Table B3: Location-specific Assessment and Mitigation

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
RP-001a AM 52–55												
AR52	Range of habitats supporting protected species (IUCN, GRL, CITES etc.)	Ecology	Loss/disturbance of Caucasian endemic and other rare species (iris *Iris carthaliniae*)	3-10/11	C	3	Medium	17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW	C	2	Low
			Loss/disturbance of GRL species (smooth-leaved elm *Ulmus minor*)	3-10/11	D	3	Medium	17.10	The re-establishment of vegetation will be monitored following reinstatement until it has reached Project near- and long-term re-vegetation targets. Corrective measures will be implemented if establishment of vegetation is not successful or if, following survey and data analysis, the species composition is considered by an experienced ecologist to be unsuitable for the area	D	2	Medium
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
	Elevated land (CH52-1) near road	Cultural Heritage	Potential adverse effect on artefacts in the immediate vicinity if access road requires widening	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low
RP-001a	Spur-thighed tortoise (*Testudo graeca*, GRL species) was recorded along the proposed ROW	Ecology	Disturbance or harm to spur-thighed tortoise (*Testudo graeca*)	3-10/11	D	3	Medium	19.03	If *Testudo graeca* (spur-thighed tortoise) is found within the work site, individuals will be moved a safe distance (50m+) from the works by the Project ecologist. Any eggs or hatchlings will be placed in a box of sand and transferred by the Project ecologist to suitable nearby habitat where a nest will be created	D	2	Medium
RP-001a KP1.0	Stone house/farm 40m from the proposed route	Air Quality	Disturbance from dust	3-12/13	D	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	D	2	Medium
		Noise	Disturbance from noise	3-14/15	C	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	C	2	Low
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
		Community Safety	Increased risk of accidents	3-20/24	C	4	Medium	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	C	3	Medium
		Land	Nuisance and land severance	3-20/21	B	4	Medium	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	B	4	Medium
								25.16	Correct tyre pressures will be monitored and maintained			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
								20.01	Following consultation with local communities gaps will be left in soil stacks and pipe strings at strategic locations to allow passage of people, wildlife and livestock where the Project considers it safe to do so			
								33.23	Properties that may potentially be affected by the Project will be consulted before and during construction			
								33.24	Access to properties will be maintained throughout construction			
RP-001a KP1.1–2.8	Range of habitats supporting protected species: - RP-001a KP2.5: specimens of smooth-leaved elm (*Ulmus minor*, GRL) - KP1.1 and KP2.72: specimens of Demetri's pear (*Pyrus demetrii*, GRL)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific	D	2	Medium
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.51	Where Demeter's pear (*Pyrus demetrii* - GRL) cannot be avoided new stock will be raised from locally collected seed and planted at a ratio of 10:1 in nearby suitable habitat, outside the WREP SR Project impact zone. Replanting should be undertaken in late October/early November (i.e. before winter frosts) using saplings that are at least 25cm tall and 2-years old			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
AR54 and AR55	Smooth-leaved elm specimens (*Ulmus minor*, GRL); Demeter's pear (*Pyrus demetrii*, GRL)	Ecology	Loss of biodiversity including GRL species	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
								17.51	Where Demeter's pear (*Pyrus demetrii* - GRL) cannot be avoided new stock will be raised from locally collected seed and planted at a ratio of 10:1 in nearby suitable habitat, outside the WREP SR Project impact zone. Replanting should be undertaken in late October/early November (i.e. before winter frosts) using saplings that are at least 25cm tall and 2-years old			
AR55	Pottery fragments (CH55-1) near the road	Cultural Heritage	Construction may have adverse effect on artefacts in the immediate vicinity	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
RR-001 AM 63–69												
RR-001 AR63a, AR65, AR65a, AR66, AR66a, AR67, AR69, AR69a	Route and access roads are very close to Tbilisi National Park	Landscape	Permanent landscape impact	3-4/5	C	3	Medium	17.30	Compensation planting will be undertaken to off-set the removal of trees from non forest-fund land	C	2	Low
