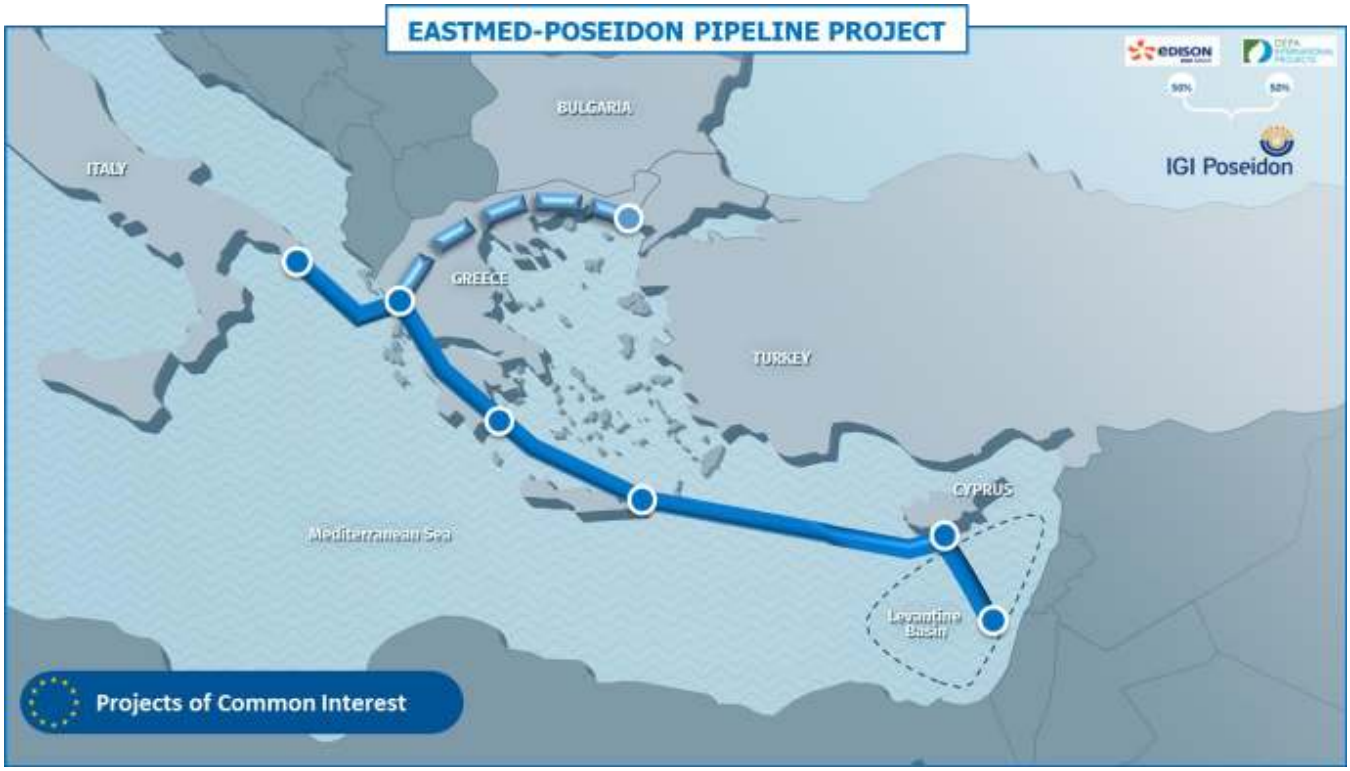
IGI Poseidon

PROJECT:

EastMed Pipeline Project



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Abbreviations

See Document Map.

11 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING

The main objective of the Environmental and Social Management and Monitoring Plan (ESMMP) is to provide a framework for the implementation of the measures identified to avoid, minimize and mitigate potential adverse impacts and to minimize and manage risks on the environment, construction and operation staff and local communities from Project activities. In addition, where possible, this plan will propose measures oriented to increase positive effects of Project implementation.

The broad purpose of the ESMMP can be summarized as follows:

- Ensure that good industry practice, with respect to environmental and social management, is adopted during all phases of the Project (construction, operation and maintenance, and decommissioning) and all engineering activities;
- Define strategies, methods and control approaches to ensure implementation of adequate measures to effectively mitigate potentially adverse environmental or socioeconomic impacts; and
- Provide a framework for compliance monitoring (auditing and inspection) by which IGI Poseidon will be able to follow up the implementation and success of the environmental and socioeconomic performance commitments for the Project.

The outline of the Environmental and Social Management and Monitoring Plan is provided below. In order to address key areas of potential project-related environmental impacts and risks, specific thematic management plans will be developed. All individual management plans will be prepared by the Construction Contractor (EPC contractor) in consultation with the relevant authorities and approved by the Project Owner before the start of construction and subsequent operation of the Project. These specific plans will complement the Basic Environmental and Social Management and Monitoring Plan and are applicable for both the offshore and onshore sections.

Further analysis of the mitigation measures presented in Chapter 10 and referred to in this chapter will be carried out in the framework of the ESMMP of the Project by the Construction Contractor and will be approved by the Project Owner prior to commencement of construction and thereafter before commencement of operation of the Project.

11.1 Environmental and Social Management and Monitoring Plan

For the implementation of the measures identified in Chapter 10, an Environmental and Social Management and Monitoring Plan will be prepared by the EPCI Contractor(s) and approved by the Project Owner, to ensure that good industry practice is adopted to effectively mitigate potentially adverse environmental impacts. Specifically, the Management and Monitoring Plan includes (a) information regarding the mitigation measures and (b) provisions for monitoring to assess the effectiveness of these measures.

Table 11-1 and Table 11-2 present the management and monitoring actions to address environmental issues associated with each phase of the Project (Construction, Operation - for Decommissioning see Section 11.1.3), together with key performance indicators and implementation timelines. Additionally, a column with reference the relevant sections of Chapter 9 (Impact Assessment) and Chapter 10 (Mitigation Measures) is provided. Measures specific to the protected areas located along the pipeline alignment or in the close vicinity are presented in the Annex 9E.

The ESMMP tables presented below show summarized / aggregated management measures, but do not present a full list of all recommended measures. Further analysis of the mitigation measures is presented in Chapter 10. Within the frame of the Contractor's ESMMP, mitigation measures shall be even more detailed and specialized. All Contractors' ESMMP shall be approved by the Project Owner before construction works begin and before operation of the Project.

It is highlighted that the ESMMP is a living document, subject to revisions and updates based on the results of the ESIA phase (and issuance of the Environmental Terms Approval) and the continuous consultation with all Stakeholders (statutory and non-statutory).

11.1.1 Construction phase

Table 11-1 Environmental and Social Management and Monitoring Plan – Construction phase

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Climatic and Bioclimatic Characteristics				
Temporary increase in greenhouse gas emissions	See Chapter 10, Table 10.1	• Register of training sessions and attendees. • Maintenance register	• During construction.	• 9.2.1 • 10.2.1
Morphological and Landscape Characteristics				
Landscape characteristics				
Landscape Modifications from Pipeline Construction	See Chapter 10, Table 10.2	• Compliance reports for commitments referred to the present section • Compliance control for working strip width • Monitoring of vegetation reinstatement upon completion of construction works • Photographic documentation • Topographic survey and reinstatement documentation	• Before construction • During construction • During restoration • After restoration	• 9.2.2 • 10.2.2
Geological, Tectonic and Soil Characteristics				
Geological hazards and seismicity	See Chapter 10, Table 10.3	-	• Before construction	• 9.2.4 • 10.2.4
Soil erosion	See Chapter 10, Table 10.3	• Monitoring and reporting on soil management and storage measures (height of stockpiles, volume of topsoil managed)	• Before construction • During construction	• 9.2.4 • 10.2.4

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Monitoring and reporting on erosion restoration and control measures. (number of serious incidents, percentage of erosion events detected and corrected)		
Soil compaction	See Chapter 10, Table 10.3	• See soil erosion	• See soil erosion	• See soil erosion
Soil pollution	See Chapter 10, Table 10.3	• Periodic revision of Management Plans • Report on implementation and record any noncompliance incidents to the above mentioned Plans	• Before construction • During construction • During restoration	• 9.2.4 • 10.2.4
Potential Soil Disturbance and Degradation During Construction	See Chapter 10, Table 10.3	• See Soil Erosion • Photographic log • % of excavated material not used in backfilling.	• Before construction • During construction	• 9.2.4 • 10.2.4
Reduced Soil Productivity	See Chapter 10, Table 10.3	• See Potential Soil Disturbance and Degradation During Construction	• See Potential Soil Disturbance and Degradation During Construction	• 9.2.4 • 10.2.4
Sediments diffusion (Offshore Section)	See Chapter 10, Table 10.3	• Register of equipment used	• During construction	• 9.2.4 • 10.2.4
Activation of Sediments Pollution (for offshore Section)	See Chapter 10, Table 10.3	• Register of equipment used • Inspection log	• During construction	• 9.2.4 • 10.2.4
Natural Environment				

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Onshore biodiversity				
Vegetation / flora loss	See Chapter 10, Table 10.4	• Permits register • Number of species per IUCN conservation status • Percentage per working strip width • Number of trees to be replanted • Total area to be reinstated within forest areas • Number and area of reforestation areas • Number of incidents of construction works suspension for environmental reasons • Register of training sessions and attendees.	• Before construction • During construction • During reinstatement	• 9.2.3/9.3.3 • 9.2.5.1.2/9.3.5 • 10.2.3/10.3.3 • 10.2.5.1/.10.3.5
Fauna Habitat fragmentation	See Chapter 10, Table 10.4	• See Vegetation / flora loss	• See Vegetation / flora loss	• 9.2.5.1.2.2 • 10.2.5.1
Fauna Habitat fragmentation (jackal)	See Chapter 10, Table 10.4	• See Vegetation / flora loss • Number of specific species recorded • Total area of species habitat affected	• See Vegetation / flora loss	• 9.2.5.1.2.2.1 • 10.2.5.1
Fauna Habitat fragmentation (wolf)	See Chapter 10, Table 10.4	• See Fauna Habitat fragmentation (jackal)	• See Fauna Habitat fragmentation (jackal)	• 9.2.5.1.2.2.1 • 10.2.5.1
Fauna Habitat Fragmentation – freshwater species loss (fishfauna)	See Chapter 10, Table 10.4	• See Vegetation / flora loss • Number of water bodies crossed with open cut technique • Number of water bodies crossed with trenchless technique • % of water bodies with otter presence	• See Vegetation / flora loss	• 9.2.5.1.2.2.2 • 10.2.5.1

