potential departures in early phases	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW3a	A0	Surface Water	Development	Clearing	Impacts on surface water quality		Destruction of vegetation results in changes to water quality and/or flooding conditions such as frequency and duration of flooding and increases to flood levels or flow velocities. The extent of ground disturbance within 50 m of Designated Waterways is 11.6 hectares.	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the EMP are being carried out when necessary.	Minor	Possible	Low	Appropriately manage sediment control where highly dispersive soils and high erosion potential have been identified	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SW3b	A1	Surface Water	Development	Clearing	Impacts on surface water quality		Destruction of vegetation results in changes to water quality and/or flooding conditions such as frequency and duration of flooding and increases to flood levels or flow velocities. The extent of ground disturbance within 50 m of Designated Waterways is 12.4 hectares.	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the EMP are being carried out when necessary.	Minor	Possible	Low	Appropriately manage sediment control where highly dispersive soils and high erosion potential have been identified	Minor	Unlikely	Low
SW3c	C0	Surface Water	Development	Clearing	Impacts on surface water quality		Destruction of vegetation results in changes to water quality and/or flooding conditions such as frequency and duration of flooding and increases to flood levels or flow velocities. The extent of ground disturbance within 50 m of Designated Waterways is 19.5 hectares.	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the EMP are being carried out when necessary.	Minor	Possible	Low	Appropriately manage sediment control where highly dispersive soils and high erosion potential have been identified	Minor	Unlikely	Low
SW3d	C2	Surface Water	Development	Clearing	Impacts on surface water quality		Destruction of vegetation results in changes to water quality and/or flooding conditions such as frequency and duration of flooding and increases to flood levels or flow velocities. The extent of ground disturbance within 50 m of Designated Waterways is 24.5 hectares.	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the EMP are being carried out when necessary.	Minor	Possible	Low	Appropriately manage sediment control where highly dispersive soils and high erosion potential have been identified	Minor	Unlikely	Low
SW4a	A0	Surface Water	Development	Construction	Changes Hydrology		Temporary works during the construction period alters existing waterway regimes in form of: - changes to flooding conditions such as frequency and duration of flooding, increased flood levels or flow velocities - reduction of floodplain storage or other changes to flow regimes leading to increases to peak flows or floodwater volumes. The length of the bypass alignment located within the 1% AEP flood extent is approximately 1.3 km.	Works shall be carried out in accordance with: - VicRoads Contract Specification Section 177.B in relation to environmental management plans. - CMA requirements, permits will be required for works on designated waterways. VicRoads maintenance and construction projects are required to develop a Construction Environmental Management Plan (CEMP). The CEMP should outline how the contractor will comply with any environmental conditions for the project and provide a framework to ensure that environmental risks are properly managed. Temporary works that impact the floodplain should be modelled The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary. Wherever possible construction works required for the project should occur outside the extent of the 1% AEP floodplain, to reduce the risk of increased inundation of properties.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SW4b	A1	Surface Water	Development	Construction	Changes Hydrology		Temporary works during the construction period alters existing waterway regimes in form of: - changes to flooding conditions such as frequency and duration of flooding, increased flood levels or flow velocities - reduction of floodplain storage or other changes to flow regimes leading to increases to peak flows or floodwater volumes. The length of the bypass alignment located within the 1% AEP flood extent is approximately 1.1 km.	Works shall be carried out in accordance with: - VicRoads Contract Specification Section 177.B in relation to environmental management plans. - CMA requirements, permits will be required for works on designated waterways. VicRoads maintenance and construction projects are required to develop a Construction Environmental Management Plan (CEMP). The CEMP should outline how the contractor will comply with any environmental conditions for the project and provide a framework to ensure that environmental risks are properly managed. Temporary works that impact the floodplain should be modelled The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary. Wherever possible construction works required for the project should occur outside the extent of the 1% AEP floodplain, to reduce the risk of increased inundation of properties.