		Ecology	Loss/severance of valued habitat and forest structure. Loss of biodiversity including GRL species	3-10/11	C	4	Medium	17.44	Compensation will be paid to offset the loss of trees from forest-fund land in accordance with national legislation	C	3	Low
	Spur-thighed tortoise (*Testudo graeca*, GRL species) was recorded along the proposed ROW and AR66	Ecology	Disturbance or harm to spur-thighed tortoise (*Testudo graeca*)	3-10/11	D	3	Medium	17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers	D	2	Medium
								17.34	Initial biorestoration will be undertaken in the first growing season after completion of construction			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.40	An ecological survey of the new-build section of AR63a will be carried out by the Company prior to commencement of construction activities in order to determine the presence of sensitive vegetation or fauna and develop mitigation measures if required. This will be completed when the plants are most visible i.e. during or after the flowering season			
								19.03	If *Testudo graeca* (spur-thighed tortoise) is found within the work site, individuals will be moved a safe distance (50m+) from the works by the Project ecologist. Any eggs or hatchlings will be placed in a box of sand and transferred by the Project ecologist to suitable nearby habitat where a nest will be created			
								19.17	A pre-construction survey will be carried out (during April, May or June) by the Company to identify the presence of Imperial Eagle nest sites within the vicinity of the ROW where construction activities have the potential to impact them. If any nests are identified, a site-specific ecological management plan will be developed			
AR63	Smooth-leaved elm (*Ulmus minor*, GRL) and orchards with cultivated common walnuts (*Juglans regia*, GRL) along the access road	Ecology	Loss of biodiversity including GRL species	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
	Houses 10-80m from the access road	Air Quality	Disturbance from dust	3-12/13	C	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	C	2	Low
		Noise	Disturbance from noise	3-14/15	C	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	C	2	Low
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	D	4	High	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	D	3	Medium
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								25.16	Correct tyre pressures will be monitored and maintained			
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
								30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
	Cemetery 40m from the access road Industrial units 80–300m from the access road Cattle farm 250m from the access road	Air Quality	Disturbance from dust	3-12/13	B	3	Low	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	B	2	Low
		Noise	Disturbance from noise	3-14/15	B	3	Low	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	B	2	Low
		Community Safety	Increased risk of accidents; disturbance and inconvenience to local communities	3-20/24	D	4	High	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	3	Medium
								23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users			
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			

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					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
								30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
								33.03	The Community liaison teams will maintain regular liaison with local communities before, during and after construction to ensure that disturbance of local communities (including local events e.g. weddings and funerals) by Project activities is minimised			
	Pottery fragments (CH63-1) and remains of a settlement (CH63-2) are near road but not directly affected	Cultural Heritage	Potential adverse effect on artefacts in the immediate vicinity if access road requires widening	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low
AR63a	Mamkoda village: house 290m from AR63a	Noise	Disturbance from noise	3-14/15	C	3	Medium	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	C	2	Low
RR-001 KP0.0	Houses within 70m of the tie-in area and along AR63	Air Quality	Disturbance from dust	3-12/13	D	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	D	2	Medium
		Noise	Disturbance from noise	3-14/15	B	3	Low	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	B	2	Low
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	C	4	Medium	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	C	3	Medium
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								25.16	Correct tyre pressures will be monitored and maintained			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
								30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