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• % of water bodies with fishfauna species of conservation interest (per IUCN)		
Fauna species loss (general/ small mammals)	See Chapter 10, Table 10.4	• Number of species per IUCN conservation status • Percentage per working strip width • Register of training sessions and attendees. • Number of ramps per pipeline length. • Number of trapped animals • Number of incidents of construction works suspension for environmental reasons	• Before construction • During construction	• 9.2.5.1.2.3 • 9.2.5.1.2.3.1 • 10.2.5.1
Fauna species loss/ Disturbance (bats)	See Chapter 10, Table 10.4	• Number of roosting sites within the working strip	• Before construction • During construction	• 9.2.5.1.2.3.2 • 10.2.5.1
Fauna species loss/ Disturbance (reptiles/ amphibians)	See Chapter 10, Table 10.4	• Number of species moved	• Before construction • During construction	• 9.2.5.1.2.3.3 • 9.2.5.1.2.3.4 • 10.2.5.1
Fauna species loss/ Disturbance (macro-inverterbrates)	See Chapter 10, Table 10.4	• Number of species per IUCN conservation status • Number of water bodies crossed with open cut technique	• Before construction • During construction	• 9.2.5.1.2.3.5 • 10.2.5.1
Disturbance / displacement of fauna (general)	See Chapter 10, Table 10.4	• Percentage per working strip width • Number of trees to be replanted • Number and area of reforestation areas • Number of incidents of construction works suspension for environmental reasons	• Before construction • During construction	• 9.2.5.1.2.4 • 10.2.5.1

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Total area of natural vegetation cleared during sensitive for biodiversity period • Register of training sessions and attendees.		
Disturbance of fauna – terrestrial species (mamals)	See Chapter 10, Table 10.4	• See Disturbance / displacement of fauna (general)	• See Disturbance / displacement of fauna (general)	• 9.2.5.1.2.4.1 • 10.2.5.1
Disturbance of fauna – freshwater species (otter)	See Chapter 10, Table 10.4	• See Disturbance / displacement of fauna (general)	• See Disturbance / displacement of fauna (general)	• 9.2.5.1.2.4.2 • 10.2.5.1
Disturbance of fauna – freshwater species (fishfauna)	See Chapter 10, Table 10.4	• See Disturbance / displacement of fauna (general) • See Fauna Habitat Fragmentation – freshwater species loss (fishfauna)	• See Disturbance / displacement of fauna (general) • See Fauna Habitat Fragmentation – freshwater species loss (fishfauna)	• 9.2.5.1.2.4.2 • 10.2.5.1
Marine biodiversity				
Habitat loss	See Chapter 10, Table 10.5	• % of anchoring type • Number of supporting tugboats • Vessels' Documents and Log	• During construction	• 8.5 • 9.2.5.1.3 • 10.2.5.2
Fauna Species' loss	See Chapter 10, Table 10.5	• Number of vessels collisions with biodiversity • Vessels Documents and Log • Register of training sessions and attendees	• During construction	• 8.5 • 9.2.5.1.3 • 10.2.5.2

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Marine Species Observer Log • Number of incidents of construction works suspension for environmental reasons • Number of days that construction took place during sensitive for biodiversity period		
Risk of collision with marine mammals	See Chapter 10, Table 10.5	• See Fauna Species' loss	• During construction	• 8.5 • 9.2.5.1.3 • 10.2.5.2
Disturbance	See Chapter 10, Table 10.5	• See Fauna Species' loss	• During construction	• 8.5 • 9.2.5.1.3 • 10.2.5.2 • 10.2.4
Impacts from underwater noise	See Chapter 10, Table 10.5	• See Fauna Species' loss	• During construction	• 8.5 • 9.2.5.1.3 • 10.2.5.2
Impacts on biodiversity during SPT				
Impacts during System Pressure Test (Hydrotesting)	See Chapter 10, Table 10.6	• See impacts per species/ group of species • Permits register • Number of species per IUCN conservation status • Register of substances used • Register of training sessions and attendees. • Number of incidents of construction works suspension for environmental reasons.	• Before construction • During construction	• 8.5 • 9.2.5.1.4 • 10.2.5.3 • 10.2.15

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Avifauna				
Impacts on Avifauna (Onshore/ Offshore))	See Chapter 10, Table 10.7	• Number of nesting sites within the working strip • Number of incidents of construction works suspension for environmental reasons • Number of days that construction took place during sensitive for biodiversity period.	• Before construction • During construction	• 8.5 • 9.2.1.5 • 10.2.5.4
Protected Areas				
Impacts on Protected Areas – Natura2000	See Chapter 10, Table 10.8	See Annex 9E	• Before construction • During construction	• 8.5 • 9.2.1.5 • Annex 9E • 10.2.5.5
Impacts on Protected Areas – Wildlife Refuges/ National Parks	See Chapter 10, Table 10.8	Indicators presented for biodiversity are applicable	• Before construction • During construction	• 8.5 • 9.2.1.5 • 10.2.5.5
Anthropogenic Environment				
Spatial Planning –Uses of Land				
Changes in land uses	See Chapter 10, Table 10.9	• Percentage per working zone width • Number and coverage of areas that were formed as a fire zone • Monitoring the restoration of vegetation, after the completion of the respective construction works.	• Before construction • During construction • During restoration	• 9.2.3 • 9.2.6/9.3.6 • 9.2.7/9.3.7 • 10.2.3 • 10.2.6/10.3.6 • 10.2.7/10.3.7

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Identification of landowners and users within the working strip (updated cadastral data) • Monitoring of restoration framework of affected land owners with signed compensation contracts • Amounts paid for compensation • Register of public consultation • Grievance Mechanism Register.		
Spatial Planning – Uses of Sea				
Fishing areas restrictions	See Chapter 10, Table 10.10	• Total duration of exclusion for reasons of navigation safety per fishing field • Amounts paid for compensation • Register of public consultation • Grievance Mechanism Register.	• Before construction • During construction	• 9.2.6/9.3.6 • 9.2.7/9.3.7 • 10.2.6/10.3.6 • 10.2.7/10.3.7
Indirect nuisance of aquaculture development and/ or fishing activity	See Chapter 10, Table 10.10	• Total duration of exclusion for reasons of navigation safety per fishing field	• During construction	• 9.2.6/9.3.6 • 9.2.7/9.3.7 • 10.2.6/10.3.6 • 10.2.7/10.3.7
Increase in marine traffic	See Chapter 10, Table 10.10	• See Fishing areas restrictions	• See Fishing areas restrictions	• See Fishing areas restrictions
Structure and functions of anthropogenic environment -Community Health & Safety				
Increased pressure on health care	See Chapter 10, Table 10.11	• Number of accidents • Number and days of hospitalization • Number of trespassing in project's facilities	• During construction	• 9.2.6/9.3.6 • 10.2.6/10.3.6

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Increased transmission of infectious diseases	See Chapter 10, Table 10.11	• See Increased pressure on health care • Register of training sessions and attendees.	• See Increased pressure on health care	• See Increased pressure on health care
Environmental Changes	See Chapter 10, Table 10.11	• See Increased pressure on health care	• See Increased pressure on health care	• See Increased pressure on health care
Structure and functions of anthropogenic environment - Community Cohesion				
Break of urban fabric continuity	See Chapter 10, Table 10.12	• Register of training sessions and attendees. • Register of public consultation • Grievance Mechanism Register • Additional drive time per alternative access routes	• Before construction • During construction	• 9.2.6/9.3.6 • 10.2.6/10.3.6
Cultural Heritage				
All Impacts on Cultural Heritage Resources	See Chapter 10, Table 10.13	• Checklist for the protection of archaeological sites • Fencing and marking of archaeological sites close to pipeline construction • Letters, minutes of meetings, Daily calendars of archaeological monitoring, forms for recording chance findings, percentage of chance findings recorded in printed forms and referring to daily calendars • Report to highlight and exploit of findings. • Amount spent for staff (archaeologists, caretakers, workers) and the cost of machines involved in	• Before construction • During construction	• 9.2.6.3 • 10.2.6.3

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		identifying, investigating, rescuing, maintaining and disclosing any findings.		
Direct physical damage	See Chapter 10, Table 10.13	• See All Impacts on Cultural Heritage Resources • Preformed local reroutings • Register of audits against resources static integrity	• See All Impacts on Cultural Heritage Resources	• See All Impacts on Cultural Heritage Resources
Secondary Degradation or Damage	See Chapter 10, Table 10.13	• See Direct physical damage	• See Direct physical damage	• See Direct physical damage
Nuisance to visitors access	See Chapter 10, Table 10.13	• Additional drive time per alternative access routes • Register of public consultation • Grievance Management Register • Number of construction planning rescheduling to avoid nuisance to religious festivals	• See All Impacts on Cultural Heritage Resources	• See All Impacts on Cultural Heritage Resources
Socioeconomic Environment				
Demography				
n/a	n/a	n/a	n/a	n/a
Economy - Employment				
Employment opportunities (direct and/ or indirect)	See Chapter 10, Table 10.14	• € spent on Greek goods and services • Strategy for recruitment, information material for disclosing job opportunities • % of Greek contractors • % of local workforce (local communities)	• Before construction • During construction	• Chapter 4 • 9.2.7/9.3.7 • 10.2.7/10.3.7