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW4c	C0	Surface Water	Development	Construction	Changes Hydrology		Temporary works during the construction period alters existing waterway regimes in form of: - changes to flooding conditions such as frequency and duration of flooding, increased flood levels or flow velocities - reduction of floodplain storage or other changes to flow regimes leading to increases to peak flows or floodwater volumes. The length of the bypass alignment located within the 1% AEP flood extent is approximately 1.5 km.	Works shall be carried out in accordance with: - VicRoads Contract Specification Section 177.B in relation to environmental management plans. - CMA requirements, permits will be required for works on designated waterways. VicRoads maintenance and construction projects are required to develop a Construction Environmental Management Plan (CEMP). The CEMP should outline how the contractor will comply with any environmental conditions for the project and provide a framework to ensure that environmental risks are properly managed. Temporary works that impact the floodplain should be modelled The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary. Wherever possible construction works required for the project should occur outside the extent of the 1% AEP floodplain, to reduce the risk of increased inundation of properties.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW4d	C2	Surface Water	Development	Construction	Changes Hydrology		Temporary works during the construction period alters existing waterway regimes in form of: - changes to flooding conditions such as frequency and duration of flooding, increased flood levels or flow velocities - reduction of floodplain storage or other changes to flow regimes leading to increases to peak flows or floodwater volumes. The length of the bypass alignment located within the 1% AEP flood extent is approximately 2.0 km.	Works shall be carried out in accordance with: - VicRoads Contract Specification Section 177.B in relation to environmental management plans. - CMA requirements, permits will be required for works on designated waterways. VicRoads maintenance and construction projects are required to develop a Construction Environmental Management Plan (CEMP). The CEMP should outline how the contractor will comply with any environmental conditions for the project and provide a framework to ensure that environmental risks are properly managed. Temporary works that impact the floodplain should be modelled The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary. Wherever possible construction works required for the project should occur outside the extent of the 1% AEP floodplain, to reduce the risk of increased inundation of properties.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SW5a	A0	Surface Water	Development	Construction	Impacts on surface water quality		Construction activities leads to erosion and sedimentation in existing waterways or hazardous spills impact downstream waterways. The bypass alignment intersects existing waterways at 16 locations.	In accordance with VicRoads Contract Specification: - Section 177.B Water Quality and 177.D in relation to sediment and erosion control, - Section 177.1 in relation to environmental management plans and EPA Publications: - Construction Techniques for Sediment Pollution Control (1991) - Civil construction, building and demolition guide (2020) The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary.	Minor	Possible	Low	Not required	Minor	Possible	Low
SW5b	A1	Surface Water	Development	Construction	Impacts on surface water quality		Construction activities leads to erosion and sedimentation in existing waterways or hazardous spills impact downstream waterways. The bypass alignment intersects existing waterways at 16 locations.	In accordance with VicRoads Contract Specification: - Section 177.B Water Quality and 177.D in relation to sediment and erosion control, - Section 177.1 in relation to environmental management plans and EPA Publications: - Construction Techniques for Sediment Pollution Control (1991) - Civil construction, building and demolition guide (2020) The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary.	Minor	Possible	Low	Not required	Minor	Possible	Low
SW5c	C0	Surface Water	Development	Construction	Impacts on surface water quality		Construction activities leads to erosion and sedimentation in existing waterways or hazardous spills impact downstream waterways. The bypass alignment intersects existing waterways at 14 locations.	In accordance with VicRoads Contract Specification: - Section 177.B Water Quality and 177.D in relation to sediment and erosion control, - Section 177.1 in relation to environmental management plans and EPA Publications: - Construction Techniques for Sediment Pollution Control (1991) - Civil construction, building and demolition guide (2020) The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary.	Minor	Possible	Low	Not required	Minor	Possible	Low
