

**Annex 1. ESMP:
Environmental and Social Impact Mitigation Table (ESMiT)**

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/Duration	Who will Implement	Who will Supervise
1.0 PRE-CONSTRUCTION PERIOD: Planning and design actions to prevent future impacts						
Physical Environment						
1.1 Air Quality	Green House Gas released from all vessels involved in cable contract	In contract specs, require all ships used, to submit emission certification re PM, SO2 and NOx. The results will need to meet emission standards for such vessels, based on the USEPA standards (http://www.epa.gov/otaq/marine.htm CFR-40 set of codes). A smoke density test will also be performed by the technical monitor, using the Canadian Department of Transport Smoke Chart set out in the schedule of the regulations (https://www.dieselnet.com/standards/ca/marine.php). For vessels with diesel engines a stack smoke density less than No. 1 is normally required with the exception that a smoke density of No. 2 for an aggregate of not more than 4 minutes in any 30-minute period is allowed.	Entire cable route.	When in use.	DTCI or Open Access Entity (OAE) once established	Project Coordinator
1.2 Substrate	Use of foreign materials for filling cable trench, causing unknown pollution.	Specify in cable-laying contractor's specification that; 1. All backfill will have to be only locally sourced or seabed material. 2. Only inert/stable materials are to be used in cable laying and anchoring. Be aware of unexploded WWII munitions.	Inshore Coastal areas.	When in use. Low tide in intertidal areas.	DTCI / OAE	Project Coordinator
1.3 UXO	Failure to complete an unexploded ordinance sweep of the cable route as it enters the coastal waters could lead to explosions and loss of life	Conduct a UXO survey of the cable alignment as it passes the barrier reef cut and all the way to the landing site, prior to any cable placement activity.	Inshore Coastal areas.	Prior to start of any active cable laying work.	DTCI / OAE	Project Coordinator
1.4 Hydrothermal Vents	1. Physical damage to vents by cable or cable-laying equipment. 2. Smothering by disturbing area	1. In construction contract specifications (prepared by Project Coordinator) require survey team to identify a cable route that maintains a minimum clearance of 200 m from active hydrothermal vents (if known), and specify this route in the cable-laying specification.	Deep sea areas.	During preparation of contract specifications	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/ Duration	Who will Implement	Who will Supervise
	vent water temperature.					
1.5 Sea mounts.	Physical damage to habitat and possible fishery usage.	During preparation of contract specifications, Project Coordinator will include a minimum clearance of 2 Km from the base of seamounts, for any cable alignment and that this specification will be rigorously adhered to by the contractor (both the oceanographic survey and cable -laying operators)	Oceanic deep-sea areas.	During preparation of contract specifications	DTCI / OAE	Project Coordinator
Ecological Environment						
1.6 Conservation Areas (MPA)	Disturbance of marine organisms and habitats in CA.	1. Define in contract specifications, via GPS and survey markers, a cable route that provides $\geq 75m$ distance from CA boundaries, and requires all survey and cable laying vessels to maintain this distance at all times.	Inshore Coastal areas.	Prior to start of Construction	DTCI / OAE	Project Coordinator
1.7 Coastal and deep ocean habitats	Accidental discharge of pollutants from vessel and from vessel grounding.	1. In bid documentation, require bidders to provide specifications of the fuel and lubricant management equipment and storage on vessels used during the survey and cable laying operations , and certify that the installations is in compliance with national regulations and-or MARPOL specifications for fuel management 2. Maintain a contingency plan to address spills and	Inshore Coastal areas.	When Preparing bid and construction contract documentation	DTCI / OAE	Project Coordinator
1.8 Coral Communities	Failure to plan route around coral communities	In contract specifications instruct cable survey team to survey cable alignment at least 75m from any coral reefs, avoiding all coral outcrops, and following defined shipping channels where applicable.	Inshore Coastal areas.	When Preparing bid and construction contract documentation	DTCI / OAE	Project Coordinator
1.9 Sea grass	Damage seagrass communities due to cable placement.	Define in contract specifications that the cable`s placement must be confined narrow a path (less than 0.4m wide an 0.75m deep), keeping in mind that the cable will be between 3 and 6cm in diameter.	Offshore, Inshore Coastal areas.	When Preparing bid and construction contract	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/ Duration	Who will Implement	Who will Supervise
				documentation		