RR-001 KP0.0 AR63a, AR64.5	Summer houses (west of Mamkoda) within 220m	Noise	Disturbance from noise	3-14/15	C	3	Medium	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	C	2	Low

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
RR-001 KP0.1	Jokhtaniskhevi stream	Surface water	Sensitive downstream receptors (Mtkvari River and irrigation users) may be affected by any fuel and oil spills or sediment release during construction	3-6/7	B	4	Medium	10.16	During the construction of river crossings, daily visual monitoring of turbidity will be undertaken and supplemented as necessary by probe monitoring	B	3	Low
RR-001 numerous locations	Numerous populations of Demeter's pear - (*Pyrus demetrii*, GRL)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW	D	2	Medium
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.51	Where Demeter's pear (*Pyrus demetrii* - GRL) cannot be avoided new stock will be raised from locally collected seed and planted at a ratio of 10:1 in nearby suitable habitat, outside the WREP SR Project impact zone. Replanting should be undertaken in late October/early November (i.e. before winter frosts) using saplings that are at least 25cm tall and 2-years old			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
RR-001 KP2.0	Specimens of smooth-leaf elm (*Ulmus minor*, GRL)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
RR-001 KP2.0 AR65	Two summer houses within 30m of ROW Houses along AR65 within 10-20m	Air Quality	Disturbance from dust	3-12/13	D	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	D	2	Medium
		Noise	Disturbance from noise	3-14/15	C	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	C	2	Low

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance		Commitment	Sensitivity	Magnitude	Significance
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	D	4	High	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	D	3	Medium
		Land	Nuisance and land severance	3-20/21	B	4	Medium	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	B	4	Medium
								25.16	Correct tyre pressures will be monitored and maintained			
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
								30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
								20.01	Following consultation with local communities gaps will be left in soil stacks and pipe strings at strategic locations to allow passage of people, wildlife and livestock where the Project considers it safe to do so			
								33.23	Properties that may potentially be affected by the Project will be consulted before and during construction			
								33.24	Access to properties will be maintained throughout construction			
RR-001 (numerous locations), AR63, AR63a, AR64.5	Habitats supporting CITES-listed orchids: Pyramidal orchid (*Anacamptis pyrimidalis*), Cephalanthera orchid (*Cephalanthera longifolia*), Green-winged orchid (*Orchis morio*), Narrow-lipped heliborine (*Epipcactis leptochila*), Fragrant orchid (*Gymnadenia conopsea*), Violet limodore (*Limodrum abortivum*), Late spider orchid (*Ophrys fluciflora*); recorded during surveys in 2016	Ecology	Loss/disturbance of CITES species	3-10/11	C	3	Medium	17.22	The sale of bulbs from the ROW will be strictly prohibited	C	2	Low
								17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
								17.45	At temporary works areas where high conservation value, spring flowering species have been recorded, pre-construction surveys will be undertaken between late April and late May to confirm their presence and mark populations			
								17.46	Small populations (less than 50 specimens) of high conservation value species will be translocated to suitable habitat outside the working area if disturbance cannot be avoided			
								17.47	Large populations (more than 50 specimens) of high conservation value species will be avoided during setting out if possible and protected from disturbance during construction. Where large populations cannot be avoided, and 50% or more of the recorded population is likely to be disturbed by WREP-SR activities, 20% of the entire population will be translocated to the nearest suitable habitat outside the project impact zone			
								17.48	Translocated populations of high conservation value plants will be monitored to assess adaptation success; surveys will be undertaken twice a year during the flowering and fructification phases for at least three years.			
								17.49	If monitoring surveys indicate failure of the translocated populations of high conservation value plants, a mitigation plan will be developed and implemented. This plan will include collection of seeds from wild source populations occurring close to the project-affected sites, propagation of seedlings at ex situ conservation centres (botanical gardens) and re-introduction to suitable nearby habitats.			