SW5d	C2	Surface Water	Development	Construction	Impacts on surface water quality		Construction activities leads to erosion and sedimentation in existing waterways or hazardous spills impact downstream waterways. The bypass alignment intersects existing waterways at 16 locations.	In accordance with VicRoads Contract Specification: - Section 177.B Water Quality and 177.D in relation to sediment and erosion control, - Section 177.1 in relation to environmental management plans and EPA Publications: - Construction Techniques for Sediment Pollution Control (1991) - Civil construction, building and demolition guide (2020) The CMA to approve the CEMP prior to construction works commencing on site. Regular supervision to ensure the CEMP is being full implemented and, reviews and improvements to the CEMP are being carried out when necessary.	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SW6a	A0	Surface Water	Development	Construction	Impacts on Surface Water Quality at MNES		Runoff during construction negatively impacts on water quality at sensitive MNES habitats. Flora and Fauna assessment identified within the project area: - 0.06 ha of seasonal wetlands (unlikely to have significant impact), - 2.64 ha of woodland and Derived Native Grassland within construction footprint (likely to have significant impact) - 1 threatened flora species (likely occurrence) - 3 threatened fauna species (low likelihood to moderate likelihood of occurrence)	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Minor	Possible	Low	Not required	Minor	Possible	Low
SW6b	A1	Surface Water	Development	Construction	Impacts on Surface Water Quality at MNES		Runoff during construction negatively impacts on water quality at sensitive MNES habitats. Flora and Fauna assessment identified within the project area: - 0.06 ha of seasonal wetlands (unlikely to have significant impact), - 0.06 ha of woodland and Derived Native Grassland within construction footprint (unlikely to have significant impact) - 1 threatened flora species (likely occurrence) - 2 threatened fauna species (low likelihood to moderate likelihood of occurrence)	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment -EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Minor	Possible	Low	Not required	Minor	Possible	Low
SW6c	C0	Surface Water	Development	Construction	Impacts on Surface Water Quality at MNES		Runoff during construction negatively impacts on water quality at sensitive MNES habitats.	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Major	Likely	High	Water discharge at sensitive habitat/wetland locations will be designed to -maintain existing flow into those areas -not detrimentally impact water quality in these areas Contractor to consult with flora and fauna specialists to confirm water discharge quality requirements at sensitive habitat / wetlands	Minor	Likely	Medium
SW6d	C2	Surface Water	Development	Construction	Impacts on Surface Water Quality at MNES		Runoff during construction negatively impacts on water quality at sensitive MNES habitats. Flora and Fauna assessment identified within the project area: - 0.06 ha of seasonal wetlands (unlikely to have significant impact), - 3 threatened fauna species (low likelihood to moderate likelihood of occurrence)	Implementation of VicRoads Specification (Section 177 Part B - Water Quality and Section 177D (sediment and erosion control)). Implementation of other guidelines including: - EPA Publication No. 275. Construction Techniques for Sediment Pollution Control (1991) - EPA Publication No. 1834, Civil construction, building and demolition guide (2020) Works to be carried out in consultation with Glenelg Hopkins CMA and Pyrenees Shire Council. The CMA to approve the CEMP prior to construction works commencing on site.	Minor	Possible	Low	Not required	Minor	Possible	Low
SW7a	A0	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Traffic accidents resulting in contamination of waterways.	Carry out an accident and spills risk assessment at detailed design stage and provide spill containment at high risk areas where required Coordination with EPA on spill response	Moderate	Rare	Low	Not required	Moderate	Rare	Low
SW7b	A1	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Traffic accidents resulting in contamination of waterways.	Carry out an accident and spills risk assessment at detailed design stage and provide spill containment at high risk areas where required Coordination with EPA on spill response	Moderate	Rare	Low	Not required	Moderate	Rare	Low
SW7c	C0	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Traffic accidents resulting in contamination of waterways.	Carry out an accident and spills risk assessment at detailed design stage and provide spill containment at high risk areas where required Coordination with EPA on spill response	Moderate	Rare	Low	Not required	Moderate	Rare	Low
SW7d	C2	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Traffic accidents resulting in contamination of waterways.	Carry out an accident and spills risk assessment at detailed design stage and provide spill containment at high risk areas where required Coordination with EPA on spill response	Moderate	Rare	Low	Not required	Moderate	Rare	Low
SW8a	A0	Surface Water	Operation/Maintenance	Maintenance	Impacts on surface water quality		Maintenance activities have the potential to generate pollutants such as dust, herbicides, cleaning agents or spillages of diesel / petrol fuel spillages from maintenance plant.	Maintenance Management procedures are to be developed and approved by VicRoads.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