1.10 Species potentially at risk	<ol style="list-style-type: none"> Ocean sonar survey affecting cetaceans. Entanglement in cable by deep diving cetaceans such as the sperm whale. 	<p>Contract specifications to include reference to best practices for operating vessels in proximity to marine mammals as included in Env. Code of good Practice document, prepared as part of this assignment. These instructions include:</p> <ol style="list-style-type: none"> Survey timing outside whale presence/migration season, namely between May and October. Post a watch for whales and suspend activities when whales are within 1 Km of vessel. Multi-beam and/or side-scan sonar only – No Air 	Oceanic deep-sea areas.	When Preparing bid and construction contract documentation	DTCI / OAE	Project Coordinator
Socio-Economic Environment						
1.11 Coastal Resource Users - subsistence and artisanal fisheries	1. Damage to ecosystem integrity and fishery productivity through loss or damage to local fishing grounds.	Using the data on design limits found in the IEE, prepare contract specs. defining trenching/cable laying activities to be limited to a narrow corridor (0.4m wide by 0.75m deep) and trenching to be followed by immediate burial.	Oceanic deep-sea areas.	When Preparing bid and construction contract documentation	DTCI / OAE	Project Coordinator
1.12 ESMP implementation monitor	Lack of an experienced technician will likely lead to delayed or failed implementation of ESMP items, e.g. no clauses in the bid docs.	As a first task of the project Coordinator is consider need for an ESMP monitor to help implement and record the delivery of the ESMP	NA	At start of detailed design stage	DTCI / OAE	Project Coordinator
1.13 Community Information	Misconceptions regarding the project raising people's fears regarding project footprint and potential damages to marine food supply.	Conduct of series of government and non-government consultations e.g. prior to commencement of civil works, during construction and after project completion.	Yap proper and Weno, Chuuk State	Before civil work begins	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/ Duration	Who will Implement	Who will Supervise
1.14. Community Grievances	Minor concerns/issues developing community resentments due to unaddressed project related concerns.	Establishment of grievance redress mechanism prior to commencement of civil works.	Yap Proper and Weno, Chuuk State	Before civil works begin	DTCI / OAE	Project Coordinator
2.0 CONSTRUCTION PERIOD: impacts associated with the work						
Physical Environment						
2.1 Air Quality	Emissions from survey and cable placement vessels	Zero tolerance and immediate repair required—as specified in Contract specifications; namely stack emissions and stack smoke tests as defined in IEE and at web sited defined in IEE. Vessel fined and shut down within 5 days of notice	At all work sites	From the time the vessel begins work on this project	Contractor(s)	Project Coord.
2.2 Substrate	Introduction of foreign substances reacting with environment or introduced medium for introduced organisms.	Contractor to insure that: 1. All backfill use only original material as per cable laying specifications. 2. Use only inert/stable materials in cable laying and anchoring as per cable laying specifications.	Inshore Coastal areas.	For all trenching operations	Contractor(s)	Project Coord inator
2.3 Hydrothermal Vents	Physical damage to vents or cable.	As per contract specifications, lay cable along surveyed alignment which has identified any hydrothermal vents and maintains a minimum clearance of 200 m from active hydrothermal vents to protect the site(s).	Oceanic deep-sea areas.	When work is under taken.	Contractor	Project Coord. And a State marine resources spec.
2.4 Sea mounts	Physical damage to habitat and possible fishery usage.	As defined in the contract specifications, lay cable along designated survey route, which maintains a minimum clearance of 2 Km from the base of seamounts	Oceanic deep-sea areas.	When work is under taken.	Contractor	Project Coord. And a State marine resources spec.
Ecological Environment						
2.5 Marine Coastal Conservation Areas	Disturbance of marine organisms and habitats in CA.	According to contract specs., the contractor(s) will ensure that they: 1. Lay cable along surveyed route providing for a safe distance ($\geq 75m$) from CA s as per cable laying specifications 2. Keep all survey and support vessels at safe ($\geq 75m$) distances from CA areas.	Inshore Coastal areas.	When work is under taken.	Contractor(s)	Project Coord. And a State marine resources spec.

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/ Duration	Who will Implement	Who will Supervise
2.6 Coastal and Deep Ocean Habitats	Accidental discharge of pollutants from vessel.	Adhere to contract specifications and national laws, containing all fuel, lubricants and transmission fluids in double walled tanks on vessels and if in drums, store below deck, as specified in contract specifications. 2. Maintain a contingency plan to address spills and storm events.	Inshore Coastal areas.	When work is under taken.	Contractor(s)	Project Coord. And a State marine resources spec.