RR-001 KP2.5	Jachviskhevi stream	Surface water	Sensitive downstream receptors (Mtkvari River and irrigation users) may be affected by any fuel and oil spills or sediment release during construction	3-6/7	D	4	High	10.16	During the construction of river crossings, daily visual monitoring of turbidity will be undertaken and supplemented as necessary by probe monitoring	B	3	Low

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance		Commitment	Sensitivity	Magnitude	Significance
RR-001 KP3.0	St George's Church on hilltop, 160m from the proposed route (CH6)	Noise	Disturbance from noise	3-14/15	B	3	Low	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	B	2	Low
		Cultural Heritage	Construction may have adverse effect on artefacts in the immediate vicinity	3-18/19	D	1	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	D	1	Low
	Medieval village remains. Structural remains (stone walls) of the settlement can be seen on the surface, spread across a fairly large area to NE of the route (CH7). Route avoids site boundary but is very close - 3m at the closest point.	Cultural Heritage	Construction may have adverse effect on artefacts in the immediate vicinity	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low
AR66	Houses 190m from the access road	Noise	Disturbance from noise	3-14/15	C	3	Medium	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	C	2	Low
	Access road to be used for ROW construction. Cultural layer consisting of ash, obsidian artefacts and animal bones observed within cutting of existing track. Also a clay pit on the side of the existing track (CH-5)	Cultural Heritage	Potential adverse effect on artefacts in the immediate vicinity if access road requires widening	3-18/19	C	3	Medium	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	C	1	Low
AR66a	A mature oak – potential shelter for bats and other animals	Ecology	Disturbance of bats roosting in the hollows of trees during ROW preparation	3-10/11	C	3	Medium	17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation	C	2	Low
								17.21	Where the ROW is through woodland with high biodiversity value, the working width will be reduced (subject to constructability constraints) with the aim of minimising impacts on these areas			
								17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
								17.30	Compensation planting will be undertaken to off-set the removal of trees from non forest-fund land			
								17.44	Compensation will be paid to offset the loss of trees from forest-fund land in accordance with national legislation			
								19.10	Site Specific Ecological Management Plans will be developed for priority areas. The Contractor will incorporate the requirements of these plans into site-specific method statements, which shall be agreed with the Company prior to construction			
								19.15	A pre-construction night bat emergence surveys will be carried out in June–			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
									July or late August–early September at locations where potential bat shelters were identified to determine bat species composition and abundance. If protected species of bats are found to be roosting in any structures or trees that will be removed, a mitigation strategy will be designed with the aim of reducing bat disturbance			
								19.18	Where possible, potential roost trees will be removed during winter (late November – mid/late February) when bats are unlikely to be present. No removal will take place in late April to early October when bats most active. Removal is inadvisable in March–April and the second half October			
								19.19	If removal of potential bat roosts in sub-optimal periods is unavoidable, the following actions will be taken: • bat specialist to be present during removal • ecologist to inspect removed trees with hollows • translocate any bats to suitable habitat away from construction areas • provide artificial bat shelters (compensation) at 1:3 ratio after reinstatement			
RR-001 KP3.5–7.6	Numerous specimens of smooth-leaf elm (*Ulmus minor*, GRL)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
RR-001 KP5.0	Medieval village remains. Route goes through northern boundary of site for approx. 350m (CH8)	Cultural Heritage	Construction may have adverse effect on artefacts in the immediate vicinity	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low
RR-001 KP5.2 AR67	Monastery 130m	Noise	Disturbance from noise	3-14/15	B	3	Low	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	B	2	Low

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
RR-001 KP5.5-KP7.6 AR69, AR69a, AR69b and AR67 (100m)	Pipeline route and access road are within or close to historic landscape protection zone (LPZ) associated with the Mtskheta World Heritage Site	Landscape	Permanent impact on historic landscape	3-4/5	E	3	Medium	3.35	Erosion protection measures will be installed on ridges and side slopes as required by the Project Reinstatement Specification	E	2	Medium
		Cultural Heritage	Construction may have adverse effect on historic landscape or artefacts in the immediate vicinity	3-18/19	E	2	Medium	17.10	The re-establishment of vegetation will be monitored following reinstatement until it has reached Project near- and long-term re-vegetation targets. Corrective measures will be implemented if establishment of vegetation is not successful or if, following survey and data analysis, the species composition is considered by an experienced ecologist to be unsuitable for the area	E	2	Medium
		Cultural Heritage	Construction traffic using AR69 may disrupt pilgrims and visitors to Jvari monastery	3-18/19	E	2	Medium	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	E	1	Low
								27.19	Schedule for work within the Mtskheta WHS LPZ and delivery of equipment and materials via the road to Jvari monastery (AR69) will be agreed in advance with Mtskheta Historic Monuments' stakeholders including NACHP, the Patriarchate of Georgia and community leaders			
AR69	Access to ROW is main road to Jvari Monastery, which is a UNESCO World Heritage Site and major cultural and tourist attraction	Tourism	Potential reduction in visitors and livelihood losses	3-20/22	B	2	Low	33.25	Consultation will be undertaken with the responsible authority before construction and the agreed measures will be implemented with the aim of minimising disturbance to visitors to Jvari monastery	B	2	Low