SW8b	A1	Surface Water	Operation/Maintenance	Maintenance	Impacts on surface water quality		Maintenance activities have the potential to generate pollutants such as dust, herbicides, cleaning agents or spillages of diesel / petrol fuel spillages from maintenance plant.	Maintenance Management procedures are to be developed and approved by VicRoads.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW8c	C0	Surface Water	Operation/Maintenance	Maintenance	Impacts on surface water quality		Maintenance activities have the potential to generate pollutants such as dust, herbicides, cleaning agents or spillages of diesel / petrol fuel spillages from maintenance plant.	Maintenance Management procedures are to be developed and approved by VicRoads.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW8d	C2	Surface Water	Operation/Maintenance	Maintenance	Impacts on surface water quality		Maintenance activities have the potential to generate pollutants such as dust, herbicides, cleaning agents or spillages of diesel / petrol fuel spillages from maintenance plant.	Maintenance Management procedures are to be developed and approved by VicRoads.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW9a	A0	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Increase in pollutant loads as a result of untreated and undiluted road runoff into nearby waterways.	For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC. Where modelling identifies unacceptable impacts, develop concepts for mitigation measures including water sensitive road design elements such as treatment swales and water quality basins.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW9b	A1	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Increase in pollutant loads as a result of untreated and undiluted road runoff into nearby waterways.	For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC. Where modelling identifies unacceptable impacts, develop concepts for mitigation measures including water sensitive road design elements such as treatment swales and water quality basins.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW9c	C0	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Increase in pollutant loads as a result of untreated and undiluted road runoff into nearby waterways.	For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC. Where modelling identifies unacceptable impacts, develop concepts for mitigation measures including water sensitive road design elements such as treatment swales and water quality basins.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
SW9d	C2	Surface Water	Operation/Maintenance	Operation	Impacts on surface water quality		Increase in pollutant loads as a result of untreated and undiluted road runoff into nearby waterways.	For preferred option, impacts on wetlands from road drainage discharge to be assessed by developing road drainage design concepts and water quality modelling using MUSIC. Where modelling identifies unacceptable impacts, develop concepts for mitigation measures including water sensitive road design elements such as treatment swales and water quality basins.	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T1a	A0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Bypass doesn't not provide an attractive alternative to using the existing road. Insignificant reduction in traffic on existing route	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T1b	A1	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Bypass doesn't not provide an attractive alternative to using the existing road. Insignificant reduction in traffic on existing route	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T1c	C0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Bypass doesn't not provide an attractive alternative to using the existing road. Insignificant reduction in traffic on existing route	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T1d	C2	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Bypass does not provide an attractive alternative to using the existing road. Insignificant reduction in traffic on existing route	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T2a	A0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Further works required to increase capacity. This would require further work and design, and potentially further land requirements	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
T2b	A1	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Further works required to increase capacity. This would require further work and design, and potentially further land requirements	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T2c	C0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Further works required to increase capacity. This would require further work and design, and potentially further land requirements	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T2d	C2	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Further works required to increase capacity. This would require further work and design, and potentially further land requirements	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3	Minor	Unlikely	Low	Not required	Minor	Unlikely	Low
T3a	A0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Increased incidence of accidents due to traffic congestion	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T3b	A1	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Increased incidence of accidents due to traffic congestion	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T3c	C0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Increased incidence of accidents due to traffic congestion	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T3d	C2	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Increased incidence of accidents due to traffic congestion	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T4a	A0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		new routes may increase traffic on some roads, which may be at odds with the road hierarchy - decreasing amenity to road users and residents/businesses	Ensure the design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments Ensure stakeholder consultation is carried out, particularly with Council and the community, to manage any potential issues	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