2.7 Coral Communities	Destruction of coral communities	1. Contractor(s) to adhere to ≥75m avoidance rule and lay cable along surveyed route, as per cable- laying specification, thus avoiding coral reefs and outcrops. 2. Contractor to received map from State Marine Resources agency, showing coral areas on route from passage to landing.	Offshore, Inshore coastal areas.	1. When work is under taken 2. Before work	1. Contractor(s) 2. DTCI / OAE	Project Coord. And a State marine resources spec.
2.8 Sea grass	Destruction of sea grass communities.	As defined in contract specs; 1. restrict cable footprint to as narrow a path as possible (0.4m wide by 0.75m deep), when burying across a seagrass meadow, and fill trench immediately. if possible, avoid crossing seagrass meadow	Inshore Intertidal Coastal areas.	When work is under taken.	Contractor	Project Coord. And a State marine resources specialist
2.9 Specific of special Interest – Cetaceans	1. Disorientation of cetaceans due to sea floor mapping using standard sonar gear 2. Entanglement in cable risk for deep	1. Contractor to be provided with ECOP which contains detailed guidelines on minimally intrusive oceanographic survey method, which need to be adhered to. 2. Control cable tension so that laid cable conforms to undulations of seabed as per cable laying specification and-or provide anchors if needed.	Oceanic deep-sea areas.	When work is under taken.	Contractor	Project Coord. And a State marine resources specialist
Socio-Economic Environment						
2.10 Coastal Resource Users– subsistence and artisanal fisheries	1. Damage to local nearshore fishing grounds or introduce greater changes of gear entanglement	As per the contract specifications, contractor is to confine trenching activities to as narrow a corridor as possible (0.4m width—width if small backhoe bucket) and restore site when finished and confine trenching/laying activities to as short a period as possible 3. Request Fisheries authorities to advise local fishers of cable laying activities, dates, and avoidance measures.	Offshore, Inshore Coastal areas.	When work is under taken.	Contractor	Project Coord.

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/ Duration	Who will Implement	Who will Supervise
		4. Consider placing warning markers along cable line in shallow (<10 m) waters.				
2.11 Coastal Resource Users – Game fishers	<ol style="list-style-type: none"> 1. Displacement of activities during cable laying. 2. Entanglement of fishing gear. 3. Damage to ecosystem integrity and fishery productivity. 	<ol style="list-style-type: none"> 1. Project Coordinator to ensure a shipping notice is issued warning of cable laying, dates, and safe clearance for other activities. 2. Request Port Authorities & Marine Resources Authority to advise local operators of cable laying activities, location (planned corridor survey) and avoidance measures. 3. Confine laying activities to as short a period as possible, preferably outside any fishing seasons defined during the consultation with Marine Resources authorities. 	Offshore areas.	When work is under taken.	Contractor	Project Coord.
2.12 Coastal shipping – commercial shipping and ports	<ol style="list-style-type: none"> 1. Damage to cable by shipping. 2. Disruption to shipping during cable laying. 	<ol style="list-style-type: none"> 1. Ensure a shipping notice is issued, warning of cable-laying, dates, and safe clearance for other activities. 2. Request Port Authorities to advise local shipping of laying activities and avoidance measures. 3. Contractors to provide written statement to Project Coordinator that marine navigation lights and other national maritime measures are closely followed by the contractors' vessels at all 	Offshore and inshore areas	When work is under taken.	Contractor & DTCl / OAE	Project Coord.
2.13 Land Use	<p>Straying off agreed to cable alignment into communal resource area.</p> <p>Community perception of cable encroachment to 'no-go' marine protected areas.</p>	<p>Conduct a series of consultations with government, private sector and non-government organizations including women and youth on progress of work and cable alignment. These consultations have the objective of informing all interested people on the work and general alignment location and methods to used.</p>	At any location where this error occurs	When work is under taken.	Contractor	Project Coord.
2.14 Access	<p>Temporary loss of access to fishing grounds for local communities during laying of undersea cable.</p>	<p>Provision of electronic and print notices to local communities/ fishermen of construction schedule and contact person in case of inquiries.</p>	During cable laying	When work is under taken.	Contractor	Project Coord.