		Community Safety	Increased risk of traffic-related accidents	3-20/24	D	4	High	30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public	D	3	Medium
								30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
RR-001 KP6.8 AR69a	Monastery complex 220m from the proposed route and access road	Noise	Disturbance from noise	3-14/15	C	3	Medium	25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)	C	2	Low
RR-001 KP7.0 AR69a	Mature trees adjacent to or within the ROW or access roads that are hollow provide suitable habitat for roosting bats	Ecology	Disturbance of bats roosting in the hollows of trees during ROW preparation	3-10/11	C	3	Medium	17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation	C	2	Low
								17.21	Where the ROW is through woodland with high biodiversity value, the working width will be reduced (subject to constructability constraints) with the aim of minimising impacts on these areas			
								17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
								17.30	Compensation planting will be undertaken to off-set the removal of trees from non forest-fund land			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								17.44	Compensation will be paid to offset the loss of trees from forest-fund land in accordance with national legislation			
								19.10	Site Specific Ecological Management Plans will be developed for priority areas. The Contractor will incorporate the requirements of these plans into site-specific method statements, which shall be agreed with the Company prior to construction			
								19.15	A pre-construction night bat emergence surveys will be carried out in June–July or late August–early September at locations where potential bat shelters were identified to determine bat species composition and abundance. If protected species of bats are found to be roosting in any structures or trees that will be removed, a mitigation strategy will be designed with the aim of reducing bat disturbance			
								19.18	Where possible, potential roost trees will be removed during winter (late November – mid/late February) when bats are unlikely to be present. No removal will take place in late April to early October when bats most active. Removal is inadvisable in March–April and the second half October			
								19.19	If removal of potential bat roosts in sub-optimal periods is unavoidable, the following actions will be taken: • bat specialist to be present during removal • ecologist to inspect removed trees with hollows • translocate any bats to suitable habitat away from construction areas • provide artificial bat shelters (compensation) at 1:3 ratio after reinstatement			
RR-001 KP7.8	Oakwood with Caucasian hornbeam and European ash supporting Narrow-lipped heleborine (*Epipactis leptochila* subsp. *Leptochila*, CITES, recorded in 2011); Caucasian peonies (*Paeonia caucasica*, Caucasian endemic species, recorded in the vicinity of AM 70 in 2007 and 2009); and potentially GRL specimens of wild pear (*Pyrus demetrii, P. ketzkhovelii, P. sachokiana*)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
			Loss/disturbance of CITES species	3-10/11	C	3	Medium	17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW	C	2	Low
			Loss/disturbance of Caucasian endemic species	3-10/11	C	3	Medium	17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers	C	2	Low
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								17.22	The sale of bulbs from the ROW will be strictly prohibited			
								17.10	The re-establishment of vegetation will be monitored following reinstatement until it has reached Project near- and long-term re-vegetation targets. Corrective measures will be implemented if establishment of vegetation is not successful or if, following survey and data analysis, the species composition is considered by an experienced ecologist to be unsuitable for the area			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
AR to BVS28	Micropopulations of smooth-leaf elm (*Ulmus minor*, GRL)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
	Restaurant and building occupied by IDPs, 80m from the access road	Air Quality	Disturbance from dust	3-12/13	C	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	C	2	Low
		Noise	Disturbance from noise	3-14/15	C	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	C	2	Low
		Community Safety	Increased risk of accidents	3-14/16	C	4	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	C	3	Medium
								23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users			
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
RR-004a AM224 - AM226												
AR to PRS1	Access via 20km of village roads. Passes through several villages: Korbouili - within 5m of many houses, 10m of Korbouli school #1, 15m of a new school under construction, 20m of Korbouli school #2 and an open market with small shops either side of the road. Shomaketi - within 10m of Shomakheti school Usakhelo village - for about 1km. Residential houses are very close to the road. Within 20m of Usakhelo school. Zeda Usakhelo/Tsiteli Eklesia settlement - within 50m of village cemetery.	Air Quality	disturbance from dust	3-12/13	D	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	D	2	Medium
		Noise	Disturbance from noise	3-14/15	D	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	D	2	Medium
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	D	4	High	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	D	3	Medium
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								25.16	Correct tyre pressures will be monitored and maintained			
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
								37.06	At locations where schools are very close to a road used by WREP-SR traffic, the construction contractor will plan works to minimise the delivery of heavy loads at times when children are likely to be walking to and from school			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
AR223	Potential sensitive cultural heritage receptors along the access road	Cultural Heritage	Not yet assessed	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low
	Broad-leaved woodland dominated by Imeretian oak (*Quercus imeretina* - GRL) with some sweet chestnut (*Castanea sativa* - GRL) and isolated individuals of *Serapias vomeracea* (CITES)	Ecology	Loss/disturbance of GRL species and modified forest structure	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