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Register of training sessions and attendees.		
Economic impact of taxes, fees and local transactions	See Chapter 10, Table 10.14	• See Employment opportunities (direct and/ or indirect) • Amount paid to the local economy (estimation)	• See Employment opportunities (direct and/ or indirect)	• See Employment opportunities (direct and/ or indirect)
Economic impact on agricultural sector (income)	See Chapter 10, Table 10.14	• See Economic impact of taxes, fees and local transactions • Quantity and type of forest products gathered for local community use • Grievance Management Register	• See Economic impact of taxes, fees and local transactions	• 9.2.6.1/9.3.6.1 • 9.2.7/9.3.7 • 10.2.6.1/10.3.6.1 • 10.2.7/10.3.7
Economic impact on fishing sector (income)	See Chapter 10, Table 10.14	• See Economic impact of taxes, fees and local transactions • Total duration of exclusion for reasons of navigation safety per fishing field • Amounts paid for compensation • Register of public consultation • Grievance Management Register • Vessels' documentation and log	• Before construction • During construction	• 9.2.6.1/9.3.6.1 • 9.2.7/9.3.7 • 10.2.6.1/10.3.6.1 • 10.2.7/10.3.7
Economic impact on tourism sector (income)	See Chapter 10, Table 10.14	• See Economic impact of taxes, fees and local transactions • Number of construction planning rescheduling to avoid nuisance to touristic activities	• Before construction • During construction	• 9.2.6.1/9.3.6.1 • 9.2.7/9.3.7 • 10.2.6.1/10.3.6.1 • 10.2.7/10.3.7
Socio-economic Impact on Quality of Life				

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
See Operation phase	-	-	-	-
Deriving Development Trends from the Project				
See Operation phase	-	-	-	-
Technical Infrastructure				
Road Network				
• Increase in traffic • Traffic delays • Traffic regulation • Increase in the likelihood of accidents • Damage to road infrastructure	See Chapter 10, Table 10.15	• Permits register • Number of Road Traffic Code violations • Number of accidents	• Before construction • During construction	• 9.2.8 • 10.2.8
Railway Network				
• Subsidence • Halt of train service	See Chapter 10, Table 10.15	• Permits register • Number services' breaking incidents	• Before construction • During construction	• 9.2.8 • 10.2.8
Airport Facilities				
Potential small increase in air transport	See Chapter 10, Table 10.15	-	-	• 9.2.8 • 10.2.8
Port Facilities, Marine Traffic and Submarine Cables				
• Potential damage of existing infrastructure	See Chapter 10, Table 10.15	• See Railway Network	• See Railway Network	• See Railway Network

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
• Disturbance of vessels and fishing shelters				
Wastewater Treatment				
Increased waste water for disposal in WWTPs	See Chapter 10, Table 10.15	• See Railway Network • Quantities of waste disposed at environmental infrastructure systems	• Before construction • During construction	• 9.2.8 • 10.2.8
Solid Waste Management sites				
Increased solid waste for disposal	See Chapter 10, Table 10.15	• See Railway Network • Quantities of waste disposed at environmental infrastructure systems	• • Before construction • During construction	• 9.2.8 • 10.2.8
Watering & Irrigation Network				
Potential damage to the network	See Chapter 10, Table 10.15	• See Railway Network	• • Before construction • During construction	• 9.2.8 • 10.2.8
Correlation with anthropogenic pressures in the environment				
Fishing Activities				
Restriction of fishing activities.	See Chapter 10, Table 10.16	• See Anthropogenic Environment/ Spatial Planning – Uses of Sea	• See Anthropogenic Environment/ Spatial Planning – Uses of Sea	• 9.2.6/9.3.6 • 9.2.7/9.3.7 • 9.2.9 • 10.2.6/10.3.6 • 10.2.7/10.3.7 • 10.2.9

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Exploitation of Natural Resources				
• Potential need of large amount of aggregates, suitable for backfilling works. • Potential discard of excavation materials, unsuitable for backfilling works	See Chapter 10, Table 10.16	-	-	• 9.2.6/9.3.6 • 9.2.7/9.3.7 • 9.2.9 • 10.2.6/10.3.6 • 10.2.7/10.3.7 • 10.2.9
Forest areas				
Complete clearance of the working zone from vegetation	See Chapter 10, Table 10.16	• See Morphological and landscape characteristics • See Onshore biodiversity/ Habitats/ vegetation loss	• See Morphological and landscape characteristics • See Onshore biodiversity/ Habitats/ vegetation loss	• See Morphological and landscape characteristics • See Onshore biodiversity/ Habitats/ vegetation loss
Agricultural crops				
• Partial loss of agricultural resources • Loss of agricultural land at station construction sites.	See Chapter 10, Table 10.16	• See Morphological and landscape characteristics • See Onshore biodiversity/ Habitats/ vegetation loss • See Socioeconomic Environment/ Economy-Employment	• See Morphological and landscape characteristics	• See Morphological and landscape characteristics • See Onshore biodiversity/

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
			• See Onshore biodiversity/ Habitats/ vegetation loss • See Anthropogenic Environment/ Uses of Land • See Socioeconomic Environment/ Economy-Employment	Habitats/ vegetation loss • See Anthropogenic Environment/ Uses of Land • See Socioeconomic Environment/ Economy-Employment
Air Quality				
Temporary increase of dust emissions	See Chapter 10, Table 10.17	• Contractual provisions for best HSE practice by the Construction Contractors, including dust suppression measures	• Before construction	• 6.4.8.6 • 9.2.10 • 10.2.10
Temporary exhaust emissions to the atmosphere (NOx, PM2.5, SO_2 ,VOCs ,CO, HAPS)	See Chapter 10, Table 10.17	• Total fuel consumption of construction vehicles • Register of training sessions and attendees. • Equipment maintenance log	• Before construction • During construction	• 6.4.8.6 • 9.2.10 • 10.2.10
Acoustic Environment				
Noise from Construction works	See Chapter 10, Table 10.18	• Register of audits of construction machinery. • Equipment certifications	• Before construction • During construction	• 6.4.8.7 • 9.2.11 • 10.2.11
Electromagnetic Fields				
n/a	n/a	n/a	n/a	n/a

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Water Resources				
Surface Water Systems				
All	See Chapter 10, Table 10.19	• Permits register • % of WS with permanent flow, crossed with open cut • % of crossing works during dry season.	• Before construction • After construction	• 6.4.3 • 9.2.13 • 10.2.13
Modification of morphology	See Chapter 10, Table 10.19	• Photographic documentation • Topographic survey and reinstatement documentation	• Before construction • After construction	• 6.4.3 • 9.2.13 • 10.2.13
Impact on qualitative conditions	See Chapter 10, Table 10.19	• Register of training sessions and attendees. • Water quality at crossings (turbidity/ suspended solids, etc. • Monitoring of hydrotesting water quality at abstraction and discharge points.	• Before construction • After construction	• 6.4.3 • 9.2.13 • 10.2.13
Impact on the availability of water resources	See Chapter 10, Table 10.19	• Volumes of water used for hydrotest and relevant river flow percentage • % of water recycle for hydrotesting • SWB flow measurement. • Hydrotesting water quantity at abstraction and discharge points.	• Before construction • After construction	• 6.4.3 • 9.2.13 • 10.2.13
Accidental pollution	See Chapter 10, Table 10.19	• Digital Waste Register • Vessels' documentation and log • Register of training sessions and attendees.	• Before construction • After construction	• 6.4.3 • 9.2.13 • 10.2.13

Impacts	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Maintenance register • Quantities and composition of drilling aids used • Keeping a record of evidence of the receipt of waste and especially hazardous waste by the licensed operators. • Number of incidents		
Ground Water Systems				
All	See Chapter 10, Table 10.19	• Permits register	• Before construction • After construction	• 9.2.13 • 10.2.13
Impact on quality	See Chapter 10, Table 10.19	-	• Before construction • After construction	• 9.2.13 • 10.2.13
Accidental pollution	See Chapter 10, Table 10.19	• Number of incidents	• Before construction • After construction	• 9.2.13 • 10.2.13
Wave Conditions – Oceanographic Characteristics – Coastal Mechanics				
Coastal mechanics impacts which occurs during installation of cofferdams or causeways	See Chapter 10, Table 10.20	• Volumes of dredging materials per landfall site.	• Before construction • After construction	• 9.2.14 • 10.2.14
Risks to human health, cultural heritage and / or the environment, mainly due to accidents or disasters				
General	See Chapter 10, Table 10.21	See Geological, Tectonic, Soil-Sediments Characteristics	• Before construction • After construction	• 9.2.15 • 10.2.15

Prepared by: ASPROFOS, 2022.

11.1.2 Operation phase

Table 11-2 Environmental and Social Management and Monitoring Plan – Operation phase

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Climatic and Bioclimatic Characteristics				
Change in Greenhouse Gas Emissions	See Chapter 10, Table 10.22	• Emissions monitoring will be carried out through CEM (Continuous Emission Monitoring System) throughout operation (temperature, exit speed, CO2, CO, NOx, SO2) • Atmospheric Quality Monitoring (CO, NOx) and adherence to statutory limits.	• During operation	• 6.5.4.5 • 9.3.2/9.3.10 • 10.3.2/10.3.10
Morphological and Landscape features				
Landscape Modification from PPS (incl. restored temporary facilities)	See Chapter 10, Table 10.23	• Monitoring vegetation development (measured as a percentage of the surface with successful replanting) • Total length and area of new fire protection zones	• Restoration may require 10-15 years for maturation	• 9.2.3.1/9.3.3.1 • 10.2.3/10.3.3
Viewer nuisance	See Chapter 10, Table 10.23	• Establishing and developing planting as part of landscape design to address the impacts of Compressor Stations and valves.	• Screening plants may require 10-15 years for maturation	• 9.2.3.1/9.3.3.1 • 10.2.3/10.3.3
Seabed morphology (Bathymetry) modification	See Chapter 10, Table 10.23	• Total length of pipeline requiring seabed intervention • Volume of material used for seabed intervention works • Number seabed intervention works areas. • Bathymetric survey	• During construction • Upon construction completion • Every 5 years after construction completion	• 9.2.3.2/9.3.3.3 • 10.2.3/10.3.3