2.15 Environmental Completion	<p>Contractor fails to prepare a summary report defining the</p>	<p>Prepare a completion report and deliver to the Engineer.</p>	N/A	Complete within the last 4 months of	Contractor DTCl / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Location	Timing/ Duration	Who will Implement	Who will Supervise
Reporting	mitigation & monitoring actions completed & what needs to be continued during the Operating period.			the construction period		
2.16 Contractor Awareness Raising	A contractor with little understanding of EMPs or safeguard matters initiates the work and causes damage, impacts and complaints	Conduct a 1 day contractor ESMP implementation briefing reviewing the mitigative, monitoring and reporting requirements	State PMUs office on Yap proper and Weno	1 day	DTCI / OAE	Project coordinator
3. OPERATING PERIOD						
Physical and Ecological Environment						
3.1 Mitigation measures completion Report	No report and no record of actions implemented	Project Coordinator will not approve final payment to contractor until a completion report identifying all relevant items in the ESMP and the actions taken by the contractor, has been submitted.	NA	At start of Operating period and before final payment to contractor	Contractor	Project Coordinator
3.2 Oceanic habitat – Hydrothermal vents	Physical impact on cable of vent water.	New vents can appear in proximity to the cable and re-routing of cable may be required to maintain safe clearance	Offshore deep water environment.	As part of periodic maintenance checks	OAE	OAE
3.3 Perceived marine pollution	Fear of potential damages to marine life and impact to food supplies by communities	The use of the Grievance Redress Committee to address community concerns needs to be established by the Implementing Agency, taking immediate action to address mostly perceived concerns, before they become negative rumours.	Yap and Weno	As concerns arise	OAE	OAE
Socio-Economic Environment						
3.4 Impact assoc. with improved Internet—better access to harmful sites	Failure to adopt measures and continue mitigation actions defined in the Construction Period Environmental Completion report.	Make population aware of 'internet site blocking features available to every subscriber.	When in use.	At all times	OAE and an appointed NGO or women's group	OAE
3.5 Fishing	Fishing Gear snagging	Clearly advertise location of undersea cable and alert local fishers and dangers of gear snagging (which will actually be minor as it will be buried 3 feet below the seafloor.	Inshore Coastal areas.	After cable is in place.	OAE	OAE

**Annex 1 ESMP:
Environmental And Social Impact Monitoring Table (ESMoT)**

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
1. PRE-CONSTRUCTION PERIOD							
Physical Environment							
1.1 Air Quality	Green House Gas released from all vessels involved in cable contract	In contract specs, require all ships used, to submit emission certification re PM, SO2 and NOx. The results will need to meet emission standards for such vessels, based on the USEPA standards (http://www.epa.gov/otaq/marine.htm CFR-40 set of codes). A smoke density test will also be performed by the technical monitor, using the Canadian Department of Transport Smoke Chart set out in the schedule of the regulations (https://www.dieselnet.com/standards/ca/marine.php). For vessels with diesel engines a stack smoke density less than No. 1 is normally required with the exception that a smoke density of No. 2 for an aggregate of not more than 4 minutes in any 30-minute period is allowed.	Confirm contract specification and compliance certification	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator
1.2 Substrate	Use of foreign materials for filling cable trench, causing unknown pollution.	Specify in cable-laying contractor's specification that; 1. All backfill will have to be only locally sourced or seabed material. 2. Only inert/stable materials are to be used in cable laying and anchoring. Be aware of unexploded WWII munitions.	Confirm contract specification and bidder response	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
1.3 UXO	Failure to complete an unexploded ordinance sweep of the cable route as it enters the coastal waters could lead to explosions and loss of life	Conduct a UXO survey of the cable alignment as it passes the barrier reef cut and all the way to the landing site, prior to any cable placement activity.	Obtain record of UXU sweep completed	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator
1.4 Hydrothermal Vents	1. Physical damage to vents by cable or cable-laying equipment. 2. Smothering by disturbing area sediments.	1. In construction contract specifications (prepared by Project Coordinator) require survey team to identify a cable route that maintains a minimum clearance of 200 m from active hydrothermal vents (if known), and specify this route in the cable-laying specification.	Confirm that appropriate specification contained bid documentation	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator
1.5 Sea mounts.	Physical damage to habitat and possible fishery usage.	During preparation of contract specifications, Project Coordinator will include a minimum clearance of 2 Km from the base of seamounts, for any cable alignment and that this specification will be rigorously adhered to by the contractor (both the oceanographic survey and cable -laying operators)	Confirm adequate presentation in bid documentation	When bid documents are being prepared	DD note to file	DTCI / OAE	Project Coordinator