T4b	A1	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		new routes may increase traffic on some roads, which may be at odds with the road hierarchy - decreasing amenity to road users and residents/businesses	Ensure the design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments Ensure stakeholder consultation is carried out, particularly with Council and the community, to manage any potential issues	Minor	Possible	Low	Not required	Minor	Possible	Low
T4c	C0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		new routes may increase traffic on some roads, which may be at odds with the road hierarchy - decreasing amenity to road users and residents/businesses	Ensure the design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments Ensure stakeholder consultation is carried out, particularly with Council and the community, to manage any potential issues	Minor	Possible	Low	Not required	Minor	Possible	Low
T4d	C2	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		new routes may increase traffic on some roads, which may be at odds with the road hierarchy - decreasing amenity to road users and residents/businesses	Ensure the design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments Ensure stakeholder consultation is carried out, particularly with Council and the community, to manage any potential issues	Minor	Possible	Low	Not required	Minor	Possible	Low
T5a	A0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Potential for decreased road safety due to inadequate design Increased incidence of accidents	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T5b	A1	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Potential for decreased road safety due to inadequate design Increased incidence of accidents	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T5c	C0	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Potential for decreased road safety due to inadequate design Increased incidence of accidents	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low
T5d	C2	Traffic	Initial	Design	Does not sufficiently cater for traffic demands		Potential for decreased road safety due to inadequate design Increased incidence of accidents	Ensure design follows relevant standards and guidelines, including but not limited to: — Austroads Guide to Road Design (AGRD) — Austroads Guide to Traffic Management (AGTM) — AS1742 - Manual of uniform traffic control devices — VicRoads Traffic Engineering Manual (TEM) Volume 1, 2 and 3 — Road Safety Audits/Safe System Assessments	Moderate	Rare	Low	Not required	Moderate	Rare	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
T6a	A0	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased incidence of accidents	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Moderate	Unlikely	Medium	None identified	Moderate	Unlikely	Medium
T6b	A1	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased incidence of accidents	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Moderate	Unlikely	Medium	None identified	Moderate	Unlikely	Medium
T6c	C0	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased incidence of accidents	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Moderate	Unlikely	Medium	None identified	Moderate	Unlikely	Medium
T6d	C2	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased incidence of accidents	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Moderate	Unlikely	Medium	None identified	Moderate	Unlikely	Medium
T7a	A0	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased traffic on local roads decreasing amenity to road users and residents/businesses	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Almost Certain	Medium	None identified	Minor	Almost Certain	Medium
T7b	A1	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased traffic on local roads decreasing amenity to road users and residents/businesses	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Almost Certain	Medium	None identified	Minor	Almost Certain	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
T7c	C0	Traffic	Development	Construction	Impacts on road users		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased traffic on local roads decreasing amenity to road users and residents/businesses	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Almost Certain	Medium	None identified	Minor	Almost Certain	Medium
T7d	C2	Traffic	Development	Construction	Does not sufficiently cater for traffic demands		Changed road environment during construction (construction traffic / site access / variable speeds / unfamiliar conditions / additional roadside hazards) leads to increased traffic on local roads decreasing amenity to road users and residents/businesses	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Almost Certain	Medium	None identified	Minor	Almost Certain	Medium
T8a	A0	Traffic	Development	Construction	Land access issues for local land users		Increased travel times, decreased amenity	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	None identified	Minor	Likely	Medium