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Geological, Tectonic, Soil-Sediments				
Activation of Geohazards	See Chapter 10, Table 10.24	• Records of the periodic monitoring of the soil status, in particular as regards erosion, along the pipeline	• During operation	• 8.4 • 9.3.4 • 10.3.4
Potential Contamination of Soil	See Chapter 10, Table 10.24	• Records of the periodic monitoring of soil quality at the locations of Compressor Stations.	• During operation	• 8.4 • 9.3.4 • 10.3.4
Natural Environment – Onshore biodiversity				
Vegetation / flora less	See Chapter 10, Table 10.25	• Total area of reforestation based on L. 42810/14 (as compensatory) • Register of training sessions and attendees. • Total length and area of new fire protection zones	• During operation	• 8.5 • 9.2.3/9.3.3 • 9.2.5/9.3.5 • 10.2.3/10.3.3 • 10.2.5/10.3.5
Habitat fragmentation	See Chapter 10, Table 10.25	• See Landscape and Morphology • Periodic evaluation of biodiversity monitoring program	• During operation	• 8.5 • 9.2.3/9.3.3 • 9.2.5/9.3.5 • 10.2.3/10.3.3 • 10.2.5/10.3.5
Disturbance / displacement of fauna	See Chapter 10, Table 10.25	• Results of noise monitoring program • Number of days that inspections / maintenance work was carried out within sensitive periods for fauna	• During operation	• 8.5 • 9.2.3/9.3.3 • 9.2.5/9.3.5 • 10.2.3/10.3.3 • 10.2.5/10.3.5

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Protected Areas	See Chapter 10, Table 10.25		• During operation	• 8.5 • 9.2.3/9.3.3 • 9.2.5/9.3.5 • Annex 9E • 10.2.3/10.3.3 • 10.2.5/10.3.5
Natural Environment – Offshore biodiversity				
Impact by the operation of offshore pipeline	See Chapter 10, Table 10.26	• Species abundance recording	• During operation	• 8.5 • 9.3.3 • 9.2.5/9.3.5 • 10.3.3 • 10.2.5/10.3.5
Regional Planning – Uses of Land				
Changes in land uses	See Chapter 10, Table 10.27	• See construction phase	• During operation	• 9.2.6/9.3.6 • 10.2.6/10.3.6
Regional Planning – Uses of Sea				
Marine traffic (berthing restrictions)	See Chapter 10, Table 10.28	• See construction phase • Marking of Berthing Safety Zone in naval maps	• During operation	• See construction phase
Structure and functions of anthropogenic environment – Community Health and Safety				
Environmental Changes	See Chapter 10, Table 10.29	• Number of accidents • Number and days of hospitalization • Number of trespassing in project's facilities	During operation	• 9.2.6/9.3.6 • 10.2.6/10.3.6

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Structure and functions of anthropogenic environment – Community Cohension				
Break of urban fabric continuity	See Chapter 10, Table 10.30	• Register of training sessions and attendees. • Register of public consultation • Grievance Mechanism Register	• During operation	• 9.2.6/9.3.6 • 10.2.6/10.3.6
Cultural Heritage				
n/a	n/a	n/a	n/a	n/a
Socio-economic Environment – Demography				
n/a	n/a	n/a	n/a	n/a
Socio-economic Environment – Economy - Employment				
Employment opportunities (direct and/ or indirect)	See Chapter 10, Table 10.31	• Strategy for recruitment, information material for disclosing job opportunities • % of Greek contractors • % of local workforce (local communities)	• During operation	• Chapter 4 • 9.2.7/9.3.7 • 10.2.7/10.3.7
Economic impact of taxes, fees and local transactions	See Chapter 10, Table 10.31	See Construction phase	• During operation	See Construction phase
Economic impact on agricultural sector (income)	See Chapter 10, Table 10.31	See Construction phase	• During operation	See Construction phase
Economic impact on fishing sector (income)	See Chapter 10, Table 10.31	• Species abundance recording • Grievance Management Register	• During operation	See Construction phase

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Economic impact on tourism sector (income)	See Chapter 10, Table 10.31	• Records of collaborations with tourism operators	• During operation	See Construction phase
Socio-economic Environment – Quality of Life				
Quality of life	See Chapter 10, Table 10.32	• Monitoring the livelihoods restoration framework of affected landowners with signed compensation agreements	• During operation	• 9.3.6.2 • 10.3.6.2
Socio-economic Environment – Value of Land				
Value of Land	See Chapter 10, Table 10.33	• Monitoring the livelihoods restoration framework of affected landowners with signed compensation agreements	• During operation	• 9.3.6.2 • 10.3.6.2
Socio-economic Environment – Deriving Development Trends				
Development Trends at National/ Regional Level	See Chapter 10, Table 10.34	• See Employment opportunities (direct and/ or indirect) • Records of collaboration with SDAM Steering Committee • Records of collaborations with tourism operators • Amount spent on social support activities	• During operation	• Chapter 4 • Chapter 5 • 8.7/8.16 • 9.3.7 • 10.3.7
Technical Infrastructure – Road Network				
Limited Increase in traffic	See Chapter 10, Table 10.35	• Number of Road Traffic Code violations	• During operation	• 8.8 • 9.3.8 • 10.3.8
Technical Infrastructure - Port Facilities, Marine Traffic and Submarine Cables				

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
Potential Damage of existing cables	See Chapter 10, Table 10.35			• 8.8 • 9.3.8 • 10.3.8
Technical Infrastructure - Wastewater Treatment				
Wastewater generation	See Chapter 10, Table 10.35	• Quantity and type of waste • Digital Waste Register	During operation	• 6.5.4 • 8.8 • 9.3.8 • 10.3.8
Technical Infrastructure - Sanitary Landfill Sites				
Solid waste generation	See Chapter 10, Table 10.35	• Quantity and type of waste • Digital Waste Register	• During operation	• 6.5.4 • 8.8 • 9.3.8 • 10.3.8
Technical Infrastructure - High Pressure Natural Gas Pipelines				
Positive impact in national energy infrastructure	See Chapter 10, Table 10.35	n/a	• During operation	• 8.8 • 9.3.8 • 10.3.8
Man-Made Pressures in the Environment - Forest Areas				
Complete clearance of the PPS from vegetation	See Chapter 10, Table 10.36	• See Landscape and Morphology • See Natural Environment/ Vegetation / flora loss	During operation	• See Landscape and Morphology • See Natural Environment/

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
				Vegetation / flora loss
Man-Made Pressures in the Environment – Agricultural crops				
• Partial loss of agricultural resources • Loss of agricultural land at the areas of permanent facilities.	See Chapter 10, Table 10.36	• See Spatial planning/ Uses of Land • See Economy - Employment	• During operation	• 9.2.3 • 9.2.6/9.3.6 • 9.2.7/9.3.7 • 10.2.3 • 10.2.6/10.3.6 • 10.2.7/10.3.7
Air Quality				
Pollution from NO_X emissions	See Chapter 10, Table 10.37	• Point source emissions monitoring will be carried out periodically throughout operation (temperature, exit speed, CO_2, CO, NOx, SO_2)	• During operation	• 6.5.4.5 • 9.3.2/9.3.10 • 10.3.2/10.3.10
Changes in Greenhouse Gas Emissions	See Chapter 10, Table 10.37	• Emissions monitoring will be carried out through CEM (Continuous Emission Monitoring System) throughout operation (temperature, exit speed, CO2, CO, NOx, SO_2) • Atmospheric Quality Monitoring (CO, NOx) and adherence to statutory limits.	During operation	• 6.5.4.5 • 9.3.2/9.3.10 • 10.3.2/10.3.10
Acoustic Environment				
Noise from Pipeline operation works	See Chapter 10, Table 10.38	• Noise levels at the boundaries of the Compressor Stations during day and night	During operation	• 6.5.8.7 • 9.3.11 • 10.3.11

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
		• Noise levels should comply with the requirements of Presidential Decree 1180/81 • Noise level report for sensitive recipients.		
Electromagnetic fields				
n/a	n/a	n/a	n/a	n/a
Water Resources - Surface Water Systems				
Accidental pollution	See Chapter 10, Table 10.39	• Recording of non routine events and report on combating them. • Digital Waste Register	• During operation • Whenever an incident occurs	• 6.5.4 • 9.3.13 • 10.3.13
Water Resources - Ground Water Systems				
Accidental pollution	See Chapter 10, Table 10.39	• GWS quality at stations locations • Recording of non routine events and report on combating them.	• During operation • Whenever an incident occurs	• 6.5.4 • 9.3.13 • 10.3.13
Wave Conditions – Oceanographic Characteristics – Coastal Mechanics				
n/a	n/a	n/a	n/a	n/a
Risks to human health, cultural heritage and / or the environment, mainly due to accidents or disasters				
General	See Chapter 10, Table 10.40	• Recording of accidents	• During operation • Whenever an incident occurs	• 6.5.4 • 9.3.13 • 10.3.13
Shipping Interaction. Gas cloud at the sea surface	See Chapter 10, Table 10.40			

Impact	Mitigation Measures	Key Performance Indicators	Implementation Timeline	ESIA Section Reference
after pipeline failure (small leak/ rupture).				
Geohazards – Seismic Activity. Jet Fire / Fireball	See Chapter 10, Table 10.40			

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11.1.3 Decommissioning phase

The management of impacts related to the decommissioning phase will be discussed in compliance with relevant legislation, standards and technical evaluation available at the time of the preparation of the plan. The design life of the EastMed Pipeline Project is 50 years and at least 25 years for the facilities and it's likely that the life expectancy of the Project is increased as technology further develops.

A detailed plan would be developed and submitted to competent authorities for approval in advance with respect to the planned date of end of operation activities. The plan will include an assessment of the environmental, social and cultural heritage impacts of the proposed decommissioning technique and the proper mitigation measures. Dismantling technologies, laws and good industrial practices in place at that time will be considered.

In general terms it can be indicated that, impacts and mitigations for the decommissioning would be expected to be rather equivalent to the ones adopted for the construction phase. As a consequence, the mitigation and monitoring defined in this chapter is largely applicable and will be adapted as needed taking into account the standards at that time.