Ecological Environment							
1.6 Conservation Areas (MPA)	Disturbance of marine organisms and habitats in CA.	1. Define in contract specifications, via GPS and survey markers, a cable route that provides ≥ 75m distance from CA boundaries, and requires all survey and cable laying vessels to maintain this distance at all times..	Confirm contract specification in place as indicated in ESMP	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
1.7 Coastal and deep ocean habitats	Accidental discharge of pollutants from vessel and from vessel grounding.	<ol style="list-style-type: none"> Require bidders to provide specifications of the fuel and lubricant management equipment and storage on survey and cable laying vessels used and certify that the installations in in compliance with national regulations and-or MARPOL specifications for fuel management Maintain a contingency plan to 	Confirm that appropriate specification contained bid documentation	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator
1.8 Coral Communities	Failure to plan route around coral communities	Via contract specifications instruct cable survey team to survey cable alignment around all coral reefs, avoiding all coral outcrops, and following defined shipping channels, where applicable.	Confirm that appropriate specification contained bid documentation	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator
1.9 Sea grass	Damage sea grass communities due to cable placement.	Define in contract specifications that the cable's placement must be confined narrow a path (less than 0.4m wide an 0.75m deep), keeping in mind that the cable will be between 3 and 6cm in diameter.	Confirm that appropriate specification contained bid documentation	During preconstruction period	Written and signed DD inspection note-to file	DTCI / OAE	Project Coordinator
1.10 Species potentially at risk	<ol style="list-style-type: none"> Ocean sonar survey affecting cetaceans. Entanglement in cable by deep diving cetaceans such as the sperm whale. 	Contract specifications to include reference to best practices for operating vessels in proximity to marine mammals as included in Env. Code of good Practice document, prepared as part of this assignment. These instructions include: <ol style="list-style-type: none"> Survey timing outside whale presence/migration season, namely between May and October. Post a watch for whales and suspend activities when whales are within 1 Km of vessel. 	Confirm inclusion in contract specifications	When specifications are being written	Record to file	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
Socio-Economic Environment							
1.11 Coastal Resource Users – subsistence and artisanal fisheries	1. Damage to ecosystem integrity and fishery productivity through loss or damage to local fishing grounds.	Using the data on design limits found in the IEE, prepare contract specs. defining trenching/cable laying activities to be limited to a narrow corridor and trenching to be followed by immediate burial.	Confirm that contract specification is properly written and includes specs.	When specifications are being written	Record to file	DTCI / OAE	Project Coordinator
1.12 ESM P implementation monitor	Lack of an experienced technician will likely lead to delayed or failed implementation of ESMP items, e.g. no clauses in the bid docs.	As a first task of the project Coordinator or lead of the State PMUs, an ESMP monitor will be retained for a 2 year period, to help implement and record the delivery of the ESMP	Confirm that the technician is on staff since the start of the project	At start of the detailed design stage	Note to file	DTCI / OAE	Project Coordinator
1.13 Community Information	Misconceptions regarding the project raising people’s fears regarding project footprint and potential damages to marine food supply.	Conduct of series of government and non-government consultations e.g. prior to commencement of civil works, during construction and after project completion.				DTCI / OAE	Project Coordinator
1.14. Community Grievances	Minor concerns/issues developing community resentments due to unaddressed project related concerns.	Establishment of grievance redress mechanism prior to commencement of civil works.	Confirm that requirements for a grievance redress mechanism is in Contract specs. and that it is in the IEE	During detailed design stage	A note to file	DTCI / OAE	Project Coordinator
2. CONSTRUCTION PERIOD							
Physical Environment							
2.1 Air Quality	Emissions from survey and cable placement vessels	Zero tolerance and immediate repair required—as specified in Contract specifications; namely stack emissions and stack smoke tests as defined in IEE and at web site defined in IEE . Vessel fined and shut down within 5 days of notice	Collect emission testing results from contractor	Prior to start of work	Record to file	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