T8b	A1	Traffic	Development	Construction	Land access issues for local land users		Increased travel times, decreased amenity	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	None identified	Minor	Likely	Medium
T8c	C0	Traffic	Development	Construction	Land access issues for local land users		Increased travel times, decreased amenity	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	None identified	Minor	Likely	Medium
T8d	C2	Traffic	Development	Construction	Land access issues for local land users		Increased travel times, decreased amenity	Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Ensure there is a thorough community consultation process Request relevant assistance when issues (e.g. enforcement of temporary traffic conditions) arise Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	None identified	Minor	Likely	Medium

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
T9a	A0	Traffic	Development	Construction	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	Provide alternate access to inaccessible land	Insignificant	Rare	Negligible
T9b	A1	Traffic	Development	Construction	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	Provide alternate access to inaccessible land	Insignificant	Rare	Negligible
T9c	C0	Traffic	Development	Construction	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	Provide alternate access to inaccessible land	Insignificant	Rare	Negligible
T9d	C2	Traffic	Development	Construction	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Likely	Medium	Provide alternate access to inaccessible land	Insignificant	Rare	Negligible
T10a	A0	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Increased travel times, decreased amenity	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Possible	Low	Not required	Minor	Possible	Low
T10b	A1	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Increased travel times, decreased amenity	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Possible	Low	Not required	Minor	Possible	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
T10c	C0	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Increased travel times, decreased amenity	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Possible	Low	Not required	Minor	Possible	Low
T10d	C2	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Increased travel times, decreased amenity	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Possible	Low	Not required	Minor	Possible	Low
T11a	A0	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Unlikely	Low	Provide temporary access to inaccessible land where possible	Minor	Unlikely	Low
T11b	A1	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Unlikely	Low	Provide temporary access to inaccessible land where possible	Minor	Unlikely	Low
T11c	C0	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Unlikely	Low	Provide temporary access to inaccessible land where possible	Minor	Unlikely	Low
T11d	C2	Traffic	Operation/Maintenance	Maintenance	Land access issues for local land users		Land becomes inaccessible	Ensure there is a thorough community consultation with impacted land holders process to minimise and manage land access impacts Ensure that a traffic management strategy is implemented which follows relevant standards and guidelines, including but not limited to: AS1742.3 - Manual of uniform traffic control devices TEM Vol 2 Part 2.03 - Traffic control devices for works on roads Preparation of traffic management plans (TMPs) and appropriate sign off by authority	Minor	Unlikely	Low	Provide temporary access to inaccessible land where possible	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
LV1a	A0	Visual and Landscape	Operation/Maintenance	Operation	Impacts upon landscape character types		Reduction / loss of sensitive landscape character areas that are important to the regional landscape character and quality, through impact of new structures and earthworks.	Fauna sensitive road design guidelines, VicRoads. Prepare and implement an Environment Management Plan. Permitted clearing of native vegetation Biodiversity assessment guidelines. VicRoads standard environmental protection measures.	Moderate	Almost Certain	High	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints.	Moderate	Possible	Medium
LV1b	A1	Visual and Landscape	Operation/Maintenance	Operation	Impacts upon landscape character types		Reduction / loss of sensitive landscape character areas that are important to the regional landscape character and quality, through impact of new structures and earthworks	Fauna sensitive road design guidelines, VicRoads. Prepare and implement an Environment Management Plan. Permitted clearing of native vegetation Biodiversity assessment guidelines. VicRoads standard environmental protection measures.	Moderate	Almost Certain	High	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints. Investigate planting outside of Extent of Works to further reduce impacts.	Moderate	Possible	Medium
LV1c	C0	Visual and Landscape	Operation/Maintenance	Operation	Impacts upon landscape character types		Reduction / loss of sensitive landscape character areas that are important to the regional landscape character and quality, through impact of new structures and earthworks	Fauna sensitive road design guidelines, VicRoads. Prepare and implement an Environment Management Plan. Permitted clearing of native vegetation Biodiversity assessment guidelines. VicRoads standard environmental protection measures.	Minor	Almost Certain	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints.	Minor	Possible	Low