			Loss/disturbance of CITES species	3-10/11	C	3	Medium	17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW	C	2	Low
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
								17.22	The sale of bulbs from the ROW will be strictly prohibited			
								17.45	At temporary works areas where high conservation value, spring flowering species have been recorded, pre-construction surveys will be undertaken between late April and late May to confirm their presence and mark populations			
								17.46	Small populations (less than 50 specimens) of high conservation value species will be translocated to suitable habitat outside the working area if disturbance cannot be avoided			
								17.48	Translocated populations of high conservation value plants will be monitored to assess adaptation success; surveys will be undertaken twice a year during the flowering and fructification phases for at least three years.			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								17.49	If monitoring surveys indicate failure of the translocated populations of high conservation value plants, a mitigation plan will be developed and implemented. This plan will include collection of seeds from wild source populations occurring close to the project-affected sites, propagation of seedlings at ex situ conservation centres (botanical gardens) and re-introduction to suitable nearby habitats.			
	Mandaeti: Schools, shops and houses within 20m from the access road	Air Quality	Disturbance from dust	3-12/13	D	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	D	2	Medium
		Noise	disturbance from noise	3-14/15	D	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	D	2	Medium
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	D	4	High	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	D	3	Medium
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								25.16	Correct tyre pressures will be monitored and maintained			
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified traffic control measures will reduce the risk of traffic accidents			
								37.06	At locations where schools are very close to a road used by WREP-SR traffic, the construction contractor will plan works to minimise the delivery of heavy loads at times when children are likely to be walking to and from school			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			
AR225	GRL species along the access road: Imeretian oak (*Quercus imeretina*), Smooth-leaf elm (*Ulmus minor*), Sweet chestnut (*Castanea sativa*) and Yew (*Taxus baccata*)	Ecology	Loss/disturbance of GRL species and modified forest structure	3-10/11	D	3	Medium	17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation	D	2	Medium
	Mature trees adjacent to or within the ROW or access roads that are hollow provide suitable habitat for roosting bats	Ecology	Disturbance of bats roosting in the hollows of trees during ROW preparation	3-10/11	C	3	Medium	17.21	Where the ROW is through woodland with high biodiversity value, the working width will be reduced (subject to constructability constraints) with the aim of minimising impacts on these areas	C	2	Low
								17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures			
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.30	Compensation planting will be undertaken to off-set the removal of trees from non forest-fund land			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								17.44	Compensation will be paid to offset the loss of trees from forest-fund land in accordance with national legislation			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			
								19.10	Site Specific Ecological Management Plans will be developed for priority areas. The Contractor will incorporate the requirements of these plans into site-specific method statements, which shall be agreed with the Company prior to construction			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								19.15	A pre-construction night bat emergence surveys will be carried out in June–July or late August–early September at locations where potential bat shelters were identified to determine bat species composition and abundance. If protected species of bats are found to be roosting in any structures or trees that will be removed, a mitigation strategy will be designed with the aim of reducing bat disturbance			
								19.18	Where possible, potential roost trees will be removed during winter (late November – mid/late February) when bats are unlikely to be present. No removal will take place in late April to early October when bats most active. Removal is inadvisable in March–April and the second half October			
								19.19	If removal of potential bat roosts in sub-optimal periods is unavoidable, the following actions will be taken: • bat specialist to be present during removal • ecologist to inspect removed trees with hollows • translocate any bats to suitable habitat away from construction areas • provide artificial bat shelters (compensation) at 1:3 ratio after reinstatement			
	High conservation value herbaceous plants (CITES & Georgian endemic species) adjacent to access road.	Ecology	Loss/disturbance of high conservation value, herbaceous plants	3-10/11	C	3	Medium	17.22	The sale of bulbs from the ROW will be strictly prohibited	C	2	Low
								17.45	At temporary works areas where high conservation value, spring flowering species have been recorded, pre-construction surveys will be undertaken between late April and late May to confirm their presence and mark populations			
								17.46	Small populations (less than 50 specimens) of high conservation value species will be translocated to suitable habitat outside the working area if disturbance cannot be avoided			
								17.47	Large populations (more than 50 specimens) of high conservation value species will be avoided during setting out if possible and protected from disturbance during construction. Where large populations cannot be avoided, and 50% or more of the recorded population is likely to be disturbed by WREP-SR activities, 20% of the entire population will be translocated to the nearest suitable habitat outside the project impact zone			
								17.48	Translocated populations of high conservation value plants will be monitored to assess adaptation success; surveys will be undertaken twice a year during the flowering and fructification phases for at least three years.			