2.2 Substrate	Introduction of foreign substances reacting with environment or introduced medium for introduced organisms.	Contractor to insure that: 1. All backfill use only original material as per cable laying specifications. 2. Use only inert/stable materials in cable laying and anchoring as per cable laying specifications.	Inspect backfilling operation to insure no foreign material used and substrate replaced quickly	During this work—in nearshore waters	DD note	DTCI / OAE	Project Coordinator
2.3 Hydrothermal Vents	Physical damage to vents.	As per contract specifications, lay cable along surveyed alignment which has identified any hydrothermal vents and maintains a minimum clearance of 200 m from active hydrothermal vents to protect the site(s).	If hydrothermal vents detected during initial ocean survey, periodically check on cable location to be sure it is placed in compliance with the limits defined.	When the detailed design is completed and the cable placement is to take place	Compliance checklist—signed	DTCI / OAE	Project Coordinator
2.4 Sea mounts	Physical damage to habitat and possible fishery usage.	As defined in the contract specifications, lay cable along designated survey route, which maintains a minimum clearance of 2 Km from the base of seamounts	If seamounts are identified by local fishers, during the detailed design work, the monitor will check on cable location to be sure it is placed in compliance with the limits defined.	When the detailed design is completed and the cable placement is to take place	Compliance checklist—signed	DTCI / OAE	Project Coordinator
Ecological Environment							
2.5 Marine Coastal Conservation Areas	Disturbance of marine organisms and habitats in CA.	According to contract specs., the contractor(s) will ensure that they: 1. Lay cable along surveyed route providing for a safe distance (≥ 75m) from CA s as per cable laying specifications 2. Keep all survey and support vessels at safe distances from CA areas	Inspect cable laying operation in coastal waters and confirm minimum distance from CAs is maintained	As soon as work takes place inside the barrier reef—inside the passage into nearshore waters	Record of inspection and findings—written and photos	DTCI / OAE	Project Coordinator
2.6 Coastal and Deep Ocean Habitats	Accidental discharge of pollutants from vessel.	Adhere to contract specifications and national laws, containing all fuel, lubricants and transmission	Inspect both survey and cable laying vessel of	At start of work and for all vessels used	Written compliance checklist	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
		fluids in double walled tanks on vessels and if in drums, store below deck, as specified in contract specifications. 2. Maintain a contingency plan to address spills and storm events.	contractor and confirm compliance				
2.7 Coral Communities	Destruction of coral communities	1. Contractor(s) to adhere to ≥75m avoidance rule and lay cable along surveyed route, as per cable-laying specification, thus avoiding coral reefs and outcrops. 2. Contractor to received map from State Marine Resources agency, showing coral areas on route from passage to landing.	Inspect cable laying operations in vicinity of coral formations and confirm compliance	1. When work is going on in vicinity of coral areas 2. defined during the detailed design	Written compliance report (can be bullet format, with photos. Confirm that contractor has coral community location map	DTCI / OAE	Project Coordinator
2.8 Sea grass	Destruction of sea grass communities.	As defined in contract specs; 1. restrict cable footprint to as narrow a path as possible (0.4m wide by 0.75m deep), when burying across a seagrass meadow, and fill trench immediately. 2. if possible, avoid crossing	Inspect cable laying operations in seagrass area, and confirm compliance	When work is going on in and around Seagrass meadows	Compliance checklist-signed	DTCI / OAE	Project Coordinator
2.9 Species of Special Interest - Cetaceans	Entanglement in cable risk for deep diving cetaceans	Control cable tension so that laid cable conforms to undulations of seabed as per cable laying specification and-or provide anchors if needed.	Discussion with person in charge of cable placement to confirm understanding re cetacean sensitivity	At start of survey and start of cable placement	DD note to file	DTCI / OAE	Project Coordinator
Socio-Economic Environment							
2.10 Coastal Resource Users Coastal Resource Users, subsistence and artisanal fisheries	Damage to local nearshore fishing grounds or introduce greater changes of gear entanglement	As per the contract specifications, confine trenching activities to as narrow a corridor as possible and restore site when finished and confine trenching/laying activities to as short a period as possible 3. Request Fisheries authorities to advise local fishers of cable laying	1. Examine trenching activity in nearshore waters and establish compliance with work area limits defined in ESMP. 2.Interview fishers	When trenching going on in nearshore waters	DD note to file	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
		activities, dates, and avoidance measures. 4. Consider placing warning markers along cable line in shallow (<10 m) waters.	to determine if contractor met to advise re cable laying activity 3. Locate cable markers or other means				