11.2 Topic Specific Management Plans

In addition to the ESMMP, in order to address key areas of potential environmental and social impacts and risks associated with the Project, certain topic-specific management plans will be prepared by the Construction Contractor, in consultation with the competent authorities, and shall be approved by the Project Owner, before construction begins and before project's operation. These plans will be integrated as part of the Environmental and Social Management System (ESMS) and will complement the main Environmental and Social Management and Monitoring Plan presented in Section 11.1.

The basic topic specific management plans are summarized on Table 11-3 and are listed below:

1. Emergency Response Plan (ERP)
2. Environmental and Social Compliance Assurance Plan (ESCAP)
3. Biodiversity Management Plan (BMP)
4. Pollution Prevention and Management Plan (PPMP)
5. Water Management Plan (WMP)
6. Soil Erosion and Marine Sediments Management Plan (SEMSMP)
7. Waste Management Plan (WsMP)

8. Hazardous Waste and Materials Management Plan (HWsMP)
9. Traffic (Terrestrial and Marine) Management Plan (TMP)
10. Aggregates Management Plan (AMP)
11. Cultural Heritage Management Plan (CHMP)
12. Health and Safety Plan (and Health and Safety File) (HSP/HSF)
13. Landscape and Vegetation Restoration and Topsoil Management Plan (LMP)
14. Land Easement and Acquisition Strategy (LEAS) and Land Access Plan (LAP)
15. Livelihood Restoration Plan (LRP)
16. Policy for Human Rights and Impact Assessment (HRIA).
17. Stakeholder Engagement Strategy (SES) and Plan (SEP)
18. Grievance Mechanism Management Plan (GMP)

It is noted that the list is not exhaustive and additional plans/ reports may be introduced or are already in place as the Project progresses to aid in the management of any newly identified impacts or sensitive receptors.

Table 11-3 Summary List of Topic Specific Management Plans

Management Plan	Plan Scope	Short Description
1. Emergency Response Plan (ERP)	Preparation regarding the response to non-routine events, accidental, and emergency situations, including fires.	The Plan assembles and describes the site-specific actions and procedures to be taken in case of emergencies occurring during Project construction and operation. The content of the Plan can be summarized as follows: (1) Greek legal provisions for HSE Regulations during construction and operation phase; (2) identification of the potential hazards related with pipeline and its infrastructure installation and operation and the possible impact to the environment and communities; (3) identification of the governmental authorities and other relevant stakeholders to be notified and description of the procedures for communicating with them; (4) necessary measures to limit human and environmental consequences associated with pipeline accidents; (5) safety technical measures and appropriate measures to protect the public safety or property from potential hazards; lessons learned approaches to pipeline accidents; (6) preliminary description of the organization structure, and explaining interactions with project and operational procedures; (7) preliminary identification of the system and procedures for providing personnel refuge, evacuation, rescue and medical treatment; (8) preliminary description of training activities and the arrangement for training response teams and for testing emergency systems and procedures. The ERP for the construction phase will include the typical hazards associated to construction activities, including those onshore (e.g. HDD, blasting, steep slopes) and offshore (e.g. ships collisions, geohazards activation, extreme weather). Typical hazards associated to gas pipelines construction and/ or operation that will be covered in the ERP will include, but are not limited to, the following: (1) Under-pressure in the gas system, (2) Third party interaction, (3) Fire or explosion near or directly involving a pipeline facility, (4) Any leak considered hazardous, (5) Natural disasters (floods, tornadoes, hurricanes, earthquakes, etc.), (6) Civil disturbances (riots, etc.). The Plan will be a “living” document and will be under continuous revision by the Project

Management Plan	Plan Scope	Short Description
		Owner and its contractors (EPCs), as a result of on-going legal developments and of incorporation of the lessons learned by exercises (or real incidents). This plan is applicable to both the offshore and the onshore sections.
2. Environmental and Social Compliance Assurance Plan (ESCAP)	Description of all necessary steps for compliance to environmental and social regulations and standards.	It will be developed as part of the Environmental and Social Management Systems for the Project, aiming to define and describe all necessary steps to ensure the compliance to environmental and social regulations and standards (e.g. national legislation and EBRD PRs). The scope of this Plan will include: • Inspections. • Quantitative monitoring. • Management of non-compliance. Its specific objectives will be to: • Communicate its contents to all personnel and to the Contractor(s) and suppliers. • Ensure that adequate resources are mobilized to achieve an effective planning, implementation and reporting. • Ensure that the established environmental and social policies and procedures are followed by all personnel, Contractor(s) and suppliers. This plan is applicable to both the offshore and the onshore sections.
3. Biodiversity Management Plan (BMP)	Addressing the effects on the natural environment (onshore and offshore)	The Plan will define the following elements: (1) a baseline survey of biodiversity, monitoring program before and after construction, and indicators selection; (2) examination of biodiversity priorities, resource/staff availability and timing/cost issues; (3) stakeholder engagement and consultation and (4) integration of the Plan into the Environmental and Social Management and Monitoring Plan. Plans shall be prepared for specific parameters (e.g. Large Mammals, Marine Mammals, Priority Mammals, Herpetofauna, Amphibians, Avifauna, etc.) which may be induced long-term impacts during operation. The plans will include specific timelines, monitoring parameters, lines and means of communication, basic performance indicators.

Management Plan	Plan Scope	Short Description
		It is clarified that to prepare the BMP a consultation process will be undertaken with key stakeholders (including MEE, Forest Authorities, Management Bodies of Protected Areas, NGOs and local community representatives) to confirm the key elements of the BMP and also to initiate participation with the planning and implementation from stakeholders of the BMP (which may also include potential support for NGO organizations or initiatives in the area of the pipeline's corridor or in the regions crossed). A set of sub-plans shall be part of the BMP. These include: • Ecological Management Plan (EMP). The EMP will be developed to ensure the Project compliance with biodiversity obligations according to applicable international, European & national legislation, standards and EBRD PR6. The objectives of the Ecological Management Plan are: (a) to provide an overview of the biodiversity standards and legal framework applicable to the Project; (b) to define roles and responsibilities for ecological management; (c) to provide an overview of Project impacts and mitigations and (d) to establish an ecological management system. • Large Mammals Management Plan (LMMP). The LMMP shall be developed focusing on these species. Regarding onshore section, two large carnivores are identified in the Area of Interest, i.e. golden jackal (*Canis aureus*) and wolf (*Canis lupus*). The species are expected to be impacted only during the construction phase. Regarding offshore section, cetaceans are also expected to be impacted only during the construction phase; the structure of this Management Plan will follow ACCOBAMS Guidelines. The BMP plan is applicable to both the offshore and the onshore section.
4. Pollution Prevention and Management Plan (PPMP)	Proper management of materials to prevent leakages and pollution during the construction and operation of the Project	The Pollution Prevention and Managing Plan (PPMP) will include the following: (1) measures to be followed for preventing and combating any kind of leakage or pollution during construction and operation phase (e.g. housekeeping, good material handling practices, inspection procedures etc.); (2) prevention of accidental spills of chemicals, oil and lubricants, cleaning

Management Plan	Plan Scope	Short Description
		products, etc.; (3) product specific practices (for petroleum products, fertilizers and paints); (4) isolation of potentially hazardous materials; (5) product substitution; (6) prohibited materials. This plan shall include also provisions for combating and managing any leakages of bentonite at the sites of trenchless crossings. It is noted that for every river crossed with trenchless technique, a special crossing study shall be prepared which will include details of managing and preventing bentonite leakage. The Plan will include provisions for the training of all workers and procedures related to communication to stakeholders. The PPMP includes, as a sub-plan: • The Spill Prevention and Response Plan (SPRP). SPRP shall describe provisions specifically for preventing spills of oil and lubricants, cleaning agents etc. and for clean-up of any accidental spills that may occur, onshore but mainly offshore. This plan is applicable to both the offshore and the onshore sections.
5. Water Management Plan (WMP)	Monitoring and minimization of water use and impacts (mainly from hydrotest).	The plan will (1) set procedures for estimating water used by the Project; (2) provide a series of measures to be considered for minimizing the use of water; (3) document water sources and extraction locations in agreement with the relevant authorities; (4) describe mitigation measures for disturbance of irrigation systems and oceanographic characteristics (including physicochemical and biological parameters, as well as seabed morphology (for OSS4); (5) determine consultation procedures with the stakeholders. Especially for the hydrotest, the following shall be determined: (1) abstraction and discharge locations, (2) the means for avoiding and minimizing impacts on rivers and coastal waters and riparian/ marine biodiversity, riparian areas, (3) Surface and Coastal (at Patraikos Gulf) Water Bodies characteristics and (4) possible concerns of local communities. It is noted that for every river crossed with trenchless technique a special crossing study shall be prepared including details for bentonite management and leakages prevention. In more details, Water Management Plan shall include a set of sub-plans:

Management Plan	Plan Scope	Short Description
		• Hydrostatic Test Plan (HTP). As part of the overall Water Management Plan, the Hydrostatic Test Plan defines the hydrostatic test water intake/ discharge points and methods to avoid impacts on aquatic ecology, riverbed and banks, and any user conflicts, during hydrotesting. • Watercourse Crossing Plan (WCP). WCP sets out the details of the construction methods and environmental protection measures, such as sediment dispersion reduction, for each watercourse crossing. This plan is applicable to both the offshore and the onshore sections.
6. Soil Erosion and Marine Sediments Management Plan (SEMSMP)	Erosion minimization and sediments dispersion.	The ESCP aims to minimize erosion at construction sites, to avoid water (offshore and onshore) pollution by sediment plumes from uncontrolled site runoff or cofferdams, and to manage and monitor long-term site stability / erosion at watercourse and shore crossings. The ESCP provides for technical anti-erosion solutions (e.g. gabbions, ditch breakers, silt curtains, e.a.) to retain earth volumes on site and avoid soil erosion/ sediments suspension from construction activities, whilst the LMP describes planting and revegetation provisions and topsoil (approx. top 20 cm) management (excavation, storage, reinstatement and protection), through less intrusive methods. For the crossing of rivers, see also Watercourse Crossing Plan (WCP) as described in the Water Management Plan (WMP). This plan is applicable to both the offshore and the onshore sections.
7. Waste Management Plan (WsMP)	Avoid solid and liquid discharges onto the soil or water and compliance with relevant legislation	The Plan establishes procedures for the storage, collection and disposal of non-hazardous waste, including liquid and solid waste for the onshore and offshore activities. Furthermore, it contributes to ensuring that the capacity and the nature of collection and treatment systems are in line with the waste to be managed. The Plan will provide a planning framework for (1) Compliance with Greek waste policy; (2) minimize the amount of waste that is generated; (3) maximize the amount of waste that is recycled or / and reused; (4) minimize the amount of waste that is deposited at licensed areas; (5) avoid dust impacts from handling of construction wastes; (6) ensure all wastes are properly contained, labelled and disposed of in accordance