								17.49	If monitoring surveys indicate failure of the translocated populations of high conservation value plants, a mitigation plan will be developed and implemented. This plan will include collection of seeds from wild source populations occurring close to the project-affected sites, propagation of seedlings at ex situ conservation centres (botanical gardens) and re-introduction to suitable nearby habitats.			
	Houses within 80m of the access road	Air Quality	Disturbance from dust	3-12/13	C	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	C	2	Low
		Noise	Disturbance from noise	3-14/15	D	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	D	2	Medium

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance		Commitment	Sensitivity	Magnitude	Significance
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	C	4	Medium	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	C	3	Medium
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								25.16	Correct tyre pressures will be monitored and maintained			
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			

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					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
	Flint (CH225-1) and pottery fragments (CH225-2) near the road	Cultural Heritage	Potential adverse effect on artefacts in the immediate vicinity if access road requires widening	3-18/19	B	2	Low	27.05	A cultural heritage surveillance programme (watching brief) will be implemented during topsoil stripping and ROW trenching	B	2	Low
Supsa River Crossings												
Supsa WREP and Supsa Export river crossings	Supsa River	Surface water	Mud breakout from HDD resulting in increased sediment in river adversely affecting downstream receptors	3-6/7	C	3	Medium	6.26	Drilling mud will be stored in impermeable, lined, bunded areas or tanks	C	3	Medium
								9.03	Drilling muds used will be water based			
								7.16	The contractor will prepare a plan to respond to a release of drilling mud if this occurs during a non-open-cut crossing, including clean up and remediation of the release on land and liaison with downstream users in the event of a release to water			
								10.16	During the construction of river crossings, daily visual monitoring of turbidity will be undertaken and supplemented as necessary by probe monitoring			
								D12.06	Each major river crossing will have a site-specific design which will be set to account for the expected maximum flow rates (1:200 year storm event), sediment movement patterns, anticipated changes to the river bed contour and the predicted extent of lateral erosion			
Supsa WREP crossing	Small remnant of riparian forest; otters (GRL) on the southern (left) bank of the Supsa river	Ecology	Loss/disturbance of GRL species	3-10/11	D	3	Medium	17.39	The remnant forest on the left bank of the river Supsa will be retained and protected from encroachment of construction activities	D	1	Low
								19.16	The banks of the river Supsa will be kept free of Project-related obstructions during construction so that the otters can move freely up and down the river			
								8.04	Lights will be shrouded or directed with the aim of reducing off-site light spill at construction sites			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
AR373	Shop, farm and houses adjacent to the access road	Air Quality	Disturbance from dust	3-12/13	D	3	Medium	33.23	Properties that may potentially be affected by the Project will be consulted before and during construction	D	2	Medium
		Noise	Disturbance from noise	3-14/15	C	3	Medium	30.26	Communities located along Project access roads that will require additional consultation to be undertaken before and during construction will be identified	C	2	Low
		Vibration	Vibration damage to buildings	3-14/16	D	3	Medium	24.08	The implementation and effectiveness of dust prevention measures at the dust sensitive locations listed in Table 10-16 will be closely monitored	D	2	Medium
		Community Safety	Increased risk of accidents	3-20/24	D	4	High	23.05	Dust generation and concentrations in the air will be visually monitored during construction where activities are near communities. If dust is visible, additional mitigation measures, such as the imposition of tighter speed limits, will be implemented with the aim of avoiding causing disturbance to residents or land users	D	3	Medium

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