LV1d	C2	Visual and Landscape	Operation/Maintenance	Operation	Impacts upon landscape character types		Reduction / loss of sensitive landscape character areas that are important to the regional landscape character and quality, through impact of new structures and earthworks	Fauna sensitive road design guidelines, VicRoads. Prepare and implement an Environment Management Plan. Permitted clearing of native vegetation Biodiversity assessment guidelines. VicRoads standard environmental protection measures.	Minor	Almost Certain	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints.	Minor	Possible	Low
LV2a	A0	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Reduction in quality of important viewsheds quality, especially of the viewshed between Beaufort and Camp Hill, through impact of new structures and earthworks.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Likely	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints.	Minor	Unlikely	Low
LV2b	A1	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Reduction in quality of important viewsheds quality, especially of the viewshed between Beaufort and Camp Hill, through impact of new structures and earthworks.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Likely	Medium	Planting of trees and vegetation to screen freeway character from key viewpoints in landscape. Where practicable, freeway infrastructure designed to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints. Investigate planting outside of Extent of Works to further reduce impacts.	Minor	Unlikely	Low
LV2c	C0	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Reduction in quality of important viewsheds quality, especially of the viewshed between Beaufort and Camp Hill, through impact of new structures and earthworks.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Possible	Low	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints.	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk		
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
LV2d	C2	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Reduction in quality of important viewsheds quality, especially of the viewshed between Beaufort and Camp Hill, through impact of new structures and earthworks.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Possible	Low	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints.	Minor	Unlikely	Low
LV3a	A0	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impacts on key sensitive public sites.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Possible	Low	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Minor	Unlikely	Low
LV3b	A1	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impacts on key sensitive public sites.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Possible	Low	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Minor	Unlikely	Low
LV3c	C0	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impacts on key sensitive public sites.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Likely	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Minor	Possible	Low
LV3d	C2	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impacts on key sensitive public sites.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Minor	Likely	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Minor	Possible	Low
LV4a	A0	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impact on adjacent residential dwellings within 500m.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Moderate	Possible	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Minor	Unlikely	Low
LV4b	A1	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impact on adjacent residential dwellings within 500m.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Moderate	Possible	Medium	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Minor	Unlikely	Low

				Impact Pathway					Initial Risk				Residual Risk			
Risk No.	Alignment Option	Discipline	Project Phase	Project Activity / Aspect	Primary Environmental Impact	Secondary Environmental Impact (if applicable) (further details provided in column V)	Description of risk and impact	Standard Controls (i.e. VicRoads Contract Specification e.g. Section 177, Section 720, Section 750; EPA Environmental Guidelines for Civil Construction, building and demolition and other relevant industry standards) (please detail)	Consequence	Likelihood	Risk Rating	Additional Controls (recommended to further reduce risk)	Consequence	Likelihood	Risk Rating
LV4c	C0	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impact on adjacent residential dwellings within 500m.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Moderate	Likely	High	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Moderate	Unlikely	Medium
LV4d	C2	Visual and Landscape	Operation/Maintenance	Operation	Visual or physical impact upon key Views		Impact on adjacent residential dwellings within 500m.	Embody VicRoads Environmental site management principles and implement an Environment Management Plan. Screen planting. Roadside Management Strategy, VicRoads.	Moderate	Likely	High	Investigate planting outside of Extent of Works to further reduce impacts. Planting of trees and vegetation to screen elevated elements, landscape. Where practicable, elevated carriageway infrastructure to be of quality design and to blend in with existing context and colours of the surrounding landscape. Utilise landscaped berms to conceal freeway from township and residential viewpoints	Moderate	Unlikely	Medium