Management Plan	Plan Scope	Short Description
		with local regulations; and (7) ensure waste is disposed of in accordance with the waste management hierarchy. Optimization of waste management is a continuous process, and this plan will be periodically reviewed all along project's lifetime. The plan will include provisions for the training of all workers on how to use the WsMP and will include procedures related to communication to stakeholders and community improvement opportunities. The WsMP will clearly distinguish between the construction, operation and decommissioning phases. It is noted that all vessels involved in the nearshore and construction phase will be compliant with MARPOL regulations: this means that all effluents discharged at sea will respect the international regulation for bilge water disposal, deck drainage, grey water, sewage (black water), ballast water. The following are highlighted: • Waste minimisation principles: The inventory of waste generated and disposed (type and volume) will be updated to identify the consumption of products, ensuring waste's traceability, and identifying potential wastage and overconsumption. Key Performance Indicators (KPIs) will be developed for reducing the quantities of waste generated, based on periodic review inventory. • Separation of solid waste according to established classification: Classification of Wastes will follow the European Waste Catalogue. Waste generated during construction is likely to be classified into four categories for disposal: inert (earth, building rubble, unused construction material, etc.), domestic, oily & hazardous and liquid. Container/ skips will be associated to waste types (cardboard, plastic, metal scrap, oily, hazardous if any, etc.), in order to permit the separation/segregation. Handling of wastes will be instructed through "procedures". Service companies will go through qualification process and will be audited during the service period.

Management Plan	Plan Scope	Short Description
		• Solid waste storage: A daily waste storage area comprising containers/skips will be at the construction fronts. At the end of the working day, wastes in skips will be transported to the construction sites and stored. During transport, waste skips will be covered and secured tightly so as to avoid accidental falls and spills (mostly avoid dust dispersion). Storage will be partly roofed. Waste skips for oil wastes or other hazardous wastes will be waterproof. Procedures for filling fuel tanks of machines and handling of hazardous wastes/materials will be established prior to start construction. • Waste reuse/ recycle opportunities: Wastes will be separated according to local regulations. Recycling materials will be regularly collected to be recycled by local companies certified by the relevant authorities. Excavated soil will be used to backfill the trenches as much as possible. Excess soil will likely be spread out and contoured along the route, according to relevant law (JMD 36259/1757/E103/2010). Bentonite used during trenchless crossings (HDD) will be recycled. • Waste transfer will be carried out by certified companies and vehicles will be fully equipped, depending on the type of waste transported. No exporting of waste is anticipated. • Final disposal of waste: Only companies certified by the relevant authorities will be used for waste disposal. The inert waste, which poses no risk of pollution, will be disposed of at a controlled disposal site. Domestic waste will be transported to a controlled municipal waste disposal site. Oily and hazardous wastes will be disposed by specialist Contractors at sites that are equipped and approved for such wastes. Domestic liquid waste will be collected by specific sewer on the construction sites, and evacuated to existing Wastewater treatment units by connecting to public sewer. If there is no public sewer available (or if the capacity is not enough), the sewer from the construction sites will be treated either through sedimentation ponds and evaporation including landfilling of dried sludge (off-site on

Management Plan	Plan Scope	Short Description
		certified landfill) or through cesspits which will periodically be emptied by certified companies. • Waste recording process: All waste will be registered after every phase of this management plan: separation/segregation, storage, transfer and reception to the disposal and will be uploaded to the Digital Waste Register. This plan is applicable to both the offshore and the onshore sections.
8. Hazardous Waste and Materials Management Plan (HWsMP)	Define how Project Owner and contractors will select, handle, store and dispose of hazardous waste, materials and chemical substances in order to prevent damage to people and the environment.	The Plan will include management and monitoring measures of the hazardous materials required for Project activities. The general management and monitoring measures to be included in the Plan will include the following: (1) materials selection will be subject to a risk assessment to define hazards, mitigate potential risks and select the one with the least damaging/persistent properties; (2) all materials will be tracked and inventoried through storage, use and final disposal; (3) materials will be stored in secure and appropriate areas, away from watercourses, as much as possible; (4) spill control procedures shall be established and the personnel will be properly trained; (5) absorbent and containment material will be available where hazardous materials are used and stored and personnel trained in their correct use; (6) materials will be stored and handled as per the requirements of international standards; (7) regular inspections to ensure that materials storage facilities continue to meet the criteria defined in the Hazardous Materials Management Procedure. Additionally, according to the Plan, all Project employees and Contractors are responsible for handling chemicals in an appropriate way. The following need to be highlighted. Principles described for the Waste Management Plan (non-hazardous) are applicable for the HWsMP, as well. Specifically, for hazardous substances: • In order to provide protection for the environment and human health, collection, transport and storage of hazardous waste will include action to ensure traceability from production area (mainly on construction site) to final disposal site. The transport of hazardous waste shall only be undertaken in vehicles that 1) are suitably equipped for the type and quantity

Management Plan	Plan Scope	Short Description
		of hazardous waste to be transported, 2) comply to Road Traffic Code and 3) have been previously registered for this purpose with the relevant authorities. • All employees and Contractors will be responsible for handling chemicals in an appropriate way. • Chemical selection will be subject to a risk assessment to define hazards, mitigate potential risks and select the one with the least damaging/persistent properties; • All personnel shall be trained, and personnel who are potentially exposed to hazardous chemicals must undergo a special chemical management training; • Chemicals will be stored in secure and proper areas. ➢ Waste skips for oil wastes or other hazardous wastes will be waterproof. ➢ Procedures for filling fuel tanks of machines and handling of hazardous wastes/materials will be established prior to start construction. ➢ Spill control procedures will be prepared and personnel appropriately trained; ➢ Chemicals will be stored and handled as per the requirements of international standards; ➢ Chemicals will be stored in bundled areas away from watercourses; • Material safety data sheets for chemicals will be available on site; • Protective clothing, appropriate to the materials in use, will be provided; and This plan is applicable to both the offshore and the onshore sections.
9. Traffic (Terrestrial and Marine) Management Plan (TMP)	Details of mitigation measures during construction to manage construction traffic generated by the Project, minimize traffic disruption and road user delay and provide for the on-going safety of road users, including pedestrians and cyclists.	Key management issues addressed by the Traffic Management Plan include access to construction areas (onshore and offshore), routing of construction traffic, prevention of road user delay, prevent interference with marine users, minimization of traffic accident probability and safety improvement for local users, prevention or reinstatement of roads degradation, and others. The Plan will manage the safety of construction personnel and local communities and will include the following minimum requirements: (1) levels of development related construction traffic that will use the road network; (2) site access arrangements to the working corridor and within the working corridor; (3) identification of key sensitivities along proposed

Management Plan	Plan Scope	Short Description
		access routes; (4) identification of key sensitivities along proposed access routes; (5) measures to minimize disruption during the construction of new or altered road infrastructure; (6) Project drivers training requirements with respect to road safety and environment; (7) Project schedule; (8) roles and responsibilities for implementation of the Plan; (9) speed limits and methods of enforcement; (10) vehicle maintenance; (11) inspection, auditing and reporting. It is specified that the Contractor shall regularly update their Plan as the construction method is developed and vehicle movement requirements are identified in detail. Lastly, it will include suggestions for operation phase of the project. This plan is applicable to both the offshore and the onshore sections.
10. Aggregates Management Plan (AMP)	To identify Project required quantities and potential sources of aggregates, as well as potential impacts of aggregate sourcing and to recommend appropriate measures to mitigate associated impacts.	In order to manage the certain amount of aggregate material required for the installation of the pipeline and the construction of the Metering and valve stations, an Aggregates Management Plan will be developed by the Project's contractors. The Plan will identify the actual quantity of aggregates needed and will comply with specific measures that will be used to mitigate any predicted impacts. The Plan shall include detailed procedures for the management and mitigation of the potential impacts of aggregate extraction, transportation and management, always in compliance with legislation and upon consultation with the competent authorities. Management of dredging material shall be also covered within this plan. It is clarified that at this phase, indicative areas for the temporary disposal of dredged material have been identified and will be defined in detail prior to construction by the EPC Contractor. This plan is applicable to the onshore and offshore section.
11. Cultural Heritage Management Plan (CHMP)	Avoid potential damages to cultural resources and manage potential new (chance) findings during construction activities	The Plan will include: (1) summary of applicable legislation related to cultural heritage; (2) known cultural heritage presenting all resources identified; (3) recommendations and management measures for the resources, (4) procedures for the identification of additional resources not initially identified or known (chance findings procedure) and (5) roles and responsibilities, including communication lines between the construction team and local and

Management Plan	Plan Scope	Short Description
		national conservation authorities. Especially, resources identified at a distance smaller than 50 m are subject to further study. It is highlighted that a Memorandum of Understanding (Memorandum of Collaboration) will be signed between the Owner of the Project and the Ministry of Culture, governing all relevant aspects for the protection of Cultural Heritage, onshore and offshore. This plan is applicable to both the offshore and the onshore sections.
12. Health and Safety Plan (and Health and Safety File) (HSP/HSF)	Provide a framework for Health and Safety Planning, Avoidance of Accidents, Incidents' Investigation and HS related Audits, in order to ensure Construction and Operational hazards to be As Low As Reasonable Possible (ALARP).	The Health and Safety Plan includes the measures to be taken in the project, as well as any other elements that need to be implemented at the site to improve working conditions and to avoid accidents at work and occupational diseases. The Health and Safety File is a record of instructions and useful information that should be taken into account during the operation phase of the project (maintenance, cleaning, conversion, etc.). These documents are governed by the relevant national legislation (PD 305/96, as applicable and in force). This plan is applicable to both the offshore and the onshore sections.
13. Landscape and Vegetation Restoration and Topsoil Management Plan (LMP)	Determination of methods of restoration of vegetation and / or landscape and topsoil erosion.	The plan will identify, after contacting the competent forest authorities, details (e.g. revegetation method, species, locations, care, etc.) for the reinstatement of the work area, reforestation of forests (pursuant to Law 4280/2014 as an offset to the permanent loss of trees within the protection zone of the pipeline (8 m), erosion control measures and any hydroseeding as a means of protection of the surface soil (topsoil) and restoration of the landscape. Especially for each Main Station (i.e. CS2/MS2-CS2/MS2 N, MS4/PRS4 & Heating Station, and CS3) an individual plan will be developed with the aim to provide, if needed, green shielding to mitigate impression from viewers from near fields and settlements. In addition, the color design of the structures will be considered in the plan. Vegetation to be used shall be from the surrounding (local) vegetation as much as possible.