								25.09	During construction of the pipeline where the works are less than 400m from residential buildings for longer than one month, periodic noise monitoring readings of 10 minutes duration (in accordance with the Project procedure) will be measured at the building facade at the start of the potentially noisy activities. If the noise exceeds Project Environmental Standards (Appendix F), measures will be implemented to aim to reduce noise levels (e.g. hoardings)			
								25.16	Correct tyre pressures will be monitored and maintained			
								37.08	Surface of frequently used access roads will be subject to regular inspections and repair, with the aim of ensuring they are maintained in a good condition particularly where fragile buildings are close to roads (subject to site-specific survey)			
								25.14	A survey will be undertaken to record the external condition of buildings in close proximity to the ROW or access roads prior to construction; this will provide baseline evidence in the event of claims for damage			
								25.15	The validity of any damage claims will be assessed; repairs will be undertaken or appropriate compensation paid if damage is associated with construction vehicle movements			
								25.13	Vibration sensitive locations will be determined by the Contractor and listed in their Pollution Prevention Plan, together with details for monitoring vibration before and during movement of heavy equipment. Further actions will depend on the outcome of vibration monitoring.			
								23.02	Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximise fuel efficiency and help minimise emissions			
								24.02	A strict speed limit will be enforced for Project vehicles using unmade tracks and the ROW in accordance with speed limits defined in the Contractor's Transport Management Plan			
								30.02	Community Liaison Officers (CLOs) appointed by the Contractor will participate in, or deliver, safety awareness training to local communities at sensitive locations e.g. where there will be major excavations and/or Project construction traffic close to schools or markets			
								37.04	Temporary traffic control measures will be employed at road crossings and junctions (flagmen, temporary traffic lights) where a safety risk assessment has identified that traffic control measures will reduce the risk of traffic accidents			
								30.21	At road crossings, measures to control road traffic and vehicles exiting from the working areas will be implemented with the aim of ensuring vehicles join the road in a safe manner			
								30.04	Protective barriers will be erected at excavations, close to a community or that are flooded temporarily; warning barriers will be deployed around areas of lesser risk to members of the public			
								37.10	Night-time driving will be by exception only, as approved by the Company, to minimise driving risk and disturbance to communities			

Location	CONSTRAINT/ISSUE	FACTOR	POTENTIAL IMPACTS	ESIA Table	POTENTIAL IMPACT			MITIGATION		RESIDUAL IMPACT		
					Sensitivity	Magnitude	Significance	Commitment		Sensitivity	Magnitude	Significance
Supsa export crossing, left (southern) bank	Individuals of Caucasian wingnut (*Pterocarya pterocarpa*, GRL)	Ecology	Loss/disturbance of GRL/IUCN species and modified forest structure	3-10/11	D	3	Medium	17.23	Pre-construction ecological surveys will be undertaken to record details of rare species (GRL, IUCN, CITES, Caucasian endemic) that will be lost; this information will be used in development of biorestoration measures	D	2	Medium
								17.25	Protected species (e.g. GRL, IUCN) will be identified prior to construction and will be avoided where deemed practicable by the Company during the setting out of the ROW			
								17.33	Individual mature trees will be marked prior to construction and avoided as deemed practicable by the Company during the setting out of the ROW and access roads; retained trees will be protected from damage during construction e.g. by erecting fencing and warning barriers			
								17.15	An inventory will be made of all trees that are likely to be felled during the Project, including Red Data Book species, in accordance with the requirements of national legislation			
								17.08	Compensation planting will be based on the number of trees to be removed. A re-planting ratio will be developed which will be species and region specific			
								OP51	The Project will carry out annual monitoring and maintenance of planted or re-planted trees until the trees have become successfully established			