2.11 Coastal Resource Users– Game fishers	1. Displacement of activities during cable laying. 2. Entanglement of fishing gear. 3. Damage to ecosystem integrity and fishery productivity.	1. Project Coordinator to ensure a shipping notice is issued warning of cable laying, dates, and safe clearance for other activities. 2. Request Port Authorities & Marine Resources Authority to advise local operators of cable laying activities, location (planned corridor survey) and avoidance measures. 3. Confine laying activities to as short a period as possible, preferably outside any fishing seasons defined	Shipping notice(s) issued.	When work is under taken.	1. Shipping notice(s) cited and/or content recorded verification	DTCl / OAE	Project Coordinator
2.12 Coastal shipping – commercial shipping and ports	1. Physical injury of cable by shipping. 2. Disruption to shipping during cable laying.	1. Ensure a shipping notice is issued, warning of cable-laying, dates, and safe clearance for other activities. 2. Request Port Authorities to advise local shipping of laying activities and avoidance measures. 3. Contractors to provide written statement to Project Coordinator that marine navigation lights and other	Shipping (local and international) notice(s) issued. Appropriate markers and signage employed	When work is under taken.	1. Shipping notice(s) cited and/or content recorded	DTCl / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
2.13 Land Use	Straying of agreed to cable alignment into communal resource area. Community perception of cable encroachment to 'no-go' marine protected areas.	Conduct a series of consultations with government, private sector and non-government organizations including women and youth on progress of work and cable alignment. These consultations have the objective of informing all interested people on the work and general alignment location and methods to be used.	Obtain review and file record/notes/minutes of consultations completed	Within 5 days of landuse issue consultation taking place	Copy of record of meeting completed	Contractor	Project Coordinator
2.14 Access	Temporary loss of access to fishing grounds for local communities during laying of undersea cable.	Provision of electronic and print notices to local communities/ fishermen of construction schedule and contact person in case of inquiries.	Inspect material distributed and confirm timely distribution	At start of construction where access restrictions could arise	Copy of material distributed	Contractor	Project Coordinator
2.15 Environmental Completion Reporting	Contractor fails to prepare a summary report defining the mitigation & monitoring actions completed & what needs to be continued during the Operating period.	Prepare a completion report and deliver to the Engineer.	Review completion report and file compliance checklist	Once when the report is submitted by contractor(s)	Compliance checklist	DTCI / OAE	Project Coordinator
2.16 Contractor Awareness Raising	A contractor with little understanding of EMPs or safeguard matters initiates the work and causes damage, impacts and complaints	Conduct a 1 day contractor ESMP implementation briefing reviewing the mitigative, monitoring and reporting requirements	Review briefing material and attendance record	Once after the briefing session takes place	Review report	DTCI / OAE	Project Coordinator
3.0 OPERATING PERIOD							
Physical and Ecological Environment							
3.1 Mitigation measures completion Report	No report and no record of actions implemented during the construction period	Prepare completion report	Confirm that completion report is available and provided by the contractor	At the end of the construction period, extending 1 month into the operating period	DD note	DTCI / OAE	Project Coordinator
3.2 Oceanic habitat –	Physical impact on cable of vent water.	New vents can appear in proximity to the cable and re-routing of cable	Undertake periodic check in vicinity of	After any significant volcanic activity	DD note	DTCI / OAE	Project Coordinator

Project Period and Environmental Parameters	Project Impact	Mitigation Measures	Details of Monitoring Action to be Undertaken	When/ Frequency/ Duration	Output to be Provided	Who Implements	Who Supervises
Hydrothermal vents		may be required to maintain safe clearance	hydrothermal vent areas (if detected)				
3.3 Perceived marine pollution	Fear of potential damages to marine life and impact to food supplies by communities	The use of the Grievance Redress Committee to address community concerns needs to be established by the Implementing Agency , taking immediate action to address mostly perceived concerns, before they become negative rumours.	Review and record operation of the grievance redress committee, and report on	As complaints arise	Inspection report	DTCI / OAE	Project Coordinator
Socio-Economic Environment							
3.4 Impact assoc. with improved Internet—better access to harmful sites	Failure to adopt measures and continue mitigation actions defined in the Construction Period Environmental Completion report.	Make population aware of internet site blocking features available to every subscriber.	Examine and record steps taken to inform public	Once the service becomes operational	DD note	DTCI / OAE	Project Coordinator
3.5 Fishing	Fishing Gear snagging	Clearly advertise location of undersea cable and alert local fishers and dangers of gear snagging (which will actually be minor as it will be buried 3 feet below the seafloor.	Confirm with fishers that steps necessary were taken	After cable has been placed	DD note	DTCI / OAE	Project Coordinator