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		Apart for the revegetation provisions, the LMP includes a sub-plan for Site Reinstatement Plan (SRP). This sub-plan deals with the general reinstatement of lands along the pipeline route to be undertaken following completion of construction. This governs initial site restoration (i.e. excluding vegetation works and maintenance, but covering only morphological reinstatement and site cleaning works). This plan is applicable to the onshore section.
14. Land Easement and Acquisition Strategy (LEAS) and Land Access Plan (LAP)	Deals with the management of temporary and permanent acquisition of easement rights for the pipeline and land for above ground installations and road access, for the onshore section, and sea bottom for the offshore section (in conjunction with the Livelihoods Restoration Framework).	Technical and legal procedures (i.e. provisions for issuing the Right of Way for an Independent Natural Gas System), follow a specific legal frame of Law 4001/11 articles 165 to 175, and its supplement Law 4277/14 art. 45, which will enable the Project Owner to proceed with easement. This includes the preparation of the Land Cadaster regarding the pipeline routing, and the relevant Cadastral drawings and tables. These are made in scale 1:1000, during the detail design of the project (there can be a pre-detail design phase, with the preparation of the cadastral, so that the necessary permit can be issued). For the pipeline linear works the width of the working zone is defined according to the pipe diameter and the type of area crossed (e.g. forest or non-forest, high productivity area). After the completion of the works this zone is restituted to the landowner, however some restrictions apply on the type of cultivations allowed, on the “safety zone” (8 m wide) and on building activities which are excluded on a 40 m wide zone. The Energy Law also describes the procedures for the compensation of owners for loss of crops and permanent loss (i.e. loss of trees). This plan is applicable to the onshore and offshore sections.
15. Livelihood Restoration Plan (LRP)	Company will develop a Livelihoods Restoration Plan (Framework) to address potential economic displacement (loss of assets or access to assets, leading to loss of income or means of livelihood) of	It establishes the entitlements of affected persons or communities and ensures that compensation is provided in a transparent, consistent, and equitable manner in line with the EBRD requirements. All potential displacement risks will be addressed in compliance with EBRD-PR 5 and its objective. Adverse social and economic impacts from land acquisition or restrictions on affected

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	stakeholders from Project land and easement acquisition.	persons' use of or access to land will be all mitigated. There are several key elements to this mitigation approach including: • Provide compensation for loss of assets at replacement cost; • Ensure that economic displacement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected; • Improve or, at a minimum, restore the livelihoods and standards of living of displaced persons to pre-project levels, so as to facilitate sustainable improvements to socioeconomic status; and • Pay particular attention to the needs of vulnerable groups. LRP shall include, among others: • Legal framework – Description of the legal framework and legal and customary procedures of private land/easement acquisitions. • Measures taken to minimize displacement – Description of measures taken to avoid and minimise physical and economic displacements. • Entitlement matrix, which identifies the type of impact from land and easement acquisition for each project activity and provides detailed guidance on how stakeholders should be compensated assuring that livelihoods and standards of living of all affected people are restored. • Livelihood Restoration Framework Disclosure – Outline procedures and timeline to disclose draft and final livelihood restoration plans. • LRF Monitoring – Outline of the monitoring, which will be conducted by Project Owner to ensure that complete and objective information are available for the participatory performance monitoring system
16. Policy for Human Rights and Impact Assessment (HRIA).	The Company will develop a Human Rights Policy, in compliance to international conventions, European and national	The following standards and initiatives will be followed: • The International Bill of Human Rights.

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	legislation about employment, labor rights and human rights. The operations of the Company will be in accordance to the United Nations Universal Declaration of Human Rights.	• The Ten Principles of the UN Global Compact and the UN Sustainability Development Goals for 2030. • The ILO's Declaration on Fundamental Principles and Rights at Work. • The Voluntary Principles on Security and Human Rights. • The Guiding Principles on Business and Human Rights. Through the development of the Policy for Human Rights, the Company will recognize its responsibility for protecting and upholding the human rights and it will declare its commitment for the protection of human rights, by applying best practices in all Project phases including: • Uphold and respect the Human Rights and Labour Rights. • Respect the rights of workforce, local communities and other stakeholders. • Support the elimination of all forms of child and/ or forced labour. • Support the elimination of all forms of discrimination against any individual and/or group • Not tolerate any disrespectful or inappropriate behaviour, harassment, or unfair treatment by its employees, suppliers, contractors and business partners. • Continually monitor and evaluate the human rights and labour conditions in its operations. The Company will establish relative procedures for the protection of human rights and labour rights, for its operations. The Policy for Human Rights will be publicly available and it will be posted in places where it can be read by everyone. The Policy will be written in Greek, Italian and English. This plan is applicable to both the offshore and the onshore sections.
17. Stakeholder Engagement Strategy (SES) and Plan (SEP)	This is already in place, seeking to define a technically and culturally appropriate approach to consultation and disclosure. The main goals are to ensure that adequate and timely information is provided to project-affected people and	The Stakeholder Engagement Plan is developed to build and maintain positive relationships between the Project and relevant stakeholders. The SEP establishes procedures for constructive engagement and continuous dialogue that are essential to good business practice and corporate citizenship, as well as Project risk management and performance improvement. Based on the SEP, stakeholder engagement is to be conducted in a manner that is: Proactive, Transparent, Two-way, Timely, Inclusive, Appropriate, Accessible, Relevant, Free and

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	other stakeholders, that these groups are given sufficient opportunity to voice their opinions and concerns and that these concerns influence project decisions. SEP is a living document, subject to revisions and updates, based on the results of stakeholder engagement activities throughout project's lifetime.	Accountable. These principles are to be adhered to during all engagements with stakeholders and are applicable for all project functions and its contractors. The purpose of stakeholder engagement is to allow stakeholders to interact with the decision making process, express their views and influence mitigation and technical solutions to concerns voiced during the process. Stakeholder engagement is an inclusive and culturally appropriate process which involves sharing information and knowledge, seeking to understand the concerns of others and building relationships based on collaboration. It allows stakeholders to understand the risks, impacts and opportunities of a project in order to achieve positive outcomes. The following items support the basic principles and skills for an effective Stakeholder Engagement Plan: • Systematic stakeholder identification and analysis, building from stakeholder analysis conducted as part of previous phases. • Development of appropriate information disclosure and stakeholder engagement schedule and activities • Prior to the consultations, stakeholders are provided with comprehensive, readily understandable information about the project, its schedule, outline of stakeholder consultation activities, potential environmental and social impacts and any existing proposals for mitigation measures. • A Grievance Mechanism has been established; • There will be a record keeping for all stakeholder engagement activities. It is highlighted that the SEP is a living document, subject to revisions and updates based on the continuous consultation and stakeholder engagement activities throughout project's lifecycle. This plan is applicable to the onshore and offshore sections.
18. Grievance Mechanism	This is already in place, as part of the Stakeholder Engagement Strategy and Plan. It provides a documented process to	The Grievance Mechanism is part of the broader process of stakeholder engagement and quality and compliance assurance. The Grievance Mechanism enables any stakeholder to make a complaint or a suggestion about the way the Project is being implemented.

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Management Plan (GMP)	deal with any suggestions or complaints of the population affected by the Project.	The grievance mechanism will address concerns promptly and effectively, using an understandable and transparent process that is culturally appropriate and readily accessible to all segments of the affected parties at no cost and without retribution. The mechanism will not impede access to judicial or administrative remedies. Through its stakeholder engagement, IGI Poseidon has been informing stakeholders about the Project's grievance process during each consultation phase. The Grievance Mechanism process can be summarized as follows: • Step 1 - Feedback received and analysed • Step 2 – Screening, which is comprised by: (i) identification of potential grievance, (ii) registration of the grievance and (iii) acknowledgement sent to stakeholder • Step 3 – Investigation and Resolution • Step 4 – Resolution dissemination. Communication of the suggested resolution to the stakeholder. If the resolution is accepted by the stakeholder, the grievance is closed. If no resolution is commonly accepted, external remedies may be pursued (e.g. legal action) • Step 5 – Resolution closure. Grievance registered is updated and re-assessed/ evaluated. This plan is applicable to the onshore and offshore sections.

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11.3 Roles and Responsibilities

The Environmental Management and Monitoring Plan will be developed by the Contractors (EPCIs) that will comply with its provisions and take responsibility for its continual development throughout all phases of the Project. However, the Project Owner has the ultimate responsibility for implementing the Environmental and Social Management and Monitoring Plan, which will include the following:

- On-going management of environmental issues as detailed design proceeds;
- Monitoring the Contractors' performance;
- Development of mechanisms for dealing with deviations from expected impacts;
- Acting as a point of contact for consultation and feedback with landowners, the public and interested parties; and
- General environmental and social compliance monitoring and reporting.

IGI Poseidon will ensure that the activities of its Contractors will be deployed in accordance with the relevant standards that will be outlined and with the applicable legislative requirements to be fulfilled, as well as any remarks of the lenders, based on the PRs and their standard practice. Contractors' performance in complying with the ESMMP will be monitored and audited. Compliance and non-compliance with the provisions of the ESMMP will be recorded. These records will be made available for inspection by representatives of the Owner and competent Authorities.

The awarded Contractors will be required to develop and comply with the provisions of IGI POSEIDON's overall project ESMMP and to take responsibility for its continual development throughout all phases of the Project.

Contractors will be responsible for:

- Developing and implementing all plans listed above;
- Ensuring compliance with all relevant legislation, environmental controls and mitigation measures contained in the overall project's ESMMP and any environmental, social and other standards required by the Project Owner;
- Developing a Health, Safety and Environmental Plan;
- Undertaking regular environmental inspections and reporting their findings directly to the Project Owner;
- Demonstrating how ESMMP requirements are ensured during all Project phases;
- Demonstrating their commitment to the ESMMP at all levels in the Contractors' management structure; and

- Preparing a Contractor's Environmental and Social Management Plan, indicating, among others, Contractor' s procedures in terms of:
  - Contractor's organization and person responsible for environmental issues;
  - Site Induction and Environmental Awareness of personnel working on site. This will include information on the work equipment, substances, personal protective equipment, personnel awareness of specific plans (such as waste management) and good site practices (such as cleaning, noise control, energy saving, labour rights, Code of Conduct – if any, etc.);
  - Environmental procedures;
  - Stakeholder Engagement Plan;
  - Audit and Reporting procedures

It is repeated that Project Owner has the ultimate responsibility for implementing the Environmental and Social Management and Monitoring Plan and ensure that the activities of its Contractors will be deployed in accordance with the relevant standards, requirements and legislation.

11.4 Environmental and Social Monitoring

The Environmental and Social Monitoring Program proposed for various Project phases (pre-construction, construction and operation phases) are illustrated below, in tabular format and is tentative. Additional details are presented in Chapter 10 and Section 11.1. The detailed Environmental and Social Monitoring program shall be developed before construction begin and upon elaboration of all topic specific management plans as previously described and incorporation of any additional requirements from the Environmental Terms Approval.

Table 11-4 Outline of Monitoring Program per Project phase.

Receptor	Monitoring Parameter	Timing
Construction phase		
Landscape characteristics	• Working strip widths • Periodic visual check of the observance of working strip width, during all the construction phase, and condition of areas affected by works.	• At the beginning of the construction activities
Soil characteristics	• Height of topsoil mounds • Volumes of topsoil handled	• Weekly
Natural Environment (Terrestrial biodiversity)	• Checking of pipeline trench for trapped animals	• Daily
Natural Environment (Marine biodiversity)	Based on the results of the BMP: • Monitor presence of sensitive fauna in deep waters (marine mammals, reptiles) • Monitor presence of sensitive fauna in shallow waters (marine mammals, birds, reptiles)	• During construction
Natural environment (terrestrial and marine biodiversity)	Based on the results of the BMP, recording of • Habitats • Flora species • Fauna species	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign per year after completion of construction, for three sequential years Timing might be updated based on the results of the BMP

Receptor	Monitoring Parameter	Timing
Avifauna	Based on the results of the BMP: • Presence of nests of species of conservation interest	• 1 monitoring campaign before starting the construction activities
Canis lupus	• Extent of homesites in Mt. Arakynthos	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign per year after completion of construction, for three sequential years
Caretta caretta	• Recording of nesting beaches in the area of LF3.	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign per year after completion of construction, for three sequential years
Monachus monachus	• Recording of species distribution in the area of LF2	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign per year after completion of construction, for three sequential years
Posidonia oceanica	• Recording the ecological status of the Posidonia oceanica along the pipeline, up to 40m depth.	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign per year after completion of construction, for three sequential years and afterwards, 1 monitoring campaign every five years.

Receptor	Monitoring Parameter	Timing
Fishfauna	Based on the results of the BMP: • Recording of population dynamics	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign per year after completion of construction, for three sequential years
Cultural Heritage	• Monitor the implementation of a Cultural Heritage Management Plan (CHMP) • Number of audits to ensure satisfactory implementation of mitigation measures • Monitor of the Implementation of all additional measures, such as fencing and marking of archaeological areas • Cultural heritage-related grievances and cultural heritage issues raised through community consultation addressed • Number of chance (previously unknown and/ or unidentified) findings.	• Before construction • Weekly • Monthly • Monthly • Monthly
Community Health and Safety	• Total recordable incidents and H&S indicators • H&S Performance assessment of Contractors • Records verifying the conditions of PPE • Training records • Number of accidents	• Weekly H&S audits • Monthly
Economy and employment	• Funds spent on local investments • Percentage of contractors trained on Owner's policies (e.g. Code of Conduct) • Quantity and type of forest products given to local community • Percentage of labour from local community • Percentage of land owners affected with signed compensation agreements • Number of grievances responded to and addressed	• Monthly

Receptor	Monitoring Parameter	Timing
Technical Infrastructure (Third parties lines)	• Number of affected entities. • Hours of utility service interruptions (sewage, electricity, irrigation). • Number of grievances responded to and addressed	• Monthly
Technical Infrastructure (road network)	• Number of days and kilometres of roads affected by the project (closed due to project's activities); • Records showing application of mitigation measures (communications, records of road damage and repair, training registers); • Number of grievances responded to and addressed; • Number of accidents and other events.	• Monthly
Technical Infrastructure (Railway lines)	• Hours of service interruptions	• Monthly
Technical Infrastructure (Environmental Infrastructure Systems)	• Percentage of waste ending at environmental infrastructure systems	• Monthly
Air Quality	• Monitor aerial pollutant concentration • Monitor dust concentration	• Once per season
Noise (onshore)	• Day and night time noise levels	• 1 monitoring campaign during pre-commissioning phase
Noise (coastal)	• Monitor noise during construction and pipe drying	• 1 monitoring campaign during pre-commissioning phase
Surface water and groundwater	• Water volumes that shall be used for hydrotesting and the relevant river flow percentage (from which water abstraction shall take place) • Water quality at crossings	• Before crossing • During crossing • One week after crossing

Receptor	Monitoring Parameter	Timing
	• Monitoring of hydrotest water quality (abstraction and discharge) according to the parameters investigated at baseline study	• Before abstraction and before discharge)
	• Number of erosive events (recorded and corrected) that are related to Project construction	• Continuous
Oceanographic characteristics	• Monitoring of marine water physicochemical characteristics in coastal waters, during shore crossing construction activities. • Monitoring sediments quality during shore crossing construction activities	• 1 monitoring campaign before starting the construction activities and 1 after completion • Once before and once after dredging and backfilling works
	• Recording of physicochemical parameters of water column in coastal waters • Recording of physicochemical parameters of sediments (nearshore)	• 1 monitoring campaign before starting the construction activities • 1 monitoring campaign within six months after completion of construction
Operation phase		
Landscape	• Monitoring of vegetation development	• For the first three years, once in Spring/ Once in Autumn • From then on and especially for the 8m pipeline protection zone, every six months, during a patrolling of the onshore section at forested areas
Morphology	• Seabed morphology monitoring along the offshore pipeline route	• Once every 5 years

Receptor	Monitoring Parameter	Timing
Soil Characteristics	• Monitoring of soil quality at compressor stations	• 1 Monitoring campaign upon completion of the construction activities
Natural environment (terrestrial)	• Survival rate of any transplantations • Monitoring of newly created habitats or habitats enhancement efforts • Wolf presence in Mt. Arakynthos	• Bi-quarterly, for the first 5 years, and once every 5 years, from then on
Natural environment (marine)	• Recording the ecological status of *Posidonia oceanica*	• 1 monitoring campaign per year after completion of construction, for three sequential years and afterwards, 1 monitoring campaign every five years.
	• Mapping of biocoenosis in the dredging area and adjacent areas; • Video and photographic survey along the dredging area. • Sampling of soft/hard seabeds and calculation of the PREI index on Posidonia. • Determination of species presence, abundance, dimensions, sex and sexual maturity. • Fishfauna dynamics in coastal waters and selected locations in deep waters (with the use of ROV)	• Once after construction, and after 1 and 3 years since the end of construction phase • From then on, during patrolling of the offshore section (with the use of ROV every 5 years)
Economy, Employment & Income	• Funds spent on investment • Percentage of labour from local community • Number of grievances responded to and addressed	• Annually
Technical Infrastructure (Environmental Infrastructure Systems)	• Quantity and type of waste	• Annually

Receptor	Monitoring Parameter	Timing
Correlation with anthropogenic pressures in the environment – Agricultural crops	• Recording of total amount of compensation given to stakeholders • Number of grievances responded to and addressed	• Annually
Air Quality	• Periodic monitoring of point source emissions (from stacks) during operation (Temperature, exit velocity, CO_2, CO, NOx, SO_2)	• 2 monitoring campaigns/year
Noise environment and vibrations	• Monitoring, day and night time, noise levels at Compressor Stations limits	• Once in Winter/ Once in Summer
Water	• Groundwater Bodies (GWB) quality at compressor stations • Recording of non-routine events and reporting of how they were managed	• 1 Monitoring campaign upon completion of the construction activities • Periodic measurements as per authorities request
Oceanographic characteristics	• Bathymetry and Seabed Morphology, along the entire offshore and coastal route, focusing in the areas of performed seabed intervention works. • Monitoring physicochemical characteristics of water column in coastal waters. • Monitoring physicochemical characteristics of sediments in coastal waters	• Once every 5 years • Once after 1 and once after 3 years from the end of construction activities. From then on, once every 5 years
Community Health and Safety	• Total recordable incidents and H&S indicators • H&S Performance assessment of Contractors • Records verifying the conditions of PPE • Training records • Number of accidents	• Annually. After any relevant incident.

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